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Model, instrument and results

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The originality of this thesis has been checked in accordance with the University of Turku quality assurance system using the Turnitin OriginalityCheck service.

ISBN 978-951-29-8267-7 (PRINT)
ISBN 978-951-29-8268-4 (PDF)
ISSN 0355-9483 (Print)
ISSN 2343-3213 (Online)
Painosalama Oy, Finland 2020

To Janne, Topi, Äiti
and
All my close ones

UNIVERSITY OF TURKU
Faculty of Medicine, Department of Nursing Science
Nursing Science
TERHI LEMETTI: Nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care – Model, instrument and results
Doctoral Dissertation, 228 pp.
Doctoral Programme in Nursing Science
November 2020

ABSTRACT

The purpose of this three-phase study was to develop and preliminary test a hypothetical model of the nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care and to develop an instrument for the measurement of this collaboration. The ultimate goal was to provide a framework for collaboration in future development to ensure safe and high-quality continuity of care between organisations for older people.

Phase I, a descriptive design with a literature review (n=22) and interviews with hospital and primary health care nurses (n=28) and older people (n=18) cared for in both organizations was conducted to develop a hypothetical model to define nurse-to-nurse collaboration between hospital and primary health care. In phase II, a descriptive and explorative study design with expert panels (n=10, n=11) and a pilot survey (N=255, n=103, response rate 40.4%) were used to develop and test an instrument, based on the developed model. Finally, in phase III, a descriptive and cross-sectional study design with survey study (N=1435, n=443, response rate 30.9%) was used to assess the level of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care in Finland and to evaluate the theoretical structure of developed model and the psychometric properties of the developed instrument. The data analysis methods used in this study were content analysis, dimensional analysis, descriptive and inferential statistics.

In this study, the hypothetical model and instrument were developed with four dimensions: Context and Situation, Conditions, Processes and Interactions, and Consequences. The developed model demonstrated a partly favourable structure and the developed instrument demonstrated preliminary and acceptable psychometric properties. The results indicated that there is nurse-to-nurse collaboration and it is important; the collaboration includes respect and confidential interaction from the perspective of hospital and primary health care nurses. In the further development, the commonly agreed practices, objectives and responsibilities, and nurses' roles will need to be defined more clearly in this collaboration. In addition, there is a need for structures and support from organisations and society to develop collaboration.

KEYWORDS: healthcare service research, hospital, nurse-to-nurse collaboration, older people, older person, primary health care

TURUN YLIOPISTO
Lääketieteellinen tiedekunta, Hoitotieteen laitos
Hoitotiede
TERHI LEMETTI: Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa – Malli, mittari ja tulokset
Väitöskirja, 228 s.
Hoitotieteen tohtoriohjelma
Marraskuu 2020

TIIVISTELMÄ

Tämän kolmivaiheisen tutkimuksen tarkoituksena oli kehittää ja alustavasti testata hypoteettinen malli erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien väliseen yhteistyöhön ikääntyvän potilaan hoidossa sekä kehittää mittari tämän yhteistyön toteutumisen mittaamiseen. Tavoitteena oli tuottaa viitekehys yhteistyölle sen tulevaa kehittämistä varten varmistamaan ikääntyvän potilaan hoidon jatkuvuutta turvallisesti ja laadukkaasti organisaatioiden välillä.

Ensimmäisessä vaiheessa tutkimus toteutettiin kuvailevalla tutkimusasetelmalla, jossa kehitettiin hypoteettinen malli sairaanhoitajien yhteistyöhön erikoissairaanhoidon ja perusterveydenhuollon välillä kirjallisuuskatsauksen (n=22), erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien (n=28) sekä molemmissa organisaatioissa hoitoa saavien ikääntyvien potilaiden (n=18) haastattelujen avulla. Toisessa vaiheessa kuvailevalla ja eksploratiivisella tutkimusasetelmalla asiantuntijapaneelien (n=10, n=11) ja pilottikyselytutkimuksen (N=255, n=103, vastausprosentti 40.4 %) avulla kehitettiin ja testattiin malliin pohjautuva mittari. Kolmannessa vaiheessa kuvailevalla poikkileikkaustutkimusasetelmalla ja kyselytutkimuksen (N=1435, n=443, vastausprosentti 30.9 %) avulla mitattiin erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisen yhteistyön toteutumista Suomessa ikääntyvän potilaan hoidossa sekä arvioitiin mallin teoreettista rakennetta ja mittarin luotettavuutta. Aineisto analysoitiin sisällönanalyysilla, dimensioanalyysillä ja tilastoanalyyseillä.

Tässä tutkimuksessa kehitettiin hypoteettinen malli ja mittari, jotka sisältävät neljä dimensiota: Konteksti ja Tilanne, Olosuhteet, Prosessit ja Vuorovaikutukset sekä Seuraukset. Malli osoitti osittain toimivaa rakennetta ja mittari osoitti alustavaa sekä hyväksyttävää luotettavuutta. Tulokset osoittivat, että erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien näkökulmasta heidän välillä on tärkeää yhteistyötä, joka sisältää kunnioittavaa ja luottamuksellista vuorovaikutusta. Yhteisesti sovitut toimintatavat, tavoitteet ja vastuut sekä sairaanhoitajien roolit tulee kuitenkin määritellä selkeämmin yhteistyötä kehittäessä. Yhteistyön toteutuminen vaatii rakenteita ja tukea organisaatioilta sekä yhteiskunnalta.

AVAINSANAT: erikoissairaanhoito, ikääntyvä ihminen, perusterveydenhuolto, sairaanhoitajien välinen yhteistyö, terveyspalvelujärjestelmätutkimus

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Abbreviations

α	Cronbach's alpha
ACO	Accountable Care Organization
AGFI	Adjusted Goodness-of-Fit Index
ANOVA	Analysis of Variance
APN	Advanced Practice Nurse
CDNC	Chronic Disease Nurse Consultant
CFA	Confirmatory Factor Analysis
CINAHL	Cumulative Index to Nursing & Allied Health Literature
EFA	Explanatory Factor Analysis
EU	European Union
FMAQ	The Flight Management Attitudes Questionnaire
GFI	Goodness-of-Fit Index
HOMD	HealthOne Mount Druitt
ICN	International Council of Nurses
I-CVI	Item-level Content Validity Index
INTERACT	Interventions to Reduce Acute Care Transfers
IR	Interrater Agreement
HNL	Hospital Nurse Liaison
KMO	Kaiser-Meyer-Olkin criterion
LTNC	Long-term Neurological Conditions
Md	Median
n	Sample size
NMBI	The Nursing and Midwifery Board of Ireland
NN-CoBS	Nurse-to-Nurse Collaboration Between Sectors Instrument
NNS	Neurological Nurse Specialist
NNC Scale	Nurse-Nurse Collaboration Scale
NNC-Model	Hypothetical Model of Nurse-to-Nurse Collaboration between hospital and primary health care on older people's nursing care
NP	Nurse Practitioner
NP-Geri	Nurse Practitioner in Geriatrics
OECD	The Organization for Economic Co-operation and Development

p	Significance
PCC Scale	Patient-centred Care Competency Scale
PUBMED	National Centre for Biotechnology Information's Entrez retrieval system
RMSEA	Root Mean Square Error of Approximation
SAS	Statistical Analysis System
S-CVI	Scale-level Content Validity Index
SAQ	The Safety Attitudes Questionnaire
SD	Standard Deviation
SRMR	Standardized Root Mean Square Residual
SPSS	Statistical Package for the Social Science
TENK	Finnish National Board on Research Integrity (Tutkimuseettinen neuvottelukunta)
TCM	Transitional Care Model
WHO	World Health Organization
WMA	World Medical Association Declaration of Helsinki

List of Original Publications

This dissertation is based on the following original publications, which are referred to in the text by their Roman numerals:

I Lemetti T, Stolt M, Rickard N & Suhonen R. Collaboration between hospital and primary health care nurses in adult care: a literature review. *International Nursing review,* 2015; Jun;62(2):248–66. doi: 10.1111/inr.12147. Epub 2015 Jan 16.

II Lemetti T, Voutilainen P, Stolt M, Eloranta S & Suhonen R. An enquiry into nurse-to-nurse collaboration within the older people chain of care as part of the integrated care: a qualitative study. *International Journal of Integrated Care*, 2017; Mar 31;17(1):5. doi: 10.5334/ijic.2418.

III Lemetti T, Voutilainen P, Stolt M, Eloranta S & Suhonen R. Older patients' experiences of nurse-to-nurse collaboration between hospital and primary health care nurses in the care chain for older people. *Scandinavian Journal of Caring Science*, 2019; Sep;33(3):600–608. doi: 10.1111/scs.12653. Epub 2019 Jan 10.

IV Lemetti T, Puukka P, Stolt M & Suhonen R. Nurse-to-nurse collaboration between nurses caring for older people in hospital and primary health care: A cross-sectional study. (submitted)

1 Introduction

This study focuses on nurse-to-nurse collaboration between nurses caring for older people in hospital and primary health care. Collaboration has been described as being an efficient, effective and satisfying way to provide healthcare to people (Morley & Cashell 2017). Collaborative practice can promote quality of care, patient engagement and patient safety, and it can benefit healthcare organisations and healthcare professionals working in different organisations (Morley & Cashell 2017). With successful collaboration, the care of older patients can be more adjusted to their health needs (Steihaug *et al.* 2016). In the transfer of care between organisations, nurses play a central role in advocating the needs of older patients (Jeffs *et al.* 2018) and a source of information in the collaboration process that is needed for successful patient outcomes (Apker *et al.* 2006, Johannessen & Steihaug 2014, Jeffs *et al.* 2018). Nurses have skills in nursing assessment and communication and can therefore collect accurate information about the patient health status, needs and concerns (Moore & Prentice 2012, Jeffs *et al.* 2018) in order to plan, organise and provide patient care in collaboration (Moore & Prentice 2015). From the hospital and primary health care nurses' perspective, there is a need to increase collaboration between nurses caring for older people in hospital and primary health care (Kirsebom *et al.* 2013).

In Finland in 2018, there were over one million people over age of 65 which was about 21.8% of the entire Finnish population (Statistics Finland 2019). From those older people, healthcare services are regularly used by approximately 150,000 older people (Ministry of Social Affairs and Health 2016). In Europe in 2018, 19% of the European Union (EU) population was aged over 65 and the number of people aged over 80 will probably be more than double by the year 2100 and will therefore constitute 14.6% of the entire EU population (Eurostat 2019). The number of older people in the oldest age groups is demonstrating the greatest increase in Finland and more broadly in Europe (Ministry of Social Affairs and Health 2016, European Commission 2018). Older people increasingly live with more complex health needs with chronic conditions such as heart, cancer, diabetes and Alzheimer's disease (WHO 2011, WHO 2017, WHO 2019a), this has notably increased the complexity of care in nursing (Roy 2018). At the same time, outpatient care has increased and

the number of inpatients in hospital wards has decreased (National Institute for Health and Welfare 2019a). In primary health care, home care visits comprise the second largest group in outpatient visits (National Institute for Health and Welfare 2019b) and in the health centre inpatient units the patients were on average 77 years old (National Institute for Health and Welfare 2017). Older people have described the care transition between hospital and primary health care services as a complex experience (Rustad *et al.* 2016). When older people use these services, they expect continuity and predictability in their care and collaboration between the healthcare services (Steihaug *et al.* 2016).

In Finland and globally, the healthcare service system is a fragmented and complex system which can be confusing for the service users (Finnish Government 2019a, WHO 2019b). This means in Finland that multiple healthcare professionals provide services at different levels and in different organisations (Finnish Government 2019a). In the future, the Finnish Government is aiming to secure at continuity of care for all patients (Finnish Government 2019a). Safe transfer, continuity of care (The Joint Commission 2013) and the optimal health services (WHO 2010) for patients requires collaboration and collaborative practices between healthcare professionals and organisations (The Joint Commission 2013, WHO 2010). These practices are shaped by elements of the institutional support, working culture and environment (WHO 2010). The Health Care Act (30.12.2010/1326) and Act on Supporting the Functional Capacity of the Older Population and on Social and Health Care Services for Older Persons (28.12.2012/980) obligate Finnish hospital and primary health care work together with the professionals working in these organisations to deliver person-centred, seamless and collaborative care for older people. In addition, there are international and national recommendations that have highlighted the fact that collaboration between professionals in health and social care for the older people is needed to ensure the ability of older people to remain at home with optimal health and functional capacity (Ministry of Social Affairs and Health 2017, WHO 2018). In Finland, a need has been recognised to reinforce cross sectoral collaboration between different organisations and healthcare professionals (Ministry of Social Affairs and Health 2016, Ministry of Social Affairs and Health 2019a). In response to these requirements for more integrated and collaborative care at new reform of the social and health care within the regional government structure is being planned (Finnish Government 2019b). One of the aims of this reform is an integrated, effective, efficient and timely health and social services at all levels for everyone in Finland (Finnish Government 2019b).

Nurses provide autonomous and collaborative care for individuals of all ages (ICN 2002). The international and national ethical codes guide nurses to sustain good collaborative and respectful relationships with nurse colleagues and other professional in different fields (Finnish Nurses Association 1996, ICN 2012,

Stievano & Tschudin 2019). Collaboration is considered to be one of six core competencies in the education of nurses and encompasses knowledge, skills and attitudes to collaboration (Cronenwett *et al.* 2007). In addition, collaboration is considered to be a critical competence in patient care in order to facilitate adequate care provision for the patient and successful care transition with follow-up after discharge (Vatnøy *et al.* 2019). In nursing, positive improvements in collaboration result in the safety of patient care, patient's satisfaction (Emich 2018), and in job satisfaction for nurses (Emich 2018, Ylitörmänen *et al.* 2019a). In addition, collaboration can decrease error rates, patient mortality, patient length of stay, and healthcare professional's turnover rates (Emich 2018). However, several studies implied that there was a lack of research concerning collaboration between healthcare organisations (Karam *et al.* 2018), a lack of collaboration between healthcare professionals, including nurses (Kirsebom *et al.* 2013, Steihaug *et al.* 2016) and a lack of instruments to measure collaboration between nurses (Dougherty & Larson 2005, Dougherty & Larson 2010). A various range of instruments have been used to measure levels of collaboration or readiness to engage in collaboration (Emich 2018). Usually, these instruments were questionnaires (Morley & Cashell 2017) and the objectives of the measurements were to explore relationships, beliefs, attitudes (Walters *et al.* 2016), behaviour or perceptions related to collaboration (Walters *et al.* 2016, Morley & Cashell 2017). However, the instruments developed to solely measure collaboration often focus on interprofessional collaboration (Walters *et al.* 2016, Peltonen *et al.* 2019) such as nurse-physician collaboration (Dougherty & Larson 2005, Morley & Cashell 2017) or other specific professions or different kinds of healthcare teams or work area collaboration (Morley & Cashell 2017).

Despite all the literature about collaboration between healthcare professionals, the scientific evidence of collaboration between nurses working in hospitals and primary health care is rare (Paper I). There is a report of increased demands for the number of nurses in various collaboration and coordination roles in the transfer of services from hospitals to primary health care with skilled nursing facilities (Pittman & Forrest 2015). This inter-organisational collaboration brings environmental factors such as external networks, political matters, demographics, and social and economic factors into the process of collaboration and requires formalisation (e.g. policies and procedures), role clarification and a coordinator for the integration (Karam *et al.* 2018). Nurses have stated that there were difficulties in the communication between healthcare professionals in the transfer of patient care from hospital to home (Marques Acosta *et al.* 2018). Nurses had different opinions about the tasks that different units should provide and when the patients were ready to be discharged from the hospital to home (Hellesϕ & Fagermoen 2010, Steihaug *et al.* 2016). Nursing training has been reported as being inadequate to ensure the skills

and knowledge and autonomy to collaborate with other nurses in other organisations (Marques Acosta *et al.* 2018).

In this three phase-study, the overall goal was to provide a framework for collaboration in future development to ensure safe and high-quality continuity of care between organisations for older people (Figure 1). To fill in the research gap regarding collaboration between nurses working in hospitals and primary health care, a clear and comprehensive model to define and measurement regarding nurse-to-nurse collaboration are needed. Therefore, the purpose of this study was to develop a preliminary tested model to describe this collaboration and instrument for measuring this collaboration. In the first phase, the purpose was to develop a hypothetical model to define nurse-to-nurse collaboration between hospital and primary health care on older peoples' nursing care using existing empirical literature and interviews with nurses working in the hospitals, and primary health care and older patients that are cared for by both of these organisations. In the second phase, the purpose was to develop an instrument for the measurement of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care and to test the developed instrument. In the third phase, the purpose was to preliminary test the model and the instrument. This study is part of the research area in nursing science that explores the high-quality healthcare system and services for older people.

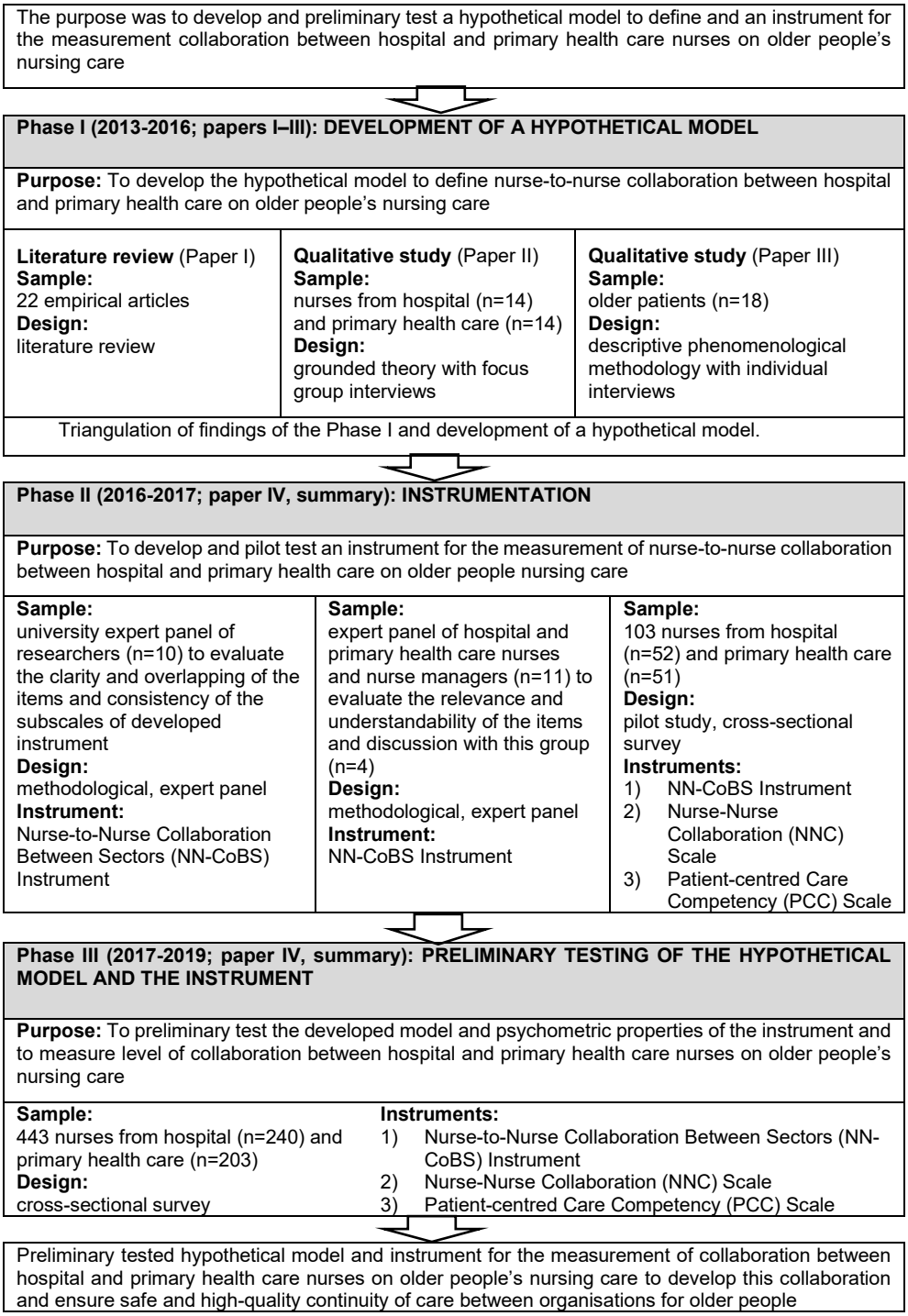

Figure 1. Study phases.

2 Review of the Literature

This literature review consists of two parts. Firstly, the main concepts used in this study will be described. Secondly, empirical studies of the collaboration between nurses working in hospitals and primary health care are described. The literature review aims to identify the main concepts related to this study and find the elements for the concept of collaboration, the models to define collaboration, instruments to measure collaboration and level of collaboration between nurses working in hospitals and primary health care on older people's nursing care.

2.1 Definition of the concepts used in this study

In this section, the main concepts used in this study will be defined with relevant background information. These concepts are "collaboration", "hospital", "primary health care" and "older people's nursing care".

2.1.1 Collaboration

The term collaboration is derived from Latin word collabõrãre (Oxford English Dictionary 2019) which means "to labour together" (Henneman *et al.* 1995). Collaboration is defined as an intent of two or more individuals to interact and work together actively with expertise to achieve mutual objectives (Orem 1985, Henneman *et al.* 1995, D'Amour *et al.* 2005, Petri 2010, Morley & Cashell 2017, Emich 2018). It includes ongoing partnership, shared planning, and social and task inputs (Morley & Cashell 2017). The dynamic process of collaboration includes communication, negotiation, conflict management, trust, respect, equality and both valuing and understanding each other (Henneman *et al.* 1995, D'Amour *et al.* 2005, Morley & Cashell 2017). Collaboration can be described by the four elements: 1) coordination, 2) cooperation, 3) shared decision making, and 4) partnership (Morley & Cashell 2017). Collaboration can be enhanced with opportunity (time, space, tools, procedures), ability (collaborative and patient-centred skills, shared language) and the willingness (safety, collegiality, role valuing) of participants to work together in a collaborative way (San Martín-Rodríguez *et al.* 2005, Morley & Cashell 2017). There were two key competencies needed for collaboration: 1) understanding the

role boundaries and expectations of the collaborating partner, and 2) the ability to engage in effective formal and informal communication (Henneman *et al.* 1995, Morley & Cashell 2017).

Collaboration is a voluntary (San Martín-Rodríguez *et al.* 2005) and complex process which can be examined from different perspectives (Henneman *et al.* 1995, D'Amour *et al.* 2008, Petri 2010, Morley & Cashell 2017, Emich 2018). Firstly, it can be examined through an analysis of concept analysis which defines attributes, antecedents and consequences of the concept collaboration from different views (Henneman *et al.* 1995, Petri 2010, Emich 2018). Secondly, it can be examined through determinants and barriers to collaboration which can be considered from the following views: systemic (social, cultural, educational, professional), organisational (structural, organisation's philosophy, administrative support, coordination and communication mechanisms) and interactional (willingness to collaborate, trust, communication, mutual respect) (San Martín-Rodríguez *et al.* 2005, Morley & Cashell 2017). Thirdly, it can be examined with a three-level typology which divides collaboration into active, developing and potential levels of collaboration (D'Amour *et al.* 2008). These levels can be defined with the indicators of objectives, client-centred orientation, mutual contact, trust, centrality, leadership, support for innovation, connectivity, tools and information exchange (D'Amour *et al.* 2008). Fourthly, collaboration can be examined between different participants collaborating in different settings, for example nurse-nurse (e.g. Durmuş *et al.* 2018, Ylitörmänen *et al.* 2019b, Moore *et al.* 2019), nurse-physician (e.g. House & Havens 2017, Caricati *et al.* 2016) or nurse-patient/consumer collaboration (e.g. Reid *et al.* 2018) or interorganisational collaboration (e.g. Karam *et al.* 2018). Fifthly, it can be examined through the competence of the collaboration from the view of knowledge, skills and attitudes (Cronenwett *et al.* 2007). The final perspective is the potential benefits of collaboration for different groups such as individual's (e.g. professionals, patients or service users), teams or organisation (Henneman *et al.* 1995, Morley & Cashell 2017).

In healthcare, collaboration can lead to improved patient health outcomes (Henneman *et al.* 1995, Morley & Cashell 2017), transfer of knowledge, sharing information, evidence-based practice (Morley & Cashell 2017) and promote decision making and responsive practices (Henneman *et al.* 1995, Morley & Cashell 2017). It can also improve patient safety, patient education and patient engagement in their care (Morley & Cashell 2017). Positive effects of collaboration have been reported in the satisfaction of healthcare professionals' and the retention of staff when professionals engage in a collaborative culture of quality and safety (Henneman *et al.* 1995, Morley & Cashell 2017). Collaborating professionals demonstrate honest (D'Amour *et al.* 2005) and open communication, role understanding and respect for other professionals without hierarchical power structures (Henneman *et al.* 1995,

D'Amour *et al.* 2005, Morley & Cashell 2017, Emich 2018). However, sometimes the collaborating partners may have different interest, objectives, expectations, experiences and ways to work (Morley & Cashell 2017). Healthcare leaders are those who manage these diverse points of view (Morley & Cashell 2017), promote shared visions and commitment to mutual objectives, and foster creativity and autonomy in collaborative practices (Henneman *et al.* 1995).

In the nursing profession, nurses need to learn to work in collaboration with patients and their families, other healthcare professionals and other nurses to achieve common goals and to communicate with information that is necessary for the nursing care (Orem 1985). It is important for nurses to understand when to start and stop collaboration (Emich 2018). The primary purpose for collaboration was usually planning, organising and providing patient care but also for professional and educational development (Moore & Prentice 2015). In collaboration, nurses used face-to-face conversations, emails (Moore & Prentice 2015), formal documents, telephone calls, and visits in the units to inform and to learn from the other nurses (Hellesϕ & Fagermoen 2010, Moore & Prentice 2015). Social interaction in collaboration was built by becoming acquainted someone personally using formal and informal opportunities (Moore *et al.* 2015).

Collaboration can be facilitated by nursing knowledge and experience which lead to the development of professional credibility, trust and mutual respect between nurses (Moore & Prentice 2012, Moore & Prentice 2015). Other facilitators found from the literature were effective communication and decision making skills, listening skills, shared mutual interests, objectives and values (Moore & Prentice 2015, Emich 2018, Moore *et al.* 2019), respectful attitudes to other nurse's opinions and roles, having a sense of humour and a positive attitude, participation in collaboration and demonstrating a willingness to collaborate (Moore & Prentice 2015, Emich 2018). Barriers to collaboration were lack of leader's support, lack of understanding roles and skills of other nurses (Moore & Prentice 2015, Emich 2018), negative attitude, being resistant to change, lack of open and honest communication, and having different objectives and values related to work (Moore & Prentice 2015). Nurses needed support from the organisational structures and leaders to provide opportunity to participate in collaboration (Emich 2018), maintain collaborative relationships between nurses (Moore & Prentice 2012, Moore & Prentice 2015) and the resources, time and education to develop collaborative practices (Moore & Prentice 2012, Moore & Prentice 2015, Emich 2018).

2.1.2 Hospital

In this study, the term hospital has been used to describe patient care in different specialties in nursing or medical care provided in hospitals. In Finland, specialised

medical care services are provided at the hospitals (Ministry of Social Affairs and Health 2019a). The majority of these university and central hospitals are public and owned by municipalities or joint municipal authorities (Ministry of Social Affairs and Health 2019a). In hospitals, specialised medical and oral care includes preventing, diagnosing and treating illnesses, emergency medical care and medical rehabilitation (Health Care Act 1326/2010). In addition, the World Health Organisation defines these setting as a hospital (WHO 2008) and the previous studies from the phenomenon of collaboration between hospitals and primary health care used the term hospital as a term for these specialized settings (e.g. Naylor *et al.* 2004, Hellesϕ & Fagermoen 2010, Kirsebom *et al.* 2013, Mora *et al.* 2017). From the concept of hospital, the terms specialized care (National Institute for Health and Welfare 2019a), specialised medical care (Health Care Act 1326/2010) or secondary care (Ministry of Social Affairs and Health 2019b) can also be used.

In 2018, in Finland, there were 8.2 million outpatient visits to hospitals and 2 million patients were cared for in the outpatient units. In the inpatient units in the same year, 464 000 patients were cared for with 723 000 care periods. (National Institute for Health and Welfare 2019a.)

2.1.3 Primary health care

Primary health care has been defined as the care and public health services provided by local authorities in municipalities in Finland (Health Care Act 1326/2010, National Institute for Health and Welfare 2019b, Ministry of Social Affairs and Health 2019c). It includes health promotion, and any related provision of health counselling, health checks, medical rehabilitation, emergency medical care, outpatient care, home nursing, at-home hospital or inpatient care, mental health services, substance abuse services and environmental, oral and occupational healthcare (Health Care Act 1326/2010, Ministry of Social Affairs and Health 2019c). Another term used for primary health care is public health services (Health Care Act 1326/2010). In primary health care, there are city hospitals and healthcare centre in-patient wards that may be called hospitals (Ministry of Social Affairs and Health 2019a). However, in this study these are referred to as a primary health care.

In 2018, in Finland, there were 25.1 million visits to healthcare centres in primary health care. From these visits 6.4 million (26%) were to physicians and 18.7 million (74%) to other healthcare professionals. The healthcare centres cared for 3.8 million patients which was 69% of the Finnish population. (National Institute for Health and Welfare 2019b.)

2.1.4 Older people nursing care

Older people nursing care is evidence based and person-centred practice with respect to privacy, dignity and integrity of the older people and their families (NMBI 2009). Most developed countries define a person at the age of 65 years as an older person (OECD 2019, WHO 2019c). In Finland, the older people are defined as a population who have reached the eligible age to be entitled to old-age pension (Act on Supporting the Functional Capacity of the Older Population and on Social and Health Care Services for Older Persons 28.12.2012/980, Ministry of Social Affairs and Health 2017). This age is also usually 65 years (Finnish Centre for Pensions 2019).

From the biological perspective, when people are ageing the wide variety of molecular and cellular damage will occur over time (WHO 2018). Therefore, an older person is generally defined as a person whose physical, cognitive, mental or social functional capacity is impaired so that their capacity has begun to decreased because of high age or due to degeneration related to high age (Act on Sup-porting the Functional Capacity of the Older Population and on Social and Health Care Services for Older Persons 28.12.2012/980). However, these health-related changes are only partly associated with a person's age in years (WHO 2018).

The units that care for older people are defined as units that maintain the functional entity services either by public or private service providers and where health and social services are provided for older persons (Act on Supporting the Functional Capacity of the Older Population and on Social and Health Care Services for Older Persons 28.12.2012/980). The Finnish Ministry of Social Affairs and Health (2017) has published a Quality Recommendation for health and social care services to older people. This Quality Recommendation advises healthcare professionals, including nurses, to provide care that supports the optimal health and functional capacity of older people (Ministry of Social Affairs and Health 2017). Good quality long-term care for older people has been defined as maintaining or improving the functional and health outcomes of the chronically ill older person (European Commission 2013a). In these services, nurses should provide care relationships that are based on trust, understanding, compassion and support to empower the older person to make informed choices (NMBI 2009).

2.2 Empirical studies of collaboration between nurses working in hospitals and primary health care

In this section, the concept of collaboration between nurses working in hospitals and primary health care is defined based on the literature. In addition, the existing models and instruments for the measurement of this collaboration are described. The purpose of the literature search was to find elements of the concept of collaboration, models

to define collaboration, instruments to measure collaboration and the level of collaboration between hospital and primary health care nurses needed to ensure continuity of care for older people. The literature review is an extension of the literature review conducted in this doctoral study to increase the understanding of collaboration between nurses working in hospitals and primary health care (Paper I) and the models and instruments of the phenomenon. In this literature review, studies on collaboration between hospital and primary health care nurse based on different approaches are included. This review does not include studies about the collaboration of different professional groups (e.g. between nurses and midwifes, between nurses and physician). Furthermore, studies about patients under 18 years or studies in other language than English were not included.

2.2.1 Concept

The first, literature review about the concept of collaboration between hospital and primary health care nurses was conducted using a systematic search in international databases (Ebsco [CINAHL], Elsevier API [Scopus], Medline [Pubmed], Wiley [Cochrane Library] and The Joanna Briggs Institute) from studies published in English 1st January 2000 to 27th September 2020. The search terms used were (nurse*) AND (liaiso* OR "nurse to nurse" OR cooperat* OR collaborat*) AND (hospital* OR "specialized care*" OR "specialized medical care*") AND ("primary health care*" OR "primary healthcare*"). Additionally, the literature review included relevant references found by manually searching the reference lists of the included articles. The literature search and inclusion process are summarized in the flowchart in Appendix 1. The literature searches identified Papers I, II and III. Papers II and III were excluded from the literature review as those findings will be presented in the Results section. In total, 17 articles were included (Appendix 2).

In the literature review (Paper I), 22 articles were published between 1988 and 2013 with the aim of increasing the understanding of the process of collaboration between hospital and primary health care nurses on adult care. This process of collaboration can be divided into three factors: precursors, elements, and processes with outcomes of collaboration (Table 1). *Collaboration precursors* contains i) opportunity to participate, ii) knowledge and iii) shared objectives (Paper I). It is important that nurses have the opportunity (Simonsen-Rehn *et al.* 2009) and time (Mallit *et al.* 2017) to participate in collaboration. Nurses work in different areas of care and have various ranges of knowledge. Bringing this knowledge and collaborative working culture together, can be obtained collaboration between hospital and primary health care that will benefit the patients (Lancasta Tintorer *et al.* 2018). The documentation between these organisations in discharge planning were reported to be unsatisfactory by nurses working in hospitals and primary health

care (Dunnion & Kelly 2005, Dunnion & Kelly 2008, Kirsebom *et al.* 2013). The nurses need to do more detailed documentation (McKenna *et al.* 2000, Dunnion & Kelly 2008) for example using a "post-discharge summary" (Pittman & Forrest 2015) and there should be more space on the documentation for nursing intervention's (McKenna *et al.* 2000). Shared person-centred objectives were mutually determined in these interventions in collaboration (Arnaert & Wainwright 2009).

Collaboration precursors can include a liaison nurse (Arts *et al.* 2000, McKenna *et al.* 2000, Pittman & Forrest 2015, Mallitt *et al.* 2017, Ribas *et al.* 2018, Costa *et al.* 2019) or a trained nurse practitioner (Prasad *et al.* 2014) or nurses working in transmural nursing clinics (Temmink *et al.* 2000) to be one link on this collaboration. In collaboration, these nurses provided a safe and individualised care plan (Prasad *et al.* 2014), share knowledge and information (Arts *et al.* 2000, Prasad *et al.* 2014, Mallitt *et al.* 2017), facilitate coordination (Temmink *et al.* 2000, Pittman & Forrest 2015, Mallitt *et al.* 2017, Ribas *et al.* 2018) and enable continuity of care across settings (Temmink *et al.* 2000, Prasad *et al.* 2014, Costa *et al.* 2019), as well as contribute to the patient's ability to remain at home (Prasad *et al.* 2014, Costa *et al.* 2019). However, the use of a liaison nurse could lead to a job demarcation for the other nurses as they might spend less time collaborating with nurses in other organisations (Arts *et al.* 2000).

Elements of collaboration contain competency, awareness and understanding of the roles, and interaction (Paper I). Competency is one essential element in collaboration and it was important for the nurses to acknowledge their own limitations and humanness in their work (Arnaert & Wainwright 2009). In collaboration, competent nurses did support and guide other nurses in their decision making regarding patient care management (Arnaert & Wainwright 2009). Nurses need to be skilled in collaboration and prepared to changing roles (Pittman & Forrest 2015, Mallitt *et al.* 2017). These skills nurses can obtain by attending conferences, workshops, day-to-day experiences, and personal contacts for example with other nurses (Arnaert & Wainwright 2009). In collaboration, the nurses were also able to improve the competence of other nurses (Temmink *et al.* 2000). In changing roles, it was important that the roles, responsibilities and expectations between nurses were defined and understood (Kirsebom *et al.* 2013, Mallitt *et al.* 2017). For example, the primary health care nurses wanted to play a role in decision making on the discharge process that influenced the future care of the patient as they had a long-term engagement and responsibility for the older people. They also wished that the hospital nurses could have more responsibility in the discharge process (Kirsebom *et al.* 2013). Nurses need education about different nursing roles in order to know about nurses in the other organisations (McKenna *et al.* 2000), and to adopt a non-judgemental approach, and to recognize and reduce the power imbalances between

nurses working in different settings (Arnaert & Wainwright 2009). One way to increase the knowledge of hospital and primary health care roles was job rotation (Kirsebom *et al.* 2013, Pittman & Forrest 2015) or relocation of nurses from one organisation to another (Pittman & Forrest 2015).

