Multiprofessional collaboration in Norwegian primary care:

Facilitators and experiences of persons with diabetes and their healthcare professionals

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Abstract

Background The prevalence of people living with multiple long-term conditions (LTCs) is increasing and challenges how healthcare services are organised. Most patients with LTCs in Norway are followed up in general practice. International research literature suggests that extending the workforce in general practice with nonphysician healthcare professionals (HCPs) can improve care quality and facilitate more person-centred care. In Norway, most general practitioners (GPs) work in solo with their list patients. Little knowledge exists regarding multiprofessional collaboration in Norwegian primary care and the clinical involvement of nonphysician HCPs in general practice. Moreover, research on patient preferences and experiences of multiprofessional care in general practice is scarce. The overall aim of this PhD project was to explore facilitators and the experiences of multiprofessional care among GPs, nurses, medical secretaries and patients with multiple LTCs in general practice. Results are discussed considering theory on teamwork and Self-Determination Theory and recent governmental initiatives to improve multiprofessional team-based approaches in Norwegian primary care.

Methods This PhD project is built upon three peer-reviewed published papers. The first paper is a mixed-method scoping review, applying a content analysis to describe facilitators and barriers to collaboration and team-based care among GPs and other HCPs in Norwegian primary care. Paper 2 explores the experiences of GPs, nurses and medical secretaries related to their role and care approaches in multiprofessional diabetes care, recruited from five purposely selected general practices. Paper three examines the care experiences and preferences of persons with diabetes and multimorbidity recruited from the same multiprofessional practices. In Papers 2 and 3, qualitative semi-structured interviews were conducted. Six GPs, three nurses, two medical secretaries and 10 patients with type 1 or type 2 diabetes and multimorbidity were interviewed individually during March–September 2017. Data were analysed using thematic analysis and theoretical perspectives from person-centred care.

Results

Paper I The scoping review revealed that little literature exists on the effects and experiences of multiprofessional collaboration and team-based practice in Norwegian primary care. Based on 19 included studies, the review summarises organisational, processual,

relational and contextual facilitators and barriers to multiprofessional collaboration. In general, a lack of leadership, time and structures for HCPs to share patient information and spend time together to learn about, with and from each other were important elements impacting multiprofessional collaboration.

Paper II found that GPs' personal experience of time pressure and perception of their diabetes care as unsystematic and of inadequate quality motivated the involvement of trained nurses and medical secretaries in diabetes care. GPs felt diabetes controls were easy to standardise and had become more regular, accessible and comprehensive following the delegation of tasks to nurses or medical secretaries. They related this to how they themselves often forgot to follow up on diabetes when other more pressing symptoms were prominent. Nurses and medical secretaries emphasised that they used various communication techniques to individualise care and provide emotional support. None of the professional groups explained that they used care planning as a tool to uniform diabetes care or to engage patients in setting health goals.

Paper III indicated that patients with diabetes and multimorbidity experienced nurses and medical secretaries as attentive to their psychosocial needs and easy to approach with their questions and worries. In this sense, nurses and medical secretaries complemented GP-led diabetes care, which patients often found stressful. While persons with type 1 diabetes explained that they felt competent and highly involved in decisions related to glucose targets, some persons with type 2 diabetes explained that they lacked the knowledge necessary to successfully self-manage their diabetes and ask relevant questions.

Conclusions and implications There is a shortfall in published research investigating multiprofessional collaboration between GPs and other HCPs in Norwegian primary care.

Introducing new HCP groups in patient follow-up can possibly improve the quality of and add new dimensions to patient care in general practice if HCPs receive relevant training and are enabled to respond to patients' requests for longer consultation times. When GPs no longer practice in solo with patients on their list, time must be prioritised for the general practice team to coordinate their actions and manage their relations.

This PhD project may provide policy makers with relevant information about multiprofessional collaboration in primary care. Our study suggests considerable work remains related to care organisation, establishment of roles, responsibilities, team activities and removing the financial barriers hindering nurses and other nonphysician HCPs from practicing to the extent of their expertise in Norwegian general practice.

Sammendrag

Bakgrunn Flere personer lever med langtidssykdom og dette utfordrer dagens organisering av helsetjenesten. De fleste personer med en eller flere langtidssykdommer blir fulgt opp i allmennpraksis. Internasjonal forskning antyder at en tverrprofesjonell og team-basert tilnærming i allmennpraksis kan bedre kvaliteten og føre til en mer personsentrert tjeneste. Dette er i tråd med nasjonale politiske ambisjoner. De fleste fastleger i Norge har eneansvar for pasientene på sin liste. Vi har liten kunnskap om tverrprofesjonell samhandling i allmennlegetjenesten og hvordan helsepersonell med annen fagbakgrunn enn medisin blir involvert i pasientbehandlingen. Forskning på pasienters erfaringer med, og preferanser for, tverrprofesjonell oppfølging i allmennlegetjenesten er også mangelfull. Det overordnede målet med dette doktorgradsprosjektet var å studere hva som fremmer tverrprofesjonell samhandling i primærhelsetjenesten, samt utforske hvordan fastleger, sykepleiere, medisinske sekretærer og pasienter opplever tverrprofesjonell diabetesoppfølging i allmennpraksis. Resultatene er diskutert på bakgrunn av nylige offentlige initiativ for å bedre tverrprofesjonell samhandling i norsk primærhelsetjeneste, samt teori om teamarbeid og personsentrerte helsetjenester.

Metode Doktorgradsprosjektet er bygget på tre fagfellevurderte, publiserte artikler. Den første artikkelen er en kombinert metode (mixed-method) sonderende oversiktsartikkel (scoping review) hvor det ble benyttet innholdsanalyse (content analysis) og deskriptiv metode for å identifisere og beskrive hva som fremmer og hemmer samhandling og team-basert oppfølging mellom fastleger og annet helsepersonell i norsk primærhelsetjeneste. Artikkel to utforsker erfaringene til fastleger, sykepleiere og medisinske sekretærer relatert til deres rolle og fremferd i tverrprofesjonell oppfølging av personer med diabetes. Deltakerne ble rekruttert fra fem hensiktsmessig valgte allmennpraksiser. Den siste artikkelen studerer personer med diabetes og multimorbiditet og deres erfaringer med og preferanser for tverrprofesjonell diabetesoppfølging i allmennpraksis. Pasientdeltakerne ble rekruttert fra de samme fem allmennpraksisene. I artikkel to og tre ble det gjennomført kvalitative semi-strukturerte intervjuer. Seks fastleger, tre sykepleiere, to medisinske sekretærer og elleve personer med diabetes ble individuelt intervjuet i perioden mars til september 2017. Datamaterialet ble analysert ved bruk av tematisk analyse.

Resultater

Artikkel 1 Resultatet fra den sonderende oversiktsartikkelen (scoping reviewen) viste at det finnes lite publisert forskning om effekter og erfaringer med tverrprofesjonell samhandling og team-basert praksis fra norsk primærhelsetjeneste. Basert på 19 inkluderte studier, oppsummerer artikkelen organisatoriske, prosessuelle, relasjonelle og kontekstuelle fremmere for tverrprofesjonell samhandling. Kortfattet fant vi at lederskap, tid og etablerte strukturer for helsepersonell til å dele informasjon og tilbringe tid i sammen for å lære om, med og fra hverandre er viktige elementer som påvirker tverrprofesjonell samhandling.

Artikkel 2 Fastlegene vi intervjuet opplevde tidsnød og følte dette førte til en lite systematisk og utilstrekkelig oppfølging av personer med diabetes. Dette motiverte dem til å involvere sykepleiere og medisinske sekretærer i diabetesoppfølgingen. Oppfølging av diabetes ble av fastlegene beskrevet å være standardisert. Etter at sykepleiere og medisinske sekretærer fikk delegert ansvar for å gjennomføre diabeteskontroller, erfarte alle helsepersonellgruppene at deres tilbud til personer med diabetes var mer strukturert, tilgjengelig og helhetlig enn da fastlegen hadde dette ansvaret alene. Fastlegene relaterte dette til at de selv ofte glemte å følge opp diabetes dersom pasienten hadde andre, mer presserende symptomer. Sykepleiere og medisinske sekretærer la under intervjuene vekt på at de brukte ulike kommunikasjonsteknikker for å individualisere behandlingen og gi emosjonell støtte. Ingen av deltakerne nevnte at de brukte behandlingsplanlegging som verktøy for å samkjøre behandlingen eller engasjere pasientene i å sette mål for egen helse selv om dette er anbefalt i nasjonale retningslinjer for diabetes.

Artikkel 3 Pasienter med diabetes og multimorbiditet opplevde at sykepleiere og medisinske sekretærer var oppmerksomme på deres psykososiale behov og lett tilnærmelige for spørsmål og bekymringer. På denne måten følte de at sykepleiere og medisinske sekretærer komplementerte fastlegekonsultasjonene – som pasientene ofte opplevde som stressende. Mens personer med diabetes type 1 forklarte de følte seg kompetente og delaktige i avgjørelser relatert til behandlingsmål for glukose, savnet enkelte personer med diabetes type 2 kunnskapen de trengte for å kunne stille relevante spørsmål og mestre egen sykdom.

Konklusjoner og implikasjoner Introdusering av nye grupper helsepersonell kan bidra til å øke kvaliteten og tilføre nye dimensjoner i pasientoppfølgingen i allmennlegetjenesten, gitt at de får nødvendig opplæring og mulighet til å imøtekomme pasientenes ønske om lengre konsultasjonstid. Når fastleger ikke lenger arbeider alene med pasientene på sin liste, må tid prioriteres slik at det tverrprofesjonelle teamet kan koordinere sitt arbeid og ivareta relasjoner. Dette doktorgradsprosjektet kan gi nyttig informasjon til beslutningstakere om hvordan tverrprofesjonell samhandling i primærhelsetjenesten kan forbedres. Våre resultater indikerer at viktige elementer i dette arbeidet er tydeliggjøring av roller og ansvar, mer tid til team-forsterkende aktiviteter og endring i finansieringsmodeller som hindrer sykepleiere og annet helsepersonell enn leger å praktisere i henhold til deres ekspertise i norsk allmennpraksis.

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List of papers

Paper I Sørensen M, Stenberg U, Garnweidner-Holme L. A scoping review of facilitators of multi-professional collaboration in primary care. International Journal of Integrated Care. 2018;18(3):13. DOI: **http://doi.org/10.5334/ijic.3959**

Paper II Sørensen M, Groven K, Gjelsvik B, Almendingen K, Garnweidner L. The roles of HCPs in diabetes care: a qualitative study in Norwegian general practice. Scandinavian Journal of Primary Health Care. 2020;38:1-12.
DOI: **https://doi.org/10.1080/02813432.2020.1714145**

Paper III Sørensen M, Groven K, Gjelsvik B, Almendingen K, Garnweidner L. Experiences of self-management support in patients with diabetes and multimorbidity: a qualitative study in Norwegian general practice. Primary Health Care Research & Development. 2020;21. DOI: **https://doi.org/10.1017/S1463423620000432**

List of abbreviations

EHR: Electronic health record
GP: General practitioner
HbA1c: Hemoglobin A1c
HCP: Healthcare professional

ICT: Information and communication technology
IPE: Interprofessional education
LTC: Long-term condition
OECD: Organisation for Economic Cooperation and Development
PCC: Person-centred care
SDT: Self-determination theory
T1D: Type 1 diabetes
T2D: Type 2 diabetes
WHO: World Health Organisation

Candidate background and motivation for this PhD project

This thesis is the result of a public sector PhD, financed by the Norwegian Research Council and the Norwegian Directorate of Health, the latter being the PhD candidate's employer and the project owner. The public sector PhD scheme aims to promote partnership building between the public sector and academia (in this case OsloMet University) and to increase research competence in public institutions (1). The Directorate of Health is a professional and administrative body of the bureaucratic central state. Its main obligations are to monitor trends, implement national health policy, supervise and fund healthcare services, set national standards of clinical and population behaviour, and educate HCPs (2-4).

Among her responsibilities since commencing in the position as a senior adviser in 2012, the candidate has been a project manager for the development and digitalisation of the national guidelines for diabetes and gestational diabetes. In 2016, she was a visiting researcher at the American College of Physicians in the USA, who prepares guidelines and clinical advice for the practice of internal medicine. She also held a 50% position as a senior researcher in the International Foundation for Integrated Care during her one and a half years as a PhD candidate. These work experiences, numerous discussions with professionals and central stakeholders in Norway and internationally, as well as previous experience from working in multiprofessional environments in healthcare for more than 20 years, have spurred the candidate's curiosity towards collaborative practice and person-centred care. Throughout her work experience, the candidate has pondered the best method to care for people with long-term conditions (LCTs) and to the extent to which today's healthcare services are capable of meeting individual needs.

On commencing this PhD project, the candidate had no clinical or observation-based experience from general practice related to how professionals collaborate or practice according to principles of person-centred care. She started this PhD project by reading national policy documents and the works of writers who have played key roles in the development of person-centred and collaborative care. These include Georg Engel, Carl Rogers, Ronald Epstein, Alan Schwartz, Edward H. Wagner, Barbara Starfield, Vikki Entwistle, Scott Reeves and Trish Greenhaulgh, among others. She also took courses in interprofessional education and practice (at the University of Tromsø) and theory of the professions (at OsloMet University), which expanded her knowledge of these concepts and impacted the theoretical orientation of this thesis.

The turning point and major motivation for this PhD project was the launch of the White paper, *The primary health and care services of tomorrow – localised and integrated* (2014). Here, the Norwegian Ministry of Health and Care Services outlined national goals for primary care and general practice, including the implementation of more person-centred and team-based practices (5). As the Directorate of Health handles implementation of the political agenda, improving research competence and filling this recognised knowledge gap is considered important. With this PhD project, the candidate seeks to improve our knowledge of multiprofessional collaboration in primary care and help inform the implementation of team-based general practice services.

1.0 Background

In Norway, 40%–50% of the adult population (between 20–79 years of age) have more than one LTC (6), and this number is predicted to rise dramatically in coming decades (7). This epidemiological development places substantial organisational and economic challenges on the healthcare system, as individuals with LTCs often need longstanding, complex and personalised follow-up from multiple healthcare professionals (HCPs) (8-11). Some authors therefore characterise this epidemiological development as one of the biggest medical challenges in the 21st century (12, 13).

The political investments in health reforms to reorient healthcare towards more person-centred, comprehensive and team-based approaches are substantial in the health systems of developed countries (14-18) and in Norway (5, 19-22). In Norway, the government's periodic communications to parliament are executed through white papers ('Stortingsmeldinger'). The white paper *Primary health and care services of tomorrow—localised and integrated* emphasises the request for implementing a new role for patients as informed, active and prepared decision makers, with access to integrated care services from a team of HCPs who coordinate their work to meet patients' comprehensive needs (5). The following citation from the white paper succinctly illustrates the political will and recognition of self-management support and team-based care:

Patients with multimorbidity require better services than they are currently receiving. They need closer follow-up in accordance with professional guidelines and better training in order to master a life with illness and prevent their condition from deteriorating (p. 22). The primary health care services must be developed based on interdisciplinarity as an underlying principle, and more interdisciplinary teams must be established (p. 13).

Traditionally, GPs work in solo with their patients, and team-based approaches are rare in the Norwegian general practice setting. Little knowledge exists about the experiences and preferences for care among persons with LTCs (23, 24) . The World Organization of Family Doctors (WONCA) suggests in their research agenda for Europe that more studies on patient and physician perceptions, perspectives and preferences on person-centredness, communication, involvement and shared decision making should be performed (25). Correspondingly, several Norwegian researchers consider the gap between policy and practice to be significant and request research that can inform the successful implementation and sustainability of new models of care (26-28).

A public sector PhD is a strength in this sense as it may contribute to practice and policy becoming closer.

1.1 Central concepts

This section describes how central concepts are defined in the context of this thesis. These include *team-based care, multiprofessional and interprofessional collaboration, person-centred care, self-management support, patient participation* and *long-term conditions.*

Team-based and collaborative practice in healthcare

In this thesis, Katzenbach and Smith's definition of a team is applied: 'A team is a small number of people with complementary skills who are committed to a common purpose, performance goals and approach for which they hold themselves mutually accountable' (29)(p. 45).

According to WHO, collaborative practice in healthcare happens when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care across settings (30). HCPs practicing in Norway are obliged to collaborate if it is required to fulfil patients' needs ((31)§4). In the literature, the terms *interprofessional* and *multiprofessional* are frequently used to describe the collaborative practice of healthcare teams (32). However, standardised definitions for these terms have not been broadly adopted (33), and the rapid expansion of research on collaborative approaches in healthcare has led to their inconsistent use and understanding (34). In this thesis, the definitions proposed by D'Amour et al. of multiprofessional collaboration and interprofessional collaboration are used (35). *Multiprofessional teams* refer to situations in which different professionals work with the same patients independently or in parallel, interacting on a limited and transient basis. Although they do not necessarily meet regularly, the members of multiprofessional teams manage to work in a coordinated fashion. *Interprofessional teams* are characterised by a greater degree of collaboration between team members (35). Interprofessional collaboration involves an effort to integrate the work of several professions. To that extent, the prefix 'inter' refers to a common space, an element of cohesion and a shared ownership. An interprofessional team is a structured entity with a common goal and a common decision-making process. Thus, the interprofessional team is based on an integration of the knowledge and expertise of each professional so that solutions to complex problems can be proposed in a flexible and open-minded way and responsibilities shared. This kind of teamwork is typically seen in Norwegian hospital units (36). However, the Norwegian Directorate of Health emphasises that interprofessional collaboration is elementary in the follow-up of people with comprehensive care needs (37) and defines interprofessional collaboration as a structured and joint process involving needs assessment, care planning, coordination and evaluation of care, carried out in dialogue between various HCP groups, the patient and caregivers (37).

Person-centred care and self-management support

Person-centred care is chosen as an overarching conceptual framework in this thesis and is understood as care where people are supported to develop the knowledge, skills and confidence they need to more effectively manage and make informed decisions about their own health and healthcare (38). Crucially, person-centred care ensures that people feel they are treated as persons, with respect and dignity, and that their needs, wants and preferences are considered (39). Collaborative practice and person-centred care are interconnected by their fundamental values, such as the right for individual autonomy, mutual respect and understanding (40, 41). Both concepts depend on individuals' willingness to learn from and about each other and make decisions together (42-44). At a time when the provision of primary care becomes more complex, one HCP can no longer meet all patient needs (45, 46). Teamwork, collaboration and communication among HCPs are therefore necessary when working in a person-centred environment (47). In this sense, person-centred care is determined by the quality of interactions among all actors involved in a care setting. The term *person*-centred care, as opposed to *patient*-centred care, is used in this thesis due to the candidate's ethical standpoint that patients and service users should not be reduced to, or denoted by, their health problems. However, the term 'patient' is used in situations where the meaning otherwise would be unclear for the reader.

A key element in person-centred care that is emphasised in several national policy papers (5, 48) is the provision of self-management support(49). *Self-management support* is used in this thesis to describe interventions or efforts primarily initiated to develop knowledge, skills or psychological and social resources with the purpose of strengthening patients' abilities to undertake autonomous decisions in the management of health conditions (50). This support should be based on clinical evidence and the patient's aspirations, capabilities and informed preferences (51). Essential to self-management support is patient participation in treatment decisions (52-54) In this thesis, *patient participation* is understood as a clinical partnership between the patient and the HCP (55) and is characterised in terms of the co-production of healthcare services (52). Patient participation, adjusted to individual capacities, is enshrined in the national patient and user rights act §3-1 (56). In addition, it appears from the Health and Care Services Act that patients, as far as possible, should be involved in designing their healthcare services (57).

The term '*long-term condition'* is favoured over 'chronic disease' in this thesis, defined as 'conditions for which there is currently no cure, and which are managed with drugs and other treatment' (58). P. 4). Examples include diabetes, chronic obstructive pulmonary disease and cardiovascular disease. This choice reflects the fact that being affected by one or several LTCs is a state that can be lived with due to advancements in medicine (59). Moreover, the intensity of these conditions is usually not chronic and, despite having an LTC, one can feel healthy (60).

1.2 General practice as the setting for this PhD project

The empirical research in this PhD study was conducted in Norwegian general practice. Residents of Norway are entitled to choose their GP, who is accountable for healthcare services to patients on their lists (61). Commonly, medical secretaires, laboratory technicians and nurses are employed by the practice GPs to assist them with administrative and clinical responsibilities. According to the Health Personnel Act §5, clinical tasks can be assigned from one HCP to another if it is considered safe to do so based on 'the nature of the assigned task, the qualification of the assigned personnel and the guidance that is being provided' (31)(31)(31). However, only GP-led care triggers reimbursement from the Norwegian Health Economics Administration (HELFO). GPs generate income from a combination of capitation from the municipalities (35% of income), fee-for-service from HELFO (35%) and out-of-pocket payments from patients (30%) (62, 63).

The demographics of Norwegian general practice in the year of data collection for this thesis (2017) are given in Table 1.

Table 1. Norwegian general practice demographics 2017.

Characteristic	Comment
Number of GPs	4759
Mean age of GPs	48 years
Share of female GPs	42%
Average list size	1106 patients
Share of GPs holding a specialisation in general medicine*	64%

Share of general practices with ≤3 GPs**	57%
Share of GPs being self-employed	About 90%

* (64)

** (65)

In 2010, the most common HCP besides physicians in Norwegian general practices was medical secretaries (66). Medical secretaries are authorised as HCPs and have 1–2 years of health education tailored specifically to the regular duties in healthcare settings, such as administrative duties, operating the practice reception, work at the laboratory and in the dressing room (66). With training and support, they can, for example, be delegated responsibility for providing patient education or performing standardised clinical procedures. In a quantitative questionnaire-based study among 210 medical secretaries working in Norwegian general practice, one study found that medical secretaries were often stressed at work (66). This stress was related to being overwhelmed with a continuously increasing number of duties, recurrent interruptions and situations where they took on tasks outside their area of responsibility or expertise. The respondents considered inefficient organisation of practice as a main reason for their perceived level of stress, and this was also perceived as a source of staff conflicts. No formal specialisation programmes were available in 2017 for medical secretaries, but there exist courses in health administration and information technology.

The role of nurses is a major aspect of primary care reorganisation in many countries (67). The bachelor's degree in nursing leading to authorisation takes 3 years in Norway. After completing this degree, RNs can subsequently pursue a master's degree or enter a specialisation programme in nursing (68). When commencing this PhD project, no specialisation programme designed to meet the needs of the general practice setting was offered to nurses practicing in Norway. In fact, the role of nursing in general practice is not well developed, which may be related to the tradition among GPs of working in solo and high salary and pension costs (26). Other restraining forces, described in international literature and presumably relevant in a Norwegian context, include absent standards for nurses' scope of practice, cultural silos, territorialism between physicians and nurses and medico-legal obligations (69).

There is a global trend to broaden the competence available in general practice workforce to help offset the demand for increased access to complex care and place more emphasis on person-centred health promotive aspects of care (70). Most common is the introduction of nurses and medical assistants (which can be compared to the Norwegian medical secretary position) (71). Extending the general practice team, as suggested by the Norwegian health authorities, requires the reorganisation of roles and responsibilities and raises questions related to practice management and leadership (72).

At the commencement of this PhD project in 2016–2017, the workload of Norwegian GPs was high and increasing, and recruiting and retaining GPs was such a growing problem that the situation was considered critical (73). However, no national funding plan was available for GPs who sought to invest in extending their workforce with nonphysician HCPs or in adopting a team-based model.

1.2.1 Diabetes care in general practice

Diabetes was chosen as a case in this study as persons with diabetes are frequent in the general practice setting (at least for persons with type 2 diabetes), and diabetes is the most common disease where multiple HCPs are involved in patient care in Norwegian general practice. Moreover, as persons with diabetes often have comorbidities that make the application of evidence-informed guidelines difficult, diabetes is a prevalent model disease when exploring person-centred aspects of care (74, 75).

The Norwegian Public Health Institute estimates that approximately 218,000 (4.3%) were diagnosed with type 1 diabetes (T1D) or type 2 diabetes (T2D) in 2013, and its prevalence was increasing (76). Among those diagnosed with T2D, roughly 38% do not achieve glycemic control (Hemoglobin A1c $\leq$7.0%) (77). The same number of persons with T1D is 82% (78). Only 16% of persons with T2D reach treatment targets for hemoglobin A1c (HbA1c), blood pressure and cholesterol combined (77). Successful diabetes management is almost entirely reliant on the patient for its implementation, and suboptimal self-management is a major inducer of poor outcomes for diabetes (79). Therefore, in both types of diabetes, improving people’s self-management capabilities through education, information and motivation may have a significant impact on the quality of life (80), glycaemic control (81) and development of diabetes-related complications (79, 82).

Large multi-setting studies show that diabetes self-management education is inadequately implemented in routine diabetes care (83). This may relate to inadequate identification of patient’s emotional concerns about their diabetes due to time constraints and/or staff shortages (84, 85). For example, a Norwegian study reported that self-management of T2D was motivated by HCPs who were empathetic, provided practical and individual advice and information, involved their patients in decision making and arranged ongoing group-based support (86). Indeed, patient perceptions about their own ability to self-manage diabetes are an important psychosocial factor related to improved treatment outcomes in diabetes (87). Personalised care planning, where patients' own aspirations and values drive the agenda for goal setting and action planning, can therefore be effective in improving patient autonomous management of their condition (88) (89). The national guidelines for diabetes recommend that all patients are involved in care planning and that nurses or other members of the practice staff, with advantage, can be actively involved in patient education and routine follow-up (90). The guidelines also provide several communicative strategies to improve patient participation and self-management (ibid).

Diabetes is often associated with multiple psychosocial problems, which affect patients' self-management capacity and the needed support (91, 92). For example, finding the right balance between tight glucose control, frequent glucose measurements and social life is often a significant source of psychological distress (92, 93). Globally, it is suggested that 45% of persons with diabetes experience diabetes-related distress, measured by a score ≥40 on the Problem Areas in Diabetes Scale 5 (94). Diabetes-related distress is defined as the patient's concerns about self-management of diabetes, perception of support, emotional burden and access to quality healthcare (95). A negative association between diabetes distress and glycaemic control (96) and between fear of hypoglycaemia and diabetes-related quality of life and psychological well-being has been found in patients with T1D (97). People with T2D may have a 24% increased risk of developing depression (98) and nearly 20% of persons with T2D have symptoms of either anxiety or depression, as indicated in a Norwegian cohort study from 2015 (99). Data from the Swedish National Diabetes Register revealed that a common denominator for people living a good life with diabetes was finding a balance so that they are not overwhelmed by either the diabetes itself or the burden of managing it (100).

For persons with diabetes, evidence suggests that high-quality care is best delivered by a multiprofessional team who work collaboratively with patients to develop the knowledge, skills and confidence they need to effectively manage their health, supported by practice systems and evidence-based guidelines (101, 102). In fact, international research suggests nonphysician HCPs can provide important contributions in diabetes care (measured by outcomes such as HbA1c, control of high blood pressure, patient satisfaction, QoL and cost savings) (103, 104).

1.3 The rationale for studying multiprofessional diabetes care in general practice

The latest healthcare reform in Norway, the ‘coordination reform’, was inaugurated in 2009 based on the recognition that persons with complex care needs suffer from fragmented services (22). An evaluation of the reform in 2016 emphasised that collaboration across institutions remained challenging and that the delayed implementation and adoption of technology were major barriers for care integration and coordination (105). The following white paper, ‘primary health and care services of tomorrow – localised and integrated (2014)’, underscores the demand for team-based care and for a wider set of HCPs to be involved in meeting the comprehensive needs of persons with LTCs (5). According to the GP scheme regulation, GPs are responsible for the coordination of care for patients on their lists and for collaborating with other professionals to accommodate patients’ healthcare needs (106). The municipality is responsible for facilitating the cooperation between GPs and other service providers in the municipality and for ensuring an appropriate and active integration of general practice services with other municipal health and care services (106).

Both the coordination reform and the white paper on primary care emphasise the need for more contextual research on the factors promoting and inhibiting PCC and collaboration among HCPs in Norwegian primary care. Moreover, a white paper on welfare education (Meld. St. 13, 2011-2012) and the HelseOmsorg21 strategy define the lack of collaborative competence among HCPs as a challenge for care coordination and integration in primary care services (107, 108). These assertions follow a national report, disclosing that only 20% of health- and social care educational programmes have joint teaching with two or more other health- and social care students (109).

1.4 Identifying the knowledge gap

To inform the subsequent empirical research in general practice, a scoping review exploring research on team-based and multiprofessional care in Norwegian general practice was planned. The authors were aided by a librarian in systematically searching for publications in major international electronic databases combined with manual searches in Nordic research databases and grey literature. However, these searches did not retrieve any studies. Considering GPs’ central role as coordinators of patient care and the political ambitions for more integrated, coordinated and PCC, we decided to change the search strategy and systematically assess the facilitators and barriers for multiprofessional collaboration in Norwegian primary care involving GPs. This responds to the request for more research on the key elements that motivate and commit HCPs to successfully collaborate and develop a common understanding of why and how one should cooperate across institutional boundaries (5, 28). The final scoping review was included as the first of the three papers in this thesis and are elaborated in subsequent chapters.

As already mentioned, the empirical research in this thesis is motivated by the political agenda of implementing team-based general practice services, as has been proven effective in other healthcare settings (110, 111). To follow up the political ambitions set in the white paper on primary care and in response to a GP scheme in crisis, the Norwegian Ministry of Health and Care Services assigned the Norwegian Directorate of Health with the responsibility of designing and carrying out a pilot project investigating the effects and experiences of multiprofessional general practice teams in 2017. These teams, consisting of GPs, nurses and medical secretaries, were set out to be introduced in a limited number of municipalities from 2018. The pilot project considers the feasibility and applicability of team-based care and various health and system outcomes, considering the perspectives of the general practice staff and their patients.

The empirical work of this PhD project was accomplished before the pilot project began. The difference between the two projects is that we explore the experiences and preferences of GPs, nurses, medical secretaries and patients in a real-world setting. The HCPs in our study are not part of any intervention and are not incentivised to perform in any specific way, and it is therefore possible to study their motivation for team-based care, how roles and care approaches are experienced as part of a multiprofessional team and their opinions on what prerequisites are necessary to implement teamwork in general practice outside a study setting. The request for practice-based research from the general practice setting is significant (112). As our initial search revealed, the roles and contributions of medical secretaries and nurses in clinical care in Norwegian general practice have hardly been investigated in the literature. Some have indicated that medical secretaries are an unused resource (113), and international literature suggests that nurses can make an important contribution to the quality of patient care in general practice (114, 115). To the best of our knowledge, this PhD study is the first to explore the experiences of multiprofessional diabetes care among Norwegian GPs, nurses and medical secretaries.

Patients' preferences for participation in care decisions and how organisational aspects of primary care affect patient experience has also been scarcely explored (116). In a qualitative study on patient participation in lifestyle counselling in Norwegian general practice, the participants (many of them suffering from diabetes) wanted their GP to explore how decisions work out in their everyday life to determine why things do not work as planned and to adjust the advice given (117). The authors suggest further studies are necessary to explore the nature and effect of GP–patient relationships and interactions. Other authors have emphasised training, goal setting, planning, proactive coping and self-regulation as important elements to improve self-management support (118, 119). Moreover, in a cross-sectional study, Mohn et al. argue that there was an indirect negative association between diabetes distress and self-perceived autonomy support and self-perceived competence among Norwegian adults with non-optimally controlled T1D (120), and a Danish cohort study correlated higher health literacy levels with lower HbA1c regardless of the educational background in persons with T1D (121).

International literature suggests that persons with diabetes and multimorbidity may have health priorities other than their HCPs, such as functional health (122). However, the candidate has not identified any research from a Norwegian healthcare setting studying patients' preferences for information about diabetes, involvement in care planning and decision making and their experiences with multiprofessional care. Examination of these care aspects is warranted and can help inform the implementation of multiprofessional PCC (123) (124).

1.5 Overall aim of this PhD project and list of papers

To fill the gap between political goals and current knowledge, this PhD project aims to explore multiprofessional collaboration in Norwegian primary care and general practice, drawing from the experiences of both HCPs and persons with diabetes and one or more LTCs.

