Nursing Competence in Norwegian Municipal in-patient Acute Care

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Nursing Competence in Norwegian Municipal in-patient Acute Care

Professional Accountability, Environment, and Leadership

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Abstract

Background: Changes from the introduction of the Coordination Reform in Norway have induced an increase in the need for highly qualified nursing staff in the primary health care service. Among the most important initiatives of the Coordination Reform in Norway is the municipal in-patient acute care (MipAC) service. All municipalities must provide in-patient acute care for patients requiring 24-hour care or observation. The MipAC is expected to deliver safe quality care and may entail many patient and societal benefits. However, the service establishment and organisation differ per municipality, putting the service quality into question. Older and vulnerable patients constitute the largest group of patients under the MipAC service. Even though the benefits of well-educated and competent nursing staff to care for vulnerable older people are broadly recognised, the requirements for nursing competence are sparsely defined in governmental documents, and knowledge of nursing competence in the services is lacking.

Aim: This study explores and describes aspects of nursing competence in the MipAC service. It answers the following question: What is the necessary nursing competence in MipAC, and how is it facilitated, maintained, and enhanced?

Methods: A combined design with a qualitative and quantitative methods was used. First, a qualitative phenomenological hermeneutical approach was employed to explore critical aspects of nursing competence to care for older patients in the MipAC service (Study 1). Eight nurses and two physicians employed in differently organised MipAC units participated in open individual interviews conducted between May and June 2017. The qualitative data were used to develop a survey distributed to all first-line nurse managers of MipAC units in Norway (n=226). The questionnaire aimed to obtain an overview of the nursing competence in the MipAC units across different geographical regions, organisations, and locations (Study 2). Moreover, it aimed to explore the leadership style of the first-line managers and their impact on nursing competence in the unit (Study 3). The research focus hinged on emphasis on the role of leadership, team orientation, and competence planning. Thus, Study 3 identified the leadership styles that characterise first-line nurse managers in the Norwegian MipAC units to investigate how such leadership styles are associated with team culture and documented nursing competence planning. The

questionnaire comprises four parts—background information of respondents and the MipAC, nursing services in MipAC, documented standards and plans, and managers' service perceptions—along with the Multifactor Leadership Questionnaire Form 5. The response rates for Studies 2 and 3 were 207 (91.6%) and 182 (80.6%), respectively.

Results: Study 1 unveiled two main themes: *the meaning of individual nursing competence* and *the meaning of environmental and systemic factors.* The first theme included the following sub-themes: *having competence in clinical assessments, decision-making, and performing interventions*; *having the competence to collaborate, coordinate, and facilitate*; and *being committed*. The second theme included the following sub-themes: *having professional leadership*; *having a sufficiently qualified staff*; and *working in an open, cooperative, and professional work environment*.

Study 2 uncovered a great variation in the competence of the nursing services across the country. The median ratio of registered nurses (RNs) to other staff was 56 (IQR: 40–70), and the count of shifts with one RN on duty during the last four weeks had a median of 28 (IQR: 5–49). RNs with master's degrees or specialised qualifications had a median of 3 (IQR: 0–5), and those with specialised competence in geriatrics, acute care, or mental health care had a median of 0 (IQR: 0–1). The MipAC at long-term care units in nursing homes showed significantly lower nursing competence relative to other organisations. Central and Northern Norway had a significantly lower ratio of RNs than South-Eastern and Western Norway.

First-line managers in the units scored higher on a relational leadership style, despite exhibiting a task-oriented leadership style. Relational leadership style and team culture exhibited a significant association, whereas leadership style and competence planning had no association. Organisational structural factors such as having a professional development nurse position in the unit showed a significant positive relationship with competence planning in the units.

Conclusion: The finding furnishes valuable insight into understanding the complexity of nursing practice in the MipAC services and the implications for nursing competence in the units. Sufficient RNs and advanced nursing competence, a supportive environment, and leadership characterise competence. Variation in nursing competence regarding low ratio RNs to lower educated staff

and a general lack of relevant advanced nursing competence indicate a need for nursing competence enhancement in many MipAC services. Relational leadership to facilitate a team-oriented culture and a professional development nurse position to support first-line nurse managers in nursing competence planning and development can enhance the units.

Sammendrag

Bakgrunn: Behovet for høyt kvalifisert pleiepersonell i primærhelsetjenesten har økt som følge av endringer etter innføringen av Samhandlingsreformen i Norge. En av de viktigste satsingene til Samhandlingsreformen i Norge var innføring av kommunale akutt-døgnplasser (KAD). Alle kommuner er pålagt å ha et tilbud til pasienter med behov for døgnkontinuerlig omsorg og/eller observasjon. Av de som henvises til KAD tjenesten utgjør eldre og sårbare pasienter den største pasientgruppen. Tilbud om KAD kan ha mange fordeler for pasientene og for samfunnet generelt, forutsatt tjenestetilbudets kvalitet. Tjenestene er imidlertid blitt etablert og organisert på ulike måter i kommunene og det stilles spørsmål ved kvaliteten på tjenestene. Fordelene med høyt utdannet og kompetente sykepleiere for å ta vare på sårbare eldre mennesker er bredt anerkjent. Likevel er krav til sykepleiekompetanse i KAD tjenesten sparsomt definert fra helsemyndighetens side, og det foreligger generelt lite kunnskap om sykepleie-kompetansen i denne tjenesten.

Mål: Det overordnede målet var å utforske og beskrive aspekter knyttet til sykepleiekompetanse i de kommunale akutt-døgnplassene

Forskningsspørsmålet var: hva er nødvendig sykepleiekompetanse i KAD og hvordan tilrettelegges, vedlikeholdes og forbedres den?

Metoder: Et kombinert design med kvalitativ og kvantitativ tilnærming ble anvendt. Først ble en fenomenologisk hermeneutisk tilnærming brukt for å utforske kritiske aspekter ved sykepleiekompetanse for å ivareta eldre pasienter innlagt i KAD (Studie 1). Åtte sykepleiere og to leger, ansatt i ulikt organiserte KAD-enheter, deltok i åpne individuelle intervjuer. Intervjuene ble gjennomført mellom mai og juni 2017. De kvalitative dataene ble brukt til å utvikle et spørreskjema som ble distribuert til alle sykepleieledere ansatt i førstelinjetjeneste ved enheter som hadde KAD i Norge (n=226). Hensikten med spørreskjemaet var todelt. Det ene var å få oversikt over sykepleiekompetansen i KAD på tvers av geografiske regioner, og ulike typer organisering og lokalisering (Studie 2). Det andre var å utforske førstelinjeleders lederstil og hvilken innvirkning den har på sykepleiekompetanse i enhetene (Studie 3). Forskningsfokuset var basert på funn fra Studie 1, der lederrollen, teamorientering og kompetanseplanlegging ble vektlagt. Målet med studie 3 var derfor å utforske hvilke lederstiler som kjennetegner førstelinje ledere i KAD og

videre å undersøke hvordan ledernes lederstiler er knyttet til teamkultur og sykepleiekompetanse planlegging (Studie 3). Spørreskjemaet besto av fire deler: Bakgrunnsinformasjon om KAD og respondenter; Sykepleien i KAD; Dokumentert standard og planer; Lederens oppfatning av tjenesten; Multifactor Leadership Questionnaire (MLQ)-skjema 5. Svarprosenten i Studie 2: n=207, (91,6%) og studie 3: n=182 (80,6%).

Resultater: To hovedtemaer ble avslørt i Studie 1. Tema én: *Betydningen av individuell sykepleiekompetanse* som inkluderte undertemaene *å ha kompetanse i kliniske vurderinger, beslutningstaking og utførelse av intervensjoner*; *ha kompetanse til å samarbeide, koordinere og tilrettelegge; å være forpliktet*. Tema to: *Betydningen av miljømessige og systemiske faktorer* inkluderte undertemaene *å ha profesjonelt lederskap*; *ha en tilstrekkelig kvalifisert stab*; *å arbeide i et åpent, samarbeidende og profesjonelt arbeidsmiljø.*

Det ble i Studie 2 avdekket stor variasjon i kompetansen i sykepleietjenestene i Norge. Median i andelen av sykepleiere blant pleiepersonell var 56 (IQR: 40–70), og antall vakter med bare en sykepleier pr. vakt i løpet av de siste fire ukene hadde en median på 28 (IQR: 5–49). Antall sykepleiere med mastergrad eller spesialutdanning hadde en median på 3 (IQR: 0–5) og median for sykepleiere spesialisert innen geriatri, akutte og/eller psykiske helse var 0 (IQR: 0 –1). KAD organisert i langtidsenheter i sykehjem viste betydelig lavere sykepleiekompetanse sammenlignet med KAD som var organisert i korttids institusjon. I Midt-Norge og Nord-Norge ble det funnet en betydelig lavere andel sykepleiere sammenlignet med Sør-Øst-Norge og Vest-Norge.

I Studie 3 kom det frem at førstelinjeledernes lederstil var overveiende relasjonell, men de viste også høy grad av oppgaveorientert lederstil. Det var signifikant sammenheng mellom relasjonell lederstil og teamkultur, men ingen sammenheng mellom lederstil og kompetanseplanlegging i enheten. Organisatoriske strukturelle faktorer, som det å ha fagutviklingssykepleier ansatt i enheten, viste derimot en betydelig positiv sammenheng med kompetanseplanlegging i enhetene.

Konklusjon: Denne PhD studien bidrar med viktig kunnskap for å bedre forstå kompleksiteten i sykepleierens praksis i KAD-tjenestene, og den synliggjør hvilke implikasjonen det har for sykepleiekompetansen i enhetene. Tilstrekkelig profesjonelle sykepleiere og avansert sykepleierkompetanse i staben, et støttende

miljø og ledelse så ut til å være viktig for kompetansen i sykepleietjenestene i KAD. Variasjon i sykepleiekompetanse med hensyn til få sykepleiere i staben og generell mangel på relevant avansert sykepleiekompetanse, indikerer behov for forbedringer med hensyn til sykepleiekompetanse i mange kommunale akutt-enheter. Relasjonell ledelse som støtter opp under en teamorientert organisasjonskultur synes viktig. Det å ha fagutviklingssykepleier ansatt, for å støtte førstelinjeledere i planlegging og utvikling av sykepleiekompetanse, ser også ut til å ha betydning. Disse områdene representerer imidlertid et forbedringspotensial i en del av enhetene.

Contents

List of papers

Paper 1

Vatnøy, T. K., Karlsen, T. I., & Dale, B. (2019). Exploring nursing competence to care for older patients in municipal in-patient acute care: A qualitative study. Journal of Clinical Nursing, 28(17-18), 3339-3352. https://doi.org/10.1111/jocn.14914

Paper 2

Vatnøy, T. K., Skinner, M. S., Karlsen, T. I., & Dale, B. (2020). Nursing competence in municipal in-patient acute care in Norway: A cross-sectional study. BMC Nursing, 19(1), 1-11. https://doi.org/10.1186/s12912-020-00463-5

Paper 3

Vatnøy, T. K., Dale, B., Skinner M. S., & Karlsen, T. I. (2021). Associations between nurse managers' leadership style, team culture, and competence planning in Norwegian municipal in-patient acute care services: A cross-sectional study. Scandinavian Journal of Caring Sciences, 36(2), 482-492. https://doi.org/10.1111/scs.13064

Abbreviations

CFI: Comparative fit index
HH: Health-houses
LMC: Local medical centre
LTCU: Long-term care unit
MipAC: Municipal in-patient Acute Care
MLQ: Multifactor Leadership Questionnaire
NPM: New Public Management
OECD: Organisation for Economic Co-operation and Development
OMS: Out-of-hours medical services (legevakt)
PDN: Professional development nurse
RMSEA: Root mean square error of approximation
RN: Registered nurse
SEM: Structural equation modelling
SRMR: Standardised root mean square residual
STCU: Short-term care unit

Tables and figures

1 INTRODUCTION

Nurses are key to health care services, and their competence is a valuable resource that should be distributed such that the most marginalised and vulnerable populations have equitable access to quality care (World Health Organization [WHO], 2020). Therefore, health political authorities worldwide must invest in the development of nursing competence (WHO, 2020).

In the Western world, the incidence of diseases following an increasingly ageing population challenges welfare states in providing assess to equal, adequate, and secure health care services (Organisation for Economic Co-operation and Development [OECD], 2017). Some strategies to meet inhabitants' needs for health care and increase economic efficiency include implementing health reforms to strengthen primary health care (OECD, 2020; OECD/European Union, 2016), reduce hospital admissions and stays, and shift tasks from doctors to nurses (Maier et al., 2017; OECD, 2019).

In Norway, the Coordination Reform (Meld. St. 47 [2008–2009]) was introduced in January 2012. The main objectives were to ensure inhabitants' rights to equal, coordinated, comprehensive, and quality health care services. The municipalities intended to play a central role in the strategy towards the best effective level of care (Meld. St. 16 [2010–2011]). At the operational level, the changes imply expectations regarding leader and staff competence to handle increasingly complex primary health care services (Glette et al., 2018; Meld. St. 26 [2014–2015]).

An important initiative in the Coordination Reform was the transfer of responsibility for selected patients in need of acute 24-hour care and observation from the specialist health service to the primary health care services (Meld. St. 47 [2008–2009]). Without compromising the quality of the services, municipalities should follow up with patients after discharge from the hospital and be responsible for the treatment and monitoring of patients in need of in-patient acute care (Meld. St. 47 [2008–2009]). In-patient acute care services were arranged in so-called municipal in-patient acute care (MipAC) beds, located as part of existing institutions or in newly established health centres. The MipAC service was key to the economic, professional, and organisational componence in the Coordination Reform (Meld. St. 26 [2014–2015]; Meld. St. 47 [2008–2009]; The Research Council of Norway, 2016). However, by the end of 2019, the

utilisation rate of the MipAC beds was only 42%. Distributed by region, the utilisation rate in 2019 was 42% in the South-Eastern, 39% in Western Norway, 38% in Central Norway, and 33% in Northern Norway, excluding «sykestuer», or 42% including «sykestuer»[1] (The Norwegian Directorate of Health, 2020). The reasons for low utilisation may be many and complex. However, studies indicate that physicians' decisions regarding the use of alternatives to hospitalisation are complex beyond the relation to the clinical assessment of patients. The preferences of patients and relatives, the admitting physician's perceptions of the structural preparedness and capacity, and the competence of the available services are also found to have important impacts (Lappegard & Hjortdahl, 2013; McDermott et al., 2012; Nystrøm et al., 2021). Research indicates that many physicians refer patients directly to the hospital because they do not trust that the MipAC service is adequately safe for the patients (Leonardsen et al., 2016a; Nystrøm et al., 2021; Skinner, 2015b).

Despite the declaration that the care provided in MipAC services is equal to or better than hospital admissions (Hagen, 2016; Meld. St. 9 [2012–2013]; Meld. St. 47 [2008-2009]), there are concerns regarding staff competence and service quality (Bing-Jonsson et al., 2016; Skinner, 2015b, 2015c; The Research Council of Norway, 2016).

The level of nursing competence in the MipAC services may be related to several concerns. The main group of patients admitted are older people and people with chronic diseases and in need of acute and comprehensive care, and competent nurses to handle an increasing complex primary health care service are lacing (Bing-Jonsson et. al. 2016). However, as indicated by Skinner (2015c), research on nursing competence in these services was lacking at the start of the project by 2017. This PhD study, therefore, aims to better understand competence in nursing practice in the context of MipACs, and to contribute to competence enhancement and improved quality of care for older and vulnerable patients admitted to the services.

[1] «Sykestuer» are in-patient services provided by specialist health care services located in rural areas in close collaboration with the municipality. They are most common in Northern Norway, where transport to hospitals may be long and difficult (Braut, 2018).

1.1 Structure of the thesis

This chapter continues with brief definitions or clarifications of some study concepts. The key concepts are further elaborated in the following chapters. Chapter 2 provides background information. The chapter also reviews related theoretical frameworks and studies. The concept of professional competence is then discussed and elaborated. Chapter 3 presents the aims and research questions. Chapter 4 describes the design and methods employed for the sub-studies. Chapter 5 presents the findings and ethical considerations. Chapter 6 discusses the main findings in light of the theoretical frameworks and suggests implications for nursing competence maintenance, facilitation, and enhancement in the MipAC services. Chapter 7 critically reflects methods used in the sub-studies and discusses the trustworthiness, validity, and reliability of the studies. Finally, Chapter 8 concludes the thesis.

1.2 Definition of central concepts

In this PhD thesis, the concept of **nursing competence** can be understood from two perspectives:

1) From the perspective of individual nurses as *entities*, nursing competence is 'the integrated knowledge, skills, judgement and attributes required of a nurse to practice safely and ethically in a designated role and setting' (International Council of Nurses, 2021, p. 24)

2) From the perspective of the *human way of being*, nursing competence describes how humans, other people, and tools interrelate and form competence (Sandberg & Pinnington, 2009)

As the most central concept in the thesis, it will be thoroughly elaborated on in the study.

A **professional nurse** is a registered nurse (RN) holding a minimum of a bachelor's degree (Aiken et al., 2017).

A **profession** describes

> 'a disciplined group of individuals who adhere to ethical standards and […] hold[s] themselves out as [and are accepted by the public as] possessing special knowledge and skills in a widely recognised body of learning derived

> from research, education, and training at a high level; [They are] are prepared to apply [their] knowledge and […] skills in the interest of others' (Australian Council of Professions, 2003).

Professionalism refers to the behavioural inventory displayed in the disciplined group (Adams & Miller, 2001; Miller et al., 1993).

An **advanced nurse** is

> 'a registered nurse who has acquired the expert knowledge base, complex decision-making skills, and clinical competencies for expanded practice, the characteristics of which are shaped by the context [and] country in which [the nurse] is credentialed to practice. A master's degree is recommended for [the] entry level' (International Council of Nurses, 2020b).

In the results of Studies 2 and 3, 'advanced nurse' refers to RNs holding a master's degree or RNs with other additional or specialised education beyond a bachelor's degree.

Accountability is the implicit or explicit expectation of professionals' and the organisation's willingness to 'take responsibility for their decisions (responsibility), […] make their action transparent (transparency), and […] agree to be judged [per] accepted values in society (answerability)' (Drach-Zahavy et al., 2018, p. 2451).

Organisation refers to units in which the MipAC services are established. Thus, organisational **structure** refers to the 'attributes of the setting in which care occurs' (Liu et al., 2018 p. 83).

Processes of care refer to 'what is actually done in giving and receiving care' (Liu et al., 2018 p. 83).

The nurses' work **environments** are the internal structures and processes of the organisation (Lake, 2007; Paguio et al., 2020) and refer to its surroundings and influence. **System** refers to the organisation's dependency on the external world, such as resources required to accomplish and clients to utilise the products (Jacobsen & Thorsvik, 2013).

Organisational **culture** is 'a pattern of shared basic assumptions […] learned by a group as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to

new members as the correct way to perceive, think, and feel [about] those problems'. (Schein, 2010, p. 17).

Leadership and **management** are often used interchangeably because responsibility and tasks largely overlap. However, a clear distinction between the concept is that **leadership** is the process 'where an individual influences a group of individuals to achieve a common goal' (Northouse, 2019, p. 5), and **management** is when a leader or manager is 'involved in planning, organising, staffing, and controlling' (Northouse, 2019, p. 14).

Leadership style can be described as 'consist[ing] of the behaviour pattern of a person who attempts to influence others' (Northouse, 2019, p.96).

First-line nurse managers are the formal leaders closest to the nursing staff.

2 BACKGROUND

2.1 Municipal in-patient acute care

All municipalities in Norway are imposed by law to provide in-patient acute care services to inhabitants (Health and Care Services Act, 2011). Thus, the MipAC services are provided at the primary health care level. Primary health care is, by the Alma-Ata declaration, defined as

> 'the first level of contact of individuals, the family, and the community with the national health system, bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care' (WHO, 1978, p. 16).

The MipAC services have been operative for patients with somatic health problems from January 1, 2016, or longer and patients with mental health and drug problems from January 1, 2017. The Norwegian Directorate of Health (2020) defines patient acute care admission as 'Admissions of patients in need of help that are urgently needed and where the admission is not planned in advance' (p. 5). Patients admitted to MipACs should, however, not be in a state warranting hospitalisation (Health and Care Services Act, 2011).

2.1.1 Organisation of the municipal in-patient acute care service

Within the framework of the legal requirements, the municipalities have been free to organise the MipAC service as appropriate for the local context, infrastructure, and available resources (Arntsen et al., 2018; The Norwegian Directorate of Health, 2016). Consequently, the organisation of the MipAC services varies considerably across the country (Tjerbo & Skinner, 2016; Hagen, 2016; Research Council, 2016; Skinner, 2015a, 2015c). According to the Directorate of Health (2019), about 58% of the MipACs were located in nursing homes, some were organised in short-term care units, and others in long-term care units. Further, 8% were located at out-of-hours medical services (OMS) [legevakt] and 14% at the local medical centre (LMC) or health-houses (HH). Approximately 20% were located in other types of institutions such as hospitals, intermediate units, and various kinds of units, mainly short-term care units (The Norwegian Directorate of Health, 2019). OMS, HH, and LMC hosted about 43% of the MipAC beds, with nursing homes providing another 28%. The remaining MipAC beds were located at other types of institutions. Based on data from 406

municipalities, representing about 96% of the municipalities (The Norwegian Association of Local and Regional Authorities [Kommunenes sentralforbund], 2019), nearly 67% of them have organised MipAC services as an inter-municipal collaboration (The Norwegian Directorate of Health, 2020). By the end of 2019, The Directorate of Health (2020) identified 216 MipAC units in Norway, where approximately 80% were integrated somatic and mental health and drug abuse services. A total of 735 MipAC beds were registered, and the beds available in the individual municipalities varied between 0.1 and 74 (The Norwegian Directorate of Health, 2019). Earlier reports (from 2015 and 2016) indicate that 64% of the MipACs had one to two beds, while 21% had three to five beds. MipACs with more than five beds accounted for only 15% (Hagen, 2016; Skinner, 2015a, 2015c; The Research Council of Norway, 2016).

2.1.2 Municipal in-patient acute care patients and their need for nursing competence

MipAC services apply to persons of all ages in need of acute care admission (Health and Care Services Act, 2011). However, older people and especially those with exacerbated chronic diseases make up the largest group (The Norwegian Directorate of Health, 2020), with a guaranteed right to quality care (Health and Care Services Act, 2011; Meld. St. 47 [2008–2009], 2009; Patient and User Rights Act, 1999). Of the patients admitted to MipAC in 2019, 70% were aged 66 and over, with 47% aged 80 or over (The Norwegian Directorate of Health, 2020). Registered reasons for MipAC admission include pain, infections, or unspecified needs for monitoring for two-thirds of the patients (The Norwegian Directorate of Health, 2020). Health conditions of older people and people with chronic diseases in need of acute care admission might easily escalate and become critical (Jordan et al., 2020; Mayr et al., 2014). Thus, advanced care and treatment may be critical to safeguard those patients (Henni et al., 2018).

A prerequisite for the MipAC services to work is that there should be qualified health care staff present who can handle patients in acute and critical conditions (Office of the Auditor General [Riksrevisjonen], 2016; Skinner, 2015c; The Research Council of Norway, 2016). However, recruiting competent nurses has been a critical challenge in the primary health care service (Bing-Jonsson et al., 2016; Maier et al., 2017). Although RNs holding a minimum of a bachelor's degree must be present on all shifts (The Norwegian Directorate of Health,

2016), requirements for nursing competence in MipACs are not very clear. The Directorate of Health (2016) emphasises that MipAC services require competence in monitoring, coordination, and administration of advanced medical treatment and care. However, studies indicate that nursing competence to accomplish advanced nursing care and procedures in primary health care is lacking (Bing-Jonsson et al., 2016; Maier et al., 2017).

In 2018, approximately 75% of patients were admitted to MipACs outside ordinary daytime on weekdays. Instead, 50% were admitted in the evening or at night-time, and 25% on weekends or holidays (The Norwegian Directorate of Health, 2019, 2020). This fact demonstrates a need for solid staffing and competence 24 hours a day, seven days a week. Many municipalities have organised MipAC services at long-term care units in nursing homes, where sufficient staffing around the clock may be a challenge (The Norwegian Directorate of Health, 2016). There is a lack of RNs in long-term care in the municipalities (Gautun et al., 2016). The proportion of RN positions to other staff is low (Romøren et al., 2011; Statistics Norway, 2019a), and vacant RN positions or shifts are often covered by lower-level staff or unskilled assistants (Gautun et al., 2016).

Studies show that the patients' experiences of the MipAC services are positive and negative. Patients appreciate qualities in the MipACs, such as continuity in care, timeliness in assistance, the time the care provider spends to care for them, a homely atmosphere in the unit, and the proximity to home (Leonardsen et al., 2016b). However, there is a gap between patients' legal rights to participate in self-care and treatment and the professionals' opportunity to fulfil such a role (Johannessen et al., 2018). Heavy workloads and strict priorities were suggested as partial reasons for the problem. Apparently, patients experience stress because of a lack of diagnostic resources (Leonardsen et al., 2016b). Moreover, there is a statistically significant negative association between patients' satisfaction and comorbid condition (Leonardsen et al., 2017). It might indicate that some of the most vulnerable patients feel unsafe under MipAC services. Nevertheless, provided that sufficient competence to safeguard patients is in place, MipAC services could be beneficial for many patients and particularly older patients. Research reveals that the alternative (i.e., hospitalisation) might be a disadvantage for frail older people (Fried et al., 2004; Kihlgren et al., 2005; Skar et al., 2015; Sommella et al., 2014). Bridges et al. (2020) conducted a systematic

review and synthesis of 63 studies, including two systematic reviews, exploring how older patients experienced acute care in hospital settings. The authors conclude that acute care in hospitals inflicted the feeling of powerlessness and insignificance in older people, where the experience of waiting for care and limited time for care were prominent. Hence, inflexible, dehumanising, and bureaucratic organised care demonstrated in the acute care hospital context occurs at the expense of individual relational care (Bridges et al., 2020). Older patients have a lower ability to tolerate the stress hospitalisation inflicts (Fried et al., 2004), and emergency departments in hospitals are not appropriately organised to meet geriatric patients' needs (Kihlgren et al., 2005). Research also shows that older patients admitted to emergency departments are more often required to wait, as their condition is often considered less critical (Skar et al., 2015). Moreover, some adverse events such as injuries that are caused by medical management are more frequent for older people in emergency departments (Sommella et al., 2014). Consequently, a lower-level institution could be a better alternative than hospitals, given that the appropriate facilities, competence, and staff are in place to provide secure quality care for frail older people requiring acute care. However, studies indicate that how health care is administrated may challenge the quality of care in the services (Strandås et al., 2019).

Like most OECD countries, Norway has in recent decades shifted its public administration methods towards the new public management (NPM) (Strandås, 2021). NPM doctrines imply a public sector governed following market principles, where measurable results and control are emphasised (Hood, 1995). NPM furnishes the foundation for how MipAC services are planned and established, and efficient use of resources regarding reduced hospital admissions is monitored as an important outcome measure (Hagen, 2016; The Research Council of Norway, 2016). NPM administration is criticised by health professionals, as it evaluates professionals' activities with accounting measures rather than assessing process accountability (Strandås, 2021; Strandås et al., 2019; Wyller et al., 2013). NPM is blamed to regard activities of professionals more as excessive cost-intensive instead of being essential competence required to provide quality care. Apparently, it undermines professional competence enhancement in the primary health care nursing services, given less time for professional specialisation, research, and development (Kirkevold et al., 2013;

Wyller et al., 2013). Consequences of NPM include reduced staffing and increased number of patients per RN, less time for professional specialisation and research (Kim, 2005), and shifts in tasks between different occupational groups (Kirkevold et al., 2013). Further consequences are high workload, lack of time to perform quality nursing, inadequate nurse-patient relationships, and non-compliance between practical complexity and nursing competence to handle it (Strandås et al., 2019).

2.2 Competence in nursing

The concept of competence is abstract (Flinkman et al., 2017), open-ended, socially negotiated, and influenced by historical development (Le Deist & Winterton, 2005; Sandberg & Pinnington, 2009). The phenomenon is complex to assess and measure. As per Flinkman et al (2017), there is no consensus on its definition. A multitude of definitions have been suggested (Flinkman et al., 2017; Le Deist & Winterton, 2005; Mulder et al., 2007); however, it may be impractical to identify a clear theory or definition that embraces or integrates the multiple ways 'competence' is used (Le Deist & Winterton, 2005; Mulder et al., 2007). Nonetheless, the significance of the concept is not questioned, given its usefulness in bridging the gap between education and professional performance (Le Deist & Winterton, 2005). This chapter elaborates on the broad understanding of the concept of competence as used in this thesis. Further, it reviews previous and current research on nursing competence in general and municipal acute health services in particular.

2.2.1 Theoretical approaches to the concept of competence

Competence is mostly studied from the practical accomplishment perspective (Halcomb et al., 2016; O'Connell et al., 2014; Sandberg & Pinnington, 2009). Sandberg and Pinnington (2009) suggest three theoretical approaches that contribute to understanding competence in work performance: entity-based approach, relational approach, and existential ontological understanding of competence. The latter considers the *ways of being* perspective.

Entity-based theoretical approach to competence

Professional competence in an entity-based approach conceptualises the term as a body of scientific knowledge or various human characteristics (Sandberg & Pinnington, 2009). Competence is predominantly viewed as *applied scientific*

knowledge. Thus, *knowledge, skills, and attitudes theories* may be the most predominant definition and understanding of competence (Sandberg & Pinnington, 2009). For example, the Norwegian Directorate of Health (2012) uses the following definition: 'the combined knowledge, skills, abilities, and attitudes that make it possible to perform appropriate functions and duties [per] the defined requirements and goals' (p. 9). Le Deist and Winterton (2005) use the terms cognitive, functional, and social competence, which they argue broadly correspond to the knowledge, skills, and attitude dimensions. However, the authors suggest a multidimensional understanding of required competence in a given occupation and add the dimension of meta-competence to the term. Meta-competence enables the attainment of cognitive, functional, and social competence, emphasised as an ability to learn, reflect, and handle uncertainty (Le Deist & Winterton, 2005). Bogo et al. (2013) describe meta-competence as 'higher-order, overarching qualities and abilities of a conceptual, interpersonal, and personal [or] professional nature' (p. 260). Meta-competence can be described as an overall input that facilitates the acquisition of the output competence (Le Deist & Winterton, 2005). To illustrate, Koskinen et al. (2020) explore ethical competence and considered knowledge, skills, and attitude as outer dimensions of competence and meta-competence as an inner dimension representing individual underlying qualities, such as ethical awareness, moral assessment, and commitment to assume responsibility and do good (Koskinen et al., 2020).

Relational theoretical approaches to competence

Professional competence can also be understood from a relational theoretical perspective (Sandberg & Pinnington, 2009). A common relational perspective of professional competence is that competence is defined by a specific social-relational unity where core features can be described as

> 'a collectively developed understanding of joint enterprise, mutual engagement in the sense of established norms for interaction, and a shared repertoire of communal resources such as language, routine, stories, and tools' (Sandberg & Pinnington, 2009, p.1142).

Competence is personal in that it is the person who performs the competence that also embodies it. From a relational perspective, the professional exploits competence regarding work and the understanding of work. However, the relational approach emphasises that competence does not depend on the work

performer alone as existing in isolation from the individual head or body (Sandberg & Pinnington, 2009). Rather, professional competence lies in the relationship between the individual, the assigned tasks, external tools, and the environment. The relational theoretical approach to competence emphasises the subject's relation to the object in practice accomplishment. In contrast in the existential ontological understanding of competence, *ways of being* precedes the subject-object distinction as a prerequisite to understanding ourselves as a subject and the object as an object.

Competence in an existential ontological understanding – a way of being

Sandberg and Pinnington (2009) claim that the entity-based and relational theoretical approaches to competence do not explain *how* these aspects *form* a specific competence in work performance. An existential ontological perspective considering competence as a *way of being* provides a more comprehensive understanding of professional competence in work performance (Sandberg & Pinnington, 2009). Therefore, to complement the understanding of competence as a practical accomplishment, the authors suggest a Heideggerian existential ontological approach in which *being* and *time* are central. Professional competence in the perspective of existential philosophy thus directs attention towards the point of care. Moreover, from the existential philosophical perspective, competence in work performance is abstracted to comprise the interrelated ontological dimensions of humans, others, and tools in *human way of being*. However, although competence in this perspective is considered mainly social rather than individual, *human way of being* is a fundamental dimension (Sandberg & Pinnington, 2009). Competence in *human way of being* becomes something 'we embody and enact in the sense of what we *do* and at the same time *are*' (Sandberg & Pinnington, 2009, p. 1145).

In existential philosophy, *being in the world* forms the basis for all understanding. Humans are always interrelated with the world, never separated. Sandberg and Pinnington (2009) emphasise that considering the *way of being* perspective helps to understand how central aspects of professional competence, such as the professional's *specific self-understanding* and the *specific understanding of work, other people, and tools*, interrelate and form a specific competence in work performance.

Sandberg and Pinnington (2009) also note that our professional self-understanding is mostly defined by *others* (e.g., colleges, clients, and support

staff); that is, those with whom we are engaged. The significance of *tools* refers to all useful things (e.g., knowledge, tools, technology, and buildings) in *human ways of being* (Sandberg & Pinnington, 2009).

2.2.2 Accountability and professionalism in nursing

Nurses' performance embraces a wide range of activities requiring cognitive, emotional, physical, and organisational skills (Jackson et al., 2021). Much research has constituted and conceptualised nursing competence in work performance (Flinkman et al., 2017). Competence standards, frameworks, and evaluation tools are suggested, evaluated, and used (Bing-Jonsson et al., 2015; Flinkman et al., 2017; O'Connell et al., 2014; Smith, 2012).

Riley et al. (2008) explore scholarly nursing from the perspective of experienced nurses and uncovered two interrelated categories. The first category was *what the nurses are*, which refers to attributes, such as being an active learner, creative, committed to nursing, accessible, and confident. The other was *what the nurses do*; that is, professional behaviour, such as leadership, care, sharing knowledge, developing, and reflecting on practice (Riley et al., 2008).

Tacit knowledge, recognised as the *bodily* nature of competence, is also significant in a professional's performance (Banning, 2008; Benner, 1995; Sandberg & Pinnington, 2009). Even though the term may not be possible to formulate precisely in explicit words (Sandberg & Pinnington, 2009), it remains widely used in the context of nursing and is considered a central dimension of nursing competence (Banning, 2008; Benner, 1995). Intuition is a commonly used term that refers to tacit knowledge (Banning, 2008) and acts on awareness of empirical, aesthetic, personal, and ethical knowledge (Banning, 2008; Rew, 2000). It occurs at the subconscious level and is utilised at the conscious level (Banning, 2008; Manias et al., 2004; Melin-Johansson et al., 2017). Intuition is considered central to pattern recognition in assessments of patients and is significant to experienced nurses' decision-making. Its relevance increases with knowledge and experience in the specific area of nursing practice (Banning, 2008; Benner, 1995).

Professional nursing care is also deeply rooted in ethics (International Council of Nurses, 2021). The ethical aspect of competence can be classified into ethical knowledge, ethical decision-making, ethical sensitivity, and ethical reflection (Poikkeus et al., 2014). Landstad et al. (2021) emphasise advanced ethical qualifications embedded in the nurse's advanced practices in the MipAC. They

further emphasise that ethics acquired through lived experience should always be present at the point of care (Landstad et al., 2021).

Nevertheless, assessing formal qualifications acquired through education and training is essential to understanding professional competence and its level (Ministry of Education and Research, 2014; Sandberg & Pinnington, 2009). Professional education at the university level aims to prepare nurses to provide quality care, develop a professional identity for critical and creative thinking, and act adequately to improve practices (Björkström et al., 2008). Such education forms the basis of professionalism (Adams & Miller, 2001; Miller et al., 1993). Beyond knowledge and skills, professionalism implies a commitment to nursing, adherence to a code of ethics, continuing education, and competence enhancement (Miller et al., 1993). Health professions and professionals are held accountable for patients and the care provided (Cruess et al., 2004; Health Personnel Act, 1999). Accountability is rooted in the individual nurse's inner values internalised through education, professional practice, and experience and in the environmental and organisational norms and expectations (Drach-Zahavy et al., 2018; Srulovici & Drach-Zahavy, 2017). Requirements for accountability in the municipal health care services and nurses' practice are regulated via Norwegian laws (Health and Care Services Act, 2011; Health personnel Act, 1999). However, Stronach et al. (2002) emphasise that the drive inherent in professionalism, cannot be forced by regulations and directives. Rather, it needs to be supported, recognised, and motivated to be maintained and developed (Stronach et al., 2002).