In the interaction, hospital nurses reported that communication between hospital and primary health care has been more satisfactory than from the perspective of primary health care nurses (McKenna *et al.* 2000, Dunnion & Kelly 2005). It is found important in communication to have a mutual patient health records systems, an understanding of the standardised discharge policy, access to nurses contact information (McKenna *et al.* 2000), and friendly prompt contact with as regards of meetings (Temmink *et al.* 2000, Kirsebom *et al.* 2013, Costa *et al.* 2019), visits, electronic health records, written correspondence (Prasad *et al.* 2014), letters, telephone calls or new technology (Dunnion & Kelly 2005, Kirsebom *et al.* 2013, Costa *et al.* 2019). New communication and information technology systems (Christiansen *et al.* 2017, Cacchione 2020) or virtual environments (Lancasta Tintorer *et al.* 2018) to improve communication and collaboration were developed (Christiansen *et al.* 2017). Nurses used communication and information technology systems to receive messages or information from other nurses and to communicate with other professionals (Christiansen *et al.* 2017, Cacchione 2020). With these systems nurses can receive and share information about continuity of care and establish care plans between hospital and primary health care (Christiansen *et al.* 2017, Cacchione 2020). Integrated technology systems could also include time schedules for nurse consultations between these organisations (Ribas *et al.* 2018). Virtual environments (Lancasta Tintorer *et al.* 2018) or discussion platforms (Kirsebom *et al.* 2013) were considered good forums for sharing clinical cases but there could be a barrier from a collaborative aspect as some professionals may be unwilling to communicate in public (Lancasta Tintorer *et al.* 2018).

Processes with outcomes of collaboration was defined as one factor in the collaboration between hospital and primary health care nurses (Paper I). In the process of collaboration, nurses share knowledge, information (Prasad *et al.* 2014, Arts *et al.* 2000, Mallitt *et al.* 2017, Cacchione 2020) and skills (Temmink *et al.* 2000, Pittman & Forrest 2015, Mallitt *et al.* 2017). In collaborative care, planning of the care was reported to be comprehensive and the service coordination to be better for the patients with multiple needs (Mallitt *et al.* 2017). Nurses who collaborate outside the organisation were also more likely to be engaged in health promotion for patients (Simonsen-Rehn *et al.* 2009). The collaboration was reported to promote the smooth transfer of patients from hospital to primary health care (Prasad *et al.* 2014) and enhance the quality and continuity of care (Arts *et al.* 2000, Temmink *et al.* 2000, Prasad *et al.* 2014). The hospital and primary health care organisations were

working more closely together and the relationships of the healthcare professionals, including nurses, was enhanced (Mallitt *et al.* 2017).

Table 1. The concept of collaboration between nurses working in hospitals and primary health care.

Factors of concept of the collaboration	Contents	Author/ Reference
Collaboration precursors (Paper I)	Opportunity to participate	Simonsen-Rehn *et al.* 2009, Mallit *et al.* 2017
	Knowledge (various range of knowledge, documentation, liaison nurse)	Arts *et al.* 2000, Temmink *et al.* 2000, McKenna *et al.* 2000, Dunnion & Kelly 2005, Dunnion & Kelly 2008, Kirsebom *et al.* 2013, Prasad *et al.* 2014, Pittman & Forrest 2015, Mallitt *et al.* 2017, Ribas *et al.* 2018, Costa et al. 2019
	Shared objectives	Arnaert & Wainwright 2009
Elements of collaboration (Paper I)	Competency	Temmink *et al.* 2000, Arnaert & Wainwright 2009, Pittman & Forrest 2015, Mallitt *et al.* 2017
	Awareness and understanding roles	McKenna *et al.* 2000, Arnaert & Wainwright 2009, Kirsebom *et al.* 2013, Pittman & Forrest 2015, Mallitt *et al.* 2017
	Interaction	Temmink *et al.* 2000, McKenna *et al.* 2000, Dunnion & Kelly 2005, Kirsebom *et al.* 2013, Christiansen *et al.* 2017, Lancasta Tintorer *et al.* 2018, Ribas *et al.* 2018, Cacchione 2020
Processes and outcomes of collaboration (Paper I)	Sharing knowledge, information and skills	Arts *et al.* 2000, Temmink *et al.* 2000, Prasad *et al.* 2014, Pittman & Forrest 2015, Mallitt *et al.* 2017, Cacchione 2020
	Comprehensive care planning and service coordination for the patients with multiple needs	Mallitt *et al.* 2017
	Collaboration enhance also the engagement in health promotion for patients	Simonsen-Rehn *et al.* 2009
	Promote the smooth transfer of patients	Prasad *et al.* 2014
	Enhance the quality and continuity of care	Arts *et al.* 2000, Temmink *et al.* 2000, Prasad *et al.* 2014
	The organisations work closer together and nurses have good of the relationships	Mallitt *et al.* 2017

2.2.2 Models

The second literature review, about the models of collaboration between nurses working in hospitals and primary health care, was conducted using a systematic search in international databases (Ebsco [CINAHL], Elsevier API [Scopus], Medline [Pubmed], Wiley [Cochrane Library] and The Joanna Briggs Institute) from studies published in English 1st January 2000 to 27th September 2020. The search terms used were (nurse*) AND (liaiso* OR "nurse to nurse" OR cooperat* OR collaborat* OR "patient care management*" OR collegial* OR interact* OR communicat* OR consultat* OR teamwork* OR "transitional care*" OR "transmural care*" OR "shared care*") AND (theor* OR model* OR map*) AND (hospital* OR "specialized care*" OR "specialized medical care*") AND ("primary health care*" OR "primary healthcare*"). Additionally, the literature review included relevant references found by manually searching the reference lists of the included articles. The literature search and inclusion process are summarized in the flowchart in Appendix 3. The literature search identified Paper II which was excluded from the review and those findings will be presented in the Results section. In total, 11 articles were included (Appendix 4).

A model solely defining collaboration between hospital and primary health care nurses was not found. Collaborative care models seem to be rare (Kornhaber *et al.* 2015), especially for nurse-to-nurse collaboration. However, the literature search revealed models (Table 2) that promoted quality (Prasad *et al.* 2014), continuity and coordination of care with the collaboration between healthcare professionals including nurses working in hospitals and primary health care (Brooten *et al.* 2002, Brand *et al.* 2004, Naylor *et al.* 2004, Boult *et al.* 2009, Ornstein *et al.* 2011, Aspinal *et al.* 2012, Prasad *et al.* 2014, Mallit *et al.* 2017, Cacchione 2020). In one study (Aspinal *et al.* 2012) the researchers reported that they found three service models that enhanced continuity of care for people with long-term neurological conditions: 1) community interdisciplinary neuro-rehabilitation teams, 2) proactive day opportunity services, and 3) neurology nurse specialists (NNSs). Nurses (Brand *et al.* 2004, Boult *et al.* 2009), nurse specialists (Aspinal *et al.* 2012), nurse practitioners (Ornstein *et al.* 2011, Mora *et al.* 2017), advanced practice nurses (Brooten *et al.* 2002, Naylor *et al.* 2004, Boult *et al.* 2009, Prasad *et al.* 2014) or liaison nurses (Mallit *et al.* 2017) were the key elements in most of the models (n=5) that were included in this literature review (Table 2). These named nurses in the models were also the key elements in actions and processes of the collaboration between nurses working in hospitals and primary health care. One study (Ornstein *et al.* 2011) reported that the choice of a nurse for this key person was a less expensive option than choosing of a physician. Two of these identified models (Brooten *et al.* 2002, Brand *et al.* 2004, Naylor *et al.* 2004, Boult *et al.* 2009, Ornstein *et al.* 2011, Mora *et al.* 2017) were based on the Transitional Care Model (TCM) (Cacchione 2020)

and aimed to identify patient's health goals, design and implement a plan of care and provide support for continuity of care across settings and between healthcare professionals (Cacchione 2020).

In these models found from the literature, named nurses promoted the continuity and coordination of care by providing expert guidance and interventions and adopting the role of care coordinator (Aspinal *et al.* 2012). These actions supported communication, and the transfer of accurate and timely information (Ornstein *et al.* 2011, Aspinal *et al.* 2012, Mallit *et al.* 2017). The patients had easier access to care (Prasad *et al.* 2014) and a comprehensive (Brooten *et al.* 2002), smooth, efficient (Boult *et al.* 2009) and safe (Brooten *et al.* 2002, Boult *et al.* 2009, Aspinal *et al.* 2012) transfer between hospital and primary health care units without having to repeat information to different nurses (Aspinal *et al.* 2012). A consistent relationship with the named nurse in collaboration process enhanced the feelings of trust and improved communication and led to responsive service provision (Aspinal *et al.* 2012). In the process of collaboration, nurses consulted and communicated with physicians and other healthcare professionals (Brooten *et al.* 2002) with summary reports, electronic medical records, written correspondence, and personal visits (Prasad *et al.* 2014).

In these models, named nurses provided data collection from patients health history, documentation (Brand *et al.* 2004, Ornstein *et al.* 2011, Prasad *et al.* 2014), patient education (Boult *et al.* 2009, Mora *et al.* 2017), individualised planning of the care and follow-up (Brand *et al.* 2004, Naylor *et al.* 2004, Ornstein *et al*. 2011, Prasad *et al.* 2014, Mora *et al.* 2017) and community referrals (Mora *et al.* 2017). Nurses were available on the telephone everyday (Brooten *et al.* 2002, Aspinal *et al.* 2012, Mora *et al.* 2017) and participated in case conferencing (Mallit *et al.* 2017) and multidisciplinary team meetings (Prasad *et al.* 2014). Nurses also performed visits to hospitals or primary health care (Brooten *et al.* 2002, Brand *et al.* 2004, Boult *et al.* 2009, Aspinal *et al.* 2012, Prasad *et al.* 2014, Mora *et al.* 2017), organised home care services (Naylor *et al.* 2004), screened for risk factors for readmissions (Brand *et al.* 2004, Ornstein *et al.* 2011, Prasad *et al.* 2014), and monitored the patient after the transition (Naylor *et al.* 2004, Boult *et al.* 2009). Nurses aimed to provide the coordinated and individualised care for older people that would ensure a safe recovery and contribute to their ability to remain at home (Prasad *et al.* 2014).

The outcomes of these models were that the communication, sharing information and coordination across hospital and primary health care with healthcare professionals led to shared responsibility in a collaboration process (Brand *et al.* 2004, Aspinal *et al.* 2012, Prasad *et al.* 2014, Mallit *et al.* 2017, Mora *et al.* 2017). Collaborative care planning was comprehensive for the patients and the service coordination was improved for patients with multiple needs (Mallit *et al.* 2017). Improvement of patient outcomes and reduction of healthcare costs across different

patient groups were also reported (Brooten *et al.* 2002). One study (Mora *et al.* 2017) reported statistically significant reductions in hospital readmission rates for older people in care. Working with other organisations also improved and relationships with healthcare professionals were enhanced (Mallit *et al.* 2017). The named nurses in these models were in a good position to bridge the gap between hospital and primary health care nurses concerning patient care (Aspinal *et al.* 2012) and to promote care integration (Prasad *et al.* 2014), active partnerships and collaboration (Mallit *et al.* 2017).

One of the models did not include a named nurse (Cacchione 2020). However, this model also aimed to decrease hospitalizations of older people in primary health care, improve communication between nurses and improve advanced care planning (Cacchione 2020). In this model, the hospital and primary health care nurses used tools from health information technology solutions to communicate about patient care management and advanced care planning (Cacchione 2020).

Table 2. Models of collaboration between nurses working in hospitals and primary health care.

Models	Contents	Author/ Reference
The Model of Neurological Nurse Specialist (NNS)	• NNS provided expert guidance and interventions and adopted a role of care coordinator • Patients had access to NNS via telephone or email and could meet the NNS in the hospital or primary health care units • Communicated, shared information and coordinated the care across sectors with the healthcare professionals	Aspinal *et al.* 2012
The Model of Advanced Practice Nurse (APN) Transitional Care	• A nurse, nurse practitioner or an advanced practice nurse • Facilitated smoother, safer, coordinated and more efficient transitions from hospital to home for vulnerable patient groups with other healthcare professionals • APN provided patient education, care planning, arranged home care services, community referrals, daily telephone availability and performed a home visits and monitored the patient after the transition • Communicated, documented and shared accurate and timely provided information with healthcare professionals to prevent medication or other care errors	Brooten *et al.* 2002, Naylor *et al.* 2004, Boult *et al.* 2009, Ornstein *et al.* 2011, Mora *et al.* 2017, (Cacchione 2020)
A Nurse-led Chronic Disease Management Model of Transitional Care	• A chronic disease nurse consultant (CDNC) met the patients within 24 hours before discharge and within 2 weeks of discharge • Duties of CDNC before discharge: collection of pre-discharge data, screen for risk factors for readmission, development of a plan for the care and follow-up, liaison with other healthcare professionals and discharge summary • Duties of CDNC after discharge: consultation with patient, review of care plan, coordination of collaboration between healthcare professionals	Brand *et al.* 2004, (Cacchione 2020)
A Model with Care Coordination Provided by a Liaison Nurse	• Two liaison nurses facilitated communication, case conferencing and care coordination between service providers involved in the patients care in aim to active partnership and collaboration between healthcare professionals	Mallit *et al.* 2017
The Care for Seniors Model of Care	• A nurse practitioner in geriatrics (NP-Geri) promoted across sectors the access to healthcare and quality of care for the older patients, and collaborated with the other healthcare professionals • Once a month clinic day when NP-Geri met patients and made home visits, participated weekly multidisciplinary team meetings with coordination and discharge planning for older patients • NP-Geri collected a detailed health history from patients and conducted assessments • NP-Geri communicated through the electronic medical records, written correspondence, and personal visits • NP-Geri ensured that the older persons had a coordinated and individualised care plan, including medication reconciliation, that ensured safe recovery and contributes to their ability to remain home	Prasad *et al.* 2014
Interventions to Reduce Acute Care Transfers (INTERACT)	• INTERACT aimed to decrease hospitalizations of older people in primary health care, improve communication between healthcare professionals and improve advanced care planning with tools from health information technology solutions • Hospital and primary health care nurses used tools from health information technology solutions to communicate	Cacchione 2020

2.2.3 Instruments

The third, literature review about instruments for the measurement of collaboration between hospital and primary health care nurses was conducted using a systematic search in international databases (Ebsco [CINAHL], Elsevier API [Scopus], Medline [Pubmed], Wiley [Cochrane Library] and The Joanna Briggs Institute) from studies published in English 1st January 2000 to to 27th September 2020. The search terms used were (nurse*) AND (liaiso* OR "nurse to nurse" OR cooperat* OR collaborat* OR "patient care management*" OR collegial* OR interact* OR communicat* OR consultat* OR teamwork* OR "transitional care*" OR "transmural care*" OR "shared care*") AND (measure* OR instrument* OR tool* OR test* OR scale* OR assessment* OR index*) AND (hospital* OR "specialized care*" OR "specialized medical care*") AND ("primary health care*" OR "primary healthcare*"). Additionally, the literature review included relevant references found by manually searching the reference lists of the included articles. The literature search and inclusion process are summarised in the flowchart in Appendix 5. The literature search identified in Paper I which was included in the review. In total, seven (7) articles were included (Appendix 6).

Four instruments were identified from the literature (Table 3). One instrument for the measurement of collaboration between nurses was identified: The Nurse-Nurse Collaboration (NNC) Scale (Paper I, Dougherty & Larson 2010). However, this instrument generally measured the collaboration between nurses working in the same organisation but not the collaboration between nurses who work in hospital and primary health care. The NNC Scale (Dougherty & Larson 2010) was developed mainly based on the instruments that measure the collaboration between nurses and physicians, and two other instruments that measured domains of collaboration. The definition of nurse-nurse collaboration was mainly based on the elements of collaboration between nurses and physicians. The domains in the NNC Scale are: 1) conflict management, 2) communication, 3) shared process, 4) coordination, and 5) professionalism. (Dougherty & Larson 2010.) The Cronbach alpha for the overall scale was 0.89 and for the individual subscales it was 0.66–0.90 (criterion ≥0.70, Downing 2004, DeVon *et al.* 2007, Rattray & Jones 2007). However, the inter-scale correlations ranged from 0.04 to 0.21 (criterion 0.30–0.80, Rattray & Jones 2007) which indicated that the scale did not measure a single global construct of collaboration, but rather individual domains that promote the concept of collaboration (Dougherty & Larson 2010).

The three other instruments for the measurement of collaboration between nurses working in hospitals and primary health care did not concentrate solely on collaboration (McKenna *et al.* 2000, Dunnion & Kelly 2005, Sexton *et al.* 2006, Holden *et al.* 2010, Marques Acosta *et al.* 2018) or nurses (McKenna *et al.* 2000, Dunnion & Kelly 2005, Sexton *et al.* 2006, Holden *et al.* 2010) (Table 3). Two

instruments measured the actions and care planning in the transfer of care between hospital and primary health care (McKenna *et al.* 2000, Dunnion & Kelly 2005, Marques Acosta *et al.* 2018) and one instrument measured the safety climate, communication and collaboration (Sexton *et al.* 2006, Holden *et al.* 2010). The domains that indicated a measurement of the collaboration between healthcare professionals were: care and discharge planning, solutions to discharge problems, communication (McKenna *et al.* 2000, Dunnion & Kelly 2005), documentation (McKenna *et al.* 2000), use of a discharge liaison nurse (Dunnion & Kelly 2005), teamwork and safety climate, perception of managements, job satisfaction, working conditions and stress recognition (Sexton *et al.* 2006, Holden *et al.* 2010). All of these instruments assess level of attitudes (McKenna *et al.* 2000, Dunnion & Kelly 2005, Sexton *et al.* 2006, Holden *et al.* 2010) or perception (McKenna *et al.* 2000, Dunnion & Kelly 2005, Dougherty & Larson 2010, Marques Acosta *et al.* 2018) from the domains.

A Likert-type rating scale was used in three of the instruments (Sexton *et al.* 2006, Dougherty & Larson 2010, Holden *et al.* 2010, Marques Acosta *et al.* 2018). In one instrument, the authors did not report the rating scale of the instrument (McKenna *et al.* 2000, Dunnion & Kelly 2005). The Safety Attitudes Questionnaire (SAQ) was reported to be widely used (Sexton *et al.* 2006). The Cronbach alpha for the overall scale was 0.90 and the multi-level factor analyses demonstrated that the SAQ had good psychometric properties (Sexton *et al.* 2006). There were no detailed data available on two instruments about the psychometric properties (McKenna *et al.* 2000, Dunnion & Kelly 2005, Marques Acosta *et al.* 2018).

Table 3. Instruments for the measurement of collaboration between nurses.

Instruments	Contents	Author/ Reference
A structured self-applicable online questionnaire to assess nurse's activities and role in transfer of the patient care from the hospital to home	• Instrument had three sections: 1) characterisation of the participant, 2) nurse's activities in transfer of the patient care (scale: never, rarely, sometimes, often and always), and 3) difficulties carrying out care transition (scale: strongly disagree, disagree, don't disagree neither agree, agree and totally agree) • Psychometric properties were not discussed	Marques Acosta *et al.* 2018
The Nurse-Nurse Collaboration Scale	• 5 domains of collaboration identified from the literature: 1) conflict management, 2) communication, 3) shared process, 4) coordination, and 5) professionalism • NNC scale contains 35 items • A Likert-type of scale: strongly disagree, disagree, agree, strongly agree • Content validity evaluated, Cronbach alpha for the overall scale was 0.89 and individual subscales were 0.66–0.90	Dougherty & Larson 2010, Lemetti *et al.* 2015
The questionnaires (one for hospital and one for primary health care) to assess perceptions of healthcare professional's current level of discharge planning and communication between hospital and primary health care	• The domains that were reported from the findings of the questionnaire were: 1) procedures undertaken when discharging an older person from the emergency department, 2) discharge planning, 3) communication, 4) problems that exist for older patients, and 5) usefulness of a discharge liaison nurse for older people • Content validity evaluated	McKenna *et al.* 2000, Dunnion & Kelly 2005
The Safety Attitudes Questionnaire (SAQ)	• The questionnaire included 6 domains: 1) teamwork climate, 2) safety climate, 3) perception of management, 4) job satisfaction, 5) working conditions, and 6) stress recognition • 5-point Likert scale of very low to very high (collaboration and communication) and disagree strongly to agree strongly (safety) • The questionnaire took 10–15 minutes to complete • Content validity evaluated and the Cronbach alpha for the overall scale was 0.90 • With the multi-level factor analyses demonstrated that the SAQ has good psychometric properties	Sexton *et al.* 2006, Holden *et al.* 2010

2.2.4 Level of collaboration

The studies identified in the third review on instruments also reported results about the level of the collaboration measured. One study reported that nurses rated the nurse-to-nurse collaboration as generally high or very high (87.8%) (Holden *et al.*

2010). Studies also revealed that generally for healthcare professionals it was easy to ask questions from other healthcare professional about issues that they did not understood and they worked together as a well-coordinated team (Sexton *et al.* 2006). In addition, healthcare professional provided moderately adequate and timely information on care events (Sexton *et al.* 2006).

Between hospital and primary health care nurses, there were problems in discharge planning concerning communication and provision of information (McKenna *et al.* 2000, Dunnion & Kelly 2005, Marques Acosta *et al.* 2018). The primary health care nurses considered the communication between hospital and primary health care nurses unsatisfactory (68.0%) while, in comparison, the hospital nurses considered it to be very good, good or satisfactory (94.8%) (McKenna *et al.* 2000). A more recent study reported that hospital nurses found difficulties in the communication between healthcare professionals in care transition (88.8%) and that there was a lack of protocols (77.7%), time (68.1%), training (86.1%), healthcare professionals (66.7%) and solid agreements with primary health care (90.3%) available for care transition actions (Marques Acosta *et al.* 2018). In discharge planning, it was reported to be important to give information, reassure patients and their family, check that all the assessments had been conducted, provide a discharge letter, check the required transport and equipment, and complete the discharge documentation (McKenna *et al.* 2000). The hospital nurses considered that the documentation was very good, good or satisfactory (91.4%) however, in comparison the primary health care nurses considered it to be unsatisfactory (56.0%) (McKenna *et al.* 2000). Hospital nurses never or rarely provided a written individualised discharge plan with a description of the necessary main care that should be performed at home (59.7%), communicated any of the patient's issues about the admission or the stay in hospital and care continuity with healthcare professionals (68.1%), or planned the discharge together with the healthcare professionals (48.6%) (Marques Acosta *et al.* 2018). However, the hospital nurses often or always guided other healthcare professionals (79.2%) (Marques Acosta *et al.* 2018).

2.2.5 Summary of the literature review

In conclusion, the main concepts used in this study are commonly used in different context and may vary depending on the context, culture, setting or system. The collaboration is usually identified as a voluntary and complex process with two or more individuals interacting together to achieve mutual objectives. Hospitals have widely been described as settings for patient care in different specialities and primary health care as the basic care given by the public health services. The nursing care of older people aims to provide care that supports the optimal health and functional capacity of older people with respect to privacy, dignity and integrity. In Finland,

the settings of hospital and primary health care and care for older people in these settings are regulated by law.

The concept of collaboration between nurses working in hospitals and primary health care was partly identified from the literature. However, there is a gap in the comprehensive model that defines and provides instruments for the measurement of this collaboration, and the level of this collaboration (Figure 2). Paper I describes the process of collaboration between hospital and primary health care nurses for adult care. The findings of Paper I are supported by the more recent studies (Table 1). This collaboration process has precursors before the process can even start. Nurses needed to have opportunities and time to participate in collaboration. They also need to have knowledge and shared objectives to start process of collaboration. Nurses have various ranges of knowledge depending in which units or specialties they work. The liaison nurse can be a link to draw this knowledge together for the benefit of the mutual patient. Elements of collaboration become essential in the actions in the collaboration process. The collaborating nurses used their competency in different roles and ensured constant development of their own and their collaborating nurse partners' competency. These roles changed constantly and it was important that the roles and responsibilities were well defined in the process of collaboration. The interaction was a crucial element of collaboration, without this interaction there was no collaboration. Usually, the interaction was some form of communication, for example meetings, visits, telephone calls, written correspondence, mutual electronic patient health records system or new information technology. With these precursors and elements of collaboration, a successful process of collaboration generated outcomes that benefitted the patient and collaboration relationships. The expected outcomes can be efficient coordination, exchange of information, comprehensive care planning, as well as smooth transfers and continuity of care.

Models that promoted quality, continuity and coordination of care through collaboration between health care professionals, including nurses working in hospitals and primary health care, have been developed. Most of these models had a named nurse as a key element who promoted the collaborative actions and processes. These named nurses enhanced the continuity and coordination of care through the collaboration of other nurses by providing competent guidance and interventions and by adopting the role of care coordinator. With these actions, nurses ensured good collaborative relationships between the nurses and individualised care planning and safe recovery with continuity of care for the older people. The named nurses in these models provide insight into the role of one nurse who can bridge the gap between hospital and primary health care nurses in patient care. However, a description and knowledge of the whole process of collaboration was lacking. Based on this literature review, it was concluded that no model has been developed that comprehensively

describes the phenomenon of collaboration between nurses working in hospitals and primary health care.

In order to measure the collaboration between nurses, one instrument has been developed (Dougherty & Larson 2010). However, this instrument was mainly based on the literature of collaboration between nurses and physicians and assesses collaboration between nurses on a general level inside one organisation. The instrument needs further psychometric testing as the information about the psychometric properties, and thus validity and reliability, are limited. The three other instruments identified from this literature review were not developed solely for the measurement of collaboration and collaboration between nurses. Two instruments measured perceptions of the actions and care planning in the transfer of care between hospital and primary health care (McKenna *et al.* 2000, Dunnion & Kelly 2005, Marques Acosta *et al.* 2018) and one widely used instrument measured attitudes and perceptions of the safety climate, communication and collaboration from the perspective of healthcare professionals (Sexton *et al.* 2006, Holden *et al.* 2010). The first two instruments were tested for face and content validity but information about the results were limited and other psychometric testing were missing. The widely used instrument demonstrated good psychometric properties. Based on this literature review, no suitable instrument was found that measured the collaboration between nurses working in hospitals and primary health care on older people's nursing care.

The results of the level of nurse-to-nurse collaboration included general results about this collaboration and results of the nurse-to-nurse collaboration between hospital and primary health care. Generally, collaboration between nurses was rated high with timely information being shared (Sexton *et al.* 2006, Holden *et al.* 2010). However, the nurse-to-nurse collaboration between hospital and primary health care lacked good communication, with poor provision of information, documentation, care planning together (McKenna *et al.* 2000, Dunnion & Kelly 2005, Marques Acosta *et al.* 2018), protocols, time, education, resources, and solid agreements between organisations (Marques Acosta *et al.* 2018). Based on these results identified from literature review of the instruments measuring collaboration between nurses, no comprehensive knowledge was found solely level of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care.

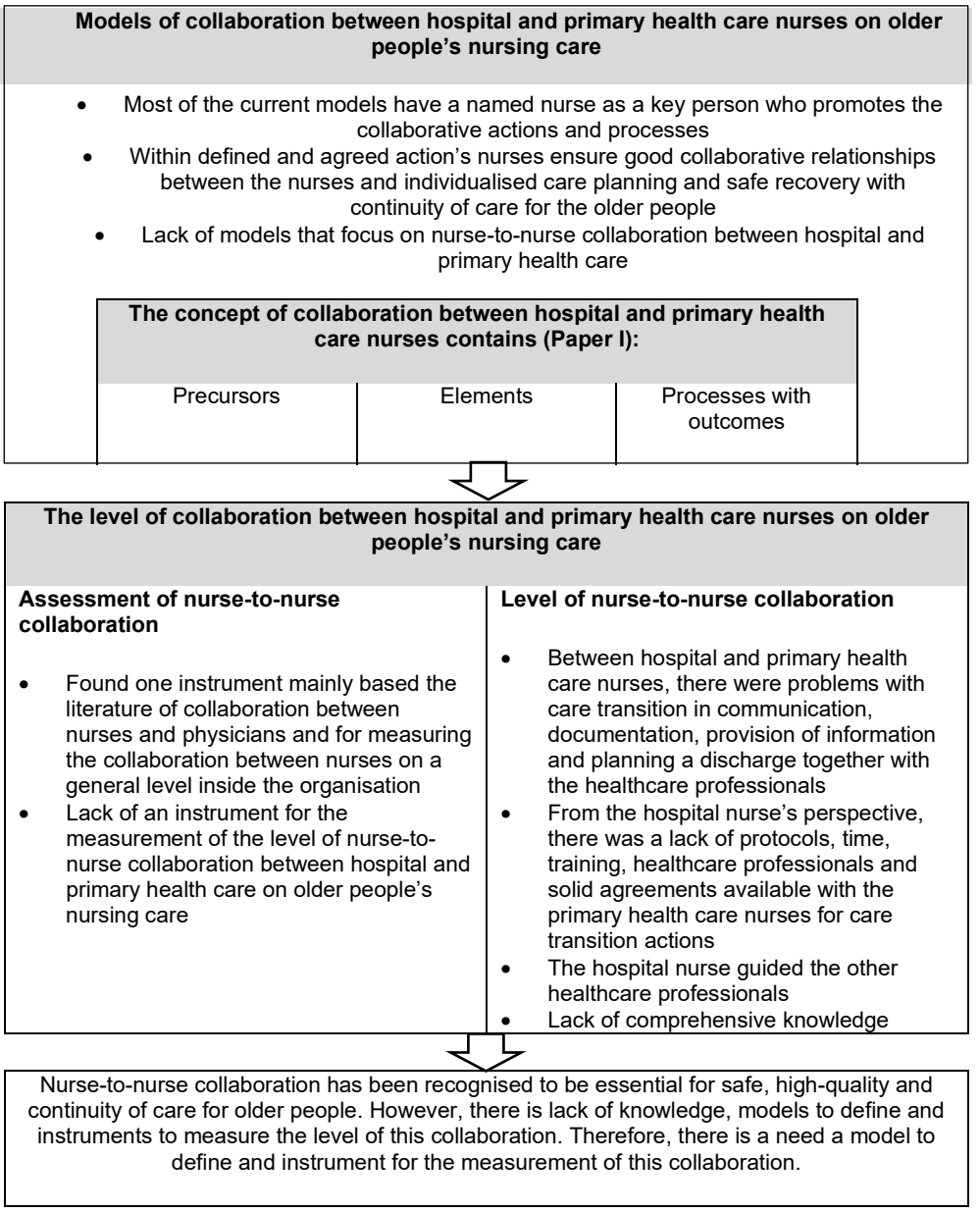

Figure 2. Gaps in the literature of the collaboration between nurses working in hospitals and primary health care on older people's nursing care.

3 Purpose of the study

The purpose of this three-phase study was 1) to develop and preliminary test a hypothetical model to define the nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care and 2) to develop an instrument for the measurement of this collaboration (Figure 1). The goal is to provide a framework for collaboration for future development to ensure safe and high-quality continuity of care between organisations for older people. More specifically, the aims and hypotheses of this study were:

Phase I: Development of a hypothetical model

1. To develop a hypothetical model to define nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care (Paper I, II, III, Summary)

Phase II: Instrumentation

1. To develop and pilot test an instrument for the measurement of nurse-to-nurse collaboration between hospital and primary health care on older people nursing care (Paper IV, Summary)

Phase III: preliminary testing of the developed instrument and hypothetical model

1. To analyse the psychometric properties of the developed Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument (Paper IV, Summary)
2. To measure the level of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care and associated factors in one Finnish hospital district and two primary health care organisations (Paper IV, Summary)

3. To preliminary test the hypothetical model (Summary)

   Research hypothesis:

   i. The collaboration between hospital and primary health care nurses on older people's nursing care includes four dimensions: 1) Context and Situation, 2) Conditions, 3) Processes and Interactions, and 4) the Consequences.

4 Materials and Methods

In this chapter, the designs, setting and samples, data collection and analysis are described in the three phases of the study (Table 4) including the ethical considerations of the overall study. The chosen methods aimed to develop and preliminary test the developed hypothetical model, aiming to theoretical model, and instrument for the measurement of collaboration between hospital and primary health care nurses on older people's nursing care.

Theoretical models have been described as a representation of the real world or a way to simply organise a complex phenomenon (McKenna *et al.* 2014). As these theoretical models can lead to the formation of a theory (McKenna *et al.* 2014), the theoretical model development was conducted according to a middle-range theory development process: defining the concepts, relationship of the concepts and propositions in order to make statements for the developing theory and to test these statements (Austin & Champion 1983, Walker & Avant 2011). Efforts to evaluate and validate the theory can be done through theory critique, theory testing and theory support (Im 2015). In this study, the preliminary theory testing was used with instrumentation from the developed hypothetical model and using various statistical analysis methods (Walker & Avant 2011, Im 2015). In addition, the theory critique was used in the evaluation of the theory in the section on the validity and reliability of the study (page 92–94).

The triangulation of the methodological (Risjord *et al.* 2002, Casey & Murphy 2009, Bekhet & Zauszniewski 2012, Moon 2019) and data sources was used to obtain a comprehensive understanding of the phenomenon (Carter *et al.* 2014, Moon 2019). The methodological triangulation included a qualitative and quantitative approach with different methods (Risjord *et al.* 2002, Casey & Murphy 2009, Bekhet & Zauszniewski 2012). The qualitative methodology provided evidence to develop the hypothetical model and the quantitative methodology was used to investigate the transferability of the model and the results to a larger population (Risjord *et al.* 2002). Finally, the quantitative methodology was used to explore the psychometric properties of the developed instrument and to measure the level of collaboration between nurses working in hospitals and primary health care on older people's nursing care.

Table 4. Overview of study designs, sample, setting, data collection and analysis.

Phases	Paper	Design	Sample/ Setting	Data collection	Data analysis
Phase I: Development of the hypothetical model	I	Descriptive, literature review	Literature (n=22)	Systematic: searches in CINAHL, MEDLINE and reference lists	• Quality appraisal of included studies • Inductive content analysis
	II	Descriptive, Grounded theory	Nurses (n=28) from hospital (n=14) and primary health care (n=14)	Focus group semi-structured interviews (n=6)	• Dimensional analysis
	III	Descriptive, Phenomenological methodology	Older patients (n=18)	Individual semi-structured interviews	• Analysis method after Giorgi
Phase II: Instrumentation	IV	Descriptive and explorative, Development of the NN-CoBS and expert panels for evaluation	Two expert panels of researchers (n=10) and of hospital and primary health care nurses and nurse managers (n=11)	Developed questionnaire (NN-CoBS Instrument)	• Content validity of individual items (I-CVI) and instrument (S-CVI)
	IV	Descriptive and cross-sectional survey, Pilot study to test NN-CoBS instrument	Nurses (n=103) from hospital (n=52) and primary health care (n=51)	Developed questionnaire and criterion instruments (the NNC and the PCC Scales)	• Descriptive statistics • Cronbach' s alpha • Corrected item-total correlations
Phase III: Preliminary testing of the hypothetical model and the instrument	IV	Descriptive and cross-sectional, Cross-sectional survey study	Nurses (n=443) from hospital (n=240) and primary health care (n=203)	Developed questionnaire and criterion instruments (the NNC and the PCC Scales)	• Descriptive statistics • Cronbach' s alpha • Corrected inter-item and item-total correlations • Factor analysis

NN-CoBS = Nurse-to-Nurse Collaboration Between Sectors Instrument, NNC = Nurse-Nurse Collaboration Scale and PCC= Patient-centred Care Competency Scale

4.1 Study design

Phase I (2013–2016)

In phase I, a descriptive study design was used (Paper I–III). The development of Hypothetical Model of Nurse-to-Nurse Collaboration Between Hospital and Primary Health Care on Older People's Nursing Care (NNC-Model) was guided by a practice-theory strategy (Meleis 2012, Im 2018) which was strongly based on grounded theory (Glaser & Strauss 1967, Kools *et al.* 1996, Strauss & Corbin 1998, Charmaz 2011). To develop the hypothetical model and an instrument for the measurement of the dimensions of the model, it is recommended to first define the construct of interest and its dimension by using a literature search, expert opinions or qualitative research (DeVon *et al.* 2007). In addition, the concept identification and explication are crucial first steps in theory development (Walker & Avant 2011). In phase I, a literature review (Grant & Booth 2009), grounded theory methodology (Strauss & Corbin 1998, Kools *et al.* 1996, Charmaz 2011) with semi-structured focus group interviews (McLafferty 2004) of nurses (hospital and primary health care) and descriptive phenomenological methodology (Giorgi 1997) with semi-structured individual interviews of older patients (Wimpenny & Gass 2000) were all used to obtain knowledge and understanding about the concept of collaboration between nurses working in hospitals and primary health care on older people's nursing care from different perspective.