List of papers:

Paper I: *A Scoping Review of Facilitators of Multi-Professional Collaboration in Primary Care.*

> Research question: What are the facilitators of collaboration between GPs and other HCPs in Norwegian primary care?

Paper II: *The roles of healthcare professionals in diabetes care: A qualitative study in Norwegian general practice.*

> Research question: What are the experiences of GPs, nurses and medical secretaries related to their role and care approach in multiprofessional diabetes care?

Paper III: *Experiences of self-management support in patients with diabetes and multimorbidity: A qualitative study from Norwegian general practice.*

Research question: How do persons with diabetes and multimorbidity experience diabetes care provided by GPs, nurses and medical secretaries and what aspects of care are considered most important?

2.0 Theoretical perspectives

This chapter provides an overview of the central theoretical frameworks in this thesis, guiding the understanding of key concepts and the interpretation of results.

2.1 Professional collaboration in primary care

In our study exploring experiences of roles, care approaches and collaboration among GPs, nurses and medical secretaries in general practice (Paper II), we sought a frame of reference for professional collaboration in primary care settings that could help link theoretical aspects of professional collaboration with the everyday experiences of HCPs. The framework promoted by D'Amour et al. for the promotion of professional collaboration was found appropriate because it can be applied to healthcare systems performing at various levels of collaboration (125). Four relational and organisational dimensions form the essence of the framework: 1) the existence of shared goals and vision and the recognition of divergent motives and expectations regarding collaboration and 2) an awareness by professionals of their interdependencies and of the importance of managing them, which translates into a sense of belonging, knowledge of each other's values, professional skills and mutual trust. The organisational dimensions are as follows: 3) documentation of expectations and responsibilities and the extent to which these procedures are used and 4) leadership functions that support collaboration.

D'Amour et al. emphasise that how the dimensions determine the collaborative processes is subject to the influence of external and structural factors, such as resources, social processes, financial constraints and policies. Indeed, the cognition and behaviour of HCPs are strongly affected by the way healthcare is structured, financed, managed, professionally equipped, legislatively regulated and by user expectations (126, 127). For example, studying PCC in the context of Norwegian general practice, where GPs are reimbursed on a fee-for-service basis, it is important to note that qualitative aspects of care, such as fostering a culture focused more on group tasks than individual roles and building good relationships, are not financially incentivised (at least not directly). Rather, the incompatibility of PCC with fee-for-service payment models can lead to significant financial losses (128). In addition, healthcare is an institution with strong historical patterns of material practices, assumptions, values, beliefs and rules by which individuals provide meaning to their social reality (129). These matters are important when studying elements of team-based and PCC, as they can help identify contextual factors that affect the adoption of new practices and HCPs' preferences for and capabilities to collaborate.

Collaborative practice is based on the premise that professionals want to work together to provide better care. At the same time, however, they have their own interests and seek to retain a degree of autonomy and independence (130, 131). The main instrument for negotiating autonomy is power (125). How power affects professional relationships and autonomy is particularly relevant in the general practice setting, as GPs are self-employed and accountable to the patients on their list and nurses, and medical secretaries work under delegated responsibility from the GPs. Although theories and healthcare policies promoting teamwork emphasise interdependency, shared purpose, values and priorities and clearly assigned roles and responsibilities, cultural and institutional factors determine how this care ideal unfolds in practice (132, 133).

Attending to culture and context, the implementation of collaborative and team-based models of care therefore requires more than policies, transformation programmes, payments and information technology systems (134-137). Certainly, the role professionals *themselves* play in fostering good relationships deserves more attention (138-142). As such, we were also guided by the notion of *partnership* in our study (Paper II), which is defined by the WHO as professionals' capacity to build relationships with patients and each other to work collaboratively as partners in the best interests of the patient (143). Professional partnering is listed by the WHO as one of the core competencies for delivering effective team-based care and PCC to people with LTCs (144). Key to professional partnering and achieving the four dimensions suggested by the framework for professional collaboration by D'Amour et al. is strong communication skills, the ability to neutralise power imbalances and negotiate and collectively solve problems, establish goals, implement action and evaluate progress (143).

2.2 Self-determination theory

After multiple readings of the patient interview transcripts and scrutinising the preliminary themes, the candidate recognised a pattern in participants' experiences of multiprofessional diabetes care related to how nurses and medical secretaries were perceived to enrich GP-led care. In Paper III, the candidate therefore sought theoretical support that could help interpret participants' illness and care experiences in a broader social, psychological and ideological context. Other authors have requested that research on self-management support be expanded from the question of 'support for what' to also include 'support in what forms' (145). In this regard, self-determination theory (SDT) is useful to recognise the determinants behind people's drive to manage their illness and how HCPs can support patient's perception of autonomous behaviour through a person-centred approach (Broom & Whittaker, 2004)(146).

In a healthcare setting, and particularly relevant for persons with LTCs, SDT purports three primary psychological needs that enhance individuals' capabilities and motivation to manage their health. These are *the need for competence* (feeling personally capable and confident), *the need for autonomy* (behaviour must be self-authored and in accordance with the patient's abiding values) and *the need for relatedness* (feeling connected, understood and cared for by important others) (147, 148).

Essential self-management behaviours that favour good outcomes in persons with diabetes include healthy eating, being physically active, monitoring blood glucose, taking medications, good problem-solving skills, healthy coping skills and risk-reduction behaviours (149, 150). However, the many demands for self-management can cause emotional distress (151, 152) and lead to reduced well-being, anxiety and depression (153, 154). Indeed, having diabetes involves accepting the realities of the disease and learning to tackle the challenges of self-management without limiting one's life (155). The bodily manifestations and the overwhelming set of 'right' behaviours requested for disease 'control' present various threats to the very 'self' who is requested to manage his or her illness (156). Therefore, it is theorised that HCPs who communicate with empathy and respect, seeking to understand patients' lives, emotions and social contexts and ensure their own diabetes-specific knowledge is up to date, can assist their patients to take control of their disease (157). According to several reviews of effective self-management approaches, patients' self-management resources can be encouraged if HCPs (50, 88, 158):

(A) Create an environment where patients can define their health problems, the purpose of the consultation and what they would like to achieve during the consultation.

(B) Build relationships and establish a communication pattern that is mutually satisfactory, that is, rather than directing and controlling the patient in a prescriptive way, offer the patient information and explore options and barriers for dealing with disease.

(C) Respect the choice when it is made and collaboratively set short- and long-term healthcare and lifestyle goals that are realistic, achievable and consistent with patients' beliefs, competence and values.

(D) Agree with patients on how, how often and why contact will be maintained to ensure progress on lifestyle activities and goals that are set, discuss setbacks and agree on new decisions.

The four above-mentioned elements (A–D) emphasise how patient choice is central to achieving engagement in self-care activities. This was relevant in the setting of our study, where patients had extended access to consultation time. For example, in situations where GPs are too short of time to ask and listen to patient priorities, a patient's true 'choice' can be undermined and instead shaped by the advice of the GP. In these cases, decisions will not be felt as based on volition and as the result of a true option, which can affect motivation (159). Indeed, the 'milieu of care' and the continuous interdependency between patients and their HCPs can reinforce people's self-determined capacity (148, 160). Accordingly, a communication style that enhances patients' perceived self-management is thought to be effective in reducing diabetes distress (120). These relational and narrative experiences, summarised in Box 1, are often lost in debates about evidence-based care despite being essential for fostering patients' executive autonomy in care processes (161). In the empirical studies of this thesis, the candidate has emphasised patients' experiences of these enablers of patient self-management because 1) they are essential in PCC and 2) extending the workforce in general practice can facilitate their prioritisation.

Box 1. Factors thought to accommodate a milieu of care where patients feel supported in managing their health, as inspired by the 'Senses Framework' (162).

- *Security*—to feel safe within relationships
- *Belonging*—to feel 'part' of things
- *Continuity*—to experience links and consistency
- *Purpose*—to have a personally valuable goal
- *Achievement*—to make progress towards a desired goal
- *Significance*—to feel that 'you' matter

3.0 Methodology

This chapter presents the methodological considerations and how the research approaches facilitated the achievement of the research objectives of this thesis. Ethical considerations are elaborated on in the last section.

The methods applied in the three papers are delineated in Table 2.

Table 2. Overview of methods applied in this thesis.

Paper	Title	Method
Paper I	A scoping review of facilitators of multiprofessional collaboration in primary care	A systematic search was performed to find qualitative, quantitative and mixed research studies fulfilling our inclusion criteria. The analysis of the retrieved publications involved 1) a descriptive summary of study characteristics and involved participants, 2) a content analysis of qualitative data and 3) consultation of stakeholders to broaden our understanding of, and validity test, the review results.
Paper II	Experiences of self-management support in patients with diabetes and multimorbidity: A qualitative study of multiprofessional care in Norwegian general practice	Individual semi-structured interviews with 11 patients with diabetes and one or more additional LTC. Thematic analysis was used to interpret the interview data.
Paper III	The roles of HCPs in diabetes care: A qualitative study in Norwegian general practice	Individual semi-structured interviews with two medical secretaries, one nurse, two diabetes specialist nurses and six GPs. Thematic analysis was used to interpret the interview data.

3.1 A scoping review of facilitators of multiprofessional collaboration in primary care (Paper I)

As previously noted, a systematic search for empirical research on team-based and multiprofessional approaches from the Norwegian general practice setting retrieved no studies. We decided to extend the search to include studies on multiprofessional collaboration between GPs and nonphysician HCPs in Norwegian primary care. The aim of the scoping review was to gain field knowledge and identify the range and subject matter of the literature. We found the five-stage framework of searching, collating and reporting data suggested by Arksey & O'Malley's convenient to support a systematic approach to identify, select and report retrieved data (163). The five stages of the review process are summarised in Figure 1.

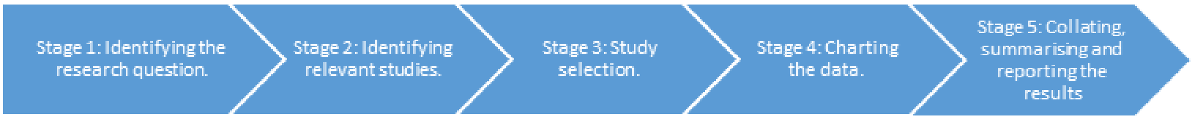

Figure 1. The five stages of Arksey & O'Malley's methodological framework for conducting a scoping review.

Scoping reviews are a form of exploratory evidence synthesis that can be used to map and provide a broad overview of key concepts and research gaps of heterogenic, complex or emerging fields of research that typically have not been reviewed before (163-165). Arksey and O'Malley's influential framework was later advanced and extended by Levac et al. (165) and Colquhoun et al. (164). We used elements from the advanced versions of the framework where appropriate. For example, we performed several pilot searches, as advised by Colquhoun et al. During this phase, we read key articles to refine our search terms (the search strategy is given in Table 1, Paper I). We also followed the proposal by Colquhoun et al of collating and presenting data in three stages: 1) A numerical summary analysis and qualitative content analysis; 2) reporting of results referring to the research questions; and 3) interpreting the implications of the findings for future research, practice and policy (164). Although illustrated as sequential, it should be noted that the research process was recursive, with frequent reviews of the previous phases.

Study quality, design or methodology did not affect study inclusion, as is typical in scoping reviews (164, 166). Neither was the validity of the original author's reporting of their findings subject to our scrutiny. Our only inclusion criteria were that the study described cooperation between a GP and one or more nonphysician HCPs in primary care involving patient care or quality improvement. We excluded publications from settings other than Norway or if the intervention took place fully or partly in specialist care.

A data extraction form (see Appendix I) facilitated comparison and data analysis across included studies using qualitative, quantitative and mixed methods approaches (167). Study and participant characteristics were numerical and descriptively summarised, whereas a content analysis supported the qualitative interpretation of the concepts and inferences of organisational, processual, relational and contextual facilitators of multiprofessional collaboration. Content analyses are useful when conducting exploratory work in an area where little is known (168). Content analysis is a systematic coding and categorising approach, and rather than exploring hidden agendas, it can be used to explore the content, trends, relationships, structures and effects of communication or a phenomenon (168).

We used the theoretical framework for interprofessional teamwork in healthcare proposed by Reeves' et al. to identify and categorise facilitators for person-centred multiprofessional collaboration (169). The four functional domains of the framework are described in Box 2.

Box 2. The four domains of interprofessional teamwork proposed by Reeves et al. (169).

Organisational factors are those that affect the local environment, such as access to resources, senior management commitment, professional representation and fear of litigation.

Processual factors affect how the work is carried out across different workplace situations, such as time, space, routines, IT systems, unpredictability, urgency, complexity and task-shifting capacity.

Relational factors directly affect the relationships between professionals, such as communication, team stability, professional power, socialisation, hierarchy, team composition, trust, respect, roles and responsibilities, team emotion and team building activities.

Contextual factors include the broader social, cultural, political and economic landscape.

Levac et al. suggest incorporating consultation with stakeholders as a required knowledge translation component of the scoping study methodology (165). We therefore consulted four stakeholders representing governmental and municipal authorities and the scientific community to comment on our findings.

3.2 Qualitative research—Papers II and III

Qualitative research methods are flexible and can provide rich, personal and contextual information in natural, real-world settings (Bowling 2014). Qualitative methods were chosen in the empirical studies in this thesis, as we sought to gain new knowledge through collecting rich, detailed subjective experiences about our topics of interest.

3.2.1 Recruitment, setting and characteristics of general practices and HCP participants (Paper II)

Recruitment of general practices and data collection was carried out between March and September 2017. The inclusion criteria for general practices included the following:

- A total list size among the GPs of more than 2000 persons.
- The practice had a minimum of three GPs and three nonphysician HCPs.
- Diabetes care was performed in collaboration between the GPs and at least one nonphysician HCP, and these had worked together for at least three years.

We aimed to include both rural and urban practices from different parts of Norway, as geography might impact care delivery (170). The sampling strategy of the participants for the qualitative interviews was strategic and purposeful; that is, we sought to identify HCPs who could provide rich detail to the phenomenon under study (171). Available informants were limited, and being pragmatic, the candidate began recruitment by inviting three general practices in which she knew one of the GPs who had delegated certain tasks of diabetes care to medical secretaries or nurses (the invitation letter sent by email can be found in Appendix II). These practices were recruited without much effort. Recruiting additional practices was time consuming and required extensive effort. Simultaneously with data collection, more than 10 practices described offering a multiprofessional approach to diabetes care on their website or having a diabetes specialist nurse employed were contacted at least twice without any successful recruitment. The recruitment challenges were related to the difficulty of getting into personal contact with GPs. Consequently, the candidate tried to invite practices by email, which proved difficult.

After a four-month intensive recruitment period, the fourth practice was included based on a recommendation from one of the participating GPs. At this stage, the candidate considered whether there was a need to recruit any more participants. In agreement with the main supervisor, the candidate considered the experiences of nurses and medical secretaries as not having yet reached data saturation, and an additional nurse was recruited from a fifth practice. Interviewing was thus finalised when gathering additional data no longer revealed new insights and only fed into the existing categories or themes (172).

Upon confirming their participation, the practices were sent information about the study background and purpose by email. We sought to interview at least one GP, one nurse or medical secretary and one patient from each practice. The inclusion criteria for HCPs included having at least 3 years of continuous multiprofessional experience working with diabetes in the same practice. All HCPs were asked for their age, educational background, seniority, how many patients with diabetes they saw during a normal week (nurses/medical secretaries only) and their list size (GPs only). Gender and how long participants had followed a multiprofessional approach in the current general practice were also recorded.

3.2.2 Recruitment and characteristics of patient participants (Paper III)

HCPs from four of the five practices were asked to recruit persons with T1D or T2D and one or more additional LTCs. We sought participants with different knowledge, experience and representations in terms of age, gender, disease composition and type of diabetes. The inclusion criteria for patient participants were as follows:

- Being diagnosed with T1D or T2D and one or more additional LTC for more than two years.
- <70 years of age.
- Having visited general practice three or more times during the last 12 months due to diabetes or any other LTC.

We chose to recruit patients under the age of 70, as younger patients may have higher expectations towards patient-provider communication and shared decision making compared to older patients (173). Assuring they had sufficient experience to provide rich and detailed information about the topic of interest, we recruited patients who had some years of experience living with several LTCs and who had received multiprofessional follow-up in general practice for at least two years. At the end of each patient interview, age, gender, educational background, comorbidities, diabetes duration and type of diabetes were recorded.

3.2.3 Preparing data collection for Papers II and III

Semi-structured individual interviews were used in Papers II and III to obtain in-depth information about participants' opinions, experiences, perceptions and values. The candidate was inspired by the responsive interviewing model suggested by Rubin and Rubin, which relies on an interpretive constructionist philosophy (174). Knowledge generated in the constructivism paradigm is the combined result of participants' subjective experiences and the researcher's interpretation and illumination of these experiences (175). The outcome of the qualitative research process is therefore coloured by the preconceptions, knowledge and efforts of the researcher, who is highly involved in generating research data through social interaction with the informants (176). Constructionism represents a flexible approach to generate depth of understanding, rather than breadth (177), which can be interpreted as ‘the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world and developed and transmitted within an essentially social context’ ((178), p. 42).

The candidate and the main supervisor collaborated on developing interview guides addressing the main research questions, inspired by literature on PCC, team-based care and national health policy. Questions were arranged from broad to narrow and included open queries, encouraging the interviewees to freely express their perspectives and experiences, fostering richness in the empirical material and, at the same time, ensuring a consistent overview of central themes to be covered during each interview (179). Please see Appendices III and IV for the interview guides used in the interviews with HCPs and patients, respectively. As recommended by Kvale, both interview guides were pilot tested (with a GP and a patient fulfilling the inclusion criteria) to potentially identify flaws or limitations within the interview design and to allow necessary modifications (180). These pilot interviews only led to minor adjustments. That is, instead of asking HCPs directly how their care approach aligned with person-centred principles of care, they were initially asked if they were familiar with and new the political ambitions for creating more person-centred healthcare services. If declining, the candidate briefed the participants before asking if and how they applied PCC in practice. In the patient interview guide, the candidate took note that she had to explain what was meant by ‘treatment goals’, ‘care plan’ and ‘shared decision making’. Both pilot interviews were included in the main studies.

Before the interviews, the candidate reflected on her interviewer role and chose a nonconfrontational style. This meant that she attempted to keep her opinions to herself and remain open to meanings and perceptions different from her own. The candidate guided the interview with the intention of creating an atmosphere where the conversation could circulate freely and a wider set of aspects around the topic of interest to be explored. A central element in responsive interviewing is the relationship between the interviewer and interviewee and that they mutually influence each other and the interview data (174). The candidate was found that having this unpretentious entrance into the interview setting, which encouraged dialogue with the interviewees, like one among friends.

The participants were prompted to bring up meanings and concerns they felt important, being guided by the candidate with her research questions in mind. During the interview, she focused on listening attentively, showing interest, understanding and respecting what the participants had to say. A reflection technique that was used included repeating the other person's words. It frequently triggered participants to add additional information. All participants were given time to think deeply, and when deemed useful, the interviewer used neutral probing questions (i.e., open questions that give cues to the interviewee about the level of response that is desired and facilitate talk about personal opinions and feelings) (181). Examples of probing questions that were used were as follows: 'Can you tell me more about that?', 'What are your opinions on this topic?', 'What do you mean by….?', 'What do you do when….?' and 'What was your response to…...?' When digressing from the topic at hand, the participant was given time to finish his or her lines of thought, as this helped enrich and contextualise the data.

The candidate prioritised conducting the interviews in person, acknowledging that the venue of the interview may affect the quality of data collection (182). To accommodate the respondents' convenience, participants were offered to meet the candidate at the general practice site, or patient participants were invited to meet in their private home at a time that best suited their schedule.

3.2.4 Interviewing GPs, nurses and medical secretaries

All but one HCP was interviewed at their workplace (one interview with a nurse was carried out by phone for convenience). When HCPs were asked to elaborate on a topic, they tended to speak generously. On some occasions, the candidate had to intervene to guide the interview in the direction she wanted. This usually occurred when HCPs talked about topics they were passionate about, such as how the GP scheme was in a crisis and staff shortages. The interview guides used interviewing HCPs and patients, respectively, mostly appertained to the same issues. This allowed us to explore the perspectives of both participant groups on the same topics. Exclusive for the HCP interviews were their reflections on what skills they considered useful to ensure PCC and their application of person-centred aspects of care. HCPs were also asked for their motivation to collaborate on diabetes care, how they coordinated patient care and how a multiprofessional approach affected patient care. The interviews with HCPs lasted between 20 and 60 min.

In two of the practices, the candidate spent several days observing the daily work routines, the flow of patients and how HCPs collaborated and communicated. The observations also included ordinary patient consultations by GPs, nurses and medical secretaries. The candidate reflected on these observations together with the HCPs, which enabled the candidate to better grasp HCPs' reasoning and rationale behind their behaviour and decisions during patient interviews. The candidate interviewed two of the patients whom she had previously observed during consultations. These interviews ran smoothly, as it was easier to ask relevant personal questions regarding patients' preferences and experiences of care.

3.2.5 Interviewing persons with diabetes and multimorbidity

All but one patient (at the patient's request) preferred to meet the candidate in their general practice. To avoid potential disruptions and noise, most interviews took place in private offices (some took place in the practice kitchen).

Patients were asked to tell the story of their diabetes, what matters most when seeking healthcare, how living with diabetes is experienced and expectations regarding diabetes care. In common with the HCP interviews, other central topics of the interview concerned self-management support and diabetes education, patient-provider relationship and communication, HCPs' care approach and collaborative practice and patient involvement in decision making and goal setting. Overall, patients spoke openly about their illness history, their care experiences, and their preferences. Probing questions were most frequently used when the candidate asked for patients' expectations of specific elements of care, such as participation in care planning or decision making. Moreover, when patients recalled earlier health events, such as having a high HbA1c, the candidate often had to ask what happened. When patients were asked for their opinions and preferences for seeing both their GP and a nurse or medical secretary for their diabetes, most had no other reference point to compare with and were unable to explain what was better or worse with this care model compared to standard GP-led follow-up.

The candidate was hesitant to ask the patient participants about their feelings if she felt the interviewee was uncomfortable. In these cases, she emphasised showing empathy by answering questions, such as 'That must be difficult to handle' or 'I understand that you are tired of thinking about your glucose level'. The patient interviews lasted between 14 and 46 min.

3.3 Transcription and data analysis

Interviews were transcribed verbatim the same day or the next by the candidate and subsequently transferred to the NVivo10® software. The transcriptions excluded nonverbal utterances such as 'uhm' and 'øh', as the candidate found these to disturb the reading and analysis of the interviews. These sounds may, however, contain important contextual information. Therefore, immediately after each interview, the candidate took notes about the interview atmosphere and her perceptions of the participant's emotions. During the transcription, the candidate transferred these notes (e.g., 'doubting', 'short answers', 'unsure', 'laughing' or 'hesitant') to the transcripts. She also remarked if she felt information was being held back, something had been said implicitly or not meant literally. The main supervisor and the candidate read the transcripts consecutively and reflected on what could be improved in the interview setting. This involved assuring that the candidate was not asking leading questions or avoiding following up ques that warranted additional questioning. The transcription and subsequent reflection process offered great benefits in terms of getting to know the data, and the candidate learnt that, on some occasions, it was useful to stop and ask follow-up questions instead of moving to the next question.

3.3.1 Thematic analysis

The candidate sought a flexible method of analysis without theoretical boundaries opening for different levels of interpretation of data retrieved from the individual participants (i.e., GPs, nurses/medical secretaries and persons with diabetes and multimorbidity). Thematic analysis came forth as an appropriate choice and guided the analytical process in Papers II and III.

Thematic analysis is an interpretive method to systematically explore meanings, thoughts and experiences among respondents in a real-life context (168, 183). Compared to content analysis, which is a descriptive methodology useful in exploratory work, thematic analysis is more interpretive and permits the researcher to combine the systematisation of rich and detailed data based on life stories with the analysis of its meaning within a particular context (168, 184). For instance, if a patient becomes emotional when explaining a past event during analysis, the researcher can link this to the patient accentuation of the importance of feeling understood and listened to by the practice nurse.

Thematic analysis was performed according to the following six steps proposed by Braun and Clark (183):

1) familiarising with data and interview transcriptions
2) generating initial codes
3) collating codes into groups and searching for themes
4) reviewing themes
5) defining and naming themes
6) producing the report/manuscript

Although depicted as a stepwise process, the analysis involved moving back and forth between the empirical material, consultation of extant theory, analysis and writing. Braun and Clark suggest that there are two primary ways of approaching the data material in thematic analyses to identify themes or patterns; one is inductive and bottom-up and the other is more theoretically driven, deductive and top-down (183). The researcher can also choose a hybrid approach, moving backward and forward between theoretical and empirical meaning recollection, also termed retroduction (185, 186). The analysis in Papers II and III began during the interviews when the candidate inductively recognised patterns in participants' responses (182). Each interview was then read and reread with the research questions in mind by the candidate and the main supervisor. Then, line-by-line coding was performed using NVivo10® software. All transcripts were coded twice to ensure coding consistency: soon after each interview and again when the last interview was transcribed. NVivo10® was used in the initial sorting, marking and coding of meaningful segments of text. In the first rounds of coding, important sections of text related to the overall research questions were marked, which were then condensed and abstracted into codes. Then, lists of all codes were printed from NVivo10® to allow for a manual sharpening and collating of codes into groups and identification of subthemes and themes (183). Microsoft Excel was used in later analytical phases to share a straightforward overview of codes, groups and suggested themes among the authors. The analysis became more deductive during the theme-generation phase. At this point, the candidate went back to the original data with a theoretical lens to recognise additional text elements relevant to our research questions and the key elements influencing our topics of interest. For example, by applying SDT to the patient-reported data, the candidate discerned how good relationships with their HCPs are linked to patients' perceptions of and requests for autonomous living.

The main supervisor gave input on early suggestions for themes and subthemes several times during the abstraction process. Her input helped make the themes more comprehensive, concrete and independent. For example, in the early phases of the analysis, several subthemes were found to overlap. Table 3 provides examples of suggested themes, related codes and groups shared with the main supervisor.

Table 3. Examples of the analytical process in which recurrent themes related to the main topics in the interview guide were identified.

Code	Code group	Suggested theme/subtheme
‘I want to know something about the HCP before I visit the first time’ (patient participant)	Patient seeking confidence and trust in HCPs	Trusting relationship
‘Availability, and because patients are less intimidated to talk with us’ (medical secretary)	Comparing GPs and nurses/medical secretaries	Perceived benefits of a multiprofessional approach

In the final phases of data analysis, the entire data set was reread; first, to identify missing or overlapping codes, but also with a more interpretive lens with the intention of discovering hidden perspectives either spanning across multiple interviews or embodied in a deeper meaning uttered by one or a few participants (183). When a final draft of themes was ready, it was shared among all the authors, along with the list of codes and code groups. In this conclusion-drawing phase, consideration of the results was made, and the implications for the research questions were assessed and discussed. All researchers were engaged in verifying whether the themes and conclusions were credible, defensible and warranted by comparing the final themes with excerpted quotes, the authors’ research experience and existing literature.

3.4 Ethical considerations

Research ethics

The protection of dignity, rights and welfare of research participants is essential in healthcare research. The research in this PhD project was conducted in compliance with the Helsinki Declaration (187) and in accordance with recognised ethical standards, as stated in The Act on ethics and integrity in research (188). The Norwegian Directorate of Health is the main responsible research institution for this PhD project, as defined in the Health Research Law §4e (189). The Directorate’s data protection officer ensured that the statutory obligations related to internal control and quality assurance were kept (in cases where institutions have their own data protection officer, the obligation to notify the Data Protection Authority no longer applies) (190). The Norwegian data protection services (NSD) confirmed that the studies in this thesis did not fall into the scope of the Health Research Law §2 no. 3D (only anonymous health data were collected) (190) (ref. no.: 2018/482D) and that the Directorate of Health was the responsible institution for data protection during the project period. The NSD confirmation email can be found in Appendix V. Research approval by the regional ethics committee was therefore not deemed necessary.

As recommended by the Act on Ethics and Integrity in Research, measures were taken to protect study participants' against unreasonable strain and inform them about their rights related to the interview setting (188). Written information outlining the background and aims of the study, its funding, inclusion criteria and data storage procedures were given to all participants in advance of the interview. At the onset of every interview, information about the benefits of interview-based research, the purpose of this PhD project, the candidate's background, employer and funders, where and how long the research data was stored, the intended use of the results and the consequences of participation in the research project was given. Informed consent was given by all participants according to the Health Research Law § 13 no. 1 (189) (the study information letter and consent forms for HCPs and patients can be found in Appendices VI and VII, respectively). Participants were asked to speak freely about their thoughts and experiences and to ensure that all information would be kept confidential. For patients, this meant that information would not be shared with their HCPs or would cause any detriment to their ongoing treatment process. All participants were asked if it was acceptable to audio-record the interview, to which all agreed. Participants were informed that they could stop the interview at any time and withdraw from the study without providing any reason and with no consequences. None of the participants withdrew from the study.

Data security

Before the project began, the data protection officer in the Directorate of Health offered guidance to secure confidentiality in data handling procedures in accordance with the Personal Data Act, the Public Administration Act and the Norwegian Directorate of Health's local data protection policy (archive number 16/2885-10). From a legal perspective, the protection of privacy and dignity is linked to the processing of personal data, mainly through de-identifying and anonymising research material before storage and dissemination of the research material (191).

Most appointments with patient participants were made by their HCPs, and the candidate did not get any contact information other than their first name. On some occasions, the candidate received a patient’s name and telephone number to schedule the interview. In these cases, the telephone number was deleted after the interview. The audio recordings were transferred to and secured at the Directorate of Health’s internal server in compliance with Norway’s Privacy and Electronic Communication Directive. During transcription, all identifying information, such as the names of persons and places, was removed.

A spreadsheet with identity codes and variables linked to participants’ characteristics (e.g., gender, age, municipality, comorbidities and professional background) was stored together with the signed consent forms in a locked cabinet in the Directorate of Health. Only the candidate had access to the cabinet. The identity code consisted of the number in the order in which the patient was interviewed and the practice number and connected the participants with the transcribed tape recordings. De-identified transcripts were stored on the candidate’s personal computer, which is password protected and will be deleted when the PhD project is finalised. The audio recordings were deleted following the transcriptions. Only de-identified transcripts were shared with the main supervisor. These were sent encrypted as password-protected ZIP files. Passwords were sent via SMS.

4.0 Findings

This thesis consists of three published papers (full texts of the papers are attached at the end of this thesis). Table 4 summarises the main research questions and findings in Paper I–III.

Table 4. The main research questions and findings in the three papers included in this thesis.

Paper	**Main research question**	**Main results**
Paper I:	What are the facilitators for collaboration between GPs and other HCPs in Norwegian primary care?	The scoping review revealed a shortage of experience- and intervention-based knowledge about GPs' collaboration with other HCPs in Norwegian primary care. Based on qualitative and quantitative data, involving physicians, nurses, child protection workers, physiotherapists, medical secretaries, lab assistants and patients, the review suggests organisational, processual, contextual and relational facilitators of multiprofessional collaboration (see Table 5).
Paper II:	What are GPs', nurses' and medical secretaries' experience' of multiprofessional diabetes care?	GPs' motivation for involving nurses and medical secretaries in clinical work was enforced by time pressure and a perception of diabetes care as easy to standardise. The GPs reported that diabetes controls had become more regular and comprehensive following the involvement of nurses and medical secretaries in diabetes care. Nurses defined their role as to involve providing psychosocial support, as well as the follow-up of standard diabetes procedures. HCPs, regardless of profession, stated that institutional structures including a discriminatory remuneration system, missing role definitions and procedures for collaborative approaches were barriers for teamwork in general practice.
Paper III:	How do patients with diabetes and multimorbidity experience diabetes care provided by GPs, nurses and medical secretaries?	Patients experienced nurses and medical secretaries as attentive towards their psychological and emotional needs and available to answer their questions. In general, patients experienced appointments with their GP as stressful, focused on what had to be done and not having enough time to listen to all their matters. Most persons with T2D explained they did not participate in decision making, and they had unresolved questions about diabetes. Contrarily, persons with T1D appreciated that HCPs in general practice had advanced knowledge on T1D and demanded being involved in treatment decisions.