Nursing competence to care for vulnerable older people

Kiljunen et al., (2017) underline the importance of well-educated and competent nursing staff to care for vulnerable older people. A vulnerable patient is commonly understood to be a patient with complex and comprehensive care needs, defined as

> 'one whose physical, mental, or social well-being is challenged [or] one who is unable to access support at a particular time … the word 'challenged' refers to a situation where a person's physical, mental, [or] social well-being may be compromised' (Enang et al., 2021, p. 3).

As described in Chapter 2.1.2, studies also show the special vulnerability of older patients in a condition of needing acute care (Fried et al., 2004; Kihlgren et al., 2005; Sommella al., 2014). Based on a scoping review, Deschodt et al. (2016)

conclude that nurses hold a significant role in interdisciplinary acute care hospital teams in the medical, functional, psychological, and social assessment of older patients. Zahran et al. (2016) emphasise that a nurse's responsibility in providing dignity for older patients in an acute care setting implies that the nurse's relational competence and competence in clinical leadership are important. Day (2020) highlights authentic nurse behaviour, implying sociability, consciousness, integrity, and coping in acute care for older people. Hussein and Hirst (2016) believe that a nurse's competence is important in recognising delirium in older patients in acute care settings. They find that nurses' clinical reasoning in delirium recognition includes knowledge and the use of assessment tools to assess and evaluate cognition (Hussein & Hirst, 2016). Nonetheless, based on an integrative review of literature, Kiljunen et al. (2017) suggest that a broad scope of competence is needed in the care for older people, such as evidence-based care competence, attitudinal and ethical competence, competence in communication, interaction and collaboration, pedagogical competence, leadership, and development competence (Kiljunen et al., 2017). Halcomb et al. (2016) explore the content of nursing competence standards in primary health care and find that common themes in the standards included working context, teamwork, clinical practice, communication, professionalism connected to development, supervision, education, research and evaluation, information technology, and the primary health care environment. Bing-Jonsson et al. (2013) conclude that competence in the context of municipal health care focuses on nurses' skills, tasks, abilities, performance, and behaviour. Nevertheless, standards for competence requirements and role descriptions for the nurse function in older patients' care have proven to be deficient or completely lacking in primary health care (Bing-Jonsson et al., 2013; Christiansen & Bjørk, 2016; Halcomb et al., 2016).

High nursing competence in staff positively impacts the quality of care (Dellefield et al., 2015). It impacts patient safety, critical thinking, commitment, empowerment, and the environment (Aiken et al., 2017; Maier et al., 2017; Roche et al., 2017). Further, high competence in staff is reported to positively influence patients' perceptions of communication with nurses, teaching concerning new medications, and the physical environment, such as quietness and cleanliness (Liu et al., 2020). Dellefield et al. (2015) emphasise that the increased presence of RNs on all work shifts may enhance cost-effectiveness and

efficiency. Advanced nursing competence, which comprises medical competence beyond the level of a bachelor's degree (International Council of Nurses, 2020a) is suggested in the care of frail older patients in acute and long-term care settings (Morilla-Herrera et al., 2016).

Advanced nursing competence

Advanced nursing competence improves effectiveness regarding patient safety and quality of care (Maier et al., 2017; Roche et al., 2017). Several studies show evidence for the benefit of implementing advanced nursing practices in the care for older people (Bakerjian, 2008; Laurant et al., 2005; Maier et al., 2017; Martínez-González et al., 2014; McDonnell et al., 2015; Morilla-Herrera et al., 2016). Studies emphasise that professionalism in the advanced nurse's practices implies professional autonomy, self-regulation, leadership in nursing, and the ability to use, develop, and evaluate theory and research (Adams & Miller, 2001; Carryer et al., 2007). Nurse-led care provided by advanced nurses in place of physicians exerts positive effects, such as patient satisfaction, lower mortality, lower hospital admissions; positive effect on staff competence, quality of work-life, workload, and teamwork (Laurant et al., 2005; Maier et al., 2017; Martínez-González et al., 2014; McDonnell et al., 2015); high adherence to clinical guidelines, diagnostic accuracy, and patient-reported outcome (Roche et al., 2017).

O'Connell et al. (2014) underline that performance complexity must be considered in conceptualising nursing competence. Thus, they suggest a capability framework in the development of practice standards in advanced nursing. Capability approaches are used to assess competence and performance to cope with serious challenges in different contexts (Nagarajan & Prabhu, 2015). Capability implies the potential to act effectively in an unstable environment and be competent and comfortable with handling unfamiliar challenges in unfamiliar situations (Nagarajan & Prabhu, 2015). According to O'Connell et al. (2014), the advanced nurse should be capable of sorting and making available information that is usable for assessments, identifying and solving problems, and making relevant decisions to understand the current problem. The nurse should be capable of translating, interpreting, and analysing a patient's many issues into diagnoses to reflect on and use the assessment in clinical decision-making and eventually stabilise the patient's condition. The advanced nurse can make decisions from a holistic perspective appropriate for the individual patient in

clinical action and discharge, referral, transfer, or admission, as they collaborate and become a resource for staff in clinical practices (O'Connell et al., 2014).

The Norwegian Ministry of Education and Research introduced in 2020 a national regulation for formal education in advanced clinical general nursing at the master's degree level, directed to municipal health care services (Regulations on national guidelines for master's education in advanced clinical general nursing, 2020). The regulations underline the significance of comprehensive competence within the areas of clinical assessment, decision-making, and action competence, including health competence, patient education and guidance, professional management and coordination, knowledge-based professional development, service improvement, and innovation.

2.2.3 Quality of care

Outcome qualities are considered dimensions of the concept of competence (Sundberg & Pinnington, 2009). In this context, quality of care is considered an important outcome quality. The term quality of care is multidimensional; the number of indicators may be unlimited, and interpretation of its content depends on the contexts being studied (Campbell et al., 2000a, 2000b; Nakrem et al., 2009; Spilsbury et al., 2011). However, quality and safety are supposed to be safeguarded through requirements for professional accountability aimed at activities and practitioners (Health and Care Services Act, 2011; Health personnel Act, 1999; Aase, 2015) and structural qualities (Heslop & Lu, 2014). Quality of care implies access to effective, safe, secure, and coordinated care and treatment when needed. It is characterised by continuity within the institution and when transferred to other institutions (Campbell et al., 2000a; Leonardsen et al., 2016b; Meld. St. 10 [2012-2013]; The Norwegian Directorate of Health, 2005).

From a system perspective, clinical expertise, patient-centredness, evidence-based practices, fair allocation, and sensible resource utilisation are emphasised as appropriate care indicators (Robertson-Preidler et al., 2017; WHO, 2000). However, patients' preferences regarding the quality of care are individual and context depended (van den Ende et al., 2021). Qualities emphasised by patients for care include individual, holistic, relational, inclusive, respectful, flexible (Bridges et al., 2020; Eriksson et al., 2018), empathic, sensitive, and hopeful (Edvardsson et al., 2017). Trust in health care providers' professionalism, such as formal competence, knowledge, skills, and clinical decision-making competence, are emphasised by patients in primary health care (Eriksson et al., 2018) and

MipAC (Leonardsen et al., 2016b) and by patients in need for acute care (Edvardsson et al., 2017). Environmental conditions, such as a homely atmosphere, neatness, cleanliness, and opportunities for positive distractions are also important qualities (Edvardsson et al., 2017).

Fried et al. (2004) show that older peoples' increased health care needs from frailty, comorbidity, and disability require coordination between care providers and sites of care (Fried et al., 2004). Person-centred care may be particularly important for older patients in primary health care services and patients with chronic health problems or comprehensive and complex care needs (Kogan et al., 2016). Person-centredness in nursing care embraces the holistic or whole-person perspective where purposeful living is emphasised (Kogan et al., 2016; Suhonen, 2018). Stolt et al., (2020) underscore the significance of an environmental quality care team they claim is an underused resource in nursing.

2.3 The environment's impact on nursing competence and care quality

Professional competence considered from the perspective of way of being means that human, other people, and tools interrelate and form competence at the point of care (Sandberg & Pinnington, 2009) and, thus, includes the nurse's environment in the concept of competence. A professional practice environment is described as an environment that supports nurses to perform at the highest professional level in clinical practice and effectively work in intra- (Kaiser & Westers, 2018) and inter-professional teams (Lake, 2007). It mobilises sufficient resources timely and facilitates nurses' professional development (Lake, 2007; Paguio et al., 2020). Work environment impacts the quality of care directly and indirectly (Liu et al., 2018, 2020; Olds et.al, 2017), and interventions directed to improve the work environment positively impact organisational outcomes in nursing (Paguio et al., 2020).

Environments are defined by the internal structures and processes of the organisation (Lake, 2007; Paguio et al., 2020). An organisational structure comprises tangible or physical and relational structures (Ahmady et al., 2016). Tangible structures include buildings, tools, people, groups, and hierarchy units, and relational structures refer to the relation between the tangible elements and how they function together. Structural features may be beneficial or restrictive for an organisation's enhancement processes (Kanter, 2008). The process can be described as the interactions, activities, and flow of management in the

organisation (Paguio et al., 2020). Hence, the organisational structure can be illustrated as a framework where tangible and relational structures coordinate processes of work activity (Ahmady et al., 2016, Paguio et al.2020). Research shows that the complex association between structure, process, and outcome quality must be considered when the quality of care is defined, evaluated, and guided (Campbell et al., 2000a; Donabedian (2005); Nakrem, 2015; Nakrem et al., 2009). Donabedian (2005) even claims that the individual professional's impact on outcome quality largely depends on environmental qualities.

The significance of the work environment's impact on nurses' performance is widely recognised, and many studies determine what characterises a favourable working environment (Barrientos-Trigo et al., 2018; Kirwan et al., 2013; Paguio et al., 2020; Xu & Stark, 2021). Paguio et al.'s (2020) systematic review concludes that interventions with positive effects on nurses, patients, and organisational outcomes focus on process enhancement, either independently or supplemented by structural interventions, participatory approach, and involvement of first-line nurse leaders. The effects on nurses include work environments, leadership, autonomy, burnout, job satisfaction, and intention to quit the job; while the effects on patients include satisfaction, falls and errors; and the effects on organisational outcomes include, for instance, quality of care provided, nurse turnover, and workload (Paguio et al., 2020). Another study finds salary as a strong predictor of nursing competence and often a reward for increased competence (Gunawan et al., 2020).

Although the work environment is not well defined in many studies (Lee & Scott, 2016), several instruments have been used to measure nurses' work environments (Erickson et. al., 2009; Nascimento & Jesus, 2020). Indicators include nurse staffing and nursing competence, resources to accomplish, care culture, managers' role, nurses' engagement and participation, collegial support, and collaborative relationships (Kirwan et al., 2013; Nascimento & Jesus, 2020; Stalpers et al., 2015; Xu & Stark, 2021). One instrument frequently used to explore environmental qualities is the Practice Work Environment Scale of the Nursing Work Index (PES-NWI) (Swiger et al., 2017). The scale includes aspects like 'staffing and resource adequacy', 'collegial nurse-physician relations', 'nursing foundation for quality of care', 'nurse manager ability, leadership, and support of nurses' and 'nurse participation in hospital affairs' (Lake, 2002, p. 185). Liu et al. (2018) conclude that the high PES-NWI score and

low workload were associated with patient safety and negatively associated with patient adverse events. They also find that unfavourable work environments affected nursing care left undone and nurse burnout (Liu et al. 2018).

Nascimento and Jesus (2020) claim that the nurse-physician relationship is the most frequent environmental quality explored and note a positive relationship with lower patient mortality, fewer adverse events, and reduced length of stay (Nascimento & Jesus, 2020). Manojlovich (2005) combines the PES-NWI scale and an instrument developed by Laschinger et al., (2001a) based on Kanter's (2008) theoretical framework of structural empowerment (see Chapter 2.3.1). He finds that favourable work environments improved nurses' job satisfaction and understanding and their overall satisfaction in communication with physicians. The favourable communication between nurses and physicians relates to openness, accuracy, and timeliness (Manojlovich, 2005). Manojlovich and DeCicco (2007) also found that nurse-physician communication predicted nurses' self-assessed medication errors.

In a systematic review, Willard-Grace et al. (2014) conclude that work environments in primary health care that support team culture prevent burnout in staff. However, negative behaviour, such as bullying and personal or professional attack, are toxic environmental features that impact job satisfaction and may result in burnout and intention to quit the job (Hawkins et al., 2019; Shorey & Wong, 2021). In a scoping review, Nascimento and Jesus (2020) explored the impact of nurses' work environments on patient outcomes in hospital contexts. They find that staff adequacy lowered patients' risk of infections, adverse events like falls, and the mortality rate (Nascimento & Jesus, 2020). Likewise, Liu et al. (2020), find that the proportion of nurses educated with a minimum of a bachelor's degree and a high nurse-patient ratio was significantly related to better patient-nurse communication, education on new medications, and a clean and quiet physical environment. Nurse autonomy, nurse participation in organisational issues, and quality care processes in nursing positively impact patient safety (Nascimento & Jesus, 2020).

2.3.1 Structural empowerment's impact on nursing competence

Kanter (2008) recognises humans as the most important resource in the organisation and notes three crucial motives for structural changes to empower employees. The first motive is the organisation's interest in effective behaviour. The second is the work-life quality, and the third regard opportunities to enable

the advancement of people's potential. Kanter (2008) suggests a theoretical framework of empowering strategies for change and enhancement in organisations. Qualities to empower employees and managers include having access and *opportunity to learn and grow*, having *resources essential to do the job*, possessing *information*, and receiving *support*. Employees' and managers' *power* affects the organisational processes because it impacts the ability to get things done, mobilise resources, and obtain what is needed for goal achievement (Kanter, 2008). Kanter (2008) also recognises the power of formal job characteristics and claims that formal *power* facilitates access to favourable structures.

Structural empowerment improves work and unit effectiveness, quality of care, patient satisfaction (Goedhart et al., 2017), organisational commitment (Fragkos et al., 2020), and nurses job satisfaction (Manojlovich & Laschinger, 2002). Organisational commitment characterises the employees' relationship with the organisation and is important for the employee's decision to continue in their employment or to leave (Meyer et al., 1991). Job satisfaction promotes nursing competence regarding performed skills, knowledge, and attitude (Gunawan et al., 2020). It predicts nurses' turnover and is, therefore, important to retain competence in the services (Poghosyan et al., 2017).

Wagner et al. (2010) find that strategies that facilitate structural empowerment contributes to nurses' and managers' psychological empowerment and results in positive work behaviour and attitudes. Several studies underline the associations between empowering structures in organisations and psychological empowerment regarding a nurse's feeling of being empowered in work performance (Knol et al., 2009; Manojlovich & Laschinger, 2002; Wagner et al., 2010). Psychological empowerment can mediate between structural empowerment and outcome (Knol et al., 2009; Wagner et al., 2010). Psychological empowerment relates to the experience of *competence, meaning, impact, and autonomy* (Laschinger et al., 2001a). The term *competence* refers to feeling confident in accomplishing the job well, *meaning* refers to feelings of importance and care for one's work, *impact* is the experience of being considered by the organisation as an important contributor and whose ideas are taken seriously, and *autonomy* is deciding how to do the job (Knol et al., 2009; Laschinger et al., 2001b).

The combination of structural and psychological empowerment is a strong predictor of positive organisational outcomes (Manojlovich & Laschinger, 2002). However, Wagner et al. (2010) did not find any associations between structural empowerment and nurses' self-perception of competence regarding work-specific efficacy and belief in one's capability and skills, indicating that nurses' perception of own competence does not depend on structural features.

Psychological empowerment positively impacts nurses' job satisfaction (Ahmad & Oranye, 2010; Li et al., 2018) and organisational commitment (Ahmad & Oranye 2010; Fragkos et al., 2020), reducing job strain (Laschinger et al., 2001b).

A systematic review and meta-analysis by Fragkos et al. (2020) demonstrate how empowering structures in organisations promote nurses' commitment to nursing and the organisation directly or mediated through psychological empowerment. Independently, structural and psychological empowerment is found to have positive impact on the nurses' feeling of being respected (Faulkner & Laschinger, 2008).

A work culture where employees and leaders work together in a friendly working environment impacts organisational commitment and job satisfaction positively (Xie et al., 2020). A friendly working environment, together with a professional identity, positively impacts nurses' willingness to stay on the job. Nevertheless, the organisation's capacity to change environment and support expedient leadership practices may be critical to prepare changes (Carroll et al., 2015 Von Treuer et al., 2018; Glette et al., 2018; Phillips & Byrne, 2013), and to promote interprofessional communication (Manojlovich, 2005).

2.4 Leadership

Enhancing leaders' competence at all levels, to handle increasingly complex and comprehensive primary health care services is emphasised by governmental authorities (Meld. St. 26 [2014–2015]; Meld. St. 47 [2008–2009]). Moreover, national strategies and directives are implemented to strengthen leaders' functions (Meld. St. 26 [2014–2015]; Ministry of Health and Care Services, 2020).

The leader's function and tasks can be divided into leadership assignments and management assignments (Northouse, 2019). While planning, budgeting, organising, and staffing are managerial tasks, leadership intends to establish direction and set strategies, align people, communicate goals, and promote commitment, thereby building teams and motivating and inspiring people (Northouse, 2019).

Effective leadership is a core element for intended changes to be realised (Cummings et al., 2018; Northouse, 2019) and support, plan, and enhance nursing practices (WHO, 2021; Cummings et al., 2018; Gunawan et al., 2019; Kanste, 2008a, 2008b).

2.4.1 First-line nurse manager

The leaders closest to the bedside nursing services are the first-line nurse managers, where the de facto care is delivered (Gunawan et al., 2018; Hjertstrøm et al., 2018; Solbakken et al., 2021; Tingvoll et al., 2016). They are key to developing municipal health care services, given their distinctive professional and organisational competence and experience (Hjertstrøm et al., 2018; Solbakken, 2020, 2021).

The first-line nurse managers balance a wide range of managerial and leadership responsibilities that requires a multitude of competencies (Gunawan et al., 2018; Hjertstrøm et al., 2018; Karami et al., 2017; Roch et al., 2014; Ullrich et al., 2021). In the wake of the Coordination Reform, first-line nurse managers in primary health care have a challenging role requiring solid knowledge founded in caring and nursing sciences (Solbakken et al., 2021) and competencies in nursing, leadership, and management (Hjertstrøm et al., 2018; Solbakken et al., 2020).

They are expected to ensure sufficient competence in their staff (Gunawan et al., 2018), quality of care, professional growth and development of nursing competence, career planning (Karami et al., 2017), organisational commitment, quality of working life (Hjertstrøm et al., 2018; Peng et al., 2015), health and well-being of their employees (Akerjordet et al., 2018), team building, and motivated and inspired employees (Gunawan et al., 2018, 2020; Northouse, 2019).

Hjertstrøm et al. (2018) underline the importance of a manager's power to facilitate professional development and cooperation among actors and negotiate

for resources (e.g. staffing and equipment) required to build quality in the MipAC service and participation in formal leadership networks. However, strategies to enhance competence in nursing staff, avoid change resistance, and promote organisational commitment are responsibilities that must be carefully handled by the first-line nurse managers (Gunawan et al., 2019; Karami et al., 2017). Moreover, Solbakken et al., (2021) indicate that first-line nurse managers' responsibility to comply with statutory obligations regarding management and control in the MipAC may proceed at the expense of visionary and inspiring leadership. Managers lack time for such involvement in nursing competence enhancement processes in the MipAC units (Bjerregard Madsen et al., 2016; Solbakken et al., 2021). Their room for manoeuvre is constrained by budget restrictions, resource scarcity, and heavy administrative workloads (Havig & Hollister, 2018; Hjertstrøm et al., 2018; Solbakken et al., 2020, 2021; Tingvoll et al., 2016). Often they experience pressure and stress and lack support from superiors; they are burdened with responsibilities and conflicting requirements (Solbakken et al., 2020, 2021).

2.4.2 Leadership styles

Leadership can be studied in theoretical approaches such as traits, skills, behaviour, or situational awareness. Northouse (2019) categorises leaders' traits into self-confidence, intelligence, desire to get the job done, integrity and sociability. Skills theories frame leadership capabilities as the knowledge and skills that enable effective leadership (Northouse, 2019; Skytt et al., 2008). Whereas the traits and skills approach focuses on who the leaders are, the behavioural approach to leadership solely focuses on what leaders do and how they act. A leader's behaviour is strongly related to organisational environmental factors such as professional practice environment, policy involvement, staffing, outcome, and employees' performance and well-being (Cummings et al., 2018; Kanste, 2008a; Morrow et al., 2016; Northouse, 2019). It is, therefore, important to evaluate leadership behaviour (Kanste et al., 2007), which can be explored by identifying leadership styles (Northouse, 2019).

The literature has roughly categorised leadership styles into two core dimensions of leadership behaviour: task- or relation-oriented leadership styles (Cummings et al., 2018). The task-oriented leadership style focuses on goal achievements and control and facilitates employees to achieve their objectives, whereas the relation-oriented leadership style focuses on the individual employees' well-

being and confidence in themselves in the working group to which they belong (Cummings et al., 2018; Jacobsen & Thorsvik, 2013).

Several studies emphasise that the relation-oriented leadership style, relative to task-oriented leadership, implies more effective leaders who provide a better nursing workforce and organisational outcomes and more satisfied employees (Bass, 1999; Cummings et al., 2018; Fischer et al., 2018; Xie et al., 2020). Seljemo et al. (2020) find transformational leadership as a stronger predictor of patient safety culture in Norwegian nursing homes and suggest that it may be because of transformational leadership's positive effect on the psychosocial work environment. Nevertheless, Northouse (2019) emphasises that the behavioural leadership approach aims to explain how leaders combine task- and relation-oriented behaviours in goal achievements. The leader's behaviour can be supportive or directive per situational demands (Kanste et al., 2009; Northouse, 2019). Kanste et al. (2009) claim that full-range nursing leadership is situational. The situational approach to leadership acknowledges the leader's diagnostics ability, flexibility, and effectiveness. The latter approach assumes that employees' competence and motivation vary over time; thus, the effective leader must adapt the leadership behaviour (Northouse, 2019).

Neubert et al., (2016) illustrated the association between organisational structure and leadership style, measuring organisational structure via the level of formal control and getting employees to comply with formally established procedures. They found that a high-level organisational structure, combined with high-level relation-oriented leader behaviour showed the highest level of nurses' creativity and patient satisfaction mediated through nurses' job satisfaction (Neubert et al., 2016). High-level organisational structure, combined with low-level relation-oriented leader behaviour or low-level structure regarding loose, informal control, combined with high-level relation-oriented leader behaviour demonstrated the lowest level of patient satisfaction regarding nursing, pain management, and the willingness to recommend the caregiving facilities (Neubert et al., 2016).

2.4.3 Empowered leaders

Empowered leaders more likely hold a relation-oriented leadership style (Kanter, 2008). They share information, train subordinates for responsibility, delegate authority, and emphasise latitude and autonomy (Kanter, 2008). Supportive strategies and environments that reduce stress, promote autonomy, and provide

social support, team cohesion, and power to enhance are recommended to strengthen first-line nurse managers' job satisfaction (Penconek et al., 2021). Moreover, first-line nurse managers must experience belonging in the organisation and self-awareness of their position; they must experience support from superiors (Solbakken et al., 2020), and subordinates (Northouse, 2019). Constructive collaboration with a professional development nurse (PDN) is also a key resource in first-line nurse managers' work (Penconek et al., 2021; Renolen et al., 2020).

Kanter (2008) emphasises that managers with power and opportunities are more likely to act as supervisors who promote a participatory style (Kanter, 2008). Kanter (2008) emphasises credibility, regarding power and competence, as important characteristics of an effective leader. Leaders with credibility are listened to, and they get things done. Credibility upward in the system impacts subordinates' trust in their manager's importance and political position (Kanter, 2008). Thus, to prepare first-line nurse managers to handle challenges, Ullrich et al. (2021) suggested an adapted evidence-based educational leadership programme. Moreover, competence analyses of the first-line managers in selection, recruitment, development, performance, rewarding, and career planning are also emphasised (Gunawan et al., 2019).

2.5 Summary of background

The establishment of MipAC is an important initiative in Coordination Reform. However, a lack of trust in the quality of care in MipAC is seemingly an important explanation for its low utilisation rate. The target group comprises patients of all ages in need of acute care admission given somatic or mental health challenges or drug health problems. However, the main group comprises older patients and patients with chronic and composite diseases. Quality of care for these patients requires competence to understand and handle the complexity. Given nurses' key role in the core of the healthcare services, competence in the nursing services is crucial to providing quality in the MipAC service. However, how services are implemented and evaluated, the lack of RNs and, particularly, RNs holding advanced competence in primary health care may influence professional competence and competence enhancement in the services. Competence is an abstract phenomenon that is complicated to elaborate on. For a comprehensive understanding of what constitutes nursing competence, this thesis

explains the phenomenon from different perspectives. First, competence must be understood as a formal qualification regarding education and formal training as a prerequisite for professional competence. Likewise, as there is a clear association between competence and quality in care, competence must also be understood from the perspective of outcome, which mainly refers to quality in care in the nursing context. Even so, to assess competence in work performance, three different theoretical approaches expand the understanding of professional competence. The entity-based theoretical approach emphasises competence as various human characteristics. The relational theoretical approach emphasises that competence is defined by a specific social-relational unity. Finally, the existential philosophical approach emphasises *being* and *time*, directly focusing on competence to the point of care. Considering *way of being* as the starting point provides an understanding of *how* central aspects of professional competence, such as a professional's *specific self-understanding* and the *specific understanding of work*, *other people*, and *tools*, interrelate and form a specific competence in work performance. Figure 1 provides an overview of the theoretical concepts included in this study.

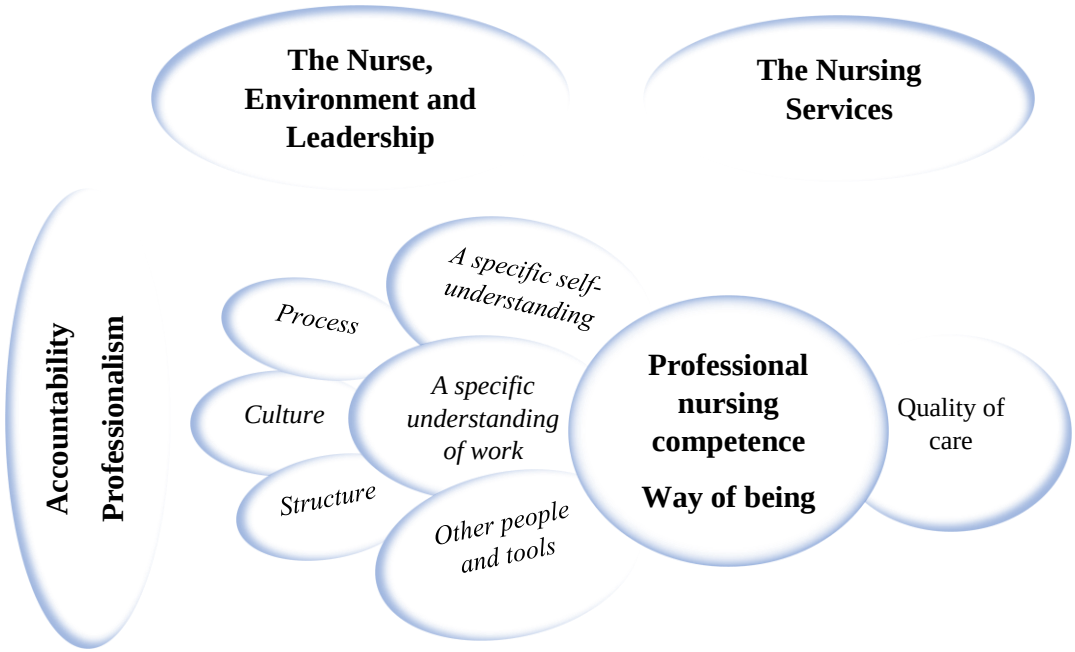


Figure 1 A conceptual overview of the theoretical concepts included in the study

Extensive expectations are connected to the MipAC service potential for increasing efficiency in healthcare services. Therefore, even though many studies have evaluated the services, a focus on the nursing services has been sparse, warranting further research. Therefore, this doctoral research project directs attention to the nursing services in the units. Taking in a broad understanding of the concept of professional competence, this thesis explores nursing competence in the context of the MipAC services and discusses them against nurse, environment, and leadership qualities.

3 AIMS AND RESEARCH QUESTIONS

The overall aim of this PhD project are as follows:

To explore and describe aspects related to nursing competence in the MipAC service.

The main research question is as follows:

What is necessary nursing competence in MipAC and how is it facilitated, maintained, and enhanced?

The specific aims are as follows:

To explore critical aspects of nursing competence to care for older patients in the context of municipal in-patient acute care, as experienced by nurses and physicians (Study 1).

Research question**:**

- What characterises good quality nursing care provided to patients admitted to the services?
- What nursing competence is important to safeguard service quality in the unit?

To get an overview of the nursing competence in Norwegian municipal in-patient acute care units across geographical regions, and different types of organisation and location (Study 2).

Research questions:

- What competence does the nursing staff serving on the Norwegian MipACs have?
- Which factors affect the nursing competence at MipACs in Norway?

To identify which leadership styles, characterise first-line nurse managers in Norwegian municipal in-patient acute care units and to investigate how first-line nurse managers' leadership styles are associated with team culture and documented nursing competence planning (Study 3).

Research questions:

- What is the dominant leadership style in MipACs' first-line nurse managers?
- Are there any associations between managers' leadership styles and their planning of nursing competence in the units?
- Are there any associations between managers' leadership styles and their emphasis on team culture in the units?

4 METHODS

4.1 Choice of design

This PhD project aims to investigate what necessary nursing competence is in MipAC and how it is facilitated, maintained, and enhanced across the country. It employs an explorative design, combining qualitative and quantitative research methods. First, a qualitative research approach was used to understand and describe the phenomenon of nursing competence in the MipAC context. Knowledge acquired from the qualitative study was the main source to operationalise the phenomenon of concern, and a survey partly based on the data from Study 1 was conducted to explore nursing competence across the MipAC services in Norway.

4.1.1 Scientific foundation of the methods

The phenomenological hermeneutical research design in Study 1 is a Ricœur inspired approach, following Lindseth and Norberg (2004). Phenomenology, developed by Husserl and Heidegger, studies lived experience and reveals the meaning of phenomena (Polit & Beck, 2014). Within Husserl's thinking, humans, being in the world, are connected to and interact with the world through their senses. Phenomenology emphasises that lived experience is what gives meaning to human perceptions of the phenomenon of concern (Polit & Beck, 2014). Ricœur combined phenomenological description with hermeneutical interpretation (Delanty & Strydom, 2003; Tan et al., 2009). Hermeneutics is the doctrine of interpretation of texts, and hermeneutical interpretation aims to obtain a valid and general understanding of the meaning of the text (Alvesson & Sköldberg, 2009).

The research design in Studies 2 and 3 is conducted within a post-positivist research paradigm. Positivism emphasises that the science of a human should follow the principle of the science of nature (Strydom & Delanty, 2003). Positivism is a philosophy of social science that emphasises empiricism to produce generalisable knowledge (Polit & Beck, 2014). Empiricism has a reductionist approach to knowledge; thus, valid or true knowledge about humans emerges by exploring isolated parts (Strydom & Delanty, 2003). In a strict positivistic tradition, knowledge development is objective and verifiable, free from values and subjective conciseness. However, the positivistic approach to gaining objective true universal knowledge has been criticised (Kuhn & Hacking,

2012; Popper, 1934). Holding to a strict understanding of positivism is rather rare in nursing science today because its assumptions seem unattainable in a complex reality (Polit & Beck, 2014). Post-positivism refers to a modified understanding of the positivistic research paradigm, which still aims for objectivity (Weaver & Olson, 2006). However, post-positivism recognises the impossibility of value-free observation, as it is always coloured by human perception, experience, and prior knowledge.

4.2 The studies

4.2.1 Study 1

A phenomenological hermeneutical approach and individual in-depth interviews were used in Study 1 to identify important aspects of the phenomenon nursing competence (Polit & Beck, 2014).

Sample, setting, and recruitment

A purposive sample of eight RNs and two physicians employed in five different MipAC units in South-Eastern Norway were included in the study (Paper 1). With purposive sampling, the researcher selects the participants who will best contribute to the study (Polit & Beck, 2014). In the selection and recruitment of the sample, emphasis was placed on capturing experiences that represented some of the diversity of organisational structure and locations of the MipAC services. Therefore, participants were recruited from three (two) different rural (urban) units. The inclusion criteria were at least one year of experience in clinical practices and at least one year of experience from the MipAC.

- Three participants were employed at rural LMC
- Three participants were employed at urban MipACs, located in connection with OMSs [legevakt]
- One participant was employed at an urban nursing home
- Three participants were employed at rural nursing homes

Three participants were employed at long-term care units. One of the physicians was full-time employed at an LMC and the other was employed in a 20% position in a nursing home. Physicians were included in the sample for their medical responsibility in Norwegian health care and the close cooperation and collaboration with the nurses in medical care processes. Emphasis was placed on capturing experiences from different contexts regarding physicians' continuity in

MipAC and proximity to the daily care processes. One RN held a master's degree in clinical nursing science, and four had other types of special education that were not at the master's level. Three RNs had no additional education beyond a bachelor's degree.

The procedure for recruitment was as follows. The municipalities selected for participation were contacted by phone and email (Appendix 1) and requested for permission to recruit participants for the study. Contact information to the MipAC units' managers was also requested and received. Thereafter, the managers were contacted by phone, information about the study was provided, and they were requested to recruit participants who met the inclusion criteria, for in-depth interviews. Written information about the study, including the participants' legal rights, was provided to the manager by email to be forwarded to those asked to participate in the interviews.

Data collection

All interviews were conducted by me. The interview had an open forum where the participants were asked to elaborate on what they think characterises nursing competence at the MipAC. They were prepared in advance to tell stories from what they had experienced in the following situations: a) nursing competence contributed to patient safety and quality of service and b) lack of nursing competence led to poor service quality or implied a threat to patient safety. Follow-up questions such as *what, how*, and *why* were employed to extract further answers (Appendix 2). Data were collected between May and June 2017.

Analysis

The interviews were transcribed to text, interpreted, and, through the researchers' preunderstanding, further abstracted into a deeper meaning of the phenomenon of nursing competence in the MipAC services. In the phenomenological research tradition, the phenomena must be understood via their individual parts (structural) and as a whole (holistic). Unlike descriptive phenomenology, hermeneutics is contextual (Polit & Beck, 2014), and researchers' preunderstanding is actively employed. Hermeneutics is the doctrine of interpretation of texts and aims to obtain a valid and general understanding of the meaning of the text (Alvesson & Sköldberg, 2009). Study 1 employed a phenomenological hermeneutical analysis in three steps, as developed by Lindseth and Nordberg (2004). The first step, *naïve reading*, is descriptive and implies that the transcribed text is read several times to capture an initial

meaning. This phase provides direction for the second step, *structural analysis*, where the text is thematically structured. In this step, the main themes, themes, and sub-themes are revealed and named. In the third step, the main themes, themes, and sub-themes are reflected on, considering the research question and context of the study. The text is read again from a naïve perspective, as open as possible, although with the validated themes in mind and the preunderstanding actively used (Lindseth & Norberg, 2004). Interpretation in the hermeneutic tradition implies that a horizontal expansion process occurs in constant switching between text and the interpreter's reference. Through the hermeneutical spiral, the lifeworld is revealed, and the researcher employs preunderstanding to interpret and understand phenomena and identifies new perspectives and deeper understanding (Alvesson & Sköldberg, 2009).

4.2.2 Studies 2 and 3

Studies 2 and 3 were conducted using a cross-sectional survey design.

Sample, setting, and recruitment

All first-line nurse managers in Norwegian MipAC units invited to participate in a survey study and respond to a questionnaire. First-line managers were chosen because they are the closest leaders to the operational level and, therefore, considered the most appropriate group to answer the research questions.

The procedure for recruitment of respondents to the survey study was as follows. An email list provided by the Norwegian Directorate of Health was used to contact the municipalities in which the MipAC services were located. Contact information for the municipalities was obtained from their websites. The municipal operator was called by phone and asked to provide the contact of the first-line nurse manager for the services in question. The operators either forwarded the phones call to the right person or provided the MipAC manager's phone number. All potential participants were called in person during working hours. They were provided information about the project (Appendix 3, 4) and were, thereafter, invited to participate. This contact was also important to ensure that the link to the survey was sent to the right person's email address. Figure 2 presents an overview of the sampling process.