The literature review was conducted to identify and define the concept of collaboration between nurses working in hospitals and primary health care in adult care (Paper I). Based on earlier research evidence of this concept was rare. The interviews with nurses (hospital and primary health care) (Paper II) and older patients that received care in hospital and primary health care (Paper III) were conducted to define the concept. These three data were synthesized using data source triangulation (Carter *et al.* 2014, Moon 2019).

Phase II (2016–2017)

In phase II, a descriptive and explorative study design was used (Paper IV). A development and preliminary testing of the Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument was conducted. Expert panels (Wynd *et al.* 2003, DeVon *et al.* 2007, Polit *et al.* 2007) and a descriptive pilot survey (Boynton 2004, Rattray & Jones 2007) design was used to test the developed instrument (Paper IV). The model was operationalised as several measurement variables which formed the instrument, in form of questionnaire (Waltz *et al.* 2010, McEwen & Wills 2014) (Appendix 7). The instrument had a 7-point Likert-type rating scale for all the items,

ranging from 1 (“totally disagree”) to 4 (“neither agree nor dis-agree”) and to 7 (“totally agree”), without the need to be the reverse scored. The higher scores in the scale indicated that the total collaboration or the dimension (subscale) of nurse-to-nurse collaboration process was realised. A Likert-type of rating scale was selected because in the previous literature this type of rating scale was considered suitable for measuring collaborative behaviour (Sexton *et al.* 2006, Dougherty & Larson 2010, Holden *et al.* 2010, Marques Acosta *et al.* 2018).

The literature recommended a panel of content experts be used to evaluate and validate the developed hypothetical model and instrument (Wynd *et al.* 2003, DeVon *et al.* 2007, Polit *et al.* 2007). Two content expert panels with university researchers and hospital and primary health care nurses and nurse managers were conducted. A pilot study was also recommended for the new instrument to identify the clarity of the items and the preliminary psychometric properties of the measurement (Boynton 2004, Rattray & Jones 2007).

Phase III (2017–2019)

In phase III, a descriptive and correlational cross-sectional survey design was used to preliminary test the developed NNC-Model (Summary) and the NN-CoBS Instrument to measure the level of this collaboration (Im 2015) (Paper IV). To test the structure of the model, the hypothesis were stated in the quantitative study phase based on the qualitative studies with data triangulation (phase I) (Risjord *et al.* 2002, Walker & Avant 2011). After testing the hypothesis, a judgement can be made about which theoretical propositions could be accepted, rejected or modified (Risjord *et al.* 2002). A quantitative approach with statistical analysis methods were also used to analyse the psychometric properties of the developed instrument (Im 2015). Statements and overall hypothetical model were preliminary tested by hypothesis testing and determining the construct validity of the NN-CoBS Instrument which are used in testing the theoretical models (Walker & Avant 2011). The cross-sectional survey study revealed the level of nurse-to-nurse collaboration between hospital and primary health care on older people’s nursing care and associated factors with the level of collaboration in one Finnish hospital district and two primary health care organisations.

4.2 Setting and sample

Phase I

In the literature review, the empirical studies were included (Paper I). To be included the articles had to: 1) focus on the topic of describing collaboration between nurses,

2) be involved in the context of hospital and primary health care, 3) focus on the care of adults, 4) be published not later than August 2013, and 5) be considered to be an empirical research study in English. The articles that were excluded: 1) dealt with collaboration between professionals other than nurses, 2) dealt with nurse or patient satisfaction, or leadership, and 3) were literature reviews.

In the interviews of the nurses, the purposive sample of 28 registered nurses from hospitals (n=14) and primary health care units (n=14) in one hospital district in Finland was used (Paper II). The nurses worked in the hospital in the outpatient clinics and in primary health care in the home care units. To be included in the study the nurses had to 1) be Finnish-speaking registered nurses, 2) have at least three years nursing experience in a hospital or primary health care setting, 3) care for older people on a daily basis, and 4) collaborate with hospital or primary health care nurses on at least a weekly basis.

In the interviews of the older people, a convenient sampling strategy was used and the participants (n=18) were recruited from three hospital outpatient clinics in one hospital district in Finland (Paper III). To be included in interviews the older people had to 1) be Finnish-speaking, 2) aged 65 or over, and 3) cared for in hospital and primary health care organisations.

Phase II

In an expert panel, there should be from 8 to 12 panel members depending on the desired expertise and range of representation of the panel (Polit *et al.* 2007). The first expert analysis was conducted with a university expert panel of researchers (n=10) to evaluate the clarity and overlapping of the items, and consistency of the subscales in the questionnaire. These experts were chosen because they had training and experience in the research and development of questionnaires (Grant & Davis 1997). The second expert panel was conducted with hospital and primary health care nurses and nurse managers (n=11) to evaluate the understandability (intelligibility) and relevance of the items. These experts were chosen because they had clinical or managerial practice experience of the phenomenon under study (Grant & Davis 1997). Four experts in the second expert panel also participated in discussion about the final version of the questionnaire to ensure the questionnaire was clear and comprehensive (Grant & Davis 1997). (Paper IV)

A pilot study is recommended with a similar but smaller sample (≥100) of intended participants when developing a new instrument (Rattray & Jones 2007). In this study, the pilot survey (N=255, n=103) was conducted with hospital (n=52) and primary health care (n=51) nurses with a response rate 40.4% (Paper IV, Table 5). The units were selected based on the fact that these units cared for older people.

Phase III

In the cross-sectional study, it is recommended that at least five respondents per item are included in the study to complete the statistical analysis methods and to evaluate the developed model and instrument (DeVon *et al.* 2007, Rattray & Jones 2007, Bannigan & Watson 2009). A cluster sampling was used to select nurses (N=1435, n=443) from the hospital (n=240) and from primary health care (n=203) (Paper IV, Table 5) in one university hospital district in Finland. The response rate was 30.9% (Paper IV). The study included units from hospitals (n=41) and from primary health care in two cities from health centres (n=13), long-term care units (n=21), home care (n=13) and city hospitals (n=2) based on the fact that these units cared for older people.

Table 5. Sociodemographic characteristics of participants in pilot (n=103) and cross-sectional (n=442) studies. (Modified from Table 1: paper IV).

	Pilot study **n** (%)			**Cross-sectional study** **n** (%)		
Sociodemographic characteristics	Hospital **(n=52)**	Primary health care **(n=51)**	**Total sample (n=103)**	Hospital **(n=240)**	Primary health care **(n=202)**	**Total sample (n=442)**
Gender						
Female	**52** (100.0)	**49** (96.1)	**101** (98.1)	**231** (96.3)	**195** (96.5)	**426** (96.2)
Male	**0** (0.0)	**2** (3.9)	**2** (1.9)	**10** (4.2)	**7** (3.5)	**17** (3.8)
Age (year)						
≤29	**6** (11.5)	**9** (17.6)	**15** (14.6)	**51** (21.3)	**25** (12.4)	**76** (17.2)
30–39	**11** (21.2)	**16** (31.4)	**27** (26.2)	**45** (18.8)	**43** (21.3)	**88** (19.9)
40–49	**17** (32.4)	**12** (23.5)	**29** (28.2)	**72** (30.0)	**55** (27.2)	**127** (28.7)
50–59	**16** (32.8)	**10** (19.6)	**26** (25.2)	**61** (25.4)	**63** (31.2)	**124** (28.0)
≥60	**2** (3.8)	**4** (7.8)	**6** (5.8)	**11** (4.6)	**16** (7.9)	**27** (6.1)
Nurse education						
Registered nurse	**49** (94.2)	**36** (70.6)	**85** (82.5)	**235** (97.9)	**181** (89.6)	**416** (94.1)
Public health nurse	**1** (1.9)	**14** (24.5)	**15** (14.6)	**4** (1.7)	**18** (8.9)	**22** (5.0)
Midwife	**0** (0.0)	**1** (2.0)	**1** (0.1)	**1** (0.4)	**3** (1.5)	**4** (0.9)
Other	**2** (3.8)	**0** (0.0)	**2** (1.9)			
Highest level of nurse education						
Nurse (college)	**16** (32.8)	**4** (7.8)	**20** (19.4)	**68** (28.3)	**46** (22.8)	**114** (26.1)
Nurse (polytechnic)	**32** (61.5)	**41** (80.4)	**73** (70.9)	**143** (59.6)	**132** (65.3)	**275** (63.0)
Master of healthcare (polytechnic)	**1** (1.9)	**1** (2.0)	**2** (1.9)	**6** (2.5)	**9** (4.5)	**15** (3.4)
Bachelor of health care (university)	**1** (1.9)	**4** (7.8)	**5** (4.9)	**14** (5.8)	**5** (2.5)	**19** (4.4)
Master of healthcare (university)	**2** (3.8)	**1** (2.0)	**3** (2.9)	**8** (3.3)	**6** (3.0)	**14** (3.2)
Work experience (year)						
<1	**6** (11.5)	**14** (24.5)	**20** (19.4)	**34** (14.2)	**35** (17.3)	**69** (15.6)
1–3	**11** (21.2)	**16** (31.4)	**27** (26.2)	**54** (22.5)	**55** (27.2)	**109** (24.7)
4–9	**14** (26.9)	**11** (21.6)	**25** (24.3)	**74** (30.8)	**60** (29.7)	**134** (30.3)
10–14	**7** (13.5)	**5** (9.8)	**12** (11.7)	**26** (10.8)	**29** (14.4)	**55** (12.4)
15–19	**5** (9.6)	**3** (5.9)	**8** (7.8)	**20** (8.3)	**15** (7.4)	**35** (7.9)
≥20	**9** (17.3)	**2** (3.9)	**11** (10.7)	**32** (13.3)	**8** (4.0)	**40** (9.0)
Participation to older people nursing care						
Daily	**40** (76.9)	**49** (96.1)	**89** (86.4)	**201** (83.8)	**183** (90.6)	**384** (86.9)
Weekly, Monthly or Almost never	**10** (19.2)	**2** (3.9)	**12** (11.7)	**40** (16.7)	**17** (8.4)	**57** (3.8)

4.3 Data collection

Phase I

In phase I, a literature review, a focus group and individual interviews were used. In the literature review data collection, the search using CINAHL (earliest to July 2013) and MEDLINE (earliest to August 2013) was conducted. The search terms used were "Nurses" [Mesh] AND "patient care management" OR "collegial" OR "interaction" OR "communication" OR "collaboration" OR "collaborate" OR "cooperation" OR "nurse to nurse" OR "liaison" OR "consultation" OR "teamwork" OR "transitional care" OR "transmural care" OR "coordination" OR "practice development". The search was limited to empirical studies in English and studies with adults. In addition, the literature review included the relevant references found by manual searching from the reference lists of the included articles. (Paper I)

In 2013, in the semi-structured focus group interviews of nurses (McLafferty 2004), nurses were able to hear each other's responses and made additional comments that they might not have done in individual interviews (Carter *et al.* 2014). The researcher informed the nurse managers and their staff about the study and conducted the interviews after providing the information letter (Appendix 8) and receiving the written informed voluntary consents (Appendix 9). The six focus group interviews with 2 to 6 participants (n=28) were conducted in meeting rooms at the hospital or primary health care organisations. The interview guide was pilot-tested and the one question was refined. Each focus group was interviewed for as long as it took them to describe their perceptions. The interviews of nurses lasted between 50 and 60 minutes and were audio recorded and transcribed verbatim. Data was collected until theoretical saturation (Kools *et al.* 1996, Strauss & Corbin 1998) was achieved. The aim was to recruit at least 20 participants (Polit & Beck 2017) based on reaching a critical mass of data (Kools *et al.* 1996). (Paper II)

In 2015, in the semi-structured individual interviews of older people (Giorgi 1997, Wimpenny & Glass 2000), the older people were able to provide rich information about personal experiences (Carter *et al.* 2014). The researcher informed the nurse managers and their staff about the study. Nurses working with potential participants in outpatient clinics assessed older people's ability to participate in the study. Nurses then informed the older people about the study and gave them an information letter (Appendix 10) and the written informed voluntary consent document (Appendix 9). Those older people willing to participate gave their written voluntary consent and the researcher contacted them. The interviews were conducted by the researcher in the participants' homes or in a quiet place in the hospital. The interview guide was pilot tested. No refinement to the questions was needed and the pilot-test data were used in the analysis. The participants were interviewed for as

long as it took them to describe their experiences. The interviews of the older people lasted between 15 and 38 minutes and were audio recorded and transcribed verbatim. Data was collected until data saturation (Giorgi 2000a) was achieved. (Paper III)

Phase II

In the expert panels in 2016, the experts evaluated the instrument which was a questionnaire including a brief description of nurse-to-nurse collaboration, items from the collaboration, a Likert-type rating scale and free space for comments on the instrument under evaluation (Grant & Davis 1997). All the expert panel participants receive an information letter (Appendix 11, 13) about the study and instructions (Appendix 12, 14) for participation (Grant & Davis 1997, Polit & Beck 2006). They gave their voluntary informed consent by completing the questionnaires. A university expert group of researchers (n=10) evaluated the clarity and overlapping of items and the consistency (Grant & Davis 1997) of the subscale with a questionnaire. The clarity and overlapping of items had 2-point Likert-type scale (item is not clear/ item is clear, yes/no) and the consistency of the subscale had a 2-point Likert-type scale (subscale is not consistent/ subscale is consistent). The experts had 45 minutes to complete the questionnaires in a university meeting room. The expert group of hospital and primary health care nurses and nurse managers (n=11) evaluated the understandability and relevance (Grant & Davis 1997) of the items with a questionnaire. The understandability had 2-point Likert-type scale (item is not understandable/ item is understandable) and relevance 4-point Likert-type scale (item is not relevant/ somewhat relevant/ quite relevant/ relevant) (Polit *et al.* 2007). Experts from second panel completed the questionnaires in their own chosen place and posted the finished questionnaire to the researcher. Discussion with the experts (n=4) in the second expert panel were held in a meeting room and were audiotaped; written voluntary informed consent was given (Appendix 9). (Paper IV)

In the pilot study conducted between March 2017 and May 2017, the developed NN-CoBS Instrument was used with two other instruments: The Nurse-Nurse Collaboration (NNC) Scale (Dougherty & Larson 2010) and The Patient-centred Care Competency (PCC) Scale for hospital nurses (Hwang 2015), see Table 6. The NNC Scale was selected to a comparative measure to evaluate the convergent validity in the criterion validity (DeVon *et al.* 2007) of the NN-CoBS Instrument as the NNC Scale was only instrument assessing the level of collaboration between nurses that was identified in the literature. This instrument has proven reliability using the Cronbach alpha as its overall scale of 0.89–0.92 and individual subscales of 0.62–0.93 (Dougherty & Larson 2010, Durmuş *et al.* 2018, Ylitörmänen *et al.* 2019b). However, the inter-scale correlations ranged from 0.04 to 0.21 (criterion 0.30–0.80, Rattray & Jones 2007) which indicated that the scale measure the

individual domains that promote the concept of collaboration (Dougherty & Larson 2010). The PCC Scale measures the level of nurses' competency for patient-centred care. It was selected as a comparator measure to evaluate discriminant validity in the criterion validity (DeVon *et al.* 2007) of the NN-CoBS Instrument. Patient-centred care was one of the six core competencies required in the education of nurses as is collaboration (Cronenwett *et al.* 2007). Therefore, it should demonstrate the theoretical difference. This instrument was reported to have acceptable reliability with the Cronbach's alpha as its scale was 0.92 and the individual subscales 0.80–0.95 with item-total correlations ranged 0.54–0.68 (criterion 0.30–0.80, Rattray & Jones 2007) (Hwang 2015). (Paper IV)

Permissions to use the NNC and the PCC Scales were received from the copyright holders. The scales were translated into Finnish according to a forward-back translation standard procedure (Sousa & Rojjanasrirat 2011, Moradian *et al.* 2014). Firstly, the scales were translated from original into the target language with two independent translators. Secondly, these two translated versions were compared by the third translator. Thirdly, the back-translation was conducted with two independent translators. Fourthly, the two back-translated versions were compared. Finally, the scales were pilot tested and psychometric testing with criterion validity and internal consistency reliability was conducted (phase II–III). The wording of NNC scale was modified, with permission, to measure nurse-to-nurse collaboration between hospitals and primary health care.

In the pilot study, potential participants were mainly recruited from hospitals (10 units) and primary health care (5 units) organisations during the meetings of the units. Participants were informed verbally and with written document (Appendix 15) about the study. If participants expressed an interest in participating in the study, they privately completed the paper questionnaire, sealed it in envelope and sent it to the researcher by post. An email reminder was usually sent a week after the delivery of the questionnaires to increase the response rate (Nakash *et al*. 2006). (Paper IV)

Phase III

In the cross-sectional survey study between October 2017 and June 2018, the same instruments with the same reasoning as the pilot study were used (Table 6). The same strategy for collecting the data was also used in the cross-sectional study. Potential participants were mainly recruited from hospitals (41 units) and primary health care (39 units) organisations during the meetings in the units. Participants were informed verbally and with written document (Appendix 15) about the study. If participants expressed an interest to participate in the study, they privately completed the paper questionnaire, sealed it in envelope and sent it to the researcher by post. An email reminder was usually sent a week after (Nakash *et al*. 2006). (Paper IV)

Table 6. Instruments designed and used in the study.

Instrument	Measure and format	Subscales	Scale	Items	Purpose in this study
The Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument Lemetti 2015	**Measure:** Level of collaboration between nurses working in hospitals and primary health care on older people nursing care **Format:** Paper and pencil	**Five subscales:** B Context and situation (22 items), C Conditions (19 items), D Processes and interactions (22 items), and E the Consequences (23 items)	a 7-point Likert-type scale for all the items, ranging from 1 (completely disagree) to 7 (totally agree)	86 items	Developed for the measurement of the level of collaboration
The Nurse-Nurse Collaboration (NNC) Scale Dougherty & Larson 2010	**Measure:** Level of collaboration between nurses working in same unit (modified to measure collaboration between nurses in hospital and primary health care) **Format:** Paper and pencil	**Five subscales:** 1. Conflict management (7 items), 2. Communication (8 items), 3. Shared processes (8 items), 4. Coordination (5 items) and 5. Professionalism (7 items)	a 4-point Likert-type scale for all the items, ranging from strongly disagree (1), disagree (2), agree (3) and strongly agree (4)	35 items	Criterion measurement to evaluate convergent validity of the developed instrument
A Patient-centred care competency (PCC) Scale for hospital nurses Hwang 2015	**Measure:** Level of nurses' competency for patient-centred care **Format:** Paper and pencil	**Four subscales:** 1. Respecting patients' perspectives (6 items), 2. Promoting patient involvement in care processes (5 items), 3. Providing for patient comfort (3 items) and 4. Advocating for patients (3 items)	a 5-point Likert-type scale for all the items, ranging from minimal (1), below average (2), average (3), good (4) and excellent (5)	17 items	Criterion measurement to evaluate discriminant validity of the developed instrument

4.4 Data analysis

Phase I

In phase I in the literature review (data I), the researcher conducted an inductive content analysis on each included article using open coding, category creation and abstraction (Hsieh & Shannon 2005) (Figure 3, Paper I).

To describe nurses' perceptions the (data II) were analysed using dimensional analysis (Kools *et al.* 1996, Lemetti *et al.* 2016) (Figure 3, Paper II). Dimensional analysis is one alternative method for producing the basis of a grounded theory about the social processes and the meanings of interactions in situations (Kools *et al.* 1996) such as the collaboration between nurses. The analysis method facilitated a description of the properties of the data and the relationships between them and forming the basis for a developed hypothetical model. Dimensional analysis used in grounded theory includes an explanatory matrix (Kools *et al.* 1996). This explanatory matrix was used as a framework to organise the data into a logical structure providing meaning to the phenomena in the data from the nurses' interviews and developing an overall hypothetical model. The explanatory matrix (Kools *et al.* 1996) contains the four conceptual components: Context and Situation, Conditions, Processes and Interactions and Consequences. The memos were kept during the data analysis and used dimensionalization, differentiation and integration to complete the analysis (Kools *et al.* 1996). In the different phases of the dimensional analysis, the findings were discussed with research group.

To describe older patient's experiences (data III) were analysed using content analysis following Giorgi (Giorgi 1997, Kleinman 2004, Giorgi 2012) (Figure 3, Paper III). The analysis method (Giorgi 1997, Kleinman 2004, Giorgi 2012) enabled the researcher to discover the meanings of the phenomena in the context of hospitals and primary health care on older people's nursing care from the lived experiences of older people. The data from all the interviews were read in order to achieve a general overall sense of the whole (Giorgi 2000b), the past knowledge about the phenomenon under study was bracketed out by the researcher (Giorgi 2000a) and the whole data were read again to code meaningful units (Giorgi 2000b). The meaningful units with a similar focus were grouped together and these grouped meaningful units were then subjected to a free imaginative variation to determine which of them was essential to the phenomena under study (Giorgi 2000a, Giorgi 2000b). The findings were conceptualized into groups and structured into organized descriptions of the participants' experiences (Giorgi 2000b).

The researcher performed and transcribed all the interviews and analysed the data. In all the qualitative studies, the analysis processes and findings of the analysis

were discussed with all the research team members and a consensus as to how the data were interpreted was reached.

Phase II

In phase II, the face and content validity of the developed instrument were tested with expert analysis (DeVon *et al.* 2007). Face validity refers to a subjective assessment that reviews the instruments clarity such as grammar, syntax or appropriateness (DeVon *et al.* 2007). It is considered an important source of information but the weakest form of validity (DeVon *et al.* 2007). Content validity means how comprehensive the items in the questionnaire represent the concepts or dimensions that the instrument is intending to measure (DeVon *et al.* 2007, Rattray & Jones 2007, Bannigan & Watson 2009). The first expert panel data and the discussion with the second panel experts (n=4) were used to assess the face and content validity. The second expert panel were used to assess the content validity. Content validity was tested with the value of an interrater agreement (IR) (Grant & Davis 1997) for clarity, overlapping, consistency and being understandable with a 2-point Likert scale and a relevance interrater agreement with an item-level Content Validity Index (I-CVI) and a scale-level Content Validity Index (S-CVI) with a 4-point Likert scale (Polit *et al.* 2007) (Appendix 7). An acceptable value for IR is recommended to be ≥0.70 (Grant & Davis 1997), in I-CVI to be ≥0.78 (Polit & Beck 2006, Polit *et al.* 2007) and in S-CVI to be ≥0.70 (Polit *et al.* 2007). (Paper IV, Figure 3)

In phase II of the pilot survey study, data was analysed using the Statistical Package for Social Scientists (SPSS Inc., Chicago, IL, USA) for Windows (version 22/24) and the Statistical Analysis System (SAS Institute, Cary, North Carolina, USA). Descriptive statistics were computed as regards frequencies, means, standard deviations, median, percentiles, ranges and percentages to summarise the demographic characteristics and survey scores. The criterion validity and internal consistency were tested. Criterion validity indicates the evidence from a relationship between the instruments' elements with its performance on some other variable or criterion (De Vellis 2003, DeVon *et al.* 2007). This was tested by correlating the measure with two instruments of the NNC Scale (Dougherty & Larson 2010) and the PCC Scale (Hwang 2015); these are instruments related to the phenomenon (Rattray & Jones 2007). The high correlations indicated that these instruments measured the same phenomenon and the value ≥0.45 was considered to be acceptable (DeVon *et al.* 2007). (Paper IV, Figure 3)

Internal consistency for all the instruments NN-CoBS Instrument, the NNC Scale (Dougherty & Larson 2010) and the PCC Scale (Hwang 2015) was tested with Cronbach's alpha coefficient and item-total correlation (Rattray & Jones 2007). The

higher correlations among the items of the instrument indicate the interdependence of the parts of the instrument. A correlation of ≥0.30 is considered an acceptable value (Rattray & Jones 2007) and the maximum value of correlations is recommended to be 0.90 (Streiner 2003). The Cronbach's alpha coefficient was calculated for each subscale and for entire instrument (DeVon *et al.* 2007) and ≥0.70 was considered to be an acceptable value for a new scale (Downing 2004, DeVon *et al.* 2007, Rattray & Jones 2007). Cronbach's alpha coefficient over 0.90 can indicate redundancy and that the instrument should be shortened (DeVon *et al.* 2007). However, some redundancy is important for internal consistency (DeVon *et al.* 2007). (Paper IV, Figure 3)

Phase III

In phase III the cross-sectional survey study, the data was analysed using the SPSS for Windows (version 22/24) and SAS. Descriptive statistics were computed as regards frequencies, means, standard deviations, median, percentiles, ranges and percentages in order to summarise the demographic characteristics and survey scores. Analysis of variance (ANOVA) and Students t-test were computed to examine the relation between the NN-CoBS Instrument and background factors of the participants. ANOVA was used to compare the four dimensions of the NN-CoBS Instrument with each other. The statistical significance was set at $p<0.05$ (Hayat 2010). (Paper IV, Figure 3)

The criterion, construct validity and internal consistency were tested. Criterion validity was tested again with two correlating measure the NNC Scale (Dougherty & Larson 2010) and the PCC Scale (Hwang 2015) (criterion ≥0.45) (DeVon *et al.* 2007). Construct validity refers to how the items in the developed questionnaire are relevant and agree with underlying conceptual structure (Rattray & Jones 2007, Bannigan & Watson 2009). To examine the construct validity of the developed instrument the NN-CoBS Instrument, an explanatory factor analysis (EFA) was used (Byrne 2005, DeVon *et al.* 2007, Williams *et al.* 2010) (Paper IV) with Varimax rotation. It is suggested that at least five respondents per item are required in the study to complete the factor analysis (DeVon *et al.* 2007, Rattray & Jones 2007, Bannigan & Watson 2009). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy ≥0.50 and the Bartlett test of sphericity with $p<0.05$ were used to achieve the appropriateness of the EFA (Williams *et al.* 2010). In the EFA, the number of Eigenvalues > 1.0 indicate the number of factors that explain more variability than one of the original items (Watson & Thompson 2006). The Eigenvalues usually overestimate the number of factors which can be problematic in large data sets. (Watson & Thompson 2006). The proportion of variance explained will provide information as to how the subscales explain the measured phenomenon (Watson &

Thompson 2006). The communalities (criterion >0.40) (Fabrigar & Wegener 2012) of items are percentages of the variance of the original variable that is explained by the number of factors. With these communalities for the items the decision can be made to which items to exclude (Watson & Thompson 2006). (Paper IV, Figure 3)

The aim of the use of factor analysis was to analyse the relationships between the large numbers of variables and to test whether the items belong together as hypothesized in the hypothetical model and also in the instrument for measuring the phenomenon under study (Byrne 2005, DeVon *et al.* 2007). Factor analysis indicate the relations between the sets of observed and latent variables (Byrne 2005, Jackson *et al.* 2009). The factor loadings are suggested to be >0.30 (Watson & Thompson 2006) which indicates that the item correlated to the subscale (Watson & Thompson 2006).

To examine the dimensions and domains of the developed hypothetical model, confirmatory factor analysis (CFA) was used (Byrne 2005, DeVon *et al.* 2007) (Figure 3). CFA is a theoretically grounded and tests the hypothesised structure of the developed model and instrument statistically (DeVellis 2003, Byrne 2005, Im 2015). The goodness of fit of the model as whole was tested with a fit index using a chi-square test (χ^2) (Kääriäinen *et al.* 2011), a goodness-of-fit index (GFI), an adjusted goodness-of-fit index (AGFI) (Jackson *et al.* 2009, Kääriäinen *et al.* 2011) and the standardised root-mean-square residual (SRMR) and the root-mean-square error of approximation (RMSEA) (Byrne 2005, Kääriäinen *et al.* 2011). Acceptable indicators of a well-fitting model would mean evidence in the chi-square p-value of >0.05, chi-square/DF <3.0 (Kääriäinen *et al.* 2011, GFI value ≥0.90, AGFI value ≥0.90 (Waltz *et al.* 2010, Kääriäinen *et al.* 2011, Polit & Beck 2017), SRMR value <0.10 (Waltz *et al.* 2010) and RMSEA <0.10 (Kääriäinen *et al.* 2011).

To test the internal consistency reliability of the instruments, the correlated inter-item and item-total correlations and Cronbach's alpha coefficient were used (Rattray & Jones 2007). The corrected inter-item and item-total correlations were calculated to all he instruments (criterion 0.30–0.90) (Rattray & Jones 2007, Streiner 2003). An inter-item correlation value of <0.80 was suggested otherwise the items are repetitions of each other (Rattray & Jones 2007). The Cronbach's alpha coefficient were calculated for each subscale and for the entire instrument (DeVon *et al.* 2007) (criterion ≥0.70) (Downing 2004, DeVon *et al.* 2007, Rattray & Jones 2007). (Paper IV, Figure 3)

Construction of the hypothetical model and the background for the NN-CoBS Instrument	**Phase I**	
	Sample	**Analysis**
	22 articles	Content analysis
	28 nurses from hospital (n=14) and primary health care (n=14)	Dimensional analysis
	Older patients (n=18)	Qualitative analysis informed by Giorgi
Item generation and testing of the NN-CoBS Instrument	**Phase II**	
	Sample	**Analysis**
	CONTENT AND FACE VALIDITY	
	Expert analysis: university expert panel of researchers (n=10), clarity and overlapping of the items and consistency of the subscales of developed instrument	Interrater agreement (IR) from clarity, overlapping, consistency and understandable with the 2-point Likert scale
	Expert analysis: expert panel of hospital and primary health care nurses and nurse managers (n=11), the relevance and understandability of the items and discussion with this group (n=4)	IR from understandability with the 2-point Likert scale and the relevance interrater agreement with item-level Content Validity Index (I-CVI) and scale-level Content Validity Index (S-CVI) with the 4-point Likert scale
	INTERNAL CONSISTENCY RELIABILITY	
	Pilot study: 103 nurses from hospital (n=52) and primary healthcare (n=51)	Descriptive statistical analysis, Corrected item-total correlations, Cronbach's alpha
Preliminary testing the developed hypothetical model and psychometric of the NN-CoBS Instrument	**Phase III**	
	Sample	**Analysis**
	EVALUATION OF THE HYPOTHETICAL MODEL	
	443 nurses from hospital (n=240) and primary healthcare (n=203)	Descriptive statistical analysis methods, Confirmatory factor analysis
	CRITERION VALIDITY OF THE NN-CoBS Instrument	
	443 nurses from hospital (n=240) and primary healthcare (n=203)	Correlations
	CONSTRUCT VALIDITY OF THE NN-CoBS Instrument	
	443 nurses from hospital (n=240) and primary healthcare (n=203)	Explanatory factor analysis
	INTERNAL CONSISTENCY RELIABILITY OF THE NN-CoBS INSTRUMENT	
	443 nurses from hospital (n=240) and primary healthcare (n=203)	Corrected inter-item and item-total correlations, Cronbach's alpha

Figure 3. Analysis methods of different data in the study.

4.5 Ethical considerations

The basic principles of research ethics were followed at every phase in this study (WMA 1964, Finnish Advisory board on research integrity 2012, European Commission 2013b). The ethical approvals (28/2012, 32/2014, 4/2016/15.2.2016) from the Ethics Committee of the University and approvals (12.10.2013, 17/2013, 13.3.2014, 27.11.2014, #/53/2016, #2016-006708 T 13 0201, #4557/13.00.00/2017, #20.3.2018) from the organisations to conduct the research in the units were obtained. In addition, approvals for the use of the existing instruments were obtained from the instrument developers by email. In phase II, permission to use of the Nurse-Nurse Collaboration (NNC) Scale was approved by Mary B Dougherty in 2015 (25.10.2015) and for the Patient-centred Care Competency (PCC) Scale for hospital nurses by Jee-In Hwang in 2016 (27.1.2016).

4.5.1 Permissions and informed consent

In all the study phases, the participants were informed verbally and with written documentation about the study and they voluntarily made the decision to participate or decline participation in the study (WMA 1964, Act on the Status and Rights of Patients 785/1992, European Commission 2013b, Finnish National Board on Research Integrity TENK 2019). In the focus group interviews with the nurses working in the hospitals and primary health care, the participants were asked to participate in the study with the cooperation of the nurse managers from the units. The researcher informed the staff about the study and potential participants received written document about the study. The researcher asked them to inform the nurse manager if they were willing to participate. The participants willing to participate gave their voluntary informed consent (Finnish National Board on Research Integrity TENK 2019).

In the individual interviews with the older people, the researcher informed the nurse managers and their staff in the hospital about the study. Nurses who worked in outpatient clinics with potential participants assessed the older patients' ability to participate in the study. The nurses informed the potential participants about the study and gave them written documentation from the study. Those eligible older patients willing to participate in the study gave their oral permission for the researcher to contact them. All participants received written information and verbal information from the researcher about the study and gave their voluntary informed consent in writing before participating in the study (Finnish National Board on Research Integrity TENK 2019).

In the expert panels, the pilot study and the cross-sectional study, the participants gave their voluntary informed consent by completing the questionnaires. The researcher met most of the participants in the units and informed them verbally and

with written documentation about the study (Finnish National Board on Research Integrity TENK 2019). If participants expressed an interest in participating in the study, they privately completed the paper questionnaires, sealed these in an envelope and sent them to the researcher by the post. In the expert panel discussions, the participants gave their written voluntary informed consent and the discussion were audio recorded.

All the participants in every phase of the study were informed that they could withdraw from study at any time (Finnish National Board on Research Integrity TENK 2019). They were given time to understand the information about the study and the possibility to contact the researcher via telephone or email if they had any questions (Finnish National Board on Research Integrity TENK 2019).

4.5.2 Potential benefits and harms

The researcher assured the participants that they could withdraw from the study at any stage without it having an effect on their care and they were protected from harm (WMA 1964, Polit & Beck 2017, Finnish National Board on Research Integrity TENK 2019). All the participants' rights were protected and older people who could not give their voluntary informed consent for the study were excluded from the study (WMA 1964, Act on the Status and Rights of Patients 785/1992, European Commission 2013b, Finnish National Board on Research Integrity TENK 2019). In addition, privacy of all the participants was protected (WMA 1964, Act on the Status and Rights of Patients 785/1992, European Commission 2013b). The focus group interviews with the nurses were conducted in their work units and the individual interviews of the older people were conducted in the units where they were cared for either in the hospital or their home. During the home visits the researcher respected the privacy of the older people and the interviews lasted as long as the older person wanted. The researcher explained to the participants verbally and with written documentation and publications how the research data would be used, the potential benefits of the study and the sources of funding (WMA 1964, Finnish Advisory board on research integrity 2012). The interviews did not include personal sensitive questions. Participants were asked to describe the collaboration between hospital and primary health care nurses on older people's nursing care and how this collaboration could be improved. However, the older patients who were interviewed described some sensitive experiences about the care they received.