4.1 Paper I – A scoping review of facilitators for multiprofessional collaboration

Nineteen studies published between 2000 and 2017 with qualitative, quantitative and mixed methods design were included in the final data analysis of our scoping review investigating what facilitate collaboration between GPs and other HCPs in Norwegian primary care. Eleven studies involved an intervention, the remaining eight described HCP's experience of multiprofessional collaboration. A summary of the findings is given in Table 5, organised according to the framework for interprofessional teamwork by Reeves et al. (169).

Table 5. Organisational, processual, relational and contextual facilitators of multiprofessional collaboration in primary care as suggested by our scoping review (Paper I).

Organisational facilitators - Establish procedures for interprofessional meetings and documentation and handling of patient data (e.g., e-communication). - Facilitate knowledge sharing between HCPs in different institutions. - Establish local, specialised multiprofessional teams. - Establish a system-level foundation that supports local management and leadership of multiprofessional collaboration.
Processual facilitators - Enhance collaborative skills before introducing new professional teams, roles and responsibilities. - Develop common quality-management systems across institutions. - Allocate sufficient time for professionals to share reflection and engage in mutual learning.
Relational and contextual facilitators - Invest in professional relations that build trust, respect and continuity. - Improve professionals' knowledge of each other's skills and roles through interprofessional education. - Educate patients about the benefits of multiprofessional collaboration.

4.2 Papers II and III – Individual interviews

Five general practices were recruited to form the basis for the empirical research in this thesis. See Table 6 for the number of GPs, nurses, medical secretaries and patient participants interviewed in each practice and whether the practice was in a rural or urban area of Norway. Please note that only one participant (a nurse) was included in the fifth practice.

Table 6. Overview of participants recruited from each of the five practices

Practice (Pr) number	Number of patients interviewed	HCPs interviewed	Rural/Urban[a]
Pr1	1	1 GP, 1 diabetes specialist nurse	Rural
Pr2	2	2 GPs, 1 medical secretary	Urban
Pr3	3	2 GPs, 1 medical secretary	Urban
Pr4	5	1 GP, 1 diabetes specialist nurse	Rural
Pr5	0	1 nurse	Urban

a) Rural: city or town with a population <20 000 inhabitants, Urban: city with >20 000 inhabitants

4.2.1 Paper II—The roles of healthcare professionals in diabetes care

In total, two diabetes specialist nurses, one regular nurse, two medical secretaries and six GPs were recruited. Table 7 provides the background information of the included HCPs. Data are summarised as means and ranges to protect participant anonymity.

Table 7. Summary of HCP characteristics.

Interviewees	Age (mean/range)	Experience in years (mean/range))	Patient per week or list size[b)]
2 diabetes specialist nurses, 2 medical secretaries, 1 nurse	48 (43–54)	15 (10–25)	13 (3-30)
6 GPs	50 (31–69)	23 (3–42)	1208 (600-1550)

b) The average number of patients per week is given for the nurses/medical secretaries and list size for the GPs.

The aim of Paper II was to examine how GPs, nurses and medical secretaries experienced their role and care approach in multiprofessional diabetes care. Our thematic analysis of HCPs' experiences of multiprofessional diabetes care identified the following three main themes: *'Complementary diabetes care'*, *'Role ambiguity'* and *'Different perceptions of competence required in diabetes care'*.

Complementary diabetes care

GPs felt their increasing workload affected diabetes care negatively. Involving nurses and medical secretaries was perceived by both GPs and nurses/medical secretaries to improve patient access to care, the regularity of diabetes controls and care comprehensiveness. Nurses and medical secretaries stated their extended consultation time allowed for a comprehensive assessment of patients' questions and worries and in this sense, they complemented GP-led care.

Role ambiguity

The included practices organised diabetes care in various ways. In some practices (n = 3), diabetes specialist nurses or regular nurses were delegated responsibility for diabetes care., while in others (n = 2), medical secretaries were specifically trained to perform diabetes controls. The responsibilities also varied among the nurses and medical secretaries. Some of the GPs referred patients who did not achieve treatment targets to the nurse or medical secretary, while in other practices, GPs preferred to keep the most complex cases by themselves. Moreover, whereas some nurses/medical secretaries did only the regular diabetes check-ups and not the yearly diabetes controls, others did both the regular check-ups and the yearly control.

Different perceptions of competence required in diabetes care

There was no agreement among the GPs from different practices that nurses have a central role in general practice or in diabetes care. For instance, while one GP thought nurses were overqualified for working in general practice, another GP preferred consulting the nurse employed in his practice over the endocrinologist at the outpatient clinic, asserting that the nurse brought perspectives that were advantageous in understanding patients' comprehensive needs. In two of the five included practices, the GPs were indecisive about the future role of the nurse/medical secretary.

Nurses and medical secretaries emphasised using various communication techniques to individualise care and provide emotional support, as they felt this promoted patient self-management. None of the GPs mentioned the role of nurses and medical secretaries in providing psychological support. It is unclear whether this role division was agreed upon and whether the psychological aspects of care were recorded or shared among the HCPs. As a result of time constraints and missing financial incentives, GPs, nurses and medical secretaries did not arrange regular team meetings to share reflections. In all practices, the HCPs explained that the GP usually came in the last minute to clarify any questions. Further communication between GPs and nurses or medical secretaries happened either through reading the patient's electronic health record (EHR) or through sporadic talks during lunch or in the hallway.

4.2.2 Paper III—Experiences of self-management support in patients with diabetes and multimorbidity

Eleven persons with diabetes and multimorbidity were included from four different general practices. Patient demographics are given in Table 8. Please see Appendix VIII for the participant comorbidities.

Table 8. Characteristics of the patient participants.

Diabetes type (T1D/T2D)	4/7
Gender (F/M)	4/7
Overall age both T1D and T2D (mean years, range)	60 (45-72) T1D 53 (45-65) T2D 65 (56–72)
Duration of diabetes (mean years, range)	21 (3-44) T1D: 39 (35-44) T2D: 10 (3-27)
Years of follow-up in the current team (mean, range)	6 (2-15)
Marital status	Married/partner: 5 Divorced: 3 Single: 3
Education	High school: 6 BA: 4 MA: 1

T1D: Type 1 diabetes; T2D: Type 2 diabetes

The aim of paper III was to explore how persons with diabetes and multimorbidity experience multiprofessional diabetes care provided by GPs, nurses and medical secretaries and what aspects of care they consider important. The thematic analysis revealed four main themes:

'Nurses and medical secretaries provide diabetes-specific competence and personalised care', 'A desire to be heard', 'Perceived inadequate shared decision making in T2D' and *'Patient autonomy in T1D'*

Nurses and medical secretaries provide diabetes-specific competence and personalised care

In general, patient participants were satisfied with a multiprofessional follow-up. They particularly emphasised that nurses and medical secretaries seemed to have more time, which made it easier to ask questions and speak about their everyday lives with diabetes. Both persons with T1D and T2D felt that the nurse or medical secretary was competent and able to answer their questions. Being familiar with their HCPs was repeated as important by most participants and particularly persons with T1DM were thankful for being followed in general practice rather than the outpatient diabetes clinic where they were often introduced to new HCPs.

A desire to be heard

Many patients emphasised the importance of meeting a GP who had time to listen to all their concerns during one consultation. However, several participants explained that their GP seemed in short of time and was less available to answer their questions. Most patients seemed to have a close relationship with both their GP and the nurse or medical secretary, but in instances where patients perceived the GP was too stressed to listen to them, the relationship with the nurse or medical secretary contributed to patients feeling less alone with their illness.

Perceived inadequate shared decision making in T2D and **patient autonomy in T1D**

Most persons with T2D were unfamiliar with the concept of shared decision making and felt it was the HCPs' job to 'control' their diabetes. Some persons with T2D explained that they lacked the necessary knowledge to ask relevant questions related to diabetes self-management. This particularly pertained to prevention of diabetes complications and the importance of glucose control and diet. By contrast, persons with T1D explained that they felt competent and were highly involved in care decisions and setting glucose targets. None of the patients were familiar with the term 'care plan' *(behandlingsplan*) and neither persons with T1D nor T2D said they discussed lifestyle-related goals regularly with their HCPs.

5.0 Discussion of findings

The overall aim of this thesis was to investigate multiprofessional collaboration in primary care. Our scoping review revealed that little research has been performed on what can facilitate collaboration between GPs and other HCPs in primary care. Results from interviews with GPs, nurses, medical secretaries and patients in Norwegian general practices indicated that a high workload could motivate GPs to delegate clinical tasks to other HCPs. Nurses and medical secretaries offered patients longer consultation times and emphasised other aspects of care than the GPs. Persons with diabetes felt nurses and medical secretaries contributed to improving access to care and making it easier to have their questions and worries resolved.

In the following subsections (5.1–5.4), the overall findings of this PhD project are discussed related to recent policy development, preliminary experiences from the ongoing general practice team pilot project and theory on teamwork and PCC.

5.1 Facilitating multiprofessional collaboration in primary care

This section discusses the findings of the scoping review in relation to recent governmental action initiated to promote primary care research activity and quality, improving the technological infrastructure in healthcare and efforts made to improve HCPs’ knowledge and skills in collaborative approaches.

5.1.1 Primary care research

The scoping review (Paper I) identified that little knowledge exists related to multiprofessional and team-based care in Norwegian primary care. In accordance with our findings, a more recent scoping review studying the effects of co-locating GP services with other municipal HCPs still did not detect any publication from Norwegian general practice encompassing a team-based model of care (192). Primary care institutions are not legally responsible for research and teaching, as the healthcare trusts (specialist care). The lack of a research tradition and infrastructure can to a great extent explain why, in general, empirical studies from the Norwegian primary care setting are scarce, and this can make it more difficult for HCPs in primary care to combine clinical work with research compared to HCPs working in specialist care (193). The government’s national research and innovation strategy, HelseOmsorg21, considers primary care research a priority (108), and the number of scientific publications originating from primary care have increased by more than 60% from 2011 to 2019 (to compare, the overall Norwegian publication volume increased by 40% in the same period) (194). In 2019, only 2.4% of the total research activity (measured in scientific publications) took place in municipal health and care services. Limited to research on medicine and health sciences, the number was 8.9% (195). Universities and specialist care are the major initiators of research in primary care (194). Only a fraction of the publications have any representatives from municipal healthcare services. This is of concern, as for the results to be applicable, it is important that the projects emanate from and are grounded in the field of practice. Indeed, the municipalities report they only to a small extent use the results of research they are involved in or have initiated (194).

About 70% of the Norwegian population visits their GP every year. In spite of this, research in primary care is limited due to a lack of a research infrastructure (196). The Norwegian Primary Care Research Network was established in 2018 to meet this challenge and consists of four family medicine research units at the largest universities in Norway (Bergen, Oslo, Trondheim and Tromsø) (196). The main aim of the network is to solve the challenge of performing and recruiting patients for clinical research in general practice and contribute relevant and useful research for general practice employees and their patients. As per November 2021, almost 500 GPs participated in the network, with access to more than 500,000 patient records. In their 3-year status report, the leaders of the network report from GPs being enthusiastic to contribute to research and researchers eager to collaborate with the network (197). Parallel to the recruitment of practices, the network develops a digital infrastructure that facilitates pseudonymous and secure data withdrawal from the patients' EHRs for use in research. This is promising, given the critical need for more knowledge about facilitators for multiprofessional care in the general practice setting, as identified in our scoping review (198).

5.1.2 Improving information flow in primary care

In accordance with what other Norwegian authors have reported about GPs' collaboration with other HCPs in Norwegian primary care (199), our scoping review indicated that the financial and organisational structure of primary care services often act as barriers for effective collaboration. For example, we found telephone availability, communication and information sharing as being problematic between GPs and home care nurses (200-202), HCPs in nursing homes (203, 204) and HCPs at the emergency centre (205). In a qualitative study, Steihaug et al. also directed attention to GPs' list system and the geographic organisation of home-based services as incompatible with and hindering effective collaboration and communication between GPs and home care nurses (199).

With increasing life expectancy and the number of people living with LTCs, the request for long-term, multifaceted and personalised care has grown significantly. However, the differentiated organisation and financing of primary and specialist care are challenges for integrated care and for taking the best possible advantage of our healthcare workers. As healthcare becomes increasingly pressed for time and human resources, alternative solutions are welcomed. The Global strategy on digital health 2020–2025 issued by WHO envisions information and communication technology (ICT) to radically change health outcomes if it is supported by sufficient investment in governance, institutional and workforce capacity (206). Indeed, the COVID-19 pandemic has positively impacted the willingness to adopt new technology among patients and HCPs and has shown how innovative solutions can help improve access to necessary competence (207).

Although there are still challenges related to the national interoperability and integration of ICT systems (208), several initiatives have been initiated since the commencement of this PhD project to improve the technological infrastructure and meet challenges related to collaborative practice across different healthcare institutions. Following the establishment of the Norwegian Directorate of eHealth in 2016, electronic prescriptions, e-messages and the 'summary care record' ('kjernejournal') have been giving access to health information to both patients and HCPs and contributed to improving professional interaction, care coordination and patient safety (209-211). Moreover, there is an ongoing project termed 'Akson', which seeks to integrate the journal systems used in primary care with those of specialist care (212). However, although the digital transformation of healthcare represents major opportunities, it also raises important ethical questions related to building relations among HCPs and between HCPs and individual patients. Following the person-centred agenda, considerations should be made concerning ICT and how it can complement and improve today's healthcare system, rather than replace established and well-functioning care practices (213).

5.1.3 Building professional relationships in primary care

Our review suggests that improving collaboration between GPs and other HCPs in primary care requires substantial investments in time and continuity to build trust, respect and collaborative skills. For example, Magnussen and Godager et al. propose efficient collaboration between GPs and home care nurses and coming to agreement on what is the best interest of the patient requires time and continuous efforts (201, 202). Other Norwegian authors have identified professionals' demarcation of roles, culture and understanding of each other's tasks as barriers for professional collaboration and communication (214). Indeed, the potential of an organisation's tangible resources depends on intangible features, such as individuals' collective attitudes and relationships (215). Many HCPs in primary care work alone and have little time to share reflections, mutually work out new ways of collaborating, maintaining relationships or planning patient care (62). This fragmentation may lead to disintegrated care services and ethically difficult situations when HCPs' value systems collide (216). For example, in the qualitative study by Graue et al. (included in our review), home care nurses felt diabetes care often was delivered in 'bits and pieces'; various HCPs had different opinions about the right intervention and physicians frequently gave inconsistent advice or were uncertain about standards of diabetes care (204). As a response to the acknowledged coordination difficulties within primary care and between municipalities and specialist care, a major objective of the National Health and Hospital Plan 2020–2023 is to create 19 health communities ('helsefellesskap') (217). The most recent evaluation report of the plan shows that many health communities have been established with representatives from the local healthcare trusts, their associated municipalities, GPs and patients (218). The main goal of these communities is to plan and develop local healthcare services together. Team-based, person-centred and digital care services are emphasised as priority areas to improve care integration and comprehensiveness for people with complex needs (218).

Several studies in our review illustrate the potential of collaborative approaches as promotors for continuous learning. Nurses working as home care nurses or in nursing homes who collaborated with pharmacists in performing interprofessional medication reviews experienced increased pharmacological knowledge, being more capable of interpreting patients' drug-related behaviour and giving more relevant feedback to patients' GPs. The pharmacists became aware of the necessity of clinical information held by the nurses to provide individual pharmacological advice. Both professions changed their attitudes toward each other's profession for the better and recognised the potential for improving patient care through collaboration (219). In the descriptive explorative study by Cronfalk et al., preventive home visits were performed by a multiprofessional team in two municipalities. The individual team participants worked within the boundaries of their professional practice, shared knowledge, relied on and influenced each other's decisions and thereby improved their expertise on older persons and preventive care (220). One could say that the HCPs in both Bell and Cronfalk's studies were engaged in IPE, where practical teamwork contributed to extending each member's competence within the geriatric field. IPE has been defined as the occurrence 'when students or members of two or more professions learn with, from and about each other' to improve collaboration and the quality of care (WHO, 2010). When this PhD project was conducted, IPE was not systematically implemented in HCPs' education.

However, according to a common regulation on health and social sciences education issued in 2019, it is expected of HCPs that they are able and willing to collaborate across disciplines, professions and sectors (221). The particular regulation on the study of medicine introduced in 2020 has a paragraph on collaborative skills. §14 requires graduate medicine students to be able to reflect on their own and others' roles in professional collaboration and interprofessional teams and to contribute to good interactions. Following the new regulations, universities in Oslo, Bergen, Trondheim and Troms have introduced interprofessional learning courses, including students from a wide range of different professions. When new student cohorts graduate, it is expected that the students will have more knowledge and understanding about their own and others' values, roles and responsibilities when working as an interprofessional team and recognise the value of interprofessional collaboration in healthcare.

5.2 Governmental initiatives to support the GP scheme

In the same year as our data collection (2017), a report declared the GP scheme in a crisis (73), and several subsequent commentaries by GPs requested governmental action to save the GP scheme (222, 223). Consequently, the Norwegian Ministry of Health has initiated several measures to strengthen, develop and maintain the GP scheme: a) a pilot project investigating the effects and experiences of general practice teams was initiated in 2018; b) launching an action plan for general practice in 2020 (224); and c) allocating considerable amounts of money to the state budget in recent years to improve recruitment and retention of GPs. By 2024, the GP scheme will be strengthened by NOK 1.6 billion, as compared with the balanced budget of 2020 (225).

The general practice care team pilots are implemented in 18 Norwegian general practices, administered by the Directorate of Health (226). Each team consists of GPs, nurses and medical secretaries (one team also has a psychologist). The pilot teams, running until 2023, are meant to act in resonance with a person-centred and holistic approach, where the question 'What matters to you'? is fundamental. The aim of the project is to explore whether a team-based approach can improve access to care, care coordination, patient education, prevent disease progression and hospital stays and provide a wider set of integrated services locally. The main target groups of the teams are persons with LTCs, physical or psychological disabilities, frail elderly and persons suffering from drug abuse (227).

The ambitions set in the action plan for general practice include equipping the GP scheme for the future by improving GP recruitment, reducing their work pressure and introducing team-based care with a reasonable division of labour between HCPs from different professional backgrounds. Thus, the pilot project is central in informing the main priorities of the action plan. As per June 2021, three evaluation reports, reporting from the two first years of the general practice care team pilot project are available (226, 228, 229). It is relevant to compare the findings in this PhD project with those of the pilot project, as both projects are motivated by the white paper on primary care, have overlapping objectives (both projects explore the experiences of GPs, nurses, medical secretaries and patients with multiprofessional care in Norwegian general practice), and the pilot project will steer the future implementation of team-based care in Norwegian general practice. Moreover, in accordance with the objective of the public sector PhD scheme, the candidate's future responsibilities in the Norwegian Directorate of Health's will include working with the general practice team project, where she will draw on the findings from both projects. Table 9 summarises key data from the pilot project evaluations in 2019 and 2020 (228, 229).

Table 9. Background data and evaluation of the general practice team pilot project.

Data source	Number of respondents/participants
Number of participating practices	17
Total number of GPs/nurses/medical secretaries	110/39/76
Number of adults connected to general practices participating in the pilot project	103,727
Number of adults who have received care by the pilot teams	About 10,000
GP/nurse/medical secretary respondents to questionnaire 2019	68/36/37
GP/nurse/medical secretary participants in qualitative interviews 2019	40/25/31
Patient respondents to questionnaire 2020	30,944
Patient participants in qualitative interviews 2020	10
GP/nurse/medical secretary respondents to questionnaire 2020	81/38/44

5.3 Towards team-based general practice services

In this section, the findings in Paper II are considered, guided by the preliminary experiences from the general practice team pilot project and theory on teamwork. Emphasis is placed on professional role clarification, partnership building and team leadership.

5.3.1 A need to clarify nonphysician HCPs' roles in general practice

We found GPs' mindsets, when it came to engaging nurses and medical secretaries in clinical care, varied. Some referred to other GPs in the same practice (these GPs typically declined participating in our study) who were sceptical about sharing diabetes care with nurses or medical secretaries. Correspondingly, in several of the pilot practices, it was initially challenging to engage all GPs in the project, and the general practice leader became the one primarily responsible for involving nurses in the daily routines and defining their clinical role. Over time, as the GPs became more familiar with nurses' competence and personality, more of the pilot practice GPs saw the value of the nursing role and team-based care. Yet 50% of the responding GPs disagreed to some extent following the first two project years that involving a nurse in diabetes care is beneficial. GPs' readiness to consider other HCPs as equal team members is suggested to be related to their longstanding tradition of working alone with their patients, which leads GPs to having limited knowledge about and understanding of other professions' scope-of-practice (62, 230). Moreover, other researchers have reported that physicians want to be certain that the person undertaking their role is capable and possesses the appropriate skills, knowledge and experience (231).

Multiprofessional teamwork is not part of the curriculum in the specialisation programme of GPs, and Norwegian GPs are typically unfamiliar with the principles of team-based care (232). As previously described, IPE has recently been integrated in most Norwegian health and social care educational programmes to improve forthcoming HCPs' teamwork skills, knowledge about other professionals' competence and value system and as a measure to rationalise healthcare. The impact of IPE on the improvement of individual and population health outcomes, quality and safety of care, healthcare costs, collaborative practice-readiness and work experience is yet unclear, although there has been a substantial increase in published IPE research in recent years (233). The health authorities may need to consider how HCPs already working in general practice can receive the necessary training and support to implement team-based care.

Nurses and medical secretaries in our study frequently mentioned that a high workload led them to do tasks that were not particularly assigned to them. For example, nurses did medical secretaries' chores in the reception and medical secretaries helped the laboratory personnel in doing blood work. Similarly, some GPs were discouraged by an increasing number of administrative tasks, and one GP said he sometimes felt he was the specialist physicians' secretary. Role blurring can, if executed with intention, aid team members' professional development by enabling them to gain a greater range of expertise, allow workloads to be shared and lead to greater continuity of patient care (231). For example, both nurses and medical secretaries in our study were involved in the daily administrative management of the practice, performing duties such as creating shift calendars and vacation lists and handling salary payments, sick leaves and practice bills. However, without role clarity HCPs may undertake a variety of tasks falling outside of their remit, which may lead to conflicts, stress and frustration (231). Most nurses and medical secretaries participating in our study enjoyed their work and related this to the variety of tasks and that being involved in clinical work increased their work satisfaction. In most cases, their role in diabetes care was well established, and they felt trusted by the GPs to practice autonomously. One nurse and one medical secretary were less satisfied with their work arrangements and felt unsure whether the GPs wanted to continue with a team-based diabetes model. They related this to staff shortages and unwillingness from some of the practice GPs. In addition, the medical secretary felt she had let the other secretaries down on the days she had diabetes consultations, as no one replaced her position. This emphasises the importance of agreement among all the staff members about roles, responsibilities and team organisation. Indeed, experience from the introduction of advanced practitioner nurses in British general practice indicates that specific regulations of new roles in general practice are needed, along with standardised job descriptions, levels of practice and expectations, to ensure public safety (234).

A remarkable finding from the pilot project that warrants further study is that only 14% of the medical secretary respondents felt part of the general practice team and less than half of the GPs considered medical secretaries to have a role in the general practice team. The weekly team meetings mostly did not include medical secretaries. As for nurses, the medical secretary role is not defined in the pilot project mandate. It is possible that the medical secretary is regarded as administrative staff by the GP leaders and therefore is not invited into the clinical dialogue. Furthermore, few experienced having decision-making authority as a team member or that their workday had changed following their participation in the pilot project. Several medical secretaries commented that they could just as easily perform the tasks of the nurses, and some GPs felt that the voice of the medical secretaries was neglected, which was unfortunate for the team dynamics. Only nurses, and not medical secretaries, triggered reimbursement in the pilot project. Consequently, the medical secretaries are hindered from participating as equal team members together with the GPs and nurses. In many practices, this has caused conflicts when nurses have taken over tasks that previously belonged to the medical secretaries. Among the nurses in the pilot project, only 25% responded that all nurses (including nurses not specifically hired to participate in the pilot project) had a role in the team. The corresponding number of GPs was 29%. Most of the GP respondents in the pilot project evaluation considered their GP colleagues to have a role in the GP team (77%).

Nurses in the pilot project were either recruited, or in the case where practices already had nurses employed (nine of the thirteen pilot practices), they began in a new but undesignated role. Either way, many of the nurses considered the start-up as difficult, particularly because the nursing role is not defined in the project mandate, and their intended role overlapped with that of both the medical secretary and the GP. Several nurses in the pilot project also reported that collaboration with the GPs was challenging and felt this related to a lack of trust. A few of the nurses in the pilot project said they were held responsible for effectuating the progress of the project, taking the initiative to team meetings and designing their own role. Other nurses explained that they missed being led and having someone deciding on a clear direction. It thus seems as if the ‘general practice team’ is considered by most of the staff to exist as a solitary unit within the practice (consisting of the GP team leader and the team nurse(s)). Combined, our results and those of the pilot project indicate that there is some way to go before all the staff in general practice feel part of and agree to the general practice team. What can be learnt from this is that when care is reorganised and new roles are established, it can alter the whole practice dynamics. The results from the pilot project, as well as ours, prompt important practical and ethical questions about the division, scope and responsibilities of various roles in general practice, and how to break down professional boundaries and align the reimbursement scheme with team-based principles. As will be further elaborated on in the next section, building good relationships and trust among team members are prerequisites for effective teamwork (235).

5.3.2 Teamwork, leadership and care quality

The GPs, nurses and medical secretaries in our study did not arrange regular formal meetings where they discussed and reflected on patient cases. Rather, they worked mostly in parallel, pursuing their individual agenda towards the same patients and talked sporadically throughout the day. The nurse- or medical secretary-led diabetes appointment lasted 30–60 min, and they only attended diabetes-related procedures and follow-up, while the GP was responsible for patients’ overall care. These findings should be addressed in the future planning of team-based general practice services and warrant further discussion. A team-based approach is thought to improve care quality and patient safety precisely because it allows for a diverse set of HCPs with various professional interests, competences and skills to dynamically share information and knowledge in an increasingly complex healthcare system (70). Indeed, good communication skills are linked to better patient outcomes, safer work environments and decreased adverse events (236).

Being involved in diabetes care only and working in parallel with the GPs meant that the nurses and medical secretaries in our study were unable to contribute to providing comprehensive care together with the GPs. This siloed approach may prompt a high level of coordination activities. Given the high prevalence of multimorbidity in the general practice population, care models where one of the staff is dedicated to focusing on a single disease are probably not sustainable or scalable (111). For instance, the prevalence of complex multimorbidity (defined as having three or more conditions from three different organ systems) amongst participants > 25 years of age in the Norwegian HUNT3 (2006–2008) study was 54% (237). A European study found that most persons with diabetes have one or more additional LTCs (238). The prevalence of other LTCs among the Norwegian diabetes population is unknown (170), but register data shows that more than 40% of persons with complex multimorbidity have diabetes (239). Seen from the perspective of PCC and the generalist role of GPs, tomorrow’s general practice team should be able to serve the comprehensive needs of patients with a variety of diagnoses in an integrated and collaborative way (240, 241).

An interesting finding from our study linking teamwork and quality of care is that several of the GPs mentioned that their motivation to adhere to clinical guidelines and stay up to date on diabetes research was enforced by their responsibility for assuring the nurse or medical secretary had necessary competence and skills. One of the GPs used the word ‘mirroring’ to describe how the medical secretary’s practice reflected his own practice. Whether multiprofessional collaboration can increase guideline adherence is a question that warrants further research (242). In our study, participants from all professional backgrounds explained that they were motivated to provide high-quality diabetes care because they shared care responsibility. From their experience and input from patients, the GPs in our study reported that diabetes care had become more structured and continuous, that the adherence to diabetes screening procedures had improved and that more attention was paid to patients' preferences of care following the involvement of nurses or medical secretaries. Imperative to this finding was the fact that the nurses and medical secretaries in our study had acquired experience and competence in the treatment of both types of diabetes. In addition, several of the nurses/medical secretaries explained that they were trained in person-centred communication techniques, such as motivational interviewing. During the interviews, they emphasised that it was important for them to show empathy and trust and to be sensitive to how their attitude and approach affected patients' self-management motivation. This approach, they said, often led to participants being more open and willing to talk about their concerns and ask questions.

Experiences from the general practice team pilot were similar; the GPs felt it was easier not to intervene when they were alone with the patient, whereas when the nurse was involved in the examination, they more stringently followed clinical guidelines. As we found, the GPs in the pilot practices experienced nurses to gather more relevant information from patients because they have more time, so that the GPs can make better decisions. These are examples where team-based care has synergetic effects on care quality (243). However, several GPs in the pilot project requested reimbursement for the time they spent coordinating patient care with the nurses. This finding possibly insinuates that there is potential for GPs and nurses to improve their collaboration if time and economy allows it—an implication that should be further explored.

Motivation for teamwork can be triggered by patient needs and a will to improve relations, save time and gain new knowledge (244). In our study, the GPs felt that they saved time by allocating diabetes care to nurses and medical secretaries. Many of the GPs in the pilot practices shared our experience that nurses contributed to the improved systematisation of diabetes care. This experience corresponds with register data showing a significant increase in the share of patients with T2D connected to the pilot practices who have had yearly diabetes control after 2017 compared to control practices (228). However, many of the GPs in the pilot project considered adopting a team-based model of care to generate additional work (or what they referred to as 'unpaid time') related to leadership, team organisation and meeting attendance. In fact, less than half of the GP respondents in the pilot practices experienced a team-based approach to saving time. This may relate to the lack of guidance from the project management in the start-up phase and the fact that the project mandate does not describe how team processes can be effectively implemented. In fact, during the first months of the pilot project period, the workload related to management and leadership required to participate in the pilot project came as a surprise for many of the GPs designated as practice leaders. Consequently, they requested leadership and management support and more time to function as team leaders. It is also surprising that GPs and nurses in pilot practices cannot trigger tariffs from the same patient on the same day (and medical secretaries do not trigger tariffs at all). This may increase the need for team meetings to coordinate patient care across HCPs. Medical secretaries are excluded from being equal members of the team, and HCPs and patients can miss out on opportunities to improve their relationships and learn about and from each other.

The GPs in our study recognised that providing high-quality care for persons with diabetes required more time than they could offset. They related this to an increasing number of mercantile tasks, attestation requirements, meeting attendance and responsibility for patients with complex care needs. Similarly, other authors have suggested that the heavy work demands placed on Norwegian GPs impact their quality of care (245). In a study comparing Norwegian physician’s perceptions of care quality, professional autonomy and job satisfaction, only 7% of the GPs perceived they had adequate time to spend with their patients during a typical patient visit (246). Twelve percent agreed they had the freedom to make clinical decisions that met their patients’ needs, and only 9% found it possible to deliver high-quality care to all their patients.

An important question for future improvement and development of general practice as the number of employees continues to grow is whether there is a need for a leader without clinical responsibilities and how GPs should spend their time (235). For instance, the GPs in our study mentioned that they aspired to engage in practice innovation and train and prepare nurses and medical secretaries to assume more clinical responsibility. Although recognising this potential, they found it difficult to find time to gather all practice staff to agree on a way forward—a task that typically requires a dedicated leader. More research is required to decide whether and how a team-based approach can relieve GPs’ workload, at least as long as the GP is thought to function as the team leader.

5.4 Patient experience of multiprofessional diabetes care

In this section, the findings from interviews with persons with diabetes and multimorbidity are discussed (Paper III), drawing on experiences from the general practice team pilot project and theory on self-determination and self-management support.