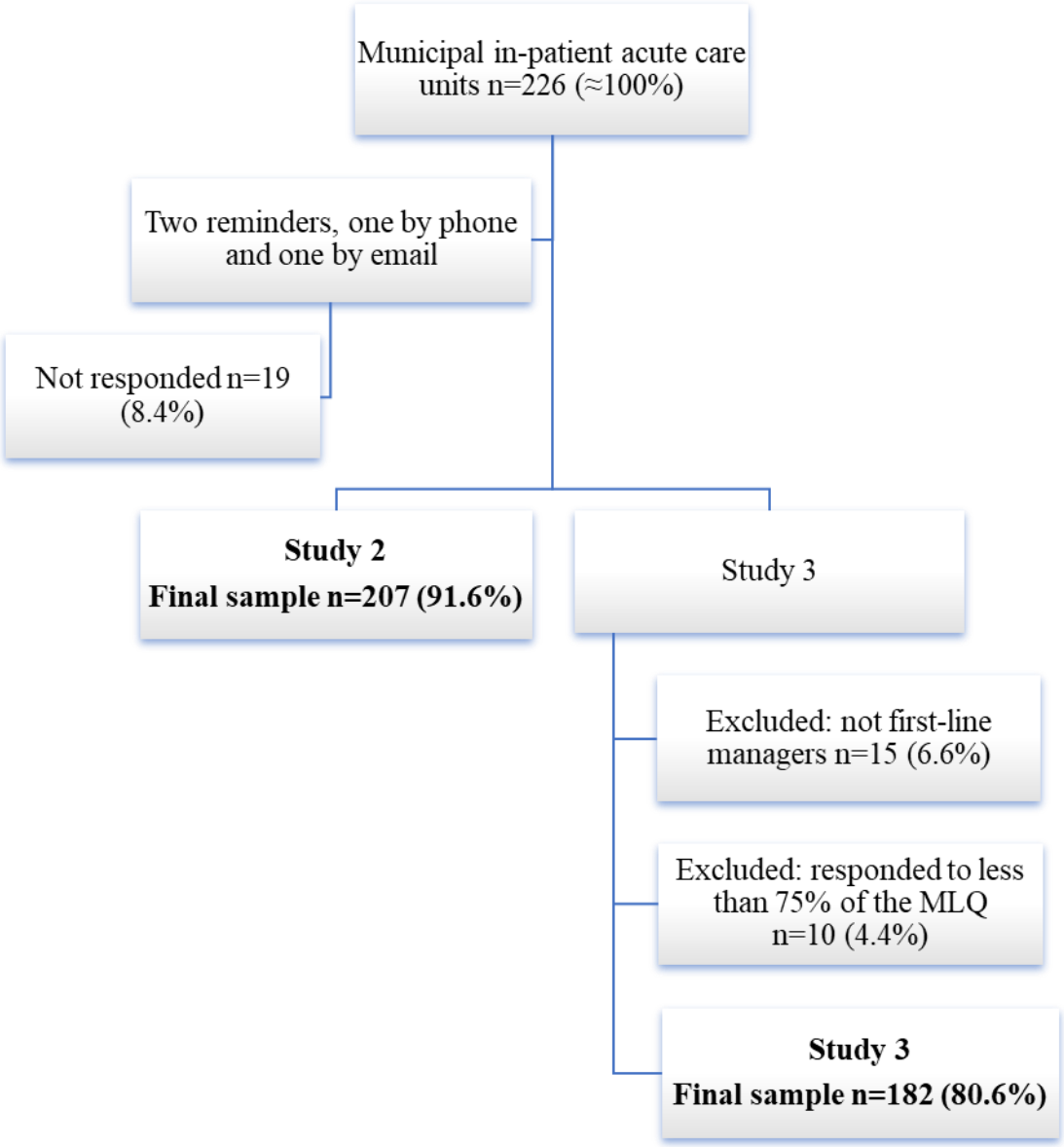


Figure 2 Flowchart illustrating the sampling process for Studies 2 and 3

Data collection

A questionnaire, partly based on findings in Study 1, was used for the data collection in Studies 2 and 3. The themes and questions from Study 1 touched on the importance of highly qualified nurses, a professional nursing staff, team-oriented culture, and the ability to offer collegial support. Study 1 also underlined the critical role of leadership and management to facilitate and plan for professionalism and development in nursing services. Therefore, the Multifactor Leadership Questionnaire (MLQ) Form 5 was incorporated into the questionnaire

to explore first-line nurse managers' leadership behaviour (Appendix 5). The questionnaire comprised the following five sections:

- Background information about respondents and the MipACs
- The Nursing services in MipACs
- Documented standards and plans
- Managers' perceptions of the service
- The MLQ Form 5

Table 1 presents the variables and measures used in Studies 2 and 3.

Table 1 Survey questions, response alternatives, and measures used in Studies 2 and 3

Studies 2 and 3	
Survey questions	***Response alternative and measures***
How many RNs are responsible for the care of patients at MipAC?	Count
How many assistant nurses perform nursing tasks for patients at MipAC (e.g., meals, toilet visits, basic care, supervision, and follow-up)?	Count
How many staff without formal qualifications perform nursing tasks for patients at the MipAC? (e.g., meals, toilet visits, basic care, supervision, and follow-up)?	Count
[1)]Is there a written standard for minimum competence requirements for the nursing service at your MipAC?	Yes Partial / started No, but there is a plan for it to be prepared No, and there is currently no plan for it to be prepared

	Do not know
Is the MipAC established as an inter-municipal service?	Yes/ No
How many MipAC beds are defined in the unit?	Count
How many hours per week is a physician contracted to be present at the MipAC?	Count
Which units are you managers for?	a) Separate MipAC unit b) OMS and MipAC c) «Sykestuer» and MipAC b) Short-term care unit e) Long-term care unit f) Both short- and long-term units, (e+f are included in the category long-term care unit in Study 2) In Study 3, separate MipAC units (a) are included in the category short-term care unit
[2)]Are you the leader of several, possibly other than the alternatives above, or do you have other comments?	Free text
Study *2*	
How many RNs associated with MipAC have a master's degree, further education, or special education in:	
Acute Nursing:	Count
Geriatric Nursing:	Count

Mental health or psychiatry nursing:	Count
Others with master's, special education, or further education nursing:	Count
How many RNs have less than one year of clinical experience?	Count
Can you estimate how many day shifts were completed in the last four weeks with only one nurse on duty? (possibly together with others who are not authorised as an RN)	Count
Can you estimate how many evening shifts were completed in the last four weeks with only one nurse on duty? (possibly together with others not authorised as an RN)	Count
Can you estimate how many night shifts were completed in the last four weeks with only one nurse on duty? (possibly together with others not authorised as an RN)	Count
Is vacant shift (e.g., from sick leave) covered by RN in the last four weeks?	Always, most often, occasionally, rarely, never
How often are there no RNs on duty?	Never, a few times a year, monthly, weekly
How many beds in total does the unit(s) you are leading have?	Count
How many of these are MipAC places?	Count

[3)] Geographical region	South-Eastern, Western-, Central-, or Northern Norway
[4)] MipAC localisation	Nursing homes, OMS, HH/LMC and Others

Study *3*

The managers' characteristics

Age?	Years
Gender?	Male, female
What professional background do you have?	RN Social worker (vernepleier) Occupational therapist Other (Which)
Level of education?	Primary school, High school, University educated
Enter the level of your university or college education.	Bachelor's degree, Master's degree or specialisation, PhD degree
How many years of experience do you have as a leader?	Years
How much management education do you have? (One semester is counted as six months. If you do not have a management education, write 0)	Months
Managers' leadership style	Multifactor Leadership Questionnaire: Transformational leadership (14 items) Transactional leadership (7 items) Passive-avoidant leadership (7 items)

Organisational characteristics	
What percentage position is there for professional development nurses in your unit? Enter the percentage (0 means none and 200 means two full positions)	Percent position
How many employees are you leading?	Count
How many beds in total do the unit(s) you are leading have?	Count

Question regarding team-culture and competence planning	
I facilitate the building of good nursing teams	Totally agree, Partially agree, Neither agree nor disagree, Partially disagree, Strongly disagree
I facilitate an inter-professional team culture.	Totally agree, Partially agree, Neither agree nor disagree, Partially disagree, Strongly disagree
[1)] Is there a written training plan for employees in your MipAC?	Yes Partial, started No, but there is a plan for it to be prepared No, and there is currently no plan for it to be prepared Do not know
[1)] Is there a written plan for competency enhancement for employees in your MipAC?	Yes Partial, started No, but there is a plan for it to be prepared No, and there is currently no plan for it to be prepared Do not know

[1)] The response alternative: 'Yes', 'Partial/started' and 'No, but there is a plan for it to be prepared' = Yes, has a plan

[2)] The count of «sykestuer» is in addition to response alternatives, based on the free-text response.

[3)] Categorisation of regions is extracted from Statistics Norway (Statistics Norway, 2019b).

[4)] Categorisation is based on the Directorate of Health's classification of location (The Norwegian Directorate of Health, 2019).

Data were collected between March 6, 2019, and June 6, 2019. Two reminders were issued during that period (Appendix 6). The electronic software SurveyXact TM was used for data collection.

The Multifactor Leadership Questionnaire Form 5

The MLQ Form 5 is a validated instrument (Cummings et al., 2018; Kanste et al., 2007), with 36 items measuring self-evaluated leadership styles and nine items measuring self-evaluated organisational outcomes. Self-evaluated outcome, which measures effectiveness, extra effort, and satisfaction, is not used in this PhD thesis. The MLQ has been modified several times (Avolio et al., 1999; Kanste et al., 2007). It is a widely used, validated, and adapted instrument across different cultures and settings (Northouse, 2019), including nursing (Cummings et al., 2018; Kanste et al., 2007). The MLQ identifies three different leadership styles: transformational, transactional, and passive-avoidant leadership styles.

Transformational leadership style exhibits a degree of relation-oriented leadership behaviour. It comprises latent factors, such as attributed and behavioural idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration (20 items). Attributed and behavioural idealised influence emphasises efforts towards common goals to influence identity building and role models for ethical practice. For example, Item 34 is *'I emphasise the importance of having a collective sense of mission'.* Inspirational motivation acts as a vision to aspire to and encourages employees. Intellectual stimulation emphasises employees' potential for innovation and creativity. For example, Item 30 is *'I get others to look at problems from many different angles'.* Individualised consideration sees and recognises employees' individual needs and emphasises support for their potential. Transactional leadership style exhibits

a degree of task-oriented leadership behaviour. It comprises two latent factors (8 items): management-by-expectation *active* and contingent reward. Management-by-expectation active is directed towards monitoring the tasks performed and correcting any problems to maintain current performance levels. For example, Item 27 is *'I direct my attention towards failures to meet standards'.* Contingent reward involves addressing what is expected of employees and what they can expect from rewards for completed tasks. For example, Item 35 is*:* '*I express satisfaction when other meet expectations*'. The MLQ also includes the passive-avoidant leadership style, which characterises leaders who initiate involvement when it might already be too late. It comprises two latent factors (8 items): management-by-expectation *passive* and laissez-faire. For example, Item 5 is *'I avoid getting involved when important issues arise*' (Avolio et al., 1999). The authors of the instrument underline that every leader displays all the leadership styles to some degree (Avolio & Bass, 2004; Avolio et al., 1999).

The MLQ Form 5 was translated from the original language (English) into the target language (Norwegian) for this purpose, using a back-translation and monolingual test procedure (Maneesriwongul & Dixon, 2004). First, the questions were translated into the target language, leaning on a Norwegian non-validated version supplied by the vendors (Mind Garden). This step was conducted by members of the research team (the candidate and the supervisors). Then two independent original language and target language speakers conducted a back-translation. This step resulted in some minor changes to a few items, which were then back-translated a second time. Five monolingual persons then tested the target language version, inducing some minor changes to the text on the rating scale. Finally, the result was assessed and approved by the researchers.

Before distribution, the questionnaire was pilot tested by five persons in the target group who were asked to respond to whether the questions were logical, easy to understand, and had an appropriate structure. Their feedback resulted in some minor changes.

Analyses of Study 2 and Study 3

Table 1 presents the measures used in the analyses of Studies 2 and 3. Descriptive quantitative analyses were used to present the sample characteristics in each study, and the median (MD) and interquartile ranges (IQR) were used given the data distribution skewness. The significance level for the quantitative

analyses was set to $p<0.05$. Thus, the true value is to be found in the confidence interval with a 95% certainty (Fritz et al., 2012). The analyses were performed using IBM®SPSS v. 25.

Additional analyses in Study 2

Owing to non-normal distributions as assessed by visual inspections of histograms, tests of kurtosis, and skewness (Bland, 2015; Field, 2009), non-parametric statistics were performed. To explore possible differences between groups in the sample, the Mann-Whitney U test was used to measure differences between two groups, and the Kruskal-Wallis test was used to measure differences between three or more groups (Bland, 2015; Fritz et al., 2012). Levene's test for equality of variance was used to ensure similarity in the score of the groups compared (Field, 2009). In the Kruskal-Wallis test, the p-value was Bonferroni-corrected to avoid a Type I error (Field, 2009). Bonferroni-corrected methods are considered the most robust univariate post-hock test of power and Type I error (Field, 2009, p. 472). The effect size was calculated for pairwise comparisons of the groups, using the z-statistics from the Mann-Whitney U test, as described in Fritz et al., (2012).

Additional analyses in Study 3

Given that it was not possible to find the version of the MLQ that had already been translated and validated in Norwegian health care contexts, the internal validity of the instrument was tested. Preliminary analyses assessing the reliability of the scales using Cronbach's alpha (α) were conducted. Acceptable Cronbach's alpha values must be higher than 0.7; however, values > 0.6 are also considered to be acceptable (Ursachi et al., 2015). In this study, Cronbach's alpha values ranged from .79 to .65. Further, the structural validity of the MLQ was conducted through confirmatory factor analysis (CFA) by using structural equation modelling (SEM) to evaluate how well the theoretical model fitted the empirical data (model fit). From the analysis, a modification of the instrument was necessary. Thus, eight items were excluded from the MLQ questionnaire. The measures to assess construct validity were the absolute fit indexes to measure the root mean square error of approximation (RMSEA) and the standardised root mean square residual (SRMR). These means were recommended because the combination of an RMSEA< .06 and SRMR< .09 shows the least amount of Type I and Type II errors (Hu & Bentler, 1999). The relative fit index measure was the comparative fit index (CFI). CFI is

recommended to be > 0.9 (Hu & Bentler, 1999). It compares the model to a null model, where there are no correlations between the factors. In the present MLQ model, CFI was .84, indicating a weak model fit. However, the CFI measured for the latent factors for each leadership style was acceptable. SPSS AMOS engine v.25 was used to perform the SEM analyses.

The adapted version of the instrument comprising 28 items was used in the analyses. Transformational leadership style was measured via the following latent factors: attributed and behavioural idealised influence (4 items), inspirational motivation (3 items), intellectual stimulation (4 items), and individualised consideration (3 items). Transactional leadership style was measured via the following latent factors: management-by-expectation *active* (4 items) and contingent reward (3 items). Passive-avoidant leadership style was measured via the following latent factors: management-by-expectation passive (4 items) and laissez-faire (3 items). All items were measured using a five-point scale (0=Not at all, 1= Once in a while, 2= Sometimes, 3= Fairly often, 4= Frequently, if not always).

Descriptive statistics were used to measure leadership style. Nonparametric correlation analyses were used to measure the correlation between the variables, and linear regression analyses were used to explore the association between dependent (competence planning and team culture) and independent variables. Table 2 presents the validity parameter for internal consistency and the construct validity of the MLQ.

Table 2 Construct validity and reliability measure of the Multifactor Leadership Questionnaire (n=182)

Scores	Conceptual definition of latent factors	Items	Cronbach Alpha	SRMR	RMSEA	CFI	Item loading on latent factor	Latent factor correlation	*Items (nr.) excluded*
MLQ	MLQ	27	.71	.074	.049	.84	.28 - .72		
	Transformational <--> passive avoidant							-.263	
	Transactional <--> passive avoidant							-.569	
	Transactional <--> Transformational							.703	
Transformational leadership	Idealized influence (attributed and behaviour)	14	.79	.059	.056	.91	.36 - .71	.61 - .92	*18,21, 14,6,*
	Inspirational motivation						.50 - .70		*13*
	Intellectual stimulation						.32 - .65		
	Individualized consideration						.31 - .71		*29*
Transactional leadership	Contingent reward Management by expectation active	7	.68	.025	<0.001	> .99	.42- .47 .45- .60	.77	*1*
Passive/ avoidant leadership	Laissez faire Management by expectation passive	7	.65	.039	<0.001	> .99	.49- .55 .34- .59	.97	*17*

4.3. Ethics

The studies were conducted in accordance with the Declaration of Helsinki (1964). All three studies were approved by the Norwegian Centre for Research Data (NSD) (ref. 2017/53126 for Study 1 and ref. 2019/ 815471 for Studies 2 and 3) (Appendices 7 and 8). I addition, the Ethical Committee at the Faculty of Health and Sport Sciences, University of Agder approved the study.

In the recruitment of participants for the in-depth interviews in Study 1, the selected five municipalities' health authorities were contacted by email and asked for permission to do the interviews. In the email, information about the study was provided in a letter addressed to the participants (Appendices 1, 9). All the municipalities approved the request. An email was sent to request the municipal health authority to ask first-line managers of the MipAC units to suggest suitable health professionals for the interview. Moreover, the email requested the contact information of those who were willing to participate. Participants received written (Appendix 9) and oral information about the project and interview in advance of the interviews, and their legal right concerning participation and confidentiality was ensured. All participants consented to participate by appending their signatures.

The information was repeated in the email in which the SurveyXact link was provided (Appendix 3). For data collection in Studies 2 and 3, it was necessary to call the first-line nurse manager to ask for the email addresses to ensure the correct distribution of the questionnaire. Moreover, it was discovered that the firewall in some municipal IT systems did not allow the distribution of email to reach recipients; thus, respondents did not receive the questionnaire. Therefore, the first reminder was a phone call to those who had not responded, followed by a request for private email addresses. This personal contact could be unpleasant for some, as they might feel pressured to answer the questionnaire. However, the reason behind the phone call was explained, and it was emphasised that participation was voluntary.

5 RESULTS

This PhD project aimed to explore and describe aspects related to nursing competence in the MipAC service. Three sub-studies were conducted to explore different aspects of the phenomenon. This chapter presents the main findings (Study 1) and the main results (Studies 2 and 3). Table 3 presents an overview of the three studies.

5.1 Summary of results in the sub-studies

Table 3 Summary of findings and results of Studies 1, 2, and 3

Study1	**Study 2**	**Study 3**
Title Exploring nursing competence to care for older patients in municipal in-patient acute care: A qualitative study	**Title** Nursing competence in municipal inpatient acute care in Norway: a cross-sectional study	**Title** Associations between nurse managers' leadership styles, team culture, and competence planning in Norwegian municipal in-patient acute care services: A cross-sectional study
Aim To explore critical aspects of nursing competence to care for older patients in the context of municipal in-patient acute care, as experienced by nurses and physicians	**Aim** To get an overview of the nursing competence in Norwegian municipal in-patient acute care units across geographical regions and different types of organisation and location	**Aim** To identify which leadership styles characterised first-line nurse managers in Norwegian municipal in-patient acute care (MipAC) units and to investigate how first-line nurse managers' leadership styles are associated with team culture and documented

		nursing competence planning
Main findings **Main theme 1:** The meaning of the individual nursing competence ***Themes:*** Having competence in clinical assessments, decision-making, and performing intervention Having competence to collaborate, coordinate, and facilitate Being committed **Main theme 2:** The meaning of environmental and systemic factors for nursing competence ***Themes***: Having professional leadership Having sufficiently qualified staff Working in an open, cooperative, and professional work environment	**Main results** A considerable variance across the sample. The median percentage of RNs among the staff was 56% (IQR: 25–75; 40-78). The median of shifts with only one RN on duty (last four weeks) was 28 (IQR: 5.3– 49) and at night shifts, 20 (IQR: 0–28). The median of RNs with a master's degree or specialisation was 3 (IQR: 0–5). That of master's degree or specialist in acute care, geriatric care, or psychiatric care was 0 (IQR: 0–5). MipACs organised at long-term care units showed significantly lower nursing competence than MipAC units and short-term care units (r= .56 and r =. 43, respectively); those located in Northern Norway showed a lower nursing competence than	**Main results** The managers possessed a higher degree of relation-oriented leadership behaviours relative to task-oriented behaviours. However, a significant correlation between transformational and transactional leadership styles was found (r=.49). First-line managers' leadership style was not associated with nursing competence planning Transformational leadership style has a significant positive association with managers' emphasis on facilitating team building (9.19%). A position for a PDN in MipAC was positively associated with documented competence planning (4.52%) in the units.

	those in Western and South-Eastern Norway (r=.31 and .26, respectively); and those in Central Norway, lower than those in Western and South-Eastern Norway (r = .34 and .26, respectively).	
Conclusion Nurses in MipAC should identify deterioration in a patient's condition and provide holistic care to older and vulnerable patients from a holistic perspective. Professional nursing competence is dependent on systemic factors, professional environment, and supportive leadership.	**Conclusion** Advanced nursing competence was lacking in many MipAC, and the ratio of nurses to other staff varied considerably across the units. Many shifts were conducted with only one RN in the unit. MipACs in Northern and Central Norway, and those located at nursing homes that were organised together with long-term care units seemed to require improvements the most.	**Conclusion** First-line leaders' relation-oriented leadership style seems to foster team culture. Having a position for a PDN can complement and relieve managers' responsibility in competence planning and facilitate a professional and cooperative team culture in the units.

5.2 Study 1

Study 1 identifies critical aspects of nursing competence to care for older people in the MipAC context. The findings show that the nurses must handle a broad scope of patient situations, ranging from acute and life-threatening critical care situations to malnutrition, dysfunctionality, and general care tasks. A quote[2] from a master's degree-educated nurse in Study 1 illustrates the need for advanced

[2] The informants' quotes included in this section are additional to those presented in the published paper

competence, the nurse emphasises the clinical gaze, critical to nurses' ability to recognise the deteriorating patient:

> 'The patients are supposed to be clinically examined before admission, and we are supposed to administrate the treatment when they arrive. However, we get many patients in bad conditions [and] people who come in with diffuse symptoms [...]; an example is: the admission cause may be a fall, which turns out to be undetected atrial fibrillation as the cause of the fall. Thus, for the nurses, the advanced acute care competence is especially important'.

Participants claimed that it was necessary to have competence to identify and treat deteriorating patients and provide holistic care in complex situations. Apparently, to handle acute care, geriatric care, and eventually psychiatric or mental health care, the need for formal competence beyond a bachelor's degree was emphasised. A physician employed at a rural nursing home said:

> '[The] nursing competence [is the more important focus] than […] the frequency of doctors visiting. Because it's the nurses who run this, the doctor stops by, but the doctor is not there at evening or night'.

Nevertheless, the ability to communicate and collaborate with physicians and other co-workers were essential aspects of the nurse's competence in the MipACs. Constructive and close communication and cooperation with the physician were critical to providing safe medical care. Opposite, unclear, or unpredictable communication with physicians occasionally constricted nurses' ability to provide good quality care to the patients. The nurse's competence to collaborate, coordinate, and facilitate was considered fundamental to provide holistic care continuity in follow-ups during the patient's stay and provide safe transitions to other institutions or patients' homes.

The nurse's commitment to being engaged in professional development and dedication to work, with the diversity of care tasks and care responsibilities in the MipAC was underlined. Beyond the quality of the care provided, it was considered an important contribution to innovation and improvements in the units. Moreover, the opportunity to continue education and professional development was considered impotent to maintain commitment and stay in the job. However, there were concerns about the nurses' opportunities for further education. As one nurse said: 'I planned to embark on further education in acute

nursing and was admitted to the study but had to cancel because I could not afford it […]; the system could not pay the cost'. One physician recognised this concern and emphasised that nurses' opportunities to choose a direction and become an expert should be facilitated.

> 'It can be challenging for the nurse to get time off or get paid to enrol into a continuing education, and the municipalities cannot afford to prioritise nurses' competence development'.

Environmental and systemic factors, such as sufficient qualified staff at all work shifts, professional leadership, and a professional and empowering environment, were important aspects of nursing competence in the MipACs. Sufficient professional nurses on the staff and a minimum of two RN at all shifts were considered a necessity. The importance of collegial support by other professional nurses was underlined.

> 'Especially [regarding] competence in acute care situations, of course. We [are] alone [much of the time]; you feel it especially at night when you are one RN alone with an assistant nurse'.

More than one RN at all shifts was important for sufficient support in patient assessment and decision-making to share responsibilities and manage workload.

The meaning of an open cooperative and professional work environment was emphasised by all participants. This aspect of nursing competence was related to a professional team culture based on a professional, learning, and respectful culture, and supporting environment. One nurse emphasised the characteristics of a favourable culture as follows:

> 'A good culture means collegiality, good cooperation, openness, good communication, [and] constructively handle disagreement, where everyone gets to grow and is heard […], [and] a good culture strengthens nursing competence'.

Having a professional, clear, approachable, proactive, supportive, and powerful leader in the units was identified as important. A leader should promote adequate care quality, effective daily practice, and sufficient nursing competence to cover all shifts and handle disagreements among staff. In addition, a leader should make plans, inspire the nursing staff, make them responsible and motivate them for professional development. Moreover, a leader should facilitate and build a

professional team culture in the unit. A leader should also confront and negotiate with authorities to gain sufficient resources.

5.3 Study 2

Study 2 aimed to obtain an overview of the nursing competence in Norwegian MipAC units across geographical regions and different types of organisations and locations. Table 4 presents the characteristic of the included MipAC units.

Table 4 Sample characteristics of the MipAC units from Study 2 (n=207)

Northern Norway	n (%)	56	(27)
Central Norway	n (%)	42	(20)
Western Norway	n (%)	32	(16)
South-Eastern Norway	n (%)	77	(37)
Inter-municipal MipAC units	n (%)	67	(32.4)
MipAC beds	Md (IQR)	2	(1-4)
MipAC unit	n (%)	16	(7.8)
Short-term care unit	n (%)	89	(43.3)
Long-term care unit	n (%)	101	(48.8)
Physician contracted to be present, hours per week	Md (IQR)	10	(4-35.5)

Sixteen MipAC units were organised in «Sykestuer», and among these, 11 were located in Northern Norway, one in Central Norway, two in Western Norway, and two in South-Eastern Norway.

Approximately half of the units (56%) had documented nursing competence standard requirements for the MipAC services. Nursing competence was operationalised per the ratio of RNs in staff, the count of RNs with master's degrees or specialisation, and the count of shifts with only one RN on duty.

The analyses showed that the median ratio of RNs to other lower educated or unskilled staff was 56%. However, there was a great variation across the country. The ratio of RNs to other staff in MipACs organised in long-term care institutions was significantly lower than in MipACs organised in short-term care institutions. By separating «Sykestuer» as units, the percent RNs in staff showed a median of 78 (IQR: 38–96). The results also showed that a higher number of the MipAC in Northern and Central Norway was organised in long-term care

units (64% and 67%, respectively), relative to South-Eastern and Western Norway (34% and 33%, respectively). Further, the ratio of RNs to other staff in MipACs located in the Northern and Central regions of Norway was significantly lower than those in the Western and South-Eastern regions. A substantial number of work shifts with only one RN present was revealed to be mostly during night shifts. One RN at shifts was also more frequent in long-term care units than in short-term care units.

The median of RNs with any additional education beyond a bachelor's degree was low and RNs holding a master's degree or additional training or specialisation in acute care, geriatric care, or psychiatric or mental health care were absent in many units. The results also showed that 76% of the sample reported never having shifts without RN on duty, 20.5% had shifts without RN monthly or a few times a year, and 3.5% reported weekly shifts without RNs among the staff. Moreover, 18% of the sample reported that vacant RN shifts (e.g., from sick leaves) occurred sometimes, were rare, or never covered. Inter-municipal MipAC had the highest ratio of RN to other staff (r=.45) and fewer night shifts with only one RN, relative to the other MipAC units (r=.32). Units with less than two defined MipAC beds had a significantly lower ratio of RNs among the staff (r=.51) and shifts with one RN (r=. 34), relative to units with two MipAC beds or more.

The median hours of physicians contracted to be present in the MipAC units was 10 hours per week (IQR: 4–35.5). However, it varied substantially across the country. The MipACs located in the nursing home had fewer hours of a physician present than MipACs located at OMSs and HH/LMC. Northern and Central regions had significantly fewer hours with physicians present than the South-Eastern.

5.4 Study 3

Study 3 aimed to 1) identify which leadership styles characterise the first-line nurse managers in Norwegian MipAC units, and 2) investigate how first-line nurse managers' leadership styles are associated with team culture and nursing competence planning. Table 5 presents the sample characteristic of respondents.

Table 5 Sample characteristics of respondents from Study 3 (n=182)

Age	Md (IQR)	47	(41-53)
Female	n (%)	163	(90)
Registered nurse	n (%)	176	(97)
Master's degree/specialisation	n (%)	121	(67)
Bachelor's degree	n (%)	60	(33)
Lower-level education	n (%)	1	(0.55)
Leadership experience (years)	Md (IQR)	10	(5-15)
Leadership education (months)	Md (IQR)	12	(0.75-18)
Number of employees	Md (IQR)	40	(30-54)
Inter-municipal unit	n (%)	62	(34)
Short-term care unit	n (%)	104	(57)
Documented nursing competence standard requirements	n (%)	97	(53)
Documented training plan	n (%)	145	(80)
Documented plan for competency enhancement	n (%)	105	(58)
Position for professional development nurse	n (%)	100	(55)

The results show that both transformational and transactional leadership styles were present among the MipAC first-line managers, and these styles were often combined. The transformational style was, however, more dominant. Table 6 presents the correlations between the managers' leadership styles.

Table 6 First-line nurse managers' practice of leadership styles and correlations between leadership styles (n=182)

	Md	(IQR)	Transformational leadership	Transactional leadership
Transformational leadership	3.00	(2.78 – 3.21)	1	
Transactional leadership	2.50	(2.14 – 2.74)	.49**	1
Passive/avoidant leadership	.43	(.14 – .71)	-.37**	-.19**

** Correlation is significant at the 0.01 level (2-tailed)

The results also showed a significant association between transformational leadership style and managers' emphasis on team culture. No significant associations were found between leadership styles and competence planning. Organisational characteristics (including the following variables: inter-municipal MipAC, units, short-term care unit, number of employees, number of MipAC beds, number of beds in total, proportion (%) of RNs in staff, PDN position, and physician contracted [hours per week]) were, however, significantly associated with team culture and competence planning (15.4% and 21.7%, respectively). Having a dedicated position for a PDN was a significant predictor of team culture, although the transformational leadership style yielded the highest explained variance regarding team culture. No significant associations were found between individual characteristics and competence planning.

6 DISCUSSION OF THE MAIN RESULTS

This PhD project explores and describes aspects of MipAC nursing competence. It demonstrated a complex arena for nursing care in MipAC, where the dominant group of patients is older and vulnerable people with acute and comprehensive health care needs. The challenges experienced by participants also accord with what nurses in primary health care across Europe face, given implemented health care reforms (Maier & Aiken, 2016; Maier et al., 2017; OECD, 2017, 2019). The findings further emphasise the need for highly qualified nursing staff in the MipAC context, also highlighted in prior studies that recommend strengthening the level of nursing competence in the primary health care service (Bing-Jonsson et al., 2016; Maier et al., 2017). In Study 1, the main themes identified to embrace nursing competence in the context of MipAC were related to the individual nurse's competence and environmental and systemic factors (Table 3). The findings recognise the complex association between structure, process, and outcome quality in nursing services. Studies report and discuss similar results, in which empowering, accessible, and effective organisational structures, person-centre care processes (Campbell et al., 2000a; Kanter, 2008), and a cooperative care culture (Nakrem, 2015; Stolt et al., 2020; Willard-Grace et al., 2014) provide good services. This chapter discusses three main results from the performed studies: the variation in nursing competence in the MipACs across the country, the general lack of advanced nursing competence in MipACs, and the impact of leadership and environmental qualities on nursing competence and competence enhancement.

6.1 Sufficient and qualified nursing staff

Study 1 presented a broad scope of care challenges for nurses to handle in MipAC settings, ranging from acute and possible life-threatening critical care situations to malnutrition, dysfunctionality, and basic care. The need for well-qualified nursing staff to address the challenges is essential. The positive associations between education, nursing competence, and quality outcomes in the services are broadly recognised (Aiken et al., 2017; Bing-Jonsson et al., 2016; Flinkman et al., 2017). Likewise, well-educated nursing staff to care for older and vulnerable patients are important (Kiljunen et al., 2017; Morilla-Herrera et al., 2016).

Study 2 revealed that the ratio of RNs to lower educated or unskilled staff was low in many of the units. Moreover, nearly one fifth of the sample reported that vacant RN shifts (e.g., from sick leaves), occasionally or never were covered, and a few units had weekly shifts without RNs (Study 2). High nursing competence among the staff promotes quality of care (Kiljunen et al., 2017; Maier et al., 2017). A high ratio of RNs to other staff impact quality directly at the point of care and indirectly through RNs' clinical leadership acting as promoters of competence enhancement (Dellefield et al., 2015). Therefore, in many units that provide in-patient acute care, the need to increase the position of RNs among the staff must be recognised. A high ratio of professional nurses on the staff promotes patient safety and nurses' commitment to safety culture (Kirwan et al., 2013), promotes constructive patient-nurse relations (Liu et al., 2020), reduces mortality, and increases patient satisfaction (Aiken et al. 2008; Aiken et al., 2017). However, as these challenges are closely related to the general shortage of RNs in municipal health care in Norway (Gautun et al., 2016; Romøren et al., 2011; Statistics Norway 2019a), interventions to increase assess to RNs must be addressed by the upper management of the system.

6.1.1 Differences in nursing competence between organisations and regions

Study 2 revealed that the ratio of RNs to less educated staff was lower in MipACs organised in long-term care units than in short-term care institutions. This result was expected because prior studies report a low rate of RNs to other staff in Norwegian nursing homes (Bing-Jonsson et al., 2016; Gautun et al., 2016). Furthermore, short-term care units, such as OMSs, HHs, and LMCs, are typically more specialised health care services and operate with more complex procedures and tools (Skinner, 2015a). Thus, these organisations may have stricter requirements for qualifications and the presence of physicians. The result in the current project suggests, however, that organising the MipAC services in short-term care institutions is beneficial regarding nursing service competence.

The results also reveal that MipACs located in Northern and Central Norway had lower ratio professional nurses to other staff than those in the South-Eastern, and Western Norway (Study 2). The differences between regions are, at least partly, explained by the differences in the organisation of the MipAC services. Higher proportion of the MipAC in Northern and Central Norway was organised in long-term care units relative to South-Eastern and Western Norway. One explanation for the high proportion of MipAC organised in long-term care units may mirror

the geographical distances in the regions of Northern and Central Norway, combined with the value of locating the services near where people live. More challenges with the recruitment of qualified staff in the Northern and Central regions could be one explanation of lower ratio professional nurses to other staff. Appropriate care from a system perspective implies equal access to patient-centred, professional clinical care (Robertson-Preidler et al., 2017). However, though considered a low nursing competence in many MipAC units in the regions of Northern and Central Norway, the principle that equal health care must be distributed to all citizens no matter where they live (Meld. St. 47 [2008–2009]; OECD, 2017; WHO, 2021) may be compromised.

Inadequate nursing competence does not necessarily indicate that patients' safety is jeopardised, but it may partly explain the low utilisation rate of the services. As statistics from the Norwegian Directorate of Health (2020) shows, the utilisation rate in 2019 was slightly lower for Central Norway and Northern Norway (38% and 33%, respectively, excluding «sykestuer») relative to South-Eastern, and Western Norway (42% and 39%, respectively). Interestingly, including «sykestuer» in the statistic from Northern Norway, the utilisation rate increased to 42% (The Norwegian Directorate of Health, 2020). In Study 2, «Sykestuer» showed a relatively high ratio of RNs to lower-level educated staff (78%); thus, it may indicate an association between the utilisation rate and level of nursing competence. However, more research is needed for a definite conclusion.

Nevertheless, the differences in nursing competence regarding the organisation of the units and regions indicate that equality is not complied with in the MipAC services across the country. Several studies emphasise the benefits of a secure in-patient alternative to hospitalisation for older and vulnerable patients (Bridges et al., 2020; Fried et al., 2004; Kihlgren et al., 2005; Leonardsen et al., 2016b; Skar et al., 2015; Sommella et al., 2014). Some patients travel long distances from home to the hospital in rural municipalities, especially in Northern and Central Norway, where nursing competence was the lowest (Study 2). Therefore, the lack of a real alternative to hospitalisation may discriminate against those who undergo stressful transportation to hospitals. Moreover, separation from relatives and homes affects older and vulnerable patients. Consequently, strengthening the nursing competence in nursing homes to provide safe in-patient acute care services close to where people live, should be prioritised.