In publication of the research results the researcher is obligated to preserve the accuracy of the results (WMA 1964, Finnish Advisory Board on Research Integrity 2012) and respect for the other researchers work when referring to previous studies or using existing instruments or publishing articles (Finnish Advisory Board on Research Integrity 2012).

4.5.3 Confidentiality and data protection

In every phase of the study, the researcher informed the participants that their anonymity and confidentiality were protected and that the data would be stored appropriately according to research ethics guidelines (Finnish Advisory Board on Research Integrity 2012, European Commission 2013b, Polit & Beck 2017, Finnish National Board on Research Integrity TENK 2019) and according to the EU Regulation (2016/679, General Data Protection Regulation) and the Finnish Law (Data Protection Act 1050/2018) during and after the study.

Data was collected from the nurses and patients interviews or via questionnaires. The informed consents from the interviews formed the personal registers of the participants and were collected before 2016; and were kept safely in a lockable cabinet. The results of the interviews were presented in a way that the participant could not be identified (Finnish National Board on Research Integrity TENK 2019). Questionnaires were documented and analysed anonymously (Finnish National Board on Research Integrity TENK 2019). All the digital data were kept behind passwords and the paper material or memory cards were kept in a lockable cabinet. The data will not be disclosed to third parties.

5 Results

The results are reported according to the phases, aims and hypothesis of the study. First, results from the development of the theoretical background for the Hypothetical Model of Nurse-to-Nurse Collaboration Between Hospital and Primary Health Care on Older People's Nursing Care (NNC-Model) are described (Phase I, Paper I, II, III) (Table 7). Second, the results of the developed instrument NN-CoBS (Table 8) psychometric properties and validity of other instruments used are presented (Phase II–III, Paper IV and summary) (Table 9). Third, the level of the collaboration between hospital and primary health care nurses on older people's nursing care and associated factors are presented (Phase III, Paper IV and summary). Finally, results of the preliminary testing of dimensions and domains of the hypothetical model are presented (Phase III, Paper IV and summary).

5.1 Developed hypothetical model (Phase I)

Development of the Hypothetical Model of Nurse-to-Nurse Collaboration Between Hospital and Primary Health Care on Older People's Nursing Care (NNC-Model) started in phase I (Table 7).

Table 7. Versions and modifications of the Hypothetical model (Papers I–III).

Hypothetical Model of Nurse-to-Nurse Collaboration between hospital and primary health care on older people's nursing care (NNC-Model)
First version in year 2014 (Paper II)
• Interviews of nurses: **FOUR DIMENSIONS** **MODEL CONSTRUCTIONS:** **Four dimensions:** 1) context and situation, 2) conditions, 3) processes and interactions, and 4) consequences based on nurses' perspective
Second version in year 2015
• Evidence from the literature: **FOUR DIMENSIONS** **MODEL CONSTRUCTIONS:** **Four dimensions:** 1) context and situation, 2) conditions, 3) processes and interactions, and 4) consequences based on nurses' perspective **added with evidence from the literature (earliest to August 2013)**
Third version in year 2015–2019
• Interview of older people: **FOUR DIMENSIONS with older people perspective** **MODEL CONSTRUCTIONS:** **Six dimensions:** 1) context and situation, 2) conditions, 3) processes and interactions, and 4) consequences based on nurses' perspective and evidence from the literature (earliest to August 2013) and **added older people perspective: The meaning for the older people** and **The older people's role**

The model includes four dimensions: Context and Situation, Conditions, Processes and Interactions, and Consequences. These dimensions are presented with perspective of older people: The meaning for older people and The older people's role. (Figure 4). These dimensions and perspectives are the main concepts in a Model-NNC. The theoretical definitions (Walker & Avant 2011) of the main concepts are described in more detail in next chapters.

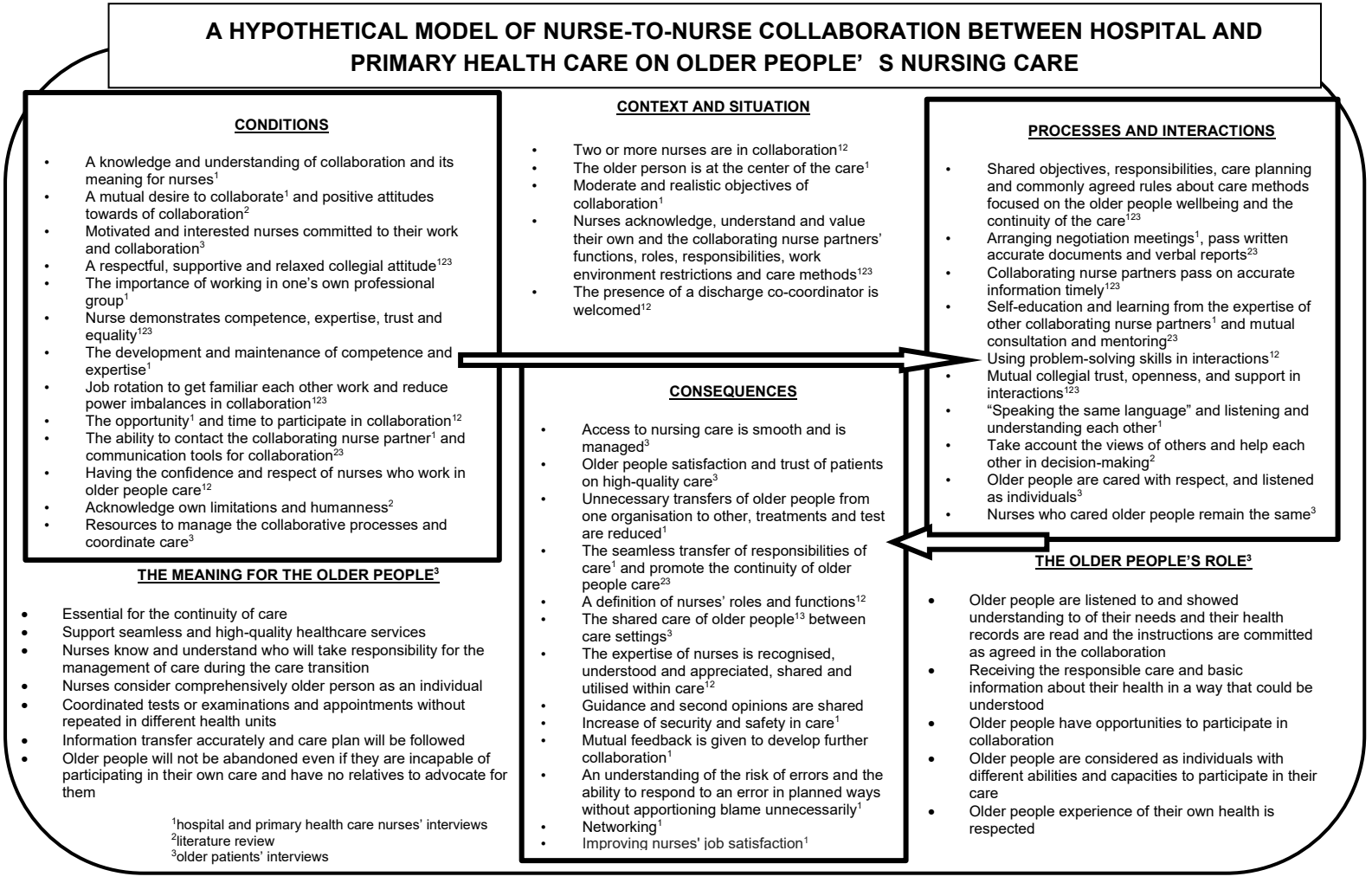

Figure 4. The developed Hypothetical model modified from the first version (Lemetti *et al.* 2017) with permission of the copyright holder of International Journal of Integrated Care.

5.1.1 Context and Situation

The Context and Situation describes the environment where the considered phenomena occur (Kools *et al.* 1996, Lemetti *et al.* 2016). In the context and situation of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care, there are two or more nurses with the older person at the centre of care. In this situation, the discharge coordinator or liaison nurse is welcomed to participate in the collaboration. Realistic objectives of collaboration and care have been set and nurses understand and value their own and other nurse's role and responsibilities, and their own unit's function, work environment and care methods. (Paper II)

5.1.2 Conditions

The Conditions are the factors that affect the Processes and Interactions (third dimension) within the studied phenomena (Kools *et al.* 1996, Lemetti *et al.* 2016). The meaning and importance of this collaboration and working with one's own professional group need to be understood and a mutual desire to collaborate needs to be manifested between nurses. Collaborating nurses are motivated and interested in their work and collaborate with respectful, supportive and relaxed collegial attitude and an acknowledgement of their own limitations and humanness. These nurses demonstrate competence, expertise, trust and equality, and are active in maintaining competence, and expertise when caring for older people. One way of becoming familiar with other nurses' work and reduce the power imbalance in collaboration is job rotation. Collaborating nurses need opportunities and time to participate in to collaboration through meetings and the tools to make contact and communicate. In addition, they need resources to manage the collaborative processes and coordinate care. (Paper II)

5.1.3 Processes and Interactions

The Processes and Interactions which occur in the phenomena under study are shaped by the existing Conditions (Kools *et al.* 1996, Lemetti *et al.* 2016). In the processes and interactions, nurses share objectives, responsibilities, care planning and mutually agreed rules about care methods that focuses on the older people's wellbeing and interest, and continuity of care. In this dimension, nurses act to self-education, learning from other nurses, arrange negotiations and meetings related to patient cases, and pass accurate information quickly from one organisation to another. They also have the possibility to ask specific questions, present arguments and provide consultation or mentoring. In these interactions, collaborating nurses use problem-solving skills with an attitude of mutual collegial trust, openness and

support. They take into account of the views of others, help each other in decision-making and "speak the same language" through listening and understanding each other immediately. In the processes and interactions, nurses care for older people with respect, listen to them and have time to get know them as individuals. It helps if the nurses that care for older people remain the same. (Paper II)

5.1.4 Consequences

The Consequences describe the elements which are determined by the Processes and Interactions in the phenomena under study (Kools *et al.* 1996, Lemetti *et al.* 2016). The nurse-to-nurse collaboration can lead to smooth access to nursing care and controlled management of care for older people without the unnecessary transfers of older people from one organisation to another. In addition, this collaboration can lead to a precise definition of the nurse's roles and functions resulting in a seamless transfer of responsibilities within the older people care chain and promotion of the continuity of their care. Nurse-to-nurse collaboration can also lead to older people having higher satisfaction level and trust that they will receive help, and advocacy with high-quality care. In collaboration, older people's nursing care and the expertise of nurses can be shared and the nurses usually network. In addition, feedback, guidance and second opinions can be shared which increases security and safety in care provision and prevents the apportioning of blame unnecessarily. Nurse-to-nurse collaboration can also increase nurses' job satisfaction. (Paper II)

5.1.5 The meaning of nurse-to-nurse collaboration for older people

The nurse-to-nurse collaboration between hospital and primary health care on older peoples's nursing care is meaningful for older people. This collaboration is essential to the continuity of care and supports the seamless and high-quality healthcare services for older people with coordinated transfer of information, care plans and care. Collaborating nurses consider the older person as an individual. Nurses know and understand who will take responsibility for the management of care in different phases of care during the care transition between hospital and primary health care. Older people will not be abandoned even if they are incapable of participating in their own care and have no relatives to advocate for them. (Paper III)

5.1.6 The older people's role in nurse-to-nurse collaboration

In the nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care, older people have a role and they need the opportunities to

participate in collaboration as the collaboration mainly consists of their care management. Older people are listened to and shown an understanding of their needs with consideration to the fact that older people are individuals with different abilities and capacities to participate in their care. Their health records should be read and the instructions followed as agreed to in the collaboration. Older people should then receive the responsible care and basic information about their health in a way that they can understand. In addition, the older people's experience of their own health is respected. (Paper III)

5.2 Empirical testing of the NN-CoBS Instrument (Phase II & III)

The developed NN-CoBS Instrument (Table 8) for the measurement of the nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care was one of the results of this study. The instrument based on the NNC-Model and the dimensions of the model became subscales for the NN-CoBS Instrument. The developed instrument is a questionnaire including a brief description of nurse-to-nurse collaboration and the background variables (n=14, section A).

Table 8. Versions and modifications of the NN-CoBS Instrument (Paper IV).

The Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument
First version in 2015–2016
Instrument development based on: • Literature • Hospital and primary health care nurses (n=28) • Older patients (n=18)
Generated item pool of 92 items • Expert panel I: Researchers in nursing (n=10), clarity and overlapping of the items • Expert panel II: Nurses and nurse managers (n=11), understandability and relevance of the items • Relevance of the items had I-CVI index value of 0.55–1.00 (criterion ≥0.78) and S-CVI was 0.86–0.91 (criterion >0.70) • Discussion with 4 members of expert panel II
Second version in 2017–2018
Based on the expert panels, questionnaire with 86 items were maintained • Pilot study, hospital and primary health care nurses (n=103) • Cronbach's alpha as a 0.98 (n=89) and for subscales 0.90–0.96, the corrected item-total correlations were 0.23–0.84
Proceed with 86 items questionnaire • Cross-sectional survey study, hospital and primary health care nurses (n=443) • Cronbach's alpha was 0.98 (n=385) and for subscales 0.89–0.96, the corrected item-total correlations were 0.20–0.70

The first version, the questionnaire included four subscales with items: B) Context and Situation (22 items), C) Conditions (20 items), D) Processes and Interactions (23 items), and E) the Consequences (27 items). In these four subscales, there were 92 items related to collaboration between hospital and primary health care nurses in general and items related to collaboration between hospital and primary health care nurses on older people's nursing care. (Appendix 7)

In the first expert analysis, the clarity of items had a value of 0.44–1.00 (criterion ≥0.70), the overlapping of items had value of 0.43–1.00 (criterion ≥0.70) and consistency of the subscale had a value of 0.78–1.00 (criterion ≥0.70) level for the IR. In the second expert panel, the understandability had a value of 0.55–1.00 (criterion ≥0.70) level for the IR. The items clarity and understandability were modified based on the level of IR and comments by the experts in the discussions. The relevance of the items had an I-CVI index value of 0.55–1.00 (criterion ≥0.78)

and the S-CVI was 0.86–0.91 (criterion >0.70) (Polit *et al.* 2007). The I-CVI was below the value of 0.78 in 16 items but 10 of these items (0.63–0.75) were retained in the instrument. The reason for retaining six of these items (0.64–0.75) was because the items were derived from the data of older patients' interviews and represented their views. The reason for retaining four of these items (0.63–0.75) was because in the final discussion with the experts (n=4) the items were considered important to the phenomenon. In the second version, the questionnaire included content-validated 86 items with four subscales: B) Context and Situation (22 items), C) Conditions (19 items), D) Processes and Interactions (22 items), and E) the Consequences (23 items). In the different versions, the instrument had 7-point Likert-type rating scale for all the items, ranging from 1 ("totally disagree") to 4 ("neither agree nor disagree") and to 7 ("totally agree"), without needing to be the reverse scored. (Paper IV, Appendix 7)

In the pilot survey study, all selected instruments demonstrated a good internal consistency reliability with a Cronbach's alpha coefficient of ≥0.70 (Table 9). The new developed instrument NN-CoBS demonstrated a Cronbach's alpha coefficient of 0.98 (n=89) for the total scale and for the subscales 0.90–0.96 (criterion ≥0.70), respectively (Downing 2004, Rattray & Jones 2007). The corrected item-total correlations were 0.23–0.84 (criterion r = 0.30–0.90) (Streiner 2003, Rattray & Jones 2007). Only two items had an item-total correlation ≤0.30. Participants used, in their responses, entire 7-point Likert-type scale range withing overall instrument mean from 1.90 to 6.30. The NN-CoBS Instrument moderately correlated with the collaboration between nurses working inside the organisation (NNC Scale) ($r = 0.49$, $p<0.001$) but was less correlated with patient-centred care competency (PCC Scale) ($r = 0.23$, $p<0.001$), implying that the convergent and discriminant validity was satisfied in the criterion validity (criterion r ≥0.45, high correlation indicate that the same phenomenon is being measured) (DeVon *et al.* 2007). (Paper IV)

In the cross-sectional survey study, the selected instruments demonstrated good overall internal consistency reliability with a Cronbach's alpha coefficient of ≥0.70 (one subscale 0.69) (Table 9). The overall NN-CoBS Instrument Cronbach's alpha coefficient was 0.98 (n=385) and for the subscales 0.89–0.96 (criterion ≥0.70), respectively (Downing 2004, Rattray & Jones 2007). The corrected item-total correlations were 0.20–0.70 (criterion r = 0.30–0.90) (Streiner 2003, Rattray & Jones 2007). Only one item had an item-total correlation ≤0.30. The inter-item correlations were for the mean of the subscales 0.34–0.55 and for the mean of the whole NN-CoBS Instrument 0.34 (criterion r = 0.30–0.80) (Rattray & Jones 2007). (Paper IV)

Table 9. Results from the pilot survey study (n=103) and cross-sectional study (n=443) of the instruments used. (Modified from Table 2–3: paper IV).

PILOT STUDY (n=103)				
Instrument	**α**	**Mean (SD)**	**Median**	**Min–Max**
The Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument, Lemetti 2015	**Total scale:** 0.98 **Subscales:** B: 0.96 C: 0.90 D: 0.94 E: 0.94	**Total scale:** 4.41 (0.84) **Subscales:** B: 5.22 (0.97) C: 4.60 (0.86) D: 4.37 (0.96) E: 3.54 (0.99)	**Total scale:** 4.43 **Subscales:** B: 5.32 C: 4.58 D: 4.36 E: 3.52	**Total scale:** 1.90–6.30 **Subscales:** B: 2.59–6.91 C: 1.84–6.32 D: 1.64–6.59 E: 1.26–5.74
The Nurse-Nurse Collaboration (NNC) Scale, Dougherty & Larson 2010	**Total scale:** 0.89	**Total scale:** 2.91 (0.31)	**Total scale:** 2.86	**Total scale:** 2.0–3.60
The Patient-centered care competency (PCC) Scale for hospital nurses, Hwang 2015	**Total scale:** 0.90	**Total scale:** 3.90 (0.39)	**Total scale:** 3.88	**Total scale:** 2.94–4.82
CROSS-SECTIONAL STUDY (n=443)				
Instrument	**α**	**Mean (SD)**	**Median**	**Min–Max**
The Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument, Lemetti 2015	**Total scale:** 0.98 **Subscales:** B: 0.96 C: 0.89 D: 0.94 E: 0.94	**Total scale:** 4.49 (0.83) **Subscales:** B: 5.30 (0.94) C: 4.57 (0.81) D: 4.43 (0.99) E: 3.69 (1.04)	**Total scale:** 4.49 **Subscales:** B: 5.44 C: 4.58 D: 4.41 E: 3.65	**Total scale:** 1.98–7.00 **Subscales:** B: 2.00–7.00 C: 2.47–7.00 D: 1.27–7.00 E: 1.43–7.00
The Nurse-Nurse Collaboration (NNC) Scale, Dougherty & Larson 2010	**Total scale:** 0.90	**Total scale:** 2.86 (0.32)	**Total scale:** 2.83	**Total scale:** 1.51–3.89
The Patient-centered care competency (PCC) Scale for hospital nurses, Hwang 2015	**Total scale:** 0.91	**Total scale:** 3.90 (0.42)	**Total scale:** 3.88	**Total scale:** 1.82–5.00

α = Cronbach's alpha coefficient

Subscales: B = Context and Situation, C = Conditions, D = Processes and Interaction, E = Consequences

The NN-CoBS Instrument moderately correlated with the NNC Scale (r=0.59, p<0.001), indicating there was convergent validity. The NN-CoBS Instrument correlated less with the PCC-Scale (r=0.32, p<0.001), implying that discriminant validity was also satisfied in the criterion validity (Paper IV, Table 10).

Table 10. Correlations between the instruments used in the cross-sectional study (n=443).

The Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument, Lemetti 2015	The Nurse-Nurse Collaboration (NNC) Scale, Dougherty & Larson 2010	The Patient-centered care competency (PCC) Scale, for hospital nurses Hwang 2015
Total instrument	0.59[a] *p*=0.001	0.32[a] *p*=0.001
Subscale B: Context and Situation (n=440)	0.57[a] *p*=0.001	0.28[a] *p*=0.001
Subscale C: Conditions (n=438)	0.51[a] *p*=0.001	0.29[a] *p*=0.001
Subscale D: Processes and Interactions (n=438)	0.52[a] *p*=0.001	0.28[a] *p*=0.001
Subscale E: Consequences (n=438)	0.48[a] *p*=0.001	0.28[a] *p*=0.001

[a]Pearson Correlation Coefficients

The analysis indicated high sampling adequacy (KMO=0.952) and the Bartlett's test of sphericity was significant (χ^2=26808.95; df=3655; p<0.001) which implied that an EFA could be conducted (Paper IV). In the results of EFA with Varimax rotation, subscale B (Context and situation) had strong loadings in factor one (100% ≥0.30). The other three subscaless loadings were mainly divided into two factors (Appendix 16). According to the EFA there where 15 factors with an eigenvalue of ≥ 1.0. The factor loadings did not completely support the hypothesized structure of the developed model and instrument with statistical analysis methods. The subscale Context and Situation indicated strong loadings of items on factor 1. All the other subscales indicated loadings of more than one factor which implied that a simple structure for the hypothetical model had not been achieved (Watson & Thompson 2006). (Paper IV) The 18.83% of the variance in the perceived collaboration was explained by the subscale Context and Situation. The variance of all the other subscales was 7.81–13.67%. The cumulative percentage of variance was 49.98% which is typical for a new instrument measuring abstract phenomenon (commonly low as 50–60%, Williams *et al.* 2012). The communalities from 86 items; in 70 items these were >0.40 (criterion >0.40) (Fabrigar & Wegener 2012) and in 16 items <0.40.

5.3 Level of the nurse-to-nurse collaboration and associated factors (Phase III)

5.3.1 Level of the nurse-to-nurse collaboration

Hospital and primary health care nurses rated the overall nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care as good (mean score of 4.49, standard deviation=0.83, maximum 7.00). Nurses rated the subscale Context and Situation as high (mean 5.30, standard deviation=0.94, maximum=7). However, the next three dimensions' rating decreased as regards the process of collaboration, according to this study. The second dimension, Conditions nurses rated as good (mean 4.57, standard deviation=0.81, maximum=7), Processes and Interaction nurses rated good but lower (mean 4.43, standard deviation=0.99, maximum=7) and Consequences nurses rated as moderate (mean 3.69, standard deviation=1.04, maximum=7). (Paper IV, Table 9)

The 7-point Likert-type rating scale for all the items was shortened to a 5-point Likert-type rating scale when presenting the results of this study. The ratings of "disagree" and "somewhat disagree" were combined as were "agree" and "somewhat agree". The distributions of the ratings in the total NN-CoBS Instrument and in the subscales of the instrument are presented in Table 11 and the ratings of all the items are presented in Figures 5–8.

Table 11. The distributions of the ratings of participants in the NN-CoBS Instrument and subscales.

	Rating	Frequency	%	Cumulative Frequency	Cumulative %
Subscale B: Context and Situation (n=440)	1.5–3.4	17	3.86	17	3.86
	3.5–4.4	65	14.77	82	18.64
	4.5–6.4	315	71.59	397	90.23
	6.5–7.0	43	9.77	440	100.00
Subscale C: Conditions (n=438)	1.5–3.4	45	10.27	45	10.27
	3.5–4.4	157	35.84	202	46.12
	4.5–6.4	232	52.97	434	99.09
	6.5–7.0	4	0.91	438	100.00
Subscale D: Processes and Interactions (n=438)	1.0–1.4	1	0.23	1	0.23
	1.5–3.4	76	17.35	77	17.58
	3.5–4.4	153	34.93	230	52.51
	4.5–6.4	205	46.80	435	99.32
	6.5–7.0	3	0.68	438	100.00
Subscale E: Consequences (n=438)	1.0–1.4	3	0.68	3	0.68
	1.5–3.4	183	41.78	186	42.47
	3.5–4.4	164	37.44	350	79.91
	4.5–6.4	83	18.95	433	98.86
	6.5–7.0	5	1.14	438	100.00
Total **Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument**	1.5–3.4	58	13.24	58	13.24
	3.5–4.4	167	38.13	225	51.37
	4.5–6.4	209	47.72	434	99.09
	6.5–7.0	4	0.91	438	100.00

In the subscale **Context and Situation** (Figure 5), the participants rating indicated (somewhat agree, agree or totally agree) that the nurses had better understanding of their own roles (85.3%) and responsibilities (86.4%), and their own unit's function (85.3%), work environment (85.2%) and care methods (87.3%) in the collaboration between nurses working in hospitals and primary health care. The participants rating indicated (somewhat agree, agree or totally agree) that the nurses had less of an understanding of other nurses' roles (68.7%) and responsibilities (63.0%), and the functions of other nurse's unit's (58.4%), work environment (55.6%) and care methods (50.6%) as regards those nurses working in other organisation. In addition, the participants ratings showed (somewhat agree, agree or totally agree) that the nurses value more their own roles (89.8%) and responsibilities (90.0%), and their own unit's function (93.0%), work environment (88.2%) and care methods (87.0%) in the collaboration between nurses working in hospitals and primary health care. The participants' ratings indicated (somewhat agree, agree or totally agree) that the nurses value less the roles (76.3%) and the responsibilities (78.2%) of the other nurses, and functions of other nurses' units (72.7%), and the work environment (72.3%) and care methods (72.9%) of nurses working in other organisations. Participants gave a rating (somewhat agree, agree or totally agree) to the fact that the older person is in the centre of care in the collaboration between nurses working in hospitals and primary health care (73.4%). However, the participants only gave (somewhat agree, agree or totally agree) a moderate rating to the objectives in the collaboration being realistic (58.1%).

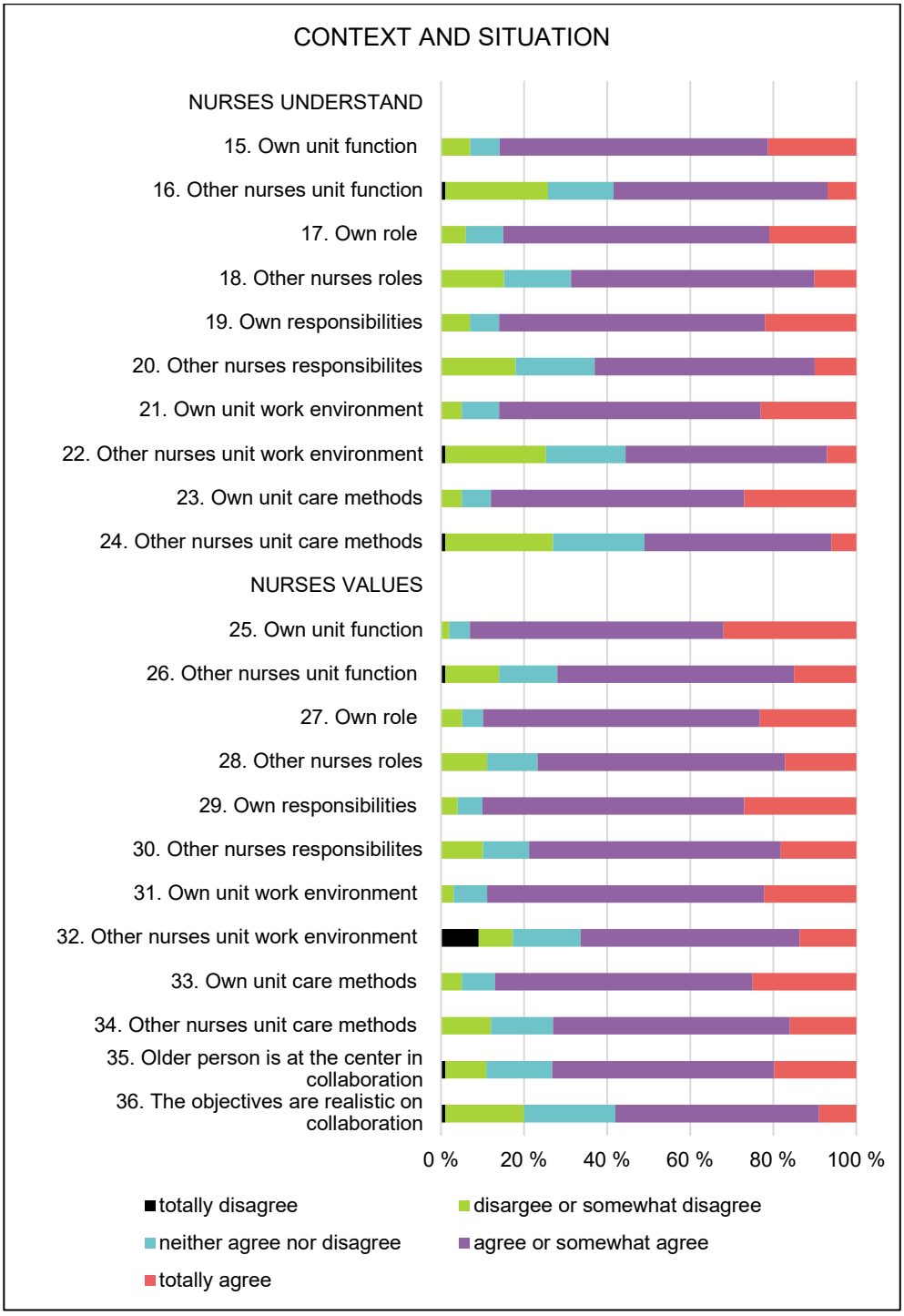

Figure 5. Participants' assessment of level of nurse-to-nurse collaboration between hospital and primary health care: subscale Context and Situation (n=442).

In the subscale of **Conditions** (Figure 6), the participants rated (somewhat agree, agree or totally agree) nurse-to-nurse collaboration as being important to nurses (87.7%), nurses maintaining their competence (84.3%) and having an opportunity to contact nurses working in other organisations (81.9%) for the collaboration and patients trust (80.8%) and value (72.2%) nurses who collaborate. In addition, the participants ratings indicated (somewhat agree, agree or totally agree) that nurses mostly understood the meaning of collaboration (76.0%), that they were commitment to older people's nursing care (75.6%) and that nurses who collaborate respect nurses working in other organisations (72.9%). The participants rated (somewhat agree, agree or totally agree) as moderate nurses mutual desire to collaborate together (67.4%), the importance of working with members of one's own professional group in other organisations (67.1%), that nurses have their own responsibilities in collaborative practices in comprehensive patient care (60.9%) and that they have adequate tools to communicate (51.3%). However, lower ratings (somewhat agree, agree or totally agree) were given for support given to collaborating nurses working in other organisations (44.2%), nurses' opportunity to participate in nurse-to-nurse collaboration between organisations (32.3%) and nurses' participation in education on the collaboration (29.8%). Less than 20% of the participants rated (somewhat agree, agree or totally agree) hospital or primary health care organisations (19.3%) or changes in society (16.5%) as supporting nurse-to-nurse collaboration, that nurses have time to interact with nurses working in other organisations (18.7%) and that nurses have an opportunity to participate in job rotation between organisations (14.2%).

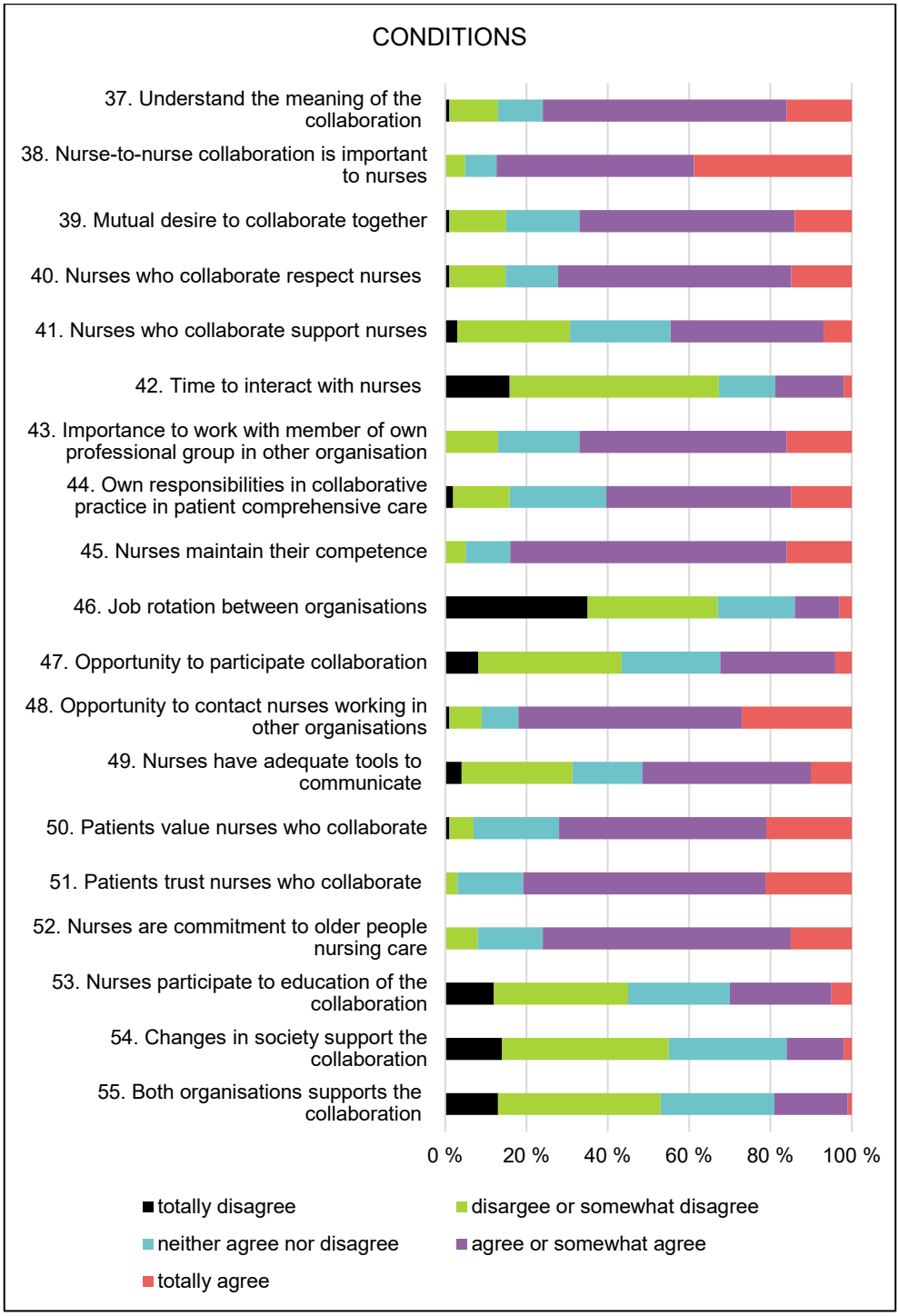

Figure 6. Participants' assessment of level of nurse-to-nurse collaboration between hospital and primary health care: subscale Conditions (n=442).

In the subscale **Processes and Interactions** (Figure 7), the participants rated as high (somewhat agree, agree or totally agree) the fact that the interaction between nurses was confidential (87.0%) and that commonly agreed care methods in collaboration were mostly based on the patient safety, wellbeing and interest (74.4%). Moderate or lower rates were given to that commonly agreed care plans (65.1%), objectives (56.2%) and rules (56.1%) in the collaboration on older people's nursing care are based on the patient's safety, wellbeing and interest. In addition, the participants gave a moderate rating (somewhat agree, agree or totally agree) as regards the fact that in collaboration commonly agreed care plans (69.7%), care methods (67.4%), objectives (66.9%) and rules (61.5%) are based on the continuity of care for older people. The participants also gave a moderate rating (somewhat agree, agree or totally agree) to the fact that interaction between nurses is open (68.7%), nurses have problem-solving skills (67.6%) and nurses interact with each other (60.9%). However, lower ratings (somewhat agree, agree or totally agree) were given to nurses supporting other nurses working in other organisations in a collegial manner (51.6%), information transferring between nurses (51.5%), nurses experiencing the collaboration going smoothly with other nurse (50.7%), nurses collaborating together (41.5%), and information on transfers being accurate (54.4%) and timely (34.0%). Less or slightly over 20% of the participants rated (somewhat agree, agree or totally agree) that nurses working in collaboration plan together the nursing care of older people (21.5%), nurses educate each other between organisations (20.2%), and that they commonly agree on rules/guidelines (20.1%) and objectives (14.2%) are defined for nurse-to-nurse collaboration.

