Continuity of Care for Patients with Type 2 Diabetes from the Perspective of Nurses

Cross-Sectional Study

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Abstract

Continuity of care is essential in the management of chronic diseases, such as type 2 diabetes. With appropriate continuum in care, it is possible to achieve higher quality in care, which benefits both individuals and health care providers. By strengthening and investing in processes and development of primary care actions it is possible to have a positive impact on the care of patients with chronic conditions. Identifying different aspects of continuity of care enables to target implementation of development actions that are needed on an organizational level.

The purpose of this cross-sectional, quantitative study was to describe nurses´ perspective to continuity of care for patients with type 2 diabetes. The study aimed to increase knowledge on how nurses working in primary care general practice perceive continuity of care for patients with type 2 diabetes. The sample group consisted of nurses working in primary care in one big city in Finland, who see type 2 diabetes patients regularly. The data was collected with an online questionnaire and was analyzed quantitatively.

Results demonstrate that longitudinal continuity seems to be implemented in line with national recommendations. Relational continuity appears to be achieved well from the perspective of nurses as they experience having enough time for patients and information on patients, and consultations with patients are easy to arrange. Informational continuity could benefit from deepening understanding of the possible existing challenges. Within this context, it seems that quality of recording is at a good level, but individual care plans might not be easily available for nurses. On team continuity, the results highlight gaps in delivering consistent advice and the lack of valid care plans for type 2 diabetes patients. Concerning cross-boundary continuity, the experience about coordination between primary care and specialized care is influenced by nurses' age and working experience.

As the number of type 2 diabetes patients is rising and the need for continuity of care is generally recognized, it is proposed to further invest to the care and continuity of care provided by nurses in primary care, especially at the organizational level, through the provision of integrated resources, training and practices. Further research is needed to deepen understanding about the implementation of different dimensions of continuity of care. To enable generalizability, it would be necessary to implement more quantitative studies with larger data collection.

Keywords/tags (subjects)

continuity of care, diabetes management, type 2 diabetes, nurses´ perspective

Miscellaneous (Confidential information)

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STATUTORY DECLARATION

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Contents

Figures

Tables

1 Introduction

Chronic diseases are a major challenge for today's health care systems worldwide. One of the best-known chronic diseases is diabetes, which has increased at a remarkable rate in recent years. As the number of diabetics is large and is predicted to rise around the world, it is important to take a closer look into the state and management of diabetes, especially type 2, in healthcare. Access to appropriate diabetes care can prevent or delay the complications of diabetes (International Diabetes Federation [IDF], 2021c). This suggests that the right kind of care can make a significant contribution to effective diabetes management.

One major factor that can influence and promote diabetes management is continuity of care. Especially for patients with chronic disease, such as diabetes, continuity of care is essential to minimize poorly coordinated and fragmented care that can lead to suboptimal outcomes when it comes to care and disease management. In addition, from the perspective of organization, continuity of care can lower costs and increase patient satisfaction. Continuity of care needs to be a global priority when planning and implementing health care services. (World Health Organization [WHO], 2018, pp. 9–10)

As a simplified definition, continuity of care can be seen as health care events that expire over time and meet the needs of patients (WHO, 2018, p. 8). Continuity of care can be divided into separate dimensions. These divisions vary depending on the source. Even so, these dimensions include the same identifiable contents. In this study continuity of care is examined through five dimensions that are longitudinal, relational, informational, team-, and cross-boundary continuity. Routine follow-ups are a concrete implementation of care continuum concerning visits to health care. Thus, there are many issues that can either contribute or react to the implementation of these routine follow-ups. By dividing continuity of care to separate dimensions, it is possible to identify more specifically in which dimension of care continuum would need to take into closer consideration to target development actions correctly and therefore affect, for example, to the disease management of type 2 diabetes.

In Finland nurses participate strongly in the implementation of routine follow-ups for type 2 diabetes patients and was the professional group that was taken under consideration within this study.

This study aimed to produce information about continuity of care for patients diagnosed with type 2 diabetes from the perspective of nurses. The information was represented in five themes based on the chosen division of dimensions concerning continuity of care. This study was implemented as quantitative research that follows exploratory design and was conducted as a cross-sectional study. The data was collected from nurses working in health centers in one big city in Finland, who see patients with type 2 diabetes on a regularly basis. Considering that the number of diabetes patients is rising and the main responsibility of diabetes care and monitoring being at primary care level, it is important to highlight the evidence base of effective care and the preventive aspect.