6.2 Advanced nursing competence

Study 1 showed that accountability in nurses' practices in MipAC required competence in advanced assessment, decision-making, and interventions in critical and complex situations. The clinical condition of patients admitted should, however not indicate a need for hospitalisation. A prerequisite is that the patient should be clinically examined, and medication should be prescribed by the physician before admission (The Norwegian Directorate of Health, 2016). Still, Study 1's participants reported that many patients arrived with diffuse symptoms, and some of them in bad conditions. For example, older and frail patients admitted with diffuse infection symptoms could instead have a life-threatening sepsis condition (Study 1). Therefore, advanced acute care nursing competence must recognise deteriorating patients, as recommended in Study 1. Sandberg and Pinnington (2009) emphasise the nurse's self-understanding and understanding of work as central aspects of professional competence in performance. For the nurse to understand and handle the complexity in MipAC contexts, high-level nursing education is needed (Maier et al., 2017). However, Study 2 uncovered a general lack of RNs educated beyond a bachelor's degree in the units. Moreover, Study 1 showed that competence to handle acute care, geriatric care, or psychiatric and mental health was required in the nurse's practice in MipACs. However, the number of RNs educated beyond a bachelor's degree within those specialties was generally low and completely lacking in many units (Study 2). This result is concerning. Other studies note a lack of nurses who can take responsibility for patients with different care needs and complex and acute health problems in primary health care (Bing-Jonsson et al., 2016; Maier et al., 2017). The lack of RNs holding advanced competence in MipACs and the lack of documented nursing competence requirements for the MipAC services (Study 2), partly reflects how the organisation of primary health services is administered and indicates a lack of focus on competence requirements in the services (Kirkevold et al., 2013; Wyller et al., 2013).

Nurses holding advanced competence are acknowledged as an important and effective resource to meet the challenges and complexity of health care services (International Council of Nurses, 2020b). In Norway, a master's degree in advanced clinical nursing is proposed as the entry level to hold an advanced nurse's role (Regulations on national guidelines for master's education in advanced clinical general nursing, 2020). Moreover, the International Council of

Nurses (2020b) and an OECD report (Maier et al., 2017) recommend a master's degree-educated advanced clinical nurses in primary health care. The advanced nurse's competence provides quality at the point of care, improves patient safety, and facilitates continuity in care (Maier et al., 2017; Roche et al., 2017).

Given the complexity in MipAC nursing services (Study 1), capability, as described by O'Connell et al. (2014), should be considered a fundamental quality of the MipAC nurse's meta-competence, required to provide accountability in care for many of the patients admitted to the MipAC unit. Capability, regarding being competent and comfortable with handling unfamiliar challenges in unfamiliar situations (Nagarajan & Prabhu, 2015) characterises an advanced nurse's competence (O'Connell et al., 2014). An illustrative and current example of the significance of a nurse's capability is the rapid changes induced by the COVID-19 pandemic, challenging competency requirements in nursing services in new ways (Rosa et al., 2020). Studies highlight that the advanced nurse's competence entails the capability to handle complex organisational processes (Morilla-Herrera et al., 2016; O'Connell et al., 2014). The capability allows for reflecting and understanding the situation from a holistic professional perspective, which promotes precise decisions and intervention in complex and comprehensive care processes (Bogo et al., 2013; Koskinen et al., 2020; Le Deist & Winterton, 2005; O'Connell et al., 2014).

Study 1 revealed that accountability in the care for older and vulnerable people with acute and comprehensive health care needs challenged nurses' competence. The advanced nurse's competence is particularly recommended to safeguard vulnerable and older patients (Henni et al., 2018; Maier et al., 2017; Morilla-Herrera et al., 2016). Henni et al. (2018) highlight, for instance, that the advanced geriatric nurse's clinical gaze enables them to understand older people's health conditions. Evidently, the advanced nurse's role in caring for older people reduces mortality, improves patient self-care and patients' and caregivers' satisfaction (Morilla-Herrera et al., 2016), provides quality care for patients with chronic diseases, and prevents hospitalisations (Bakerjian, 2008). Advanced nursing competence also entails the potential to maintain, enhance, and facilitate nursing competence in the MipAC context (Bakerjian, 2008; Maier et al., 2017; Regulations on national guidelines for master's education in advanced clinical general nursing, 2020; Morilla-Herrera et al., 2016).

6.2.1 Competence in coordinating care providers

Study 1 emphasised the nurse's capability to collaborate and coordinate inside and across care institutions and with patients' relatives. It clearly underscored the need for the nurses' collaborating and coordinating capabilities to provide holistic and patient-centred care, continuity in care, and safe medical care. Coordination between care providers inside and across institutions is crucial to provide quality care for older and vulnerable patients (Fried et al., 2004; The Norwegian Directorate of Health, 2005). Prior studies underline nurses' key role in interdisciplinary teams to provide acute care for geriatric patients (Deschodt et al., 2016). Morell et al. (2018) found that the advanced nurse's contribution to older people care was related to their capability to assess and understand complex patient situations from different angles, and to coordinate different providers to deliver continuity in patient care. Fried et al (2004) emphasised coordination and cooperation between healthcare providers, other caregivers, and institutions and between institutions as important in caring for patients with two or more conditions of comorbidity, ageing, and frailty (Fried et al., 2004). However, Leonardsen et al. (2017) showed that older patients admitted to MipAC experienced a lack of continuity in care in the process of discharge. These experiences were related to failing information and communication between patients or patients' relatives and healthcare providers (Leonardsen et al., 2017). However, as per O'Connell et al. (2014), the nurse's capability to hold a holistic patient perspective, when referring and discharging patients, may be necessary to implement good practices.

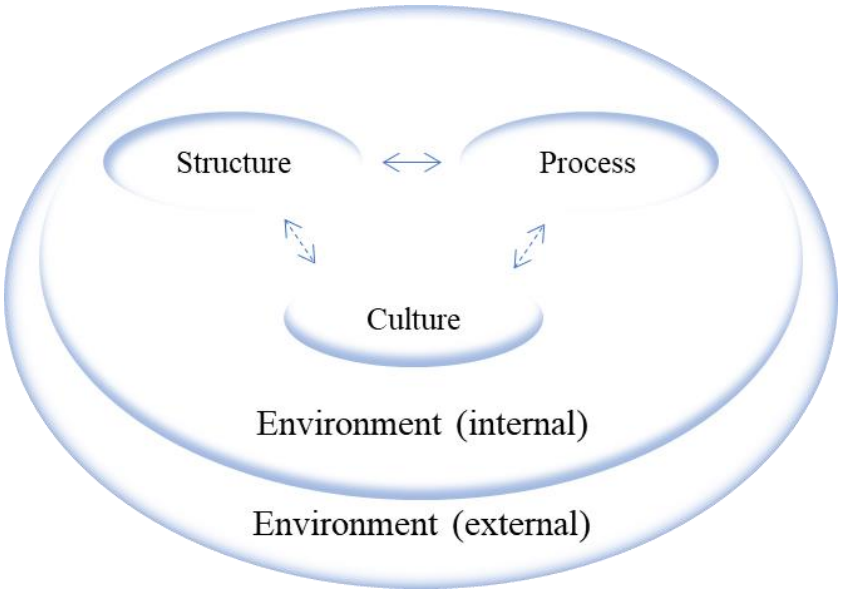
6.2.2 Trust in the nursing competence

Given the considerable variation in physicians' presence and follow-up in the MipAC units (Studies 1 and 2), accountability in the performance of medical care often seemed to depend on nurses' competence (Study 1). The findings indicate that MipAC establishment implies, although sometimes unarticulated, a shift of tasks from physicians to nurses (Kirkevold et al., 2013; Maier et al., 2017). The nurse's important role in providing safe medical care for patients in the MipAC was underscored by nurses and physicians (Study 1). However, the low rate of RNs to other staff in many MipAC and the general lack of advanced nursing competence (Study 2) may challenge patients' safety regarding medical care. The Directorate of Health (2016) emphasised that MipAC services require competence in the administration of advanced medical treatment and care.

Research shows that highly educated nurses in advanced roles in primary care and rural hospitals provide high-quality care regarding certain responsibilities traditionally performed by physicians (Bakerjian, 2008; Maier et al., 2017; Roche et al., 2017). Therefore, without physicians, advanced nursing competence must safeguard patients. Moreover, the lack of trust in the MipAC service preparedness to handle patient medical care needs is an important reason for the low use of the services (Skinner, 2015b). The admitting physician's confidence in the nurses' competence and the professional accountability of the nursing staff in MipAC services may increase the utilisation rate of the services. Further, considering the importance of credibility and trust that comes with power and competence (Kanter, 2008), the advanced nurse's authority achieved through formal education and clinical capability may facilitate communication and understanding between the nurse and physician. This might provide mutual trust and professional accountability in medical care in the units.

6.3 Enhancing nursing competence through environmental support and leadership

This thesis demonstrates how nursing competence evolves in and contributes to supportive environments (Studies 1 and 3). Figure 3 illustrates how the structures, processes, and culture in organisations affect each other and define the environment. The findings gain support from strong evidence showing that structure, process, and culture impact performance and changes in organisations (Kanter, 2008; Kirwan et al., 2013; Neubert et al., 2016; Paguio et el., 2020; Xie et al., 2020). An improved work environment positively impacts patient safety (Liu et al. 2018) and organisational outcomes in nursing (Paguio et al., 2020; Wagner et al., 2010). This PhD project notes several concerns regarding competence in the MipAC services that were associated with environmental and systemic factors. Thus, it may be imperative to implement environmental interventions that encourage nursing competence enhancement (Lake, 2002, 2007; Liu et al., 2018; Paguio et al., 2020).



*Organisational **structure** comprising advanced nursing competence, sufficient RN staffing at all shifts, professional development nurse, competence plans, proactive management, physical frames, and tools that facilitate acute care and person-centred care (Studies 1, 2, and 3) may promote a professional, team-oriented, learning, and respectful **culture** (Studies 1 and 3) that facilitate **processes** of advanced assessment, decision-making, intervention, relation-oriented leadership, collaboration, coordination, facilitation, improvement, and innovation (Study 1).*

Figure 3 A hypothetical model of the relationship between structure, process, culture, and environment in the MipAC organisations

6.3.1 Professional support and cooperation

Participants in Study 1 talked about the necessity to obtain a second opinion to help each other and handle workloads, for example, in complex and challenging patient encounters. Professional competence, considered a *human way of being* in which humans, other people, and tools interrelate and form competence (Sandberg & Pinnington, 2008), can explain why collegial support seemed so important for nurses' performance. Nurses' access to other RNs for decision-making support to share responsibility and relieve a heavy workload in MipAC seemed to be an important resource that empowered nurses and improved competence and performance (Kanter, 2008; Liu et al., 2018). Nonetheless, Study 2 revealed several work shifts with only one RN on duty. This situation was particularly the case in MipACs organised in long-term care units, which

also had a significantly lower rate of RNs among the staff (Study 2). The main problem is most probably related to the current and estimated lack of access to RNs (Gautun et al., 2016; Romøren et al., 2011; Statistics Norway 2019a). However, one RN during a night shift was common in many short-term care units in which the proportion of RNs among the staff was significantly higher than that in long-term care units (Studies 1 and 2). The current finding may indicate a lack of focus on process accountability, claimed to characterise NPM administrating strategies (Strandås, 2021; Strandås et al., 2019; Wyller et al., 2013). Considering that 75% of patients were admitted outside the ordinary daytime (The Norwegian Directorate of Health, 2019), more than one RN on all shifts, around the clock, may be an important strategy to enhance nursing competence and quality of care in the MipAC services. If so, the units need management that recognises the complexity of acute care for older and vulnerable patients (Hussein & Hirst, 2016; Jordan et al., 2020; Mayr et al., 2014; Henni et al., 2018) and the impact of professional collegial support to ensure accountability in the care processes. However, it might be a system challenge that should be addressed at a higher organisational level.

The importance of the climate in the nurse-physician relationship was particularly underlined in Study 1. Prior research includes a collegial nurse-physician relationship as an important indicator of a favourable nursing work environment (Aiken et al., 2008; Lake, 2002, 2007; Liu et al., 2018; Nascimento & Jesus, 2020). The findings in Study 1 showed how constructive collaboration and respectful, reliable, and clear communication between nurses and physicians affect nursing care in acute care situations (Study 1). Prior studies have reported similar results, showing that a healthy work environment impacts the feeling of being respected (Faulkner & Laschinger, 2008) and positively impacts communication between nurses and physicians (Manojlovich, 2005; Manojlovich & DeCicco, 2007).

A nurse's responsibility in providing holistic care and continuity in follow-ups during the patient's stay and transitions required competence to collaborate and coordinate across the institution and with relatives (Study 1). Nurses' responsibility to facilitate constructive professional relations with other colleagues within and between units and institutions is also underlined in previous research (Boamah, 2019; Paguio et al., 2020).

6.3.2 Team-oriented and learning culture

Study 1 highlighted the importance of environmental support regarding a professional, learning, respectful and team-oriented culture. Good conditions for professional practice and enhancement in nursing care depend on an open, cooperative, and professional work environment and are crucial to providing quality care and enhancing and developing the services. The importance of a team-oriented culture for competence and care delivery is also underlined in previous research (Deschodt et al., 2016; Lake, 2007; Stolt et al., 2020; Willard-Grace et al., 2014). Similarly, studies show that a friendly working environment and positive and professional team culture promote commitment, competence enhancement, job satisfaction, retention of RN staff, and quality of care (Kaiser & Westers, 2018; Xie et al., 2020; Yi, 2016).

For participants in Study 1, a nurse's commitment was related to dedication to the care, enjoying learning, and being engaged and challenged in their nursing practice. The responsibility for professional development in the unit furnished the potential to promote improvement, progress, and innovation in the MipAC services and to retain RN staff (Study 1). Empowering structures in organisations (i.e. opportunity to learn, being informed, and having resources to do the job), directly or mediated through psychological empowerment, promote nurses' commitment to nursing and the organisation (Fragkos et al., 2020). Intervention, which helps nurses participate in internal governance and policy decision, positively impacts patient safety (Liu et al., 2018; Nascimento & Jesus, 2020).

The study findings underline the importance of a learning culture in which formal and planned education and training, daily knowledge exchange, professional practice, and enhancement are emphasised in positive terms (Studies 1 and 3). Study 1 showed that RN staff and physicians' contribution to bedside learning was emphasised to create a professional work environment. This finding corresponds with previous studies, where RN staff, as informal bedside clinical leaders and supervisors, are emphasised as important contributors in providing job satisfaction and quality care (Boamah, 2019).

Study 1 also clearly underlined the importance of structural frames, which gives room for professional development activity and learning. Considering employees as the most important resource in an organisation, promoting their work-life quality and opportunity for advanced performance is in the organisation's best interest (Kanter, 2008). Nevertheless, inadequate time and tight financial budgets

in municipalities were, however, noted as the reason for nurses' limited opportunities for further education (Study 1). The opportunity to learn and grow is a significant dimension of structural empowerment (Kanter, 2008). However, the Study 1's findings correspond with research indicating that nurses lack the opportunity to continue professional development and attendance to mandatory training, given heavy workload, lack of time, and inadequate resources (Coventry et al., 2015; Kirkevold et al., 2013).

Although RNs are individually and collectively responsible for possessing and maintaining professionalism, sufficient competence, and enhanced practices (Boamah, 2019; International Council of Nurses, 2021; Paguio et al., 2020), the first-line manager's role entails an overall responsibility in support nurses' professionalism, continuous development, team orientation, and a learning environment (Boamah, 2018; Coventry et al., 2015).

6.3.3 Nursing competence enhancing leadership

The importance of leadership and management in supporting nurses' competence building and a professional team-oriented environment in the MipAC services was clearly demonstrated in this project (Studies 1 and 3). The WHO (2021) emphasises the importance of proactive nurse leaders at all levels to strengthen the nursing workforce and promote effective and responsive health services. Effective leadership considered a core element to realising intended changes (Cummings et al., 2018; Northouse, 2019), and the role of leadership and management to promote employees' empowerment, creativity, and well-being are broadly emphasised (Akerjordet et al., 2018; Cummings et al., 2018; Fischer et al., 2018).

In Study 1, participants emphasised the first-line managers' ability and responsibility to inspire nurses, make them responsible, and motivate them to develop professionally. The leader's initiative to encourage nurses to participate in nursing competence enhancement and facilitate a learning environment is crucial to enabling professionalism and enhancement in nursing services (Boamah, 2018; Coventry et al., 2015). The transformational leadership style, found to be dominant among MipAC managers (Study 3), demonstrates a potential to make changes and enhancements and promote nursing competence development in the MipAC service. Likewise, the association between managers' transformational leadership style and team culture in Study 3 may represent a potential to develop a healthy and professional environment that supports and

accumulates learning and enhancement in nursing practices. Transformational leadership is associated with an empowering environment to promote staff nurses' clinical leadership (Boamah, 2018). Transformational leadership style, in combination with rewarding leadership, prevents burnout and promotes nurses' accomplishment (Kanste, 2008a), commitment, and intention to stay on the job (Kanste, 2008b).

Rewarding leadership, which emphasises rewards for completed tasks (Avolio & Bass, 2004), is associated with tasks-oriented leadership styles. Salary as a reward predicts nursing competence among the staff (Gunawan et al., 2020). Therefore, acknowledging salary as a reward for increased competence may be an advantageous leadership strategy for maintaining and increasing nursing competence in staff. However, budget restrictions and resource scarcity limit first-line nurse managers' room for manoeuvre (Havig & Hollister, 2018; Hjertstrøm et al., 2018; Solbakken et al., 2020, 2021; Tingvoll, Sæterstrand, & McClusky, 2016). Thus, as emphasised in Study 1, the manager's ability to confront authorities to gain sufficient resources and facilitate nursing competence enhancement in the MipAC units may be crucial.

Study 1's findings also underline the need for a clear and powerful first-line manager who promotes adequate care quality, effective daily practice, and adequate nursing competence to cover all shifts. This expected behaviour corresponds with the task-oriented leadership style that also existed extensively among participating managers in the MipAC units (Study 3). The task-oriented leadership style focuses on controlling and facilitating goal achievements (Cummings et al., 2018; Jacobsen & Thorsvik, 2013), monitoring care processes, providing coordination and structure, and clarifying roles (Havig et al., 2011). However, the task-oriented leadership style entails maintaining the status quo (Jodar I Solà et al., 2016), and managers who solely direct focus towards control and goal achievements without assessing process accountability (Strandås, 2021; Strandås et al., 2019; Wyller et al., 2013) may neglect the need for nursing competence enhancement in the services. Such a mindset may also neglect the value of creativity and autonomy in professional nurses' practice. Autonomy and self-regulation imply a feeling of empowerment (Knol et al., 2009; Laschinger et al., 2001a), characterised by professionalism and advanced nurses' practices (Adams & Miller, 2001; Carryer et al., 2007). Nonetheless, Study 2 showed a considerable variation in nursing competence in the MipAC services across the

country. As per Northouse (2019), variation in competence requires supportive as well as directive leadership styles. Therefore, Studies 1 and 3 illustrate managers' need to execute leadership styles. Health care managers' ability to adapt leadership behaviour to what the situation requires is also emphasised in Kanste et al. (2009). Variations in nursing staff competence in many MipAC units (Study 2) indicate that the manager must clarify roles, be controlling, and provide coordination and structure to ensure accountability in the care processes. Moreover, the manager must support professionalism and autonomy and inspire development and creativity in staff. This reasoning supports Neubert et al. (2016), who highlighted the relation-oriented leadership style in combination with coordination and structures in formally and monitored procedures and requirements to the practice. Relation-oriented leadership in combination with coordination and structure, which also promotes nurses' creativity and job satisfaction (Neubert et al., 2016), may, therefore, be suggested as a proactive characteristic of the MipAC nursing services. The combination of relation- and task-oriented leadership styles, as among MipAC managers (Study 3), may thus represent an ability to promote accountability in the care processes and encourage professional nursing competence in the MipAC units. Therefore, the first-line manager's role in the plan for developing and formalising the organisational structure to secure care processes in the MipAC services should be emphasised (Hjertstrøm et al., 2018; Solbakken et al., 2020).

Given the high score on transactional leadership style in Study 3 regarding control, structure, and clarifying roles (Havig et al., 2011), MipAC managers may be expected to facilitate planning to promote control and predictability among the staff. However, competence planning was not associated with leadership style (Study 3) and did not seem to be a priority for many managers (Studies 2 and 3). The results indicate a need to acknowledge the importance of proactive competence planning in the units (Bjerregard Madsen et al., 2016; Halcomb et al., 2016; O'Connell et al., 2014). However, the lack of competence planning in many MipAC units (Studies 2 and 3) may partly reflect managers' heavy administrative workload and responsibility for the day-to-day operations of the services (Havig & Hollister, 2018; Hjertstrøm et al., 2018; Solbakken et al., 2020, 2021; Tingvoll et al., 2016).

Considering the manager's workload and inadequate time to inspire and facilitate nurses' engagement and competence enhancement in MipAC units (Solbakken et

al., 2021), environmental support, such as assistance from PDNs, may prove crucial (Penconek et al., 2021). The significant association between a position for PDN and competence planning in Study 3 shows the PDN's important role in a leader's team. The findings accord with prior studies that emphasise PDNs as a resource for clinical leadership, supervisors, competence, and process enhancement in practice (Renolen et al., 2020; Warren & Harper, 2017). An interpretation of the Study 3 results may be that a PDN mediates between the nursing staff and manager, and the PDN empower managers in their responsibility to initiate competence enhancement and accountability in the MipAC services. This reasoning corresponds to studies that focus on the role of a PDN in implementing the daily use of evidence-based practice (Renolen et al., 2020) and proactive leaders, mentors, and facilitators for learning (Warren, 2017). In addition, a PDN is also found to be important for managers' job satisfaction (Penconek et al., 2021). Considering the first-line managers' stressful work situation, burdened with responsibilities and conflicting requirements, and a lack of support from superiors (Hjertstrøm et al., 2018; Solbakken et al., 2020, 2021), a PDN's support and assistance in important leadership tasks may be crucial to managers' quality of work and power. Empowered leaders are more likely to hold a relation-oriented leadership style (Kanter, 2008), which promotes a professional team culture (Study 3) and enhancement (Cummings et al., 2018). However, the associations between PDN position and competence planning and team culture observed in Study 3, indicate an important potential that should be further examined.

First-line nurse managers' role and unique professional and organisational competence in developing the MipAC services are clearly emphasised in prior studies (Hjertstrøm et al., 2018; Solbakken et al., 2020). The manager's credibility might be crucial in convincing the granting authorities about the benefits of investing in nursing competence to strengthen the nursing workforce in MipAC. Accordingly, Kanter (2008) underscores that competence increases the managers' credibility, which is believed to elevate their political position in the system. Therefore, supporting first-line nurse managers' opportunity to increase leadership competence, for instance, and entering an adapted evidenced-based educational leader programme may be beneficial in developing and enhancing the nursing service in MipAC (Gunawan et al., 2019; Ullrich et al., 2021).

6.4 Implications for practice

This thesis presents some implications for health authorities, politicians at municipal and national levels, universities and university colleges, and managers and clinicians in the MipAC organisations.

At the national level

The complexity of the MipAC nursing service and the significance of sufficient nursing competence to provide quality care and increase utilisation rate requires recognition. There is a need to straighten advanced nursing competence in the MipAC units and necessitate interventions to increase access to a master's degree among advanced nurses.

National regulations of advanced nurse curriculum at a master's degree level, arranged for municipal health care services is an important strategy already available. Universities and university colleges must establish advanced nursing master's educational programmes in their programme portfolio.

National strategies to stimulate competence enhancement and recruitment are particularly important in the Central and Northern regions of Norway.

At the municipal level

Municipal health authorities must recognise and request advanced nursing competence for the MipAC services.

For units with a low rate of RN staff, more RN positions should be created to increase their proportion to ensure more than one RN are always present.

Although organised MipAC services in short-term care units seem to be beneficial regarding competence in the nursing services, it is not possible in some rural municipalities. Thus, strengthening nursing competence in long-term units that provide MipAC services are recommended. It is particularly important in long-term care institutions in Northern and Central Norway in units with a low ratio of RNs among the staff.

At the organisational level

Implications at the organisational level can be summarised in the following bullet points:

- Documented plan for competence enhancement and requirements for the MipAC nursing service should be introduced and addressed to higher authorities.

- Motivate and facilitate RNs' opportunity to enter a master's degree programme in advanced clinical nursing.
- Motivate and facilitate nurse assistants' opportunity to enter bachelor's curriculums to graduate to RN to increase the ratio RNs in staff.
- Arrange for a professional, learning, and friendly culture with all staff and acknowledge and experience development, belonging, and quality in work-life.
- Include advanced nurses holding a master's degree in policy-making and strategies to improve the services.
- The important role of leadership in change and enhancement processes and the impact of leadership style must be recognised.
- Managers must recognise the relational leadership style to promote an inter-professional and nursing professional team culture
- Empower first-line nurse managers with establishing a PDN position in the leader theme, and provide first-line managers with the opportunity to adhere to an evidence-based educational leadership programme

7 DISCUSSION OF METHODS

This chapter discusses the trustworthiness, validity, and reliability of the study. The different philosophical traditions of science in which this doctoral project was conducted represent two fundamentally different approaches to knowledge building. Weaver and Olson (2006) emphasise that knowledge developed within different scientific traditions provides different perspectives and complements each other within the same substantive domain. However, they recommend maintaining the theoretical perspectives of each paradigm to protect the integrity and rigour of knowledge building (Weaver & Olson, 2006). Hence, quantitative, and qualitative studies necessitate completely different criteria to judge the quality of the research. Therefore, to assess the quality of this doctoral project that has a combined design, individual sub-studies must be evaluated per the different related criteria. Trustworthiness, validity, and reliability are carefully reflected throughout the research process in the three studies (Kvale & Brinkmann, 2012; Polit & Beck, 2014).

7.1 Study 1

The validity of qualitative research can be judged by considering the research's trustworthiness, as reflected in credibility, dependability, confirmability, transferability, and authenticity (Lincoln & Guba, 1985; Polit & Beck, 2014). Credibility is the overall attempt to optimise the truth value of the data and the interpretation and presentation of data. Dependability concerns whether the data is stable over time and in another context. Confirmability relates to objectivity and examines the researcher's motivation, perspectives, and potential biases in the research. Transferability concerns whether it is relevant to use the knowledge acquired in other settings or groups, and authenticity is whether the presentation of the findings enables readers to understand the lived experience close to the realities (Polit & Beck, 2014).

7.1.1 Sample, setting, and recruitment

The sample in phenomenological hermeneutical research must comprise participants with experience in the phenomenon in question, and they must articulate what it is like to have lived that experience (Polit & Beck, 2014). First-line managers knew the employees best and could select participants to articulate their lived experiences from the MipACs. Given the procedure for recruitment,

where participant inclusion hinged on managers, a concern that could impact the credibility of the data may be the gatekeeper effect. It concerns whether some authority biases the selection based on their preferences (Polit & Beck, 2014). However, in retrospect, it appears the selected sample contributed to valuable and rich knowledge. Thus, the impression is that participants were carefully selected based on the managers' perception of their ability to contribute to the study.

Purposive sampling illuminates the scope of a phenomenon and identifies important aspects across variations (Polit & Beck, 2014). Despite the effort to capture some of the diversity of different contexts for lived experience in MipAC across the country, it was not possible to capture them all. Therefore, some aspects may not have been discovered. For example, when the interviews were conducted, the municipality was not yet required to admit patients in need of acute care from mental health challenges or drug addiction. Thus, for the time being, few patients were admitted for such health challenges. Although the need to strengthen the staff's competence to provide good care for patients was clearly emphasised by all participants, more experience with such inter-human encounters could have brought additional knowledge into the phenomenon of interest. Moreover, in retrospect, there was a significant difference in nursing competence between the regions (Study 2). Thus, including participants from Northern and Central Norway would have improved variation in the sample and strengthened the transferability of the data. Arguably, participants' life in MipAC units implied experience to care for the elderly and vulnerable patients with acute, comprehensive, and complex health care needs, including mental health care needs. Likewise, people's health needs do not depend on or differ on the background of regional affiliation. Nevertheless, more knowledge is needed to dive deeper into specific competence requirements for the different regions.

To improve credibility and dependability, it was important to include participants' experience as clinical nurses or physicians from the MipAC. Considering whether the data are stable over time and in another context, older and vulnerable people's need for care may not change notably over time. Nevertheless, the context may change. For instance, the COVID-19 pandemic presents new challenges. Thus, exploring experiences from nursing care in MipAC during and after the pandemic could contribute further insight.

7.1.2 Data collection

Emphasis was placed on speaking freely and openly during the interviews to strengthen confirmability. The lack of structure in the interview may challenge conformability; it was important to be careful not to influence the participants. For example, avoiding spontaneous questions, coloured with own preconceptions or prejudices. The interviewers' preferences or prejudices may influence participants' contributions (Lindseth & Norberg, 2004). Thus, given the open form and lack of a predefined structure, it was important for the interviewer to be alert to background and experience as an intensive care nurse becoming too prominent during the interview. Knowledge of the phenomenon of concern more likely strengthens an interview. Kvale and Brinkman (2012), underline that human interaction skills and expert knowledge on the interview topic, characterise a competent interviewer. Knowing the topic contributed to an interrelated understanding between the interviewer and participants, which implied beneficial dynamic and relevant follow-up questions. Nevertheless, prejudices are pitfalls that challenge the validity of the knowledge in many ways (Lindseth & Norberg, 2004). Prejudices may also impact participants' interpretation and understanding and, thus, the way they articulate their experience. Given the attitudes to what are and what are not nurses' responsibilities and concerns in the MipAC, the participant could withhold relevant experiences during the interview. To avoid prejudices in the participants' contributions, they were asked to narrate their experiences. Lindseth and Norberg (2014) argue that when experiences are articulated through storytelling, it is not natural to judge or draw conclusions.

7.1.3 Analyses, findings, and discussion

Lindseth & Norberg (2004) emphasise hermeneutical interpretation, as it connects the knowledge to the external world. They argue that in a common world, we must create a common understanding. Hence, it is important to describe phenomena and interpret the meaning for a deeper understanding (Lindseth & Norberg, 2004). However, interpretation can challenge the trustworthiness of knowledge. As per Lindseth & Norberg (2004), preconception is natural when we interpret phenomena. Thus, we can determine facts, conclude, and confirm assumptions because we take for granted what is meant. It is important to distinguish between preunderstanding and prejudice to avoid researcher prejudice when the text is interpreted and understood. Moreover, to

prevent bias and promote conformability, the stringent method used to analyse the data in Study 1 also addresses trustworthiness of the knowledge derived. It is, however, important to underline that in phenomenological hermeneutical analyses, the prejudices are bracketed, while the preunderstanding is actively used (Lindseth & Norberg, 2004, p. 148).

Several quotes were used in the presentation to illustrate participants' experiences and thereby to strengthen the authenticity of this study's findings. Such use of quotes is the most common means to present interview findings, making them more interesting, authentic, and closer to reality.

7.2 Studies 2 and 3

In a post-positivistic research tradition, precision and critical reflection are emphasised throughout the research process, and the knowledge is presented such that its credibility and quality can be judged by others (Weaver & Olson, 2006). The quality of the survey studies can be determined by examining the external and internal validity. External validity concerns whether the knowledge acquired is valid for the population and whether the result can be generalised. Internal validity assesses whether the results are correct and valid for the studied sample and concerns how an instrument is conducted. For example, though the sampling in Studies 2 and 3 and the high response rate strengthen the external validity, it, however, does not guarantee the quality of the knowledge achieved. Quality also depends on how the data are collected as well as on the questionnaire, the sampling process, the analyses, and the presentation.

Regarding the purpose of evaluating the overall validity of the sub-studies, the research processes are reflected in the content validity as assessed by structural validity and the face validity. For Study 3, the structural validity of the MLQ instrument and reliability of the scales were assessed. Structural validity determines whether the items used embrace the content of the construct it is meant to examine, which for this doctoral project was nursing competence in the context of MipAC and managers' leadership styles. Structural validity refers to the degree to which an instrument's scores reflect all the dimensions of the construct, which in this case was leadership styles. The structural validity of the MLQ was assessed through CFA analyses, and the internal consistency was assessed using Cronbach's alpha. The CFA analyses showed a poor model fit, necessitating an adaptation of the MLQ. However, the MLQ has been modified

several times earlier (Avolio & Bass, 1999; Kanste et al., 2007), and because all components were measured via a minimum of three items, the modified instrument was considered appropriate to examine the respondents' leadership styles.

Face validity is considered a superficial means concerning whether what is meant to be measured is what is measured (Streiner et al., 2015).

Reliability concerns whether the scale of an instrument is dependable (internal) and whether repeated tests of the scales give the same results. The internal reliability of the MLQ instrument was assessed by examining Cronbach's alpha values.

7.2.1 Sample, setting, and recruitment

The population in Study 2 includes all the units in Norway that provide MipAC services, as the intention was to include as many of the units in the population as possible. Likewise, in Study 3, first-line nurse managers in the units were the population, and the intention was to include them all. Therefore, including the population in the study, in combination with a high response rate, strengthened the study's external validity (representativity). However, some concerns regarding the sampling must be addressed. Although both sub-studies archived a high response rate, 15 respondents did not respond to any of the MLQ questions in the questionnaire. The lack of response on leadership style items may have many explanations. However, if there was any common feature of those who did not respond, which has impacted why these did not respond to the MLQ items, a selection bias may have affected external validity negatively. For example, the lack of response implied a lack of interest in leadership and the perception of irrelevant questions on the responsibilities and mandate of managers of the unit. However, apart from leader education, measured in months ($p < .05$), sensitivity analyses did not reveal significant differences between responders and non-responders.

Another concern that could impact the external validity may pertain to the Hawthorn effect, which concerns the tendency to react differently than one would otherwise because one is observed or participate in a study (Streiner et al., 2015). Leadership behaviour may be examined from several perspectives; however, in this study, the first-line nurse managers evaluate their behaviour, as explored. Thus, in asking the managers to score their behaviour, they may tend to

answer according to how they want to behave or what they believe is good leadership behaviour more than how they actually behave. Therefore, one could argue that an observational study to explore employees' evaluation of their leader's leadership style would yield more valid impressions of managerial behaviour. Exploring managers' evaluation of their leadership style may, therefore, mirror their intention to behave. However, even though the intention to behave in a certain manner does not imply actual behaviour, it is an important prerequisite (Ajzen, 1991). Consequently, considering that the high score on relation-oriented leadership style indicates potential in many managers' leadership styles, this potential should have room for application. This insight into the managers' intentions and ideals from Study 3 may contribute to directed attention towards how environmental and systemic barriers and facilitators impact the first-line nurse managers' room for competence enhancing management and leadership in the MipAC units.

7.2.2 Data collection

In a survey, the quality of the data depends on the content of the questions; however, it is also crucial that respondents understand the question as they are meant to be understood (Fink, 2010). Study 1 revealed important aspects of nursing competence in the context of MipAC and provided the basis for the questionnaire. Qualitative research is considered beneficial in obtaining insight into a phenomenon to capture and conceptualise its content (Polit & Beck, 2014). The questionnaire was partly based on findings in the qualitative study to strengthen the validity. Although the questionnaire does not represent an exhaustive list of what characterises nursing competence in MipAC, Study 1's findings show that the factors explored in Studies 2 and 3 are substantial indicators for understanding nursing competence in the units.

A pilot test of the questionnaire among the target population was conducted to ensure that respondents understood the question. The pilot test also included an evaluation of the face validity of the translated version of the MLQ questionnaire. Considering that the instrument was translated from the original language into Norwegian, following a strict procedure to ensure the accuracy of the items (Maneesriwongul & Dixon, 2004), the accuracy could challenge respondents' understanding of the question. Language and culture influence the understanding of survey questions (Fink, 2010), and it was not a given that an instrument validated in one context was valid in another. Therefore, to ensure

that respondents understood the questions, the pilot testing of the instrument was particularly important.

A limitation that affects face validity is that RNs holding a masters' degree and RNs holding any other type of specialisation beyond a bachelor's degree were not clearly distinguished. Master's degree implies defined standards and guarantees qualification through an accredited programme at the university. Other types of specialisations do not necessarily have defined standards and may range from a course over six months to such as education for specialisation and certification as a critical care nurse. Therefore, Study 2's results do not precisely reflect the formal level of qualifications of the nursing staff in the units.

7.2.3 Analyses, results, and discussion

Positivism aims to produce generalisable knowledge (Polit & Beck, 2014). One important objection to generalisable results is how to study a sample of the population and produce true knowledge about all of them (Popper, 1934). Popper (1934), a critic of the pure positivist research tradition, proposed statistical testing (i.e. through falsification and testability) to validate generalisation. Studies 2 and 3 employed procedures to test the hypotheses. As these studies included the entire population, together with a high response rate (91.6 and 80.6), the results, arguably match reality. Despite this advantage, Kuhn and Hacking (2012) argue that no researcher is in a position to claim universality in their findings.

Given the commercial interests, reproducing items that define the various MLQ factors could not exceed five, and the instrument was not allowed to be forwarded. These restrictions limit the public transparency of the data in Study 3.