Figure 7. Participants' assessment of level of nurse-to-nurse collaboration between hospital and primary health care: subscale Processes and Interactions (n=442).

In the subscale of **Consequences** (Figure 8), the participants rated the consequences of nurse-to-nurse collaboration between hospital and primary health care as moderate or low. Moderate rates were given (somewhat agree, agree or totally agree) to that older people trust the collaboration (54.4%) and nurses care for older people individually (52.3%). The participants gave a low rating (somewhat agree, agree or totally agree) to that responsibilities of care transferring seamlessly between organisations (45.0%), nurses having comprehensive view of older patients and their shared care (37.0%), nurses collaborating equally in the care of each patient (30.7%), care continuing seamlessly when care is transferred to other organisations (32.6%) and older people being satisfied with the nurse-to-nurse collaboration (39.2%). In addition, low ratings were given to that there were no unnecessary treatments (35.2%), tests (32.3%) and transfers from one organisation to another (28.3%). Low ratings were also given to that high-quality of care increasing collaboration realised (35.2%) and older people have opportunity to participate in collaboration (25.1%). Participants rated low that nurses share their competence across organisations within consultations between nurses (34.0%) and this competence is utilised cross organisations (34.9%). A low rating was also given to feedback providing information on adverse events (33.3%) and these adverse events being addressed as planned (28.4%). Even lower ratings (somewhat agree, agree or totally agree) were given to that nurses roles (23.6%) and activities are defined (25.2%), nurses share responsibilities seamlessly (28.7%), nurses give feedback to each other in collaboration (24.2%) and that the nurse's job satisfaction improving collaboration realised (27.9%). Less than 20% of the participants rated (somewhat agree, agree or totally agree) that responsibilities in comprehensive care are commonly agreed in collaboration (17.8%) and that hospital and primary health care nurses network widely (8.0%).

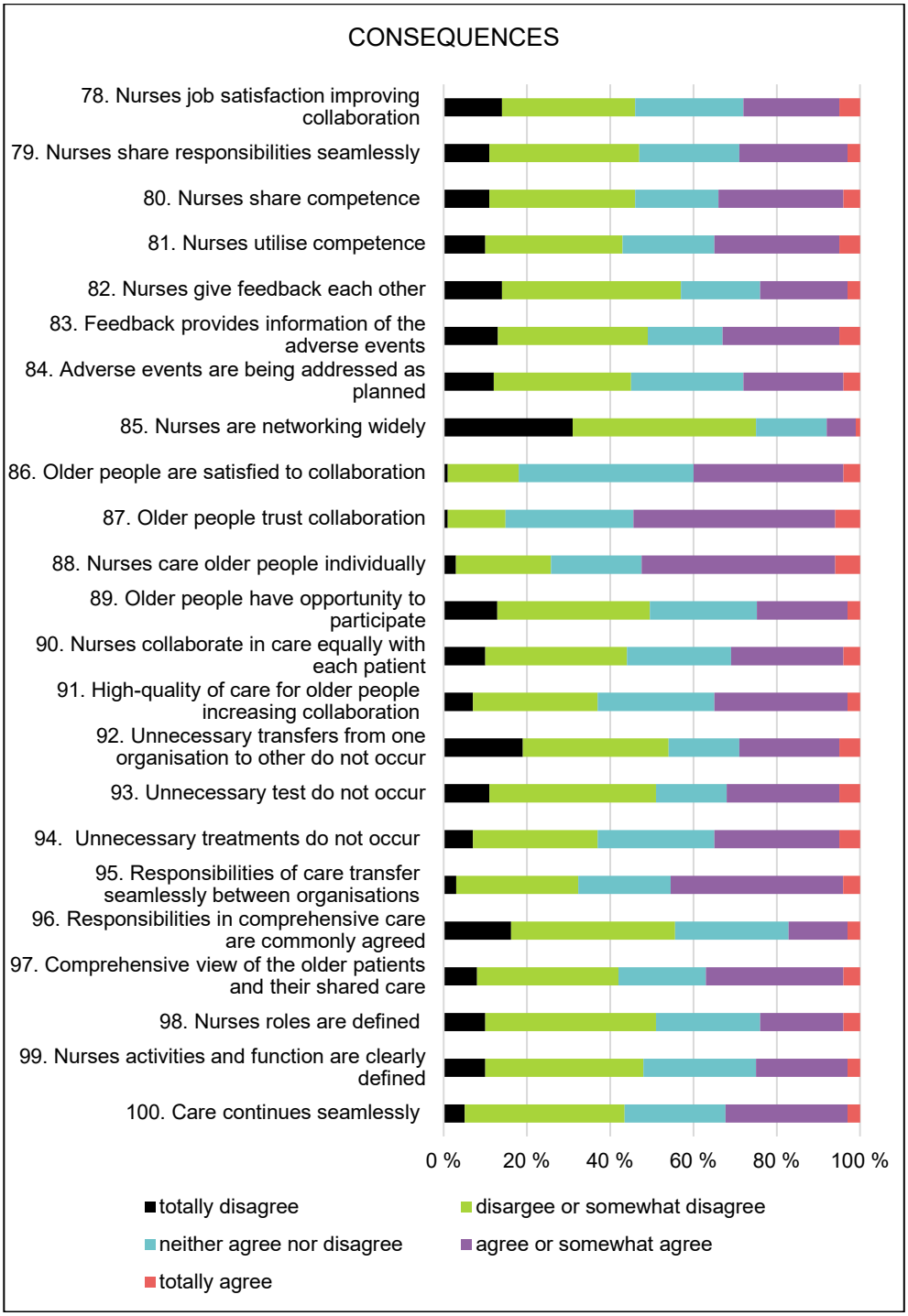

Figure 8. Participants' assessment of level of nurse-to-nurse collaboration between hospital and primary health care: subscale Consequences (n=442).

5.3.2 Associated factors

In this study, there were no significant differences in the mean scores between collaboration and age, gender, education, work experience or organisation. A statistically significant difference was found between the level of collaboration and how often the nurses participated in nurse-to-nurse collaboration between hospital and primary health care ($p<0.001$). The mean score in the level of nurse-to-nurse collaboration was higher for nurses that collaborated more often. A significant difference was also found in the current work units ($p<0.005$). The level of nurse-to-nurse collaboration was higher between outpatient units and inpatient and rehabilitation units; similar results, was found between outpatient units and long-term care units. The mean score for the level of nurse-to-nurse collaboration was found to be lower for nurses who worked in outpatient units compared to inpatient, rehabilitation and long-term care units. In addition, a significant difference was found in the way participants collaborated as the mean score for the level of collaboration was found to be higher for the nurses who worked in units that used a named nurse for the collaboration ($p<0.042$). (Paper IV)

5.4 Preliminary testing of the developed NNC-Model

The Hypothetical Model of Nurse-to-Nurse Collaboration Between Hospital and Primary Health Care on Older People's Nursing Care (NNC-Model) was preliminary tested using an instrument development method and various statistical analysis methods (Im 2015). The CFA was used to evaluate the theoretical structure of the developed model (DeVellis 2003, Byrne 2005). CFA was performed on the 86 items in the NN-CoBS Instrument to test its goodness-of-fit. Analysis of the goodness-of-fit index indicated a moderately fitting model as regards the GFI 0.80–0.85 (criterion ≥0.90), AGFI 0.75–0.81 (criterion ≥0.90), the SRMR 0.11–0.14 (criterion <0.10) and he RMSEA 0.08–0.09 (criterion <0.10). The overall χ^2 value was 612–959 with 152–230 df, $p<0.001$ and χ^2/DF 4.03–4.59 (criterion <3.0). As the χ^2 values were significant and χ^2/DF values were higher than the criterion, the research hypothesis of this study and the structure of the model were not supported. (Table 12) However, the very sensitive chi-square test can easily produce significant values if the sample size is large. In addition, the development process of the hypothetical model implied that the dimensions with variables in the model are parts of the social process (dimensional analysis, Kools *et al.* 1996, Lemetti *et al.* 2016) and these dimension are shaped or affected each other having a causal linkages.

Table 12. Results of the confirmatory factor analysis of the NNC-Model as a value of fit index's (n=443).

Hypothetical Model of Nurse-to-Nurse Collaboration Between Hospital and Primary Health Care on Older Peoples' Nursing Care (NNC-Model)	χ^2 **-testi**				**GFI**	**AGFI**	**SRMR**	**RMSEA**
	χ^2	*df*	*p*	χ^2/DF				
Dimension B: Context and Situation (n=440)	959	209	0.001	4.59	0.80	0.75	0.11	0.09
Dimension C: Conditions (n=438)	612	152	0.001	4.03	0.85	0.81	0.12	0.08
Dimension D: Processes and Interactions (n=438)	931	209	0.001	4.45	0.80	0.76	0.14	0.09
Dimension E: Consequences (n=438)	952	230	0.001	4.14	0.80	0.76	0.13	0.09

χ^2, chi-square test; GFI, Goodness-of-fit index; AGFI, Adjusted goodness-of-fit index; SRMR, Standardized root-mean square residual; RMSEA, Root-mean-square error of approximation

5.5 Summary of the main results

The summary of the main results is presented in Figure 9. First, development of the Hypothetical Model of Nurse-to-Nurse Collaboration Between Hospital and Primary Health Care on Older People's Nursing Care (NNC-Model) revealed that the phenomenon can be divided and measure by four dimensions with older people's perspective. These dimensions have multiple elements which need a broad understanding in different settings. The NNC-Model provide a framework for this complex phenomenon.

Second, the NN-CoBS Instrument was based on the NNC-Model. The developed instrument provide a measurement of this collaboration. The NN-CoBS Instrument demonstrated preliminary and acceptable psychometric properties. The first subscale of Context and Situation was strong and partly explained the collaboration. However, the other subscales were not as strong indicating the need for modification and further testing of the instrument.

Third, the level of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care was rated good. In this collaboration nurses understood and gave more value to their own roles and responsibilities, and

work unit's function, work environment and care methods than they did to other nurses working in other organisations. Older people were at the centre of the care, nurses cared for the older people individually and nurses considered that the older people trusted and valued nurses who collaborate. However, they considered older people did not have the opportunity to participate in nurse-to-nurse collaboration.

Nurse-to-nurse collaboration was important for nurses, they respected each other and the interaction in this collaboration was considered to be open and confidential. In addition, nurses maintained their competence in this collaboration. However, nurses did not always have time to interact or have the opportunities to collaborate between hospital and primary health care or participate in education related to collaboration. The hospital and primary health care organisations and society did not always support this collaboration. Commonly agreed rules/guidelines, objectives and responsibilities, and nurses' roles were not defined for this collaboration and nurses did not plan together the nursing care for older people in collaboration. In addition, the older people's care did not continue seamlessly when care was transferred to other organisations. Hospital and primary health care nurses did not network widely and have job satisfaction improving collaboration with each other. The associated factors to level of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care were how often nurses' participated in collaboration, work unit where the nurses worked and named nurse in collaboration process.

Fourth, the preliminary testing of the NNC-Model revealed that this model does need revisions and further testing. However, the NNC-Model and NN-CoBS Instrument development and preliminary testing in this study, showed that the developed model had a partly favourable structure and the developed instrument demonstrated preliminary and acceptable psychometric properties.

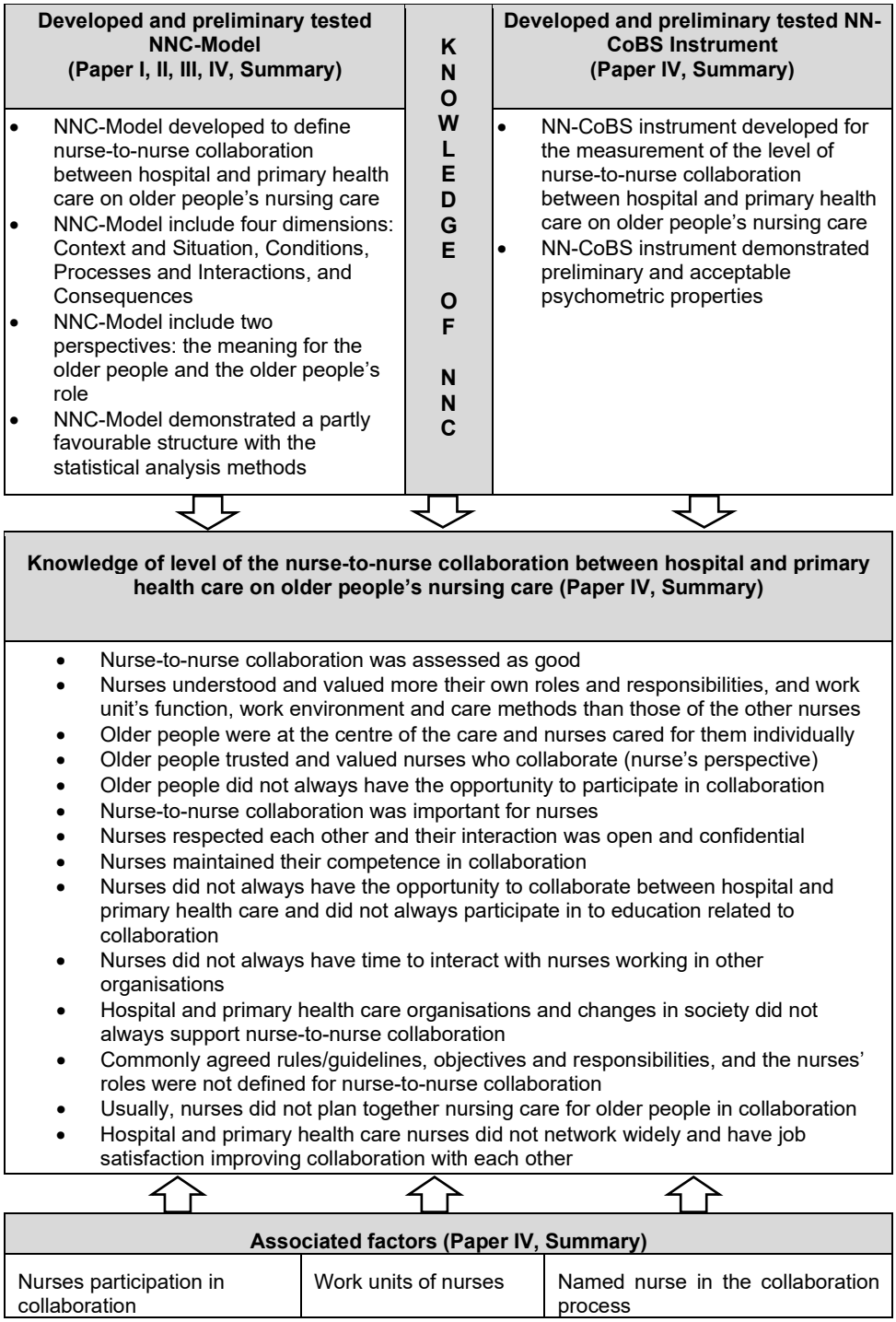

Figure 9. Summary of the main results.

6 Discussion

In this chapter, the study's key findings will be discussed in the light of previous research findings and the validity and reliability of the study and the developed hypothetical model and instrument evaluated. In addition, implications for future research, and nursing education, practice and administration are presented.

6.1 Discussion of the key findings

The discussion of the key findings starts with a discussion on the developed Hypothetical Model of Nurse-to-Nurse Collaboration Between Hospital and Primary Health Care on Older People's Nursing Care (NNC-Model), followed by a discussion about the Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument which was the instrument developed for the measurement of this collaboration. Finally, the level of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care is discussed.

This is the first time that the nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care were defined in a comprehensive way by developing NNC-Model including four dimensions: 1) Context and Situation, 2) Conditions, 3) Processes and Interactions, and 4) Consequences. These dimensions were presented with perspective of older people: The meaning for the older people and The older people's role. Generally, collaboration includes the opportunity, ability and willingness of participants to work together in a collaborative way to achieve mutual objectives (San Martín-Rodríguez *et al.* 2005, Morley & Cashell 2017). Collaboration includes communication, negotiation, conflict management, trust, respect, equality and valuing and understanding each other (Henneman *et al.* 1995, D'Amour *et al.* 2005, Morley & Cashell 2017). Two key competencies needed for collaboration are an understanding the role boundaries and expectations of the collaborating partner, and an ability to engage in effective formal and informal communication (Henneman *et al.* 1995, Morley & Cashell 2017). The consequences of collaboration are for example, transfer of knowledge, sharing information, evidence-based practices (Morley & Cashell 2017) and responsive practices (Henneman *et al.* 1995, Morley & Cashell 2017). The general elements of collaboration found in previous literature are present in nurse-to-nurse

collaboration, according to this study. However, some elements seem to be more relevant in nurse-to-nurse collaboration. For example, the previous studies imply that the decision-making in collaboration was a highly relevant element to enable nurses to make decisions about their own work or their patient's care (e.g. Dougherty & Larson 2010, Ylitörmänen *et al.* 2019b). However, this study does not support the fact that enabling decision-making for nurses is a highly relevant element in nurse-to-nurse collaboration. Nurses do need decision-making skills in nurse-to-nurse collaboration but in shared decision-making processes together equally.

A model that solely defined collaboration between hospital and primary health care nurses was not found. However, the literature search revealed models that promoted quality (Prasad *et al.* 2014), continuity and coordination of care through the collaboration between healthcare professionals including nurses working in hospitals and primary health care (Brooten *et al.* 2002, Brand *et al.* 2004, Naylor *et al.* 2004, Boult *et al.* 2009, Ornstein *et al.* 2011, Aspinal *et al.* 2012, Prasad *et al.* 2014, Mallit *et al.* 2017). In this study, a newly developed hypothetical model defines more in-depth nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care. The NNC-Model proposes a framework that can help to achieve and develop nurse-to-nurse collaboration and thus lead to the benefits of this collaboration.

The NN-CoBS Instrument was developed to measure the dimensions of the NNC-Model that define the nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care. Instruments were found that measure the collaboration between nurses the in same organisations (Dougherty & Larson 2010) and between nurses working in hospitals and primary health care (McKenna *et al.* 2000, Dunnion & Kelly 2005, Sexton *et al.* 2006, Holden *et al.* 2010, Marques Acosta *et al.* 2018). However, these instruments did not focus solely on collaboration or collaboration between nurses working in hospitals and primary health care. In this study, as the newly developed instrument was based on the developed hypothetical model (NNC-Model), it measured more in-depth nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care.

The previous literature describes collaboration as a voluntary (San Martín-Rodríguez *et al.* 2005) and complex process (Henneman *et al.* 1995, D'Amour *et al.* 2008, Petri 2010, Morley & Cashell 2017, Emich 2018). The process of nurse-to-nurse collaboration presented in the NNC-Model starts from the Context and Situation and ends in the Consequences. In this study, the first dimension of the Context and Situation in the collaboration process is realised from the perspective of nurses. However, the realisation of collaboration is decreased in the next dimensions of Conditions, Processes and Interactions, and Consequences in collaboration process. This can imply that if some elements in the collaboration process are not

realised, the desired consequences of collaboration will not occur and the level of collaboration will remain low.

From the hospital and primary health care nurse's perspective, the level of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care is good and this collaboration is important. The findings of this study imply that nurses need more knowledge about other nurse's roles and responsibilities, and their unit's function, work environment and care methods. Nurses understood each other's the roles and responsibilities, respected each other and had open and confidential interaction and communication in their collaboration which were the key elements of collaboration according to the previous literature (Henneman *et al.* 1995, D'Amour *et al.* 2005, Kirsebom *et al.* 2013, Mallitt *et al.* 2017, Morley & Cashell 2017, Emich 2018). Nurses maintained their competence in collaboration. However, they did not participate in education about collaboration. Previously, it has been reported that during their education, the training that nurses receive is inadequate to ensure that they have the skills and knowledge to collaborate with other nurses in other organisations (Marques Acosta *et al.* 2018). In this study and previous literature, the findings imply that the nurses did not plan together their nursing care for older people by sharing timely information in collaboration (McKenna *et al.* 2000, Dunnion & Kelly 2005, Marques Acosta *et al.* 2018).

The findings of this study confirm that having a named nurse in the units in the collaboration process is associated with a higher level of collaboration. In previous studies, a liaison nurse (Arts *et al.* 2000, McKenna *et al.* 2000, Pittman & Forrest 2015, Mallitt *et al.* 2017, Ribas *et al.* 2018), a trained nurse practitioner (Prasad *et al.* 2014) or a nurses working in transmural nurse clinic (Temmink *et al.* 2000) have all been reported as providing a link in the collaboration process.

In this study, from the hospital and primary health care nurse's perspectives the hospital and primary health care organisations and changes in society (e.g. policies or reforms) did not support the nurse-to-nurse collaboration. There was a lack of commonly defined and agreed rules/ guidelines, objectives, nurse's roles and responsibilities, and time to interact with nurses working in collaboration with other organisations. In addition, from the nurse's perspective older people had few opportunities to participate in nurse-to-nurse collaboration and care of the older people did not continue seamlessly when care was transferred into other organisations. Previous studies confirm these findings as the hospital nurses found a lack of resources (Mallit *et al.* 2017, Marques Acosta *et al.* 2018), protocols and solid agreements for collaboration with primary health care (Marques Acosta *et al.* 2018). At the same time, there is a need to respond to the increasing complexity of care in nursing (Roy 2018) as older people complex have health needs with chronic conditions (WHO 2011, WHO 2017, WHO 2019a) and a fragmented and complex healthcare service that confuses the service users (Finnish Government 2019a, WHO

2019b). Nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care need commonly agreed objectives and practices which consider older people's individual health needs for a safe transfer and continuity of care (The Joint Commission 2013). Optimal health services (WHO 2010) for older people require collaboration and collaborative practices (The Joint Commission 2013, WHO 2010). In this study, the hospital and primary health care nurses considered that the older people were at the centre in the nurse-to-nurse collaboration and in this collaboration nurses cared for the older people individually and the older people trusted and valued nurses who collaborate.

6.2 Validity and reliability of the study

The validity and reliability of this study have been ensured in various ways and methods in the different phases. These issues with the limitations of the study and recommendations for the further development of hypothetical model and instrument will be discussed in the following section.

Validity and reliability related to data and research process

This three-phase study included a hypothetical model development, an instrumentation and preliminary testing of the developed hypothetical model in order to describe the collaboration between nurses working in hospitals and primary health care on older people's nursing care and an instrument to measure this collaboration.

In phase I, the literature review, grounded theory methodology with focus group interviews of nurses (hospital and primary health care) and descriptive phenomenological methodology with individual interviews of older patients was conducted and the Hypothetical Model of Collaboration Between Hospital and Primary Health Care Nurses on Older People's Nursing Care (NNC-Model) was developed. In phase II and III, expert panels and a pilot survey and a cross-sectional survey were conducted. This methodological and data source triangulation increased the validity and reliability of the study by providing confirmation of the developed hypothetical model and the psychometric properties of the instruments with comprehensive data obtained from the different methods (Bekhet & Zauszniewski 2012, Morse 2015, Song *et al*. 2015, Moon 2019) and sources (Casey & Murphy 2009, Carter *et al.* 2014, Morse 2015, Moon 2019). However, the different research data and the triangulation were conducted by one person and this can be a limitation of the study. All the phases, however, and the research processes were discussed within the research team.

In phase II and III, the postal surveys can include four potential sources of errors: sampling, non-coverage, non-response and measurement errors (MacDonald *et al.*

2009). In this study, the survey participants were selected from the units that cared for older people. However, the response rates in phase II and III varied. A response rate of ≥50%-60% has been recommended to minimize the non-response bias (Draugalis & Plaza 2009). In the pilot survey study (Phase II) the response rate was 40.4% and in the cross-sectional survey study it was 30.9%; this could indicate that there is a possibility of non-response bias which could lead to inaccurate conclusions (Draugalis & Plaza 2009). The reason for the low response may be due to various reasons, for example problems with the items in the questionnaire (Boynton 2004, Rattray & Jones 2007, Song *et al*. 2015) or the subject of the research (Draugalis & Plaza 2009). However, an email reminder was sent to increase the response rate (Nakash *et al.* 2006). The sample size was as recommended in the pilot (≥100, Rattray & Jones 2007) and cross-sectional survey studies recommend to be at least five respondents per item (DeVon *et al.* 2007, Rattray & Jones 2007, Bannigan & Watson 2009) which was realised in these studies. In addition, studies with similar designs have reported equally low response rates (Moore & Nahigian 2013, Ylitömänen *et al.* 2019) as in this study. Based on the low response rate, the suggestion is to have a higher response rate in the further studies to generalise the results of the study. However, the participant in the cross-sectional survey study were registered nurses (94.3%) and mainly participated daily on older people's nursing care (76.9%). This highlights that the participants of the study were the precise target group aimed for and therefore they provided valuable perspective on the phenomenon under study. In addition, the measurement error was minimised in this study by a comprehensive development of the NN-CoBS Instrument using theoretical background studies, expert panels and pilot survey (MacDonald *et al.* 2009, Song *et al*. 2015).

Validity and reliability, phase I

In phase I, the NNC-Model was developed. The rigor of this qualitative study phase was evaluated according to recent literature by 1) internal and external validity, 2) reliability (Thomas & Magilvy 2011, Morse 2015, Cypress 2017) and 3) objectivity, similar to construct validity (Thomas & Magilvy 2011). The activities for ensuring validity are to establish a knowledge and understanding the of the nature of the phenomenon included in developed hypothetical model (Cypress 2017).

First, the internal validity in this qualitative inquiry refers to credibility with consistent data analysis (Morse 2015), member checking, and a peer review (Thomas & Magilvy 2011, Morse 2015). In the nurses' interviews, the researcher went back to most of the units to report the findings and to obtain the member checking. However, all the participants of the interviews may not have been present when the researcher report the findings. In the data analysis, methods suitable to the selected

qualitative approach were consistently used step by step (Giorgi 1997, Kools *et al.* 1996, Giorgi 2000a, Giorgi 2000b, Hsieh & Shannon 2005, Lemetti *et al.* 2016). Peer reviews were implemented by having a consensus analysis process and interpretations with the research team. External validity refers to the transferability with appropriateness of the sample and data source triangulation (Thomas & Magilvy 2011, Morse 2015). Sample included: 1) literature about collaboration between nurses working in hospitals or primary health care, 2) nurse participants of registered nurses from hospital and primary health care units who care for older people, and 3) older people aged 65 or over who had been cared in hospital and primary health care organisations. In addition, the data was collected until the theoretical (Kools *et al.* 1996, Strauss & Corbin 1998) or data saturation (Giorgi 2000a) was achieved. Triangulation (Casey & Murphy 2009, Carter *et al.* 2014, Moon 2019) with different data and sources increased the transferability of the developed hypothetical model. However, the sample only included a few units and areas of healthcare. In the future, a broader perspective from different healthcare units are suggested.

Second, the reliability of the qualitative inquiry refers to the dependability and consistency of applied research methods and practices to develop the theoretical model (Thomas & Magilvy 2011, Cypress 2017). Strategies to ensure the reliability included the application of justified research methods (Thomas & Magilvy 2011, Cypress 2017) and consistent coding system in developing the theoretical model (Morse 2015). For the literature searches CINAHL and MEDLINE were used which are two important databases for bibliographical searches related to nursing care (Subirana *et al.* 2005). The validity of the study was increased by a detailed description of the data selection process and two independent researchers working on the article selection. Additionally, for the critical appraisal of the selected articles validated tools were applied (von Elm *et al.* 2007, Tong *et al.* 2007). A qualitative research approach informed by Grounded theory (Glaser & Strauss 1967, Strauss & Corbin 1998, Charmaz 2011) and following the steps of dimensional analysis (Kools *et al.* 1996, Lemetti *et al.* 2016) were found to be an appropriate method to obtain the perspectives of nurses from the social processes within the social settings. A dimensional analysis (Kools *et al.* 1996, Lemetti *et al.* 2016) was used as a basis for the consistent coding system for the overall hypothetical model with an explanatory matrix. However, the results of the dimensional analysis may be limited as there might be more elements of nurse-to-nurse collaboration than those identified. A qualitative research approach based on a descriptive phenomenological methodology (Giorgi 1997, Polit & Beck 2017) following the step by step research process suggested by Giorgi (Giorgi 1997, Giorgi 2000a, Giorgi 2000b) was deemed appropriate method to obtain the lived experience of older patients. However, the

experiences of the participants in the study were limited to a few units in hospital and primary health care.

Third, the objectivity in this qualitative inquiry refers to confirmability, a decrease of any researcher bias (Morse 2015) and an increase in reflexivity (Thomas & Magilvy 2011). In the interview data analysis and interpretation, the audiotape recording and field note were used and quotations by the participants were used in the research reports. The researcher aimed to maintain a neutral stance throughout the entire research process to decrease the researcher bias. The researcher also aimed maintaining a sense of awareness and openness to ensure that the research process was reflective. However, the researchers growing understanding of the research phenomenon in this study process can be seen as a limitation to the aim of decreasing the researcher bias. In future, this new developed hypothetical model needs to be tested by other researchers to evaluate the theoretical structure of the model.

Validity and reliability, phases II–III

In phase II and III, validity and reliability were evaluated from a quantitative perspective (DeVellis 2003, DeVon *et al*. 2007) as a research technique to assess the accuracy of the measurements (Bannigan & Watson 2009). The validity refers to the degree by which the instrument measures what it is intended to measure and reliability refers to a stability of the measurement (DeVon *et al*. 2007, Bannigan & Watson 2009). In phase II, a new Nurse-to-Nurse Collaboration Between Sectors (NN-CoBS) Instrument was developed based on the findings in the phase I and one instrument was translated into Finnish (the other instrument had been translated earlier). To assess the validity of the developed model and instrument, a face and content validity and a criterion validity were used (DeVellis 2003, DeVon *et al*. 2007). The content validity of the NNC-Model and NN-CoBS Instrument was assessed using two expert panels and in the second expert panel the I-CVI was 0.63–1.00 (criterion ≥0.78) and the S-CVI was 0.86–0.91 (criterion >0.70) (Polit *et al.* 2007). The reason for retaining these items value of >0.78 in the I-CVI was because the items were from the perspective of older patients or considered to be important in the final discussions with the experts (n=4). In the future, the use of a third expert panel with older patients who use the hospital and primary health care services will advance the understanding of the importance of these items in the instrument. In addition, a pilot survey was conducted. In the criterion validity, the NN-CoBS Instrument moderately correlated with the NNC Scale and correlated less with the PCC Scale. This implied that NN-CoBS Instrument was in line with other measurements of collaboration between nurses.

In phase III, the content validity of the NNC-Model and NN-CoBS Instrument was preliminary tested and the psychometric properties of the instrument were

evaluated – a cross-sectional survey study was performed. To assess the validity of the NN-CoBS Instrument, a construct and criterion validity (DeVellis 2003, DeVon *et al.* 2007, Bannigan & Watson 2009) was conducted. The EFA (Rattray & Jones 2007, Bannigan & Watson 2009, Williams *et al.* 2010) indicated that the NN-CoBS Instrument had one strong subscale (B Contex and Situation) and a partly favourable construct was found. However, the in three other subscales the factor loadings divided into at least two factors. In addition, the statistical analysis indicated that few of the items could be excluded as the 16 items of the NN-CoBS Instrument had low communalities (criterion <0.40). This is an important result for the further development of the NN-CoBS Instrument as a valid instrument for measuring the level of collaboration between nurses working in hospitals and primary health care on older people's nursing care.

CFA (Byrne 2005, DeVon *et al.* 2007) was conducted to preliminary test the hypothesised structure of the developed model and instrument statistically (DeVellis 2003, Byrne 2005, Im 2015). The SRMR and RMSEA (Byrne 2005, Waltz *et al.* 2010, Kääriäinen *et al.* 2011) indicated that the NNC-Model showed a moderate model fit. In addition, the χ^2 value with df and χ^2/DF values implied that the research hypothesis of this study and the theoretical structure of the model was not supported. This may be due to the fact that it is the first time that the complex phenomenon of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care has been defined. Dividing the elements of this collaboration process into four dimensions is a new way of considering the phenomenon and the developing process of the model implied that the dimensions in the model are parts of the social process (dimensional analysis, Kools *et al.* 1996, Lemetti *et al.* 2016). The causal linkages seem to be present between the dimensions of the model. The relationships of the dimensions in the NNC-Model need to be examined in more depth in order to understand the dimensions underlying connections in more detail. Use of a path analysis is suggested to test a hypothesised causal explanation of the model (Polit & Beck 2017).

In the pilot study in phase II, the preliminary reliability of the NN-CoBS Instrument was tested internal consistency reliability (DeVon *et al.* 2007). The Cronbach's alpha coefficient for the entire developed instrument was 0.98 (n=89) and for the subscales 0.90–0.96 (criterion ≥0.70) (Downing 2004, Rattray & Jones 2007). The corrected item-total correlations were 0.30–0.84 (criterion r = 0.30–0.90) (Streiner 2003, Rattray & Jones 2007). These values indicated that the NN-CoBS was reliable measurement of the level of collaboration between nurses working in hospitals and primary health care on older people's nursing care and it could be used for cross-sectional study with larger data.

In the cross-sectional study in phase III, the NN-CoBS Instrument, the internal consistency reliability (DeVon *et al.* 2007) was again tested with a larger sample.

The overall NN-CoBS Instrument Cronbach's alpha coefficient was 0.98 and for the subscales 0.89–0.96 (criterion ≥0.70) (Downing 2004, Rattray & Jones 2007). The corrected inter-item correlations for subscales were 0.30–0.55 and for the whole NN-CoBS Instrument 0.34 (criterion r = 0.30–0.80) (Rattray & Jones 2007) and the item-total correlations were 0.20–0.70 (criterion r = 0.30–0.90) (Streiner 2003, Rattray & Jones 2007). Only one item had an item-total correlation of ≤0.30. These values supported the findings from the pilot study and indicated that the NN-CoBS Instrument was a reliable measurement of the level of collaboration between nurses working in hospitals and primary health care on older people's nursing care. However, the high values of Cronbach's alpha coefficient can imply an overlapping of the items and in the further development of the NN-CoBS Instrument this needs to be considered.

In this study, two other existing scales were used: The Nurse-Nurse Collaboration (NNC) Scale (Dougherty & Larson 2010) and The Patient-centred Care Competency (PCC) Scale for hospital nurses (Hwang 2015). These scales were translated into Finnish according to the recommendations (Sousa & Rojjanasrirat 2011, Moradian *et al.* 2014). In the pilot and cross-sectional studies, these instruments demonstrated a good internal consistency reliability with a Cronbach's alpha of ≥0.70 (one subscale 0.69). In the cross-sectional study, the NN-CoBS Instrument moderately correlated with the NNC-Scale ($r = 0.59$, $p < 0.001$) but less with the PCC-Scale ($r = 0.32$, $p < 0.001$), implying satisfied criterion validity.

Evaluation of the Hypothetical model

The developed Hypothetical Model of Nurse-to-Nurse Collaboration Between Hospital and Primary Health Care on Older People's Nursing Care (NNC-Model) can be evaluated through theory analysis by Walker & Avant 2011 with the criteria of **the origins of theory, the theory meaning, logical adequacy, usefulness, generasability, parsimony** and **testability**. Theory analysis is used to examine both the strengths and weaknesses of the hypothetical model. In addition, it is used to determine the need for additional development of the hypothetical model.