This master's thesis was made as a part of Double Degree Program in co-operation with the schools Jamk University of Applied Sciences and Carinthia University of Applied Sciences. Therefore, the aim was also to briefly compare type 2 diabetes management and recommendations, as well as the health care systems between Finland and Austria. Study and publication were implemented by two study colleague authors Riikka Sikiö (author A) and Maria Vuori-Peurala (author B) from Finland. The division of labor for data retrieval was that author A had the main responsibility for searches made from publications published between 2017 and 2019. Author B had the main responsibility for searches made from publications published in 2020–2022. The writing work concerning theory chapters was shared so that both authors had an equal number of chapters to be responsible for and the writing work was done collaboratively by writing in a shared file. The survey was conducted in collaboration with the authors. Data collection was technically conducted by author B. The data analysis was done in collaboration so that both authors had their own parts to be responsible for and there where continuous cross-checking through the analysis. During the entire process there was open discussion and reflection about the study between authors A and B. The fact that this thesis was done by two authors was considered to add quality to the study by making it possible to expand the overall knowledge around the theory, bringing out individual authors strength of competence and cross-checking theory, results, and analysis.

Both authors want to thank for the advice and support received from supervisors Sari Järvinen from Finnish school institute and Ralf Reiche from the institute of Austria. Also, the support from both authors' personal communities, including family and friends, has been priceless to enable this study and writing of publication.

2 Type 2 Diabetes as a Chronic Disease

Chronic diseases are defined as conditions that last one year or more and ongoing medical attention is required and/or daily activities in life are limited (National Center for Chronic Disease Prevention and Health Promotion [NCCDPHP], 2022). Diabetes meets this criterion and is therefore defined as a chronic disease. According to WHO (2022b), other main chronic diseases in addition to diabetes are cardiovascular diseases, different cancers, and chronic respiratory diseases.

According to IDF (2023b), diabetes is defined to be a chronic metabolic disease where the main issue is the inability of the pancreas to produce insulin or when the body is unable to use the insulin produced effectively. Blood glucose levels rise when insulin cannot be produced or used efficiently. According to WHO (n.d), an increase in blood glucose levels in long-term causes serious damages to body's various organs and tissues, including heart, blood vessels, kidneys, nerves, and eyes. Type 2 diabetes is the most common type of diabetes, typically occurring in older adults and type 2 diabetes is characterized by the abovementioned insulin resistance. Insulin resistance means that the body becomes resistant to insulin or doesn't make enough insulin to control the blood glucose levels in an appropriate way.

Symptoms for type 2 diabetes are very similar to those with type 1 diabetes. Main symptoms for type 2 diabetes are excessive or constant thirst, frequent urination, fatigue, or tiredness (especially after meals), unintentional weight loss, slow healing of wounds, repeated skin infections, blurred or impaired vision and numbness or tingling in feet and hands. The challenge with diagnosis of type 2 diabetes is that the condition is characterized by slow progression and the lack of symptoms can be insidious. The symptoms can be absent and if there are symptoms, they can be only mild and because of that, people may live many years with the condition before being diagnosed with type 2 diabetes. (IDF, 2023a; Finnish Diabetes Association, 2022)

The number of people with type 2 diabetes has increased in Finland during the past decades. At the same time, there has been an increase in overweight and obesity in the population. (Finnish Institute for Health and Welfare [THL], 2022) Similar developments are seen elsewhere globally and type 2 diabetes and obesity are this way linked to each other, as they have increased in parallel. In addition to obesity (especially excess fat in liver) and overweight, there are several other main risk factors to

type 2 diabetes, for example population aging, unhealthy diet, physical inactivity, high blood pressure and sedentary lifestyle, all of which contribute to increasing number of people with type 2 diabetes (Arffman et al., 2020, p. 5; IDF, 2023a). Also, stress, smoking and insufficient sleep are modifiable lifestyle related risk factors for developing type 2 diabetes. In addition, there are some identified unmodifiable risk factors for type 2 diabetes, which include age, family history of diabetes or history of gestational diabetes, ethnicity, or low birth weight. (THL, 2022c)

Lifestyle habits have a big impact on the onset of type 2 diabetes. These habits can be influenced either by the individuals themselves or by the policies of society, organizations, or the health care system. By influencing these lifestyle-related, modifiable factors at both community and individual level, it is possible to prevent or delay the onset of type 2 diabetes and manage the disease that already exists. According to IDF (2023a), the rapid and steep increase in the numbers of people living with type 2 diabetes in population is due the changes related to diet and physical activity. These changes have happened in a transition by the rapid development and urbanization in societies. However, type 2 diabetes can be effectively prevented by influencing those modifiable lifestyle factors that cause diabetes. Maintaining a normal body weight, eating a healthy diet, being physically active and avoiding a sedentary lifestyle and smoking are essential in preventing diabetes (WHO, 2022a).