5.4.1 Can a multiprofessional approach improve patients' satisfaction with general practice services?

Most patients in our study were satisfied with their GP and related this to having a continuous relationship over many years. However, some patients disliked how their GP did not allocate enough consultation time so that they could solve all needs and concerns during one single visit. Many patient participants also mentioned that their GP appeared stressed and inattentive, and as a result, they avoided asking too many questions and felt they had to rush through the consultation. In fact, two of the patients reported having changed their GP because they did not feel listened to. This finding correlates with the results of user surveys of the experiences of the general practice scheme. These surveys indicate that Norwegian patients' requests for accessibility and information are not met, that the GP consultation is experienced as too short (247, 248) and that Norwegian patients have poorer experiences with their GP in the areas of communication, shared decision making and care coordination compared to patients in other OECD countries (249). It is therefore suggested that moving towards a more person-centred model of care will demand more attention being paid to the role of HCPs to transitioning from those of one who 'tells' to one who 'listens' (250).

A lack of psychosocial support can be a barrier for successful diabetes management (250). When patients talked about a nurse or medical secretary-led consultation, they particularly emphasised the inviting atmosphere for disclosure of thoughts, feelings and questions and how it made them feel part of a team where the responsibilities for diabetes management were shared. In this context, the patient participants valued HCPs who showed interest in knowing them as persons, and participants with T1D, for the same reason, preferred to be followed in general practice over the diabetes outpatient clinic. This was related to how the hospital setting reminded them of being ill and how the personnel often changed. Similarly, other authors have reported persons with T1D preferring the continuity general practice offer over the hospital outpatient setting (251). Reflecting on this finding, one should bear in mind that the degree of diabetes competence among the GPs, nurses and medical secretaries in our study was probably higher than in the average Norwegian general practice, which presumably affected participants' responses.

Other researchers suggest that emphatic communication between persons with diabetes and HCPs can improve well-being and self-care and reduce diabetes distress (252, 253). A Norwegian study of persons with T2D participating in a diabetes education programme showed that empathy, defined by the participants as HCPs being understanding, listening and acquiring a holistic approach, was rated as integral to feeling supported in self-managing their disease (86). Moreover, the application of motivational interviewing techniques can potentially improve HbA1c in persons with T2D (254) and lead to short-term improvements in HbA1c in persons with T1D (255). In this sense, in addition to performing regular diabetes controls, the nurses and medical secretaries in our study played an important role in providing PCC, in which the GPs may not have time or skills to provide.

As SDT purports, the intention of self-management support is to encourage people's motivation to change the things in life that hinder health and well-being—not for the purpose of achieving a specific medical target, but for the patient to feel autonomous and confident in these decisions (256-258). Thus, SDT was useful to recognise these dimensions of care and how accommodating people's basic needs can promote or hinder individuals from becoming agents for their own health. The fact that patients experienced the GP and the nurse and medical secretary consultations differently may be rooted in distinct professional roles and responsibilities, their educational training, work experience and professional culture (259), as well as the fact that nurses and medical secretaries had more time to speak with the patients during consultations. It is also possible that the patients in our study were more able to recognise how time pressure affected the GP-led consultation negatively because they compared it with that of the nurse/medical secretary. In this regard, a person-centred logic can help illuminate the inherent contradictions between the personalisation of care and evidence-based, standardised medicine, in which HCPs must continuously balance. If future diabetes care involves predictive diagnostics, targeted prevention and treatments tailored to the person (260), our study suggests nurses and medical secretaries may contribute to redress this balance.

The findings from qualitative interviews with patients receiving care from the general practice team pilots are comparable to ours (228). Overall, patients linked to the pilot practices experienced general practice services to have become more continuous, systematically planned, comprehensive and coordinated following the introduction of a practice nurse. Patients perceived nurses rather than inheriting tasks from the GPs contributed with new services and aspects of care, such as time. More time during consultations facilitated increased opportunities for patients to present their errands, participate in decision making and complete treatment as agreed. Patients in the general practice team pilot project also experienced having gained new knowledge about their health and becoming more secure in self-managing their disease following the nurse-led consultations. A specific example referred to in the evaluation report was when patients received information about lab results, they were enabled to translate this information into action. As we found, some patients in the general practice team pilot referred to the GP consultation as stressful. This atmosphere made them either forget or disallowed them to ask their questions, and consequently, they had to book another appointment. In comparison, some patients in the pilot project referred to the nurse-led consultation making them feel calm and others explained that nurses' extended consultation times had led them to gaining relevant information that helped them make lifestyle changes. Overall, the patients in the pilot project felt that the nurse and the GP complemented each other by being specialists in different aspects of care, and they had developed as tight a relation to the nurse as to their GPs. Several patients felt more comfortable talking to the nurse and used her as leverage to bring forward important messages to the GP. As a result, they felt more understood by their GP. Patients were satisfied with the broad competence and experience of the nurses, their knowledge of various municipal services, as well as their being more skilled in empathic lifestyle change guidance compared to the GPs.

As can be seen, both our study and the pilot project found that patients request longer consultations, and that nurses and medical secretaries could complement GP-led care and fill care gaps that were perceived as meaningful by patients. International studies have reported similar findings. For instance, experiences from the implementation of diabetes specialist nurses in the Republic of Ireland, as reported by GPs and practice nurses, showed that diabetes care has become more systematic, that other members of the general practice staff have improved their knowledge of diabetes and that the practice team has generated capacity to care for complicated patient cases, which they earlier sent to the outpatient clinic (251).

5.4.2 Promoting patient self-management capacity

Patient participation is elementary in PCC, and one of the objectives of this thesis was to examine whether persons with diabetes took part in decisions and had received enough information to reach their health and wellness goals. Both the GPs, nurses and medical secretaries in our study confirmed that they routinely provided patients with information about diabetes. Meanwhile, some of the participants with T2D asked basic questions during the interview related to issues such as glucose regulation, nutrition and diabetes aetiology, possibly indicating they might not have acquired sufficient information to efficiently self-manage their diabetes. The same patients said that they did not participate in care decisions or had set health goals together with their HCPs. The connection between these findings is important, as being insufficiently informed may subdue a patient's inclination to ask questions or request being involved in decision making and taking full advantage of patient choice (54). Surprisingly, some of the participating patients in our study stated that they had not been offered any diabetes course, to which all patients with diabetes are entitled. This finding can be related to GPs' lack of awareness of the responsibility of specialist care to provide newly diagnosed persons with diabetes education and training in self-management (261).

The contrasting findings among patients and HCPs related to the provision of diabetes information call for further investigations. On one hand, HCPs may have a limited understanding of their patients' preferences for involvement in making decisions about their health and desire for information (262). On the other hand, studies have consistently found that patients do not correctly recall much of the recommendations and information given by their physicians (263). A questionnaire-based study among 1500 Norwegian persons with T2D investigated whether the respondents felt they had received enough information about various aspects of diabetes care (261). The results indicated that more than 40% of the respondents were unaware of their diabetes needing frequent follow-up, 40% felt they had not received adequate information about their medications, 35% felt they had not received enough information about physical activity and 42% had not received sufficient information about weight reduction.

Considering this information, SDT postulates that attention must be paid to both the decisional *and* executive autonomy (the extent to which the patient is able to integrate changes into everyday actions) of the patient (264, 265). This issue brings up the ethical concern relating to the combination of consumer choice philosophy in healthcare and the informational asymmetry between healthcare providers and healthcare recipients, which can be so substantial that it is difficult for the latter to exercise their choice effectively (266, 267). A relevant example from our study illustrating a GP encouraging a patient's executive autonomy is the story referred to by one of the participants with T1D. The interviewee was inspired by his GP to participate in a five-hour bike race, which he had dreamt of doing but never thought possible without pausing to control and adjust his blood glucose levels. For him, being encouraged and guided by his GP to complete the race without fearing hypoglycaemia was an impactful change; his confidence in what his body was able to do received a tremendous boost, and his perception of autonomy was considerably enhanced (as told by the participant: 'If it wasn't for my GP, I had never learnt what my body is capable of').

A recent meta-analysis investigating the effect of interventions to overcome therapeutic inertia on glycaemic control in individuals with type 2 diabetes suggested that both the mode and frequency of the intervention are crucial (268). The review shows that nearly all care management and patient education initiatives associated with statistically and clinically significant improvements in HbA1c, used technology (such as telemonitoring, text messaging, virtual visits or mobile applications) to support frequent communication between patients and care managers or other team members. The authors suggested that this was related to technology's potential to enhance intervention intensity with less impact on healthcare resources compared to face-to-face care. Moreover, a systematic review found that technological interventions could contribute positively to the management of T2D distress compared to a control group or initial data (269). However, a Norwegian report on health literacy found that a significant proportion of the population find it difficult to critically assess health information, navigate the healthcare system and assess the advantages and disadvantages of various treatment options (270). The authors of the report warned that the political goal of creating person-centred services and enhancing patient involvement depended on more readily available information concerning health and disease, as well as the advantages and disadvantages of various treatment options. The report also emphasised that digital communication between health institutions and patients should improve, and that attention should be paid to the fact that the most frequent users of healthcare services (persons with LTCs and people >65 years of age) appear less prepared to use digital technology (270). In the future, it is necessary to explore how web-based interventions can be utilised in conjunction with personalised feedback and routine face-to-face support to improve diabetes self-management.

5.4.3 Care planning in diabetes

The patients in our study were relatively young with one or more LTC in addition to diabetes. Thus, the potential for preventing diabetes progression and complications is assumed to be high. It was therefore surprising that none of the participants had a care plan or, in the case of T2D, could refer to any specific responsibilities regarding self-management of diabetes. When asked if they used care planning as an intervention to motivate patients to engage in preventive activities in diabetes care, all HCPs in our study answered no. The national guideline for diabetes recommends that persons with diabetes are engaged in care planning. To the best of the candidate's knowledge, the first attempt to systematically implement care planning in diabetes care in a Norwegian context was made in a general practice team pilot project, where care planning in diabetes triggers a separate tariff. However, only about half of the GPs participating in the pilot practices thought that some of the patients on their list would benefit from having a care plan (228). Furthermore, a minority of the GPs using care plans found the time worthwhile. This has led to a significantly smaller proportion of the list of patients linked to the project receiving a care plan compared to those who are believed to possibly benefit from it.

The hesitance among the GPs in the pilot practices and our study to adopt care planning into their practice may relate to the fact that lifestyle interventions and structured self-management support involving care planning is not directly reimbursed through the GP tariff agreement. Moreover, Norwegian GPs report that they are uncertain about, and not systematic about, preventive and health-promoting activities (271). In fact, as many as roughly 80% of the responding Norwegian patients in an OECD survey from 2017 had not discussed their lifestyle behaviour, diet or exercise with their GPs (272). Lack of time in consultations, concerns about worrying or bothering patients unnecessarily and a lack of awareness among patients about the benefits of being engaged in planning their self-management activity are barriers registered in international studies, which are possibly relevant to the Norwegian setting as well (273, 274).

On several occasions, the participants in our study preferred day-to-day well-being and quality of life over strict glucose control. A care plan can be an efficient instrument for systematically integrating biomedical goals with individual wishes and lifestyle preferences and documenting these within the group of professionals involved in a person's care activities (275, 276). Joint care planning may also lead to a greater understanding of frustrations and challenges in disease management among patients and HCPs (277), facilitate shared decision making and personalisation of care (278) and assist providers in managing multiple and often conflicting clinical recommendations in patients with multiple LTCs in a coordinated way (279, 280). It can also function as a tool to detect comorbidities often missed in persons with diabetes and other LTC, such as depression (281). All the included practices in our study used the Noklus diabetes scheme. Previous research has shown that usage of this structured electronic diabetes health record was associated with improved care processes and risk factor control (282). However, the scheme only attends to diabetes-related health targets in retrospect and does not include patients' personal goals or motivates providers to follow up on individual self-management initiatives. Little knowledge exists about the extent to which the recommendation for care planning in diabetes is followed in Norwegian general practice. As the GPs in our study experienced, the management of other comorbid conditions can often compete with the prioritisation of diabetes care (232, 241). As care planning may improve the care quality for people with multiple LTCs (88), further studies are necessary to explore the barriers HCPs experience in taking a more systematic approach towards patient self-management in the general practice setting.

6.0 Discussion of methodology and candidate background

This chapter discusses the considerations made of alternative research methods to achieve the objectives of this PhD project (Subsection 6.1), as well as the strengths and weaknesses of the research approaches chosen in Papers II and III (Subsection 6.2).

6.1 Consideration of alternative research methods

Systematic reviews may represent an alternative to scoping reviews to gain deep insight into a specific topic of interest. However, as systematic reviews seek to give recommendations for practice after careful appraisal and assessment of the quality of the evidence, they require a substantial amount of literature. The candidate considered multiprofessional collaboration as a heterogenic field of study and that existing literature was limited and too broad to perform a systematic literature review.

Interview-based research is useful to gather rich personal data on individual experiences and preferences (179). Alternative approaches to explore people's opinions considered in the planning phase of this project were focus group interviews or questionnaires. Performing focus group interviews could potentially have increased the number of participants compared to individual interviews. However, individual interviews were considered more useful when our objective was to gather rich details about the participants' personal reflections and opinions (283). Furthermore, it was practically complicated to gather HCPs from practices in different parts of the country to meet at the same time. Moreover, we suspected that there might exist disagreement among HCPs concerning care approaches and professional roles; therefore, HCPs with different professional backgrounds from the same practice were interviewed separately. A greater number of respondents can also be reached in questionnaire-based studies. However, this method requires substantial a priori knowledge about the phenomena being studied to predetermine sets of standardised responses (176). Additionally, the number of informants available to answer our research questions was strictly limited and too small to fulfil the assumptions for a subsequent quantitative analysis (284). Since our problem statements were relatively wide and the topic was a rather unexplored field of research, an explorative qualitative research design was deemed more appropriate.

The candidate made observations of patient consultations and HCPs' daily work routines in two of the practices. Applying ethnography as a research method allows for increased access into daily life practices and potentially could have revealed more information than participants recalled, chose to report, were aware of or decided was of relevance (285).

Ethnographic research combined with interview-based and/or questionnaire-based data collection is useful when the aim is to explore behaviours, communication, teamwork and patient interactions in real time (286). However, ethnographic research is laborious and time consuming and requires the researcher to stay for a prolonged period of time in only one setting (287). Thus, ethnography was not considered feasible, considering the timeframe of this thesis.

6.2 Strengths and weaknesses of the chosen research methods

6.2.1 Scoping review—Paper I

We performed a scoping review to identify and examine the emerging field of research related to GPs' collaboration with other HCPs in the context of Norwegian primary care. By drawing on knowledge from multiple sources, scoping reviews are useful in providing researchers and decision makers with a comprehensive overview of the nature of a concept and to what extent and how that concept has been studied over time (288). We found the scoping review methodology valuable, as it allowed us to investigate the breadth of literature on our topic of interest without restrictions related to the type or quality of research studies.

The PRISMA checklist for scoping reviews, as suggested by the Joanna Biggs Institute, was used as a quality assurance throughout the research process (288). A broad and thorough search strategy was performed, resulting from several initial searches performed by a medical librarian. Although our search was comprehensive and included grey literature and manual searches, it may not have identified all relevant publications. This is related to the various typologies used to define professional collaboration and because potentially relevant municipal and local initiatives often lack resources to publish their results. Indeed, municipal research is generally regarded as being underfunded and pilot projects with governmental funding performed in single primary care facilities often lack supporting structures for diffusing, scaling or robustly reporting findings and experiences (289).

The analytical phase involved an iterative process in which the included studies were used to continuously adjust the data extraction form. This process represented both a strength and a weakness: it allowed for flexibility while at the same time contributing to the results being less replicable. However, the candidate and one of the co-authors worked closely together in extracting and interpreting data from the studies, and all authors contributed to finalising the analysis.

A potential disadvantage of scoping reviews is that the findings are so broad that specific conclusions are impossible to draw (164). In this regard, the multifaceted approach of combining a descriptive summary analysis with a content analysis using the framework of interprofessional collaboration was favourable for acquiring a comprehensive and systematic overview of the organisational, processual, relational and contextual facilitators of multiprofessional collaboration provided by a diverse set of quantitative and qualitative original literature. Moreover, applying a person-centred framework aided the authors in being consistent in what was reported from the retrieved studies. For instance, it has led our attention beyond the mechanistic responsibilities and structures that facilitate collaboration. For example, if we had limited our attention to how clarification and redistribution of workforce responsibilities and roles can improve multiprofessional collaboration, we would have missed identifying knowledge of social and relational character and the influence of personhood in meetings between HCPs. The results would then potentially rather have focused on reorienting HCPs' identity and function even more towards biomedical problems and the medical sets of tasks they are set to accomplish.

The stakeholder comments retrieved on the final draft of Paper I were diverse, but not contradictory. It represented each stakeholder's personal view, and we did not test the validity of their comments. The possible disadvantage of consulting people from different levels of care is that their experiences and opinions may differ substantially, and trying to incorporate everyone's views can lead to indecision. However, we consider this step of the analysis as improving the study validity and broadening our understanding of the potential policy implications of the results in a Norwegian context in a time-efficient manner. To ensure transparency and to make it easy to trace back their contributions, all stakeholder comments are summarised in one paragraph of the paper.

6.2.2 Qualitative interview-based research—Papers II and III

It is suggested that qualitative researchers reflect on the measures taken to ensure transferability, dependability, confirmability and credibility of their findings (290). This exercise can help assure the reader that there is congruity between the research methods and the research questions and objectives and between the methods used to collect data, the representation and analysis of data and the interpretation of results (290). Next, the strengths and limitations of our research are appraised by attending to these four quality attributes.

Transferability in qualitative research evaluates the relevance and integrity of the research and whether findings can be applied to other contexts, settings or groups (291). Although the purpose of qualitative research is not to produce generalisable findings, it may provide value elsewhere if enough details about context and localities are conveyed (292, 293). Efforts have therefore been made in this thesis to provide rich details about the research context, the general practice setting, recruitment processes, background of included participants, methods for data collection and analysis, theoretical frameworks applied and the candidate's background and work experience.

The practices recruited for our study were selected to inform our research questions and the experiences of HCPs and patients are not representative of the average Norwegian general practice or patient. No attempt was made to undertake random sampling. Rather, the sampling strategy was strategic and purposeful to obtain rich and unique data on our topic of interest (294). The participating GPs had a special interest in diabetes, had more patients with diabetes on their list compared to a regular Norwegian GP and had nurses or medical secretaries trained in diabetes care (two of the nurses were even diabetes specialist nurses). One may therefore assume that diabetes care in the included practices was of higher quality compared to standard diabetes care. Moreover, the HCPs had distinct experiences of multiprofessional collaboration from general practice, which HCPs in other general practices may not have. Correspondingly, patients' experiences of diabetes care from these practices cannot be generalised to the experiences of other patients with diabetes in the Norwegian general practice setting. The HCPs in the included practices were responsible for recruiting patients who fulfilled the inclusion criteria. Thus, patients' motivation to participate in our study may have been affected when they were invited by their HCPs instead of the candidate. For example, patients recruited may have been selected because of characteristics such as being more talkative, extrovert, health literate or satisfied.

The above-mentioned exceptions do not exclude the potential for transferability, as our aim was not to assess quality of care. The preconditions for the HCPs and patients in our studies are equal to those of all self-employed GPs under the regular GP scheme, and it is reasonable to assume our findings related to, for example, HCPs' care approaches and patients' preferences for care are transferable to other general practice settings. A substantial contribution to confirming this assumption is that although the terms under which the pilot project practices operate are different, the findings from this project are remarkably similar to ours.

It should be noted that nurses and medical secretaries usually possess different experiences, competences and skills. We analysed their combined experiences as one group. This decision rests on the fact that the way patients and the HCPs themselves explained their role and care approach was comparable. This does not mean that there was no difference. For instance, diabetes specialist nurses may work more independently than medical secretaries.

All the nurses and medical secretaries in our study were women. We do not know to what extent gender affected their approach towards patients. Of the six GPs included in our study, only one was female. In a critical review of empirical research on physician gender and patient-centred communication, female physicians were found to have longer consultations and to be more engaged in communication and behaviours that were valued by patients compared to their male counterparts (e.g., active partnership building, positive talk, psychosocial counselling, asking questions and emotionally focused talk) (295). Additionally, the same authors found that patients of female physicians spoke more overall, disclosed more biomedical and psychosocial information and made more positive statements to their physicians than did the patients of male physicians (295).

Persons with T1D and T2D were recruited for our study. We acknowledge that the two types of diabetes may influence the lives of those affected significantly differently. In many instances, we found their experiences and preferences to overlap (e.g., in aspects of care related to access to care, extended consultation time, emotional and psychological support). When they did not, we made efforts to be explicit about the findings that only refer to either one of the diabetes types. The preferences and needs of the patients in our study related to inter-relational aspects of care are comparable to what has been reported in studies of patients with other LTCs. For example, patients of physicians with high empathy scores, compared with patients of physicians with moderate and low empathy scores, have been found to have better health outcomes (296). We anticipate that our findings can apply to patients in other settings and with other LTCs. However, for groups of patients visiting the general practice less frequently, patient experiences and preferences may be different from what we found. It should be noted that patients and HCPs from minority groups were not present in our sample, and culturally or ethnic-sensitive experiences were therefore not explored within our material.

The **dependability** of qualitative research evaluates whether the findings are consistent and can be repeated. It includes the consideration of research as logical, appropriate, traceable and clearly documented, particularly scrutinising the methods chosen and the decisions made by the researchers (297).

We chose to develop our own interview guides. There exist tools to assess individual HCPs' attitude towards the delivery of teamwork (298) and questionnaires to measure patient experience of patient-provider interaction (i.e., effective communication, interest in the patient's agenda, empathy and patient involvement in care) (299). However, as little knowledge exists about how HCPs collaborate in general practice and the quality and content of the GP consultation, we considered an explorative approach, asking open questions about these topics was more suited.

The consistent use of interview guides, which were pilot tested, as well as the candidate's in-depth knowledge of the study objectives, enhanced the dependability of the findings (182). The interview guides used in patient and HCP interviews revolved around the same topics and HCPs and patients were recruited from the same practices. We were therefore able to delve into our findings and explore similarities and discrepancies across the three groups of informants (GPs, nurses/medical secretaries and patients).

The candidate audiotaped all interviews, which facilitated careful attention to the informant and better follow-up on cues that emerged during the interview. From the beginning of the data collection, the candidate took notes immediately after each interview, including thoughts about patterns, possible explanations, connections, irregularities, initial ideas and perceptions about the interview atmosphere. These notes helped contextualise the interviews (182). Examples of notes included 'Persons with T1D prefer visiting the general practice over the hospital outpatient clinic—continuity of care—personal relationship' and 'The participant appeared at unease with her body—psychological support by the nurse'. By transcribing all interviews herself, the candidate ensured consistency and early familiarisation with the data material.

Dependability was also strengthened by the fact that the candidate's main supervisor is an associate professor in public health nutrition and has extensive experience as a qualitative researcher.

The extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation or interest depends on the degree to which the analysis is grounded in the data and whether the findings are qualitatively **confirmable**. According to the constructionist philosophy, the researcher is considered an integral part of the research process and final product (300). Separation from this is neither possible nor desirable (300). Considering these conditions, Malterud argues that field knowledge and theoretical background are important prerequisites when gathering data from relevant sources (301).

The candidate acknowledges that her research was affected by her preunderstandings and that eliminating these biases was impossible. The concern of confirmability, as appraised in this thesis, rests on transparency and reflexibility (302). First, the candidate has made explicit her theoretical location, educational background and work experience. Second, participants were asked open questions and given enough time to marshal their thoughts, reflect, raise questions and discuss issues considered important to them. In this way, rich narrative accounts of participants' experiences, beliefs and expectations could be examined. Third, to mitigate the likely effects of unacknowledged preconceptions related to the research topic, the candidate noted her assumptions and theories about the research topic in a diary before and during data collection (303). Additionally, it might be a strength that the candidate is not an HCP herself, in that the candidate interpreted HCPs' experiences and perceptions differently than what they did themselves. Fourth, throughout the data analysis, the multiprofessional group of supervisors and the candidate critically reflected on the results and continuously looked for alternative interpretations. This collaboration enriched the empirical understandings, ensured interpretations of data were consistent and transparent and reduced the risk of confirmation bias (the inclination to retain, or a disinclination to abandon, a favoured explanation (304)). Lastly, since the Directorate of Health is the project owner of this PhD project, it is important to emphasise that the directorate has not in any way attempted to restrict or impose what results the research in this project should lead to.

A final relevant quality aspect is **credibility** (i.e., confidence in the 'truth' of the findings). Credibility relates to whether the integrity and application of the methods undertaken and the precision in which the findings accurately reflect the views of the participants studied (305).

Several measures were applied to protect research credibility during the data collection and analysis phases. Seeking a richness of data, the sampling of participants continued until the point of information redundancy. The candidate performed verbatim transcriptions of all participant interviews and used NVivo10® to keep control of meaningful units of text and affiliated codes. A close relationship with and awareness of the original data was maintained, and the candidate began comparing the interview content while continuing to collect data. Thematic analysis offered an accessible and theoretically flexible approach to analysing qualitative data (306). This freedom can, however, lead to inconsistency and a lack of coherence when developing themes and pose a possible threat to research credibility (307). To ensure consistency, each transcribed script was read by the candidate and the main supervisor several times. To minimise researcher bias and improve coherency between the original data and conclusions, themes and subthemes were tracked back to their original meaningful units of text and codes were crosschecked for consistency across all data multiple times by at least two of the authors.

Critique of the thematic analysis also involves how the process of coding, categorising and labelling extracts of text is disembodied from the person who produced it and from the interactive nature of the interview (308). This leaves room for multiple interpretations of the same statement, as experiences are closely connected to the specific situation and setting where they happen. The candidate responded to this risk by taking notes from the interview setting and using illustrative quotes conveying the direct words of the participants (176). The selected quotes form the basis of our overarching themes and provide the reader with a direct relationship between the interpretation of the raw data, analysis and conclusions.

We did not perform member checking of the analysed material due to logistical and privacy constraints, although this could potentially have increased study validity and credibility. Indeed, participant validation would allow the informants to correct any misunderstandings on behalf of the interviewer. This is particularly relevant for HCPs, as their practice has been critically scrutinised in this thesis.

7.0 Concluding remarks

This thesis has contributed to the exploration and understanding of multiprofessional collaboration in primary care from the perspective of HCPs and patients with diabetes. It was accomplished by conducting a scoping review evaluating the facilitators for multiprofessional collaboration and interviewing GPs, nurses, medical secretaries and patients about their experiences and preferences through semi-structured qualitative interviews. In this chapter, the implications of our research for policy, practice and further research are addressed.

7.1 Conclusions and implications for policy and practice

Our scoping review identified a knowledge gap related to GPs' and other HCPs' experience with multiprofessional collaboration in Norwegian primary care. The heterogenic collection of studies included in the review can advise policy makers, local leaders and researchers in relevant interventions for improving primary care coordination and integration. GPs have a central role in planning and coordinating primary care services and must interact with a wide range of health and social care professionals every day. As our review concluded, improving multiprofessional collaboration in primary care demands training HCPs in new ways of working and communicating. Furthermore, collaboration may be facilitated by financial incentives, strong leadership, digital infrastructure and setting time aside during daily practice to build relationships and become aware of other HCPs' values, skills and competence.

Our interview-based study found that time constraints and high work pressure could motivate GPs to involve nonphysician HCPs in patient care. Although preliminary and limited, experiences from the general practice team pilots and the practices included in our study indicate that nurses and medical secretaries can promote a more systematic follow-up of diabetes-specific controls and procedures and improve person-centred aspects of care. This presupposes that the team members have relevant training and are enabled to respond to patients' requests for longer consultation times.

It is too early to decide what competence is needed within the general practice team and how patient demands vary throughout urban and rural areas in Norway. This decision should be based on a systematic approach involving local needs assessments and available resources. However, as several of the patient participants emphasised that having their emotional needs met was important and that their GP seemed too stressed to listen to their worries, the introduction of HCPs with psychological competence should be considered.

Scaling up the implementation of a team-based approach and introducing new team members in general practice demands considerable work related to the establishment of roles, responsibilities and relationships, team activities and removing the financial barriers hindering nurses and other nonphysician HCPs from practicing to the extent of their expertise. Drawing on experiences from other countries, capitation-based reimbursement schemes can offer the opportunity for role expansion of nonphysician health professionals, as well as the opportunity to meet patients' requests for longer consultation times (309-312). Overcoming the GP recruitment and retention challenge will also include further examination of the general practice leader and manager role, as well as regulating the municipal responsibility of supporting and administering general practice services (313).

In a time when HCPs are asked to work faster and increase productivity, our findings raise awareness that some patients may benefit from longer consultations and long-term support to cope with their everyday life with illness. As this thesis proposes, developing a person-centred health system requires a change in how high-quality care is defined, which involves giving HCPs the flexibility to explore and respond to their patients' preferences for care and self-management support. In this sense, involving nonphysician HCPs in patient care can advance general practice services and accommodate many of patients' demands, in which the GPs either do not prioritise, lack training in or do not have time for.

Persons with diabetes valued meeting emphatic and familiar HCPs who greeted them by their first name and who were not driven by a time schedule. However, patient participation in decision making and care planning may not be systematically implemented in practice, as the political ambition of PCC insinuates. This thesis suggests that continuous patient education and individual care planning probably deserve a higher order of precedence for patients to have a true voice in shared decision making. In addition to provide improved access to care and making patient contact easier, ICT may represent a promising solution. In this regard and in anticipating new forms of collaboration between patients and care professionals, electronic care plans stand out as an interesting solution that can facilitate joint agreements fitted to patients' individual needs and wishes and help HCPs work more effectively (314).

7.2 Future research

Collaboration between GPs and other HCPs in Norwegian primary care and general practice is scarcely researched qualitatively and quantitatively. Drawing on the experiences and learnings from accomplishing this PhD project, the candidate offers some ideas for further research.

Our study was not designed to evaluate whether involving nurses and medical secretaries in diabetes care improved patient outcomes. One of the objectives of the general practice team pilot project was to study the effects of a team-based approach on patient outcomes. However, the sources of biases potentially influencing the follow-up in the pilot projects are substantial (e.g., the included practices operate under different financial and management schemes, the nursing role is not defined among the practices and the characteristics of patients receiving team-based care vary). Moreover, the medical secretaries in the pilot practices reported feeling little involved as part of the general practice team, which is unfortunate, as the medical secretary role is little explored. Conducting a multicentre randomised controlled trial that includes practices operating at the same time can be a more feasible method to study the effect of a team-based approach on, for example, patient outcomes, patient experience, HCPs' work satisfaction and the possible unintentional effects of team-based models of care. More research is also warranted regarding the potential roles and responsibilities medical secretaries can assume.

IPE has been proven effective in improving HCPs' self-perceived and objective knowledge and attitude towards team-based care and the understanding of the roles of other professionals (315). However, the effects of IPE on practice and patient outcomes and its cost-effectiveness warrant further study (315). Before implementing training in teamwork, it is critical to conduct a training needs analysis (316). For example, the knowledge, skills and attitudes necessary for effective teamwork in primary care can be different from teamwork in specialist care (317). Studying how HCPs enact their roles as part of a team through observations can provide useful information on the facilitators and barriers to teamwork. Combining observation with qualitative interviews and exploring HCPs' considerations of the prerequisites of teamwork can help explain observed behaviour contextually and provide key information to health authorities, educational institutions and HCPs themselves about team-based care development.

Leadership in general practice emerged as a prevailing issue among the general practice team pilot project leaders, who felt that their management responsibilities challenged their clinical responsibilities. Among the practices included in our study, none of them had a dedicated leader. One of the intentions of introducing general practice teams is to relieve GPs' workload (5). Little is known about the leader role in general practice and whether it is preferable to combine the GP role with being a team leader (318). It is therefore relevant to define the leader role in general practice and clarify the municipal responsibility for administration and support of the GP scheme. Interview-based research among employees in general practice and the municipal health administration can provide useful information in this process.

Patients with multimorbidity, polypharmacy and psychological issues request frequent and long-term follow-up by their general practice team. What professional competence and skill can best meet the treatment and health promotion needs of these patient groups is worth considering when extending the general practice team. A needs assessment can determine gaps between an agreed upon standard and the current situation and inform strategic planning of resource allocation (319). Serving as a baseline for future monitoring, the assessment may include mixed methodologies, such as observations, key informant interviews and surveys.