The NNC-Model was developed through the previous literature and interviews of the hospital and primary health care nurses and older people cared for by both organisations. The aim was to define the collaboration between nurses working in hospitals and primary health care on older people's nursing care. These three data from different perspective were synthesised using data source triangulation (Carter *et al.* 2014, Moon 2019), meaning that the findings of these three sources were triangulated. The dimensional analysis, that was used to analyse the nurses' interview data, is used in research to analyse social processes (Kools *et al.* 1996). This analysis method provided the structure for the NNC-Model and helped to

combine the data from the previous literature and older people interviews with the nurses' interview data. Therefore, the **origins of theory** in the hypothetical model were developed mainly inductively from these three data. However, the development process also had deductive aspects from the analysis method.

The NNC-Model has six main concepts: 1) Context and Situation, 2) Conditions, 3) Processes and Interactions, 4) Consequences, 5) The meaning for the older people of collaboration between nurses working in hospital and primary health care on older people's nursing care, and 6) The older people's role in this collaboration. **The meaning of the theory** can be identified with these main concepts which are defined in the hypothetical model. The relations between the first four concepts are preliminary described in the graphic model. However, the relationship between concepts five and six or between the other four concepts were not clearly described. This implies that all the statements of the NNC-Model were not clearly determined and this needs more consideration in future research.

The NNC-Model demonstrated good **logical adequacy** as the structure was based on a method developed to analyse social processes (Kools *et al.* 1996) and the content was from the previous literature, nurses who collaborate and older people who are at the centre of this collaboration. However, the first version of the NNC-Model was newly developed and other scientists have not had the opportunity to agree on the predictions of the model. In addition, the researcher who developed the NNC-Model can have conducted incorrect premises or conclusions in the inductive part of the NNC-Model.

The knowledge of collaboration between hospital and primary health care nurses on older people's nursing care is rare (Lemetti *et al.* 2015). Safe transfers and a continuity of care with the optimal health services for patients requires collaboration and collaborative practices between healthcare professionals and other organisations (WHO 2010, The Joint Commission 2013, Finnish Government 2019a). The NNC-Model significantly adds to the body of knowledge on this topic and provides new insights into this phenomenon, as well as implications for nursing research, education, practice and administration (see next chapters). Therefore, the NNC-Model is **useful** and provides a sense of understanding. However, as it is a new model, there has not been a significant number of research studies generated from the model which would indicate the usefulness of the NNC-Model.

The NNC-Model has been developed and preliminary tested in a Finnish context and from the perspective of older people's nursing care which provides boundaries to the **generalisability** of the theory. The model can be generalised to the Finnish context of older people's nursing care. However, the content of the NNC-Model also includes previous literature about the phenomenon which retrieved from international databases.

The collaboration between hospital and primary health care nurses on older people's nursing care is a complex phenomenon as social collaboration processes usually are (Henneman *et al.* 1995, D'Amour *et al.* 2008, Petri 2010, Morley & Cashell 2017, Emich 2018). In this study, the NNC-Model is presented in graphics which helps to simplify and to visualise the relationship of the concepts with each other. This increases the **parsimony** of the theory. However, the relationship between the concepts of the NNC-Model need more clarification.

Hypotheses can be generated from the NNC-Model and these hypotheses can be tested which implies that model is **testable**. Therefore, the NNC-Model can be supported or modified by the evidence. This study provided one preliminary test of the model and this test indicated that NNC-Model showed a moderate model fit. However, the theoretical structure was not supported. This implies that there is a need for further revision and testing of the model.

6.3 Implications for research

Based on the findings of this study, the following recommendations for further research in the field of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care are proposed: i) the NNC-Model need further revision and testing, ii) the NN-CoBS Instrument need further development and testing for the psychometric properties, iii) the elements of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care with lower scores in the measurement of this study need to be developed and measured more in-depth, and iv) there is a need for interventions to increase the nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care.

Firstly, for the NNC-Model, the following suggestions are proposed for further research: a) The relationship between the concepts of the NNC-Model need to be more in-depth investigated, b) Further development of the NNC-Model, the model needs to be evaluated with statistical analysis method (e.g. path analysis), and c) The NNC-Model needs to be tested in different settings to provide information about the generalisability of the model. Therefore, more research about nurse-to-nurse collaboration on older people's nursing care is needed from a wider field in hospital and primary health care.

Secondly, the NN-CoBS Instrument warrants further development and testing with different data and analysis methods. The evaluation of the structure of instrument and of overlapping items in the instrument are needed. After development of the instrument, there is a need for evaluation of the reliability of the instrument using an explanatory factor analysis. In addition, the NN-CoBS Instrument needs to be translated into English and Swedish as at the moment it is available only in

Finnish. The translated English and Swedish versions will require validation in international research collaboration.

Thirdly, all the elements of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care that were not realised in the measurements of this study need further research. These elements need to be further examined; education on collaboration, timely information exchange, support of the organisations and society for the collaboration, commonly agreed practices for nurse-to-nurse collaboration. In addition, more knowledge about the associated factors could give a better insight into the development of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care.

Finally, in further research there is a need to determine or develop and test the interventions to increase nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care. Probably, multiple interventions are required to develop nurse-to-nurse collaboration as this collaboration is a complex phenomenon with various elements and contexts. However, these interventions can be simple and easy to test, e.g. the role of the liaison nurse (Mallit *et al.* 2017), sharing digital platform discussions or contact information with other nurses working in different organisation (Kirsebom *et al.* 2013, Christiansen *et al.* 2017).

6.4 Implications for nursing education

Collaboration between nurses is one of the core competencies in the education of nurses which provides knowledge, skills and attitudes concerning collaboration (Cronenwett *et al.* 2007). After graduation, nurses are expected to work autonomously and provide collaborative care for individuals (ICN 2002). They also are expected to have collaborative and respectful relationships with nurse colleagues and other professionals (Finnish Nurses Association 1996, ICN 2012). It is important that inter-professional collaboration and teamwork with e.g. physician and physiotherapy students are used in nursing education. However, nurses need more education and training on how to collaborate with other nurses, especially with nurses who are working in different organisation. In the future, there is need to consider how nurse education could be developed to include nurse-to-nurse collaboration knowledge and training in the basic nursing care practices. The NNC-Model can be used as a framework in nurse education to provide guidelines for the enhancement of skills that are required in nurse-to-nurse collaboration on older people's nursing care.

6.5 Implications for nursing practice

Nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care is important for nurses. To collaborate, nurses need clearly defined roles, responsibilities, objectives and practices in nursing care (Kirsebom *et al.* 2013, Mallit *et al.* 2017). Nurses understand and give more value to their own the nurse's roles and responsibilities, and their work unit's function, work environment and care methods used in older people's nursing care than they do to other nurses working in other organization. There is a need for knowledge about these issues from nurses working in different organisations in the healthcare service system.

The results of the study implied that older people are at the centre of care and nurses cared for the older people individually in nurse-to-nurse collaboration. However, older people did not always have the opportunity to participate in nurse-to-nurse collaboration. There is a need to acknowledge that the collaboration is mainly focused on the patients in nursing care and that involves patients' individual health needs. Therefore, nurses are recommended to provide older people the opportunity to participate in the collaboration to ensure individualised and comprehensive care.

Nurses respected each other and the interaction in nurse-to-nurse collaboration is open and confidential. However, they do not have time to interact with nurses working in other organisation. It is important to develop easy ways to interact with nursing colleagues, e.g. with new communication and information technology systems (Christiansen *et al.* 2017) or virtual environments (Lancasta Tintorer *et al.* 2018). These systems and environments can improve communication and collaboration and also take less time.

Finally, although nurses maintain their competence in collaboration, they do not participate into education related to collaboration. There is a need for more opportunities to learn and train collaboration between nurses. This education and training needs to include knowledge, skills, attitudes, practices and guidelines for collaboration between hospital and primary health care nurses on older people's nursing care. In addition, hospital and primary health care nurses are recommended to network widely and to consider job rotation. This can lead to nurses working in other organisations and promoting social relationships and their job satisfaction improving collaboration with each other.

6.6 Implications for nursing administration

It is important that hospital and primary health care organisations and changes in society support and create the infrastructure for the nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care. Collaborating nurses may have different interest, objectives, expectations,

experiences and ways of working (Morley & Cashell 2017). In these situations, the nurse leaders have the crucial role of managing these diverse point of views (Morley & Cashell 2017), and in promoting shared visions and commitment to mutual objectives, as well as fostering creativity and autonomy in collaborative nursing practices (Henneman *et al.* 1995).

To support nurse-to-nurse collaboration, commonly agreed rules/guidelines, objectives and responsibilities, and the nurses' roles need to be clearly defined in different contexts. In addition, it is important to provide time and resources for nurses to collaborate in planning together the nursing care of older people. The development of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care can promote the transfer of knowledge, sharing information, evidence-based practices (Morley & Cashell 2017), responsive practices (Henneman *et al.* 1995, Morley & Cashell 2017), quality of care, patient engagement, patient safety (Morley & Cashell 2017) and patient satisfaction (Emich 2018). In addition, positive improvements in collaboration can be detected in the job satisfaction of nurses (Emich 2018, Ylitörmänen *et al.* 2019a) and a decrease in the turnover rates of nurses (Emich 2018).

In this study preliminary tested NNC-Model can be used as a framework by healthcare leaders when they plan and implement the collaboration between hospital and primary health care into practice and promote the continuity of care for older people. However, the NNC-Model do need further revisions and testing.

7 Conclusions

This study provided new knowledge in three areas: 1) definition and framework, 2) measurement, and 3) knowledge of the level of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care. This new knowledge defines a complex and multidimensional process of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care from the perspective of the literature, nurses and older people.

Models and instruments that can increase the understanding of nurse-to-nurse collaboration are limited. Therefore, varied methods were used to develop a model and instrument from this multi-dimensional and abstract concept. The comprehensive knowledge, the model, and the instrument for nurse-to-nurse collaboration provides a broad perspective of the elements in this collaboration and a method for measuring the level of this collaboration.

The measurements in this study indicated: 1) there is nurse-to-nurse collaboration from the perspective of hospital and primary health care nurses, 2) the commonly agreed practices, objectives and responsibilities, and nurses' roles do need to be defined more clearly in this collaboration, 3) there is a need for structures and support collaboration from hospital and primary health care organisations, changes in society and also in nursing education to develop collaboration.

There is a solid base to start these developments as the hospital and primary health care nurses consider nurse-to-nurse collaboration between these organisations as important and they respect each other in open and confidential interactions. In this collaboration, nurses consider the patients to be at the centre of the care and they plan, organise and provide individualised care for older patients.

Nurse-to-nurse collaboration is recognised as being essential to the safe, high-quality and continuity of care of older people. For the development of nurse-to-nurse collaboration between hospital and primary health care on older people's nursing care, this study produced a hypothetical model (NNC-Model) as a framework and an instrument (NN-CoBS) for the measurement in order to present a comprehensive understanding of the phenomenon. The model demonstrated a partly favourable fit and the instrument demonstrated preliminary and acceptable psychometric properties. However, the study findings suggest the need to focus on developing

interventions to develop nurse-to-nurse collaboration between organisations and further revisions, testing and evaluations to ensure the validity and reliability of the instrument and theoretical structure of the model.

Acknowledgements

This study was conducted in the Department of Nursing Science, University of Turku, Doctoral Programme in Nursing Science DPNurs. During this research process, many people inspired, encouraged, supported and guided in this journey of conducting my research. I would like to express my gratitude to these people.

I would like to express my deepest gratitude to my inspiring and excellent supervisors Professor Riitta Suhonen, PhD, RN and Docent Päivi Voutilainen, PhD, RN. Riitta, your support and time for me and this study has meant a lot to me. First, I want to thank you for your believing in me and this research study to succeed. Your demanding but understanding guidance throughout the research process has abled me to grow as a scientist and to conduct this extensive and timely research study. Your expertise and inspirational approach in research have led me to found enthusiasm for science. Docent Päivi Voutilainen RN, PhD sadly passed away in June 2017. Päivi, your expertise in health policy and care of older people have helped me to understand comprehensively continuity of the older people care between healthcare organizations. Your valuable comments and comprehensive perspective of the topic which have been significant in focusing the aim of the study and research process. I want also to thank my supervisory committee, Docent Minna Stolt, PhD, podiatrist and Sini Eloranta, Docent, RN. Minna, your expertise in research methodology, especially in instrument development, has guided the me on conducting a valid and reliable research study. Sini, your expertise on the research field of the older people nursing care has helped me to understand research of the older people nursing care more comprehensive.

I express my gratitude to my statistical expert Pauli Puukka, MSocSc, for his understanding, guidance and support in statistical analysis methods. I want also to thank Norman Rickard for editing English in the articles published and Elizabeth Nyman for editing English in the summary. Additionally, Anna Mäkinen and Tero Vesanen for your help with the page layouts and other computer-related matters.

I want to thank official reviewers of this study report, Associate Professor, Vice Head of Department of Nursing Tarja Kvist and Professor of Nursing Roger Watson. Their thorough review and constructive comments helped me to improve the report of this study.

I want to express my warm gratitude to all the participants who took time to participate to my research study in its different phases. Without you, my research would never be completed. Especially, I want to thank all the patients and nurses who wanted to participate and gave their important contribution to this research. I want also to thank all the nursing directors, managers and contact persons, who helped during the applying the research approvals or data collection.

I express my gratitude to Professors and fellow researchers at the Department of the Nursing Science. Professor Helena Leino-Kilpi, PhD, RN, your expertise and excellence in nursing science, conducting research and guidance to Doctoral students gave me solid ground to grow scientist. Professor Sanna Salanterä, PhD, RN, for your constructive comments for the Paper III. Professor Leena Salminen, PhD, RN, I want to thank you for our guidance and discussions from nursing science, especially from the nurse educators' perspective. Professor Elina Haavisto, your guidance helped me to grow in researcher career and in working in research group enabling me to have different perspectives to my own research.

I want to thank my fellow Doctoral candidates in the University of Turku Doctoral Programme in Nursing Science. Especially, Milla Ylitalo, MNSc, RN, Anna Laine, MNSc, RN, Pihla Markkanen, MNSc, RN, Anne Isotalo, PhD, Minna Ylönen, MNSc, RN, Jaana Koskenniemi, MNSc, RN, and Heidrum Gattinger for your constructive feedback and discussions about my research and conducting research in Nursing Science. Your support and constructive criticism have been valuable.

I thank my fellow workers and all my superiors at the Helsinki and Uusimaa Hospital District (HUS) and Helsinki University Hospital. Your support and encouragement have been very valuable. I thank you for your interest in my research and all the inspiring discussion about conducting research. Chief Nursing Executive (CNO) Kaarina Torppa, PhD, I want to express gratitude for your guidance on nursing care development and expertise on leadership. Professor Riitta Meretoja, PhD, I want to express gratitude for your guidance and expertise to conduct research and help to advance my scientist career. Your commitment to nursing science, advance nursing science and support for students in nursing science in HUS has been admirable. Marja-Liisa Stenroos, MNSc, I want to thank for encouragement to start my studies with nursing science. Hilkka Kivelä, MNSc, RN, I want to thank your warm support in believing my potential as a researcher. I thank all researchers and colleagues at the HUS, especially Jaana Kotila, Susanna Ruuskanen, MNSc, RN, Elina Koota, PhD, RN, Marita Ritmala-Castrén, PhD, RN, Leena Tuominen, MNSc, RN, Toni Haapa, PhD, RN and Docent Kristiina Junttila, PhD, for support, sharing ideas and fruitful discussions about conducting research. I want also to thank the HUS for a researcher position to conduct this research and support for all researchers in nursing science.

I want to thank my dear friends who had given me a lot of support and joy. The time that we had spent together has given me a social interaction and discussions about totally different thoughts. Especially, I want to thank Miss Suvi Komu and Miss Heidi Hyytiäinen for your support.

My warmest and loving gratitude goes to Janne, Topi and my Mom Raili. You have always supported me and give me power to carry on my nursing science studies and my research. Without you, this research and the finishing the thesis would not be completed. Thank you for being there for me. I want to also thank my father Taisto and his spouse Arja, and my brother Jari for support during these years.

This study received funding from the Department of the Nursing Science of University of Turku, The Finnish Work Environment Fund, year 2016 [grant number 115307] and The Foundation for Municipal Development sr, year 2017 [granted 10.6.2015].

Järvenpää 4.11.2020
Terhi Lemetti

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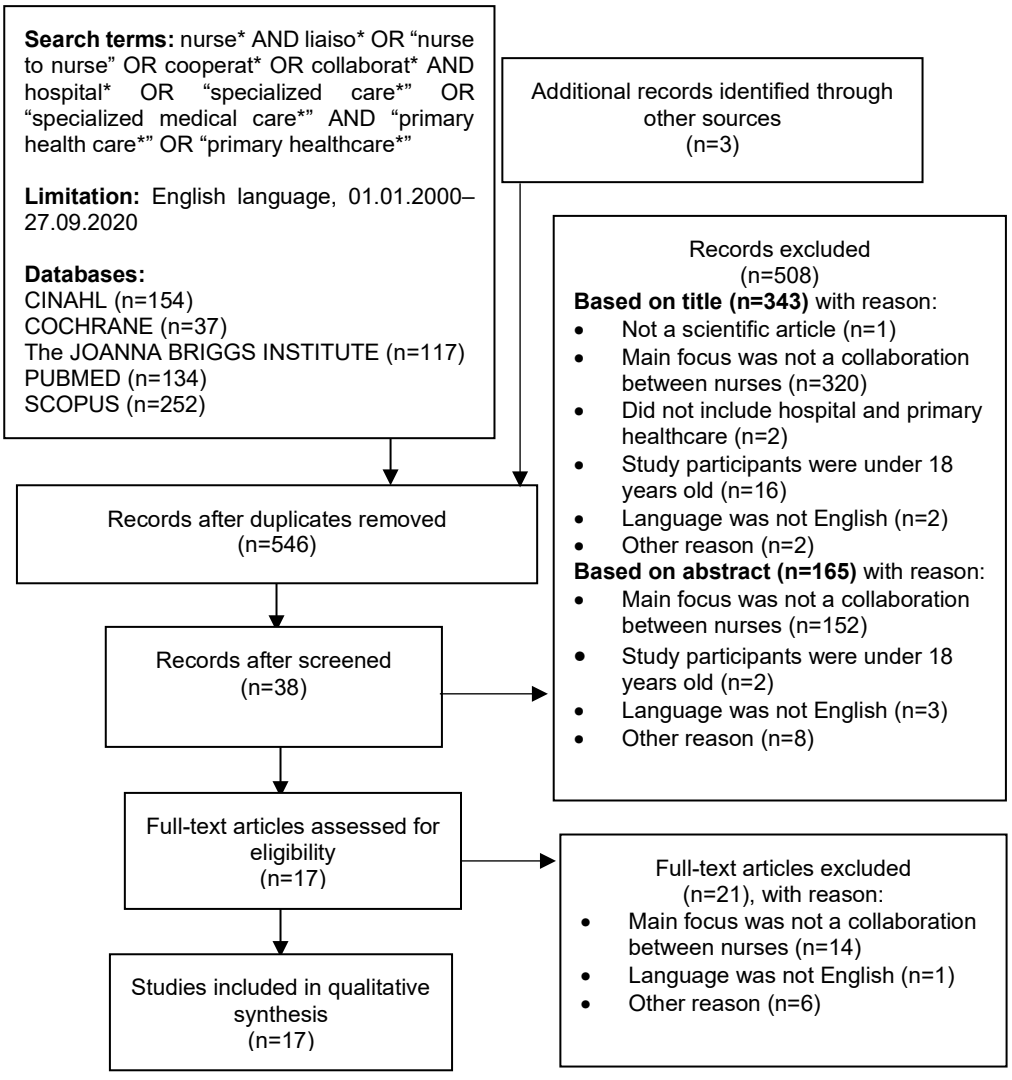
Appendices

Appendix 1. Flowchart for literature review of the concept of the collaboration between nurses working in hospitals and primary health care.



Appendix 2. Studies included in literature review of the concept of the collaboration between nurses working in hospitals and primary health care.

Author / Year / Country	Aim	Design / Method	Sample / Participants	The concept of the collaboration
Arnaert & Wainwright 2009 Canada	To explore experiences, perspectives and reflections of nurse-specialists in palliative home care	A qualitative study with interviews	5 nurse-specialists	• It was important that nurses acknowledge their own limitations and humanness in their work and collaboration • In collaboration nurses should back up and guide other nurses' decisions regarding patient care management with competence and experience • Nurses maintained their competence by attending conferences and workshops, through day-to-day experiences, and personal contacts for example with other healthcare providers • Shared person-centered goals should be mutually determined in collaboration by sharing information and in decision making • It was important to recognise the possibility of power imbalances between nurse-specialist and home care nurses' interaction which can have a negative effect on collaboration • A non-judgemental approach should be adopted in collaboration between nurses
Arts *et al.* 2000 The Netherland	To gain understanding into the effects of liaison nursing on the quality of the discharge process and related outcomes	Pre-test/post-test design with a questionnaire	22 hospital nurses	• The liaison nurse was the collaboration link between hospital and home care • The liaison nurse provided information for the collaboration • A liaison nurse can be confused with a social worker • Use of a liaison nurse could lead to a job demarcation for the hospital nurses as they spent less time collaborating with home care services

Cacchione 2020 USA	To provide past and present models to address the care needs of the expanding population of older adults	A review	11 models	• Hospital and primary health care nurses used tools from health information technology solutions to communicate about patient care management and improve advanced care planning
Christianse n *et al.* 2017 Sweden	To describe the indicators related to nurses' use of an information and communication technology systems collaboration between care levels and to estimate whether the level of use can be related to nurses' views of the systems contribution to improve coordination during hospital discharge	A qualitative survey with questionnai re	37 primary healthcare nurses	• 65% of participants used the information and communication technology system • The system was used to receive messages from other nurses, to communicate with other professionals, receive information about continued patient care during the discharge-planning process and to establish care plans

Costa *et al.* 2019 Brazil	To learn the profile and activities provided by the Hospital Nurse Liaison (HNL) for the continuity of care	An exploratory study, qualitative approach	19 Hospital Nurse Liaisons	• The HNL evaluated and verified the need for care continuity after discharge • The HNL used computer systems, telephone contacts, e-mails, in person contacts and meetings for consultations • The HNL used a Hospital' s Computerized Program to search for inpatients aged 75 years or over with associated comorbidities • The HNL promptly intervene in care and detect the need for care continuity and send reports to primary health care • The HNL make visits to primary health care to find out how different services work • Competencies and abilities required in the HNL role: the ability to deal with difficult situations, handling the care of patients who have complex health needs, knowledge about continuity of care, to be educator, working in teams and having empathy, self-control, responsibility and motivation
Dunnion & Kelly 2005 Ireland	To explore dimensions of the management of the older person following care in an emergency department in preparation for discharge home	A survey with questionnaires	135 medical and nursing staff from hospital (n= 30) and primary health care (n=105)	• Nurses in hospitals reported that the communication between hospital and primary healthcare nurses was more satisfactory than primary healthcare nurses • Communication could be improved by use of written communication, telephone, prompt contact and technology • Discharge documentation and the level of information received was reported to be unsatisfactory
Dunnion & Kelly 2008 Ireland	To examine key aspects of the management of the older person in preparation for discharge home from the emergency department to the primary healthcare	A survey with questionnaires	135 medical and nursing staff from hospital (n=30) and primary	• Nurses stated that there was a need to increase the level of referral between the hospital and primary healthcare • Nurses stated that the hospital discharge planning documentation was unsatisfactory • Documentation could be improved by starting to do documentation

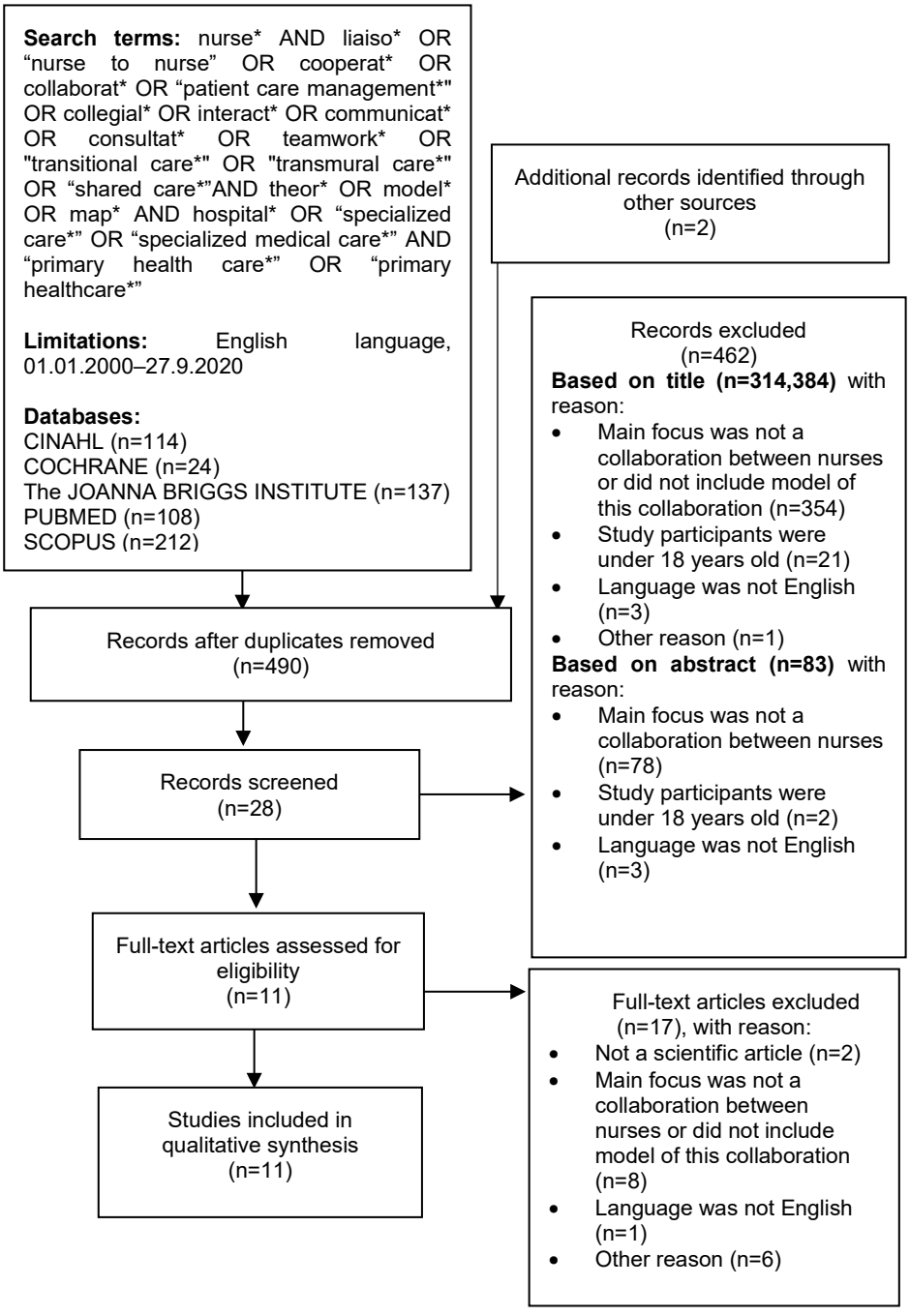
Kirsebom *et al.* 2013 Sweden	To explore hospital and nursing homes nurses' experiences of coordination and communication within and between care settings when older people transfer from nursing home to hospital and *vice versa*	A descriptive study with interviews	20 hospital (n=14) and nursing home (n=6) nurses	• Nursing home nurses desired contact with the hospital nurses to have information about the patient • Nursing home nurses emphasised the importance of a good dialogue via the telephone on information about transition • Nursing home nurses wanted to play a role in the decision making that influenced the future care of the patient as they have long-term engagements with and responsibility for older people • Nursing home nurses stated that the forward planning of transferred patient by the hospital was unsatisfactory • Nursing home nurses wished the hospital nurses to take more responsibility in the discharge process of older people • Collaboration and communication between nurses' in both setting increased their understanding of nurses' roles • To improve collaboration: job rotation, mutual meetings, discussion platforms and a mutual patient health records system
Lancasta Tintorer *et al.* 2018 Spain	To explore healthcare professionals' views on communities of clinical practice and the changes that need to be made Online Communication Tool between Primary and Hospital Care	A descriptive-interpretative qualitative study with interviews	29 women (n=18), physicians (n=21) and nurses (n=8) from primary healthcare and specialist care	• There is a need to bring different areas of care and knowledge closer together in order obtain a collaborative working culture that would benefit patients • Collaboration in virtual environments: positive and negative aspects • Virtual environments are seen as a good forum for sharing clinical cases but the collaborative aspect of the tool might represent a barrier, some professionals are unwilling to communicate in public
Lemetti *et al.* 2015 Finland	To increase the understanding of collaboration between nurses working with adults in hospital and primary healthcare	A literature review	22 articles	• Collaboration process: precursors, elements of collaboration, and processes and outcomes • Collaboration precursors: opportunity to participate, knowledge and shared objectives • Elements of collaboration: competency, awareness and understanding of the roles and interaction • Collaboration processes and outcomes: shared information and skills, guidance, important for quality of care, promote the provision of needed knowledge, care planning and awareness of responsibilities, and help in the smooth transfer of patients from hospital to home care and promote the continuity of patient care

Mallit *et al.* 2017 Australia	To determine changes in the number of emergency department presentation, length of stays, and community health referrals in the 12 months following enrolment in a HealthOne Mount Druitt (HOMD) coordinated care program	Comparison a before-after from the health service electronic records and a cross-sectional postal survey	125 participants from HOMD with chronic and complex illness (electronic records) 56 health service providers (survey)	• HOMD provides two liaison nurses to facilitate communication, case conferencing and care coordination between service providers involved in the patients' care liaison nurses were seen as facilitators for effective communication and information exchange and care coordination in this collaboration • A partnership approach and collaboration were needed but the roles, responsibilities and expectations of partners were poorly defined • Some health service providers were unsure that their partners had sufficient skills (39 %) or time (47.3%) to collaborate • In collaborative care planning was more comprehensive for patients (82%), working was closer with other organisations (76%), relationships with healthcare professionals were enhanced (73%) and service coordination was improved for patients with multiple needs (75%)
McKenna *et al*. 2000 Ireland	To analyze all discharge policies and procedures used and reviewing the interface between hospital and primary healthcare services and the quality and standard documentation used	Retrospective study through trust records, a survey with questionnaires and interviews	188 (survey) hospital (n=115) and primary healthcare nurses (n=73) 11 (interviews) hospital (n=5) and primary healthcare (n=6)	• Nurses from hospitals found the quality and quantity of communication between hospital and primary healthcare very good (25.9%) or good (37.9%), in comparison the primary healthcare nurses found it unsatisfactory (68%) • Suggestions for improving communication: standardising discharge policy, access to nurses contact numbers, a liaison nurse, education of the different roles of nurses, getting to know nurses in the other organisation, more verbal contact and friendly communication • Nurses from hospitals found the discharge documentation between the hospital and primary healthcare good (41.4%) or satisfactory (31%), in comparison the primary healthcare nurses found it unsatisfactory (56%) or satisfactory (36.4%) • Suggestions for improving documentation: more detailed documentation and more space on the documentation for nursing interventions

Pittman & Forrest 2015 USA	To identify a typology of new and expanded registered nurses' roles in the context of Pioneer Accountable Care Organizations (ACO)	A qualitative study with interviews	18 nurse (n=16) and other (n=2) leaders	• Increase in the demand for new and expanded nurses' roles for a number of nurses in various coordination roles, the transfer of services from hospitals to primary health care with skilled nursing facilities, relocation of nurses from hospitals to primary health care units, the use of nurses as liaison care coordinator across various settings, and partnerships between nurses in hospital and primary health care • In the collaboration between hospital and primary health care " postdischarge summary" was used for each patient, these were then sent from the hospital to the primary healthcare or added to the electronic health record
Prasad *et al.* 2014 Canada	To describe the implementation of the Care for Seniors model of care that aims to improve care coordination and integration	Retrospective a before-after comparison with electronical data	Older adults living in a rural area	• The Care for Seniors model of care contains a nurse practitioner in geriatrics (NP-Geri) to develop a proactive geriatric service to increase access to primary health care for older persons and improve the quality of care of older people, and collaborate with other professionals • NP-Geri works with other sectors across the continuum to coordinate care and support older people as they transfer between sectors, including hospital and primary healthcare • More integrated care was seen when NP-Geri helped with the transitions between sectors • NP-Geri communicates through the electronic medical records, written correspondence, and personal visits to the setting to which older person was transitioning • NP-Geri ensured that the older persons had a coordinated and individualised care plan, including medication reconciliation, that ensured safe recovery and contributed to their ability to remain home
Ribas *et al.* 2018 Brazil	To identify the profile of the counter-referred patients by the liaison nurse and to describe the experience of the professionals who participated in the project	Intervention study with qualitative approach, questionnaire and counter-referral forms	38 hospital (n=12) and primary healthcare (n=26) nurses	• A liaison nurse promoted communication between hospital and primary healthcare • Suggestions to improve more communication: integrated computerised systems to schedule consultation times for the nurses to collaborate between hospital and primary healthcare

Simonsen-Rehn *et al.* 2009 Finland	To contribute understanding which factors influence health promotion action in primary healthcare	A cross-sectional survey with questionnaire	417 healthcare professionals from ambulatory care (34%), home care (25%) and inpatient care (41%) (38% was nurses from total participants)	• Healthcare professionals that collaborate outside the organisation were more likely to be engaged in health promotion
Temmink *et al.* 2000 The Netherlands	To describe the structural/organizational process and outcome characteristics of transmural nurse clinics	Retrospective study with reports and a survey with questionnaire	62 operational transmural nurse clinics for chronic patients	• All the transmural nurse clinics had close collaboration and joint responsibility with the hospital and home care organisations • The goals of the transmural nurse clinics were usually to improve the quality or continuity of care • The clinics held regular meetings between professionals of the hospital and home care services • About 80% of the clinics were held by nurses who had followed a 10-day course in nursing care for a specific patient group • One of the tasks of the nurses was to improve the competence of the professionals, and the coordination and organisation of care

Appendix 3. Flowchart for literature review of models of the collaboration between nurses working in hospitals and primary health care.



Appendix 4. Studies included in literature review of models of the collaboration between nurses working in hospitals and primary health care.