While these changes in societies and lifestyles have occurred, it has resulted to increase in type 2 diabetes not only in the adult population but even with the younger adults, adolescents, and children (IDF, 2023a). Prevention of type 2 diabetes can be tackled at both individual and population level. By targeting the population, the main aim is to promote the health of the whole population and reduce the overall risk of disease. At the individual level, diabetes prevention can be achieved by trying to identify those people who are particularly at risk of developing the disease and to influence them and their lifestyle. Influencing the whole population can be done, for example, by strengthening structures for promoting well-being and health and by making policy choices. (Koski, 2021, p. 18) However, the care, quality, and continuity of care for diabetes patients seems to be fundamentally and strongly influenced by the general situation in society and by healthcare resources. However, at least Finnish health care professionals consider that resources for the care of diabetics are generally insufficient (Koski, 2021, p. 41). This describes the present challenges in efforts to good quality and continuity of diabetes management.

As presented, diabetes is a very common chronic disease worldwide. According to IDF (2021a), there are 537 million adults (20–79 years) living with diabetes worldwide. This means that one in 10 adults has diabetes. The number is estimated to rise to 643 million by 2030 and to 783 million by 2045. (IDF, 2021b) Especially the number of people diagnosed with diabetes type 2 is increasing worldwide. Depending on the source, the percentage figure used to describe this varies. It has been said that globally 90% of people who have diabetes, have type 2 diabetes (IDF, 2021c). According to WHO (2022a), more than 95% of people with diabetes have type 2 diabetes. It can be said by the numbers, that great majority of people with diabetes have type 2 diabetes, which could be effectively prevented but the numbers are estimated to rise.

In Finland there are approximately 450 000 people with diabetes diagnosed and under treatment: about 50 000 people are diagnosed with type 1 and the rest, about 400 000 with type 2 diabetes. In addition, 50 000 to 100 000 people in Finland have type 2 diabetes without knowing it. There haven't been accurate statistics on the number of diabetics in Finland, updated annually or even every few years. (Finnish Diabetes Association, 2021) Just recently, data on the prevalence, incidence, and mortality of diabetes in Finland have been published. This information can be found in the national quality registers of social- and health care maintained by the Finnish Institute for Health and Welfare and for diabetes, in the diabetes register. From diabetes register it can be found that around 380 000 people have type 2 diabetes and 43 000 type 1 diabetes in Finland. (THL, 2022b) However, it can be said with these numbers that diabetes as a chronic disease is a major challenge to healthcare in Finland and all over world.

Chronic diseases cause major disadvantages to both individuals and society in many ways and the health- and economic costs are significant with chronic diseases. It is also known that chronic diseases have an enormous impact on an individual's quality of life (Zhao et al., 2022, p. 2). It can be said that an individual's well-being and experience of quality of life often depends to a greater or lesser extent on their state of health, to which possible chronic diseases are affecting. In the case of diabetes, according to IDF (2021b), in 2021 6.7 million deaths were caused by diabetes and it caused at least USD 966 billion in health expenditure worldwide. Nikitara et al. (2019) state that the costs related to diabetes are largely due to the costs of outpatient care and hospital inpatient care and the costs include expenditures for preventing and treating diabetes and its complications. The costs are increased also with emergency care and long-term care. (pp. 1–2)

It is notable that most people with diabetes are living in low- and middle-income countries (WHO, n.d). However, the disease burden with type 2 diabetes has increased in countries of all income levels and it is a global issue. Disease burden's impacts are caused mostly by high BMI and physical inactivity among with particulate matter pollution. Other issues related to the distribution of the burden of disease in type 2 diabetes in particularly low- and middle-income countries include limited health resources and insufficient allocation of them, poor health awareness and different exposure to environmental risk factors. (Liu et al., 2022, pp. 1348–1350)