8 CONCLUSIONS AND FURTHER RESEARCH

The MipAC service is an essential initiative of the Coordination Reform in Norway to provide safe quality care to patients. The services may entail many benefits for patients and society. Research on the quality of the nursing services in these units was lacking, and the requirement for nursing competence was sparsely defined. Thus, this doctoral project intended to give increased insight into the phenomenon of nursing competence in the MipACs and the implication for the nursing services in the units. The thesis exposed a complex arena of nursing practices in MipAC and underlines the need for sufficient and professional nursing staff, a professional and empowering environment, and effective leadership and management. Overall, MipACs organised in long-term care institutions, and located in Northern and Central Norway, had few professional nurses among the staff. Moreover, the low level of advanced nursing competence was worrying, especially the lack of nurses with meta-competence to maintain the quality of emergency care, elderly care, or psychiatric or mental health care. Consequently, there is a need for competence enhancement in many MipAC services. The recommended focus for eventual enhancements can be summarised in three terms: professional accountability, empowering environment, and effective leadership.

Although this PhD project is an important contribution to filling the knowledge gap in nursing competence in the context of MipAC, several perspectives and areas remain unexplored and need further research. For example, the relationships between nursing competence, patient safety, and quality of care are highly recognised. This was, however, not the focus of this study and should be addressed in future research. Further research is also needed to explore specific competencies required to care for the various patient groups admitted to the MipACs.

An initial idea of this PhD project was that the low utilisation rate in the MipAC units was partly affected by the lack of nursing competence. However, necessary study limitations made it impossible to examine this association, and, thus, it would be an interesting and important research question for future studies.

This study showed that a PDN, being a part of the leadership team in the MipAC unit, had a significant impact on nursing competence enhancement. The impacts'

“why and how” were not studied further in the current project and could be an interesting area for future quantitative and qualitative studies.

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LIST OF APPENDICES

Paper 1

Exploring nursing competence to care for older patients in municipal in-patient acute care: A qualitative study.

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Exploring nursing competence to care for older patients in municipal in-patient acute care: A qualitative study

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Abstract

Aim: To identify critical aspects of nursing competence to care for older patients in the context of municipal in-patient acute care.

Background: An increasingly complex and advanced primary healthcare system requires attention to the extent of nursing competence in municipal services. However, competence in complex and advanced care settings must be explored using perspectives which acknowledge the complexity of nurses' performance.

Design: A phenomenological hermeneutic, qualitative approach with individual in-depth interviews was used. COREQ reporting guidelines have been applied.

Methods: A sample of eight nurses and two physicians employed in municipal in-patient acute care units (MAUs) were purposively recruited to participate. Data were collected between May and June of 2017. Analysis and interpretation were conducted systematically in three steps: naïve reading, structural analysis and comprehensive understanding.

Findings: Two main themes were revealed. The first was the following: "The meaning of the individual nursing competence" including the themes "Having competence in clinical assessments, decision-making, and performing interventions"; "Having competence to collaborate, coordinate and facilitate"; and "Being committed." The second was the following: "The meaning of environmental and systemic factors for nursing competence," included the themes "Having professional leadership"; "Having a sufficiently qualified staff"; and "Working in an open, cooperative and professional work environment."

Conclusion: Individual nursing competence in MAUs should include the capability to detect patient deterioration and to care for older patients in a holistic perspective. In addition, the professional environmental culture, supportive leadership and systemic factors seemed to be crucial to success.

Relevance to clinical practice: This study illustrates the nurses' responsibility for older patients' safety and quality of care in the MAUs. These findings can act as a foundation for the development and adaptation of educational programmes

to accommodate requirements for nursing competence in MAUs. The broad perspective of nursing competence can give directions for quality improvements in MAUs.

KEYWORDS
acute care, advanced nursing, municipality, older persons, phenomenological hermeneutic

1 | INTRODUCTION

Nursing competence is emphasised as a valuable resource to promote equitable access to quality care worldwide (WHO, 2016). A competent workforce prepared to accomplish appropriate work performance is crucial to meet quality requirements and achieve positive outcomes in health services (Flinkman, Leino-Kilpi, Numminen, Jeon, & Kuokkanen, 2017; Sandberg & Pinnington, 2009).

Due to the demographic changes, health reforms have been implemented in several EU countries to strengthen primary health care and to reduce the use of hospitalisation (OECD/EU, 2016). These health reforms have often led to increasingly complex primary healthcare services, making nursing competence a critical issue of concern for health authorities (Maier & Aiken, 2016; Maier, Aiken, & Busse, 2017).

OECD (2016) refers to the 1978 Alma-Ata declaration and defines primary care as the "first level of contact for the population with the health care system, bridging health care as close as possible to where people live and work" (p. 38). MAUs are parts of the primary healthcare services. In this study, in-patient care refers to medical treatment provided in a municipal facility and which requires at least one overnight stay.

In Norway, the number of people that have passed the age of sixty-seven is estimated to increase to double the current figure during the next three decades, while the combined working-age population will not have changed (Report No. 47 to the Storting (2008–2009), 2009). The incidence of diseases is commensurate with the ageing population, and accordingly, the need for healthcare services is increasing. As is the case in several EU countries, these demographic changes imply increased pressure on the welfare state's capacity and result in the need for reform measures in the health and social sectors (Report No. 47 to the Storting (2008–2009), 2009). In the Norwegian Coordination Reform (Report No. 47 to the Storting (2008–2009), 2009), one of the initiatives has been to arrange for in-patient acute care in specially adapted acute care units (MAUs) in the municipality. To adapt professional competence to the current changes in primary health care, more knowledge is needed about the implications for professional nursing practice (Maier et al., 2017). This study provides an additional understanding of professional nursing competence in acute care for older patients in municipal in-patient facilities.

What does this paper contribute to the wider global clinical community?

- This study contributes to a better understanding of the complexity of the nurse`s practices in acute care for older patients and illustrates the nurses' responsibility for older patients' safety and quality of care.
- The findings can act as a foundation for the development and adaptation of educational programmes in nursing to accommodate care to older people in municipal acute care settings.
- A broad perspective of nursing competence in municipal in-patient acute care facilities can contribute to service innovation and implementation.

2 | BACKGROUND

Although it is not established by the national authorities which patient groups are meant to be served in the MAUs, an important purpose is to reduce hospitalisation especially for the older population (Swanson, Alexandersen, & Hagen, 2016). The Norwegian government requires that the MAUs are capable of providing appropriate health care and to provide equal or better services to patients than hospital admission. However, it is a prerequisite for admission to a MAU that the patient's condition does not require advanced medical treatment in hospital. Furthermore, the patient's stay should not exceed three days (Report No. 47 to the Storting (2008–2009), 2009). The Norwegian Directorate of Health (2016) has developed guidelines for establishing MAUs in the municipalities. These guidelines underline that a competent workforce to provide safe professional care to patients is crucial and requires registered nurses' (RNs') attendance twenty-four hours seven days a week. Further, the staff are required to have appropriate competence to observe, assess, make decisions and handle acute care situations such as cardiac arrest, as well as general professional care competence. The staff in MAUs must be competent to handle advanced procedures such as oxygen (O_2) treatment, blood sampling, catheterisation, administration of intravenous fluid and drug treatment. Further, competence to handle medical technology such as electrocardiogram (ECG) and pulse oximeter. Relational competence to care for people who experience a mental crisis, or a difficult life situation is also underlined

(The Norwegian Directorate of Health, 2016). The Norwegian Directory of Health pictures a complex arena for nursing care which shows that advanced nursing competence is required. The minimum requirement for RNs working in MAUs is that they have a bachelor's degree in nursing. It is nevertheless preferred, although not specified in the guidelines, that RNs also have supplementary education in advanced and/or geriatric care.

All municipalities in Norway had, by January 2016, established MAUs in diverse organisational forms. Most of the MAUs' consist of one or two beds and are usually located on and are part of an ordinary municipal nursing home. Some municipalities pay to dispose of one or two beds at a medical centre or local hospital, where the municipality is responsible for the treatment and care of these patients. Some of the MAUs are organised as a collaboration between two or more municipalities (Tjerbo & Skinner, 2016). In addition, there is a great deal of variation when it comes to the physicians' presence in the units. Some MAUs have a physician employed full-time, while in other MAUs they are attendant a few days a week. (Swanson et al., 2016). Swanson et al. (2016) found that older patients had significant reductions in acute hospital admissions after the MAUs were introduced. Further, this was associated with physicians being full-time employed. However, studies indicate that the capacity of MAUs remains largely unused (Nilsen, Hunskaar, & Ruths, 2017; Swanson et al., 2016), and the competence of the care providers is questioned (Skinner, 2015a; Swanson et al., 2016). Previous studies indicate that municipal acute care services as alternatives to other emergency wards might be beneficial to older persons, as they are met with favourable attitudes and geriatric knowledge (Hope, 1994) and holistic care (Zurmehly, 2007), particularly regarding social and interpersonal aspects of care (West, Barron, & Reeves, 2005). MAU patients have reported satisfaction connected to the units' geographical proximity, atmosphere and time allocated for care (Leonardsen et al., 2016). Still, the patients' right to participation in own care planning did not seem to be complied with (Johannessen, Tveiten, & Werner, 2017).

To fulfil the prerequisite for competence and qualifications in staff, a well-educated nursing workforce is crucial (Maier & Aiken, 2016). However, research shows that the quality of primary healthcare services is challenged by a lack of well-educated nurses, particularly those who are capable to care for older patients with complex and acute health problems (Bing-Jonsson, Hofoss, Kirkevold, Bjørk, & Foss, Christina, 2016). Although research has focused on different perspectives of the MAUs, few studies have examined the significance of nursing competence in MAUs (Skinner, 2015b; The Research Council of Norway, 2016).

2.1 | Professional nursing competence

A broad perspective on the content of nursing competence is presented in the literature (Bing-Jonsson, Bjørk, Hofoss, Kirkevold, & Foss, 2013; Flinkman et al., 2017; Halcomb, Stephens, Bryce, Foley, & Ashley, 2016; Poikkeus, Numminen, Suhonen, & Leino-Kilpi, 2014). In a systematic and psychometric review based on measurement from use of the Nurse Competence Scale, Flinkman et al. (2017) found correlations between competence and more work experience, higher age, higher education, permanent employment and participation in educational programs. Higher competence was also associated with quality of care and critical thinking, commitment, empowerment and positive practice environments. In another systematic review, Bing-Johnsen et al. (2013) found that nursing competence in municipal health care is mostly understood and defined in a behaviouristic perspective, focusing on skills, tasks, abilities, performance and behaviour. Halcomb et.al. (2016) also found aspects such as research, information technology, teamwork, problem-solving, integrated into the concept of competence. Poikkeus et al. (2014) found that ethical decision-making, ethical sensitivity, ethical knowledge and ethical reflection were important aspects of nursing competence.

Nevertheless, due to the abstract nature of the phenomenon, no agreed-upon definition is presented (Flinkman et al., 2017). According to Riley, Beal, and Lancaster (2008), professional nursing competence might be viewed as an interaction between the individual nurse's attributes, that is what the nurses *are* and professional behaviours, that is what the nurses *do* (Riley et al., 2008). However, professional competence to provide care in complex and advanced settings must be explored in a wide, but thorough, perspective, which acknowledges the complexity of the performance (O'Connell et al., 2014). Although basic task-oriented competencies are acknowledged as a necessity (Halcomb et al., 2016; O'Connell et al., 2014), professional competence in complex and advanced settings also includes capabilities. The term capability can be understood as a potential which may be used. A person's capability includes a combination of knowledge, values, skills and self-esteem which enable the person to handle change (O'Connell et al., 2014). O'Connell et al. (2014) suggest that these capabilities include the following:

> "appropriate and effective action to formulate and solve problems"; "apply competencies in unfamiliar and familiar situations"; "mindfulness, awareness and openness to change;" "being able to engage with social values relevant to action;" and to "work well with others" (p. 2733).

When founded in the nurse's competencies, capabilities enable the performance of professional practices in advanced contexts (O'Connell et al., 2014). Professional competence is mostly referred to as entities, either connected to the work performer or a body of knowledge (Sandberg & Pinnington, 2009). Yet, Sandberg and Pinnington (2009) also underline the relational perspective of professional competence and argue that competence is defined by a social–relational system integrating the subject, the object and also things, by their usefulness (Sandberg & Pinnington, 2009). In this study, our understanding of the term nursing competence includes both task-oriented competencies (Halcomb et al., 2016; O'Connell et al., 2014), capabilities as described by O'Connell et al. (2014) and ethical competence. Moreover, we acknowledge that professional nursing competence includes a

TABLE 1 Overview of the participants' education, experiences, current position and length of interviews

Participant no	Education (year of graduation) *Continuing education*	Clinical experiences/MAU experiences (all MAUs have been established during 2012 or later)	Current position(s) in MAU	Length of the interviews in minutes
1	RN (2012) *Advanced nursing*	Worked 4 years in the rural nursing home where MAU beds are located	Bedside responsible	31
2	RN (2015)	Worked 2 years in the urban hospital where MAU beds are located Previous: municipal elderly care as enrolled nurse	Bedside responsible, projects work	55
3	RN (2013)	Worked 3 years in the urban hospital where MAU beds are located	Bedside responsible, team leader	53
4	RN (2005) *Master's in Nursing Science*	Worked 2 years in the urban hospital where MAU beds are located Previous: geriatric medical hospital wards	Bedside responsible Professional Development nurse	52
5	RN (2008) *Palliative care Geriatric nursing*	Worked 3 years in the urban nursing home where MAU beds are located Previous: medical hospital units, home care nursing, municipal palliative care.	Bedside responsible	60
6	GP (1998)	Worked 4 years (20% position) in the rural nursing home were MAU beds are located. In addition: GP in the municipality	Medical responsible	60
7	GP (1999)	Worked 7 years (100% position) in the rural medical centre were MAU beds are located. Previous: GP in the municipality	Medical responsible	61
8	RN (1996) *Supervision, rehabilitation and palliation*	Worked 19 years in the rural medical centre were MAU beds are located.	Bedside responsible	68
9	RN (1999) *Human resource management and development*	Worked 3 years in the rural nursing home were MAU beds are located. Previous: nursing home and orthopaedic hospital ward	Bedside responsible, team leader, Professional Development nurse	64
10	RN (1992)	Worked 25 years in the rural medical centre were MAU beds are located	Bedside responsible, team leader, Professional Development nurse	48

social–relational system in which the nurse, other persons and "things" are integrated (Sandberg & Pinnington, 2009).

3 | METHODS

3.1 | Aim

The aim of this study was to explore critical aspects of nursing competence to care for older patients in the context of municipal in-patient acute care, as experienced by nurses and physicians.

3.2 | Design

A qualitative phenomenological hermeneutic approach was applied, and data were collected through individual in-depth interviews. Phenomenological hermeneutics explores an individual's lived experience in order to capture the essential meaning of a phenomenon. Lived experience derives from a human being in the world (Lindseth & Norberg, 2004). In the current study, the intention was to explore the lived experience of nurses and physicians working in MAUs related to phenomenon of nursing competence in these units. Phenomenological hermeneutics facilitates a research design that both provides a phenomenological description and interprets meaning to gain a deeper understanding of a phenomenon. In this study, this approach was mainly used for interpreting the interview texts.

Criteria for reporting qualitative research (COREQ), that is the 32 items checklist for interviews and focus groups (Tong, Sainsbury, & Craig, 2007), was adhered when preparing the manuscript (See Appendix S1).

3.3 | Participants

A purposive sample of eight RNs and two physicians (general practitioners—GPs) were recruited from five different MAUs in Southern Norway. To capture a valid and rich picture of experiences and reflections regarding nursing competence in MAUs, the criteria for inclusion aimed to endeavour representation that captured a diversity of contexts.

When recruiting informants, it was emphasised to include participants from MAUs who were different in terms of organisation and

localisation, from both rural and urban areas, with variation in the number of MAU beds and employment of physicians. The inclusion criteria for RN participants were that they had at least two years' nursing experience and at least one year of experience working at an MAU. Preferably, they would also be RNs with experiences in geriatric and/or advance nursing, and some should have postgraduate education accordingly. The criterion for participating GPs was that they were employed in a MAU. To enrich the perspective on the phenomenon of nursing competence in MAUs, we included two GPs in the sample, as they are formally responsible for medical treatment of the patients. In addition, nurses and physicians work in close cooperation and have a joint responsibility to provide safe medical treatment.

Leaders of five MAUs were contacted and asked to identify persons in the staff who they considered as suitable for an interview about the phenomenon of nursing competence and who fulfilled the inclusion criteria. The leaders provided written information about the study to actual persons and asked them to participate. It was underlined that participation was voluntary. The participants' legal rights to withdraw at any time and confidentiality were assured. The leaders scheduled time for the interviews.

3.4 | Data collection

The interviews were conducted by the first author between May and June 2017. Eight interviews were conducted in the participant's workplace, and two interviews were conducted by telephone. Two of the participating nurses were not able to meet the interviewer as first planned; hence, telephone interview was agreed and conducted. In these cases, telephone interviews were chosen by participants as the most appropriate alternative.

To arrange for more complete and rich answers, the interviews had an open approach which implied that no interview questions were planned. In advance, participants were informed that the focus for the interview would be the experiences regarding nursing competence at the MAU. In addition, the interviewer followed up the participants' contributions and asked them to deepen and narrate experiences which illustrated issues of nursing competence or lack of competence (Lindseth & Norberg, 2004). The interviews lasted between 31 and 68 min (M = 55.1 min). Length of the interviews for each participant is listed in Table 1. The interviews were audiotaped and subsequently transcribed verbatim. Data saturation was examined, discussed and decided by the authors.

3.5 | Ethical considerations

The study was conducted in accordance with the Declaration of Helsinki () and approved by the NSD—Norwegian Centre for Research Data (ref. 2017/53126). Permission to conduct interviews was provided by the responsible leaders of the MAUs. In addition to written informed consent from participants, information about the study was repeated prior to each interview, and assurances were provided regarding the participants' legal rights regarding their participation and confidentiality.

3.6 | Data analysis

A phenomenological hermeneutic analysis approach, as developed by Lindseth and Nordberg (2004), was applied. This analysis approach is inspired by Ricoeur's philosophy (Ricoeur, 1976) and includes three steps. First, naïve reading is conducted where the transcribed texts are thoroughly read several times to get an initial understanding of the meaning as a whole. This phase has a phenomenological descriptive approach and provides direction for the next phase. Second, through structural analysis the texts are thematically structured and main themes, themes and subthemes are identified and formulated. The themes were validated by reflecting in the light of the initial naïve understanding. Lastly, comprehensive understanding is gained when the main themes, themes and subthemes are reflected on in relation to the research questions and the context of the study. The texts are read again in a naïve understanding, now with the validated themes in mind. It is designed to be as open as possible, although the researchers' preunderstanding is actively used (Lindseth & Norberg, 2004).

The first step of the analysis was conducted by the first author. All authors were included in the second and third steps to discuss and reach agreement of the interpretation and understanding of the texts' content. NVivo pro 11 was used initially to structure the texts.

3.7 | Trustworthiness and preunderstanding

To understand and improve our practices, we must reflect on the meaning of our lived experiences. Qualitative research interviews aim to reveal participants' lived experience. As researchers we take part in these experiences, we interpret and understand the meaning of them, purposely using our preunderstanding (Lindseth & Norberg, 2004). Preunderstanding is, according to Lindseth and Norberg (2004), a prerequisite for meaning and essence to appear. The first author's previous clinical experience from acute care settings was purposively used in data collection, interpretation and understanding during analysis and discussion. According to Lindseth and Norberg (2004), it is a part of human nature to be party to preconceptions in our understanding of the lifeworld. Preconceptions might lead to prejudices which are, in turn, pitfalls that impact the trustworthiness of research. Prejudice might impact both the participant who is presenting his/her interpretation of the lifeworld and the researcher's interpretation of the text in questions. To address this concern, Lindseth and Nordberg (2004) suggest that the participants narrate from lived experience. Narratives help the participants to bracket prejudices, and drawing conclusion influenced by prejudice is less likely when stories are told (Lindseth & Norberg, 2004). In the present study, the participants were encouraged to narrate their experiences and to speak out freely during the interview without interruptions and impact

TABLE 2 Examples from the structural analysis

Meaning units	Condensations	Subthemes	Themes	Main themes
"Most of our patients are elderly and multimorbid. These patients need time. It is a serious responsibility to care for them in a satisfactory way" (8, nurse)	It is a serious and time-consuming responsibility to care for geriatric patients	Handling a wide range of care tasks	Having competence in clinical assessments, decision-making, and performing interventions	The meaning of the individual nursing competence
" "I asked how he was. "Fine", he said, "but a little cold". Then I touched his skin and realized he had a high fever… so I thought: from the urinary tract it escalates extra fast.	Being able to understand the patients' condition	Making qualified decisions		
…. we started examining the patient's vital parameters, assessing the CRP, establishing the PVC, administering fluid…and then the emergency team came. After a short time, he was sent to the hospital with sepsis"" (8, nurse)	Knowing what to do to verify suspected sepsis, to reduce escalation and to ensure that an appropriate decision is made.	Performing required treatment and care		
"The relatives declined discharge to a short-time unit due to previous negative experiences from that place… So, I sat down with them and heard what they had to say. Then I said: "okay, this is your experience, but what do you expect from them?" Then I suggested a meeting with the nurse in charge …called up the unit and arranged for it…"" (3, nurse)	Listening to the relatives and taking their preferences' seriously.	Cooperating with patient and relatives	Having competence to collaborate, cooperate and communicate with others	
	Preparing for a planned and predictable patient transition	Cooperating with the patient's residential environment and municipal health services		
"I had only been a nurse for half a year and I was scheduled to do two nightshifts. On the first night I thought, no, we were two nurses, and she is less experienced than me. If there was to be a patient with cardiac arrest… or acute deterioration, it would be up to me. I was not confident with my own competence, how to handle different situations. It was not safe, so I used a self-certification for the last night" (2, nurse)	Having only unexperienced and newly graduated nurses on duty is not safe for the patient in advanced settings.	Having sufficiently qualified nurses with clinical experience	Having a sufficiently qualified nursing staff	The meaning of environmental and systemic factors
"If you are alone as a nurse (RN)… you have others (enrolled nurses), but they neither have that experience nor the responsibility. It would be safe for me if we were two (RNs) to exchange … and help each other" (8, nurse).	Being unable to discuss and assess patient issues and share responsibilities with other qualified nurses	Having access to collegial support		
"There might be patients who need intravenous antibiotics. At the hospital we had to be two nurses to do the medication control, this is not possible here" (9, nurse).	Lacking opportunity to double-check the administration of medication			

TABLE 3 Overview of main themes, themes and subthemes

Main themes	The meaning of the individual nursing competence			The meaning of environmental and systemic factors for nursing competence		
Themes	Having competence in clinical assessments, decision-making and performing interventions	Having competence to collaborate, coordinate and facilitate	Being committed	Having professional leadership	Having a sufficiently qualified nursing staff	Working in an open, cooperative and professional work environment
Subthemes	Handling a wide range of care tasks Making qualified decisions Having clinical experience Performing required treatment and care	Collaborating with physicians Collaborating with the municipal health services Coordinate and facilitate patients' care and services Collaborating with patients and relatives	Dedicated to nursing in different settings of patient care Enjoying learning and being challenged Enjoying working with different tasks	Having a leader who facilitates a professional culture Having a leader who is accessible and approachable Having a clearly defined leader	Having sufficiently qualified nurses with clinical experience Having access to collegial support	Being in a supportive and respectful environment Being in a supportive, learning-promoting environment

from the interviewer's prejudgement of the phenomenon of interest. The interviewer requested participants to elaborate or explain further if necessary (Lindseth & Norberg, 2004). In order to minimise the researchers' bias in the interpretation and understanding of the data, making a distinction between preunderstanding and prejudice was emphasised, and it was strived to bracket prejudice (Lindseth & Norberg, 2004). Three researchers were involved, consecutively discussing and accounting for all phases in the research process after data collection.

4 | RESULTS

4.1 | Sample and setting

Three of the five included MAUs were located at nursing homes, both in urban and rural areas. One of the MAUs was located at an urban hospital and one at a rural medical centre. The MAUs differed extensively in relation to number of beds and intensity of physicians employed available on duty, which ranged from half a day three times a week to 24 hr, 7 days a week. All participating RNs had experience from bedside geriatric nursing, either from hospital settings, medical centres, nursing homes or from home care nursing. The timeframe for the participants' nursing practice experience varied from 2–25 years. Five of the RN participants had continuing education qualifications, including one with advanced nursing and one with geriatric nursing. The two participating GPs were medically responsible for the MAU where they worked. One had four years' experience from the nursing home at which the MAU was located, and the other one had seven years' experience from the medical centre's MAU. Characteristics of participants and settings are presented in Table 1.

4.2 | Naïve understanding

Nursing care in MAU includes competence to perform basic nursing care as well as advanced clinical observations, assessment and interventions. A lack of predictability regarding the severity of the older patients' conditions and variability regarding cooperation with the medical services, requires nurses' capabilities to manage advanced assessment and decision-making in potentially critical situations. Further, a lack of qualified nurses in the workforce throughout the day and night represents challenges to the quality of care. Working in a collaborative, supportive and professional environment is important for developing and strengthen nursing competence in MAUs.

4.3 | Structural analysis

Two main themes regarding nursing competence in MAUs were revealed from the structural analysis: the meaning of individual nurse competence; and the meaning of environmental and systemic factors. Examples of the structural analysis are shown in Table 2. Overviews of main themes, themes and subthemes are presented in Table 3.

4.4 | The meaning of the individual nursing competence

4.4.1 | Having competence in clinical assessments, decision-making and performing interventions

All participants perceived the acutely ill older patients' conditions as unpredictable and complex. Occasionally, diagnoses were not clarified, and adequate medical treatment was not prescribed before admission to the MAU.

> "A precondition to be admitted to MAU should be a clarified condition and a complete medical prescription from the admitting physician should be available. But tell me, what patient over 75 years is clarified? The older the patient, the less clarified." (6, physician).

The patients were referred to MAU by a GP or from a municipal emergency medical service. Whether the referral went through the MAU physician or directly to a MAU nurse was dependent on how the medical service was organised in the MAU and time of the day. However, the nurses' preparation before the patients' arrival was mostly based on telephone communication with a GP.

> "Obviously, the information you get on the phone from the GP does not always match what you actually see when the patient arrives at the unit" (10, nurse).

Reasons given for the disparity were inadequate enrolment, that is lacking information from the referring GP, or that it could take hours between the GP's consultation and the patient's arrival at the MAU, while in the meantime the patient's condition might have deteriorated. Occasionally, nurses also experienced lack of communication between the physicians responsible across the shifts, thus the responsible physician lacked knowledge about the patient. The nurses' ability to question and assess patients' health condition and make the right decisions based on these changing needs and assessment was considered a complex and challenging responsibility. This included performing relevant interventions, deciding when to call the physician and communicating adequate and relevant information to the physician. It was underlined that this responsibility, which required nursing at an advanced level, also should include geriatric assessment competence.

> "The situation could easily be an emergency, due to the severity of their (patients') condition when they arrive, then you have to be prepared" (9, nurse).

Of their reliance on nurses, physicians reported:

> "We are dependent on having eyes that are good at seeing and ears good at hearing, that is extremely important" (7, physician).

The term "having the clinical gaze," which was frequently used by most of the participants, seemed to include an intuition based on experiences, such as the ability to follow and understand physiological trends in order to predict and detect early signs of patient deterioration.

> "Unexperienced young nurses appreciate the Early Warning Score (EWS), but they must learn to practice the clinical gaze in addition…., pathophysiological understanding is a prerequisite, especially due to the number of patients who don't fit into the scores e.g. older patients …" (4, nurse).

Standards and scoring systems, however, seemed to be useful tools for clinical observations and assessments, even for experienced nurses.

> ".. it is about making precise observations for signs of deterioration, such as infection development…." (8, nurse).

> "…we typically use the EWS measurement as a standard tool, … but we should, however, … due to the limitation of the EWS, also implement a tool to predict sepsis development in older patients …" (10, nurse)

Competence in performing required tasks mirrored the broad scope of nursing care to older patients in MAUs. All participants highlighted the ability to act appropriately in acute critical situations. As examples, they mentioned administration of intravenous fluid and drug treatment, competencies to handle medical technology and procedures. Occasionally, the responsibility for assessing the need for and initiate oxygen therapy was delegated to the nurses.

> "We have a lot of patients admitted with COPD exacerbation, … we assess the patient and deliver oxygen if needed …" (1, nurse).

Proficient use of procedures and standards, such as cardiopulmonary resuscitation (CPR)/Advanced CPR, early warning score (EWS), and tools to improve communication, were considered crucial to ensure patient safety.

> "If I call the physician and tell her that the patient is deteriorating, - what does that mean? nothing actually ""what do you mean … how deteriorating?"" (3, nurse).

> It was a cardiac arrest situation…. we followed the CPR algorithm, use a standard communication tool ISBAR (which is a model of communication between healthcare professional's teamwork around a patient's

condition) and EWS … the communication was clear and calm" (3, nurse).

Furthermore, tools for assessing older patients' nutritional state, predicting fall risk and self-care ability were considered valuable to provide holistic care.

The concern for the patient's general condition, self-care ability and life situation seemed also to be an important focus for the nurses. Several participants expressed their concerns about older patients who were malnourished and dehydrated upon admission to the unit.

> "… older people, frail … who need to be seen to a little bit, then nutrition is important, perhaps poor nutrition at home… it's good for them to come in here and feel a bit taken care of… get up to go again, they get a bit stronger… their condition might improve, then the need for health services (at home) might change" (9, nurse).

The nurses' ability to systematically map, plan and initiate interventions to improve the patients' conditions was highlighted, but these tasks were sometimes difficult to accomplish due to heavy workloads and lack of time.

4.4.2 | Having competence to collaborate, coordinate and facilitate

Clear and precise communication and cooperation between nurses and physicians were considered crucial for medical treatment, patients' progress and safety.

> "The physician is always in charge of medical treatment, but the responsible nurse, who cares for the patient, is the one who observes, documents and gives feedback, which is alpha and omega to the physician" (5, nurse).

Hence, the nurses' ability to understand and clearly present relevant, unequivocal and precise information and assessments to the physicians was considered important.

> "…. one must base the services on experienced and competent nurses, they are the ones who see and are close to the patients, and report to the physician when things are not going the usual way" (6, physician).

According to the physicians in the sample, the nurses' capability to be aware, critically reflect and discuss the medication with the physicians was considered important in order to administer and follow up their prescriptions.

> "They pick up things, they record minor changes. They are good at remembering things… like - has anyone remembered prescribing so and so…. no one, its forgotten. They are on the alert all the time … if we write things that are unclear, or maybe incorrect, in a prescription or so… they arrest us immediately" (7, physician).

Knowledge and experience were considered important prerequisites for being active and proactive contributors, and sometimes directors, in the medical care for the patient.

> "Because if you are new, you don't yet have that self-confidence, you do not dare to confront the doctor directly, as you may think you are wrong" (3, nurse).

In general, the participants experienced a constructive and collaborative relationship between nurses and physicians. Nevertheless, apparently due to many different physicians in charge and some of them unexperienced, communication was occasionally unclear and cooperation unpredictable.

> "I notice that they (the responsible physicians) are very different and how quickly they act when we observe changes in the patient's condition. I may think "this patient has an upcoming sepsis, it`s urgent, he needs hospital admission". There is a very big difference in how quickly they (the patients) are sent to the hospital" (5, nurse).

The participants reported that proximity to and local knowledge of the patients' residential environment and the municipal health services were beneficial to better understand the patients' preferences. Thus, cooperating with the home care services seemed to facilitate adequate care provision to the patient as well as a satisfactory transition and follow-up after discharge.

> "We know some of the nurses in home services, it's easy to make that phone call…. we understand each other's work and cooperate well, and we all want the best for the patient" (9, nurse).

However, while it is recommended to comply with patients' and relatives' preferences and wishes, it was not always possible to accommodate them.

The participants emphasised the importance of listening to the older patient and their stories and acting in their best interest. For example, they noted that patients were sometimes offered a prolonged stay in the MAU until the home care services could offer a satisfactory follow-up arrangement after discharge. Furthermore, in situations where relatives carried a heavy care burden at home, the patients could sometimes have a few more days at the MAU to give their relatives a much-needed break.

> "Dialogue is really important … listen to what the patients and the relatives think about discharge, do

they need to stay longer … maybe exhausted relatives needing a break (1, nurse).

4.4.3 | Being committed

The meaning of being committed was connected to the nurses' interest, engagement and dedication to nursing.

> A good nurse is interested in nursing … to keep dedication and stay in job they need to get the opportunity to supply their professional knowledge" (6, physician).

Terms as "enjoying work" and "being engaged" were frequently used by the participants and seemed to refer to patient encounters and relational settings, as one participant said:

> "You must enjoy working with people. In my fifteen years of experience as a nurse with all those individual patients encounters, it has never been boring… … being engaged is important" (4, nurse),

Enjoying and being engaged were also related to learning and being challenged, for example by the inherent unpredictability which characterises acute care units.

> "I learn something new nearly every day.… You must handle challenges. Suddenly there is a phone call from the casualty clinic, admitting a patient, you must always be prepared to deal with unpredictability, you never know what you will encounter" (9, nurse).

However, being dedicated to nursing in different settings of patient care and enjoy working with different tasks, not only acute care, was considered as important.

Interest, engagement and dedication to nursing was also considered as a potential to promote innovation, progress and improvement in the MAUs.

4.5 | The meaning of environmental and systemic factors for nursing competence

4.5.1 | Having professional leadership

Having an accessible and approachable leader of the unit, who facilitates a professional culture, was emphasised by all participants.

> "The caring culture must be built, and that is primarily the leader's responsibility" (3, nurse).

> "I have a leader who considers it important that a nurse engages with nursing development, that we get the opportunity to immerse ourselves, implement things, gain responsibility and experience a sense of belonging. That's why I work here" (5, nurse).

Some participants reported the importance of a leader who engaged in planning adequate and effective daily routines. Furthermore, the leader's ability to take control of and handle disagreements between staff was important. When more staff was needed to cover all shifts with qualified nurses, the leader's ability to argue with the granting authorities to gain adequate resources was valued by participants.

4.5.2 | Having a sufficiently qualified nursing staff

Several participants experienced that the lack of RNs beyond regular daytime was a major challenge. The problems were most prominent at night, where there often was only one RN on duty together with an enrolled nurse. Consequently, tasks which RN qualifications were needed to perform, that is medication administration and control, patient assessments and monitoring, advanced procedures and so forth, sometimes had to be handed over to enrolled nurses who were not sufficiently qualified. Access to support from colleagues, who can provide second opinions in patient assessment and follow-up, was considered as a crucial factor of quality, but was not always present at MAUs.

Several participants also experienced that high workloads could challenge the intention of providing holistic care to patients. A lack of qualified nursing staff could prevent the attention needed to provide holistic care for the older patients.

4.5.3 | Being in an open, cooperative and learning professional work environment

The meaning of being in a professional team could be seen on two levels. The first level represented the general professional atmosphere, in which attitudes and actions were founded on a collective understanding of the aims and scope of the services.

> "It has become a culture in which everyone, I think, feel that they are a crucial part of the joint work we do" (7, physician).

Furthermore, it was emphasised that a diversity of competencies should characterise the professional nursing team in the units.

> "Due to the diversity of patients' conditions it is beneficial to have a diversity of competences in the unit…" (4, nurse)

Second, being part of a professional team could be viewed on a situation specific level, that is the way of communicating and cooperating in acute and critical situations, where action and timing are crucial. Being in a supporting and respectful environment was

considered a prerequisite to maintain, develop and make use of competencies and capabilities in the staff.

> "In the beginning, the cooperation between nurses and the physician was a bit tense and inhibitory, …if the physician doesn't take us seriously, for example our assessment of the need for pain relief, it is a major problem for the treatment of the patient, …but due to the focus on communication and collaboration skills, this is much better now" (4, nurse).

Due to the different level of competencies among care personnel in the MAU, it was still emphasised by participants that tasks should be adapted to the nurses' professional competence and responsibility.

All participants highlighted the importance of being in a learning culture in which individual and collective professional improvements were promoted. Learning was considered important both to provide high-quality care to the patients and to maintain engagement and pleasure in work performance. A learning culture seemed to include two aspects. One was about the formal and planned teaching, training and supervision in the unit, which could be provided by internal or external resources. Learning provided by internal resources could be the regular, scheduled training to manage acute and critical situations and external learning could be facilitation of enrolment in postgraduate courses at a university. The other aspect of learning culture was the daily knowledge exchanged among the staff. Some nurses had experience and knowledge in specific field of nursing and had responsibility to share their knowledge to improve nursing competence and practice in the unit.

5 | DISCUSSION

The aim of this study was to explore critical aspects of nursing competence in the context of MAUs, as experienced by nurses and physicians.