Author / Year / Country	Aim	Design / Method	Sample / Participants	Models of the collaboration
Aspinal et al. 2012 UK	To identify service models that provided care coordination and delivering continuity of care for people with long-term neurological conditions (LTNC)	A literature review and qualitative case study with interviews	71 adult patients with long-term neurological conditions	• Three service models were found that enhanced the continuity of care for people with a LTNC: community interdisciplinary neuro-rehabilitation teams, pro-active day opportunity services and neurology nurse specialists (NNSs) • NNSs enhanced longitudinal continuity in two ways: providing expert guidance and interventions and adopting the role of care coordinator • With the NNS coordination the information flow helped so that the patients did not have to repeat information to different professionals and the services were brought together • Consistent relationship with NNSs enhanced the feelings of trust, improved communication, and lead to a more responsive service provision • Patients had access to NNSs via telephone and email, and could meet NNSs in the primary health care or hospital unit • Communication, sharing information and coordination across services and sector boundaries between professionals leads to shared responsibility and collaboration • NNSs were in a good position to bridge the gap between hospital and primary health care
Boult *et al*. 2009 USA	To improve the quality, efficiency, or health-related outcomes of care for chronically ill older patients	A literature review	123 articles, 15 models	• The three models were concerned with the care transitions, including one that facilitated transitions from hospital to home • Most interventions in transitional care aimed to facilitate smoother, safer and more efficient transitions from hospital to other units of care • A nurse or an advanced practice nurse led the transitional care intervention' s • Patient education provided by nurses: nurses coach patients about communicating effectively with health professionals, perform a home visit, and monitors the patient after the transition

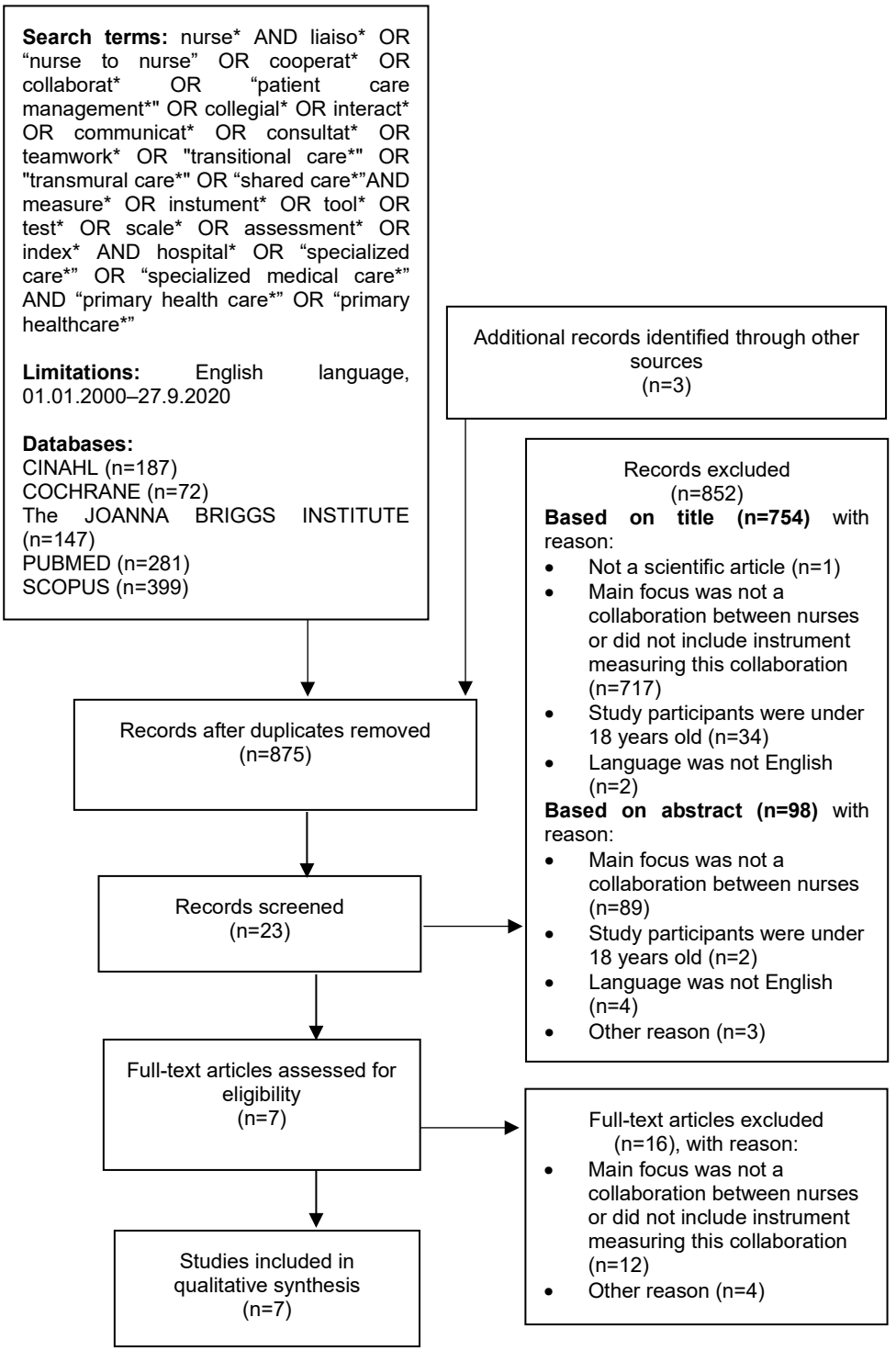
Brand *et al.* 2004 Australia	To determine whether a nurse-led chronic disease management model of transitional care reduced readmissions to acute care	A quasi-experimental controlled trial, 3- and 6-month follow up	166 general (intervention n=83 and control n=83) medical patients aged 65 or over with either a history of readmissions or multiple medical comorbidities	• A nurse-led chronic disease management model of transitional care included a chronic disease nurse consultant (CDNC) • The patient was seen by the CDNC within 24 hours before discharge and within 2 weeks of discharge • Duties of CDNC before discharge: collection of pre-discharge data, screening for risk factors for readmission, development of a plan for the care and follow-up, liaison with other healthcare professionals and discharge summary • Duties of CDNC after discharge: consultation with patient, review of care plan, coordination of collaboration between healthcare professionals and summary report • No difference between groups in readmission rates, emergency department presentation rates, quality of life or primary healthcare service utilisation
Brooten *et al.* 2002 USA	To describe the development, testing, modification, and results of the Quality Cost Model of Advanced practice nurse Transitional care	A literature review	7 randomized clinical trials	• A model of transitional care delivered by advanced practice nurses (APNs) was developed to serve as a safety net for vulnerable patient groups being discharged early from hospitals • Transitional care was defined as a comprehensive discharge plan for each patient group with home follow-up • APNs provided home visits and daily telephone availability, and physician backup • Improved patient outcomes and reduction of health care costs across different patient groups • APNs was master' s prepared • APNs prepared patients for discharge and coordinated discharge planning with patients, physicians, caregivers, hospital nurses, social service staff, primary healthcare professionals and equipment vendors • APNs consulted with physicians and other healthcare professionals

Cacchione 2020 USA	To provide past and present models to address the care needs of the expanding population of older adults	A review	11 models	• Two models related to nurse-to-nurse collaboration between hospital and primary health care were identified: INTERACT (Interventions to Reduce Acute Care Transfers) and TCM (Transitional Care Model) • INTERACT was a comprehensive quality improvement program to decrease hospitalizations of older people in primary health care, improve communication between healthcare professionals and improve advanced care planning with tools from health information technology solutions • TCM was a model to identify patient' s health goals, design and implement a plan of care and provide support for continuity of care across settings and between healthcare professionals • The components of TCM included: delivering care from hospital to home, screening at risk older people, the role of advanced practice nurses, promoting continuity of care, coordinating care, collaboration, maintaining relationships, engaging, managing symptoms and risks, educating and promoting self-management
Kornhaber *et al.* 2015 Australia	To identify the effectiveness of collaborative care models in relation to traumatic injury rehabilitation	A systematic review	1 article met the inclusion criteria, was excluded after critical appraisal	• No studies identified that were of sufficient quality

Mallit *et al.* 2017 Australia	To determine changes in the number of emergency department presentation, length of stays, and community health referrals in the 12 months following enrolment in a HealthOne Mount Druitt (HOMD) coordinated care program	Comparison a before-after from the health service electronic records and a cross-sectional postal survey	125 participants from HOMD with chronic and complex illness (electronic records) 56 health service providers (survey)	• A model with care coordination provided by a liaison nurse • HOMD provides two liaison nurses to facilitate communication, case conferencing and care coordination between service providers involved in the patients' care • The aim of HOMD was to bring all the healthcare professionals and services from different sectors together in an active partnership in collaboration with other providers liaison nurses were seen as facilitator for effective communication and information exchange and care coordination in this collaboration • In collaborative care the planning was more comprehensive for patients (82%), working collaboration was closer with other organisations (76%), relationships with healthcare professionals were enhanced (73%) and service coordination was improved for patients with multiple needs (75%)
Mora *et al.* 2017 USA	To analyze can a nurse practitioner (NP)-led intervention versus standard care decrease hospital readmissions older people care	A literature review	8 articles	• The Transitional Care Model used in the studies • Usually NP-led intervention included: bedside and home visits, daily availability of an NP via telephone, patient education, community referrals, care planning and coordination, communication and sharing information between healthcare professionals • Interventions in the studies had different number of NP visits and telephone calls in different periods of time
Naylor *et al.* 2004 USA	To examine the effectiveness of a transitional care intervention delivered by advanced practice nurses (APNs) to older people hospitalized with heart failure	A randomized controlled trial with follow-up through 52 weeks after hospital discharge	239 older patients	• Intervention based on the Quality Cost Model of APN Transitional Care (Brooten *et al.* 2002) • The main focus of the APN intervention during the patients hospitalisation phase was collaboration with physicians and other healthcare professionals about issues of discharge, care planning and arrangements for the home care services required • After patents were discharged APNs conducted assessments to identify changes in patients' health status

Ornstein *et al.* 2011 USA	To characterize the hospitalized homebound population and investigate provider feedback and program feasibility, effectiveness, and cost of a model of nurse practitioner (NP)-led transitional care program	27-months follow-up study with mixed-method	1 464 patients (follow-up), 21 healthcare professionals (focus group)	• Two NP were chosen for the role to minimise costs as they are less expensive than physicians • Duties of the NP: initial information exchange and documentation, contact with hospital staff, follow-up of the patients, discharge and after discharge processes • The intervention improved communication between hospital and primary health care, and facilitated the timely and accurate transfer of information • The length of stays in hospital and the readmissions rates were not significantly decreased
Prasad *et al*. 2014 Canada	To describe the implementation of the Care for Seniors model of care that aims to improve care coordination and integration	Retrospective a before-after comparison with electronical data	Older adults living in a rural area	• The Care for Seniors model of care contains a nurse practitioner in geriatrics (NP-Geri) to develop a proactive geriatric service to increase access to primary health care for older individuals and improve the quality of care of older people, and collaborate with other professionals • The NP-Geri works with other sectors across the continuum to coordinate care and support for older people as they transfer between sectors, including hospital and primary health care • The NP-Geri provided a once a month clinic day when the NP-Geri saw inpatients and made home visits, participated in weekly multidisciplinary team meetings with coordination and discharge planning for older patients • The NP-Geri collected a detailed health history from patients and conducted assessments • More integrated care was seen when the NP-Geri was helping with transitions between sectors • The NP-Geri communicated through electronic medical records, written correspondence, and personal visits to the setting to which older person was transitioning

Appendix 5. Flowchart for literature review of instruments for the measurement of the collaboration between nurses.



Appendix 6. Studies included in literature review of instruments for the measurement of the collaboration between nurses.

Author / Year / Country	Aim	Design / Method	Sample / Participants	Instruments for the measurement of the collaboration
Dunnion & Kelly 2005 Ireland	To explore dimensions of the management of the older person following care in an emergency department in preparation for discharge home	A survey with questionnaires	135 medical and nursing staff from hospital (n= 30) and primary health care (n=105)	• The questionnaires (one for hospitals and one for primary health care) were validated (McKenna *et al.* 2000) • The nitial questionnaire needed to change emergency specific for this study • Content validity was ensured by an expert group that had knowledge and experience of both setting in the hospital and primary health care • The domains that reported were: 1) procedures undertaken when discharging an older person from the emergency department, 2) discharge planning, 3) communication, 4) problems that exist for older patients, and 5) usefulness of a discharge liaison nurse for older people in the emergency department
Dougherty & Larson 2010 USA	To develop and examine the psychometric properties of a new instrument, the nurse-nurse collaboration (NNC) scale	A literature review, expert panel and pilot study	76 hospital nurses	• An instrument to measure collaboration between nurses was not found • Instruments twere found o measure domains of collaboration between nurses and physicians and instruments that included domains of collaboration used to define the concept of nurse-nurse collaboration and to identify potential items to developed NNC scale • 5 domains of collaboration were identified: 1) conflict management, 2) communication, 3) shared process, 4) coordination, 5) professionalism • NNC scale: 35 items measuring the 5 domains (29 adopted from other instruments, 6 developed as a result of comments from experts) • A Likert-type scale: strongly disagree, disagree, agree, strongly agree • Content and construct validity reviewed by 4 nursing faculty members • 3 doctoral students with experience of the study settings tested the scale and the scale was pilot tested with 76 hospital nurses • Cronbach α for the overall scale was 0.89 and the individual subscales were 0.66–0.90 • Inter-scale correlations ranged from 0.04 to 0.21: the scale did not measure a single construct, rather individual domains that promote the concept of collaboration

Holden *et al.* 2010 USA	To determine if there is a difference in perception of physicians, nurses, nurse practitioners and pharmacists, in terms of safety climate and communication and collaboration	A survey with questionnaire	107 primary healthcare physicians (n=39) nurses (n=46), nurse practitioners (n=12) and pharmacists (n=10)	• The Safety Attitudes Questionnaire (SAQ) developed by Sexton *et al.* (2006) was used • This research study used the SAQ for professional group to rate other group, for example nurses rated other nurses and nurse practitioners on their quality of collaboration, communication, and safety • The participants completed the questionnaire in 10–15 minutes • The questionnaire included 6 domains: 1) teamwork climate, 2) safety climate, 3) perception of management, 4) job satisfaction, 5) working conditions, and 6) stress recognition • A 5-point Likert scale of very low to very high (collaboration and communication) and disagree strongly to agree strongly (safety) • Previous studies reported that the Cronbach α ranged from 0.74 to 0.93
Lemetti *et al.* 2015 Finland	To increase the understanding of collaboration between nurses working with adults in hospital and primary healthcare	A literature review	22 articles	• One instrument for measuring nurse-to-nurse collaboration by Dougherty & Larson (2010) was identified
Marques Acosta *et al.* 2018 Brazil	To analyze the activities delivered by nurses in the transfer of patient care with hospital discharge	A quantitative cross-sectional and descriptive study with questionnaire	72 nurses from hospital	• A structured, self-applicable online questionnaire developed by the researchers from the literature review about the nurse’ s role in the transfer of the patient care from the hospital to home • The instrument had three sections: 1) characterisation of the participant, 2) nurse’ s activities in the transfer of patient care (scale: never, rarely, sometimes, often and always), and 3) difficulties carrying out care transition (scale: strongly disagree, disagree, don’ t disagree neither agree, agree and totally agree) • Before the main data were collected, there was a pre-test with seven nurses who made suggestions and evaluated the instrument • The psychometric properties of the instrument were not tested or discussed

McKenna *et al.* 2000 Ireland	To analyze all discharge policies and procedures used and reviewing the interface between hospital and primary healthcare services and the quality and standard documentation used	Retrospective study through trust records, a survey with questionnaires and interviews	188 (survey) hospital (n=115) and primary healthcare nurses (n=73) 11 (interviews) hospital (n=5) and primary healthcare (n=6)	• The questionnaires (one for the hospital and one for primary health care) were developed for this study from the literature • Face and content validity were checked with a pilot sample and an expert panel with expertise in the field of discharge planning • The aim is to obtain other psychometric properties aimed to obtain in the further studies • The domains were reported from the findings of the questionnaire were: 1) general considerations of discharge planning, 2) involvement in discharge planning, 3) communication, 4) documentation, and 5) solutions to discharge problems
Sexton *et al.* 2006 USA	To describe the psychometric properties of The Safety Attitudes Questionnaire (SAQ)	Six cross-sectional surveys in three countries (USA, UK, New Zealand)	10 843 healthcare providers in different clinical areas from hospitals	• SAQ is a refinement of the Intensive Care Unit Management Attitudes Questionnaire which was developed based on a questionnaire widely used in commercial aviation, the Flight Management Attitudes Questionnaire (FMAQ) • The FMAQ measure the attitudes of crew performance about teamwork, speaking up, leadership, communication and collaborative decision making • The SAQ items were developed by discussions with healthcare professionals and experts of the topic, items tested through the pilot study and exploratory factor analyses • The questionnaire included 6 domains: 1) teamwork climate, 2) safety climate, 3) perception of management, 4) job satisfaction, 5) working conditions, and 6) stress recognition • A 5-point Likert scale of very low to very high (collaboration and communication) and disagree strongly to agree strongly (safety) was used • The questionnaire took 10–15 minutes to complete • The Cronbach α for the overall scale was 0.9 • The multi-level factor analyses demonstrated that the SAQ has good psychometric properties

Appendix 7. Content validity of the NN-CoBS Instrument and modification based on the expert panels.
(©Terhi Lemetti 2017, continues in the next page)

NN-CoBS **Items**	**EXPERT PANEL 1** (n=10) clarity (%)	**EXPERT PANEL 1** (n=10) no other item measure the same (%)	**EXPERT PANEL 2** (n=11) understand-able of the items (%)	**EXPERT PANEL 2** (n=11) relevance I-CVI **S-CVI**	**NN-CoBS ITEM AFTER MODIFICATION**
OSIO B: Ympäristö ja tilanne **Sairaanhoitajien välinen yhteistyö yleisesti:**				**0.91**	
15. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisessä yhteistyössä sairaanhoitajien työssä toteutuvat seuraavat asiat: Sairaanhoitajat ymmärtävät					
1 Oman yksikön toiminnan	88.9	85.7	72.7	1.00	15.Sairaanhoitajat ymmärtävät oman yksikön toiminnan yhteistyössä.
2 Oman roolinsa	77.8	71.4	100.0	1.00	17. Sairaanhoitajat ymmärtävät oman roolinsa yhteistyössä.
3 Oman vastuualueensa	88.9	42.9	81.8	1.00	19. Sairaanhoitajat ymmärtävät oman vastuualueensa yhteistyössä.
4 Oman yksikön työympäristön	75.0	100.0	63.6	0.63	21. Sairaanhoitajat ymmärtävät oman yksikön toimintaympäristön yhteistyössä.
5 Oman yksikön hoitotoimenpiteet ja –välineet	88.9	85.7	81.8	0.73	23. Sairaanhoitajat ymmärtävät oman yksikön hoitotoimenpiteet ja hoidossa käytettävät hoitovälineet yhteistyössä.

NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** (n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS ITEM AFTER MODIFICATION**
Sairaanhoitajat arvostavat					
1 Oman yksikön toiminnan	100.0	85.7	100.0	0.91	25. Sairaanhoitajat arvostavat oman yksikön toimintaa yhteistyössä.
2 Oman roolinsa	90.0	85.7	90.9	0.91	27.Sairaanhoitajat arvostavat omaa rooliaan yhteistyössä.
3 Oman vastuualueensa	90.0	57.1	81.8	0.82	29. Sairaanhoitajat arvostavat omaa vastuualuettaan yhteistyössä.
4 Oman yksikön työympäristön	70.0	100.0	54.5	0.78	31. Sairaanhoitajat arvostavat oman yksikön toimintaympäristöä yhteistyössä.
5 Oman yksikön hoitotoimenpiteet ja –välineet	77.8	85.7	81.8	0.90	33. Sairaanhoitajat arvostavat oman yksikön hoitotoimenpiteitä ja hoidossa käytettäviä hoitovälineitä yhteistyössä.

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** (n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS ITEM AFTER MODIFICATION**
16. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisessä yhteistyössä sairaanhoitajien työssä toteutuvat seuraavat asiat: Sairaanhoitajat ymmärtävät:					
1 Yhteistyökumppanin yksikön toimintaa	77.8	85.7	90.9	0.90	16. Sairaanhoitajat ymmärtävät yhteistyökumppanin yksikön toiminnan yhteistyössä.
2 Yhteistyökumppanin roolin	88.9	85.7	100.0	1.00	18. Sairaanhoitajat ymmärtävät yhteistyökumppanin roolin yhteistyössä.
3 Yhteistyökumppanin vastuualueen	88.9	71.4	90.9	1.00	20. Sairaanhoitajat ymmärtävät yhteistyökumppanin vastuualueen yhteistyössä.
4 Yhteistyökumppanin työympäristöä	66.7	100.0	54.5	0.75	22. Sairaanhoitajat ymmärtävät yhteistyökumppanin toimintaympäristön yhteistyössä.
5 Yhteistyökumppanin yksikön hoitotoimenpiteitä ja –välineitä	66.7	85.7	90.9	0.90	24.Sairaanhoitajat ymmärtävät yhteistyökumppanin yksikön hoitotoimenpiteitä ja hoidossa käytettäviä hoitovälineitä yhteistyössä.

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** (n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
Sairaanhoitajat arvostavat					
1 Yhteistyökumppanin yksikön toimintaa	90.0	85.7	100.0	1.00	26. Sairaanhoitajat arvostavat yhteistyökumppanin yksikön toimintaa yhteistyössä.
2 Yhteistyökumppanin roolin	90.0	85.7	100.0	1.00	28. Sairaanhoitajat arvostavat yhteistyökumppanin roolia yhteistyössä.
3 Yhteistyökumppanin vastuualueen	90.0	71.4	90.9	1.00	30. Sairaanhoitajat arvostavat yhteistyökumppanin vastuualuetta yhteistyössä.
4 Yhteistyökumppanin työympäristöä	70.0	100.0	72.7	1.00	32. Sairaanhoitajat arvostavat yhteistyökumppanin toimintaympäristöä yhteistyössä.
5 Yhteistyökumppanin yksikön hoitotoimenpiteitä ja –välineitä	80.0	100.0	90.9	0.90	34. Sairaanhoitajat arvostavat yhteistyökumppanin yksikön hoitotoimenpiteitä ja hoidossa käytettäviä hoitovälineitä yhteistyössä.

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** (n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
Sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa:					
17. Ikääntyvä potilas on keskiössä sairaanhoitajien välisessä yhteistyössä.	90.0	100.0	90.9	0.82	
18.Tavoitteet ovat realistiset ikääntyvän potilaan hoidossa ja siihen kohdistuvassa yhteistyössä.	60.0	100.0	90.9	1.00	
OSIO C: Olosuhteet Sairaanhoitajien välinen yhteistyö yleisesti:				**0.90**	
19.Yhteistyössä toimivat sairaanhoitajat ymmärtävät yhteistyön tuoman voiman hoitotyöhön.	60.0	83.3	90.9	0.91	
20.Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö on tärkeää sairaanhoitajille.	88.9	85.7	100.0	1.00	
21.Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajilla on yhteinen halu tehdä yhteistyötä keskenään.	90.0	100.0	100.0	0.91	

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** **(**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
22.Yhteistyössä toimivat sairaanhoitajat omaavat kunnioittavan asenteen toisessa organisaatiossa työskentelevää sairaanhoitajaa kohtaan.	80.0	87.5	100.0	1.00	
23.Yhteistyössä toimivat sairaanhoitajat omaavat kannustavan asenteen toisessa organisaatiossa työskentelevää sairaanhoitajaa kohtaan.	90.0	87.5	100.0	1.00	
24.Yhteistyössä toimivat sairaanhoitajat omaavat kiireettömän asenteen toisessa organisaatiossa työskentelevää sairaanhoitajaa kohtaan.	70.0	100.0	90.9	0.82	
25.Sairaanhoitajille on tärkeää työskennellä oman ammattiryhmän jäsenen kanssa.	100.0	100.0	90.9	0.82	
26.Eri yksiköiden sairaanhoitajilla on oma osaamisalueensa, jota he hyödyntävät yhteistyössä.	80.0	75.0	90.9	0.91	Delete the item, measure same that the item 81

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** **(**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
27. Eri yksiköiden sairaanhoitajilla on oma vastuualueensa yhteistyössä.	80.0	62.5	81.8	0.91	
28. Sairaanhoitajat ylläpitävät yhteistyössä hyödynnettävää osaamistaan.	55.6	100.0	90.9	1.00	
29. Sairaanhoitajilla on mahdollisuus osallistua työkiertoon erikoissairaanhoidon ja perusterveydenhuollon välillä.	90.0	100.0	100.0	0.73	Maintain the item, from the older people interviews
30. Sairaanhoitajilla on mahdollisuus osallistua yhteistyöhön erikoissairaanhoidon ja perusterveydenhuollon välillä toisen sairaanhoitajan kanssa.	70.0	85.7	72.7	0.89	
31. Sairaanhoitajilla on mahdollisuus ottaa yhteyttä toisessa organisaatiossa työskentelevään sairaanhoitajaan.	100.0	85.7	100.0	0.91	
32.Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajilla on saatavilla vuorovaikutus-/yhteydenottovälineet yhteistyötä varten.	88.9	100.0	90.9	1.00	

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2 (**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
Sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa:					
33. Potilaat arvostavat sairaanhoitajia, jotka toimivat yhteistyössä ikääntyvien potilaiden hoidossa.	88.9	100.0	81.8	0.82	
34. Potilaat luottavat sairaanhoitajiin, jotka toimivat yhteistyössä ikääntyvien potilaiden hoidossa.	88.9	100.0	90.9	1.00	
35. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajat ovat sitoutuneita ikääntyvien potilaiden hoitoon.	90.0	100.0	81.8	0.82	
36. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajat osallistuvat koulutukseen liittyen heidän väliseen yhteistyöhön ikääntyvien potilaiden hoidossa.	80.0	100.0	81.8	0.91	

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** **(**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
37. Yhteiskunnalliset muutokset tukevat sairaanhoitajien välistä yhteistyötä ikääntyvien potilaiden hoidossa.	55.6	100.0	63.6	0.82	
38. Erikoissairaanhoito ja perusterveydenhuolto työnantajaorganisaatioina tukevat sairaanhoitajien välistä yhteistyötä ikääntyvän potilaiden hoidossa.	90.0	100.0	81.8	0.73	Maintain the item, expert panel discussion
OSIO D: Toiminta ja Vuorovaikutus Sairaanhoitajien välinen yhteistyö yleisesti:				**0.90**	
39. Erikoissairaanhoidossa ja perusterveydenhuollossa yhteistyössä toimiville sairaanhoitajille on laadittu yhteiset tavoitteet.	90.0	87.5	90.9	0.73	Maintain the item, from the older people interviews
40. Erikoissairaanhoidossa ja perusterveydenhuollossa yhteistyössä toimiville sairaanhoitajille on laadittu yhteiset säännöt/toimintaohjeet yhteistyössä toimimiseen.	90.0	87.5	100.0	0.82	

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** **(**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
41. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välillä on vuorovaikutusta.	90.0	100.0	90.9	0.73	Maintain the item, from the older people interviews
42. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välillä on yhteistyötoimintaa.	80.0	83.3	81.8	0.90	
43. Tiedonkulku yhteistyössä toimivien sairaanhoitajien välillä on nopeaa.	88.9	100.0	100.0	1.00	
44. Yhteistyössä toimivien sairaanhoitajien välillä siirtyvä tieto on paikkaansa pitävää.	88.9	100.0	100.0	1.00	
45. Sairaanhoitajat kouluttavat toisessa organisaatiossa työskentelevää sairaanhoitajia ja päivittävät heidän osaamistaan.	66.7	100.0	100.0	0.64	Maintain the item, from the older people interviews

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** **(**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
46. Sairaanhoitajilla on ongelmanratkaisukykyä yhteistyössä.	88.9	100.0	90.9	0.91	
47. Erikoissairaanhoidossa ja perusterveydenhuollossa yhteistyössä toimivien sairaanhoitajien välinen vuorovaikutus on luottamuksellista.	90.0	100.0	90.9	0.91	
48. Erikoissairaanhoidossa ja perusterveydenhuollossa yhteistyössä toimivien sairaanhoitajien välinen vuorovaikutus on avointa.	90.0	100.0	100.0	1.00	
49. Erikoissairaanhoidossa ja perusterveydenhuollossa yhteistyössä toimivat sairaanhoitajat tukevat toisiaan kollegiaalisesti.	80.0	100.0	90.9	1.00	
50. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajat kokevat yhteistyön sujuvaksi toisen sairaanhoitajan kanssa.	100.0	100.0	100.0	1.00	

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2 (**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
Sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa:					
51. Erikoissairaanhoidossa ja perusterveydenhuollossa yhteistyössä toimivat sairaanhoitajat suunnittelevat yhteistyössä ikääntyvään potilaaseen kohdistuvan hoitotyön.	80.0	100.0	100.0	0.91	
52. Erikoissairaanhoidossa ja perusterveydenhuollossa yhteistyössä toimivilla sairaanhoitajilla on yhtenäiset hoitotoimenpiteet ja hoidossa käytettävät välineet yhteisen ikääntyvän potilaan hoidossa.	55.6	100.0	72.7	0.70	Delete the item
53. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välillä tieto siirtyy ikääntyvän potilaan hoitoon liittyen.	100.0	100.0	100.0	1.00	

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** (n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
54. Mikä tai mitkä seuraavista perustuvat tällä hetkellä erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisessä yhteistyössä ikääntyvän potilaan turvalliseen hyvinvointiin ja etuihin:					
1 Yhteiset tavoitteet	88.9	100.0	90.9	1.00	70. Asetetut yhteiset tavoitteet ikääntyvän potilaan hoidon yhteistyössä perustuvat potilaan turvalliseen hyvinvointiin ja etuihin.
2 Yhteistyön säännöt/ toimintaohjeet	88.9	100.0	90.9	0.82	71. Asetetut yhteiset säännöt/ toimintaohjeet ikääntyvän potilaan hoidon yhteistyössä perustuvat potilaan turvalliseen hyvinvointiin ja etuihin.
3 Hoitosuunnitelmat	88.9	100.0	90.9	0.91	72. Laaditut hoitosuunnitelmat ikääntyvän potilaan hoidon yhteistyössä perustuvat potilaan turvalliseen hyvinvointiin ja etuihin.
4 Hoitotoimenpiteet ja –välineet	75.0	100.0	90.9	0.90	73. Hoitotoimenpiteet ja hoidossa käytettävät hoitovälineet ikääntyvän potilaan hoidon yhteistyössä perustuvat potilaan turvalliseen hyvinvointiin ja etuihin.

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2 (**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
55. Mikä tai mitkä seuraavista perustuvat tällä hetkellä erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisessä yhteistyössä ikääntyvän potilaan hoidon jatkuvuuteen:					
1 Yhteiset tavoitteet	77.8	100.0	90.9	0.91	74. Yhteiset tavoitteet ikääntyvän potilaan hoidon yhteistyössä perustuvat potilaan hoidon jatkuvuuteen.
2 Yhteistyön säännöt/ toimintaohjeet	88.9	100.0	90.9	1.00	75. Yhteistyön säännöt/ toimintaohjeet ikääntyvän potilaan hoidon yhteistyössä perustuvat potilaan hoidon jatkuvuuteen.
3 Hoitosuunnitelmat	88.9	100.0	90.9	1.00	76. Hoitosuunnitelmat ikääntyvän potilaan hoidon yhteistyössä perustuvat potilaan hoidon jatkuvuuteen.
4 Hoitotoimenpiteet ja –välineet	87.5	100.0	90.9	0.91	77. Hoitotoimenpiteet ja hoidossa käytettävät välineet ikääntyvän potilaan hoidon yhteistyössä perustuvat potilaan hoidon jatkuvuuteen.

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** **(**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
OSIO E: Seuraukset **Sairaanhoitajien välinen yhteistyö yleisesti:**				**0.86**	
56. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välillä on sairaanhoitajien työtyytyväisyyttä parantavaa yhteistyötä.	80.0	100.0	90.9	0.64	Maintain the item, from the older people interviews
57. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajat jakavat yhteisen potilaan hoidon koordinoidusti.	55.6	100.0	63.6	0.91	
58. Sairaanhoitajat ymmärtävät erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisessä yhteistyössä hyödynnettävissä olevat osaamisalueet.	77.8	85.7	81.8	0.73	Delete the item
59. Sairaanhoitajat hyödyntävät erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisessä yhteistyössä sairaanhoitajien osaamisalueita.	77.8	85.7	81.8	0.80	Delete the item, measure same that the item 81
60. Sairaanhoitajien osaamista jaetaan heidän välisen ohjauksen ja konsultaatioiden kautta yli organisaatiorajojen.	44.4	100.0	81.8	0.73	Maintain the item, from the older people interviews

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NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** (n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
61. Sairaanhoitajien välisen yli organisaatiorajojen tapahtuvan ohjauksen ja konsultaatioiden avulla sairaanhoitajien itsevarmuus on lisääntynyt potilaan hoidossa.	66.7	100.0	100.0	0.73	Delete the item
62. Erikoissairaanhoidossa ja perusterveydenhuollossa yhteistyössä toimivat sairaanhoitajat antavat palautetta toisilleen.	90.0	100.0	100.0	0.91	
63. Palautteen kautta saadaan tietoa sairaanhoitajien välisessä yhteistyössä tapahtuneista haitta-/vahinkotapahtumista.	88.9	100.0	100.0	1.00	
64. Erikoissairaanhoidon ja perusterveydenhuollossa yhteistyössä toimivien sairaanhoitajien välisiin haittatapahtumiin puututaan suunnitellusti.	80.0	100.0	100.0	1.00	
65. Erikoissairaanhoidossa ja perusterveydenhuollossa toimivat sairaanhoitajat verkostoituvat laajasti keskenään.	100.0	100.0	90.9	0.64	Maintain the item, expert panel discussion

continues in the next page

NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** **(**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
66. Erikoissairaanhoidossa ja perusterveydenhuollossa toimivat sairaanhoitajat ajavat yhteisiä asioita yhdessä ammattiliittojen/ -yhdistysten kautta.	90.0	100.0	100.0	0.55	Delete the item
Sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa:					
67. Sairaanhoitajien yleisen näkemysten mukaan ikääntyvät potilaat ovat tyytyväisiä erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien väliseen yhteistyöhön.	100.0	100.0	90.9	0.91	
68. Sairaanhoitajien näkemysten mukaan ikääntyneet potilaat luottavat sairaanhoitajien väliseen yhteistyöhön terveydenhuollossa.	100.0	100.0	100.0	1.00	
69. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajat hoitavat ikääntyvää potilasta yksilöllisesti yhteistyössä.	88.9	100.0	100.0	1.00	

continues in the next page

NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** (n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
70. Ikääntyvällä potilaalla on mahdollisuus osallistua erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien väliseen yhteistyöhön.	70.0	100.0	90.9	0.73	Maintain the item, from the older people interviews
71. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välillä on yhteistyötä tasapuolisesti tarvittaessa jokaisen ikääntyvän potilaan kohdalla.	88.9	100.0	90.9	0.73	Maintain the item, from the older people interviews
72. Sairaanhoitajien näkemysten mukaan erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välillä on ikääntyvän potilaan hoidon laatua parantavaa yhteistyötä.	90.0	100.0	100.0	1.00	
73. Tarpeettomia potilassiirtoja ei tapahdu erikoissairaanhoidon ja perusterveydenhuollon välillä ikääntyvien potilaiden hoidossa.	88.9	100.0	100.0	0.82	
74. Tutkimuksia ei toisteta turhaan erikoissairaanhoidon ja perusterveydenhuollon välisessä yhteistyössä ikääntyvien potilaiden hoidossa.	90.0	100.0	90.9	1.00	

continues in the next page

NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** **(**n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
75. Päällekkäisiä hoitoja ei anneta erikoissairaanhoidon ja perusterveydenhuollon välisessä yhteistyössä ikääntyvien potilaiden hoidossa.	80.0	85.7	100.0	1.00	
76. Erikoissairaanhoidon ja perusterveydenhuollon välillä vastuu ikääntyvän potilaan hoidosta siirtyy koordinoidusti organisaatiosta toiseen.	77.8	100.0	100.0	1.00	
77. Ikääntyvän potilaan kokonaishoidon vastuuhenkilöt on sovittu erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisessä yhteistyössä.	77.8	85.7	90.9	1.00	
78. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajilla on kokonaiskuva yhteisestä ikääntyvästä potilaasta.	66.7	100.0	90.9	0.90	

continues in the next page

NN-CoBS ITEMS	**EXPERT PANEL 1** (n=10) **clarity (%)**	**EXPERT PANEL 1** (n=10) **no other item measure the same (%)**	**EXPERT PANEL 2** (n=11) **understandable of the items (%)**	**EXPERT PANEL 2** (n=11) **relevance** I-CVI **S-CVI**	**NN-CoBS** **ITEM AFTER MODIFICATION**
79. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien roolit on määritelty selkeästi yhteistyössä ikääntyvän potilaan hoidossa.	100.0	100.0	72.7	0.82	
80. Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien toiminta on määritelty selkeästi yhteistyössä ikääntyvän potilaan hoidossa.	77.8	85.7	90.9	0.82	
81. Sairaanhoitajat hyödyntävät osaamistaan ikääntyvän potilaan hoidossa yli organisaatiorajojen.	88.9	100.0	90.9	0.90	
82. Ikääntyvän potilaan hoito toteutuu jatkohoitopaikassa saumattomasti erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisessä yhteistyössä.	88.9	100.0	81.8	1.00	

Appendix 8. Information letter for interviews of the nurses (hospitals and primary health care)

Terhi Lemetti
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TIEDOTE TUTKIMUKSESTA

3.12.2012

Tutkimus: Sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien näkökulmasta.