2.1 Type 2 Diabetes Management

When talking about managing chronic disease, such as type 2 diabetes, the main responsibility lies on the patient itself. Healthy lifestyle, including maintaining healthy bodyweight, healthy diet, physical activity on a regular basis and avoiding smoking are the cornerstones in type 2 diabetes management. In the early phase this lifestyle may be enough to keep blood glucose levels in the target level. However, over time there may be a need for oral medication or insulin injections if oral medication is not sufficient to keep blood glucose levels under control. (IDF, 2023a) Diabetes monitoring aims for better disease management by working to prevent complications such as neuropathy, retinopathy, cardiovascular disease, and kidney disease. Also, for maintaining blood glucose levels on the target level. (Ruszala, 2019, p. 63)

By supporting appropriate selfcare and giving lifestyle guidance healthcare professionals can impact the overall disease management patients have. Multi-professional guidance as well as medical treatment is needed to treat comprehensive risk factors in addition to prevent long-term complications. (Tyypin 2 diabetes - Käypä hoito suositus, 2020) In terms of the big responsibility that lies on the patients, this should be highlighted by healthcare professionals. The prevention of long-term complications should be a goal for both professionals and patients.

In most European countries, diabetes treatment and monitoring are carried out by general practitioners. Countries that have either a national health system (Italy, Portugal, Spain, UK) or insurance system including high social protection (France, Netherlands) have a good disease control for diabetes which affects reducing mortality and leads to financial savings. The most excellent results are from countries that have had national diabetes control plan for at least 15 years. Also, it seems, that treatment and monitoring by practitioners is more effective compared to diabetes centers in terms

of prevalence and mortality for type 2 diabetes. (Altobelli et al., 2020, p. 11) With systematic and organized diabetes care, it is possible to support managing this disease. The fact that treatment and monitoring being most effective by the practitioners may be associated with diabetes being a disease that should be considered in every situation and point in time and practitioners being professionals who are most dealing with patients' despite of if the patient needs to see professional concerning diabetes care or some other matter.

The care for diabetes should always be tailored individually and considering patients' abilities and capacities when health care professionals give health education to improve patient's self-management. The individual goals can be either stricter or looser compared to the guidelines. In either way the targets should be presented in the care or treatment plan with supporting arguments. Also, there should be routine visits for a physician, or a nurse experienced in diabetes care. The number of these routine visits is influenced by individual factors concerning the balance of care. Once a year there should be more comprehensive inspection and assessment of diabetes support and management. (Tyypin 2 diabetes - Käypä hoito suositus, 2020)

Sociodemographic factors are associated with the management of type 2 diabetes. This is important for health care professionals to be aware of. In the study of Krzemińska et al. (2020) the results demonstrated that tertiary education, female patients, and unemployed patients were more likely to have higher level of self-care behaviors concerning their disease management of type 2 diabetes. In addition, other studies have also noted the importance of, for example, financial resources, social support, convictions, proactive attitude, and knowledge about diabetes in the management of this chronic disease. Also, the duration of disease seems to be linked to the adherence of treatment and therefore the disease management so that longer duration of disease and insulin treatment can be predictors of worse glycemic control. (Krzemińska et al., 2020, p. 443)

The links between patients' health literacy and education level have been studied in people diagnosed with type 2 diabetes. Better health literacy is found to be associated with University or University College level education and to good self-reported health in general. This indicates that health care professionals should pay more attention to individuals who have lower level of education and/or low self-reported health. Health education and information given should be individual and adapted to a person's health literacy capacity. This way professionals can support and empower people in their disease management in daily life. (Finbråten et al., 2020, p. 10) Considering that

health care professionals have limited time for individual patients in a single appointment the possibility to pay attention to health literacy capacity and to point out individuals who have lower capacity in their health literacy gains when the patient relationship is continuous.

There can be identified factors affecting forgone care among patients with type 2 diabetes. For example, financial burden which is the leading cause, frustration and dissatisfaction with treatment outcomes, urge to prescribe medication and treatment related and long distance to health care centers and long waiting time to receive service. (Jalilian et al., 2021, pp. 10–12) In addition to identification of these factors, they should be taking into consideration in the national planning for the management of type 2 diabetes.

There is a need for a multifaced approach to improve the level of self-care and the adherence of treatment for type 2 diabetes. Health education given by the health care professionals should be tailored to patients unique needs to improve adherence to treatment which could have a preventive or delay effect towards complications. Using health education as a tool to improve self-care for patients with type 2 diabetes is connected to promoting health behaviors. (Krzemińska et al., 2020, p. 443) The importance of personalization in care has proved to be important to achieve the best possible disease management.