Most research on the effects of care planning involves people with diabetes (88). Several studies have considered the effect of care planning on biological outcomes (e.g., HbA1c and blood pressure) and self-management capacity. However, more research is needed to determine which aspects of the care planning process are most effective for specific patient groups (88). Randomised trials are relevant to inform this problem statement. Furthermore, little knowledge exists on how care planning facilitates improved care coordination and patient participation in shared decision making (320). Qualitative interview-based studies or ethnographic studies can be useful in answering this question.

Several studies in our scoping review found digital solutions to facilitate multiprofessional collaboration. Since our study was published, there has been significant development in health-related technology (321). However, primary care HCPs still experience that gathering patient data across services is time consuming due to unwieldy and unintegrated EHR systems (322). In a time when care coordination and communication flow between the GPs and other HCPs in primary care are portrayed as challenging, how technology can be used to facilitate improved care integration remains a pertinent question (323). Answering this question must take into consideration another aspect of our findings: the importance of HCPs getting to know each other and building relations and trust. To what degree this process requires meeting face-to-face is yet to be resolved. The decisions to adopt, use or reimburse new digital health services are ideally based on evidence regarding their performance in light of health system goals, such as quality, accessibility, efficiency and equity (324).

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Appendices

Appendix I. Scoping review data extraction form

Reference

First author

Title

Journal reference

Inclusion Criteria

English or Scandinavian language article publish after year 2000

Qualitative or quantitative study that comply with all the following criteria:

a) One or more GPs involved in multiprofessional collaboration within general practice, community care and/or primary health care in Norway
b) The purpose of the intervention is to improve quality or safety of multiprofessional collaboration, to improve multiprofessional communication or the aim of the study is to describe multiprofessional collaboration

Description of Study

Purpose/aim of study

Design

Method for inclusion of participants

Description of the qualitative or quantitative methods of data analyses

Description of instruments and procedures used to assess effectiveness or contribution of collaboration/intervention

Description of context factors relevant for study experiences and outcomes

(If relevant: Description of methods used to assure data quality and training of participants)

Study Population and team composition

Description of teams and responsibilities of members of the team

Intervention type: Description of the initiative and information about the collaboration, team roles, and modes of communication

(If relevant: Change in practice compared to practice as usual)

Description of health professions, workplace and clinical setting, geographical location
(If relevant: Description of care recipient group, diagnoses or other characteristics, setting of initiative (home-based care, general practice, nursing home), geographical location

Number of participants

Qualitative Study (any study design)

Experiences of being part of team

Health care professionals perceived facilitators, barriers and benefits of multiprofessional collaboration

Description of qualitative design

Description of collaboration or intervention

Any of the following if relevant:

Assessments

Medication use

Flow of Information

Quality improvement

Leadership, organisational culture

User experiences

Patient satisfaction

Outcomes (Results)

Impact of collaboration or initiative/intervention on any outcome

Objective measurement of impact or effectiveness of the collaboration or intervention

Lessons learnt of factors that could affect benefits, facilitators, harms, barriers, or failures of the intervention

Implications of study results

Evaluation

Limitations

Strengths

Implications of study results

(If relevant: Economic aspects)

General reflections and gaps in research

Appendix II. General practice invitation letter

Invitasjon til å delta i forskningsprosjekt.

Tverrfaglighet i fastlegepraksis: Lege og annet helsepersonells erfaringer med tverrfaglig samarbeid og oppfølging av personer med flere kroniske sykdommer

Vi ønsker med dette å invitere deres legesenter til å delta i et forskningsprosjekt om helsepersonells og brukeres erfaringer med tverrfaglig oppfølging av personer med diabetes og flere kroniske sykdommer.

Bakgrunn

Studien inngår i et doktorgradsprosjekt og er et samarbeid mellom Helsedirektoratet (Helsedir), Høgskolen i Oslo og Akershus (HiOA) og Norges Forskningsråd (NFR). Prosjektet inngår i Helsedirs oppdrag om å utrede hvordan målene beskrevet i *Primærhelsetjenestemeldingen* skal nås. Hovedsatsningsområdene i meldingen er: *økt kompetanse, bedre ledelse og team-organisering*.

Vi ønsker å snakke med leger og annet helsepersonell som er ansatt i fastlegepraksiser der annet helsepersonell enn lege har overtatt noen av oppgavene med å følge opp personer med kronisk sykdom. Vi vil også snakke med pasientene om deres erfaring med slik oppfølging.

Hovedveileder for stipendiaten er Lisa Garnweidner-Holme (HiOA), og biveiledere er Kari Almendingen (HiOA) og Bjørn Gjelsvik (UiO). Stipendiaten er Monica Sørensen (Helsedir/HiOA).

Målgruppe for intervjuer

Følgende punkter kjennetegner praksisene vi ønsker å inkludere i studien:

- Dere har en total listestørrelse på minimum 2000 personer
- Praksisen består av minimum 3 leger og 3 eller flere annet helsepersonell (sykepleier, lege/helsesekretær, bioingeniør)
- Enkelte oppgaver i oppfølgingen av personer med diabetes og annen kronisk sykdom er overlatt til annet helsepersonell, og denne praksisen har foregått i minst 3 år

Hva innebærer det å delta i studien?

Vi ønsker å gjennomføre individuelle forskningsintervjuer med helsepersonell som er ansatt i klinikker der flere fagprofesjoner jobber sammen (eks. fastlege, sykepleier, helsesekretær, bioingeniør) om hvordan dere organiserer arbeidet og deres erfaringer med å involvere brukerne i behandlingen. Hvert intervju tar 30-45 minutter og vil bli gjennomført av PhD-stipendiaten (Monica Sørensen). Hvis det lar seg gjøre er det også ønskelig at stipendiaten tilbringer noe tid i praksisen for å observere samarbeid og ansvarsfordeling i praksis. Intervjuene blir tatt opp på lydopptak. All informasjon vil bli behandlet konfidensielt og anonymisert før lagring.

Studien og rutiner for datahåndtering er godkjent av Personvernombudet i Helsedirektoratet.

For lege gis praksiskompensasjon inntil 1 time per intervju etter Legeforeningens gjeldende satser. Annet helsepersonell kompenseres med 439 kr per time. Vi ønsker å rekruttere 2-3 pasienter fra hver klinikk og håper at klinikken kan være behjelpelige med å informere aktuelle pasienter om studien.

Intervjuene er planlagt gjennomført i mars-september 2017.

Dersom dere er villige til delta i studien, vennligst bekreft dette til: monica.sorensen@helsedir.no. Jeg vil ta kontakt for å avtale tid for gjennomføring av intervjuene.

Takk for hjelpen!

For spørsmål, vennligst ta kontakt med prosjektleder

Monica Sørensen

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Appendix III. Interview guide healthcare professional

Intervjuguide helsepersonell ansatt på tverrfaglig legesenter

Hovedmål: å innhente helsepersonells erfaringer med det å jobbe tverrfaglig og hvordan pasienter blir involvert i avgjørelser omkring egen behandling.

Målgruppe

Fastleger og annet helsepersonell som jobber i kommunalt- eller næringsdrevet fastlegepraksis og som har:

- Minst tre års erfaring med å følge opp personer med diabetes og multimorbiditet

Bakgrunn og formål

Gjennom Primærhelsetjenestemeldingen er det foreslått at innhold og organisering av primærhelsetjenestene skal tilrettelegges mer i tråd med brukernes behov. En av de foreslåtte endringene er økt tverrfaglig samarbeid og at deler av pasientoppfølgingen overføres fra lege til annet helsepersonell.

Vi ønsker med dette å intervjue helsepersonell om organisering av det tverrfaglige samarbeidet, kommunikasjonsrutiner, ansvarsfordeling og roller, samt hvordan brukere med diabetes og flere kroniske sykdommer involveres i behandlingen.

Innledende informasjon om intervjuet

Intervjuer forklarer hensikten med prosjektet og målet for intervjuet. Den som blir intervjuet får vite hvor lang tid intervjuet vil ta, at det er frivillig å svare på spørsmål, at forskeren har taushetsplikt og at innsamlet datamateriale vil oppbevares anonymisert og behandles konfidensielt. Deltakeren gir informert samtykke om at samtalen vil bli tatt opp på lydbånd.

Intervjuguide

Samarbeid, ansvarsområder og organisering av behandling og oppfølging

Hvordan jobber dere her på klinikken med pasienter med flere kroniske sykdommer?

(Hint: - hvilke pasienter får oppfølging av andre enn legen,

- hvilke oppgaver har annet helsepersonell enn lege ved klinikken,

- hvordan ansvarsområder er fordelt, hvordan ble disse definert,

- finnes det noen leder, er det behov for noen leder, hvordan delegeres oppgaver):

Hvor lenge har du/dere jobbet tverrfaglig etter modellen du beskriver her på klinikken?
Hva var din motivasjon for å overlate/ta en del av ansvaret med å følge opp personer med diabetes?
Hvilket behov ser du for opplæring av annet helsepersonell (som helsesekretær/legesekretær/ sykepleier) som har fått spesifikke oppgaver i pasientoppfølgingen ved klinikken?
Hva tenker du om betydningen av forholdet mellom lege og annet helsepersonell og hvordan dette påvirker pasientoppfølgingen?
Hva er viktig for å få et slikt samarbeid til å fungere (suksessfaktorer og utfordringer)?
Hva er fordelene ved å organisere arbeidet på denne måten?
Kun annet helsepersonell: Kan du beskrive en typisk konsultasjon med en pasient med diabetes og en eller flere kroniske lidelser (Hint: tid og hyppighet, familieinvolvering, kontakt utenom konsultasjoner):
Kan du fortelle om hvordan dere går frem for å planlegge behandlingen til en person med diabetes og flere kroniske sykdommer og hvordan dere samarbeider om behandlingen? (hint: gjør dere noe annerledes enn andre legesentre).
Påvirker tilstedeværelsen av andre kroniske sykdommer diabetesbehandlingen? I så fall hvordan?
Er det noen kompetanse du savner å ha tilgjengelig for å følge opp denne gruppen pasienter?
Har du opplevd noen utfordringer med tanke på samarbeid med andre helse- og sosialtjenester (hint: epikriser, samarbeid med kommunen, NAV og sosiale tjenester, hjemmetjenesten, lokale organisasjoner eller andre tiltak):
Har dere faste møter mellom de ansatte på klinikken (utenom pasientkonsultasjoner) og hva tas opp i disse møtene?

Brukermedvirkning

Hva er det viktig for deg å vite om pasienten for å kunne sette opp realistiske og oppnåelige behandlingsmål (sosial kontekst, historie, evne til egenomsorg, i hvor stor grad pasienten søker hjelp, sykdomsangst etc.)
Det har blitt et økt fokus på pasientmedvirkning. Har dette endret måten du jobber på? I så fall hvordan? (har du opplevd at dette er et dilemma dersom du ikke er enig med pasientens prioriteringer)?

Finnes det tilfeller der pasientenes behov og preferanser er viktigere enn andre? I så fall hvilke. Når er de mindre viktige?

Hvordan går du frem når du skal avgjøre hvilke forventninger som skal stilles til pasienten?

Hva tenker du er pasientens ansvar? Hvordan forklarer du dette? (hint: hvorfor mener du dette er viktig, hvordan går du frem for å finne ut av pasientens grad av motivasjon, hans bekymringer)

Basert på egen erfaring, kan du beskrive hva som skal til for at pasienten blir medvirkende i valg som tas? (hint: hvilke spørsmål stiller du, har du eksempler på metoder du bruker for å få pasienten delaktig i å bestemme hva som er riktig behandling og oppnåelige behandlingsmål for han/henne)?

Kan du si noe om hvordan pasientenes engasjement påvirker behandlingsutfallet? Hva tenker du skal til for at pasientene føler eierskap til behandlingsmålene som settes (kunnskap, bli enige om ansvar, tid):

Hva tenker du når en pasient ligger utenfor HbA1c-målet som er satt?

Hva kjennetegner pasienter som er lette/vanskelige å involvere/engasjere i egen behandling? (hint: For pasienter som er vanskelige å engasjere: kan du beskrive hvordan du går frem for å engasjere disse mer, hvilke egenskaper ved pasienten er nødvendig for å ha en god dialog?):

Hva er viktig for å ha en god pasient-behandler relasjon (Hint: Hva kjennetegner en god dialog mellom pasient og behandler)?

Kan du si litt om hvordan du opplever kravet om å jobbe evidensbasert samtidig som du skal sette pasientens ønsker og behov i sentrum?

Hvordan tenker du at tverrfaglighet vil påvirke behandlingskvalitet/oppnåelse av behandlingsmål hos brukerne (hint: blir pasientene i større grad aktivert)?

Hvilke pasientgrupper mener du har størst behov for en tverrfaglig oppfølging, hvordan avgjør man dette:

Er det gjort noen systematisk undersøkelse av pasientenes erfaringer med denne formen for oppfølging?

Kvalitet

Har de ansatte på klinikken en felles målsetning for pasientarbeidet?

Hva mener du er det viktigste sett med disse pasientens øyne ideelt sett? Hvordan tror du de ville definert en god helsetjeneste?

Råd til helsemyndighetene om tverrfaglig arbeid i primærhelsetjenesten

Hvilke incentivordninger mener du er nødvendige for å få til de endringene du mener er nødvendig (referer til motivasjon for opprettelse av modell tidligere i intervjuet). Har du i dag nødvendige verktøy tilgjengelig for å få til dette på en gunstig måte? Ev. hva består manglene i?

Bakgrunnsinformasjon

Alder:
Profesjon:
Arbeidssted:
Kommune:
For lege: Listestørrelse:
For sykepleier: Antall pasienter du møter på en gjennomsnittlig uke:
Finnes det et lokalt/regionalt diabetes-team (Ja/Nei):
Hvor lenge har du arbeidet som lege/sykepleier (antall år):

Appendix IV: Interview guide patient

Intervjuguide bruker av legesenter med tverrfaglig oppfølging

Hovedmålet med intervjuet er å innhente erfaringer om hvordan brukeren opplever å bli fulgt opp av annet helsepersonell enn legen og hvordan de involveres i beslutninger omkring egen behandling.

Målgruppe

Brukere:

- Med diabetes og en eller flere kroniske lidelser i tillegg som har blitt fulgt opp i fastlegepraksis av annet helsepersonell i tillegg til lege
- Som har besøkt legekontoret tre eller flere ganger i løpet av siste år som følge av kronisk sykdom
- Som er yngre enn 70 år

Introduksjon

Gjennom Primærhelsetjenestemeldingen er det foreslått at innhold og organisering av primærhelsetjenestene skal tilrettelegges mer i tråd med brukernes behov. En av de foreslåtte endringene er økt tverrfaglig samarbeid og at deler av pasientoppfølgingen overføres fra lege til annet helsepersonell.

Vi ønsker derfor å snakke med deg som allerede har erfaring fra slik oppfølging. Vi er særlig interessert i hva som er det viktigste for deg når du oppsøker fastlegekontoret, hvordan du opplever din rolle som pasient, koordinering av tjenester, og om det er noe du skulle ønsker var annerledes.

Innledende informasjon om intervjuet

Intervjuer forklarer hensikten med studien og målet for intervjuet. Den som blir intervjuet får vite hvor lang tid intervjuet vil ta, at det er frivillig å svare på spørsmål, at deltakeren når som helst kan trekke seg, at forskeren har taushetsplikt, og at innsamlet datamateriale vil oppbevares og behandles konfidensielt og anonymisert. Deltakeren gir informert samtykke til deltakelse i studien.

Intervjuguide

Erfaring med tverrfaglig oppfølging

Hvor lenge har du blitt fulgt opp av lege og annet helsepersonell ved denne praksisen?

Kan du fortelle om en typisk konsultasjon hos [navn på annet helsepersonell]?

Hva er det viktigste for deg når du oppsøker helsetjenesten (hint: hva er god kvalitet, bli lyttet til, nok tid, valgmuligheter, veiledning)

Med tanke på det du nevnte som var viktig for deg, kan du si litt om hvordan det er å bli fulgt opp hos [navn på annet helsepersonell] sammenlignet med legen? (hint: hva oppleves som de viktigste forskjellene og hva er positivt og negativt, avbrytelser, tiden du får prate, spørsmålene som stilles).

Er det spørsmål som du skulle ønske at ble stilt deg som ikke blir stilt i dag når du oppsøker lege/annet HP – i så fall hvilke?

Føler du at det er tid til å snakke om det som er viktig for deg? (Hint: forskjell lege og annet personell, kan du spørre om alt du lurer på eller hender det at du velger å ikke spørre?, hva tenker du om muligheten du har for å påvirke temaet i konsultasjonene?)

Hva tenker du er viktig for å ha en god pasient-behandler relasjon?

Hvor viktig mener du samarbeidet mellom legen og annet helsepersonell er (Hint: hva tenker du er et ideelt samarbeid?)

Hva er du mest og minst fornøyd med oppfølingen du mottar her på legesenteret?

Får du oppfølging ved flere steder innen helse- og sosialtjenesten? (hint: nevn disse)

Hvis ja: kan du si litt om hvordan du opplever kommunikasjonen om deg mellom ulike instanser?

Hvilke pasienter tenker du bør få tilbud om å bli fulgt opp av annet helsepersonell enn legen?

Brukerinvolvering

Har legen eller sykepleieren din satt mål for behandlingen din? Vet du hva disse er? (Hint: blodsukker, blodtrykk, lipider, vekt, fysisk aktivitet, røykeslutt, kosthold, medisiner)

På hvilken måte har du vært med på å bestemme behandlingsmål (Hint: har du blitt spurt om hvilke spørsmål eller tanker du har omkring behandlingen, blodsukker, blodtrykk, lipider, vekt, fysisk aktivitet, røykeslutt, kosthold og medisiner)?

Føler du at du har fått nok informasjon om hva som er målet med behandlingen og medisinene du får (vet du hvilke effekter og hensikten med å følge rådene som blir gitt deg)?

Vet du hvilke forventninger som er stilt til deg med tanke på å følge opp behandlingsmålene

(Hint: hva tenker du om disse forventningene, hva er ditt ansvar -har du satt deg noen mål med tanke på å forhindre forverring av sykdommene, ble disse satt sammen med helsepersonell, i så fall hvordan ble dere enige om det)?

Hva skal til for at du skal klare å leve opp til forventningene som settes til deg mtp å følge opp behandlingsmålene?

Hvilke avgjørelser mener du det er viktig at du er med på å bestemme og hvilke er mindre viktige?

Er det andre ting enn det som diskuteres som du skulle ønske dere kunne snakke om?

Opplever du at dine behandlere er samsnakket om oppfølgingen din (Hint: behandlingsmål, sykehistorie, familiesituasjon, hvis nei, ev. konsekvenser for deg)?

Hender det du har behov for råd eller informasjon, men ikke vet hvor du skal henvende deg? I så fall, kan du gi et eksempel på et slikt tilfelle og hvordan du løste det?

Kopi av bakgrunnsinformasjon (kun til gjennomgang i intervjuet)

Alder:
Bostedskommune:
Sivil status:
Utdanningslengde (grunnskole; 3 år; 5 år el. mer):
Navnet på legesenteret der fastlegen din arbeider:
Navn på fastlege:
Yrke på «annet personell» som har fulgt deg opp ved legesenteret:
Har du diabetes, hvis ja, har du diabetes type 1 eller type 2?
Hvor lenge har du hatt diabetes?
Har du andre kroniske sykdommer enn diabetes, hvis ja, hvilke:

Appendix V. NSD confirmation email

Fwd: Prosjektnr: 51724. Patients with multimorbidity and healthcare professionals experiences of multidisciplinary people-centered care in Norwegian general practice

Monica Sørensen <Monica.Sorensen@hioa.no>

Wed 2/1/2017 9:03 AM

Hei.

Jeg er saksbehandler for prosjektet som du har meldt inn.

I meldeskjemaet har du oppgitt at HiOA er behandlingsansvarlig institusjon for prosjektet. Ut fra øvrige opplysninger i meldeskjemaet under punktet informasjonssikkerhet og informasjonsskrivene, der det er oppgitt at prosjektet er ledet av Helsedirektoratet, tolker jeg det slik at det egentlig er Helsedirektoratet som er behandlingsansvarlig institusjon for prosjektet. Prosjektet skal i så fall ikke behandles hos oss i NSD, men må meldes til Helsedirektoratets eget personvernombud som vil finne ut hvilke tillatelser du trenger for å få gjennomført prosjektet. Dersom Helsedirektoratet er behandlingsansvarlig for prosjektet og ikke har et eget personvernombud, må det søkes konsesjon fra Datatilsynet.

Hvilken institusjon er behandlingsansvarlig for prosjektet?

Vennlig hilsen

Ida Jansen Jondahl
Seniorrådgiver | Senior Adviser
Seksjon for personverntjenester | Data Protection Services
T: (+47) 55 58 30 19
NSD – Norsk senter for forskningsdata AS | NSD – Norwegian Centre for Research Data
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Appendix VI. Study information letter and consent form for healthcare professionals

Forespørsel om deltakelse i forskningsprosjekt om helsepersonells og brukeres erfaringer fra tverrfaglig samarbeid i fastlegepraksis

Invitasjon til helsepersonell som jobber i tverrfaglige praksiser i primærhelsetjenesten og deres erfaringer omkring tverrfaglig samarbeid og brukerinvolvering.

Bakgrunn og formål

Jamfør Primærhelsetjenestemeldingen ønsker Regjeringen og Helse- og Omsorgsdepartementet å tilrettelegge innhold og organisering av primærhelsetjenestene mer i tråd med brukernes behov. En av de foreslåtte endringene er økt tverrfaglighet gjennom at legene overlater noe av oppfølgingsansvaret til annet helsepersonell ved klinikken. Vi ønsker derfor å snakke med helsepersonell og pasienter som allerede har erfaring med tverrfaglig oppfølging om hvordan en slik organisering kan utføres.

Arbeidet er del av et doktorgradsprosjekt som ledes av Helsedirektoratet i samarbeid med Høgskolen i Oslo og Akershus (HiOA), med støtte fra Norges Forskningsråd.

Du er spurt om å delta fordi vi ønsker å snakke med fastleger og annet helsepersonell som har erfaring fra tverrfaglig oppfølging av personer med flere kroniske sykdommer i fastlegepraksis.

Hva innebærer deltakelse i studien?

Deltakelse i studien innebærer å delta på et individuelt intervju med varighet ca. 45 minutter. Hovedtemaene for samtalen er: organisering av tverrfaglig samarbeid, ansvarsfordeling og roller, kommunikasjonsrutiner, samt erfaringer med hvordan brukere med flere kroniske sykdommer involveres i behandlingen.

Intervjuet vil bli tatt opp på lydbånd (anonymt).

Hva skjer med informasjonen om deg?

Alle personopplysninger vil bli behandlet konfidensielt og iht. gjeldende lovverk og Norm for informasjonssikkerhet i helse- og omsorgstjenesten (Normen). Kun den som intervjuer deg vil ha tilgang til dine personopplysninger. Lydopptaket og skjemaet med bakgrunnsopplysninger vil bli oppbevart i et låsbart, brannsikkert skap i Helsedirektoratet. Lydfilen med intervjuet er anonymt og vil bli overført til skriftlig format, og lagret på beskyttet område i Helsedirektoratets nettverk. Enkeltpersoner vil ikke kunne gjenkjennes i ev. publikasjoner som intervjudataene fører til.

Prosjektet er planlagt avsluttet i løpet av 2020. Alt datamateriell vil bli anonymisert ved prosjektslutt.

Frivillig deltakelse

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert. Du forteller bare det du er komfortabel med, og trenger ikke svare på alle spørsmål som stilles i intervjuet om du ikke ønsker det.

Studien og rutiner for datahåndtering er godkjent av Personvernombudet i Helsedirektoratet.

For spørsmål, vennligst ta kontakt med prosjektleder

Monica Sørensen

PhD-student og seniorrådgiver
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monica.sorensen@helsedir.no

www.helsedirektoratet.no

Samtykke til deltakelse i studien

Jeg har mottatt informasjon om studien, og er villig til å delta

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(Signert av prosjektdeltaker, dato)

Appendix VII. Study information letter and consent form for patients

Forespørsel om deltakelse i forskningsprosjekt om «Erfaringer fra tverrfaglig oppfølging i primærhelsetjenesten»

Vi vil snakke med deg som følges opp både av lege og annet helsepersonell ved ditt fastlegesenter.

Bakgrunn og formål

Regjeringen og Helse- og Omsorgsdepartementet ønsker å tilrettelegge innhold og organisering av primærhelsetjenestene mer i tråd med brukernes behov. En av de foreslåtte endringene er at legen kan overføre enkelte oppgaver til annet helsepersonell ved klinikken.

Hensikten med dette prosjektet er å snakke med brukere og helsepersonell med slik erfaring fra tverrfaglig oppfølging i primærhelsetjenesten. Studien er en del av et doktorgradsprosjekt som ledes av Helsedirektoratet i samarbeid med Høgskolen i Oslo og Akershus og Norges Forskningsråd.

Dette er et spørsmål til deg om å delta i studien for å hjelpe oss å videreutvikle helsetjenesten basert på brukernes behov.

Hvem søker vi?

Vi søker deg som har diabetes og en eller flere kroniske sykdommer i tillegg, er under 70 år og har vært hos fastlegen tre eller flere ganger i løpet av siste år som følge av kronisk sykdom.

Hva innebærer deltakelse i studien?

Deltakelse i studien innebærer å delta i et intervju med varighet på ca. 45 minutter time der vi ønsker å snakke med deg om dine erfaringer med å bli fulgt opp ved en tverrfaglig fastlegepraksis og hvordan du involveres i behandlingen. Du forteller bare det du er komfortabel med, og trenger ikke svare på alle spørsmål som stilles i intervjuet dersom du ikke ønsker det.

Hovedtemaene i samtalen vil omhandle:

- Hvordan du er involvert i avgjørelser omkring din behandling og behandlingsmål
- Om du opplever at det er tid til å snakke om det som er viktig for deg
- Om det er ytterligere tjenester eller informasjonsbehov du skulle ønske legesenteret kunne tilby som det ikke gjør i dag

Du vil motta et gavekort med verdi 500 kr etter fullført intervju. Hvis vi er usikre på om vi har forstått det du har sagt riktig, kan det hende vi tar kontakt med deg i etterkant av intervjuet på telefon.

Hva skjer med informasjonen om deg?

Det vil bli tatt et lydopptak av samtalen som et hjelpemiddel for forskeren til å huske hva som blir sagt, men navnet ditt og annet informasjon som gjør at du vil kunne bli gjenkjent vil ikke bli tatt opp. Lydopptaket og dine bakgrunnsopplysninger vil bli oppbevart i et låsbart, brannsikkert skap i Helsedirektoratet. Lydfilen med intervjuet vil bli overført til skriftlig format, og lagret på beskyttet område i Helsedirektoratets nettverk. All informasjon du gir vil bli behandlet konfidensielt og iht. gjeldende lovverk og Norm for informasjonssikkerhet i helse- og omsorgstjenesten (Normen). Fastlegen eller annet personell vil ikke ha tilgang til opplysningene du gir i forbindelse med deltakelse i studien. Enkeltpersoner vil ikke kunne bli gjenkjent i eventuelle publikasjoner som vil følge av forskningsprosjektet. Prosjektets varighet er fra 2016 til 2020. Alt datamateriell vil bli anonymisert ved prosjektslutt.

Du har rett til å få innsyn i lydopptakene og hvilke opplysninger som er registrert om deg. Dersom du trekker deg fra studien, kan du kreve å få slettet alle innsamlede opplysninger med mindre opplysningene allerede er inngått i analyser eller brukt i publikasjoner.

Frivillig deltakelse

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Din deltakelse i prosjektet vil ikke få noen innvirkning på behandlingsopplegget du følger i dag, heller ikke dersom du skulle trekke deg fra studien.

Dersom du ønsker å delta, ber vi deg signere samtykkeerklæringen på siste side og fylle ut bakgrunnsinformasjonen. Du vil deretter bli oppringt av prosjektleder for å avtale tid og sted for intervjuet.

Dersom du senere ønsker å trekke deg eller har spørsmål om studien, innholdet eller gjennomføring av intervjuet, vennligst ta kontakt med prosjektleder og PhD-student Monica Sørensen, monica.sorensen@helsedir.no, tlf: 99029241.

Studien og rutiner for datahåndtering er godtatt av Personvernombudet i Helsedirektoratet.

Vennlig hilsen

Monica Sørensen

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Samtykke til deltakelse i studien

Jeg har mottatt informasjon om studien *«Erfaringer fra tverrfaglig oppfølging i primærhelsetjenesten»*, og er villig til å delta

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(Signert av prosjektdeltaker, dato)

Appendix VIII. Patient comorbidities

Patient number	Self-reported diseases
1	Celiac disease, myocardial infarction, retinopathy, arthritis
2	Prostate cancer, myocardial infarction, Guillain-Barre syndrome
3	Asthma, fibromyalgia, arthrosis
4	Chronic allergy
5	Asthma, bilaterally DVT, valvar insufficiency, unspecified psychiatric disorder
6	TIA, unspecified skin disease
7	Depression, bipolar disorder, vestibular disorder
8	Myocardial infarction
9	Psoriasis, transient ischemic attack
10	Chronic urinary tract infection, myocardial infarction
11	Bechterews syndrome, asthma, COPD, hypertension, allergy

COPD: Chronic obstructive pulmonary disease; DVT: Deep vein thrombosis

Papers I-III

Paper I:

Sørensen M, Stenberg U, Garnweidner-Holme L,. A Scoping Review of Facilitators of Multi-Professional Collaboration in Primary Care. International Journal of Integrated Care. 2018;18(3):13. DOI: **http://doi.org/10.5334/ijic.3959**

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RESEARCH AND THEORY

A Scoping Review of Facilitators of Multi-Professional Collaboration in Primary Care

Monica Sørensen[*,†], Una Stenberg[‡] and Lisa Garnweidner-Holme[*]

Introduction: Multi-professional collaboration (MPC) is essential for the delivery of effective and comprehensive care services. As in other European countries, primary care in Norway is challenged by altered patient values and the increased expectations of health administrations to participate in team-based care. This scoping review reports on the organisational, processual, relational and contextual facilitators of collaboration between general practitioners (GP) and other healthcare professionals (HCPs) in primary care.
Methods: A systematic search in specialist and Scandinavian databases retrieved 707 citations. Following the inclusion criteria, nineteen studies were considered eligible and examined according to Arksey and O'Malley's methodological framework for scoping reviews. The retrieved literature was analysed employing a content analysis approach. A group of stakeholders commented on study findings to enhance study validity.
Results: Primary care research into MPC is immature and emerging in Norway. Our analysis showed that introducing common procedures for documentation and handling of patient data, knowledge sharing, and establishing local specialised multi-professional teams, facilitates MPC. The results indicate that advancements in work practices benefit from an initial system-level foundation with focus on local management and MPC leadership. Further, our results show that it is preferable to enhance collaborative skills before introducing new professional teams, roles and responsibilities. Investing in professional relations could build trust, respect and continuity. In this respect, sufficient time must be allocated during the working day for professionals to share reflections and engage in mutual learning.
Conclusion: There is a paucity of research concerning the application and management of MPC in Norwegian primary care. The work practices and relations between professionals, primary care institutions and stakeholders on a macro level is inadequate. Health care is a complex system in which HCPs need managerial support to harvest the untapped benefits of MPC in primary care. As international research demonstrates, local managers must be supported with infrastructure on a macro level to understand the embedding of practice and look at what professionals actually do and how they work.

Keywords: multi-professional collaboration; multi-professional communication; team-based care; primary care

Introduction

As the central pillar of healthcare systems worldwide, primary care provides entire populations with continuous, comprehensive and coordinated care services [1]. However, the development of new and more effective collaborative working arrangements is deemed necessary to serve imminent epidemiological and demographical demands [2]. It is envisioned that multi-professional team-based care approaches, in which professionals from different disciplines benefit from each other's complementary skills and work towards common goals, will improve patient and provider satisfaction and the standards of care for persons with complex medical needs, such as mental illness, disabilities, multimorbidity or addictions [3–6]. Likewise, interdisciplinary teamwork is regarded as a core skill for future healthcare professionals (HCPs) beyond the command of knowledge and facts [7].