5.1 | The individual nursing competence

The findings showed that older patients admitted to MAUs have a variety of conditions and diagnoses, often complicated by multimorbidity, cognitive and functional impairment. Thus, as O'Connell et al. (2014) suggest nurses' capabilities to apply competencies in unfamiliar and familiar situations and to effectively identify and adequately solve complex problems, might be crucial. Moreover, our findings suggest that nurse's capability to capture even marginal signs of change in the patient's condition might be decisive to apply early interventions and prevent critical situations. This capability might be described as a process of pattern recognition, in which the nurse compares the patient's signs and symptoms with patterns recognised from recalling memories of similar situations. The literature highlights the similarities between pattern recognition and intuition in clinical decisions processes. However, intuition occurs on an unconscious level and pattern recognition at conscious level (Banning, 2008; Manias, Robyn, & Trisha, 2004). Ability to recognise patterns increases in line with knowledge and experience in the specific area of nursing (Banning, 2008). However, relying solely on pattern recognition in decision-making could be inadequate and misleading due to limitations in the person's memory (Banning, 2008). Thus, the value of tools to assist in decision-making processes might reduce the risk of inadequate assessments (Nannan Panday, Minderhoud, Alam, & Nanayakkara, 2017). Nevertheless, competence to devote attention to the limitations of the tools that are used is necessary (Churpek, Yuen, Winslow, Hall, & Edelson, 2015; Downey, Tahir, Randell, Brown, & Jayne, 2017). The findings in our study showed that experienced nurses acknowledged and used scoring tools and measurements to validate an intuitive perception of the patients' deterioration. However, our findings also underpin that early warning scores never should replace clinical judgement in decision-making. These findings are also in line with previous studies (Nannan Panday et al., 2017; Odell, Victor, & Oliver, 2009).

Our findings indicate that systematic use of EWS and handover tools to improve communication was valuable especially in the novice nurse's practice and to perform accurate and clear communication with the attending physician (Anderson, Malone, Shanahan, & Manning, 2015; Downey2017). Moreover, to implement scoring tools to map for instance the patient's nutritional and functional state as shown in this study might be a contribution to provide nutrition and activity of daily living in geriatric care (Nielsen, Maribo, Westergren, & Melgaard, 2018).

Although physicians are formally responsible for medical treatment in the MAUs, our findings showed that the physicians' decision-making often leans on the bedside nurse's observations and assessment, to provide safe medical treatment. This underlines that the nurse's competence to communicate, cooperate and collaborate is decisive to accommodate quality requirements in the services (Kirsebom, Wadensten, & Hedström, 2013; Lopez, 2009; O'Connell et al., 2014; Tsai, Tsai, & Huang, 2016). Further, the diverse organisation of the medical service in the MAUs evidently impacted on physicians' continuity in patient follow-up and, thus, seemed to cause extended reliance on nurses' capabilities to make adequate assessments and decision-making. Studies exploring the transfer of care responsibility from physicians to nurses have found that nurses in advanced settings produce high-quality care, which positively impacts on patient experiences, outcomes, safety, hospital admission and mortality (Laurant et al., 2008; Maier et al., 2017; Martínez-González et al., 2014; McDonnell et al., 2015; Morilla-Herrera et al., 2016).

Our study underpins nurses' responsibility to focus on the health-promoting aspect of care for older patients, although their MAU stay exceeds a few days. This includes the patients' health condition, self-care ability and life situation in general. The nurses' competence to systematically map, plan and initiate interventions is essential. One example is to improve nutritional status, as malnutrition is prevalent in geriatric patients and it is associated with reduced activity of daily living (Nielsen et al., 2018). In a systematic review by Morilla-Herrera et al. (2016), they underline the advanced nurse's capabilities to take

an active role as consultants and collaborators in multidisciplinary teams, and to initiate and facilitate the development of individualised evidence-based care plans.

Our study showed that the nurses' commitment is an important aspect of nursing competence in MAUs. The finding is in accordance with Coventry, Maslin-Prothero, and Smith (2015), who concludes that committed nurses who participate in continuing professional development, promote high-quality care and safe patient outcomes. Furthermore, O'Connell et al. (2014) suggest that nursing in advanced care settings requires the capability to engage with relevant social values. Indeed, studies have shown that development of professional competence must evolve in a gradual process, in which the nurses must take an active role (Tabari-Khomeiran, Yekta, Kiger, & Ahmadi, 2006).

5.2 | Environmental and systemic factors

A respectful and supporting atmosphere and a collaborative culture in which both nurses and physicians emphasise and engage in improvement of nursing care, seemed to be crucial to accommodate quality requirements to the services in MAUs. This is in line with the findings reported by Odell et al. (2009). This suggestion gains support by Sandberg and Pinnington (2009), who also argue that professional competence, is defined by social–relational unity.

A professional culture promotes patient safety (Metsala, 2014; Riley et al., 2008) and might have a self-reinforcing effect. But clearly, findings in this study showed that an open, learning-promoting and professional care culture must be supported by a professional leadership which distributes and organise staff according to required qualifications and facilitates plans and space for competence development. Previous research shows that high RN staffing is associated with improved patient outcomes (Lankshear, Sheldon, & Maynard, 2005) and further, that collegial verification can improve and expedite the decision-making process (Thompson & Lulham, 2007). Thus, it is important that the leaders use their position to report and negotiate the need for a qualified workforce. This suggestion receives support from literature which shows that nurses' abilities to improve and participate in professional development depend on culture, leadership and workload (Coventry et al. 2015; Havig & Hollister, 2017; Poikkeus et al., 2014). However, due to the lack of access to qualified nurses in primary health care (Bing-Johnsen et al., 2016), the planning for a qualified nursing workforce in primary health care might become a political concern (Maier & Aiken, 2016; Maier et al., 2017; OECD/EU, 2016).

Based on the findings in this study, it seems to be an essential prerequisite for RNs working in MAUs to have knowledge and understanding about the care of older people. Furthermore, both based on the current findings and in order to comply with Norwegian government guidelines (The Norwegian Directorate of Health, 2016), it is recommended that the RNs in MAUs should hold formal competence in advanced nursing. However, stipulating an advanced nursing qualification as a prerequisite at the point of recruitment for RNs would probably not be realistic for the MAUs to achieve. Thus, as the findings of this study have shown, a learning culture, which facilitates the improvement of the individual nurse's capabilities and performances in MAUs, might be crucial to ensure safe nursing care for the older patient in the units. In that regard, a present professional leadership in MAUs which facilitates both formal and experience-based learning in the nursing workforce is essential.

Due to the variety of conditions and diagnoses that accompany acutely ill older patients admitted to MAUs, a variety of competencies represented in the RN workforce to enrich the overall clinical nursing competence in the unit in question seems to be beneficial. However, in order to inform policy, practice and education in relation to what competencies this might entail, further research is needed.

5.3 | Limitations

The sample size in this study was limited. However, to capture the variability in experiences, we endeavoured to recruit participants from MAUs which differed in terms of size, localisation and organisation. We also included both nurses and physicians to explore different aspects of the phenomenon of nursing competence. Our interpretation of the findings might be one out of many. Due to the nature of qualitative research, interpretation of the findings could have been different if conducted by other researchers, and the perspectives of the researchers involved must thus be considered. The participants were recruited by the leaders of the units, which could affect the composition of the sample due to the "gate keeping" bias (effect).

6 | CONCLUSIONS

To provide high-quality care in MAUs, nursing competence should include the capability to recognise and handle deteriorating older patients while at the same time maintaining a holistic perspective. Thus, critical aspects of nursing competence seem to include competencies to care for the patients' basic needs, but also capabilities to provide acute care and geriatric assessment at an advanced level. Hence, formal educated nursing staff holding advanced nursing competence should be required qualifications for working in MAUs. Furthermore, a professional and collaborative work culture, and a committed nursing staff supported by professional leadership would contribute to professional care, learning and development in MAUs. Further research should focus on the role of leadership to promote nursing competence in in-patient acute care in municipal healthcare services.

7 | RELEVANCE TO CLINICAL PRACTICE

This study contributes to a better understanding of the complexity of the nurses' practices in municipal in-patient acute care, and it illustrates how comprehensive the nurses' responsibility for older

patients' safety is, as well as the quality of care. The findings can act as a foundation for the development and improvement of educational programmes to increase MAUs' access to competent nurses. The findings can also be useful for development of nursing competence standards and give directions for quality improvement in MAUs.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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Paper 2

Nursing competence in municipal in-patient acute care in Norway: A cross-sectional study

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RESEARCH ARTICLE Open Access

Nursing competence in municipal in-patient acute care in Norway: a cross-sectional study

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Abstract

Background: The primary health care services are becoming increasingly complex, which presents challenges for the municipal nursing services. In Norway, municipal in-patient acute care (MipAC) has been introduced in all municipalities, and the competence at the services has been questioned. Few studies have examined the nursing services in the units. This study aims to get an overview of the nursing competence in those units across geographical regions, and different groups of organisation and localisation.

Methods: A cross-sectional study was conducted, and an ad hoc questionnaire was distributed to first-line leaders in all the MipAC units in Norway. Data were collected in the period between 6 March 2019 to 6 June 2019. Measures to get an overview of the nursing competence were ratio of registered nurses (RNs) in staff, count of shifts with only one RN on duty and count of RNs with master's degrees/specialisation. Descriptive comparative statistics were used.

Results: Of all 226 first-line leaders invited to participate, 207 (91.6%) responded to the questionnaire. Overall a considerable variance across the sample was revealed. The median ratio of RNs in staff was 56 (IQR = 40–70), the count of shifts with only one RN on duty median 28 (IQR = 5–49), and the count of RNs with a master's degree or specialisation median 3 (IQR = 0–5). The regions of Northern and Central Norway, MipACs located in nursing home and MipACs organised at long-term care units, showed significantly lower nursing competence in staff compared to the remaining institution and organisations.

Conclusion: This study generates knowledge that can inform planning, priorities and interventions that may be initiated at all organisational and political levels concerning the MipAC services. An overall conclusion is that advanced nursing competence is lacking. The study also highlights the most urgent direction for improvements regarding nursing competence in the services. It seemed to be MipACs in Northern and Central Norway, and those located at nursing homes organised together with long-term care units, that needed improvements the most.

Keywords: Acute care, Advanced practice nursing, Municipal health services, Older adults, Primary health care, Survey

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Background

The general policy imperative to ensure accessible, attainable and safe health and care services to the population challenges health authorities' planning, prioritisation and decision-making worldwide [1–3]. For positive patient outcomes and equitable access to high quality care to be achieved, a professional nursing workforce prepared to provide appropriate care is crucial [4–8]. According to the literature, patient-centeredness, clinical expertise, evidence-based practice, equity, expedient resource use [9] and ethical and respectful individualised holistic care characterise appropriate and quality care in nursing [10].

The estimates of an increasing aging population and accordingly increased incidence of diseases [2] motivate governments to search for solutions which use resources effectively and efficiently. One initiative in several European Union (EU) countries has been to implement health care reforms aimed at reducing the use of expensive hospital beds and strengthening primary health care services [1]. Hence, many services that previously were offered by the hospital have now been transferred to the municipalities. Consequently, the implementation of health care reforms has led to an increasingly complex and challenging arena for nursing care in the municipal health care services [4, 11]. The existing and estimated future shortage of registered nurses (RNs), in particular RNs with advanced nursing competence [6, 12, 13], represents some serious challenges.

In Norway, a key initiative in the 2012 Coordination Reform [14], was to establish Municipal in-patient Acute Care (MipAC) units in the primary health care services, in order to reduce the use of acute hospital services [15, 16]. Thus, from January 1, 2016, all Norwegian municipalities have been required by law to provide MipAC services to residents [17]. The typical patients admitted to these units were expected to be older patients with exacerbation of chronic diseases and infections [18]. By 2018, a total of 723 MipAC beds were registered in different units across the country. In total, 40,817 patients were admitted to MipACs in 2018; 69% were aged 67 or above, and 46% were the aged 80 and above. About 70% of the patients were admitted outside regular daytime hours [19, 20]. Although more efficient use of resources was put forward as an important goal, the national health authorities affirmed that the quality of the services should not be compromised. It was emphasised at the outset that the MipAC services should provide equal or even better healthcare to patients than hospital admission. Guidelines set down by the Directorate of Health [18] specified that patients who were treated in MipAC should not require advanced medical treatment. On the other side, it was stated that the services should provide both the competence and medical equipment required to handle patients with symptoms that may represent serious illness. This might, to some extent, represent some contradictions.

Apart from a requirement that RNs are present at all shifts, there are no minimum requirements for the nursing services in the MipACs [18].

Nursing competence is by nature an abstract phenomenon, and an agreed-upon definition might be difficult to attain [21]. However, the International Council of Nurses defines competence as: the "ongoing ability of a nurse to integrate and apply the knowledge, skills, judgment, and personal attributes required to practice safely and ethically in a designated role and setting" ([22], p.2). Nursing competence can be understood as an interaction between the individual nurse's attributes and behaviour, i.e. what the nurse is and what she or he does [8, 23]. However, according to Sandberg & Pinnington [8] "competence is primarily socially rather than individually constituted" (p.1146). Although professional competence is personal in the sense that it is the person who enacts the competence that also embodies it, competence creates, exists, and evolves in a social-personal unity [8]. Research emphasises that there is a positive association between nursing competence and education [5, 21]. Vatnøy et al. [11] explored critical aspects of nursing competence in the context of the MipAC, and they found that in addition to the individual nurse's attributes, nursing competence is also dependent on environmental and systemic factors in which a sufficiently qualified nursing staff is crucial [11]. The link between staffing level, i.e. the amount and composition of staff, and nursing competence has been clearly demonstrated in earlier studies [4, 5, 21, 24]. High nursing competence in staff has been shown to be associated with patient safety, quality of care, critical thinking, commitment, empowerment and positive practice environments.

In Europe, the understanding of the term professional nurse is a person who holds minimum a bachelor's degree in nursing [5] and who is commonly referred to as a registered nurse (RN). Advanced nursing competence is described as anchored in advanced clinical skills, leadership, education and research in which their practice is characterised by capabilities including a combination of knowledge, values, skills and self-esteem which enable the person to handle change [25, 26]. The International Council of Nurses' definition of advanced practicing nurse is "a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A master's degree is recommended for entry level" [27] Advanced nursing competence is found to improve effectiveness, patient safety and quality in care [4, 24].

Advanced nursing competence in the context of MipAC is not defined although competence within emergency, geriatric, and mental health/psychiatric nursing is suggested as crucial [11, 18]. In addition, is it stated that the role of advanced practice nursing in primary health care comprises medical competence at a level beyond bachelor's degree in nursing [4]. Further, studies clearly underpin the importance of a formally educated and qualified nursing workforce [5, 28–30] and warn against health care policies which undermine and neglect the need for a professional nursing workforce due to budget constraints and lack of RNs [5, 31].

Although admission rates have increased slightly over time, it is estimated that about 60% of the capacity in the Norwegian MipAC units remained unused in 2018 [15, 16, 19, 32]. A lack of confidence that the care providers in the units have sufficient competence has been put forward as a possible explanation for failing admission rates since the MipACs were introduced from 2012 onwards [16, 33]. According to estimates from Statistics Norway, the current shortage of nurses will continue to increase in the future [13]. A study has found that RNs constitute about one-third of the staff providing care for older people in Norwegian municipalities, while the remaining two-thirds consist of nurse assistants (NA) qualified through a degree from upper secondary school and assistants without formal health care training [12]. Therefore, a reasonable concern might be that the level of nursing competence among staff in the MipAC services is unsatisfactory, although we have limited knowledge of this [34, 35]. Although research shows a significant reduction in acute hospital admissions for older patients after the introduction of the MipAC beds [15, 16], the capacity appears to be underused. The degree of unused capacity appears to be related to localisation, organisation and geographical context [15, 16, 19]. Therefore, knowledge about how nursing competence in MipACs varies nationwide is important for strategic planning and making appropriate policy priorities and decisions.

Methods

Aim

The aim of this study was to get an overview of the nursing competence in Norwegian municipal in-patient acute care units across geographical regions, and different types of organisation and location.

Research design

A cross-sectional study was conducted, and a web-based questionnaire was used for data collection.

Setting

According to the legal requirements and recommendations provided by the Norwegian Directorate of Health [18], municipalities were free to organise MipAC services as appropriate to local contexts, such as population size, available resources and infrastructure. Consequently, the MipAC beds are organised in different ways and in different institutional locations [19, 36]. According to the Norwegian Directorate of Health [19], the MipAC units can be classified into four different categories of institutional locations; nursing homes, out-of-hours medical services (OMS), health-houses/local medical centre (HH/ LMC) and "Others". The Norwegian Directorate of Health [19] reported that by the end of 2018, 137 MipAC services were located at nursing homes, 17 MipAC services were located at OMS, 29 MipAC services were located at HH/ LMCs and 26 MipAC were located at "Others". In addition, the services in the different institutional locations might be organised together with long-term or short-term units. It is a statutory right in Norway to be assigned for an institutional long-term stay when needed, and the residents in long-term units at nursing homes are mainly frail older people in the age 80 or above [37]. Short-term stays might typically be in the transition between hospital and home and/or to assess the need for further care. OMS is a statutory primary health care service providing around the clock acute medical care to the citizens. Health-houses (HH) were established as a cooperation between two or more municipalities, with the rationale to bring together health services in a separate building to create more comprehensive and robust professional environments and to reduce operating costs. A local medical centre (LMC) is a service where one or more municipalities cooperate with the hospitals on the services. The category "Others" includes institutions which do not fall into the other categories, mainly short-term care units, e.g. intermediary units, and community hospital units [19, 20]. The four institutional categories (i.e. nursing homes, OMS, HH/ LMC, and "Others") were based on the Directorate of Health's classification of MipAC locations, as previously described [20]. Categories of geographical regions were extracted from Statistics Norway [38] according to the government's classification of four regional health authorities: Northern Norway (citizens: 480000, area: 112000 km^2), Central Norway (citizens: 700000, area: 56300 km^2), Western Norway (citizens: 1100000, areal: 43432 km^2) and South-Eastern Norway (citizens: 2900000, areal: 110000km^2).

Approximately 59% of the units which serve patients admitted to MipACs are nursing homes and hold 28% of the MipAC capacity in Norway. HH/LMC and OMS make up 43% of the MipAC capacity and the remaining 20% are within the category "Others" [19]. In order to save costs, about 70% of the municipalities have chosen to offer MipAC in intermunicipal cooperation [19]. Regarding contracted hours per week for physicians, their

presence or availability in the units has proven to vary widely [11, 15, 16].

Data collection

The questionnaire was based on a previous qualitative study which explored critical aspects of nursing competence to care for older patients in MipACs in Norway [11]. That study revealed the importance of professional nurses in the staff, holding advanced competence, particularly within specialisation in emergency, geriatric and psychiatric nursing in these units. Furthermore, the study revealed that sufficient professional nurses in staff on duty enabling collegial support, opportunities for second opinions in patient assessment and control, e.g. when administering medication, was perceived as crucial for care quality and patient safety [11]. The questionnaire contained five items to identify characteristics of the MipAC units included in the study and ten items to give an overview of nursing competence. Table 1 presents an overview of the questions and measures included in the questionnaire.

The web-based software program SurveyXact™ was used for data collection.

Sample

The sample included in this study was first line leaders in Norwegian MipAC units. First-line leaders, i.e. the operating leaders who were closest to the staff and who were responsible for the care provision in the 226 MipAC units, were invited to participate in the study. First line leaders were chosen as respondents as we assumed that they had the most accurate knowledge of the data we needed to investigate the research questions. If first-line leaders were absent for some reason, deputy leaders were asked to respond to the questionnaire. An e-mail list delivered by the Norwegian Directorate of Health provided information about the location of the MipACs. Contact information to first-line leaders were achieved through contacting the respective host municipalities. Potential respondents were contacted by telephone, provided with brief information about the study and asked to participate. Subsequently, we requested their e-mail addresses for distribution of the questionnaire. The questionnaires were distributed on 6 March 2019, and those who did not complete the questionnaire after the first e-mail were contacted by telephone to ensure receipt of the questionnaire. One e-mail reminder

Table 1 Items included in the questionnaire

Sample characteristics questions	**Measure/options**
Is the MipAC unit established as an intermunicipal cooperation?	Yes / No
How many of the total number of beds in your unit are defined as MipAC beds?	Count
What units are you leader of?[a]	a) Separate MipAC unit b) Short-term care unit c) Long- term care unit d) Both short-term and long-term units[b]
Are you the leader of more/other units? If so, which?	(open-ended)
How many hours per week is a physician contracted to be present in the MipAC?	Hours pr. week
Nursing competence questions	**Measure/options**
How many registered nurses (RNs) are responsible for the patients in the MipAC?	Count
How many nurse assistants (NAs) perform care for patients in the MipAC (i.e. assisting with meals, toilet visits, general care, observation and/or follow-up)	Count
How many assistants without formal health care training, perform care for patients in the MipAC (i.e. assisting with meals, toilet visits, general care, observation and/or follow-up)	Count
How many RNs have a master's degree or specialisation in a) Emergency care nursing b) Geriatric nursing c) Mental health/psychiatric nursing d) other	Count
How many of the RNs have a master's degree or specialisation in total = a + b + c + d.	Count
How many of the RNs have less than one year of clinical experience?	Count
Can you specify approximately how many a) day shifts b) evening shifts and c) night shifts were carried out with only one nurse on duty in the last four weeks? (despite presence of other staff with lower/no formal competence)	Count
How often does it happen that there is no nurse on duty in the MipAC?	Never/ Few times a year/ Monthly/ Weekly
When RNs call in sick or are absent, are their shifts in the MipAC covered by RNs?	Always/ Mostly/ Sometimes/ Seldom/Never
Is there a written standard for minimum competence requirements for the nursing service in your MipAC?	Yes/ No

[a] This question was included to get an overview of the type of organisations
[b] Included in the category long-term care unit

was subsequently sent out, and the survey was closed on 6 June 2019.

Statistical analyses

The numeric variables are presented as median (Md) and interquartile range (IQR, 25–75), due to skewness in data distribution. Categorical data are presented as counts and percentages.

As the data were not normally distributed, we used two independent non-parametric samples, i.e. the Mann-Whitney U test and Kruskal-walls test to assess possible differences between groups. The resulting *p*-values were Bonferroni-corrected to avoid type 1 error [39]. Effect size was calculated for pairwise comparisons of the groups, using the z-statistics from the Mann-Whitney U test, as described in Fritz, Morris & Richler [40]. A large effect is proposed to be $r \geq 0.5$, a medium effect $r = 0.3$–0.5, and a small effect $r \geq 0.1$ [40]. The level of significance was set at $p = 0.05$. All tests were two-sided. Analyses were performed with the use of SPSS IBM statistics version 25.

Ethical considerations

This study was carried out in accordance with the Declaration of Helsinki [41]. It was approved by the Norwegian Centre for Research Data on January 28, 2019 (ref. 815,471), and by the Faculty of Health and Sports Sciences at the University of Agder. Written information about the study, including the participants' legal rights regarding participation and confidentiality, was provided. Participants were assured that it was voluntary to participate in the study and that they were free to withdraw from the study at any time. Completing and returning the questionnaire was considered as consent for participation.

Results

Figure 1 gives an overview of the MipAC population the non-responded and incomplete questionnaires, and the included sample. The final response rate was 91.6%.

Characteristics of the MipACs

An overview of the institutional locations and geographical regions of the MipACs is presented in Table 2. In general, the analysis showed that the MipACs varied a lot regarding their institutional organisation. One third was hosted as intermunicipal cooperation. The MipACs were, generally, small, and almost half of the sample had less than two beds. About half of the MipACs were organised together with long-term care units. The median of the physicians contracted to be present in the units was 10 h per week. Nursing homes made up 68% of the MipAC location, and the majority of those were organised together with long-term care units.

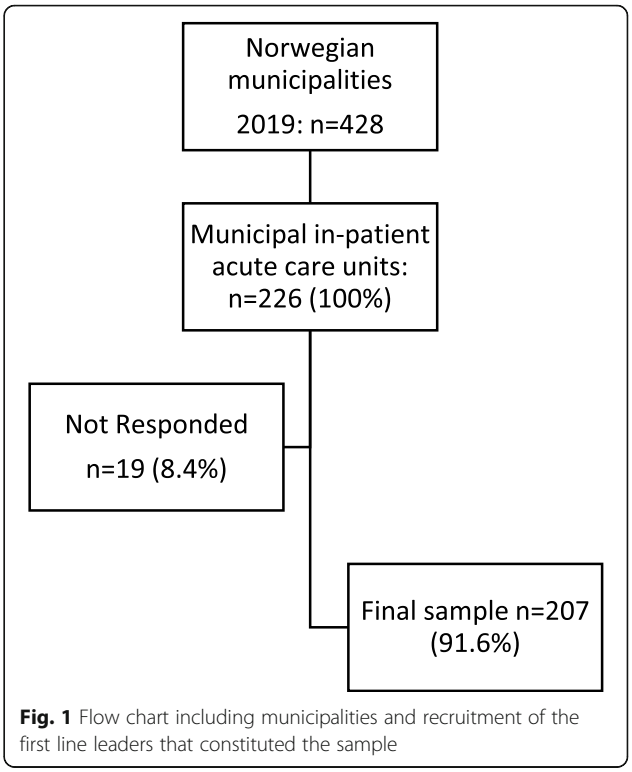

Fig. 1 Flow chart including municipalities and recruitment of the first line leaders that constituted the sample

Northern and Central Norway represented the regions with the fewest MipAC beds; with respectively 60 and 63% holding less than two MipAC beds. These regions had also the highest number of MipACs organised together with long-term care units, and the lowest median of the physicians contracted to be present in the units. Further, Northern Norway had the lowest number of MipACs with intermunicipal cooperation (18%).

Nursing competence in MipAC

An overview of nursing competence across institutional categories and geographical regions is presented in Table 3. In total, the proportion of RNs in staff ranged between 9 to 100% in the units. Nursing homes showed the lowest ratio of RNs to other staff and had also the highest number of staff without formal health care training. A similar pattern was also found in the regions of Northern and Central Norway.

The number of RNs holding a master's degree or a nursing specialisation, was in general low across institutional locations and geographical regions, and the median score was 0 within emergency, geriatric and mental health/psychiatric nursing specialisations.

The median for shifts with only one RN on duty the last 4 weeks was Md = 28 for the total sample, and highest for night shifts with Md = 20. Nursing homes and Northern Norway had the highest medians, with Md = 34 and Md = 43 respectively on all shifts in total, and Md = 28 and Md = 28 respectively on night shifts.

Table 2 Characteristic of the MipACs across institutional locations and geographical regions

	Institutional localisations				Geographical regions				
	Nursing homes (*n* = 141)	OMS (*n* = 16)	HH/LMC (*n* = 26)	Others (*n* = 24)	Northern Norway (*n* = 56)	Central Norway (*n* = 42)	Western Norway (*n* = 32)	South-Eastern Norway (*n* = 77)	All regions (*n* = 207)
MipACs characteristics	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*
MipAC whit intermunicipal cooperation (n = 207)	26 (18.4)	11 (64.7)	18 (69.2)	12 (50)	10 (17.9)	14 (33.3)	10 (31.3)	33 (42.9)	67 (32.4)
Two or more MipAC beds (n = 205)	55 (39)	15 (88.2)	25 (96.2)	18 (75)	22 (40)	15 (36.6)	18 (56.3)	58 (75.3)	113 (55.1)
Organisation (n = 205)									
Separate MipAC unit	2 (1.4)	5 (31.3)	5 (19.2)	4 (16.7)	1 (1.8)	3 (7.1)	3 (9.4)	9 (11.7)	16 (7.8)
Short-term care units	43 (30.9)	11 (68.8)	20 (76.9)	15 (62.5)	20 (33.9)	10 (23.8)	18 (56.3)	42 (54.5)	89 (43.4)
Long- term care units	94 (67.6)	0 (0)	1 (3.8)	5 (20.8)	35 (64.3)	28 (66.7)	11 (34.4)	25 (32.5)	101 (48.8)
	Md (IQR)	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*
Counts of MipAC beds	1 (1–2) (*n* = 139)	5.5 (4–15.2)	5 (3.7–9.2)	2 (1.2–4.7)	2 (1–2)	2 (1–2.5)	2 (1–4)	3 (1.8–5)	2 (1–4)
Physician contracted to be present, hours per week (n = 203)	7.0 (3–19) (*n* = 138)	33.7 (10–165)	37.5 (22.7–45.6)	21.0 (1–52) *n* = 23	6.5 (0.5–20.5)	7.2 (2.3–33.8)	18 (5–37.5)	16.4 (6–40)	10 (4–35.5)

Seven MipACs reported that they weekly had shifts with no RNs on duty, six of which were nursing homes. Of the total sample, 24% reported not having RNs on all shifts. Further, the majority of the respondents reported that vacant RN shifts (for example due to absence or sick leave) were always or mostly covered by RNs, while 18% reported that this was the case sometimes, seldom or never. Nursing homes most frequently reported that vacant RN shift sometimes, seldom or never were covered by RNs. Furthermore, 56% of the total sample reported that their unit did have minimum nursing competence standard requirements for the MipAC.

Differences in nursing competence between groups

The ratio of RNs to other staff in nursing homes was significantly lower compared to the remaining institutional locations. Regarding geographical regions, we found a significantly lower ratio of RNs in Northern and Central Norway compared to South-Eastern and Western Norway. When comparing the three categories of organisation, we found significant lower ratio of RNs to other staff in short-term care units (Md = 67) compared to separate MipACs units (Md = 91), although the difference was small. Long-term care units had the lowest ratio of RNs to other staff (Md = 44) compared to short-term and separate MipACs units. The differences were medium and large, respectively.

Nursing homes had significantly more shifts with only one RN on duty compared to the remaining institutional locations (Md values are presented in Table 3). Further, Table 3 shows that the MipACs organised together with long-term care units (Md = 43) had more shifts with only one RN on duty compared to short-term (Md = 12) and separate MipAC units (Md = 0). MipACs organised as intermunicipal cooperation showed significant higher ratio of RNs to other staff and lower number of shifts with only one RN on duty than those not organised as intermunicipal cooperation. This was also the case for MipACs who had two MipAC beds or more (Table 4).

Discussion

The aim of this study was to get an overview of the nursing competence in Norwegian municipal in-patient acute care units across geographical regions and different types of organisation and location. The overall professional nursing competence in the MipAC services depends on a sufficiently qualified nursing staff [11] prepared to address an increasingly complex and challenging arena for nursing care [4, 11]. Along with the individual nurse's attributes and behaviour [23], nursing competence is situationally and socially related [8]. Competence is associated with educational level [5, 21, 24] and can be characterised as high or low, sufficient or insufficient [8]. This study investigates the number and presence of RNs in staff throughout day, evening and night shifts as well as the amount of RNs holding a formal competence beyond bachelor's degree, i.e. a master's degree or a nursing specialisation.

The number of RNs at the MipACs holding master's degree or specialised competence was in general low. The lowest ratio of RNs to other staff and the highest frequency of shifts with only one RN on duty was found in MipACs located at nursing homes, organised together with a long-term care unit, and in MipACs in the Northern and Central regions of Norway. The results are in line with literature which reports a lack of RNs [13] and

Table 3 Professional nursing competence across institutional locations and geographical regions

	Institutional locations				Geographical regions				
	Nursing homes (*n* = 141)	OMS (*n* = 16)	HH/LMC (*n* = 26)	Other locations (*n* = 24)	Northern Norway (*n* = 56)	Central Norway (*n* = 42)	Western Norway (*n* = 32)	South-Eastern Norway (*n* = 77)	Total (*n* = 207)
Nursing competence in MipAC	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*	*Md (IQR)*
Registered nurses (RNs) (n = 203)	10 (8–14)	20 (15–35)	17.5 (12.7–22.3)	14 (11–19)	9 (7.3–11.8)	10.5 (7–15.7)	15 (5–50)	15 (10–20)	12 (8–17)
Nurses assistants (NA) (n = 200)	9 (5–12)	1.5 (0–6)	4.5 (1.8–7.3)	4 (0–6)	7 (4–12)	8 (4–11)	6 (2–8.5)	7 (3–10)	7 (3–10.8)
Staff without formal health care training (n = 200)	2 (0–5)	0 (0–0)	0 (0–1.3)	0 (0–2)	2 (0–5)	3 (0–6)	0 (0–11)	0 (0–3)	1 (0–4)
Proportion of RNs in staff (n = 203)	50 (35–63.6)	92.2 (76.3–100)	74.5 (58.5–91)	75 (56.2–100)	47.4 (34.4–66.6)	47.2 (33.7–60.8)	64.7 (55.3–85.7)	65.7 (49–86.2)	56 (40–78)
RNs with less than one years' experience (*n* = 200)	0 (0–1)	0 (1–2.75)	0 (0–1)	1 (0–1)	0 (0–1)	0 (0–0)	0 (0–1)	0 (0–1)	0 (0–1)
RNs with additional education (*n* = 203)									
Emergency nursing	0 (0–1)	1 (0–1.75)	0 (0–1)	0 (0–2)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)
Geriatric nursing	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)
Mental health/psychiatric nursing	0 (0–1)	1 (0–1.75)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)	0 (0–1)
Total additional educated RNs (n = 199)	3 (2–4)	3 (5–7)	3 (1–5.5)	4 (2–5)	3 (0–9)	4 (2–5)	4 (1–5)	3 (1–3)	3 (0–5)
Work shifts with one RN on duty over the last four weeks (n = 200)									
Daytime	5 (0–9)	0 (0–1.75)	0 (0–0.25)	0 (0–8)	8 (0–10)	4 (0–8)	0 (0–4.3)	0 (0–7)	3 (0–8)
Evening time	10 (2–20)	0 (0–1.75)	0 (0–3.3)	1 (0–10)	12 (2–20)	10 (2–17)	2 (0–5)	1 (0–10)	5 (0–15.8)
Nighttime	28 (5–28)	0 (0–5.5)	0 (0–28)	14 (0–28)	28 (15–28)	17.5 (0–28)	3.5 (0–28)	12 (0–28)	20 (0–28)
Work shifts in total with one RN on duty over the last four weeks	34 (15–54)	0.5 (0–10)	1.5 (0–28)	16 (0–36)	43 (25–58)	33 (2.7–52.8)	12.5 (0.8–30.3)	15 (0–42)	28 (5.3–49)
	n (%)	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*
Nursing competence standard requirements (n = 193)	68 (50.4)	13 (81.3)	16 (61.5)	11 (47.8)	18 (35.3)	20 (51.3)	20 (66.7)	50 (68.5)	108 (56)
Shift without RNs on duty (n = 200)									
- Never	95 (70.4)	14 (87.5)	25 (96.2)	18 (78.3)	39 (70.9)	25 (59.5)	26 (86.7)	62 (82.7)	152 (76)
- A few times a year	24 (17.8)	2 (12.5)	1 (3.8)	2 (8.7)	9 (16.4)	8 (20)	3 (10)	9 (12)	29 (14.5)
- Monthly	10 (7.4)	0 (0)	0 (0)	2 (8.7)	4 (7.3)	5 (12.5)	1 (3.3)	2 (2.7)	12 (6)
- Weekly	6 (4.4)	0 (0)	0 (0)	1 (4.3)	3 (5.5)	2 (4.8)	0 (0)	2 (2.7)	7 (3.5)
Vacant RNs shift (due to sick leave, etc.*) covered by RNs (n = 200).*									
- Always	65 (48.1)	12 (75)	9 (34.6)	11 (47.8)	28 (50.9)	17 (42.5)	14 (46.7)	38 (50.7)	97 (48.5)
- Mostly	42 (31.1)	3 (18.8)	15 (57.7)	8 (34.8)	20 (36.4)	14 (35)	11 (36.7)	23 (30.7)	68 (34)
- Sometimes	19 (14.1)	1 (6.3)	2 (7.7)	2 (8.7)	5 (8.9)	6 (15)	4 (13.3)	9 (12)	24 (12)
- Rarely	7 (5.2)	0 (0)	0	1 (4.3)	2 (3.6)	3 (7.5)	1 (3.3)	3 (4)	9 (4.5)
- Never	1 (0.7)	0	0	1 (4.3)	0	0	0	2 (2.7)	2 (1)

of RNs holding advanced nursing competence in primary health care services [4, 12].