Hyvä sairaanhoitaja,

Opiskelen Turun yliopiston hoitotieteen laitoksella terveystieteen maisteriksi. Teen pro gradu -tutkielmani aiheesta: Sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien näkökulmasta. Tutkimuksen tarkoituksena on selvittää suomalaisten erikoissairaanhoidon sekä perusterveydenhuollon sairaanhoitajien välistä yhteistyötä heidän näkökulmastaan ja heidän kokemana.

Pyydän Sinua osallistumaan tähän tutkimukseen suostumalla ryhmähaastatteluun, jossa on noin 5-7 sairaanhoitajaa yksiköstäsi. Vastauksesi on merkittävä tutkimuksen onnistumisen kannalta. Tutkimukseen pyydetään mukaan erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajia, jotka tekevät yhteistyötä ikääntyvien potilaiden hoidossa. Tutkimukseen osallistuu noin 30 tutkittavaa. Olemme arvioineet, että soveltuisit mukaan tähän tutkimukseen, koska yksikössänne hoidetaan ikääntyviä potilaita sekä toimitte yhteistyössä erikoissairaanhoidon/perusterveyden-huollon kanssa. Lisäksi olet suomenkielinen sairaanhoitaja, ollut vähintään viimeiset 3 vuotta erikoissairaanhoidon/perusterveydenhuollon palveluksessa ja hoidat ikääntyviä potilaita viikottain. Tämä tiedote kuvaa tutkimusta ja Sinun osuutta siinä.

Osallistuminen tähän tutkimukseen on täysin vapaaehtoista. Voit kieltäytyä osallistumasta tutkimukseen tai keskeyttää osallistumisesi syytä ilmoittamatta milloin tahansa. Jos päätät osallistua tutkimukseen, pyydämme Sinua allekirjoittamaan liitteenä olevan suostumuslomakkeen.

Tutkija sopii yksikön esimiehen kanssa ryhmähaastattelun ajankohdan ja paikan. Ryhmähaastattelu kestää noin 1-1,15 tuntia ja se toteutetaan yhteisesti sovitussa paikassa työpaikalla. Haastattelu nauhoitetaan ja tutkija säilyttää haastatteluaineistoa lukitussa tilassa kunnes aineistoa ei enää tarvita. Haastatteluaineistoa voidaan käyttää jatkotutkimuksia varten.

Lupa tämän tutkimuksen toteuttamiseen on saatu Helsingin ja Uudenmaan sairaanhoitopiiriltä sekä Helsingin kaupungilta. Turun yliopiston eettinen toimikunta on antanut lausunnon tutkimuksen eettisyydestä. Henkilöllisyytesi sekä muut tunnistettavat tiedot ovat ainoastaan tutkijan tiedossa, ja hän on salassapitovelvollinen. Kaikkia Sinusta kerättäviä tietoja käsitellään siten, ettei yksittäisiä tietojasi pystytä tunnistamaan tutkimukseen liittyvissä tuloksista, selvityksistä tai julkaisuista. Myöskään organisaation nimeä ei raportoida. Haastatteluaineiston tarkasteluun on lupa tutkijan

lisäksi tutkimuksen ohjaajalla, toisella tutkimuksen analysointiin/arviointiin osallistuvalla tutkijalla sekä mahdollisella tilastotieteilijällä tutkimusmenetelmien varmistamiseksi.

Tutkimukseen osallistuminen ei aiheuta Sinulle kustannuksia. Tutkimuksen tulokset raportoidaan Turun yliopiston pro gradu -tutkielmana ja mahdollisesti tieteellisenä artikkelina. Mikäli Sinulla on kysyttävää tai haluat lisätietoja, vastaamme mielellämme kysymyksiisi. Tutkimuksen ohjaajana on professori Riitta Suhonen Turun yliopistolta.

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Appendix 9. Example of informed voluntary consent document for interviews or discussion (from expert panel discussion).

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TIETOINEN SUOSTUMUS

7.3.2016

Tutkimus: Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa sairaanhoitajien näkökulmasta – hypoteettisen mallin ja tutkimusinstrumentin testaaminen ja jatkokehittäminen

Olen saanut, lukenut ja ymmärtänyt tutkimuksesta kertovan tiedotteen. Tiedotteesta olen saanut riittävän selvityksen tutkimuksesta ja sen yhteydessä suoritettavasta tietojen keräämisestä, käsittelystä ja luovuttamisesta. Tiedotteen sisältö on kerrottu minulle myös suullisesti, minulla on ollut mahdollisuus esittää kysymyksiä ja olen saanut riittävän vastauksen kaikkiin tutkimusta koskeviin kysymyksiini.

Tiedot antoi _____
___ / ___/ 20 ___. Minulla on ollut riittävästi aikaa harkita osallistumistani tutkimukseen.

Tiedän, että keskustelu nauhoitetaan. Kaikki minusta tutkimuksen aikana kerättävät tiedot käsitellään luottamuksellisina. Tutkimuksessa kerätyt tiedot koodataan siten, ettei henkilöllisyyden selvittäminen ole myöhemmin mahdollista ilman purkukoodia. Raportista ei voi tunnistaa tutkittavia.

Tutkijalla on vaitiolovelvollisuus ja hän hävittää tiedot asianmukaisesti tutkimuksen valmistuttua. Tutkija tuhoaa kerätyistä aineistoista olevan materiaalin seuraavasti: paperit silputaan sekä muistitikut ja nauhoitetun aineiston muistikortit tyhjennetään tiedoista. Paperisena olevan materiaalin tutkimuksesta tutkija säilyttää lukitussa tilassa 5 vuotta tutkimuksen jälkeen ja sähköisesti ilman tunnistetietoja tallennetut tiedot säilytetään jatkotutkimuskäyttöön 15 vuotta. Aineistoa käsittelevät ja tarkastelevat tutkijan lisäksi mahdollisesti tutkimuksen ohjaaja, tutkimuksen analysointiin/arviointiin osallistuva tutkija sekä tilastotieteilijä tutkimusmenetelmien varmistamiseksi. Ainoastaan tutkija käsittelee aineistoa tunnistettavassa muodossa.

Ymmärrän, että osallistumiseni tähän tutkimukseen on täysin vapaaehtoista. Minulla on oikeus milloin tahansa tutkimuksen aikana ja syytä ilmoittamatta keskeyttää tutkimukseen osallistuminen. Olen tietoinen siitä, että minusta keskeyttämiseeni mennessä kerättyjä tietoja käytetään osana tutkimusaineistoa.

Allekirjoituksellani vahvistan osallistumiseni ja annan tietoisen vapaaehtoisen suostumuksen tähän tutkimukseen.

_____ _____

Allekirjoitus Päiväys (ja tarvittaessa kellonaika)

_____

Nimen selvennys

_____

Osoite

Suostumus vastaanotettu

_____ _____

Tutkijan allekirjoitus Päiväys

_____

Nimen selvennys

Alkuperäinen allekirjoitettu tutkittavan suostumus sekä kopio tutkittavan tiedotteesta jäävät tutkijan arkistoon. Tutkittavan tiedote ja kopio allekirjoitetusta suostumuksesta annetaan tutkittavalle.

Appendix 10. Information letter for interviews of the older people (hospitals and primary health care)

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TIEDOTE TUTKIMUKSESTA

20.5.2014

Tutkimus: Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa ikääntyvän potilaan näkökulmasta

Hyvä tutkimukseen osallistuja,

Tämä on tutkimus aiheesta: Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa – Teoreettisen mallin kehittäminen ja testaus (Collaboration between Hospital and Primary Health Care Nurses on Older People Nursing Care – Developing and Testing a Theoretical Model). Tutkimuksen tarkoituksena on selvittää suomalaisten erikoissairaanhoidon sekä perusterveydenhuollon sairaanhoitajien välistä yhteistyötä ikääntyvän potilaan hoidossa. Tämä tutkimus on yksi osa väitöskirjatutkielmaa.

Pyydän Teitä osallistumaan tähän tutkimukseen suostumalla yksilöhaastatteluun valitsemananne ajankohtana ja valitsemassanne paikassa. Vastauksenne on merkittävä tutkimuksen onnistumisen kannalta. Tutkimukseen pyydetään mukaan yli 65-vuotiaita potilaita, joilla on kokemusta erikoissairaanhoidon ja perusterveydenhuollon palveluista. Tutkimukseen osallistuu noin 20 tutkittavaa. Olemme arvioineet, että soveltuisitte mukaan tähän tutkimukseen, koska olette suomenkielinen, yli 65-vuotias ja teillä on kokemusta erikoissairaanhoidon palveluista. Tämä tiedote kuvaa tutkimusta ja Teidän osuutta siinä.

Osallistuminen tähän tutkimukseen on täysin vapaaehtoista. Voitte kieltäytyä osallistumasta tutkimukseen tai keskeyttää osallistumisenne syytä ilmoittamatta milloin tahansa. Jos päätätte osallistua tutkimukseen, pyydämme Teitä allekirjoittamaan liitteenä olevan suostumuslomakkeen.

Tutkija ottaa teihin yhteyttä ja sopii teidän kanssa haastattelun ajankohdan ja paikan. Ryhmähaastattelu kestää noin 30 minuuttia ja se toteutetaan yhteisesti sovitussa paikassa. Haastattelu nauhoitetaan ja tutkija säilyttää haastatteluaineistoa lukitussa tilassa kunnes aineistoa ei enää tarvita. Haastatteluaineistoa voidaan käyttää jatkotutkimuksia varten.

Lupa tämän tutkimuksen toteuttamiseen on saatu Helsingin ja Uudenmaan sairaanhoitopiiriltä. Turun yliopiston eettinen toimikunta on antanut lausunnon tutkimuksen eettisyydestä. Henkilöllisyytenne sekä muut tunnistettavat tiedot ovat ainoastaan tutkijan tiedossa, ja hän on salassapitovelvollinen. Kaikkia Teistä kerättäviä tietoja käsitellään siten, ettei yksittäisiä tietojanne pystytä tunnistamaan tutkimukseen liittyvissä tuloksista, selvityksistä tai julkaisuista. Myöskään

organisaation nimeä ei raportoida. Haastatteluaineiston tarkasteluun osallistuu tutkijan lisäksi tutkimuksen ohjaajat.

Tutkimukseen osallistuminen ei aiheuta Teille kustannuksia. Tämä tutkimus toteutetaan osana väitöskirjatutkimusta Turun yliopiston lääketieteellisen tiedekunnan hoitotieteen laitoksella. Tutkimuksen tulokset raportoidaan Turun yliopiston väitöskirjatutkielmana ja mahdollisesti tieteellisenä artikkelina. Mikäli Teillä on kysyttävää tai haluatte lisätietoja, vastaamme mielellämme kysymyksiinne. Tutkimuksen ohjaajana on professori Riitta Suhonen Turun yliopistolta.

Terhi Lemetti
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Appendix 11. Information letter for expert panel 1.

Turun yliopisto, lääketieteellinen tiedekunta, hoitotieteen laitos 7.1.2016

Tutkimus: Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa sairaanhoitajien näkökulmasta – hypoteettisen mallin ja tutkimusinstrumentin testaaminen ja jatkokehittäminen

ASIANTUNTIJAPANEELI 1

Hyvä osallistuja,

Pyydän kohteliaimmin Sinua osallistumaan asiantuntijapaneeliin. Vastaamalla kyselyyn, saamme Sinun asiantuntemuksen tutkimusinstrumentin kehittämisprosessia varten. Tämä on menettely, jonka tarkoituksena on arvioida kehitettyä tutkimusinstrumenttia.

Tutkimustuloksia hyödynnetään väitöskirjatutkielmassa hypoteettisen mallin ja tutkimusinstrumentin testaamiseen ja kehittämiseen sekä erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisen yhteistyön määritelmän muodostamiseen ikääntyvän potilaan hoidossa. Tavoitteena on se, että hypoteettinen malli toimii viitekehyksenä erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisen yhteistyön kehittämisessä ikääntyvän potilaan hoidossa ja siihen liittyvissä jatkotutkimuksissa, jotta he voivat toimia entistä saumattomammin ikääntyvän potilaan hoidossa kahden eri organisaation välillä. Lisäksi kehitettyä tutkimusinstrumenttia voidaan hyödyntää kyseisen yhteistyön toteutumisen mittaamisessa. **Näkemyksesi ovat merkittäviä tutkimuksen onnistumisen kannalta.**

Turun yliopiston eettinen toimikunta on antanut puoltavan lausunnon tutkimuksen eettisyydestä ja tutkimuksen tekemiseen on saatu lupa siihen osallistuvilta organisaatioilta. Kyselyyn vastataan nimettömänä ja Sinulta kerättyä tietoa käsitellään luottamuksellisesti henkilötietolain edellyttämällä tavalla. Kyselyyn vastaamisen katsotaan ilmaisevan Sinun tietoista suostumusta tutkimukseen. Tutkijalla on vaitiolovelvollisuus ja hän hävittää tiedot asianmukaisesti tutkimuksen valmistuttua. Tutkija tuhoaa kerätyistä aineistoista olevan materiaalin seuraavasti: paperit silputaan sekä muistitikut ja nauhoitetun aineiston muistikortit tyhjennetään tiedoista. Paperisena olevan materiaalin tutkimuksesta tutkija säilyttää lukitussa tilassa 5 vuotta tutkimuksen jälkeen ja sähköisesti ilman tunnistetietoja tallennetut tiedot säilytetään jatkotutkimuskäyttöön 15 vuotta. Aineistoa käsittelevät ja tarkastelevat tutkijan lisäksi mahdollisesti tutkimuksen ohjaaja, tutkimuksen analysointiin/arviointiin osallistuva tutkija sekä tilastotieteilijä tutkimusmenetelmien varmistamiseksi. Ainoastaan tutkija käsittelee aineistoa tunnistettavassa muodossa.

Tutkimus toteutetaan Turun yliopiston lääketieteellisessä tiedekunnassa hoitotieteen laitoksella. Tutkijalle on myönnetty työskentelyapurahaa Työsuojelurahastolta (vuosi 2016) ja Kunnallisalan kehittämissäätiöltä (vuosi 2017). Tutkimuksesta vastaava henkilö on professori Riitta Suhonen. Tutkimustulokset julkaistaan osana väitöskirjatutkimusta ja tieteellisenä artikkelina kansainvälisessä hoitotieteellisessä lehdessä. Tutkimusaineistoa voidaan käyttää tutkijan kansallisissa ja kansainvälisissä jatkotutkimuksissa. Mikäli Sinulla on kysyttävää tutkimuksesta, otathan yhteyttä tutkijaan.

Ystävällisin terveisin,

Tutkija:
Terhi Lemetti
sh, TtM, TtT-opiskelija
Hoitotieteen laitos
20014 Turun yliopisto
temalem@utu.fi

Tutkimuksesta vastaava henkilö/ohjaaja:
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Hoitotieteen professori, TtT, dos.
Hoitotieteen laitos
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Appendix 12. Instruction for expert panel 1.

Terhi Lemetti

ASIANTUNTIJAPANEELI 1
Hoitotieteen laitos
20014 Turun yliopisto
temalem@utu.fi 7.1.2016

Tutkimus: Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa sairaanhoitajien näkökulmasta – hypoteettisen mallin ja tutkimusinstrumentin testaaminen ja jatkokehittäminen

ARVIOINTIOHJEET

Kyselyn alussa on kuusi kysymystä vastaajaan taustatietoihin liittyen. Vastaa ympyröimällä oikea vaihtoehto sekä mahdollisesti tarvittava tarkennus tai vastaa tyhjälle viivalle.

I VÄITTÄMÄKOHTAINEN ARVIOINTI

Selkeys

- Arvioi väittämän selkeyttä tarkastelemalla sen selkeää ilmaisua ja ymmärrettävyyttä sekä sen yksiselitteisyyttä?
- Vastaa ympäröimällä näkemystäsi kuvaava vaihtoehto käyttämällä kaksiportaista arviointiasteikkoa: väittämän sisältämä asia 1 = väittämä ei ole selkeä tai 2 = väittämä on selkeä
- Mikäli väittämä ei ole selkeä, perustele näkemyksesi vastauksen jälkeen olevalle tyhjälle viivalle

Mittaako jokin muu väittämä samaa asiaa

- Arvioi sitä, mittaako jokin muu väittämä samaa asiaa koko tutkimusinstrumentissa?
- Vastaa ympäröimällä näkemystäsi kuvaava vaihtoehto käyttämällä kaksiportaista arviointiasteikkoa: väittämän sisältämä asia 1 = ei tai 2 = kyllä
- Mikäli jokin muu väittämä mittaa saamaa asiaa, perustele näkemyksesi vastauksen jälkeen olevalle tyhjälle viivalle

II OSIOKOHTAINEN ARVIOINTI

Johdonmukaisuus

- Arvioi osion johdonmukaisuutta tarkastelemalla sitä, kuinka loogisesti väittämät seuraavat toisiaan ja kuinka hyvin ne soveltuvat osioon?
- Vastaa ympäröimällä näkemystäsi kuvaava vaihtoehto käyttämällä kaksiportaista arviointiasteikkoa: väittämän sisältämä asia 1 = osio ei ole johdonmukainen tai 2 = osio on johdonmukainen
- Mikäli väittämä ei ole johdonmukainen, perustele näkemyksesi vastauksen jälkeen olevalle tyhjälle viivalle

Muu kommenttisi

- Jokaisen osion perään Sinulla on mahdollisuus kirjata kommentteja, jotka heräävät osiosta.

Appendix 13. Information letter for expert panel 2.

Turun yliopisto, lääketieteellinen tiedekunta, hoitotieteen laitos 7.3.2016

Tutkimus: Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa sairaanhoitajien näkökulmasta – hypoteettisen mallin ja tutkimusinstrumentin testaaminen ja jatkokehittäminen

ASIANTUNTIJAPANEELI 2

Hyvä osallistuja,

Pyydän kohteliaimmin Sinua osallistumaan asiantuntijapaneeliin. Vastaamalla kyselyyn sekä osallistumalla noin 30 minuuttia kestävään keskusteluun, saamme Sinun asiantuntemuksen tutkimusinstrumentin kehittämisprosessia varten. Tämä on menettely, jonka tarkoituksena on arvioida kehitettyä tutkimusinstrumenttia.

Tutkimustuloksia hyödynnetään väitöskirjatutkielmassa hypoteettisen mallin ja tutkimusinstrumentin testaamiseen ja kehittämiseen sekä erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisen yhteistyön määritelmän muodostamiseen ikääntyvän potilaan hoidossa. Tavoitteena on se, että hypoteettinen malli toimii viitekehyksenä erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisen yhteistyön kehittämisessä ikääntyvän potilaan hoidossa ja siihen liittyvissä jatkotutkimuksissa, jotta he voivat toimia entistä saumattomammin ikääntyvän potilaan hoidossa kahden eri organisaation välillä. Lisäksi kehitettyä tutkimusinstrumenttia voidaan hyödyntää kyseisen yhteistyön toteutumisen mittaamisessa. **Näkemyksesi ovat merkittäviä tutkimuksen onnistumisen kannalta.** Turun yliopiston eettinen toimikunta on antanut puoltavan lausunnon tutkimuksen eettisyydestä ja tutkimuksen tekemiseen on saatu lupa siihen osallistuvilta organisaatioilta. Kyselyyn vastataan nimettömänä ja Sinulta kerättyä tietoa käsitellään luottamuksellisesti henkilötietolain edellyttämällä tavalla. Kyselyyn vastaamisen katsotaan ilmaisevan Sinun tietoista suostumusta tutkimukseen.

Keskusteluun osallistumista varten pyydän Sinua täyttämään suostumuslomakkeen. Keskustelu nauhoitetaan ja tutkija säilyttää keskusteluaineistoa lukitussa tilassa kunnes aineistoa ei enää tarvita. Tutkijalla on vaitiolovelvollisuus ja hän hävittää tiedot asianmukaisesti tutkimuksen valmistuttua. Tutkija tuhoaa kerätyistä aineistoista olevan materiaalin seuraavasti: paperit silputaan sekä muistitikut ja nauhoitetun aineiston muistikortit tyhjennetään tiedoista. Paperisena olevan materiaalin tutkimuksesta tutkija säilyttää lukitussa tilassa 5 vuotta tutkimuksen jälkeen ja sähköisesti ilman tunnistetietoja tallennetut tiedot säilytetään jatkotutkimuskäyttöön 15 vuotta. Aineistoa käsittelevät ja tarkastelevat tutkijan lisäksi mahdollisesti tutkimuksen ohjaaja, tutkimuksen analysointiin/arviointiin osallistuva tutkija sekä tilastotieteilijä tutkimusmenetelmien varmistamiseksi. Ainoastaan tutkija käsittelee aineistoa tunnistettavassa muodossa.

Tutkimus toteutetaan Turun yliopiston lääketieteellisessä tiedekunnassa hoitotieteen laitoksella. Tutkijalle on myönnetty työskentelyapurahaa Työsuojelurahastolta (vuosi 2016) ja Kunnallisalan kehittämissäätiöltä (vuosi 2017). Tutkimuksesta vastaava henkilö on professori Riitta Suhonen. Tutkimustulokset julkaistaan osana väitöskirjatutkimusta ja tieteellisenä artikkelina kansainvälisessä hoitotieteellisessä lehdessä. Tutkimusaineistoa voidaan käyttää tutkijan kansallisissa ja kansainvälisissä jatkotutkimuksissa. Mikäli Sinulla on kysyttävää tutkimuksesta, otathan yhteyttä tutkijaan.

Yhteistyöterveisin,

Tutkija:
Terhi Lemetti
sh, TtM, TtT-opiskelija
Hoitotieteen laitos
20014 Turun yliopisto
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Tutkimuksesta vastaava henkilö/ohjaaja:
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Hoitotieteen professori, TtT, dos.
Hoitotieteen laitos
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Appendix 14. Instruction for expert panel 2.

Terhi Lemetti
ASIANTUNTIJAPANEELI 2
Hoitotieteen laitos
20014 Turun yliopisto
temalem@utu.fi 7.1.2016

Tutkimus: Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa sairaanhoitajien näkökulmasta – hypoteettisen mallin ja tutkimusinstrumentin testaaminen ja jatkokehittäminen

ARVIOINTIOHJEET

Kyselyn alussa on kuusi kysymystä vastaajaan taustatietoihin liittyen. Vastaa ympyröimällä oikea vaihtoehto sekä mahdollisesti tarvittava tarkennus tai vastaa tyhjälle viivalle.

I VÄITTÄMÄKOHTAINEN ARVIOINTI

Ymmärrettävä

- Arvioi väittämän ymmärrettävyyttä tarkastelemalla sen selkeää ilmaisua ja yksiselitteisyyttä?
- Vastaa ympäröimällä näkemystäsi kuvaava vaihtoehto käyttämällä kaksiportaista arviointiasteikkoa: väittämän sisältämä asia 1 = väittämä ei ole ymmärrettävä tai 2 = väittämä on ymmärrettävä
- Mikäli väittämä ei ole ymmärrettävä, perustele näkemyksesi vastauksen jälkeen olevalle tyhjälle viivalle

Relevantti

Määritelmä käsitteelle relevantti:
Käsitteellä relevantti tarkoitetaan tässä asiantuntijapaneeliarvioinnissa sitä, että väittämä sisältää tutkimusaihealueeseen olennaisesti liittyvää, tärkeää ja merkityksellistä asiaa.

- Arvioi sitä, miten oleellinen, tärkeä ja merkityksellinen väittämän sisältämä asia on näkemyksesi mukaan erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisessä yhteistyössä yleisesti ja ikääntyvän potilaan hoidossa?
- Vastaa ympäröimällä näkemystäsi kuvaava vaihtoehto käyttämällä neliportaista arviointiasteikkoa: väittämän sisältämä asia 1 = ei relevantti – 4 = relevantti
- Mikäli vastaat **muun vaihtoehdon kuin 4 = relevantti**, perustele näkemyksesi vastauksen jälkeen kohtaan ”kommentti” ja sitä seuraavalle olevalle tyhjälle viivalle

II OSIOKOHTAINEN ARVIOINTI

Muu kommenttisi

- Jokaisen osion perään Sinulla on mahdollisuus kirjata kommentteja.

III VÄITTÄMÄ- JA OSIOKOHTAINEN ARVIOINTI

Keskustelu noin 30 minuuttia

- Kyselylomakkeen täyttämisen jälkeen seuraa keskustelu kyselylomakkeesta. Keskustelussa tuo esiin kaikki mieleesi tulleet kommentit kyselylomakkeesta ja sen aihealueen kattavuudesta ja toimivuudesta.

Appendix 15. Information letter for pilot and cross-sectional studies (hospitals and primary health care).

Turun yliopisto, lääketieteellinen tiedekunta, hoitotieteen laitos 7.3.2016

Tutkimus: Erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välinen yhteistyö ikääntyvän potilaan hoidossa sairaanhoitajien näkökulmasta – hypoteettisen mallin ja tutkimusinstrumentin testaaminen ja jatkokehittäminen

Hyvä sairaanhoitaja/ terveydenhoitaja,

Terveydenhuoltolaki velvoittaa erikoissairaanhoidon ja perusterveydenhuollon tiiviiseen yhteistyöhön, asiakaskeskeisyyteen ja saumattomiin palveluihin. Tätä tukee uusi Vanhuspalvelulaki eli Laki ikääntyneen väestön toimintakyvyn tukemisesta sekä iäkkäiden sosiaali- ja terveyspalveluista ja uusi Laatusuositus hyvän ikääntymisen turvaamiseksi ja palvelujen parantamiseksi. Suomessa työskentelee sairaanhoitajan tehtävissä yli 59 000 ammattilaista ja heidän välisellä yhteistyöllä on merkittävä rooli terveydenhuollossa tavoitteiden saavuttamisessa sekä tuottavien ja laadukkaiden terveyspalveluiden tuottamisessa ikääntyville ihmisille.

Pyydän kohteliaimmin Sinua osallistumaan tutkimukseen, jonka tarkoituksena on arvioida suomalaisten erikoissairaanhoidon sekä perusterveydenhuollon sairaanhoitajien välisen yhteistyön toteutumista ja tunnistaa yhteistyöhön liittyviä tekijöitä heidän näkökulmastaan. Tutkimukseen osallistuminen on vapaaehtoista ja luottamuksellista. Voit kieltäytyä osallistumasta tutkimukseen tai keskeyttää osallistumisesi syytä ilmoittamatta milloin tahansa. Tutkimukseen osallistujat (sairaanhoitajat) rekrytoidaan satunnaisotannalla XXXXXXX.

Tutkimustuloksia hyödynnetään väitöskirjatutkielmassa hypoteettisen mallin ja tutkimusinstrumentin testaamiseen ja kehittämiseen sekä erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisen yhteistyön määritelmän muodostamiseen ikääntyvän potilaan hoidossa. Tavoitteena on se, että hypoteettinen malli toimii viitekehyksenä erikoissairaanhoidon ja perusterveydenhuollon sairaanhoitajien välisen yhteistyön kehittämisessä ikääntyvän potilaan hoidossa ja siihen liittyvissä jatkotutkimuksissa, jotta he voivat toimia entistä saumattomammin ikääntyvän potilaan hoidossa kahden eri organisaation välillä. Lisäksi kehitettyä tutkimusinstrumenttia voidaan hyödyntää kyseisen yhteistyön toteutumisen mittaamisessa. **Kyselyssä Sinua pyydetään esittämään oma näkemys yhteistyön toteutumisesta. Näkemyksesi ovat merkittäviä tutkimuksen onnistumisen kannalta.**

Turun yliopiston eettinen toimikunta on antanut puoltavan lausunnon tutkimuksen eettisyydestä ja tutkimuksen tekemiseen on saatu lupa siihen osallistuvilta organisaatioilta. Kyselylomakkeet ovat numeroitu eri organisaatioista saatavien tulosten tilastollisen vertailun mahdollistamiseksi. Kyselyyn vastataan nimettömänä ja Sinulta kerättyä tietoa käsitellään luottamuksellisesti henkilötietolain edellyttämällä tavalla. Tutkija tuhoaa kerätyistä aineistoista olevan materiaalin seuraavasti: paperit silputaan sekä muistitikut ja nauhoitetun aineiston muistikortit tyhjennetään tiedoista. Paperisena olevan materiaalin tutkimuksesta tutkija säilyttää lukitussa tilassa 5 vuotta tutkimuksen jälkeen ja sähköisesti ilman tunnistetietoja tallennetut tiedot säilytetään jatkotutkimuskäyttöön 15 vuotta. Aineistoa käsittelevät ja tarkastelevat tutkijan lisäksi mahdollisesti tutkimuksen ohjaaja, tutkimuksen analysointiin/arviointiin osallistuva tutkija sekä tilastotieteilijä tutkimusmenetelmien varmistamiseksi. Ainoastaan tutkija käsittelee aineistoa tunnistettavassa muodossa.

Kyselyyn vastaamisen katsotaan ilmaisevan Sinun tietoista suostumusta tutkimukseen. Vastaaminen kyselylomakkeeseen kestää noin 30 minuuttia.

Tutkimus toteutetaan Turun yliopiston lääketieteellisessä tiedekunnassa hoitotieteen laitoksella. Tutkijalle on myönnetty työskentelyapurahaa Työsuojelurahastolta (vuosi 2016) ja Kunnallisalan kehittämissäätiöltä (vuosi 2017). Tutkimuksesta vastaava henkilö on professori Riitta Suhonen. Tutkimustulokset julkaistaan osana väitöskirjatutkimusta ja tieteellisenä artikkelina kansainvälisessä hoitotieteellisessä lehdessä. Tutkimusaineistoa voidaan käyttää tutkijan

kansallisissa ja kansainvälisissä jatkotutkimuksissa. Mikäli Sinulla on kysyttävää tutkimuksesta, otathan yhteyttä tutkijaan.

Ystävällisin terveisin,

Tutkija:
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Appendix 16. Results of the explanatory factor analysis of the NN-CoBS Instrument (n=443).

Section of the NN-CoBS and Cronbach's α of the section	ITEM	Rotated Factor Pattern (Standardized Regression Coefficients) FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	Communalities
	Item 15	0,658	0,095	0,156	0,060	0,470
	Item 16	0,665	0,258	0,005	0,287	0,590
	Item 17	0,722	0,182	0,217	0,059	0,606
	Item 18	0,709	0,185	0,090	0,252	0,609
	Item 19	0,695	0,189	0,185	0,082	0,559
	Item 20	0,678	0,230	-0,005	0,303	0,605
	Item 21	0,697	0,154	0,233	-0,001	0,564
	Item 22	0,660	0,252	-0,031	0,299	0,590
	Item 23	0,652	0,092	0,251	-0,032	0,498
	Item 24	0,561	0,293	0,041	0,288	0,486
B section	**Item 25**	0,742	0,000	0,236	0,057	0,610
Context and	**Item 26**	0,721	0,143	0,066	0,274	0,620
Situation	**Item 27**	0,757	0,050	0,240	0,093	0,642
	Item 28	0,779	0,093	0,108	0,251	0,690
	Item 29	0,767	0,051	0,251	0,084	0,661
Cronbach's α	**Item 30**	0,762	0,103	0,107	0,267	0,674
0.96	**Item 31**	0,717	0,035	0,269	0,066	0,592
	Item 32	0,700	0,115	0,109	0,303	0,607
	Item 33	0,697	0,041	0,242	0,000	0,546
	Item 34	0,689	0,184	0,115	0,250	0,584
	Item 35	0,510	0,197	0,261	0,277	0,444
	Item 36	0,514	0,176	0,310	0,345	0,511
	Item 37	0,597	0,253	0,257	0,127	0,503
	Item 38	0,518	0,165	0,279	0,099	0,383
	Item 39	0,546	0,257	0,224	0,173	0,444
	Item 40	0,544	0,211	0,193	0,262	0,446
	Item 41	0,494	0,334	0,140	0,252	0,438
	Item 42	0,327	0,411	-0,018	0,319	0,378
	Item 43	0,348	0,243	0,123	0,035	0,197
C section	**Item 44**	0,230	0,271	0,280	0,134	0,223
Conditions	**Item 45**	0,443	0,223	0,240	0,042	0,305
	Item 46	0,033	0,466	-0,147	-0,017	0,240
	Item 47	0,181	0,562	0,150	-0,144	0,391

	Item 48	0,361	0,308	0,278	-0,206	0,345
Cronbach's α	**Item 49**	0,257	0,491	0,231	-0,065	0,365
0.89	**Item 50**	0,322	0,138	0,186	-0,098	0,167
	Item 51	0,372	0,156	0,225	-0,078	0,219
	Item 52	0,474	0,150	0,394	0,239	0,460
	Item 53	0,246	0,537	0,061	0,189	0,388
	Item 54	0,209	0,542	0,040	0,228	0,391
	Item 55	0,212	0,627	0,154	0,286	0,544
	Item 56	0,158	0,615	0,121	0,274	0,492
	Item 57	0,159	0,623	0,116	0,201	0,468
	Item 58	0,374	0,532	0,241	-0,076	0,487
	Item 59	0,265	0,574	0,170	-0,066	0,433
	Item 60	0,385	0,443	0,313	0,141	0,463
	Item 61	0,412	0,233	0,339	0,184	0,373
	Item 62	0,118	0,592	0,057	0,070	0,373
D section	**Item 63**	0,425	0,345	0,340	0,051	0,418
Processes	**Item 64**	0,344	0,174	0,555	-0,062	0,460
and	**Item 65**	0,462	0,255	0,481	0,016	0,509
interactions	**Item 66**	0,385	0,387	0,349	0,193	0,457
	Item 67	0,410	0,367	0,354	0,222	0,477
	Item 68	0,161	0,519	0,268	0,312	0,465
	Item 69	0,323	0,335	0,463	0,232	0,484
Cronbach's α	**Item 70**	0,197	0,283	0,660	0,255	0,620
0.94	**Item 71**	0,226	0,255	0,699	0,249	0,667
	Item 72	0,227	0,221	0,736	0,215	0,689
	Item 73	0,324	0,186	0,680	0,207	0,645
	Item 74	0,299	0,186	0,675	0,231	0,633
	Item 75	0,304	0,185	0,689	0,211	0,646
	Item 76	0,303	0,170	0,756	0,190	0,728
	Item 77	0,351	0,170	0,665	0,256	0,659
	Item 78	0,183	0,607	0,224	0,218	0,500
	Item 79	0,175	0,636	0,279	0,317	0,613
	Item 80	0,196	0,658	0,147	0,167	0,521
	Item 81	0,174	0,653	0,171	0,104	0,497
	Item 82	0,041	0,620	0,163	-0,039	0,415
	Item 83	0,017	0,589	0,249	-0,014	0,410
	Item 84	0,057	0,535	0,357	0,085	0,424
	Item 85	-0,043	0,725	0,123	0,223	0,591
E section	**Item 86**	0,271	0,305	0,300	0,398	0,415
Consequen ces	**Item 87**	0,283	0,258	0,361	0,325	0,382

	Item 88	0,238	0,398	0,426	0,362	0,527
	Item 89	0,163	0,522	0,147	0,299	0,410
	Item 90	0,168	0,503	0,195	0,408	0,485
	Item 91	0,195	0,593	0,272	0,363	0,595
Cronbach's α	**Item 92**	0,203	0,075	0,057	0,664	0,491
0.94	**Item 93**	0,202	0,022	0,181	0,723	0,596
	Item 94	0,235	0,068	0,206	0,718	0,618
	Item 95	0,281	0,261	0,303	0,573	0,567
	Item 96	0,037	0,500	0,170	0,511	0,541
	Item 97	0,225	0,400	0,366	0,523	0,618
	Item 98	0,093	0,447	0,288	0,556	0,600
	Item 99	0,120	0,441	0,291	0,551	0,598
	Item 100	0,248	0,366	0,360	0,512	0,588
Variance % explained by each factor		18.83	13.67	9.67	7.81	

UNIVERSITY OF TURKU

Painosalama Oy, Turku, Finland 2020

ISBN 978-951-29-8267-7 (PRINT)
ISBN 978-951-29-8268-4 (PDF)
ISSN 0355-9483 (Print)
ISSN 2343-3213 (Online)