Globally, there is an increasing recognition that primary care and GPs should be organised in such a way as to assume full coordinating responsibility for entire populations of patients [1]. It is therefore crucial to supply primary care, and general practice in particular, with the necessary resources, technology and leadership, permitting the provision of coordinated and comprehensive care services.

Mobilising and transforming care services in accordance with altered values and increased expectations from patients as well as health administrations is a global challenge [8]. Because of inadequate care integration, leadership and multi-professional collaboration (MPC) in primary

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and secondary care, the needs of Norwegian patients for coordinated and integrated primary care services are not being sufficiently met [9–12]. One of the main challenges is the lack of collaborative procedures across institutions and the delayed implementation and adoption of technology [13]. For example, homecare nurses (HCN), accident & emergency departments (A&Es), pharmacies and general practices have different and separate electronic health records. To better understand what advancements are necessary to successfully improve MPC, we have explored literature that reports HCPs' experience of professional collaboration involving GPs in Norwegian primary care. In particular, we have evaluated the relational, processual, organisational and contextual dimensions of professional collaboration, inspired by Reeves et al's framework for inter-professional collaboration [14]. Previous application of this framework has been used, for example, in studies describing the perspectives of GPs of their role in the primary care team, the factors that facilitate and hinder teamwork [15] and in examining the perspectives and experiences of family health team members regarding inter-professional collaboration and perceived benefits [16].

When studying the healthcare system, understanding system-level coordination and the relational and functional aspects of the system is fundamental. Reeves et al's framework describes the organisational, relational, contextual and processual domains of professional collaboration. The **organisational** aspect pertains to factors affecting the local organisational environment in which professionals work. The **relational** domain is linked to how factors such as power, hierarchy, socialisation, leadership and participation in collaborative practices are understood. The **contextual** level depends upon national, regional, political or professional authorities and the priorities they have that foster collaboration, such as policy papers, strategies, funding or support of local multi-professional activities. **Processual** aspects of collaboration are those pertaining to time, space, proximity, task complexity and how this affects teamwork.

To our knowledge, this is the first scoping review to explore the facilitators of MPC between GPs and other HCPs in primary care in a Nordic country. We acknowledge that there are many international publications that target the facilitators and barriers of multi-professional care. Nonetheless, implementation of multi-professional teamwork and education remains a global challenge [17]. This study brings important perspectives on critical organisational, relational, contextual and processual domains of MPC from a healthcare system in which multi-professional collaboration is emerging.

Aim and review questions

The purpose of this scoping review is threefold: First, we will fill in the gaps of knowledge regarding which professionals are involved in MPC with Norwegian GPs and explore their collaborative procedures. Second, we will identify the organisational, processual, relational and contextual facilitators which promote the collaboration of GPs with other HCPs in Norwegian primary care as experienced by the involved professionals. Third, the comments of national stakeholders on the findings and comparison of the results with international literature will be performed to demonstrate potential policy implications for improving collaborative practice in primary care.

Our research questions were as follows:

- What are the characteristics (study design, methodology and participating HCPs) of studies involving the participation of GPs in MPC in Norwegian primary care?
- From the perspective of HCPs working in Norwegian primary care, what are the main organisational, processual, relational and contextual facilitators pertaining to MPC involving GPs?

Methods

Design and settings

We followed Arksey & O'Malley's and Colquhoun et al's frameworks for performing scoping reviews [18, 19]. Scoping reviews are useful for mapping the main sources and key concepts of heterogenic or emerging fields of research and to demonstrate research areas in which there are a dearth of evidence for policy makers, practitioners and consumers. The framework suggested by Arksey & O'Malley offers five stages in which to carry out a scoping review. Stage 1: Identifying the research question. Stage 2: Identifying relevant studies. Stage 3: Study selection. Stage 4: Charting the data. Stage 5: Collating, summarising and reporting the results. An additional sixth optional element is that of consultation with practitioners and consumers. We sought publications involving GPs in MPC in primary care, published in international, Scandinavian and Norwegian professional journals, as well as municipal and governmental reports. Quality appraisal does not typically restrict the inclusion of studies in scoping reviews [19]. The aim of this review was to identify the range and subject matter of literature in the topic of interest. Thus, study quality, design or methodology did not affect study inclusion.

Norwegian health and social care provides universally-accessible public services in accordance with the Scandinavian Welfare Model and has one of the highest densities of physicians and nurses in Europe [20, 21]. Norwegian municipalities enter into contracts with individual, self-employed GPs, who receive a combination of capitation (~35% of income), fee-for-service (~35%), and out-of-pocket payments from patients (~30%) [22]. The average general practice has 3.6 GPs, 0.8 medical secretaries per GP and an average of 1,130 patients [23, 24]. Compared to Finland and Sweden, where specialist nurses have extensive responsibilities for the care of persons suffering from common chronic diseases such as diabetes, asthma and chronic obstructive pulmonary disease (COPD), nurses in Denmark and Norway are not traditionally delegated independent tasks in general practice. This may be due to the professional culture and to a lack of reimbursement for nursing services in general practice [10].

Identifying relevant studies

We performed several pilot searches to improve the final search as outlined by Colquhoun et al. (keywords and databases can be found in **Table 1**) [19]. Adjustments

Table 1: Keywords and research databases used in systematic searches.

Keywords	Databases (from 2000 – week 3 to July 2017)
"Family Physician"	MEDLINE (OVID)
"General Practice"	CINAHL (OVID)
"Primary Care"	EMBASE
"Dietitians"	Epistemonikos
"Laboratory staff"	PSYCHINFO
"Medical laboratory personnel"	Web of Science
"Medical secretaries"	
"Nurses"	
"Nutritionists"	
"Occupational therapists"	
"Physical therapists"	
"Social workers"	
"Pharmacists"	

involved removing specifications (diagnoses) from target groups concerning multi-professional follow-up, specifying the professionals' background and adjusting the publication time limit. These refinements were developed in consultation with an experienced medical librarian.

The search strategy may be found in Appendix 1. The Scandinavian databases SveMed and NorArt were manually searched using the same terms and criteria. Manual searches were also performed in the websites of Norwegian governmental bodies and municipalities. In addition, reference lists of the articles screened in full text were reviewed.

Study selection

Articles in English, Norwegian, Swedish or Danish describing MPC in primary care in Norway published after 2000 until July 2017 were sought. For the purpose of this selection, MPC was defined as any cooperation between two or more professionals involving patient care or quality improvement of patient care. Abstracts obtained from the initial searches were independently reviewed by two investigators (US and MS). During the abstract review process, the merits and significance of articles for which there was disagreement were discussed until both investigators agreed. Reference lists of reviewed articles were manually examined for further studies by MS. Articles that reported from the perspective of secondary care or that lacked GP involvement were immediately excluded, as well as single abstracts, comments, study protocols and posters.

Charting the data

Full-text articles were reviewed by two independent investigators who met regularly to discuss study inclusion (US and MS). A data extraction form was developed by the same two investigators based on experience and by using the included studies to continuously adjust the form. The form facilitated the comparison and analysis of data from the chosen articles and was revised throughout the reporting process to improve accuracy and specificity of the analysis. Data extraction and coding were mainly performed by MS over several rounds and reviewed by US (see Appendix 2 for the full data extraction form). Numerous discussions were held between investigators during the extraction stage to confirm the consistency of the extracted information with the aim of the study. All extracted information was registered and compiled in an electronic spreadsheet. We followed the suggestion by Colquhoun et al. of collating and presenting data in three stages: 1. Descriptive numerical summary analysis and qualitative content analysis. 2. Reporting of results referring to the research questions. 3. Interpreting the implications of the findings for future research, practice and policy [19].

Collating, summarising and reporting the results

This is a mixed methods–mixed research scoping review in that it reports findings from qualitative, quantitative and mixed methods studies and the mode of synthesis uses qualitative and quantitative approaches to integrate these findings [25]. A content analysis guided the data interpretation, which focused on the main organisational, processual, relational and contextual facilitators of MPC as described in the retrieved publications [26]. Colquhoun et al. recommend that consulting stakeholders is an essential step before disseminating the results of scoping reviews. The purpose of the consultations was to broaden our understanding of the results and improve study validity. Stakeholder names, titles and positions are given in Appendix 3.

Literature selection overview

In total, 707 titles or abstracts were identified. Full-text papers of 83 articles were retrieved from the main searches for detailed evaluation. Another twelve citations were detected by examining reference lists. Two studies were identified through manual searches in governmental websites [27, 28]. Thus, 97 full-text articles were screened before two investigators individually agreed that 19 studies, published between 2000 and 2017, met the eligibility criteria. **Figure 1** provides a Prisma flowchart of the literature selection process.

Results

This scoping review sought to explore HCPs' experience of MPC involving GPs in Norwegian primary care. In particular, the review examined professionals' perceptions of the organisational, processual, relational and contextual facilitators of collaboration that will help advice policy development and a successful implementation of MPC.

Descriptive summary of study characteristics and involved participants

None of the included studies involved a team-based care intervention within general practice. Hence, studies either involved GPs collaborating with other HCPs outside gen-

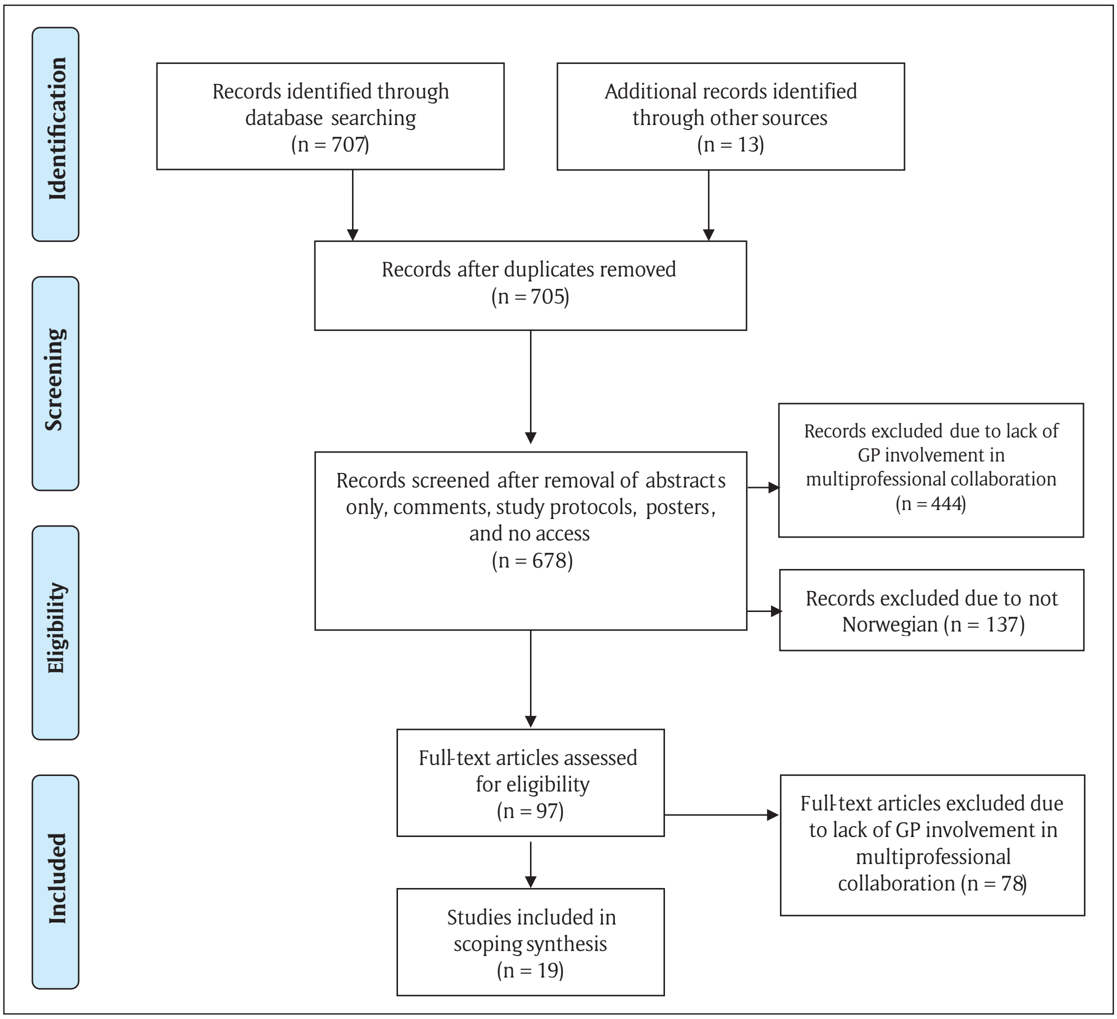

Figure 1: Search flow for multiprofessional collaboration in primary care involving general practitioners experiences.

Table 2: Study design and distribution of participants.

	Mixed methods* (N = 6)	Qualitative (N = 10)	Quantitative (N = 3)	Total (N = 19)
GPs/physicians	334	61	1,663	2,058
Nurses§	1,017	68	789	1,874
CPWs	519			519
Physiotherapists		28		28
Secretaries/lab. assistants		21		21
Patients	474	179	554	1,207

GP: General practitioner; CPW: Child protection worker.

* One study did not report the distribution of responders among GPs, HCNs and municipal case managers (n = 32) (35).

§ Includes HCNs, managers in homecare services and cancer coordinators.

eral practice or they reported from non-interventional collaboration in general practice, e.g. initiatives of quality development. The number of participants in the studies retrieved varied from 7 [29] to 1,633 [30]. Eleven studies involved an intervention, the remaining eight aimed to describe HCP's experience of MPC. Twelve studies were published in Norwegian only.

Six studies reported both qualitative and quantitative data [31–36], ten qualitative only [27, 29, 37–44], and three quantitative only [28, 30, 45]. The numbers and characteristics of the participants involved in the included publications are given in **Table 2**.

All the mixed methods studies used questionnaires on data collection. Two studies performed focus-group or individual interviews in conjunction with the questionnaire. Studies following a qualitative design used a variety of data collection methods: focus groups, descriptive exploratory design, questionnaires, meeting reports, comments from patients' medical records, narratives, telephone interviews, observations and semi-structured

Table 3: Organisational, processual, relational and contextual facilitators of MPC in primary care.

Organisational facilitators of multi-professional collaboration

- Establish **procedures** for inter-professional meetings and documentation and handling of patient data (e.g. e-communication)
- Facilitate **knowledge sharing** between disconnected professionals
- Establish local, specialised **multi-professional teams**
- Establish system-level foundation that **supports local management and leadership** of MPC

Processual facilitators of multi-professional collaboration

- Enhance **collaborative skills** before introducing new professional teams, roles and responsibilities
- Develop **common quality-management systems** across institutions
- Allocate sufficient **time** for professionals to share reflections and engage in mutual learning

Relational and contextual facilitators of multi-professional collaboration

- Invest in **professional relations** that build trust, respect and continuity
- Improve professionals' **knowledge of each other's skills and roles** through inter-professional education
- **Educate patients** about the benefits of MPC

interviews. The three quantitative studies followed a questionnaire-based, cross-sectional group comparison design.

Appendix 4 presents the aims, design and study conclusions of the included interventions and surveys.

Facilitators for multi-professional collaboration in primary care

This review retrieved a heterogenic collection of literature illustrating team-based care as an emerging and understudied field of research. The identified studies depict important organisational, processual, relational and contextual facilitators applicable to the emerging field of multi-professional education and collaboration. The findings are summarised in **Table 3**.

Organisational facilitators of multi-professional collaboration

Organisational capabilities and structures describe dynamic elements in the local environment subject to the success of integrated care delivery and the support of MPC [46, 47].

Collaborative practice is effective when there are opportunities for shared decision-making and routine meetings [48]. We found that professionals working in different primary care institutions lacked a shared *modus operandi* for documentation and handling of patient data, shared decision making [27, 29, 31, 33, 35] and e-communication [44, 45]. One study suggested that secondary care should develop protocols and individual patient care plans at discharge, which may facilitate uniform cancer rehabilitation in municipal health and social services [31]. Two studies addressed e-messaging between HCNs and GPs [44, 45]. Results from the study of Borgen et al. indicated that e-messages increased the frequency, quality and inter-professional interaction between GPs and nurses [44].

The results showed that joining currently disconnected professionals, extending their professional responsibilities and facilitation of knowledge sharing are untapped resources in primary care that could increase the level of work satisfaction of professionals [27, 40], quality of care [28, 32, 42, 43] and improve preventive care planning [32, 38]. However, the habitual way in which professionals operate must be synchronized and their modes of communication systemised. For example, in Magnussen's study, GPs were concerned about interrupted communication of patient care information following the introduction of point-of-contact-nurses, which potentially posed a threat to patient safety [27].

Most studies in this review were locally initiated without system-level foundation. Several studies reported that inadequate leadership inhibited new methods of MPC implementation [48, 49]. There was a consistent lack of system- and policy-level support for integrating the projects with the overall municipal health and social care system. For example, the implementation of cancer coordinators and their services was not sufficiently publicised by local authorities and the HCPs had to dedicate time to implementing and notifying other primary care professionals about their services [36]. Quality improvement projects in general practice were terminated due to lack of municipal leadership [39] and a well-functioning team-based model for diabetes care was not shared and scaled up [41].

Processual facilitators of multi-professional collaboration

Processual aspects of collaboration pertain to situational factors such as time, proximity and task complexity. Several studies sought to enhance the professional skills of physicians and non-physician professionals by introducing new work alliances and responsibilities which paved the way for shared learning either within institutions, e.g. nurses commencing diabetes controls in general practice [41] or across institutions, e.g. pharmacists participating in medical reviews in case conferences with GPs and nurses [43]. The success of introducing new skill mixes depends on the collaborative skills of all members of the team [48]. Another critical determinant for succeeding in improving MPC relates to the professionals' time [49]. In several studies, HCPs engaged in quality development after their working hours or reported that finding time during the day was an obstacle to participating in sharing reflections and learning from collaborative partners [35, 38, 39, 43].

Extending the roles of professionals may improve the quality of care. One study reported the advantages of introducing new working practices to improve quality improvement projects in general practice [40]. By engaging all staff members, the practice managed to reduce the number of errors considerably and improve the practice's collaboration with the HCSs. Another example of quality improvement was the establishment of local multi-professional dementia teams which increased the number of dementia diagnoses [32], whereas Syse & Moshina's study showed that extending nurses responsibilities may improve municipal cancer rehabilitation [36]. The study by Bell et al. showed that nurses and GPs were unaware of the benefits of engaging pharmacists in reviewing the pharmacological therapy of patients with multimorbidity and polypharmacy [43].

The collaboration between HCNs and GPs was reported as being challenging in several studies [27, 28, 35, 42, 44]. Nurses in particular reported that contacting GPs was difficult and time consuming [42, 44]. However, with processual changes and new routines, the collaboration was improved [27, 28]. For example, entrusting specific HCNs to act as a point of contact with the GPs on behalf of all the other nurses reduced the number of phone calls between HCS and general practice, increased collaborative efficiency and reduced the amount of unnecessary medication for patients receiving HCS [28]. In Kvamme & Lothe's study, a shared quality-management system covering local care procedures in HCS and general practice was developed to improve communication and coherency in clinical procedures [35].

Relational and contextual facilitators of multi-professional collaboration

Relational and contextual facilitators were found to be closely connected. New skill mixes and expansion of the professional's roles requires a cultural transformation of GPs' approach to other professionals. From being used to working and accommodating most patients' needs independently, GPs must acknowledge that collaboration with non-physician professionals may offer patients more targeted health care [31, 32, 41]. As an example, two studies highlighting the collaboration between GPs and physiotherapists reported poor levels of communication, knowledge and collaborative working arrangements between these professions [29, 33]. Both groups of professionals reported confusing jargon and use of terminology. The physiotherapists complained about the GPs' inadequate description of patients' symptoms and that diagnostic codes were of little use when referring patients with vague and complex complaints to a physiotherapist. The authors called for a discontinuation of the hierarchical and power-related dynamics between the two groups of professionals and the establishment of new collaborative procedures for referrals from GPs and reports from physiotherapists to increase the level of satisfaction and the perception of the usefulness of collaborating with each other. In this regard, investing in the professional's partnerships and knowledge of each other's skills and roles is a relational as well as a processual facilitator for collaboration.

While time was found to be an important processual facilitator for MPC, important relational dimensions were trust, respect, collaborative skills (e.g. focusing on sharing knowledge, being open to others influencing your decisions, appreciating each other's efforts and trusting each other's skills) and physical proximity [29, 34, 40]. Interestingly, we found that more extensive experience of practice enhanced the non-physician's perception of the quality of collaboration and communication with GPs [36]. Similarly, GPs satisfaction with the collaboration with nursing homes positively correlated with relational continuity [30]. The implementation of new interventions was also found to be easier in municipalities in which the HCPs were already well known among the target group [38]. This could indicate a culture of scepticism and a lack of curiosity and openness among different professional disciplines. For example, in the study by Magnussen, in which nurses and GPs had monthly meetings about roles and responsibility, nurses experienced an increased endorsement of their professional work and an increased willingness by GPs to discuss a broader range of topics, compared to their regular interaction with GPs [27]. Thus, investing in inter-professional relationships may have positive effects on the level of professional work satisfaction.

Discussion

This comprehensive scoping review revealed a shortfall in published research about the collaboration of GPs with other HCPs in primary care. The included studies provide some generalisable facilitators from a range of examples of MPC in primary care. The spectrum of initiatives reflects a healthcare system progressing towards integrated care delivery and its readiness for change and organisational maturity, which are different from systems that represent integrated care sustainment. The advancement of integrated care requires an understanding of the underlying adaptive organisational, processual, contextual and relational capabilities that support collaboration at the micro (patient, provider), meso (organisational/institutional) and macro (system/policy) level [50] The limited number of identified publications clearly highlights the need for further exploration of this area of the Norwegian healthcare system.

Improving collaborative practices requires system-level infrastructure

Developing new organisational infrastructure is crucial in integrated care delivery [47, 51]. It has been proposed that creating collaborative and integrated care involves an *a priori* structuring for flexibility, meaning that healthcare systems are made more sustainable when they are ready for continuous transitions into even more complex services [52].

Workforce planning, inter-professional education and responsive monitoring of quality improvement through audits and feedback are organisational domains that have been proven critical in improving the dynamics in local healthcare services [52, 53]. We found that the work practices of HCPs did not accommodate collaboration or teamwork but were constrained by lack of time and diverging modes of professional practice among pillarised institutions. In Norway, inter-professional education is only at the experimental stage with no legislative support [54]. Nor is there any audit and feedback programme that monitors the quality of primary care services.

The studies in this review have illustrated that exploring new professional constellations and work practices could improve care efficiency and the level of work satisfaction of professionals [28, 38, 40, 43]. However, this will amplify the demand for the establishment of collaborative procedures and the necessary infrastructure to facilitate effective communication and professionals' access to up-dated patient data. The HCPs informing this review were generally left alone with the responsibility for planning and implementing initiatives to improve collaboration and quality of care, which may demonstrate ineffectual management at a system-level and unsatisfactory local coordination and leadership of the collaborative efforts of HCPs. As others have shown, initiatives in the healthcare setting continue to be developed in isolation rather than interactively at micro- and macro-levels. This is an inefficient and expensive undertaking that rarely translates into higher quality of care [55].

According to our analysis, HCPs were aware of the collaborative and communicative shortcomings among professionals in primary care. It was shown that although GPs reported unsatisfactory collaboration with nursing homes [30, 37, 42], HCNs [27, 31, 37, 45] and physiotherapists [29], they lacked the time, experience and training to engage in improving their practice [30, 31]. Attending to the intrinsic capacities, barriers, needs and interdependencies of primary care requires a systemic approach in which local health and social care managers share responsibility with professionals and lay people in boosting clinical outcomes. Indeed, leadership is essential to encourage the use and implementation of innovative workflows, collaborative structures and to support long-term quality improvement [56].

In this regard, experience from the UK may prove valuable. In its efforts to improve integrated care, the NHS identified separated budgets, institutional organisation, professional separation, different cultures and lack of integrated data and information systems as the most significant barriers [57]. Taking these lessons into account and moving forward, the NHS has established a Leadership Centre that has coordinated and facilitated clinical leadership development programmes, clinical audits, risk management, user involvement, reflective practice and team reviews since 2001 [58, 59]. Recently, local service managers from the NHS and the provider side have developed plans with the aim of transforming health and care in the communities they serve [60]. The initiatives include increasing the number of clinical pharmacists, physician associates and general practice nurses, as well as linking GPs with mental health therapists and expanding the number of practices working together in primary care networks. The commissioners' mandate includes a five-year budget and evaluation plan in which the budget allocation is entrusted to the NHS commissioners directly to prevent political interference regarding the way in which funding is distributed [61]. Leadership by trained health service managers is regarded as a pivotal element in managing and running the commissioning and delivery of local health care [62].

Successful MPC calls for formalised procedures of communication and collaboration

The processual aspects of collaboration are linked to how the actual working practices affect teamwork. Several of the initiatives included in this review focused on improving the processual efficiency of care, i.e. promoting more effectively the communication between GPs and HCNs [28, 40] or improving collaboration between GPs and multi-professional teams for patients with complex needs [32, 35, 36, 38, 43]. Reallocation of tasks or new cooperative alignments between GPs and pharmacists [43], the HCSs [35], nurses at nursing homes [43] or the introduction of new responsibilities for other professionals in general practice [41], were found to be plausible in alleviating some of the pressure on GPs and to have synergetic effects on care procedures.

We found several important processual factors that affected MPC such as time, co-location and system complexity. Though time is a limitation in health care, the communicative procedures between GPs and other healthcare professionals did not generally support efficient collaboration [27–31, 33, 35–37, 40, 42, 44, 45]. However, formalising the procedures for collaboration reduced the amount of time HCNs and GPs spent on attempting to make contact with each other [27, 40] and improved information exchange and care efficiency between municipal teams and GPs [27, 28, 32, 38, 40, 43, 44]. Moreover, the introduction of electronic messages could improve communicative efficiency if the collaborating partners can reach an agreement on how it should be used procedurally [44, 45].

Co-location of professionals may facilitate improved care for frequent users and patients with complex needs [63, 64]. The study by Graue described HCNs who received diverging advice from different physicians located in general practices and hospitals that left nurses feeling unsupported in the clinical setting. This may indicate that separation of professionals is a hinder to sharing standards of care and may impede nurses' perception of professional support [37].

Health care is a complex system [65]. The components of complex systems interact nonlinearly over multiple scales and produce unexpected results. Hence, siloed programmes for managing health care will often fail [66]. The abandonment of the notion of nonlinearity, in which nonlinearity means that the output is greater than the sum of its parts, became evident in our analysis in the form of the neglect of patient transitions and communication channels, e.g. between psychomotoric physiotherapists [29] and chiropractors [33] and GPs, or between GPs and multiprofessional organisations such as nursing homes [30]. However, what emerged from our findings is that differentiating facilitators and barriers for MPC between the functionality of the healthcare system, the capacity of working practices and the intervention itself, was a challenge.

Facilitation of personal relationships requires a systemic approach

The relational domain is linked to how relations, leadership and hierarchy impact inter-professional collaboration. Indeed, the professional culture and people's values and involvement were found to be associated with the success and failure of the included interventions. For example, oncology nurses in the analysed study by Syse & Moshina used a considerable amount of time on building networks and informing other healthcare institutions about their services [36]. It is surprising that the municipalities regard this as a beneficial and efficient application of nurses' time and that inter-professional education and training activities are not put into practice.

To build trusting relationships and identify problem areas and inherent capabilities for collaboration, professionals must spend time together [67]. We found several examples indicating the importance of investing time in building professional relationships. One innovative example is the GP who underwent psychomotoric physiotherapy sessions to improve his knowledge about what patients would most benefit from in this therapeutic approach [29]. His commitment also improved the communication between the two professions. In studies in which municipal teams were established, professionals were given more time to discuss their clinical experiences. This contributed to personal growth, a greater sense of acknowledgement from other HCPs, and enhanced self-awareness [27, 28, 38, 40, 41, 43]. Contrarily, a lack of attention to the principles of teamwork, such as shared values and goals, may lead professionals to invalidate the mode of practice of other professionals, as the study by Engedal et al. showed, in which GPs considered the practice of dementia teams screening for dementia as unnecessary and of little use to the patient [32].

Contextual dimensions relate to authorial support of local multi-professional activities. The potential of an organisation's structural and tangible resources depend on intangible features such as individuals' collective attitudes and relationships [68]. Though leadership has been suggested as an influential indirect factor in shaping the organisational environment and culture [60, 69], research has shown that the established institutional structures and norms in health care render leadership problematic [70]. To overcome the policy imperatives, professional divisions and bureaucratic structures that interfere with the frontline managers' ability to lead across boundaries and up hierarchies, organisational structures must be altered. This will not be achieved through piecemeal changes to job titles and responsibilities in isolation from the context in which these are to be enacted and calls for system-level management.

In confirming our findings, there seems to be a growing consensus that the successful implementation of initiatives that promote professional collaboration takes into account local contexts and the broader social, political, economic and cultural environment [50]. This entails the acquirement of overall knowledge about the needs of local communities and the existing barriers and facilitators of MPC. For example, several of the included studies reported that commissioning GPs in collaborative activities was challenging [35, 38, 43]. This is not to be understood to mean that physicians are not cooperating but is an invitation to further research the inhibiting and promoting mechanisms of how MPC may be more effective and how GPs can be more involved in the advancement of primary care.

Summary of stakeholders' comments

Four stakeholders representing governmental and municipal authorities and academia were asked to assess the results to increase study validity and broaden our understanding of today's challenges regarding MPC in primary care (please see Appendix 3 for a presentation of the stakeholders' backgrounds).

Two of the stakeholders emphasised the need for formalised structures and leadership in creating integrated municipal healthcare services and two stakeholders argued that the lack of experience, skills and resources in municipalities in taking charge of research projects is an obstacle to implementing new collaborative practices. They also commented that conditional terms, legislation and resource priorities are hindering development and innovation in municipal health care.

One stakeholder commented that primary care lacks common guidelines, modes of collaboration, IT systems and binding agreements that increase GP participation in multi-professional and municipal collaboration. It was noted that managing and developing integrated multi-professional primary care services is a municipal responsibility. One stakeholder stated that municipalities lack formal control of GPs, contrasting, for example, home-based care services in which municipalities coordinate and manage altogether.

Implications of the results on policy and practice

Norway is striving to become a leader in the prevention and management of chronic, non-communicable diseases [71]. Although Norwegian citizens enjoy one of the highest per capita health expenditures in the world [20], only around 6% of the total current health expenditure is used on primary care. This is half of the OECD average of 12% and insufficient resource allocation poses a threat to the sustainability of our primary care services [23].

The integration of bottom-up and top-down governance in healthcare settings may help to overcome dysfunctionalities associated with efficiency and coordination of care [72, 73]. Measures that enhance cooperation between national and local authorities in ways that improve the capability of municipalities to establish supportive relationships with HCPs is necessary to contain costs, improve the quality of care and offer more population-suitable care [74, 75]. For example, engaging in the implementation of common procedures and legislation for MPC is a managerial role, commencing with an evaluation of the quality of care services and establishing remuneration plans that support teamwork, local quality improvement and the inter-professional sharing of knowledge [67]. Next, it is important to improve knowledge about the level at which organisational management should be placed and how managers should become involved in centralised or distributed decision-making.

The gap between what we know facilitates MPC and integrated care, compared to everyday practice, remains a major challenge for health systems [76]. Thus, implementation research emphasises the need to balance internal (end users) and external validity and to understand the interplay between science, HCP behaviour, the population under care and the local delivery environment in the adoption of new knowledge. This process requires extensive consultation, flexibility and front-end review beginning with a dialogue about needs and the cognitive apprehension on the relationship of HCPs with other HCPs, their attitudes, beliefs and motivation to collaborate [77].