The low ratio of RNs to other staff found in our study, combined with increased responsibilities and complexity in nursing practice in the MipACs, may affect the recruitment of RNs and consequently the quality of nursing service in the units. The many benefits of a high proportion of RNs working bedside in general is described in several studies [5, 42]. A high ratio of RNs to other staff have showed positive impact on patient safety and patient satisfaction, but also on nurses' job satisfaction and prevention of burnout as well as expensive and disruptive turnover of staff [5, 42]. Moreover, the results indicate that there is considerable time when there is only one RN on duty. It is particularly worrying that one RN on duty were most frequent outside ordinary daytime (e.g. evenings and nights), which is the time when 70% of the patients are reported to be admitted [20]. In accordance with previous research [11, 15, 16], we also found considerable variations in physicians contracted to be present in MipACs, which indicates that assessments and critical decisions often may depend on the RNs in the units. This underlines the great responsibility that lies with the RNs, and which might represent a burden for RNs working alone on duty. Along with the individual RNs' level of expertise, the overall nursing competence and quality of care depend on sufficient nursing staff in a professional and collaborating atmosphere,

Table 4 Differences in nursing competence between groups

	Ratio of RNs in staff		Shifts with one RN on duty		Nightshifts with one RN on duty		Dayshifts with one RN on duty	
Comparation between groups	r	Adj. *p* value	r	Adj. p value	r	Adj. p value	r	Adj. p value
Institutional locations								
Nursing homes- Others	0.31	**< 0.001**	0.22	**0.028**	0.19	0.102		na
Nursing homes- HH/LMCs	0.39	**< 0.001**	0.37	**< 0.001**	0.29	**0.001**		na
Nursing homes- OMS	0.43	**< 0.001**	0.33	**< 0.001**	0.31	**< 0.001**		na
Others- HH/LMCs	0.09	1.0	0.19	1.0	0.13	1.00		na
Others- OMS	0.26	1.0	0.22	1.0	0.24	1.00		na
HH/LMCs- OMS	0.17	1.0	0.03	1.0	0.11	1.00		na
Organisation categories								
Short-term care units -Separate MipAC units	0.27	**0.017**	0.21	0.094	0.14	0.5		na
Long-term care units -Short-term care unites	0.43	**< 0.001**	0.44	**< 0.001**	0.31	**< 0.001**		na
Long-term care units -Separate MipAC units	0.56	**< 0.001**	0.52	**< 0.001**	0.37	**< 0.001**		na
Geographical region								
Central Norway-Southern-Eastern Norway	0.26	**0.022**		na		na		na
Central Norway-Western Norway	0.34	**0.020**		na		na		na
Northern Norway -Southern-Eastern Norway	0.26	**0.017**		na		na		na
Northern Norway-Western Norway	0.31	**0.019**		na		na		na
Central Norway-Northern Norway	0.02	1.000		na		na		na
Southern-Eastern Norway-Western-Norway	0.06	1.000		na		na		na
	r	p-value	r	p-value	r	p-value	r	p-value
Not intermunicipal MipAC- Intermunicipal MipAC	**0.45**	**< 0.001**		na	0.32	**< 0.001**	0.20	**0.005**
Less than two MipAC beds or more	0.51	**< 0.001**	0.34	**< 0.001**		na	0.28	**< 0.001**

Not applicable = na, due to heterogeneity of variance as described in Field (2009). Comparing evening shifts between the group categories was not applicable. A large effect is proposed to be $r \geq 0.5$, a medium effect $r = 0.3–0.5$, and a small effect $r \geq 0.1$ (Fritz et al. 2012)

acknowledged and supported by a professional leadership [8, 11, 43] The benefits of having collegial support to handle the workload is described in several studies [5, 42, 44]. This includes, among other things, to assess and discuss patients and different situations in order to make accurate decisions and interventions, as well as access to qualified second opinions [5, 42, 44].

The lack of RNs holding master's degrees or specialised competence, as revealed in our study, may be viewed as worrying because nurses' responsibilities and complexity in primary health care services have increased [4]. Advanced nursing competence is recommended to safeguard patients in complex and advanced settings in [11, 26, 28]. Because older people in a condition characterised by disability, frailty and comorbidity [45] are the main patient group admitted to the MipACs [2, 11, 19], nurses holding competence and capabilities to observe, assess, make decisions and handle acute care situations, as well as general professional care, are required [11, 46]. Nurses holding advanced nursing competence is also shown to safeguard patients with complex health care needs in rural areas, as they are found to deliver high adherence to clinical guidelines and provide diagnostic accuracy [24]. One of the main goals with the MipACs was to provide equal or better healthcare services to patients where they live, compared to services provided in hospitals. A significant portion of the population in Norway lives in rural areas and many of the MipACs serve this population. Therefore, it is important that the expertise is present. Our study showed that being organised in an intermunicipal cooperation, or in a MipAC with two or more beds, are advantageous with regard to the ratio of RNs to other staff as well as having more than one RN on duty. Nonetheless, our study also showed that 68% of the MipACs in the sample were not organised in cooperation with other municipalities. A rationale behind this might be the costs for ambulance transport due to large distances, especially in the Northern and Central Norway. In addition, costs related to purchasing the care services from a host municipality are perceived to balance out some of the economic benefits of co-locating services [47]. Besides, many municipalities might have concluded that it would be in their patients' best interest to be treated as close as possible to own homes. This is in line with the study of Leonardsen et al. [48], who found that patients

experienced geographical proximity, a pleasurable atmosphere and time allocated for care as quality criteria in the MipACs. These aspects might highlight the necessity to upscale the professional nursing staff in order to assure care quality in the MipACs in small and rural units. According to our study, this is particularly critical in the Northern and Central regions of Norway. Although the lack of nursing competence revealed in our study does not necessarily provide evidence for compromised safety and quality in patient care in Norwegian MipACs, it might support the assumptions that low competence can partly explain the low use of MipAC beds in general [15, 16, 33]. Considering the low utilisation of the MipAC capacity, older people in an acute condition are still, to a large extent, referred to hospital emergency departments. MipAC services might be an advantageous alternative to hospital admission for the older adults, given that the services are sufficiently staffed with competent professionals providing individualised holistic quality care to the patients. Studies show that hospital emergency departments often fail to provide quality care for geriatric patients [49–51] because they are not well organised to meet older people's needs [49]. Older patients' conditions are likely to be regarded as less critical, they are often referred to wait for treatment [50], and adverse events in emergency departments are more frequent in this group of patients [51]. Previous research indicates that nurses working in geriatric acute care units show more favourable attitudes to older people, holding more gerontological knowledge compared to nurses working at general acute medical units [52]. Furthermore, RNs working in municipal health care services are found to focus more on the patients' life situation in a holistic perspective compared to those working in hospital emergency departments [53].

Our results indicate that MipACs organised together with short-term care units hold a higher level of nursing competence compared to those organised together with long-term care units. Thus, the organisational structure seemed to be important. Our results also showed that the incidence of night shifts with only one RN on duty indicates potential for improvements. One explanation to the high amount of nightshifts with only one RN, might be that requirements to professional nursing competence in the units have not been changed according to the increased complexity in the services. The culture, workload and leadership in the units are also found to be important for implementing internal changes and professional development [54]. It is, therefore, an important responsibility for the leaders of the MipACs to initiate, plan and facilitate for sufficient professional nursing staff in the units. However, to gain knowledge about how management and leadership impact professional nursing competence in MipACs, further research is needed.

Limitations

First, it is important to underline the inherent limitations of a cross-sectional study design. Its contribution is only to describe the situation of interest and studying causal interferences and changes over time is not possible. Cross-sectional data represents an overview of a phenomenon or situation at one particular point in time, and the identical procedure conducted at another time could give different results. Furthermore, although the response rate in our survey was high, some analyses were unavailable due to heterogeneity of variance in the data [39].

Second, a complete overview of all MipAC locations was difficult to achieve. Although an updated list including the host municipalities provided by the Directorate of Health was used during the recruitment of participants, we experienced that the list was not consistent with how the municipalities were composed. Although considerable effort was made to identify and include the whole population, there might be units which serve MipACs that have been missed.

Third, this study examined nursing competence, which in nature is an abstract, multifaceted phenomenon, and definitory consensus is lacking [21]. There might be several other ways to study nursing competence in the context of the MipAC, both in terms of definitions and approaches. This study examines only a selection of variables, which nevertheless are assumed to be important aspects of nursing competence in the MipAC units.

Conclusion

One consequence of the implementation of health reforms in Europe is an increasingly complex and challenging arena for nursing practice in primary health care. This study investigates, and gives an overview of, the professional nursing competence in the Norwegian MipACs in primary health care after the implementation of the Coordination Reform. The reform aimed to reduce use of expensive hospital beds and facilitate equitable access to safe and secure MipAC services close to the patient's home. This study reveals significant differences in professional nursing competence in the MipAC services in Norway. Thus, it generates knowledge that can inform planning, priorities and interventions that may be initiated at all organisational and political levels concerning the MipAC services. An overall conclusion is that advanced nursing competence is lacking. The study also highlights the most urgent direction for improvements regarding nursing competence in the services. It seemed to be MipACs in Northern and Central Norway, and those located at nursing homes organised together with long-term care units, that needed improvements the most.

Abbreviations
MipAC: Municipal in-patient acute care; RN: Registered nurse educated at the minimum level of bachelor's degree; NA: Nurse assistant; OMS: Out-of-hours medical services; HH/LMC: Health house/local medical centre; IQR: Interquartile Range; EU: European Union

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Authors' contributions
TKV, MSS, T-IK and BD participated in the design, planning and development of the study and the questionnaire. TKV conducted the analyses in collaboration with a statistician, and all analyses were thoroughly discussed with MSS, T-IK and BD. TKV were the main responsible for drafting the manuscript, although in close collaboration with MSS, T-IK and BD who thoroughly read and amended the drafts. The final manuscript was read and approved by MSS, T-IK and BD. The authors read and approved the final manuscript.

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Availability of data and materials
The dataset and analyses are not currently publicly available as further articles based on the dataset are planned. However, the materials could be available from the corresponding author upon reasonable requests.

Ethics approval and consent to participate
This study was carried out in accordance with the Declaration of Helsinki [37]. It was approved by the Norwegian Centre for Research Data on January 28, 2019 (ref. 815,471), and by the Faculty of Health and Sports Sciences at the University of Agder. Written information about the study, including the participants' legal rights regarding participation and confidentiality, was provided. Participants were assured that it was voluntary to participate in the study and that they were free to withdraw from the study at any time. Completing and returning the questionnaire was considered as consent for participation.

Consent for publication
Not applicable.

Competing interests
The authors declare that there are no competing interests.

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Publisher's Note

Paper 3

Associations between nurse managers' leadership style, team culture, and competence planning in Norwegian municipal in-patient acute care services: A cross-sectional study

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EMPIRICAL STUDIES

Associations between nurse managers' leadership styles, team culture and competence planning in Norwegian municipal in-patient acute care services: A cross-sectional study

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Abstract

Background: Increased complexity in the primary healthcare services has followed in the wake of health reforms and reveals the need for competence enhancement in the nursing services. Effective and visionary leadership, sufficiently qualified staff and cooperation among professionals are considered as key measures to safeguard quality in the services.

Aims: To identify which leadership styles characterise first-line nurse managers in Norwegian municipal in-patient acute care (MipAC) units and to investigate how first-line nurse managers' leadership styles are associated with team culture and documented nursing competence planning.

Methods: A cross-sectional survey was distributed to all the first-line nurse managers in Norwegian MipAC units ($n = 229$). Data were collected between March and June 2019. The response rate was 80.5% ($n = 182$). First-line managers' background information and data about their focus on team culture and competence planning were recorded. Furthermore, we noted organisational structural characteristics, and managers' transformational (relational) leadership and transactional (task-oriented) leadership styles.

Results: The managers exhibited a high degree of transformational leadership behaviour, which was significantly associated with team culture. No significant associations between leadership behaviours and documented competence planning were found. Notably, we found a significant correlation between transformational and transactional leadership styles, indicating that the managers adapt their leadership behaviours to actual requirements and situations. Organisational structural factors: the share of registered nurses (RNs) on the staff and having a position for a professional development nurse were positively associated with competence planning.

Conclusion: A relational leadership style promotes team culture and both factors may empower the professional nursing environment. However, first-line nurse

managers need to acknowledge nursing competence planning as a central part of effective leadership. Having a professional development nurse position seems to complement leadership and ease the manager's responsibilities regarding team culture and competence planning.

KEYWORDS

inter-professional teamwork, nursing, primary healthcare, relational leadership, task-oriented leadership, teambuilding

INTRODUCTION

In several European countries, health reforms are aimed at reducing hospital admissions and strengthening the primary healthcare service, for instance by establishing municipal in-patient acute care (MipAC) units as is the case in Norway. The purpose is to manage costs and offer high-quality health services. Consequently, increasingly complex situations are handled in primary healthcare, which requires a highly qualified nursing workforce [1–2] and cooperation, collaboration and coordination among healthcare professionals [3]. However, a lack of professional nursing competence in primary healthcare [4–5] challenges the quality of these services and reveals an urgent need to focus on nursing competence enhancement [1–6]. Likewise, the structural changes in the wake of health reforms reveal the need for visible and supportive nursing management and leadership [7–9] and mean that nursing leaders must be held accountable for a range of activities in the organisation [10]. In a qualitative study performed in Norwegian MipAC units [11], competence enhancement, staffing and team culture were identified as important leadership responsibilities. There is, however, a need for research focusing on the managers' role in enhancing healthcare delivery [9], and the impact of leadership styles on nursing is pointed out as a central area in which more knowledge is required [9]. Thus, this study examines the leadership styles of first-line nurse managers in the MipACs across Norway and explores whether leadership style is associated with team culture and documented nursing competence planning in the units.

BACKGROUND

In Norway, MipAC services have been established as an alternative to hospital admission [12] and should be considered as a service in-between traditional institution-based care in the municipality and specialised hospital treatment and care. The patients admitted to the MipAC services are, thus, primarily older people with complex and comprehensive care needs [11, 13, 14], although not yet in need of hospital treatment. Many MipAC patients still have acute conditions that can easily become critical [15]. Therefore, a high level of competence among the nursing staff and physicians is needed to be able to respond to rapid deteriorations in the patients' health condition.

Municipal in-patient acute care services were offered in nearly all Norwegian municipalities by January 2016 [16]. The municipalities have been free within the applicable legal requirements to organise the services in accordance with their needs and resources [17], and, therefore, the organisational context of the MipAC services differs. About 67% of the municipalities have organised MipAC services as intermunicipal cooperation [14], and the services are located at a variety of short-term and long-term care institutions (e.g. nursing homes, out-of-hours medical services and local medical centres) [6, 14].

The construct of leadership is multidimensional as it can impact outcomes in complex ways. Leadership can, thus, be explored through several theoretical approaches. Some approaches, like the traits- and skills approaches, focus on who leaders *are*, but the current study uses the behavioural approach which focuses on how leaders *act*.

Leaders' behaviours are strongly related to organisational and environmental factors, including professional practice environments, employees' performance, staffing, best practices guidelines, outcomes, and the well-being of employees [10, 18]. Leadership styles 'consist of the behaviour pattern of a person who attempts to influence others' [18, p. 96].

Leadership styles are commonly categorised into two core behaviour dimensions: *task-oriented behaviours* or *relational behaviours* [10, 18, 19]. Task-oriented leaders are concerned about production and focus on achieving goals and enabling employees to achieve their objectives. Studies have found that task-oriented leadership promotes structure, coordination, clarification of roles and monitoring of operations [10, 19]. Relation-oriented leaders are concerned with the individual members of the staff and focus on their well-being, and they promote meaningfulness in work and the self-confidence of the individual employees' and the groups to which they belong [18, 20]. Although the advantages of both types of leadership are

important and necessary in an emergency unit such as MipAC, relational leadership behaviour is found to promote competence development and a positive organisational and teamwork climate [10, 20].

The leadership capabilities of first-line nurse managers may prove crucial if high quality care is to be realised, especially establishing a direction and applying strategies. Despite being constrained by budget restrictions, resource scarcity and heavy administrative workloads [8, 21], first-line nurse managers are expected to ensure sufficient competence in their staff to achieve goals [21] and to promote the health and well-being of their employees [20]. Examples of their roles include competence enhancement and planning, staff retention, recruitment, career planning and the promotion of the professional growth of staff. They should also motivate and inspire their employees, initiate and evaluate the development of competence, and support and strengthen the team culture and interprofessional cooperation [10].

TEAM CULTURE AND COMPETENCE PLANNING

Professional teams in healthcare may take many forms and is conceptualised in many ways [22]. The main purpose is, however, to secure and provide safe, comprehensive and coordinated health services to the patients [3]. In the current study, we wanted to explore the first-line nurse managers' emphasis on facilitating a professional team culture in MipAC units. Team culture is described as a 'a sense of effective team functioning among clinicians and staff' [23 p 230]. Team culture can be identified by quality in social interactions and task-related interactions, and typically depends on communication, information, qualified participants, familiarity between the participants, shared objectives, respect and social support [23]. A positive and professional team culture is recognised as important as it improves the individual nurse's accomplishment, competence, communication and teamwork [24, 25]. A constructive team culture has, for example, a positive impact on person-centred care [26, 27] and team members' perceptions of empowerment [28]. It also helps to prevent adverse events [29], reduce staff turnover [30] and promote job satisfaction and quality in care [24]. Nurses' experiences of handling acute care challenges are found to be associated with a professional and positive team culture and interprofessional collaboration [31]. However, a lack of team orientation in terms of supporting each other to improve performance has also been reported among nurses in acute and other care settings [24]. This underlines the nurse managers' responsibility for improving team culture among nurses. Nevertheless, team culture, nursing competence and quality in care depend on the individual team member's professional expertise and experience [31–33].

Professionalism, communication, teamwork and education are found to be the most common aspects of nursing competence standards in primary healthcare [34]. In our study, focus was on competence planning in terms of documented minimum standard competence requirements, documented enhancement plan and a training plan for the nursing services. In the literature, nurse managers' proactive role in competence planning is emphasised [35], both in the development of competence requirements for the nursing services and in education to prepare nurses to handle complex situations and to work well in teams [33, 34]. Halcome et al. (2016) highlighted that evidence-based competence standards are important tools to define and communicate the nurses' role in the primary healthcare services [34]. Nonetheless, in a study conducted in the MipAC services [6], the authors found that the extent of developed standard requirements for the nursing services varied across different organisational contexts. Studies indicate that nurse managers do not often prioritise proactive planning [35].

The aims of this study were (1) to identify which leadership styles characterise the first-line nurse managers in Norwegian MipAC units, and (2) to investigate how first-line nurse managers' leadership styles are associated with team culture and nursing competence planning.

METHODS

Study design and sample recruitment

A cross-sectional, questionnaire-based design was used in this study. Information on the types of institutions in which the MipAC units were located was obtained from the Norwegian Directorate of Health (2019), and we got in contact with the MipACs first-line managers through the municipal service operators. The questionnaire was distributed to the email addresses of all registered first-line nurse managers, representing 226 Norwegian MipAC units. Survey-software (SurveyXact™) was used for the web distribution. Two reminders were sent out, and a total of 207 questionnaires were returned.

The data were collected during the period from March to June 2019.

Measures

The questionnaire consisted of four parts: background information on the first-line managers; their leadership

styles (the Multifactor Leadership Questionnaire (MLQ) form 5); their emphasis on team culture; and questions on competence planning and the organisational characteristics of the MipAC units.

The managers' background information pertained to their age; gender; professional affiliation (registered nurse (RN) or other); length of management education; master's degree/specialisation; size of managerial position; years of leadership experience; and the length of management training/education.

Organisational characteristics are associated with organisational outcomes [32, 36]. Since the organisational contexts and the extent of standard requirements of the nursing services varies considerably across MipAC units [6, 14], six organisational variables were included. These were: MipACs organised as intermunicipal services or not, number of RNs per bed; number of admissions; percentage of nurses; and physician contracted to be present (hours per week) and position for professional development nurse (yes/no). The variable concerning professional development nurse was added as these nurses typically act as supervisors and educators in clinical settings and are commonly regarded as leadership partners in relation to the achievement of organisational goals [37, 38]. We differentiated between managers of MipAC units located in short-term care units (intermediate units in nursing homes, out-of-hours medical services and local medical centres) and units located in long-term nursing homes. Thus, a question was added regarding short-term care or long-term care institution.

The Multifactor Leadership Questionnaire (MLQ) form 5

The managers' leadership styles were explored through the Multifactor Leadership Questionnaire (MLQ) form 5. The original instrument consists of 45 items that measure self-evaluated leadership styles and outcomes. The MLQ is a widely used, validated and adapted instrument used across various cultures, samples and settings [18, 39], including nursing [10, 40]. The research team translated the MLQ form 5 from the original language (English) into the target language (Norwegian) through a back-translation and monolingual test procedure [41].

In the current study, an adapted MLQ version consisting of 37 items was used to measure leadership styles and outcomes. All items were measured through a five-point Likert-scale.

The MLQ identifies three different leadership styles: transformational leadership (14 items), transactional leadership (seven items) and passive-avoidant leadership (seven items). The *transformational* leadership style displays the degree of relational leadership behaviour, which emphasises and encourages employees' potential, innovation, creativity and intellectual stimulation. The *transactional* leadership style displays the degree of task-oriented leadership behaviour, which is concerned with providing rewards for completed tasks and addressing potential problems. The *passive-avoidant* leadership style characterises leaders who initiate involvement when it might be too late. The items measuring the three respective leadership styles were summarised and adapted to three 0–100 scales where higher values indicate higher degrees of transformational and transactional leadership styles. Cronbach's alpha for coefficients for the transformational leadership scale was 0.8, transactional leadership was 0.7 and passive-avoidant leadership was 0.6 [42].

The questionnaire included two questions about team culture, focusing on the importance of facilitating (a) professional nursing teams and (b) an inter-professional team culture. A Likert scale ranging from 1 (totally disagree) to 5 (totally agree) was used. These two questions were summed [43], giving a scale from 2 to 10, and transformed into a composite score from 0 to 100 acting as a proxy for focus on team culture. Median (25–75 quartile) score was 75 (50–100) points with range 0–100 (higher values = larger focus).

Three questions on competence planning were included. These were related to the existence of a documented plan for (a) competence requirements, (b) competence enhancement and (c) training plan. The response options were 'yes', 'no' and 'in progress'. The 'yes' and 'in progress' values were coded together and given the value of 1, and 'no' was given the value of 0. The three variables were summed [43] resulting in a composite score with a range of zero (no plans) to three completed (or in progress) plans. The composite score is understood as a proxy for the individual manager's focus on competence planning. The range was 0–3 plans, with 30 (16.5%) having zero plans, and 31 (17.0%), 47 (25.8%) and 74 (40.7%) having 1, 2 and 3 plans respectively.

Statistical analyses

Categorical data are presented as frequencies (n) and percentages (%). Due to skewness and ordinal variables, numerical data are presented as median (Md) and interquartile range (IQR).

Normally distributed data are presented as mean and standard deviation (SD). Spearman's rho was calculated to explore the correlations between leadership styles and

TABLE 1 Overview of the respondents' and organisational characteristics, team culture and nursing competence planning ($n = 182$)

The first-line nurse managers' characteristics			
Female	*n* (%)	163	(90)
Age	Md (IQR)	47	(41–53)
Registered Nurses	*n* (%)	176	(97)
Master's degree/specialisation	*n* (%)	121	(67)
Bachelor's degree	*n* (%)	60	(33)
Leadership experience (years)	Md (IQR)	10	(5–15)
Leadership education (months)	Md (IQR)	12	(0.75–18.0)
Transformational leadership style	Md (IQR)	75	(69.6–80.4)
Transactional leadership style	Md (IQR)	63	(53.6–68.6)
Organisational characteristics			
Intermunicipal MipAC units	*n* (%)	62	(34)
Short-term care unit	*n* (%)	104	(57)
Number of employees	Md (IQR)	40	(30–54)
Number MipAC beds	Md (IQR)	2	(1–4)
Number of beds in total	Md (IQR)	19	(13–25)
Proportion (%) of RNs in staff	Md (IQR)	57	(40–77)
Professional development nurse position (yes)	*n* (%)	100	(55)
Physician contracted (hours per week)	Md (IQR)	10	(4–37.5)
Totally agree to facilitating a professional team culture			
Professional nursing team	*n* (%)	106	(58)
Inter-professional team culture	*n* (%)	122	(67)
Nursing competence plans			
Documented competence requirements	*n* (%)	97	(53)
Documented plan for competence enhancement	*n* (%)	105	(58)
Documented training plan	*n* (%)	145	(80)

TABLE 2 Overview of first-line nurse managers' scores on transactional and transformational leadership styles ($n = 182$)

Transformational leadership		*n* (%)		*n* (%)		*n* (%)	
	High	12	(6.6)	18	(9.9)	38	(20.9)
	Medium	23	(12.6)	13	(7.1)	20	(11.0)
	Low	37	(20.3)	14	(7.7)	7	(3.8)
		Low		Medium		High	
		Transactional leadership					

team culture and competence planning, and Pearson's correlation analysis were performed to calculate point-biserial correlation coefficients of dichotomous variables. Mann–Whitney *U*-tests were used to calculate differences between groups. Hierarchical regression analysis was used to test the strength of association between groups of variables representing (1) organisational factors (intermunicipal organisation, institution type, number of admissions, percentage of nurses, professional development nurse and hours per week physician contracted to be present) and (2) individual factors (age, length of management education, master's degree/specialisation educated and transformational and transactional leadership styles). The purpose of the analysis was to test whether organisational or individual factors added unique variance in the two dependent variables (i.e. team culture and competence planning). This allowed us to assess and compare the amount of variance explained by each group of variables after previously included blocks of variables are controlled for, rather than just the effects of each individual variable. Explained variance (r^2) and adjusted explained variance (adj r^2)

are presented. We also performed linear regression analyses to determine how much each independent variable accounted for the highest percentage of explained variance in the two dependents. To calculate unique explained variance for each variable squared part correlations are presented, together with unstandardised and standardised regression coefficients.

A p-value <0.05 was set as the limit for statistical significance. All analyses were performed using SPSS v. 25.

RESULTS

Of the 226 distributed questionnaires, 207 were returned (91.6%). Respondents who stated they were not first-line nurse managers ($n = 15$; 6.6%), and those who responded to less than 75% of the MLQ questions ($n = 10$; 4.4%), were excluded from the analyses. Thus, the final sample consisted of 182 participants (80.6%).

Registered nurses constituted 97% of the sample. Only one participant had an educational background lower than a bachelor's degree, and no one had a PhD. Their mean (SD) age was 47 [8] years, and 90% were females. Six managers (3.3%) did not know whether a standard for minimum competence requirements had been prepared in their unit; five managers (2.7%) did not know whether a written competence plan had been prepared; and three (1.6%) did not know whether a training plan was available. Nursing home institutions accounted for 118 (65%) of the MipAC units, of which 42 (36%) were organised into short-term care units. Further characteristics of the respondents and the MipAC units are presented in Table 1.

Leadership styles

As expected, both transformational and transactional leadership styles were present among the respondents. However, a transformational leadership style was more dominant [median (IQR) = 3.00 (2.70–3.21)] than the transactional leadership style [MD (IQR) = 2.50 (2.14–2.74)]. The passive-avoidant leadership style proved almost negligible [MD (IQR) = 0.43 (0.14–0.71)] and was thus excluded from further analysis. The results showed significant correlations between transformational leadership and transactional leadership styles ($r = 0.49$). As shown in Table 2, and as indicated by the correlation analyses (Table 3), the managers often combined these two leadership styles.

About 68% of the first-line nurse managers showed high to medium scores on transformational leadership style (37.4 and 30.7, respectively). About as many (approximately 20%) were in the low–low category as in the high–high category (Table 2).

We also found higher transformational leadership scores among the managers in short-term care units [MD (IQR) = 3.07 (2.87–3.21)] than in long-term care units [MD (IQR) = 2.93 (2.69–3.14)], $p = 0.007$.

Association between leadership styles, team culture and competence planning

As shown in Table 3, significant correlations were found between team culture and competence planning, and the transformational and transactional leadership styles. The correlation between competence planning and the two leaderships styles was about equally strong. Managers in general scored higher on the transformational leadership style than on the transactional leadership style. Short-term care units had significantly higher numbers of beds designated for MipACs ($r = 0.63$) and RNs per bed ($r = 0.49$). Having a professional development nurse was found to be significantly higher in short-term care units compared to long-term care units ($r = 0.25$). Significant correlations were also found between organisational characteristics of the MipACs and team culture, competence planning and leadership styles.

As shown in Table 4, there were significant associations between organisational factors and both team culture and competence planning, with adjusted explained variance = 15.4% and 21.7% respectively. When adding individual characteristics into the regression model on team culture, explained variance increased by 11%, which was highly significant ($p < 0.001$). The individual characteristics did not increase the explained variance on the competence planning variable significantly (i.e. 1%).

The complete regression model, with all included variables, is presented in Table 5.

The most important predictor for variance in team culture seems to be the transformational leadership style. Although having a professional development nurse on the staff appears to be important (2.87%), the transformational leadership style displayed a higher single explained variance (9.17%). We found no significant associations between competence planning and leadership styles. The ratio of nurses on the staff and having a position for a professional development nurse seem to be the major predictors of the degree of competence planning.

TABLE 3 Bivariate correlations between competence planning, team culture, and organizational and individual characteristics

	Planning	Team culture	Intermun. org.	STCU vs LTCU	Number admissions	Percentage of nurses	Professional development nurse	Physician	Age	Length of management education	Master's degree or specialization	TFLS	TSLS
Planning	1												
Team culture	0.386**	1											
Intermunicipal org.	−0.104	−0.233**	1										
STCU vs LTCU	−0.391**	−0.336**	0.341**	1									
Number admissions	0.367**	0.230**	−0.394**	−0.601**	1								
Percentage of nurses	0.373**	0.246**	−0.464**	−0.510**	0.543**	1							
Professional development nurse	0.391**	0.317**	−0.231**	−0.265**	0.247**	0.188*	1						
Physician contracted (hours per week)	0.386**	0.291**	−0.300**	−0.497**	0.682**	0.358**	0.392**	1					
Age	−0.130	−0.104	−0.001	0.112	−0.070	−0.042	−0.067	−0.097	1				
Length of management education	0.056	0.063	−0.048	−0.059	0.053	0.075	0.144	0.123	0.123	1			
Master's degree/ specialization	0.001	−0.009	0.030	0.003	0.017	−0.017	−0.035	0.076	0.134	0.376**	1		
TFLS	0.240**	0.416**	−0.058	−0.201**	0.071	0.130	0.143	0.157*	0.058	0.157*	0.085	1	
TSLS	0.256**	0.185*	0.141	−0.063	0.030	0.066	0.218**	0.048	0.009	0.057	0.002	0.490**	1

Abbreviations: LTCU, long-term care units; STCU, short-term care units; TFLS, transformational leadership style; [d]TSLS, transactional leadership style.

*$p < 0.05$. **$p < 0.001$.

TABLE 4 The impact of organisational and individual factors on team culture and competence planning. Hierarchical linear multiple regression analysis

	Team culture			Competence planning		
	Explained variance (r^2)	Adjusted explained variance (adj r^2)	*p*-value change	Explained variance (r^2)	Adjusted explained variance (adj r^2)	*p*-value change
Organisational factors[a]	0.187	0.154	<0.001	0.243	0.217	<0.001
Individual factors[b]	0.297	0.247	<0.001	0.253	0.204	0.861

[a]Intermunicipal organisation, institution type, number of admissions, percentage of nurses, professional development nurse and number of physician hours per week.

[b]Age; length of management education; master's degree/specialisation; and transformational and transactional leadership styles.

DISCUSSION

This study aimed to identify which leadership styles characterised the first-line nurse managers in the Norwegian MipAC units and to investigate how first-line nurse managers' leadership styles were associated with focus on team culture and documented nursing competence planning. The high degree of transformational leadership style found, representing a relational management focus, indicates that the majority of nurse managers emphasise good work conditions and encourage their employees to strive towards improving their performance. Our results also clearly demonstrated that relation-oriented managers emphasised team culture in the MipAC units, which is in line with previous research [10, 20]. This may in turn promote high quality care and synthesise the individual nurse's accomplishment [23, 26–30]. Hence, we argue that the organisation's ability to establish professional team culture may depend on its ability to recruit, retain and develop the skills of competent professional nurses. Concerning the general lack of RNs and particularly the lack of RNs who exhibit advanced nursing competence in MipAC units [4, 6], the managers' ability to facilitate nurses' growth, healthy work environments and staff satisfaction may be crucial regarding recruitment, retention [10] and preventing professional nurses from leaving the profession [44].

Our results revealed that the nurse managers in MipACs also exhibited a high degree of task-oriented leadership style. The high correlation found between the two leadership styles was expected, as managers possess all leaderships styles to some degree [39]. Overlap between task-oriented and relational leadership implies that managers adapt their leadership behaviours towards various managerial requirements and situations. Thus, appropriate leadership behaviours can either be supportive or directive, depending on the situation's demands, and employees' motivation and competence [18, 45]. The managers' variety of leadership behaviours, as revealed in our study, may, therefore, reflect their strategies for dealing with the varied levels of competence in the nursing staff. This is found to be the case in the primary healthcare services [4, 6], as the managers balance their behaviour to accommodate patient safety requirements in increasingly complex care situations.

Although task-oriented leadership is claimed to limit the trust and motivation building required to realise the staff's full potential [39], it plays an important role in establishing structure, coordination, clarifying roles and monitoring operation [19]. It is also claimed that a task-oriented leadership style implies a planning-focused management style. Notwithstanding, our results showed almost no difference between competence planning and leadership styles. However, the lack of statistically significant association between managers' task-oriented leadership style and competence planning discovered in this study, is supported by previous research which found that the task-oriented leadership style is concerned with maintaining the status quo [46]. The lack of associations between managers' leadership styles and competence planning concurs with previous studies which conclude that proactive strategic planning has a limited focus in nurse management [35].

The overall high score on leadership scales in MipAC first-line nurse managers indicates proactive leaders. However, one fifth of the managers scored in the lower third on both leadership styles. One explanation may be that the nurse managers' heavy administrative workload and resource scarcity overburden them; restrict their freedom of action; and divert their attention from being a clear and visible leader [8, 21].

Impact of organisational factors

An important revelation in our study is the significant association between organisational factors and the managers' emphasis on team culture and competence planning in the MipAC units. Moreover, we found that having a position for a professional development nurse was associated with both team culture and competence planning. Professional development nurses play an important role

TABLE 5 Linear multiple regression of all organisational and individual factors' impact on team culture and competence planning

		Team culture				Competence planning			
		Unstd coeff	Std coeff	*p*-value	Expl. Variance (%)	Unstd coeff	Std coeff	*p*-value	Expl. Variance (%)
Organisational factors	Intermunicipal org.	−6.603	−0.116	0.142	0.91	0.005	0.002	0.979	0.00
	Short-term vs long term institution	−9.030	−0.165	**0.038**	1.82	0.071	0.032	0.694	0.07
	Number admissions	0.006	0.079	0.337	0.39	0.001	0.031	0.716	0.06
	Percentage of nurses	−0.019	−0.017	0.836	0.02	0.016	0.335	**<0.001**	6.96
	Professional development nurse position.	10.457	0.192	**0.010**	2.87	0.537	0.241	**0.002**	4.52
	Physician contracted (hours per week)	−0.048	−0.064	0.471	0.22	0.002	0.059	0.513	0.19
Individual factors	Age	−0.295	−0.087	0.193	0.71	−0.002	−0.016	0.811	0.03
	Length of management education	0.028	0.013	0.857	0.01	0.002	0.018	0.807	0.03
	Master's degree/specialisation	0.180	0.003	0.964	0.00	0.106	0.045	0.526	0.18
	Transformational leadership style	1.122	0.369	**<0.001**	9.19	0.004	0.031	0.700	0.07
	Transactional leadership style	−0.096	−0.049	0.535	0.16	0.005	0.064	0.430	0.27

as contributors to competence enhancement and change processes related to nursing practices in the workplace [37, 38]. Hence, we argue that the association found between first-line managers' team culture focus and competence planning and having a professional development nurse position may reflect a partnership between the professional development nurse and nurse manager, and, thus, that the two complement each other. A first-line nurse manager with a heavy administrative workload [8] may have to depend on a close cooperation with others to realise competence enhancement visions. The results of the current study appear to confirm the importance of having a professional development nurse as a partner in clinical leadership, which is also found in previous studies [38]. However, to uncover how organisational structural features impact on competence enhancement in the MipACs, additional research is needed.

Strengths and limitations

A general limitation of cross-sectional survey design is that we cannot identify causality or reveal changes over time. Thus, the results may differ when measured at another point in time. To adapt the original MLQ questionnaire for a Norwegian primary healthcare setting, we examined its structural validity and slightly modified the instrument. However, since all components were measured by a minimum of three items, we considered the modified instrument appropriate to examine leadership styles in MipAC units' first-line nurse managers.

Strengths of the study pertain to the high response rate and the fact that all regions in Norway were represented in the sample.

CONCLUSION AND REFLECTIONS

The high proportion of nurse managers in the MipAC units exhibiting a relational leadership style indicates a potential to promote nursing competence enhancement in the services. Relational leadership behaviours are essential to promoting the value of a professional team culture in the organisation and the staff and to enhance healthcare delivery in increasingly complex and challenging nursing practices. However, different competence levels of the nursing staff in the MipAC units challenge the managers' capability to adapt their leadership styles to specific situations and ensure adequate care quality. Although no associations were found between specific leadership styles and competence planning, we argue that nursing competence enhancement is an important managerial responsibility. Thus, to promote change and enhancement in the

nursing services, managers need to recognise competence planning as a central part of an effective leadership.