National recommendations have highlighted quality of life and mental wellbeing as an important goal in type 2 management. It is known that there is cross-influencing between the overall quality of life that patient experience and the management of type 2 diabetes that usually includes complex treatment. To accept diabetes diagnosis and learn to manage the disease is a lifelong process. Patients' active role is key to plan and implement daily activities including measuring, evaluation and problem solving. Challenges in patients type 2 diabetes management can be associated by many factors. There can be lack of guidance, misinformation, poor response to treatment, forgetting routines, problems with assessing to care, physical and/or functional disabilities, financial challenges, and several psychosocial factors such as depression, insufficient problem-solving skills, believes towards disease as well as its treatment and lack of support from patients' local community. (Tyypin 2 diabetes - Käypä hoito suositus, 2020)

Empowering type 2 diabetes patients is known to be associated to better disease management. In addition, this should be an individual aim in the treatment planning and evaluation. Stress and treatment fatigue are common among patients with type 2 diabetes. This should be taking into account and assessed on a regular basis. Stress and treatment fatigue have a clear impact on disease management of type 2 diabetes for example by decreasing ability to take care of medication as well as affecting on eating habits and physical activity level. These have a straight impact on higher HbA1c –levels and lowering the sense of empowerment. (Tyypin 2 diabetes - Käypä hoito suositus, 2020)

There are many factors that influence patients' experience when health care professionals act to facilitate self-management of type 2 diabetes. When the aim is to achieve effective self-management conditions, nurse's communication skills are in a central role. Also, person-centered support can be delivered when health care professionals consider communication as an important factor. (Hall & Tolhurst, 2020, pp. 4–5) Communication is always a two-way process and is influenced by personal chemistry.

Some interventional solutions have been developed to tackle the need for better self-management outcomes for type 2 diabetes patients. Integrated personalized diabetes management (iPDM) aims for utilizing digital tools, promote therapeutic decision making as well as bringing physicians and patients together. This interventional approach is a structured six-step process which includes:

- personalized and structured assessment and training of patients
- structured and guided self-management for reaching target levels of blood glucose and other parameters
- structured recording of medical information making use of digital tools
- analysis of patient generated data utilizing digital tools in collaboration of patient and health care team
- shared decision making and commitment to individual care plans and strategies for treatment and
- regular assessment of treatment effectiveness.

In the implementation of iPDM approach, these six steps are repeated iteratively in individual patients' diabetes care process. IPDM approach has aspects that support the idea of international type

2 diabetes management promoting models and program such as American Diabetes Association (ADA) and European Association for the study of Diabetes (EASD). Concerning iPDM, there have been planned a three-year innovation project “iPDM Goes Europe” which is curated by European Institute of Innovation and Technology (EIT) Health. The project aims to explore options for the implementation of iPDM in European healthcare system. This was preceded by a study in Germany which demonstrated positive outcomes in the use of iPDM approach compared to usual care for patients with insulin treated type 2 diabetes. The results showed a greater reduction of haemoglobin A1c levels, higher patient satisfaction and higher physician satisfaction. (Jones et al., 2021, pp. 361–362)

The World Health Organization (WHO) and International Telecommunication unit have prepared a handbook called mDiabetes program. The purpose of this handbook is to give evidence-based guidance for countries and government on how to plan and implement programs to prevent and control diabetes by taking advantage of technological solutions. (WHO, 2016a) According to Celik et al. (2020) systematic review about the impact of online self-management interventions, midlife adults living with type 2 diabetes could benefit from online self-management education programs. The main outcome according to their review was that these online based programs can improve hemoglobin (HbA1c) levels. Secondary outcomes that were found in this systematic review were changes in total cholesterol, blood pressure, diabetes distress, depression, and self-efficacy. (Celik et al., 2020, pp. 270–271)

There are studies that suggest it is possible to achieve at least short-term improvement in self-efficacy and physical activity levels with nurse health coaching and mHealth technology for patients with diabetes. Although, in Young et al. study (2020) the authors found out that all positive outcomes were not remaining in longer-period of time. After six months the physical activity levels seem to remain at a higher level but the differences within self-efficacy were not recognized anymore. (Young et al., 2020, p. 7) It could be said that there are definitely signs about the benefits from online self-management interventions and other online programs for people with type 2 diabetes. Still there is a need for further research concerning the possible outcomes of these online interventions. (Celik et al., 2020, p. 271) More comprehensive studies, for example randomized controlled trials, would be beneficial to gain knowledge in this field. Online programs could have potential also for answering resource issues in some matters.