It was remarkable how profession-oriented the included studies were, a point about which several stakeholders commented. A key challenge for governance constitutes its detachment from the realities surrounding professional–patient relationships and patient preferences [78]. Shifting from a volume-driven system to a system that achieves outcomes that matter to patients requires the impact on policy development of patient-reported outcomes and needs [79]. Governmental strategies [71, 80, 81], reforms [82] and legislation [83, 84] generally include a high volume of ultimate goals and expectations regarding the development of integrated and person-centred care services. However, scant attention is usually paid to guidance in the processes of delivering such services [85] and the necessary underlying organisational capabilities and conditions [51]. For example, in Norway there is no national policy that supports health organisations in the management of inter-professional relationships or in inter-professional education. In this sense, we suggest applying the existing knowledge from the numerous evidence-based frameworks that have been developed to diagnose the level of maturity of healthcare systems and to guide actions of improvement for inter-professional collaboration [86–88], integrated care [89, 90] and person-centred care [91].

Possible pitfalls when reorienting professional relationships in health care

The reinforcement of collaborative practice in healthcare and institutional settings must be multi-faceted and take into account that the system is more than the sum of its parts [92]. Ignorance of this critical point relates to the lack of high-quality intervention studies which demonstrate that inter-professional work activities can have a meaningful impact on health outcomes [93]. Collaboration does not equate to increased specialisation or delegation of tasks, which may incur communicative or professional challenges, such as role blurring or power struggles [94]. As experience from the UK has shown, solely directing focus on active management or governmental incentives without engaging professionals in taking ownership of the necessary changes of practice, may be disadvantageous [95]. For example, the redistribution of roles alters professional identity and may reorient health care towards biomedical problems and the sets of tasks that must be accomplished to fulfil a set of quality indicators, and away from discourses that focus on the social character of general practice and the notion of a patient-centred approach [96].

The acceptance of health care as a complex adaptive system based on culturally, ethically, politically and economically-sensitive relationships, in which the relationships between parts of the system are regarded as being more important than the parts themselves, may be a key factor to successful implementation [92, 97, 98].

Study strengths and limitations

The strengths of this review encompass a broad and thorough search strategy resulting from several initial searches and performed by a medical librarian. We argue that the scoping review methodology was well suited to answering our research questions and providing a knowledge synthesis that addresses the key concepts, types of evidence and research gaps related to this explorative field of research. Additionally, acknowledgements and comments from several relevant stakeholders improved the study validity.

This review has several limitations. We may not have identified all relevant publications despite our efforts to be as comprehensive as possible. There is an ongoing debate regarding the typology of inter-professional activity, as no common terminology or definitions exist [17]. Reeves et al. defines collaboration as a looser form of inter-professional work than, for example, teamwork, which requires a "shared accountability between individuals, some interdependence between individuals and clarity of roles and goals" [99]. Xyrichis et al. recently published a validation paper that sought to clarify the concept of inter-professional working in health care. They suggest new sub-categories of inter-professional work activities such as "collaborative partnership, "coordinated collaboration", "delegative coordination" and "consultative coordination" [17]. We acknowledge that several of the interventions or work practices reported in this review do not completely comply with Reeves et al's definition of collaboration and that the collaborative characteristics may satisfy the new sub-categories. However, as our search retrieved only a limited number of publications that fulfilled the inclusion criteria, we found it most appropriate to classify everything as "multi-professional collaboration".

The classification of collaboration in the various articles may reflect different degrees of collaboration and other investigators may have included a slightly different set of articles than those included in the present review. Furthermore, the review topic is an emerging field in Norwegian primary care and most initiatives were dependent on local actors with short-term financial support and limited research skills. Hence, relevant project results may be left unpublished.

Conclusions made by original authors regarding the included studies were not subject to our scrutiny and others may interpret their findings differently. We adopted Arksey and O'Malley's definition of scoping reviews and did not evaluate the qualitative or financial implications of the included study results. Readers should note that, typically, the number of participants in the included studies was low.

Conclusion

While accounts of MPC are increasingly being reported in literature, this review identified only 19 studies that discuss the application and management of MPC in Norway.

The analysis indicates that the relations between micro-level professionals, primary care institutions and macro-level stakeholders are inadequate and further national research is required to understand these processes. Health care is a complex system in which HCPs need managerial support to harvest the untapped benefits of MPC in primary care. As international research demonstrates, local managers must be supported in understanding the embedding of practice and looking at what professionals actually do, how they work and the preferences of patients in serving as facilitators in collaborative practices and healthcare development.

Additional Files

The additional files for this article can be found as follows:

- **Appendix 1.** Search strategy. DOI: https://doi.org/10.5334/ijic.3959.s1
- **Appendix 2.** Data extraction form. DOI: https://doi.org/10.5334/ijic.3959.s2
- **Appendix 3.** List of consulted stakeholders. DOI: https://doi.org/10.5334/ijic.3959.s3

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Competing Interests

The authors have no competing interests to declare.

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RESEARCH ARTICLE

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The roles of healthcare professionals in diabetes care: a qualitative study in Norwegian general practice

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ABSTRACT

Objective: To explore the experiences of general practitioners (GPs), nurses and medical secretaries in providing multi-professional diabetes care and their perceptions of professional roles.

Design, setting and subjects: Semi-structured interviews were conducted with six GPs, three nurses and two medical secretaries from five purposively sampled diabetes teams. Interviews were analysed thematically.

Main outcome measures: Healthcare professionals' (HCPs') experiences of multi-professional diabetes care in general practice.

Results: The involvement of nurses and medical secretaries (collaborating health care professionals) was mainly motivated by GPs' time pressure and their perception of diabetes care as easy to standardize. GPs reported that diabetes care had become more structured and continuous after the involvement of collaborating health care professionals (cHCPs). cHCPs defined their role differently from GPs, emphasizing that their approach included acknowledging patients' need for diabetes education, listening to their stories and meeting their need for emotional support. GPs appeared less involved in patients' emotional concerns and more focused on the biomedical aspects of illness. There was little emphasis on teamwork among GPs and cHCPs, and none of the practices used care plans to involve patients in decisions or unify treatment among professionals. Participants stated that institutional structures including a discriminatory remuneration system, lack of role descriptions and missing procedures for collaborative approaches were an obstacle to MPC.

Conclusions: cHCPs worked independently under delegated leadership of the GPs. Although cHCPs had a complementary role, HCPs in general practice may not take full advantage of the potential of sharing patient responsibility and learning with, from and about each other. Contextual barriers for team-based care approaches should be addressed in future research.

KEY POINTS

- It has been suggested that multi-professional approaches improve quality of care in people with long-term conditions.
- In this study, nurses and medical secretaries perceived to have a complementary role to general practitioners (GPs) in diabetes care, focusing on patient education, building trusting relationships and providing patients with emotional support.
- As multi-professional collaboration was minimal, GPs, nurses and medical secretaries in the included practices may not take full advantage of the potential of sharing care responsibility and learning with, from and about each other.

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Introduction

Globally, more people live with one or more long-term conditions (LTCs), accentuating the demand for complex primary care services [1]. In general practice, it is proposed that bringing together healthcare professionals (HCPs) with different perspectives, knowledge and skills improves patients' experience of care and enhances the working life of HCPs [2–6]. Workforce transformation based on new models of care and skill-mix change may also increase care

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efficiency and efficacy [7]. For example, estimates from the USA show that almost 50% of care for patients with LTCs and up to 80% of preventive care could be performed by non-physician members of the general practice team [8–10].

Multi-professional collaboration (MPC) in health care is the process by which interdependent professionals structure a collective action towards patients' care needs [11]. Despite growing recognition of the importance of collaborative approaches mandated in policy reforms in Norway and globally [12–14], healthcare institutions struggle to define and achieve new forms of collaborative practice [15,16]. MPC in healthcare lacks clear conceptualisations [17,18]. There is limited empirical evidence to guide practice transformation in developing new standards of care, in which knowledge, decisions and responsibility are shared [19,20]. A systematic review, exploring team-building interventions in non-acute healthcare settings, found little evidence to describe the determinants of professional interaction [21].

The average general practice in Norway has 3.6 general practitioners (GPs), providing care for 1,106 patients per GP [22,23]. About 95% of general practices are owned by GPs on contract with the municipality, financed by capitation, fee-for-service and patient co-payment. In many countries, the shift from task delegation to team-based care has followed the introduction of new reimbursement schemes, such as pay for performance, capitation and direct subsidies to employ and train nurses [24,25]. In Norway, only physician-led care is eligible for reimbursement in general practice, whilst collaborating healthcare professionals (cHCPs), such as nurses, medical secretaries and dietitians lack the authority to bill for their services independently and are directly employed by practices. Hence, compared to some other countries [24,26], multi-professional team-based care is not common in Norwegian primary care.

Diabetes mellitus is a complex disease, and Norwegian guidelines for treatment of diabetes emphasise the demand for patients and carers to attend to multiple psychological, behavioural and environmental factors and their interactions [27]. A meta-regression analysis summarizing the most effective quality improvement interventions in T2DM found that expanding professional roles, team-based approaches and case management were the most effective in reducing HbA1c [28]. Some Norwegian general practises have re-organized diabetes care to a more collaborative approach, involving nurses or medical secretaries. However, little is known about the experience of MPC and the roles and care approaches adopted by various professionals in new forms of collaborative constellations [24]. Our recent scoping review could not identify any publications reporting from MPC in Norwegian general practice [29]. Thus, scientific studies have not investigated the experiences of the few multi-professional teams operating in Norwegian general practice. In a global perspective, more studies about factors influencing the collaboration of HCPs in diabetes care in general practice are needed. Given this gap in knowledge, we sought to explore the experience of GPs, nurses and medical secretaries in some of these practices.

We posed the following research question:

- How do GPs, nurses and medical secretaries experience their role and care approach in multi-professional diabetes care in general practice?

Materials and methods

Setting, recruitment and participant characteristics

This is a qualitative and exploratory study, drawing on interviews with six GPs, three nurses and two medical secretaries. Five general practices were purposively sampled, acknowledged by physician colleagues and the authors as providing multi-professional follow-up of patients with type 1 diabetes mellitus (T1DM) and type 2 diabetes mellitus (T2DM). All practices were privately owned and run by 4–7 GPs (see Table 1 for practice demographics). All but one interview was conducted face-to-face (the final interview was performed via phone for practical reasons (cHCP4)).

One GP in each practice received written information describing the study's purpose and aims. This included the following statement: "We wish to study how diabetes care is organized in your practice and how healthcare providers from different professional backgrounds collaborate in providing diabetes care". In particular, we stated that we wanted to explore professional roles, care approaches and how patients were involved in care decisions. In this study, we use the term "multi-professional" to reflect the way in

Table 1. Demographics of included practices.

Practice	Practice composition	Rural/Urban[a]
1	7 GPs, 0 nurses, 8 secretaries	Urban
2	5 GPs, 3 nurses, 2 secretaries	Rural
3	6 GPs, 1 nurse, 4 secretaries	Urban
4	4 GPs, 2 nurses, 5 secretaries	Urban
5	6 GPs, 5 nurses, 3 secretaries	Rural

[a] Rural: place with <20,000 inhabitants, Urban: city with >20,000 inhabitants.

Table 2. Characteristics of healthcare professionals included.

Interviewee	Age (mean/range)	Experience in years, (mean/range)	Patients per week or list size[a]
cHCP1 (medical secretary)	48 (43–54)	15 (10–25)	9
cHCP2 (diabetes specialist nurse)			7
cHCP3 (medical secretary)			3
cHCP4 (nurse)			30
cHCP5 (diabetes specialist nurse)			15
GP1	50 (31–69)	23 (3–42)	1,420
GP2			600
GP3			1,550
GP4			1,200
GP5			1,000
GP6			1,480

[a] The average number of patients per week is given for cHCPs. List size is given for GPs.

which team members worked. In contrast to *inter-professional* collaboration, which refers to collaboration involving the continuous sharing of information and decisions as well as a more team-based approach, the professionals included in this study worked mainly independently [30,31].

The contact GPs were responsible for scheduling interviews with HCPs in their own practice and distributing participant consent forms. The included practices had twelve years (range: 7–15 years) experience of working in a multi-professional setting with diabetes. All cHCPs were female and all but one GP were male. Two of the cHCPs were medical secretaries. Two of the three nurses were diabetes specialist nurses. Participant characteristics are summarized in Table 2 (these data were provided orally by the participants at the end of the interviews). To ensure participant confidentiality, numbers are given as mean/range.

Data collection

The semi-structured interview guide was theoretically underpinned by three of the core competencies for caring for patients with long-term conditions issued by the WHO and includes: 1) the skills of professionals in collaborating with each other and with patients, 2) the development of common treatment plans based on patient goals and 3) implementation strategies focusing on the needs, values, preferences and self-management skills of patients [32]. The interview guide can be found in Appendix I.

The applicability and time requirement of the interview guide were tested in a pilot interview. As this necessitated only minor adjustments (e.g. removing a question about inter-professional collaboration), it was included in our final analysis. Interviews were conducted individually in private consultation rooms at each general practice by MS and lasted 20–60 min. The phone interview lasted for 30 min. Following all interviews, descriptions of the interview context were immediately recorded by the interviewer.

Data processing and analysis

All interviews were audiotaped, transcribed verbatim and analysed thematically using Braun and Clarke's methodology [33]. Transcripts were read and re-read, and initial codes were developed by identification and grouping of meaningful units of text based on their relevance to our research question. Comprehensive extracts of text were then condensed, labelled with codes and collated under thematic headings. Citations were transcribed from Norwegian into English by the first author.

Two key professional competencies guided the data analysis: person-centred care (PCC) and professional partnering [32]. We used the term *person-centred care* (as compared to patient-centred care), concurring the importance of a holistic focus on the patient over time and independent of particular diseases. Moreover, PCC is concerned with patients' experienced health problems, overall wellbeing and function in daily life [34,35]. In care settings, professional partnering involves the ability to communicate in a way that enables professional collaboration and partnering with patients.

To ensure theme and sub-theme consistency, coherence, and distinctiveness, we compared and contrasted similar codes and developed an initial coding tree. Each code was briefly described and checked against the original data using an iterative and reflexive process. We then described and interpreted the themes and sub-themes to explicate connections, contradictions and hidden meanings. The authors shared and reflected on a descriptive summary of preliminary themes and sub-themes in order to enhance the credibility of the findings. To validate the premise that themes and sub-themes were representative and remained directly linked to the statements of the participants, the researchers closely scrutinized the stages of data analysis and code assignment multiple times [36].

Ethical considerations

At the outset of each interview, the interviewer reiterated the purpose and method of the study, participants' right to withdraw from the study at any time, emphasizing that data from the interview would be treated confidentially and confirming that personally identifiable information would be redacted in the transcripts. All participants (including the participant in the pilot interview) gave their informed consent for the interview to be audiotaped and transcribed.

Results

The analysis of participants' perception of multi-professional diabetes care revealed two main themes: *Complementary diabetes care* and *Role ambiguity*. In the following, we will elaborate on these two themes and corresponding sub-themes.

Complementary diabetes care

Providing diabetes care in parallel

Typically, patients with diabetes were referred by their GPs to a designated nurse or medical secretary in the same practice, who performed diabetes controls independently. cHCPs had their own patient schedule with access to patient's electronic medical record (EMR). They explained how they devoted a considerable amount of time searching the EMR to identify whether a patient had attended the clinic between diabetes controls and on reading record entries from previous appointments. The first consultation with a newly diagnosed patient was typically described by cHCPs as being comprehensive. It included retrieving the patient's full medical history and detailed recordings of eating and physical activity habits. When asked, neither nurses nor medical secretaries confirmed that they applied this information systematically to improve care coordination. For example, none used this information to develop a shared care plan or to unify treatment goals with patients' preferences or among care providers.

GPs emphasized that adopting a multi-professional approach might lead to several positive effects. First, when patients were seen by the same nurse or medical secretary over a period of time, GPs noted that the consistency and continuity of diabetes care improved. Second, because cHCPs focused solely on diabetes, their care was perceived as being more predictable in terms of content and structure compared to the multifaceted GP-led care. Third, working collaboratively made GPs more aware of their own practice as they were responsible for the training of cHCPs. For example, several GPs admitted that their adherence to national guidelines and their inclination to stay up to date on research, technology and new medications had improved following task delegation of diabetes care to cHCPs. Finally, several GPs stated that the involvement of professions with different perspectives as compared to their medical point of view enhanced the overall understanding of patient complexity and needs. One GP explained the benefits of collaborating with a nurse who knew his patients well:

> If one of our patients with diabetes struggles to achieve the HbA1c target, I usually go and talk with the nurse. She knows more about each patient's life with diabetes and can easier detect where the shoe pinches. The alternative would be calling the endocrinologist, but he can only answer theoretically, not give any personal advice for this specific patient (GP3).

Diabetes as a case for multi-professional care

Participating GPs considered diabetes to be a favourable case for delegation of tasks because of easily standardized controls and because this group of patients often visited the general practice. Moreover, GPs affirmed that before entrusting partial responsibility of diabetes care to a nurse or medical secretary, their diabetes controls had been inconsistent, random and time-consuming. One of the GPs stated that his major motivation for involving the medical secretary in diabetes care was to ensure a more systematic approach to diabetes follow-up, thereby hopefully enhancing the quality of care:

> Type 2 diabetes (T2DM) care was not well organized. With a hectic schedule and a high level of multimorbidity, diabetes was regularly forgotten. We lacked an effective system and the quality of care was too low. When had the patient's feet been last checked, when had he last seen the ophthalmologist and the podiatrist and had I remembered to control his blood glucose levels? (GP1).

Both cHCPs and GPs used terms such as "hasty", "unstructured", "less available" and "too multifaceted" to describe GP's diabetes consultations. Several GPs stated that their attitude could hamper a patient's inclination to ask questions. One of the GPs compared patient involvement in his consultations to that of the medical secretary in order to demonstrate why collaboration improved the quality of care:

> It's easier to ask the secretary questions because she has more time than I do, and this allows the patient to talk without interruptions. There is often a tense atmosphere in my consultations. I'm always behind schedule, which does not pave the way for a lot of questions (GP1).

GPs' motivation to involve cHCPs in the care of patients with other conditions than diabetes (examples given by the interviewer included mental illness, arthritis, asthma and cardiovascular disease) was not prioritized due to the demand for training and the maintenance of competence and skills. Also, several GPs emphasized the importance of not assigning complete responsibility for certain diseases to other professionals as they risked being unable to stay updated with good practice themselves.

Most GPs regarded difficult cases, including patients with multimorbidity or patients requiring continuous adjustment of glucose-lowering medications, to be unsuitable for referral to cHCPs. They explained this routine was to avoid unnecessary patient re-visits. One of the GPs argued his rationale of selecting certain patients for referral to the nurse and not others:

> I don't have any particular criteria for deciding which patients to refer to the nurse. I tend to mainly hang on to patients whose blood glucose is difficult to control and the intricate cases where I know the nurse will consult me anyway. A GP's mind-set is practical and effective. I only refer patients that I know the nurse can handle herself without asking me about everything. Also, I believe she appreciates this independence. She takes notes in the EMR and I read through them as a quality control (GP5).

Increased focus on person-centred diabetes care

Participants stated that GPs consultations lasted 15–20 min, whereas cHCPs typically allocated 30 to 60 min for each consultation, adjusted to individual patient's needs. Most cHCPs regarded successful patient cases as being the result of having a long-term perspective on treatment goals and sufficient time to get to know each other through conversations about everyday life issues. Giving patients time to adjust to new behaviours in a stepwise manner was perceived to diminish disease-related concerns and increase patients' sense of self-management, as the following medical secretary explained:

> I had a patient once who came back to me and said: "Actually, I'm glad I have type 2 diabetes. My quality of life has improved. I have quit smoking, I adhere to a regular exercise routine and I'm more aware of what I'm eating". It's funny, but he suddenly took command of his life (HCP1).

In general, cHCPs considered it important to reflect on how their care approach influenced patients' feelings and motivation for self-management. For example, they strategically incorporated informal talk into their consultations as they felt this created a relaxed atmosphere in which patients could communicate more freely. One of the nurses stated that she worried that her patients regarded her consultations as examinations. She was particularly aware of not pushing or judging patients whose laboratory results were above the treatment goals. Another nurse emphasized how she was reluctant to provide patients with too much information. Instead, she tried to detect a patient's readiness for change by encouraging participatory decision-making:

> I don't have all the answers, I can't tell the patient to do this and do that. Rather, I can ask: What do you think? How can I help you reach your goals? (HCP5).

Further elaborating on how they focused on listening to patients and building trusting relationships, cHCPs emphasized the importance of remembering patients' individual circumstances. Their narratives were drawn towards the communicative strategies they had adopted, specifically targeting diabetes self-management support (SMS). These techniques included motivational interviewing and guided self-determination, which cHCPs explained helped them connect with the person behind the disease and be sensible to the preferences and needs of individual patients. Conforming to the philosophical underpinnings of PCC, cHCPs emphasized the importance of being personally and sincerely engaged in their relationships with patients, as illustrated by this quote from one of the nurses:

> All patients are unique. You must always consider whether someone is showing signs of resistance or information overload. Nobody benefits from setting goals that are too stringent. If I sense resistance, I always give the patient some more time. I want them [the patients] to feel that I am carrying some of the burden for them. I am very passionate about my work (HCP2).

In contrast, GPs appeared to be more concerned about the biomedical parameters and achieving targets for blood pressure, blood glucose and lipids. When asked explicitly, none of the GPs stated that they used any specific methods to involve and empower patients during consultations. Rather, they regarded patients' superior need was information about their diseases and that the GP role entailed providing patients with oral and written advice, as this GP explained:

> I prefer it if the patient reads about diabetes at home. There is a distinct limit in patients' ability to understand what I'm saying during the short time we spend together" (GP4). When the same GP was asked whether he had a method for encouraging diabetes self-management, he replied: "No, I don't have any specific method. It's challenging when patients are unable to understand why it is important to change their behaviour (GP4).

Role ambiguity

Different perceptions of competence required in diabetes care

On average, participating cHCPs had over 15 years of practice experience. Roles and responsibilities of cHCPs varied among the practices and originated in personal motivation and aspirations (e.g. one of the secretaries had T1DM herself), as well as the mind-set of the GPs. Preparing for their extended roles, medical secretaries had received one-on-one training from GPs at the practice and participated in several diabetes workshops and conferences. Thus, cHCPs' competence largely depended on GPs' priorities, GPs' propensity to remain updated about diabetes care and their willingness to share knowledge. For example, one of the GPs explained that the other GPs at the practice did not agree about the extent to which nurses should be involved in patient care:

> Several of the other GPs do not agree with my own practice of delegating clinical tasks to our nurses. They're not used to it. It's a process and it starts with establishing trust and reassuring the nurses that you share the same philosophy of practice. It takes a lot of effort to convince physicians that you don't have to be a doctor to do many of the things we are doing (GP6).

Similarly, there was disagreement among the GPs about the value of employing nurses in general practice. One GP, having more than 30 years of practice, regarded nurses as being over-qualified for working in general practice, whereas another GP emphasized that nurses covered more than 50% of the non-physician staff positions in his practice. The latter GP justified employing nurses by endorsing their ability to make independent and correct decisions in the reception, on the phone and in the laboratory. This practice had a clear policy of nurses maintaining their clinical integrity and not performing administrative tasks, which were entrusted to the medical secretaries.

All nurses emphasized that their competence played an important role in performing their daily tasks. When asked about the different roles between themselves and the medical secretaries, nurses emphasized their ability to make independent clinical judgements, thereby saving physicians' time. One nurse used electrocardiography (ECG) controls as an example:

> The secretaries might perform an ECG, but they cannot evaluate whether the patient should be seen by a physician immediately or whether they can go home (HCP5).

In contrast, the two medical secretaries did not recognize the need to employ nurses in general practice. Rather, they thought the competence of medical secretaries was superior to that of nurses because it is more targeted towards general practice and that secretaries could be trained in new roles.

Although disagreeing on roles, nurses and medical secretaries stated that being flexible was essential in order to manage diverse and unpredictable inquiries, often accompanied by staff shortages. Nurses were particularly aware of the additional cost they represented and felt obliged to increase the effectiveness and turnover of the practice, as captured in this statement from one of the nurses:

> We must continuously evaluate how we can run this clinic more efficiently. I am able to perform several tasks simultaneously. Instead of waiting for a GP to come and see my patient, I can receive phone calls, take an ECG, remove stitches or assist the girls in the laboratory. We must consider the financial burden of employing nurses at the clinic, and justify the additional expense, as well as always consider what we can do to increase the flow of patients (HCP5).

Discussion

This study explored perceptions of roles and care approaches of GPs, nurses and medical secretaries and brings important perspectives about factors influencing the collaboration of healthcare professionals in diabetes care in general practice. Our results indicate that cHCPs may complement medical care provided by GPs. By allocating more time than the GPs to each consultation and acting person-centred, cHCPs in our study sought to improve patients' access to continuous and individualized diabetes care.

Studies from the UK, Germany and Denmark suggest that involving nurses in diabetes care is associated with improved quality of diabetes management and significant GP time saving with no adverse effects [37,38]. However, these studies do not provide insights into the ways in which nurses seek to increase care quality when working together with GPs. Interestingly, whilst GPs in our study described that the primary responsibility of cHCPs was to follow a standardized diabetes control, statements made by nurses and medical secretaries indicated that their focus also involved meeting patients' psychological and emotional needs. Both nurses and medical secretaries stated that they attempted to communicate with patients using a conversational, personal and empowering style of interaction, whereas GPs characterized their own approach of clinical reasoning as being consultative and guided by test results. In this context, cHCPs seemed to supplement GP-led care. This finding aligns with previous research from primary care, reporting that nurse-led consultations are experienced by patients as more informal and friendlier than GP-led consultations [39,40].

PCC may improve patient's knowledge, physical and psychological health, and ability to cope, and may lead to more appropriate clinical decisions [41]. The nursing profession has been referred to as "organizational glue" - a notion that has been linked to traditional gender roles. Indeed, women in healthcare are suggested to orient their attention to the needs of others, taking care of organisational needs, co-workers, and practical arrangements for patients and their families, seeking to manage functional gaps in the work place [42]. In this sense, women may naturally act in a more person-centred manner in general and the roles cHCPs in our study had adopted may therefore relate not only to their formal function, but also to inherent and traditional roles in being women.

Our results illustrate how nurses and medical secretaries worked independently under delegated leadership of their practice physicians, rather than attaining to a team-based approach. None of the practices organized joint meetings in which all professionals involved in diabetes care discussed professional roles, agreed on a common method of patient communication or on patients' treatment goals. This is in line with previous research on primary care which shows that regular meetings in which care providers share knowledge and learn with, from and about each other are regarded by many as being complex, hectic and lacking a clear structure and objective [43–47]. However, when members of a practice team lack sufficient time to plan, assess and evaluate care together, there is a risk of duplication or omission of services, insufficient care coordination and that the synergies from the pooled knowledge and perspectives of team members may not be fully utilised [48–52]. The US Agency for Healthcare Quality and Research has defined effective care coordination approaches to include the creation of a proactive care plan, supporting patients' self-management goals, case management and linking to community resources [53]. Along similar lines, the Norwegian guidelines for diabetes recommend that patients with diabetes participate in developing their personalized care plan [27]. However, these guidelines do not exemplify the layout or content of these plans. This gap in information is worth noticing, given one of our major findings - namely that none of the practices used care plans to assess patient needs and goals, agreeing on responsibility and sharing information about patient care activities.

Diverse professional backgrounds and care approaches may improve the comprehensiveness of care when assembled into a congruent whole [54,55]. However, collaborative practice requires a shift in the perspective of care providers and the authorities that govern the standardization of professional roles and responsibilities [44,56,57]. Physicians are used to working independently and several GPs in our study admitted to have colleagues in their practice who preferred not to refer patients to cHCPs. They attributed this to disagreement about roles and cHCPs' need for competence. The disagreement between nurses and medical secretaries about each other's importance in diabetes care may reflect that introduction of new roles in general practice is still only at an early stage.

The GPs confirmed that their consultations were busy, with minimal opportunity for patients to ask questions or receive diabetes education. Previous hospital-based research has demonstrated that involving certified diabetes educators taught in case management principles may lead to improved patient care and reduced hospital readmissions [58]. Enabling patients to feel capable of taking responsibility for their health is a primary goal of diabetes education interventions, as costs and complications associated with diabetes (e.g. end-stage renal disease, blindness and amputations) are largely preventable and related to lifestyle [59]. Based on Norwegian register data and data from electronic medical records, only 9.8% of patients with T1DM and 16% of patients with T2DM achieve combined treatment targets for HbA1c, blood pressure and cholesterol [60,61]. Furthermore, a recent study from general practice found that only 5% of patients with T2DM and coronary heart disease reach the four main treatment targets (no smoking, HbA1c $\leq$7.0%, SBP $\leq$135 mmHg, LDL-cholesterol $\leq$1.8 mmol/l) [62]. GPs have insufficient time to provide such self-management support and often lack general behavioural change skills [63]. We found that nurses and medical secretaries, spending more time with each patient and focusing solely on diabetes, had a professional approach that is better aligned with PCC and therefore may serve an important role in fostering adherence to the self-management regimens in diabetes.

In Norway, there are no official strategies or financial incentives to support general practices in transitioning into team-base care. Reflecting this lack of background information, GPs used terms such as *I delegate*, *they serve me*, *my assistants*, and *I control their work* when they were asked to describe how multi-professional diabetes care was organized in their practice. In contrast, the philosophical underpinnings in literature on collaborative practice is based on 'we as a team', shared learning, responsibility and goals [64,65].

Diabetes care was chosen as a case for this study as it is a typical chronic disease for which team-based approaches have been widely applied globally and are recognized as being both beneficial and effective [66–69]. The pursuit of a collective approach in complex cases is recognized as being important to the development of more comprehensive and coherent response to patient needs [35,70]. Thus, the general preference of GPs to not engage cHCPs in the care of complex patient cases (e.g. patients with 'difficult-to-control' diabetes or severe multimorbidity) is another key finding in our study. However, despite organizing diabetes care through delegation, participants from all three professional backgrounds referred to their diabetes model as being team-based. We propose that this contradiction relate again, to a lack of attention to team-based care processes in primary care in general and in missing guidelines and regulatory frameworks.

Although collaboration and teamwork are necessary in healthcare, they occur along a continuum [71]. Theoretical literature suggests that successful teams are recognized by the dynamic interaction between team members who adapt interdependently, have a common mission and clear goals, share knowledge and are led by someone who stimulates self-reflection and openness [65,72]. In order to achieve this, members of high performing teams have a clear appreciation of everyone's roles and tasks and shared care planning runs seamlessly [65]. We suggest that teamwork is not generic and should not be defined simply in terms of content and professional roles. Attention must be paid to the range of healthcare environments within which teamwork is delivered, as well as its external and internal mediators and moderators. Indeed, HCPs working in general practice are under immense pressure to get things done and most often do not have the capacity to introduce changes that are not required, enabled and resourced [73]. Hence, preparing HCPs for collaborative practice requires the development of a framework that is informed by cultural and historical professional traditions, work contexts and accountability mechanisms [44,57,74]. Similarly to our findings, in a qualitative study of Australian general practices, McInnes *et al.* found that GPs and general practice registered nurses had few formal opportunities to discuss long term goals or participate in joint decision-making [6]. Notably, although a lack of professional interaction may hamper the delivery of coordinated care, the GPs in their study indicated that such meetings were a waste of time and also logistically difficult to arrange [6].

Improving healthcare integration and cohesion is high on the political agenda [75,76]. Yet, despite decades of research on professional collaboration, little is known about its direct impact on patient outcomes in primary care [13,77]. There is also a dearth of empirical research on team-based reflection and dynamics [78]. Thus, further research is warranted into inter-professional processes and the effectiveness of different team-based approaches to understand how services can become more coherent, responding to patients' expectations and needs [2,79].

Strengths

The purposively selected practices allowed us to generate information about HCP's experiences of team-based diabetes care that have not been previously reported. The setting in which the interviews took place was non-interventional and participants' responses directly reflected their actual daily practice. All teams had operated for many years within similar regulatory frameworks, representing urban and rural districts of Norway. The practices offered comparable services in primary care but also had diverse characteristics, allowing our findings to be extended across more than one case. Our comparative approach permitted us to identify similarities and differences among different professional groups in five practices and substantiate the findings across our data.