The significance of organisational factors pertained to RN staffing and to having a professional development nurse to complement, support and share the manager's responsibility for facilitating nursing competence enhancement in the unit. However, more research is needed to understand professional development nurses' impact on and roles regarding quality improvement and competence enhancement in MipAC units.

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AUTHORS' CONTRIBUTIONS

All authors contributed to the design of the study, and analysis and interpretation of data TKV, BD, MSS and T-IK. All authors also drafted the work or revised it critically and approved the manuscript before submission. All agreed to be accountable for all aspects of the work and to ensure that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ETHICAL APPROVAL

This study was conducted in accordance with the Declaration of Helsinki (1964). It was approved by the Norwegian Centre for Research Data 28.01.2019 (ref. 815471) and by the Faculty of Health and Sport Science University of Agder. The participants were contacted individually to provide them with information about the study. Participants also received written information about the study that included a description of their legal rights regarding participation. They were informed that participation was voluntary and that responding to the questionnaire was considered as consent to participation.

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Appendix 1

Application to the municipalities for permission to collect data

TIL: Helse og sosialsjef

«X» kommune Dato:

SØKNAD OM TILLATELSE TIL INNSAMLING AV DATA I «X» KOMMUNE

Mitt navn er Torunn Vatnøy, og jeg er doktorgradsstipendiat ved Universitetet i Agder, Institutt for helse- og sykepleievitenskap. Prosjektet jeg arbeider med har fokus på Kommunale akutte døgnplasser (KAD) i Norge.

Hensikten med prosjektet er å få økt kunnskap om sykepleiekompetansen ved norske KAD, og hvilken sykepleiekompetanse som er viktig for å ivareta tjenestekvalitet ved disse. I den første delstudien i prosjektet ønsker jeg å få dybdekunnskap om tematikken, basert på informasjon fra et lite utvalg av sykepleiere og leger som har erfaringer med pasienter innlagt ved KAD.

I den forbindelse ber jeg om tillatelse til å intervjue to-tre sykepleiere i din kommune, fortrinnsvis med spesialutdanning i geriatri eller lignende Videre er det ønskelig å intervjue en lege, helst med spesialkompetanse innen allmennmedisin eller lignende. Informantene bør ha arbeidet på fulltid ved KAD enheten i minst et år. Jeg ber også om hjelp til å rekruttere sykepleiere og lege til studien. Tilsvarende datainnsamling vil bli gjort i 2-3 andre kommuner.

Det er ønskelig å gjennomføre intervjuene i løpet av april – mai 2017. Dersom kommunen sier ja til å delta i studien, vil aktuelle personer bli kontaktet for å avtale tid og sted for intervju. Jeg ber derfor om at navn, mailadresse og telefonnummer på disse formidles til undertegnede på mail. Alle opplysninger som innhentes behandles konfidensielt og uten mulighet for å identifisere personer eller steder. Før intervjuet starter innhentes skriftlig informert samtykke.

Mer om prosjektet kan leses i vedlagt informasjonsskriv til informantene.

Dersom det er behov for ytterligere informasjon kan det tas kontakt med undertegnede, eller mine veiledere på doktorgradsprosjektet. Disse er. professor Bjørg Dale, bjorg.dale@uia.no, telefon 37 23 37 52, og førsteamanuensis Tor-Ivar Karlsen, tor-ivar.karlsen@uia.no, telefon 37 23 37 14.

Håper på snarlig og positivt svar.

Vennlig hilsen

Med vennlig hilsen
Stipendiat Torunn Kitty Vatnøy
torunn.vatnoy@uia.no
Tlf. 37233775/48129644

Appendix 2

Interview guide Study 1

Intervjuguide for forskningsprosjektet «Sykepleiekompetanse ved kommunale akutte døgnplasser (KAD) i Norge»

Intervjuet vil være åpent, og informanten vil bli bedt om å utdype hva de mener kjennetegner sykepleiekompetansen ved KAD, og hvordan de mener den bør være. De vil bli bedt om å gi eksempler med egne erfaringer ved å fortelle fra en/flere situasjoner der de mener:

1. sykepleiekompetansen bidro til pasientsikkerhet og tjenestekvalitet
2. manglende sykepleiekompetanse medførte dårlig tjenestekvalitet og/eller en trussel mot pasientsikkerheten

Informantene vil bli bedt om å utdype svarene sine med spørsmål som «hva», «hvordan», «hvorfor» osv.

Appendix 3

Distribution letter for the survey study

Kjære leder av kommunal øyeblikkelig hjelp døgntilbud

Dette er et spørsmål til deg som er leder av avdeling der øyeblikkelig hjelp døgntilbudet er lokalisert, om å delta i en forskningsstudie. Øyeblikkelig hjelp døgntilbud har mange navn og betegnelser, men i det videre her bruker vi betegnelsen eller forkortelsen: KAD.

Denne undersøkelsen har vi sendt ut til alle ledere av KAD i Norge. Før du starter er det viktig at du **tar deg tid til å lese informasjonsskrivet** som du finner ved å klikke på denne lenken og laste ned filen: https://filesender.uninett.no/?s=download&token=3e5e15b4-5264-4ea5-8da1-5175bb64b11a

Vi håper du tar deg tid til å besvare spørreskjema. Det er svært viktig for undersøkelsen at du svarer så presist og ærlig som mulig og at du svarer på alle spørsmålene. Ditt svar vil være viktig bidrag til å få økt kunnskap om sykepleiekompetansen ved norske KAD. Denne kunnskapen tror vi vil være med å utvikle sykepleietjenesten i disse enhetene. Dersom du samtykker i å delta gjør du det ved å klikke på linken under og besvare spørreundersøkelsen.

Om spørreskjema

Du deltar i undersøkelsen ved svare på spørsmål ved hjelp av et digitalt spørreskjema som du klikker deg inn på via denne linken: <%MorpheusMailLink%>

Det er viktig at det er førstelinjeleder med personalansvar som svarer på spørreskjemaet, eller vikar for disse lederne, selv om det bare er for en kort stund.

Spørreskjema er delt inn i følgende tema:
- Bakgrunns spørsmål og organisering av enheten
- Sykepleietjenesten ved enheten
- Standarder og scoringssystem
- Leders oppfatning om sykepleiekompetansen ved KAD
- Spørsmål angående lederstil

Det vil ta ca. 25- 30 minutter å svare på spørreskjemaet.

Det er en fordel dersom du på forhånd har funnet frem følgende opplysninger om sykepleietjenesten i din enhet **de siste fire ukene**:

Antall dagvakter som ble gjennomført de siste fire ukene med en sykepleier på vakt (evt. sammen med hjelpepleier eller annen helsearbeider)

Antall aftenvakter som ble gjennomført de siste fire ukene med en sykepleier på vakt (evt. sammen med hjelpepleier eller annen helsearbeider)

Antall nattevakter som ble gjennomført de siste fire ukene med en sykepleier på vakt (evt. sammen med hjelpepleier eller annen helsearbeider)

På forhånd tusen takk for ditt bidrag!

Vennlig hilsen Torunn Kitty Vatnøy
Førstelektor/stipendiat
Universitetet i Agder (UiA)
Telefon: 37 23 37 75/48 12 96 44

Appendix 4

Information letter for the survey study

Spørsmål om å delta i forskningsprosjektet

Sykepleiekompetanse og ledelse i kommunale akutte døgnenheter

I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål
Kommunale akutte døgnenheter (KAD) skal yte trygg akutt helsehjelp til pasienter som trenger innleggelse for behandling. Kompetansen i sykepleietjenesten ved enhetene er viktig i den sammenheng. Hensikten med denne spørreundersøkelsen er å få økt kunnskap om hvilke sykepleiekompetanser KAD har og hvilken kompetanse ledere ved KAD mener det er behov for. Vi ønsker også økt kunnskap om ledelsens betydning for utvikling av sykepleiekompetanse i KAD.

Hvem er ansvarlig for forskningsprosjektet?
Universitet i Agder (UiA) og Senter for omsorgsforskning sør er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?
Dette er en spørreundersøkelse som sendes ut til ledere av samtlige KAD i Norge. Kontaktinformasjonen er innhentet fra Helsedirektoratet. Det er viktig at det er førstelinjeleder med personalansvar som svarer på spørreskjemaet, eventuelt vedkommende som er vikar for leder.

Hva innebærer det for deg å delta?
Hvis du velger å delta i prosjektet, innebærer det at du fyller ut et digitalt spørreskjema. Dine svar i spørreskjemaet blir registrert elektronisk.

Spørreskjemaet er delt inn i fem tema:
- bakgrunns spørsmål og organisering
- sykepleietjenesten ved enheten
- standarder og scoringssystem
- leders oppfatning om sykepleiekompetansen ved KAD
- lederstil

Det vil ta deg ca. 25-30 minutter å svare på spørreskjemaet.

Det er frivillig å delta Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle opplysninger om deg vil da bli anonymisert. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger
Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket. Det er bare doktorgradsstudent Torunn Kitty Vatnøy og veiledere (se kontaktinformasjon under) som vil ha tilgang på opplysningene. Datafilen vil avidentifiseres etter at undersøkelsen er lukket. Dette gjøres ved at direkte personidentifiserbare opplysninger vil fjernes og erstattes med en unik kode. Kodelisten med navn lagres bak låst dør adskilt fra den elektroniske datafilen. For å sikre at uvedkommende ikke får tilgang til datafilen vil den lagres kryptert på universitetets server.

Resultater som blir publisert handler om sykepleiekompetanse og ledelse ved KAD i Norge og det vil ikke være mulig å identifisere enkeltpersoner i rapporter og publikasjoner.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?
Prosjektet skal etter planen avsluttes januar 2021. Etter denne dato vil personidentifiserbare opplysninger (kodelisten) bli lagret i 5 år for å ivareta mulighet for å kontrollere etterprøvbarhet. Etterprøvbarhet er et kvalitetskrav i forskningsstudier.

Dine rettigheter
Så lenge du kan identifiseres i datamaterialet, har du rett til:
- innsyn i hvilke personopplysninger som er registrert om deg,
- å få rettet personopplysninger om deg,
- få slettet personopplysninger om deg,
- få utlevert en kopi av dine personopplysninger (dataportabilitet), og
- å sende klage til personvernombudet eller Datatilsynet om behandlingen av dine personopplysninger.

Hva gir oss rett til å behandle personopplysninger om deg?
Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitet i Agder har Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket. Undersøkelsen er i tillegg godkjent av den etiske komitéen ved Fakultet for helse og idrettsvitenskap ved UiA.

Hvor kan jeg finne ut mer?
Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med Universitetet i Agder ved doktorgradsstudent Torunn Vatnøy, torunn.vatnoy@uia.no, telefon 37 23 37 75, mobil 48 12 96 44, eller veiledere i doktorgradsprosjektet; professor Bjørg Dale, bjorg.dale@uia.no, telefon 37 23 37 52, førsteamanuensis Tor-Ivar Karlsen, tor-ivar.karlsen@uia.no, telefon 37 23 37 14 og førsteamanuensis Marianne Sundlisæter Skinner Norges teknisk-naturvitenskapelige universitet (NTNU) marianne.skinner@ntnu.no.

Vårt personvernombud: Ina Danielsen, ina.danielsen@uia.no, telefon: 452 54 401
Norsk senter for forskningsdata AS (personverntjenester@nsd.no) telefon: 55 58 21 17.

Dersom du samtykker i å delta gjør du det ved å gå inn på linken i e-mailen og besvare spørreskjemaet.
Besvart spørreskjema blir betraktet som samtykke.
Vi vil på forhånd takke deg for ditt bidrag.

Med vennlig hilsen

Doktorgradsstudent Torunn Kitty Vatnøy
Professor Bjørg Dale (UiA),
Førsteamanuensis Tor Ivar Karlsen (UiA)
Førsteamanuensis Marianne Sundlisæter Skinner (NTNU)

Appendix 5

Survey questionnaire

Sykepleiekompetanse i kommunale akutt døgnenheter (KAD)

I dette spørreskjemaet brukes betegnelsen KAD om de kommunale akutt døgnenhetene. I dette spørreskjema er vi interessert i sykepleietjenesten under din ledelse som ivaretar pasienter innlagt på KAD plass, selv om den pasientgruppen bare utgjør en liten del av de pasientene som den sykepleiertjenesten ivaretar. Du blar i skjemaet ved å trykke [Neste] under her.

1.Hvilken yrkesbakgrunn har du?

❑ Sykepleier
❑ Vernepleier
❑ Ergoterapeut
❑ Annet (Hvilken)

2. Alder

3.Kjønn

❑ Kvinne
❑ Mann

4.Høyeste utdanningsnivå

❑ Grunnskole
❑ Videregående skole
❑ Universitets-/høgskoleutdanning

4a. Angi nivå for din universitets/høgskole utdanning

❑ Bachelor/grunnutdanning
❑ Spesialistutdanning/videreutdanning
❑ Mastergrad
❑ Doktorgrad

4b. Hvilket fagområde er utdanningen innenfor?

_____
_____

De neste 11 spørsmålene handler om din stilling som leder av KAD og om organiseringen av enheten.

1. Er du ansatt som leder i KAD?

❑ Ja
❑ Nei

1a. Hvor stor stilling har du som leder (angi i prosent)?

_____

1b. Hvor mange års erfaring har du som leder?

_____

1a. Er du i ansatt i vikariat for leder?

(1) ❑ Ja
(2) ❑ Nei

1b. Hvor lenge er du vikar for leder? (angi i antall måneder)

_____

2. Hvor mye lederutdanning har du? (Ett semester regnes som 6 måneder. Dersom du ikke har lederutdanning, skriv 0)

Angi antall måneder

_____

3. Hvor mange ansatte er du leder for?

_____

4. Hvor mange årsverk er du leder for?

_____

5. Har KAD-enheten du er leder for tilbud innen:

❑ Både somatikk og psykisk helse/rus
❑ Bare psykisk helse/rus
❑ Bare somatikk

6. Hvilke enheter er du leder for?

❑ Bare KAD enhet
❑ KAD og korttidsenhet
❑ KAD, kortidsenhet og langtidsenhet
❑ KAD og langtidsenhet
❑ KAD og legevakt
❑ KAD og sykestue

6a. Er du leder for flere, evt. andre enn alternativene over, eller har du andre kommentarer?

_____
_____

6a. Hvor mange sengeplasser til sammen har enheten(e) du er leder for?

_____

6b. Hvor mange av disse er KAD plasser?

_____

7. Hvilken kommune ligger KAD-enheten i?

_____
_____

8. Er KAD-enheten organisert som et interkommunalt tilbud?

❑ Ja
❑ Nei

8a. Hvilke kommuner er med i det interkommunale samarbeidet?

_____
_____

9. Hvor mange timer pr uke er lege fast tilknyttet KAD?

_____

10. Er lege tilgjengelig når det er behov for det?

❑ Alltid
❑ Som oftest
❑ Av og til
❑ Sjelden
❑ Aldri
❑ Vet ikke

11. Har du noen tilleggskommentarer til spørsmålene over (om din stilling som leder av KAD eller om organiseringen av enheten)?

_____
_____

De neste 14 spørsmålene handler om sykepleietjenesten ved din KAD.

1. Hvor mange offentlig godkjente sykepleiere har pleieansvar for pasienter på KAD?

_____

2. Hvor mange sykepleiere tilknyttet KAD har mastergrad/videreutdanning/spesial utdanning innen:

Akuttsykepleie

_____
Geriatrisk sykepleie

_____
Psykisk helse/psykiatri

_____
Andre med master/spesialutdanning/videreutdanning

_____

3. Hvilken annen spesialkompetanse i sykepleie (med unntak av akutt-, geriatrisk-, psykisk helse/psykiatri utdanning), er tilknyttet KAD?

_____
_____

4. Hvor mange av sykepleierne har mindre enn ett års erfaring som sykepleier?

_____

5. Hvor mange hjelpepleiere/helsefagarbeidere har pleieoppgaver for pasienter på KAD (for eksempel: måltider, toalettbesøk, morgenstell, tilsyn og/eller oppfølging)?

_____

6. Hvor mange ufaglærte har pleieoppgaver for pasienter på KAD (For eksempel: måltider, toalettbesøk, morgenstell, tilsyn og/eller oppfølging)?

_____

7. Kan du anslå hvor mange dagvakter som ble gjennomført de siste 4 ukene med kun én sykepleier på vakt? (evt. sammen andre som ikke har autorisasjon som offentlig godkjent sykepleier)

_____

8. Kan du anslå hvor mange aftenvakter som ble gjennomført de siste 4 ukene med kun én sykepleier på vakt? (evt. sammen andre som ikke har autorisasjon som offentlig godkjent sykepleier)

_____

9. Kan du anslå hvor mange nattevakter som ble gjennomført de siste 4 ukene med kun én sykepleier på vakt? (evt. sammen andre som ikke har autorisasjon som offentlig godkjent sykepleier)

_____

10. Får sykepleierne i KAD hjelp fra autoriserte sykepleiere fra andre enheter dersom de opplever behov for det?

❑ Alltid
❑ Som oftest
❑ Av og til
❑ Sjelden
❑ Aldri
❑ Ikke aktuelt

10a. Har du kommentarer til spørsmål 9, vennligst fyll ut

_____
_____

11. Ved fravær (sykdom, permisjon, osv.); er sykepleiervakter tilknyttet KAD dekket opp av sykepleiere?

❑ Alltid
❑ Som oftest
❑ Av og til
❑ Sjelden
❑ Aldri

12. Hvor ofte hender det at det ikke er sykepleier på vakt i KAD-enheten?

❑ Ukentlig
❑ Månedlig
❑ Noen få ganger i året
❑ Aldri

13. Hvor ofte er det vanskelig å få dekket opp sykepleiervakter ved fravær?

❑ Alltid
❑ Som oftest
❑ Av og til
❑ Sjelden
❑ Aldri

14. Har du noen tilleggskommentarer til spørsmålene over (om sykepleietjenesten ved din KAD)?

_____
_____

De neste 12 spørsmålene handler om standarder og scoringssystemer.

1. Foreligger det en skriftlig standard for minimum kompetansekrav til sykepleietjenesten ved din KAD?

❑ Ja
❑ Delvis/påbegynt
❑ Nei, men det er plan om at det skal utarbeides
❑ Nei, og det er pr. nå ingen plan om å utarbeide det
❑ Vet ikke

2. Foreligger det en skriftlig opplæringsplan for ansatte i din KAD?

❑ Ja
❑ Delvis/påbegynt
❑ Nei, men det er plan om at det skal utarbeides
❑ Nei, og det er pr. nå ingen plan om å utarbeide det
❑ Vet ikke

3. Foreligger det en skriftlig plan for kompetanseheving for ansatte i din KAD?

❑ Ja
❑ Delvis/påbegynt
❑ Nei, men det er plan om at det skal utarbeides
❑ Nei, og det er pr. nå ingen plan om å utarbeide det
❑ Vet ikke

4. I hvilken grad brukes scoringssystem for ernærings-screening ved din KAD?

❑ Brukes på alle pasienter på KAD med risiko for under-/feilernæring
❑ Brukes ofte på pasienter på KAD med risiko for under-/feilernæring
❑ Brukes av og til på pasienter på KAD med risiko for under-/feilernæring
❑ Brukes ikke på pasienter på KAD
❑ Vet ikke

5. I hvilken grad brukes skår for fallrisiko ved din KAD?

❑ Brukes på alle pasienter på KAD med risiko for fall og/ eller over en viss alder
❑ Brukes på de fleste pasienter på KAD med risiko for fall og/ eller over en viss alder
❑ Brukes på noen få pasienter på KAD med risiko for fall og/ eller over en viss alder
❑ Brukes ikke på pasienter på KAD
❑ Vet ikke

6. I hvilken grad brukes vurderingsskjema for tidlig identifisering av tegn på alvorlig sykdom, early warning scores (EWS, MEWS/NEWS eller TILT) ved din KAD?

❑ Brukes på alle pasienter på KAD
❑ Brukes på de fleste pasienter på KAD
❑ Brukes av og til på pasienter på KAD
❑ Brukes ikke på pasienter på KAD
❑ Vet ikke

7. I hvilken grad brukes sepsis scoringsystem (SIRS eller SOFA-Q) ved din KAD?

❑ Brukes på alle pasienter på KAD som har en infeksjon eller hvor det mistenkes om infeksjon.
❑ Brukes ofte på pasienter på KAD som har en infeksjon eller hvor det mistenkes om infeksjon
❑ Brukes av og til på pasienter på KAD som har en infeksjon eller hvor det mistenkes infeksjon
❑ Brukes ikke på pasienter på KAD
❑ Vet ikke

8. Er det andre scoringssystem som brukes ved din KAD?

❑ Ja
❑ Nei

8a. Hvilke andre scoringssystemer brukes ved din KAD?

_____
_____

9. Foreligger det skriftlig plan for hvilke førstehjelpøvelser de ansatte skal gjennomføre?

❑ Ja
❑ Delvis/påbegynt
❑ Nei, men det er plan om at det skal utarbeides
❑ Nei, og det er pr. nå ingen plan om å utarbeide det
❑ Vet ikke

9a. Følges planene for førstehjelpøvelse opp?

❑ Alltid
❑ I stor grad
❑ I noen grad
❑ I liten grad
❑ Følges ikke opp
❑ Vet ikke

10. Foreligger det skriftlig plan for hvor ofte de ansatte skal gjennomføre førstehjelpøvelser?

❑ Ja
❑ Delvis/påbegynt
❑ Nei, men det er plan om at det skal utarbeides
❑ Nei, og det er pr. nå ingen plan om å utarbeide det
❑ Vet ikke

11. Hvor mange prosent stilling er det for fagutviklingsykepleiere i din enhet? Angi hvor mye i prosent (0 betyr ingen og 200 betyr to fulle stillinger)

_____

12. Har du noen tilleggskommentarer til spørsmålene over (om standarder og scoringssystemer)?

_____
_____

De neste 10 spørsmålene handler om din oppfatning om sykepleiekompetansen ved din KAD.

1. Hvordan vurderer du at sykepleiekompetansen er på dagvakter ved din KAD?

❑ Veldig god
❑ God
❑ Hverken god eller dårlig
❑ Dårlig
❑ Veldig dårlig
❑ Vet ikke

2. Hvordan vurderer du at sykepleiekompetansen er på aftenvakter ved din KAD ?
❑ Veldig god
❑ God
❑ Hverken god eller dårlig
❑ Dårlig
❑ Veldig dårlig
❑ Vet ikke

3. Hvordan vurderer du at sykepleiekompetansen er på nattevakter ved din KAD?
❑ Veldig god
❑ God
❑ Hverken god eller dårlig
❑ Dårlig
❑ Veldig dårlig
❑ Vet ikke

4. Hvordan vurderer du at sykepleiekompetansen er i helger og høytider ved din KAD?
❑ Veldig god
❑ God
❑ Hverken god eller dårlig
❑ Dårlig
❑ Veldig dårlig
❑ Vet ikke

5. Er det noe sykepleiekompetanse du mener dere mangler ved din KAD, i så fall hvilke?
_____
_____

Hvor enig eller uenig er du i de fire følgende utsagnene:

6. Det er lett å rekruttere sykepleiere med relevant kompetanse til KAD
❑ Helt enig
❑ Delvis enig
❑ Hverken enig eller uenig
❑ Delvis uenig
❑ Helt uenig

7. Det bør foreligge en nasjonal standard for minimum kompetansekrav til sykepleietjenesten i KAD
❑ Helt enig

❑ Delvis enig
❑ Hverken enig eller uenig
❑ Delvis uenig
❑ Helt uenig

8. Jeg tilrettelegger for å bygge gode sykepleiefaglige team
❑ Helt enig
❑ Delvis enig
❑ Hverken enig eller uenig
❑ Delvis uenig
❑ Helt uenig

9. Jeg tilrettelegger for en tverrprofesjonell teamkultur
❑ Helt enig
❑ Delvis enig
❑ Hverken enig eller uenig
❑ Delvis uenig
❑ Helt uenig

10. Har du noen tilleggskommentarer til spørsmålene over (om din oppfatning om sykepleiekompetansen ved din KAD)?

_____
_____

De siste 45 spørsmålene i spørreskjemaet skal vise din lederstil slik som du oppfatter den.

Prøv å svare på alle spørsmålene så ærlig du kan. Dersom et spørsmål er irrelevant, eller hvis du er usikker på hvordan du skal svare, kan du la dette spørsmålet stå ubesvart.

Ordet "andre" kan bety medarbeidere, klienter, underordnede, overordnede og/eller alle disse.

5. Jeg unngår å involvere meg når viktige saker kommer opp
❑ Ikke i det hele tatt
❑ En sjelden gang
❑ Av og til
❑ Ganske ofte
❑ Så og si alltid

27. Jeg retter min oppmerksomhet mot feil for at standarder skal imøtekommes
❑ Ikke i det hele tatt
❑ En sjelden gang
❑ Av og til
❑ Ganske ofte
❑ Så og si alltid

30. Jeg får andre til å vurdere problemer fra mange forskjellige synsvinkler
❑ Ikke i det hele tatt

❑ En sjelden gang
❑ Av og til
❑ Ganske ofte
❑ Så og si alltid

34. Jeg legger vekt på betydningen av å ha en felles forståelse av oppdraget
❑ Ikke i det hele tatt
❑ En sjelden gang
❑ Av og til
❑ Ganske ofte
❑ Så og si alltid

35. Jeg gir uttrykk for tilfredshet når andre innfrir forventninger
❑ Ikke i det hele tatt
❑ En sjelden gang
❑ Av og til
❑ Ganske ofte
❑ Så og si alltid

Tusen takk for at du tok deg tid til å svare på spørsmålene!

Appendix 6

Reminder letter for the survey study

Spørreundersøkelse KAD

Kjære leder av kommunal øyeblikkelig hjelp døgntilbud

For en tid tilbake har du fått e-post med spørsmål om å delta i en forskningsstudie om sykepleietjenesten ved kommunale akutt døgnplasser (KAD) i kommunene. Med denne e-posten meddeles det at spørreundersøkelsen bli stengt for besvarelser 25. mai kl. 1700. Frem til den dato er det mulig å svare på, - eller fullføre besvarelsen ved å **klikke inn på denne lenken <%MorpheusMailLink%>**

Så langt har 80 % svart på spørreundersøkelsen, det er veldig bra. Besvarelsene er viktig for å få kunnskap om sykepleietjenesten i KAD. Dersom du ønsker å delta ved å svar på spørsmålene er vi svært takknemlig for det. Dersom du ikke ønsker å delta, tidligere har meddelt at du ikke ønsker å delta, eller har svart på det du ønsker å svare på i spørreskjema, kan du se bort fra denne henvendelse.

Informasjon om studien finner du
her: https://filesender.uninett.no/?s=download&token=ba9eb1bc-6cad-40b9-965a-a8deacda927a

Jeg takker dere alle for hyggelig og imøtekommende telefonsamtaler uansett deltakelse eller ikke. Dersom du har spørsmål, er du naturligvis velkommen til å ta kontakt.

Vennlig hilsen Torunn Kitty Vatnøy

Førstelektor/stipendiat

Universitetet i Agder (UiA)

Telefon: 37 23 37 75/48 12 96 44

Appendix 7

Approval from Norwegian Center of Research Data, Study 1

Torunn Kitty Vatnøy
Institutt for helse- og sykepleievitenskap Universitetet i Agder
Postboks 422
4604 KRISTIANSAND S

Vår dato: 03.04.2017 Vår ref: 53126 / 3 / HIT Deres dato: Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 20.02.2017. Meldingen gjelder prosjektet:

53126	*Sykepleiekompetanse ved kommunale akutte døgnenheter (KAD)*
	Nursing competence in Norwegian Municipal Acute Wards *PhD prosjekt*
Behandlingsansvarlig	*Universitetet i Agder, ved institusjonens øverste leder*
Daglig ansvarlig	*Torunn Kitty Vatnøy*

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, http://www.nsd.uib.no/personvernombud/meld_prosjekt/meld_endringer.html. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, http://pvo.nsd.no/prosjekt.

Personvernombudet vil ved prosjektets avslutning, 31.12.2021, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Kjersti Haugstvedt

Hildur Thorarensen

Kontaktperson: Hildur Thorarensen tlf: 55 58 26 54

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Vedlegg: Prosjektvurdering

Personvernombudet for forskning

Prosjektvurdering - Kommentar

Prosjektnr: 53126

INFORMASJON OG SAMTYKKE
Utvalget informeres skriftlig og muntlig om prosjektet og samtykker til deltakelse. Informasjonsskrivet er godt utformet.

ANDRE GODKJENNINGER
Det oppgis at det søkes om godkjenning fra kommuner. Personvernombudet legger til grunn at disse innvilges før oppstart.

TAUSHETSPLIKT
Personvernombudet minner om de ansatte har taushetsplikt, og anbefaler at prosjektleder tar dette opp med informantene i forbindelse med intervjuet. Forsker og informant har et felles ansvar for at det ikke kommer taushetsbelagte opplysninger inn i datamaterialet. Forsker må stille spørsmål på en slik måte at taushetsplikten kan overholdes. Det må utvises varsomhet ved bruk av eksempler, og vær oppmerksom på at ikke bare navn, men også identifiserende bakgrunnsopplysninger må utelates, f.eks. alder, kjønn, tid, sted og eventuelle spesielle hendelser/saksopplysninger. Personvernombudet forutsetter at det ikke innhentes personopplysninger om pasienter, og at taushetsplikten ikke er til hinder for den behandling av opplysninger som finner sted.

INFORMASJONSSIKKERHET
Personvernombudet legger til grunn at forsker etterfølger Universitetet i Agder sine interne rutiner for datasikkerhet. Dersom personopplysninger skal lagres på mobile enheter, bør opplysningene krypteres tilstrekkelig.

PROSJEKTSLUTT OG ANONYMISERING
Forventet prosjektslutt er 31.12.2021. Ifølge prosjektmeldingen skal innsamlede opplysninger da anonymiseres. Anonymisering innebærer å bearbeide datamaterialet slik at ingen enkeltpersoner kan gjenkjennes. Det gjøres ved å:
- slette direkte personopplysninger (som navn/koblingsnøkkel)
- slette/omskrive indirekte personopplysninger (identifiserende sammenstilling av bakgrunnsopplysninger som f.eks. bosted/arbeidssted, alder og kjønn)
- slette digitale lydopptak

Appendix 8

Approval from Norwegian Center of Research Data, Studies 2 and 3

NSD NORSK SENTER FOR FORSKNINGSDATA

NSD sin vurdering

Prosjekttittel

Sykepleiekompetanse og ledelse i kommunale akutt døgnenheter

Referansenummer

815471

Registrert

11.12.2018 av Torunn Kitty Vatnøy - torunn.vatnoy@uia.no

Behandlingsansvarlig institusjon

Universitetet i Agder / Fakultet for helse- og idrettsvitenskap / Institutt for helse- og sykepleievitenskap

Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)

Torunn Kitty Vatnøy, torunn.vatnoy@uia.no, tlf: 37233775.48129644

Type prosjekt

Forskerprosjekt

Prosjektperiode

10.12.2018 - 31.12.2021

Status

28.01.2019 - Vurdert

Vurdering (1)

28.01.2019 - Vurdert

Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet med vedlegg den 28.01.2019, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

MELD ENDRINGER
Dersom behandlingen av personopplysninger endrer seg, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. På våre nettsider informerer vi om hvilke endringer som må meldes. Vent på svar før endringer gjennomføres.

TYPE OPPLYSNINGER OG VARIGHET
Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 31.12.2021.

LOVLIG GRUNNLAG
Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er

at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

PERSONVERNPRINSIPPER
NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om:

- lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen
- formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke behandles til nye, uforenlige formål
- dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet
- lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

DE REGISTRERTES RETTIGHETER
Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19), dataportabilitet (art. 20).

NSD vurderer at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

BRUK AV DATABEHANDLER FOR Å GJENNOMFØRE SPØRREUNDERSØKELSEN
Det fremgår at det skal gjennomføres en elektronisk spørreundersøkelse, men det er ikke oppgitt hvilken databehandler som skal benyttes. NSD legger til grunn at behandlingen oppfyller kravene til bruk av databehandler, jf. art 28 og 29, og anbefaler at dere følger UiAs retningslinjer for dette.

FØLG DIN INSTITUSJONS RETNINGSLINJER
NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og/eller rådføre dere med behandlingsansvarlig institusjon.

OPPFØLGING AV PROSJEKTET
NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

Kontaktperson hos NSD: Marianne Høgetveit Myhren
Tlf. Personverntjenester: 55 58 21 17 (tast 1)

Appendix 9

Information to participants Study 1

Forespørsel om deltakelse i forskningsprosjektet

«Sykepleiekompetanse ved kommunale akutte døgnplasser (KAD) i Norge»

Bakgrunn og hensikt
Mitt navn er Torunn Vatnøy, og jeg er stipendiat ved Universitet i Agder. Jeg arbeider med et forskningsstudie/doktorgradprosjekt som er knyttet opp mot Senter for omsorgsforskning, sør.
Dette er et spørsmål til deg om å delta i et intervju i forbindelse med forskningsstudiet. Hensikten med intervjuet er å få økt kunnskap om sykepleiekompetansen ved Kommunale Akutte døgnplasser (KAD), og hvilken sykepleiekompetanse som er viktig for å ivareta tjenestekvalitet ved disse.

Oppretting av KAD er ment å være et sentralt økonomisk, faglig og organisatorisk virkemiddel ved innføring av Samhandlingsreformen. Samhandlingsreformens mål for opprettelse av KAD er at personer får et tilsvarende eller like godt tilbud nærmere sitt bosted, slik at behovet for akutte innleggelser på sykehus reduseres. Alle kommuner har nå etablert tilbud om KAD, men tilbudet blir bare delvis benyttet, og evalueringer så langt tyder på at manglende tillit til kompetanse i KAD kan være en av årsakene. Det fremheves at det må være et kvalifisert og kompetent beredskapssystem tilknyttet KAD-enhetene, og i den sammenheng er sykepleierens kompetanse av stor betydning. Behovet for avansert klinisk sykepleiekompetanse i primærhelsetjenesten er blitt tydeligere etter innføring av i Samhandlingsreformen. Kompetanse i sykepleietjenesten og sykepleiernes rolle i KAD har hatt lite fokus så langt. Det er derfor behov for mer kunnskap om hva sykepleiekompetanse i KAD bør være. I den sammenheng ønsker jeg å intervjue sykepleiere og leger med ansvar for og erfaring med helsehjelp til pasienter innlagt ved KAD.

Hva innebærer studien?
Intervjuet vil ha en åpen form. Fokus vil være hva du mener kjennetegner sykepleiekompetansen ved KAD, og hvordan du mener den bør være. Du vil bli bedt om å gi eksempler på egne erfaringer. Der er derfor fint om du i forkant kan forberede deg på å fortelle fra en/flere situasjoner der du mener:

1. sykepleiekompetansen bidro til pasientsikkerhet og tjenestekvalitet
2. manglende sykepleiekompetanse medførte dårlig tjenestekvalitet og/eller en trussel mot pasientsikkerheten

Intervjuets varighet vil være fra 30 min. til ca. 1. time.

Mulige fordeler og ulemper
Med unntak av tidsbruken, antas det at deltakelse i studien ikke medfører risiko eller ulemper for deg. Det følger ingen spesielle fordeler med å delta, men din deltakelse er et viktig bidrag til å få mer kunnskap om sykepleiekompetanse ved KAD basert på dine erfaringer og fagbakgrunn.

Hva skjer med informasjonen om deg?
Det vil bli gjort lydopptak av hele intervjuet. Senere vil intervjuet bli skrevet ned i sin helhet, hvor alle personidentifiserbare opplysninger anonymiseres. De som har tilgang på datamaterialet er stipendiat

og veiledere. Lydfilene og utskriftene vil bli lagret på en passordbeskyttet datamaskin, og vil bli slettet når prosjektet avsluttes (planlagt 2021). I rapporter og andre publikasjoner vil det ikke være mulig å identifisere deg når resultatene av studien presenteres.

Frivillig deltakelse
Denne henvendelsen skjer gjennom vår kontaktperson i kommunen. Det er frivillig å delta i studien. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta. Dersom du ønsker å delta blir du bedt om å underskrive samtykkeerklæringen før intervjuet begynner. Om du sier ja til å delta nå, kan du senere trekke tilbake ditt samtykke. Dersom du har spørsmål til studien, kan du kontakte forsker/stipendiat Torunn Vatnøy, torunn.vatnoy@uia.no, telefon 37 23 37 75, mobil 48 12 96 44, eller veiledere i doktorgradsprosjektet; professor Bjørg Dale, bjorg.dale@uia.no, telefon 37 23 37 52 og førsteamanuensis Tor-Ivar Karlsen, tor-ivar.karlsen@uia.no, telefon 37 23 37 14.

Jeg håper på positivt svar.

Samtykke til deltakelse i studien

Jeg er villig til å delta i studien

(Signert av prosjektdeltaker, dato)

Jeg bekrefter å ha gitt informasjon om studien

(Signert, rolle i studien, dato)