The analysis was iteratively reviewed by two members of the research team in order to improve the thoroughness of data interpretation. Although several influences examined in our study have been previously addressed in the literature, we bring further nuances to a number of these elements. For example, participating HCPs felt that their approach to diabetes care reflected teamwork, although their practice was more similar to selective delegation and parallel care. We also found that cHCPs responded with flexibility and acceptance when they were delegated partial responsibility instead of requesting participation in the total of care of patients with diabetes.

Limitations

The practices were purposively sampled and regarded as leading in the specific field of diabetes care. Hence, they are not representative of the average Norwegian general practice. Moreover, their style of collaboration may be affected by human relationships and personalities as much as context, traditions and policies. Readers should also take note of our consideration of medical secretaries and nurses as one group, and that some of the nurses had training as diabetes specialist nurses. We realise that participants represented a heterogenous group and that their various professional backgrounds and experiences may have impacted their responses.

All cHCPs were female with extensive practice experience and all but one GP were male. As discussed above, gender may have impacted the participant's descriptions of their care approaches and their perception of own role. Nevertheless, studies from related settings in other countries show similar results [80–82], and by providing rich contextual descriptions, we believe our findings could be transferable to comparable settings. Logistical constraints meant it was not possible to carry out a member checking process, which could have further developed the study findings. The main author has been involved in developing the current national clinical guidelines for diabetes. This engagement might have influenced her interpretation of the results. However, as the co-authors in this article have not been involved in developing these guidelines, their involvement in discussing and analysing the empirical data has served to ensure an analytical distance to the guidelines, as well as to reach an agreement in terms of the final themes.

Conclusion

This study shows that cHCPs, working independently under delegated responsibility, appear to develop their roles by focusing on patient needs for emotional support and having their questions answered , which seem to be given less priority in GP-led consultations. However, by having minimal interaction and not using care plans to align patient care goals, GPs and cHCPs may miss out on important advantages of working in a multi-professional environment. Our findings also indicate that institutional structures such as discriminatory remuneration systems, lack of role descriptions and missing standards for MPC, may hinder the transition to team-based care approaches in Norwegian general practice. Further research is requested in order to understand how gender might affect HCPs' inclination to provide person-centred care and what elements of MPC contribute to improving patient outcomes.

Disclosure statement

The authors report no conflicts of interest in this work.

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Experiences of self-management support in patients with diabetes and multimorbidity: a qualitative study in Norwegian general practice

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Abstract

Aim: The purpose of this study was to explore how patients with diabetes and multimorbidity experience self-management support by general practitioners (GPs), nurses and medical secretaries in Norwegian general practice. *Background:* Self-management support is recognised as an important strategy to improve the autonomy and well-being of patients with long-term conditions. Collaborating healthcare professionals (cHCPs), such as nurses and medical secretaries, may have an important role in the provision of self-management support. No previous study has explored how patients with diabetes and multimorbidity experience self-management support provided by cHCPs in general practice in Norway. *Methods:* Semi-structured interviews with 11 patients with type 1 diabetes mellitus (T1DM) or type 2 diabetes mellitus (T2DM) with one or more additional long-term condition were performed during February–May 2017. *Findings:* Patients experienced cHCPs as particularly attentive towards the psychological and emotional aspects of living with diabetes. Compared to GPs, whose appointments were experienced as stressful, patients found cHCPs more approachable and more likely to address patients' questions and worries. In this sense, cHCPs complemented GP-led diabetes care. However, neither cHCPs nor GPs were perceived to involve patients' in clinical decisions or goal setting during consultations.

Introduction

Self-management support is recognised as an important approach to improve the autonomy and well-being of patients with long-term conditions (Bodenheimer *et al.*, 2002; Powers *et al.*, 2016). Long-term conditions or chronic diseases, such as diabetes, chronic obstructive pulmonary disease and cardiovascular diseases, are conditions for which there is currently no cure, they are of long duration and generally slow progression and managed with drugs, lifestyle intervention and other treatment (2012). For healthcare professionals (HCPs), this entails not only providing clinical care but also helping patients develop their inherent capacity and knowledge to be responsible for their own health and well-being (Lorig and Holman, 2003; Funnell and Anderson, 2004; Coulter *et al.*, 2015).

When studying the value of self-management support in patients with long-term conditions, diabetes type 1 and diabetes type 2 are common reference diseases (Piette and Kerr, 2006; Thille *et al.*, 2014; Beck *et al.*, 2017). (Onward, the term 'diabetes' refers to both types of diabetes unless otherwise stated.) Previous diabetes self-management interventions have shown that self-management support is associated with improvement in glucose control and cardiovascular outcomes (Deakin *et al.*, 2006; Sinclair *et al.*, 2013, Chrvala *et al.*, 2016) and reductions in foot ulcerations, infections and amputations (Worswick *et al.*, 2013). In patients with type 2 diabetes mellitus (T2DM), attending a structured diabetes education programme has been associated with a reduction in all-cause mortality by 44%, first cardiovascular episode by 20% and stroke by 30% (Wong *et al.*, 2015). The psychosocial burden of diabetes is significant and can affect self-management behaviours and outcomes of care (Nicolucci *et al.*, 2013). Indeed, nearly 50% of all people with diabetes report elevated levels of diabetes-specific emotional distress, interfering with their self-management capacity (Gomersall *et al.*, 2011; Nicolucci *et al.*, 2013; Liddy *et al.*, 2014; Powers *et al.*, 2016; Young-Hyman *et al.*, 2016). However, research suggests that the more patients with diabetes perceive themselves as self-managed and autonomously able to control their lives with diabetes, the more satisfied and the less distressed they feel

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(Ryan and Deci, 2000; Williams *et al.*, 2005; Steinsbekk *et al.*, 2012; Brunisholz *et al.*, 2014, Weaver *et al.*, 2014; Mohn *et al.*, 2015; Koponen *et al.*, 2017).

Long-term conditions are responsible for the most deaths and illnesses internationally and in Norway (2018b; 2018c). Norwegian guidelines for diabetes care emphasise the importance of discussing self-management capacity and setting realistic and personalised treatment goals (2016b). However, some researchers have problematised a lack of psychological support in Norwegian diabetes care (Haug J, 2017) and noted that GPs' underlying frame of reference is primarily disease oriented, which may hamper the implementation of interventions that target patients' general health and well-being (Bossy *et al.*, 2019). Within the primary care context, nurse-led care can optimise patients' self-management skills (Coates, 2017; Massimi *et al.*, 2017). However, organisational, financial and cultural constraints may imply that nurses are unable to fulfil this role today. To our knowledge, no previous study has explored how patients with diabetes and multimorbidity experience self-management support provided by nurses or medical secretaries alongside GPs in general practice in Norway.

Our analysis of patients' experiences was guided by self-determination theory, developed by Ryan and Deci (2000). Self-determination theory is a relevant framework when exploring practices of self-management support and the facilitators and barriers for patient engagement in self-management (Kosmala-Anderson *et al.*, 2010). Of particular relevance, self-determination theory outlines three primary psychological needs that must be satisfied to motivate long-term health maintenance behaviour: *the need for competence* (feeling personally capable and confident), *the need for autonomy* (behaviour must be self-authored and in accordance with the patient's abiding values) and *the need for relatedness* (feeling connected, understood and cared for by important others) (Ryan and Deci, 2000; Ng *et al.*, 2012).

Given the increasing number of patients with long-term conditions in need of improving their self-care capacity, this study sought to fill a gap in the research literature by posing the following research question: *How do patients with diabetes and multimorbidity experience self-management support provided by collaborating healthcare professionals (cHCPs) and GPs?*

Material and methods

Design

This qualitative study applied semi-structured interviews to gain insight into patient experiences of self-management support in a general practice setting in Norway.

Setting, participant characteristics and recruitment

Previous studies have shown that supporting autonomous motivation may improve self-management in patients with type 1 diabetes mellitus (T1DM) and T2DM (Williams *et al.*, 1998; Julien *et al.*, 2009; Mohn *et al.*, 2015). Diabetes type does not seem to account for variance in patients' perceptions of autonomy support (Williams *et al.*, 1998). On this background, the present study explored experiences of self-management support in both types of diabetes. Facilitating representativeness of the common patient with diabetes seen in general practice, our strategic sample included patients with multimorbidity, defined as the coexistence of two or more long-term conditions in the same individual (World Health Organization, 2016). A list of participant comorbidities can be found in online Supplementary Appendix I. More precisely, our recruitment criteria included participants aged 75 years and younger, having T1DM or T2DM for more than 2 years, having one or more long-term condition in addition to diabetes, had attended the same general practice for his or her diabetes, seen by the same GP and cHCP for more than 2 years and being able to conduct the interview in Norwegian, Swedish, Danish or English.

Table 1. Included practices characteristics

Practice number	Included participants	Number of GPs in practice	Rural/ Urban*	Nurse/medical secretary
Pr1	1	5	Rural	Diabetes specialist nurse
Pr2	2	7	Urban	Medical secretary
Pr3	3	6	Urban	Medical secretary
Pr4	5	4	Rural	Diabetes specialist nurse

*Rural: city or town with a population <20 000 inhabitants; urban: city with >20 000 inhabitants.

In line with these criteria, 11 patients with diabetes (4 with T1DM, 7 with T2DM) were recruited from 4 general practices, representing rural and urban areas of eastern, western and southern parts of Norway. These practices were purposively sampled, that is, intentionally selected based on their ability to elucidate on the specific concepts this study was set out to explore (Palinkas *et al.*, 2015). The practices were approached by phone, and the first author provided written information describing the study purpose and aims by e-mail. This information also included participant consent forms. Staff at each practice (mostly GPs) were responsible for recruiting participants who fulfilled the inclusion criteria and providing them with information about the study and interview scheduling. The GPs were free to select participants from their patient lists who they thought could give exhaustive descriptions about their experiences of diabetes care and self-management support. The first author interviewed participants. The interviews were tape recorded and transcribed by the first author who continued sampling until saturation of data was reached. This means that in the last interviews, themes discovered during data collection and analysis of previous interviews were confirmed and no new information appeared related to our research questions (Braun and Clarke, 2006).

In the present study, a diabetes specialist nurse (in two of the practices), nurse (in one of the practices) or medical secretary[1] (in two of the practices) provided routine diabetes controls independently. As such, these cHCPs worked in parallel with the GPs, who were only consulted when needed. All cHCPs reported to have training in diabetes care and in patient-centred or motivational communication skills (cHCPs' experiences of team-based diabetes care from the same practices are reported in another publication; Sørensen *et al.*, 2020). Table 1 shows the total number of GPs in the included practices, whether they were urban or rural and whether a nurse or a medical secretary was involved in the provision of diabetes care.

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[1] In Norway, 'Medical Secretary' is a protected professional title achieved through 3-year high school education focusing on health promotion, communication, collaboration and lab work. The medical secretaries in the included practices had received additional training in diabetes care.

Table 2. Participant characteristics

Diabetes type (T1DM/T2DM)	4/7
Gender (F/M)	4/7
Overall age both T1DM and T2DM (mean years, youngest–oldest)	60 (45–72)
	T1DM 53 (45–65)
	T2DM 65 (56–72)
Duration of diabetes (mean years, shortest–longest)	21 (3–44)
	T1DM: 39 (35–44)
	T2DM: 10 (3–27)
Years of follow-up in the current team (mean, shortest–longest)	6 (2–15)
Marital status	Married/partner: 5
	Divorced: 3
	Single: 3
Education	High school: 6
	BA: 4
	MA: 1

T1DM: type 1 diabetes mellitus; T2DM: type 2 diabetes mellitus.

Data collection

An interview guide was developed to ensure consistency in topics raised during each interview. The guide focused on what patients experienced as important when seeking healthcare in order to self-manage their disease, what patients perceived as different between GP-led care and care led by cHCPs, if they felt involved in care decisions and if they perceived to have the knowledge and skills necessary to care for their diabetes (please refer to online Supplementary Appendix II for a detailed interview guide). Interviews at each general practice were conducted individually in a private consultation room by the first author and lasted between 14 and 46 min (a mean of 25 min). One of the participants requested being interviewed at home.

The characteristics of the interviewees are summarised in Table 2.

Data processing and analysis

Interviews were audiotaped, transcribed verbatim and analysed thematically, using Braun and Clarke's methodology (Braun and Clarke, 2006). All interviews were conducted by the same researcher (MS), who is a non-clinical PhD candidate in health science with previous experience in health coaching and interviewing in research settings. The last author has extensive experience in thematic analysis of qualitative data. Transcripts were read and re-read by two of the authors (MS and LGH), and initial codes were developed by identifying and grouping meaning units of text based on their relevance to the research questions using NVivo® software. The selection of meaning units and identification of patterns in participant experiences and preferences were deductive in that our theoretical framework guided the coding process (Braun and Clarke, 2006). Inspired by self-determination theory, developing codes entailed systematically searching for meaning units that represented patients' needs for competence, autonomy and relatedness. Two of the authors (MS and LGH) compared and contrasted related codes and developed an initial coding tree (see Figure 1 for an example of the coding three). Themes were then described and interpreted to explicate connections, contradictions and alternative meanings. All authors then discussed preliminary sub-themes and themes to enhance the credibility of the findings (Jennifer and Eimear, 2006).

Ethical considerations

Ethical approval of the project outline was assessed by the regional ethics committee and not deemed necessary (ref. nb.: 2018/482D). The Norwegian Directorate of Health's Data Protection Officer was responsible for data handling according to internal ethical standards (archive number 16/2885-10). At the outset of each interview, the first author reiterated the participant's right to withdraw from the study at any time without any detriment to the treatment process and emphasised that data from the interviews would be treated confidentially. Each participant gave informed consent for the interview to be audiotaped and transcribed.

Results

Our analysis identified four themes: 'cHCPs provide diabetes specific competence and personalised care', 'A desire to be heard', 'Perceived inadequate shared decision-making in T2DM' and 'Patient autonomy in T1DM'.

cHCPs provide diabetes-specific competence and personalised care

Patients had a long experience living with diabetes (a mean disease duration of 21 years) and a long-lasting relationship with the general practice staff (6 years on average). They were particularly satisfied with cHCPs' extended consultation time (30–60 min, varying between practices), their specific competence in diabetes and their amiability, which may have led to the establishment of personal relationships. Some patients noted that diabetes care managed by a nurse or medical secretary was more structured and comprehensive compared to GP-led care. They also felt their questions were more often answered in these consultations.

A patient with T1DM said the diabetes specialist nurse operated as the hospital's extended arm and that her diabetes-specific competence made him feel more secure about the decisions being made compared to only seeing his GP for his diabetes. One of the patients with T2DM described visits to the nurse as systematic and targeted:

> Compared to seeing the GP for my diabetes, the follow-up with the nurse is more frequent and regular. It was more sporadic with my GP, and I had to be more involved in scheduling my controls. She is more interested in my life with diabetes than my GP (Practice 4 (Pr4), Patient 9 (Pa9)).

Other patients, with T2DM, emphasised professional competence and continuity as important for them to feel safe:

> It is just important to see someone competent (Pr2, Pa11)
> And:
> You feel safe, when they know you and you know who you are meeting (Pr3, Pa9)

A desire to be heard

Patients emphasised the value of cHCPs' attentiveness, and many referred to GP-led consultations as hectic and not meeting their need to be heard. This was illustrated in descriptions of instances where the GP had cut them off when speaking or asked patients to limit the number of concerns they raised during a single appointment. Two of the patients associated these situations with so much

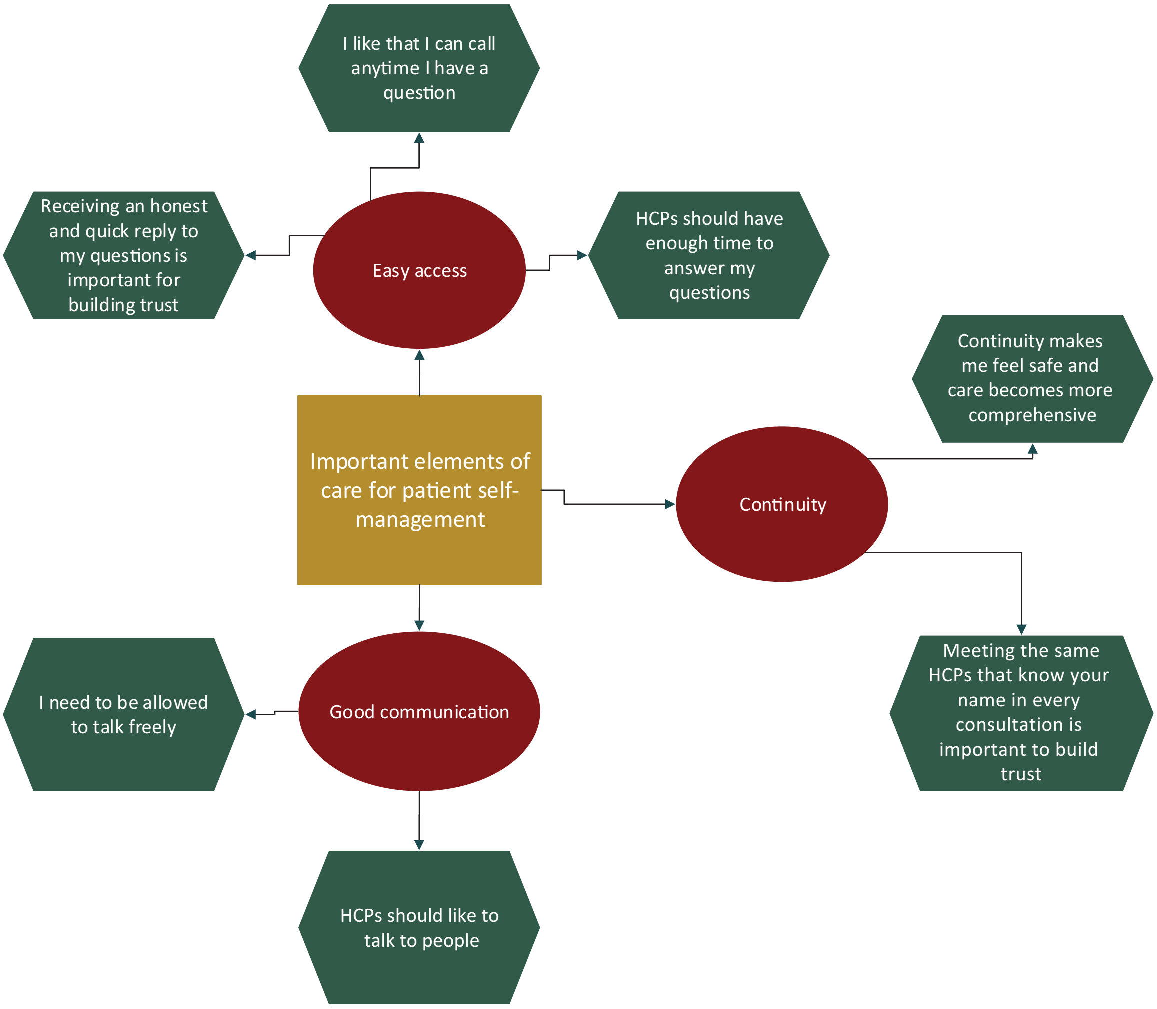

Figure 1. Example of coding three

frustration that they had replaced their GP at least once. Indeed, several patients revealed strong preferences for being autonomous and visiting their physician's office as seldom as possible. When visiting their GP, patients wanted to sort out everything they had on their mind. One patient with T2DM highlighted an instance when he felt his GP did not take his worries seriously:

> I want to be listened to and say everything on my mind in each visit. I don't like being interrupted when I speak. I had to find a new GP because the previous one cut me off when I tried to say what's bothering me. He didn't take my worries seriously and just wanted to get the next patient in (Pr2, Pa11).

Being listened to and feeling understood was mentioned as a key advantage of seeing cHCPs. The atmosphere in cHCPs' consultations was described as relaxed and open for a two-way dialogue where questions and concerns were resolved. cHCPs were perceived to be sincerely interested in acquiring information about how diabetes affected patients' lives and psychological well-being. Moreover, consultations with cHCPs were referred to as positively reinforcing feelings of mastery because cHCPs were often inclined to praise a patient's ability to cope with diabetes and to take notice of skills they mastered well. For example, a patient with T2DM said she was not able to follow the GP's advice to be more physically active. She felt she had never had the chance to speak to her GP about her interests, and therefore, his advice did not feel personal. In contrast, the medical secretary had been curious about her interests, and speaking about what gave her life meaning made her feel valuable and capable.

One person with T2DM and depression said that regular appointments with a medical secretary, who sat down and listened to her with compassion, felt so meaningful that seeing a psychiatrist was no longer necessary. A patient with T1DM also explained how close personal support from a nurse had made it possible for him to live as 'normal' a life as possible. He related this to her approach of not only being a professional but also a friend. He referred to his relationship with the nurse as being part of a team:

> It's like having a safety net. It's always 'us', not 'you', like being on a team that you can rely on. It really makes life more pleasant because there are other aspects in my life that are more important than my glucose levels. I just couldn't imagine being alone with my diabetes anymore (Pr4, Pa7).

Perceived inadequate shared decision-making in T2DM

Although highly valued by the patients, casual conversation about mundane matters occurred at the expense of reaching agreements about an individual's specific health goals. Although all seven patients with T2DM were treated with oral glucose-lowering medication (none used insulin) and could potentially halt disease progression and reduce the risk of comorbidity with lifestyle changes, only one patient described a sense of responsibility towards his weight and glucose levels. In contrast, another patient with T2DM was adamant that he would continue eating and drinking what he wanted and was prepared to accept the consequences.

All but two of the patients with T2DM explicitly said they wished they had received information about how their diabetes or cardiovascular disease could have been prevented at an earlier stage and how they could improve their self-management of diabetes to avoid complications. Overall, patients with T2DM considered their opportunities to influence the progression of their disease as limited and believed it was the main responsibility of cHCPs to keep patients' HbA1C (glucose-bound (glycated) haemoglobin) level under control. Some attributed this low sense of autonomy to a lack of knowledge, as two patients with T2DM described:

> I put my trust in those who work here. They decide because I don't know what to ask for or anything about diabetes, really. I mean, I cannot do anything else than take my meds (Pr4, Pa8).

> I don't have that much say in the decisions made concerning my health. I do what I can to follow my provider's advice. Last time, my blood sugar was a bit high [the patient shows his HbA1c registration card and the last reading was 65 mmol/mol]. [When asked about the consequence of the high value, he answers:] Nothing, they said nothing. Is there a big difference between 54 and 65 mmol/mol? What is a normal blood sugar? (Pr3, Pa2).

Patient autonomy in T1DM

The average disease duration in patients with T1DM was 39 years, and in contrast to patients with T2DM, these patients asserted a high degree of diabetes competence and autonomy. This become apparent in the degree patients with T1DM were engaged in negotiations about setting treatment targets:

> They may measure whatever they want. I decide my targets even if my GP disagrees. Once, when my HbA1C was about 86 mmol/mol, my GP wanted me to set the target at 53 mmol/mol. I refused and said, 'If I go too low too quickly, my life would be all about diabetes and I would suffer'. When it comes to taking insulin, it's really important that I decide (Pr4, Pa10).

All patients with T1DM had experienced distress and concerns related to managing their glucose levels. When asked what they considered most important in diabetes care, patients with T1DM emphasised that seeing professionals who were up to date on new insulin types, syringes and glucose monitoring technology was paramount. This was related to how medical advances could help improve autonomy. For example, two patients with T1DM referred to how receiving a continuous glucose monitoring system had given them and their family more control over their diabetes. Another benefit of seeing cHCPs mentioned by patients with T1DM was the extended consultation time, which gave them space to learn about the uniqueness of their diabetes and their inherent capabilities to manage their disease. In general, patients with T1DM noted that compared to going to an outpatient diabetes clinic, diabetes care in general practice was more holistic, long-term and personal. The experience of a genuine relationship with cHCPs is succinctly captured in the following comment:

> At the hospital, you don't receive the kind of personalised and continuous care that you get in general practice. If they [the cHCPs] had not been interested in knowing me personally and if I had met different people every time I visited here as you do in the hospital, I would never have learned so much about myself and my diabetes (Pr4, Pa7).

Discussion

This study aimed to explore how patients with diabetes and multimorbidity experienced self-management support by GPs and cHCPs in general practice. Interpreted in light of self-determination theory, we found that cHCPs were perceived to play a complementing role in supporting patients' emotional and psychological well-being through what patients described as an attentive and compassionate style of interaction. In comparison, GP appointments were often experienced as hasty and not meeting patients' needs for having their questions answered. Participants in this study reported that they to a little extent were involved in the decisions that were made about their diabetes care.

Allocating 30–60 min for every consultation, cHCPs were typically described as drawing attention to how participants lived with diabetes and allowing the dialogue to go where the patient wanted it to go. Patients referred to several instances when informal conversation with cHCPs had led to the disclosure of concerns and priorities they otherwise would not have revealed. This is in line with previous research demonstrating that patients with long-term conditions prefer to have their personhood rather than their illness as the focus of clinical encounters (Carrier, 2015). Correspondingly, a study on general practice in the UK found that in longer consultations, more psychosocial problems are recognised, more long-term problems are dealt with and more health promotion occurs (Howie *et al.*, 1991). In contrast, several patients emphasised how they disliked being asked to prioritise one medical concern over another in GP-led appointments, which contrasts with the essence of self-management support, where patients' perspective on illness and their need for knowledge should steer the conversation.

Whilst most participants experienced GPs as focusing primarily on the biological effects of disease, cHCPs were described as oriented towards patients' considerations about coping with their diseases, though the authors acknowledge that this finding may pertain to GPs and cHCPs playing out their different roles. Other researchers have made comparable observations. For example, a questionnaire-based study among primary care patients, nurses and GPs in New Zealand found that nurses tend to more consistently adhere to the principles of self-management support compared to GPs (Carryer *et al.*, 2010). Similarly, Wagner reported that in a US context, care involving behavioural counselling may be considered outside the job description of most GPs (Wagner, 2000).

Based on Norwegian register data and data from electronic medical records, only 9.8% of patients with T1DM and 16% of patients with T2DM achieve combined treatment targets for HbA1c, blood pressure and cholesterol (Cooper *et al.*, 2013; Bakke *et al.*, 2017). In the last decade, there has been a shift in international and Norwegian healthcare policies intending to alter the patient role from being a passive recipient of care to actively participate in care decisions and being responsible for their own health and well-being (Evans *et al.*, 2013; Kitson *et al.*, 2013; The Ministry of Health and Care Services, 2015; Bing-Jonsson *et al.*, 2018). The goal of the incumbent health government is for healthcare services to become more person-centred and to change the portrayal of the patient as the sum of diagnoses and symptoms to a person with resources, abilities and life aspirations that when activated can improve his or her health outcomes (The Ministry of Health and Care Services, 2015; 2018a). We found it surprising that most participants with T2DM expressed little or no involvement in decisions regarding their treatment or in setting lifestyle goals. Instead, several participants asserted that it was their providers' responsibility to attend to their diabetes and that they themselves, although they wanted to, felt they had limited knowledge about how to influence their illness and its outcomes. This self-experienced lack of self-management is worthy paying some critical focus, given that the included practices had a special interest in diabetes care and because previous studies have found significant effects of diabetes self-management education on patient knowledge and metabolic control in T2DM (Fan and Sidani, 2009; Zheng *et al.*, 2019) and on autonomy-motivated behaviour, diabetes distress and emotional burden in T1DM (Mohn *et al.*, 2017). A qualitative study from Switzerland found similar results. In Peytremann-Bridevaux and colleagues' study, patients requested better communication with their healthcare providers and reported receiving insufficient information regarding diabetes self-management (Peytremann-Bridevaux *et al.*, 2012).

The national guidelines for diabetes recommend that patients with T1DM are followed in multi-professional outpatient clinics (2016a). This is related to the risk of specialist needs of patients with T1DM may be overlooked. In this study, the HCPs in the selected practices were specially trained in diabetes care. The participants were satisfied with this arrangement, and compared to participants with T2DM, they appeared more in control of their disease. This is probably related to their long disease history and the high demand for self-care. We did not assess if this assumed control led to improvement in HbA1c. Neither do we know of any study exploring patients with T1DM and if there is any correlation between outcomes and whether they are followed in primary or specialist care. These aspects should be further explored.

Our study showed that cHCPs may contribute in achieving the goal of more person-centred healthcare, yet it is necessary to increase the knowledge, skills and attitudes about self-management support among HCPs in general practice (Emmons and Rollnick, 2001; Newman *et al.*, 2004). Previous researchers have found that HCPs, although assuming their care is aligned with the principles of self-management support, continue to provide traditional, didactic teaching or counselling (Wagner *et al.*, 2001). Furthermore, Kennedy and colleagues studied general practice staff who received two sessions of training in self-management support (Kennedy *et al.*, 2015). Despite high attendance and positive ratings by staff, the training failed to induce change in practice. Self-management support was afforded minimal value or priority, and practices invested little effort in attempting to use its underpinning techniques or tools (Kennedy *et al.*, 2013). In a later process evaluation, the researchers found that the staff lacked conviction that self-management support would be effective, and they did not perceive any need for training. The study concluded that training, even when underlined by institutional and professional commitment, may require considerable additional incentives to successfully lead to the embedding of self-management support into routine practice (Kennedy *et al.*, 2014), a finding supported by several other researchers (Bower *et al.*, 2011; Johnston *et al.*, 2011; Panagioti *et al.*, 2014; Boger *et al.*, 2015).

Although some patients with T2DM may prefer HCPs to take the lead in managing their disease (Moser *et al.*, 2006), being capable to live an independent life is key to their quality of life and well-being (Howard and Hagen, 2012). Because the burden of effective management of blood glucose levels is often a significant source of psychological distress in T1DM and T2DM (Van Bastelaar *et al.*, 2010), focusing on individual patients' confidence to participate in decision making and feeling autonomous living with illness is of primary moral importance (Moser *et al.*, 2006). For example, data from the Swedish National Diabetes Register show that for patients with diabetes, a common denominator for living a good life is finding a balance so that they are not overwhelmed by either the diabetes itself or by the burden of managing it (Svedbo Engström *et al.*, 2016). Our study indicated that the psychological impact of diabetes on patients' life is evident and that taking time to answering patients' questions and listening to their worries is important to build their trust, confidence and emotional well-being. In this sense, cHCPs may play an important role in complementing GP-led diabetes care by providing patients the necessary time and interest so that psychological and emotional needs are addressed.

Several strengths and limitations of the present study are worth mentioning. Participating patients and general practices were selected purposefully from rural and urban parts of Norway based on their knowledge and experience of working multi-professionally with patients with diabetes. Although the sample size is limited, patients' experiences of diabetes care were remarkably similar between practices, and no new themes related to autonomy and competence support emerged in the last two interviews with patients representing the two types of diabetes, respectively (Guest *et al.*, 2006). However, the small sample size does not allow for generalisations. All interviews were performed by the same researcher following an interview guide, and an open dialogue within the research team continued throughout the study period. Our study has some limitations that may influence the transferability of our results. The participants were selected by one of the practice GPs, and their experience could have been affected by loyalty towards the HCPs. Nevertheless, we regard our findings as credible given that patients reflected on the research questions from a variety of positive and negative aspects and demonstrated that although satisfied, they may not be receiving optimal care. Due to privacy concerns and organisational barriers, the transcripts were not presented to or verified by interviewees, although this could have increased the study's credibility.

Conclusion

To our knowledge, this study is the first to explore experience of self-management support in patients with diabetes and multimorbidity in Norwegian general practice. Our findings provide important insights into patients' experiences and preferences for diabetes care and how cHCPs, such as nurses and medical secretaries, may complement GPs in providing self-management support to this group of patients. In particular, more emphasis can be placed on training HCPs in general practice in meeting patients' preferences for the consultation agenda and involving patients in care decisions. However, further research is needed to explore how general practice can be organised to more specifically meet patients' demand for self-management and how improved patient participation can improve diabetes outcomes.

Supplementary material. To view supplementary material for this article, please visit https://doi.org/10.1017/S1463423620000432

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Ethical standards. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional guidelines on human experimentation (The Norwegian Health Research Act) and with the Helsinki Declaration of 1975, as revised in 2008.

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