Type 2 diabetes expert patients have pointed out that to raise type 2 diabetes self-management skills patients would benefit from reading and attending educational sessions. Nevertheless, the support and high quality of guidance given by health care professionals is required. In addition, the support from family members can be critical when it comes to daily actions such as cooking and learning to live with diabetes but also for patience and understanding. Therefore, despite the main responsibility that lies with the patient, successful self-management requires support from health care professionals and the community. (Ndjaboue et al., 2020, p. 3)

Expert patients have pointed out that to provide better care for type 2 diabetes there are several things that health care professionals should consider. First, getting the diagnosis might be frightening for patients and all kinds of negative emotions should be addressed. Secondly, diabetes may bring out a burden between patients and their family members which can have emotional, physical, logistical, and financial impacts. These issues should be possible to discuss with professionals and required support and direction should be given for patients to be able to navigate towards services they could benefit from. Third, health care professionals have a big role influencing attitudes about diabetes and overall health. Fourth, type 2 diabetes patients may have a feeling of shame when self-management is not going as planned. In these situations, patients would benefit from health care professionals to alleviate the blame rather than reinforce patients. Fifth, patients have a need to be faced as people with lives also beyond their diabetes and diabetes management can easily be affected by other challenges in life. For sixth, expert patients pointed out the importance of providing quality care despite cultural, social, and historical differences between patients. For example, prejudice towards Indigenous patients can be a barrier for good care. Seventh, it is important that health care professionals ensure their own knowledge about diabetes and maintain up-to-date knowledge including academic, practical, and also cultural aspects. This might be even more relevant in cases where type 2 diabetes patients are rarely met, but this condition should be considered when the health care visit is for other health issues. Eighth, to be able to fully understand the explanations due to diagnosis and treatment, patients need health care professionals to listen and take time to answer questions. Lastly, patients want health care professionals to involve themselves in decision-making concerning their care. This is crucial considering that it can empower patients for better self-management. (Ndjaboue et al., 2020, pp. 4–6)

The Diabetes Barometer survey explored patients' experiences of the personalized care provided for their type 2 diabetes and the experience of holistic care in a healthcare practice in Finland. 44%

of respondents say that health care practices address issues that are important for their everyday diabetes care, 30% say that they address some of these issues, and 16% say that they do not address issues that are important for their diabetes care. Furthermore, 69% of respondents feel that they are at least sometimes given holistic attention at a healthcare practice, while 19% of respondents have no such experience at all. (Koski, 2021, p. 37) According to the experiences of these patients, healthcare professionals working at healthcare practices generally work well by giving holistic attention to the patient but providing individualized and patient-centered care by addressing issues important to patients at the practice are experienced by only under half of the patients.

Supporting patient self-care and patient involvement in care planning are key elements of continuity of care. Continuity of care improves adherence to care (Raivio, 2017, p. 1566). According to Ljungholm et al. (2022, p. 5), from a continuity of care perspective, it is important that patients are given sufficient time to identify their own care needs and capabilities in terms of self-care and to participate in the planning of their care. In diabetes care in general, the aim is to involve patients and move away from a professional focus (Tyypin 2 diabetes - Käypä hoito suositus, 2020). According to Koski (2021, p. 37), 50% of type 2 diabetes patients who responded to the Diabetes Barometer survey feel involved in decision-making about their own care, and a further 27% feel partially involved. The results show that most people with type 2 diabetes feel that they are at least partially involved in decisions about their care. This is important for continuity of care. However, the results show that about a quarter of patients feel that they are not involved in decisions about their care. Some of these patients seem to have a more active role in the management of type 2 diabetes compared to others. Self-care and its planning and adherence to treatment are also influenced by the delivery of personalized care and by considering the patient's individual situation in a holistic and flexible way.

The lack of continuity experienced by patients creates uncertainty, which in turn contributes to patients' confidence in their own abilities and the lack of continuity resulted in nursing staff giving different messages to patients, which in turn further increased uncertainty in the nursing relationship. (Husdal et al., 2021, p. 1003) Supporting self-care and promoting adherence to care can therefore be seen as important and worthy of consideration, both in the management of type 2 diabetes and in the continuum of care, as well as in the wider context of continuity of care. From a continuum of care perspective, the role of the care giver is emphasized in terms of patient-centered and holistic attention and the provision of individualized care, as well as in building trust.

2.2 Nurses' Role in Type 2 Diabetes Management

The role of nurses in the management of type 2 diabetes is seen to be very significant globally and will be even more important in future. The rise in the number of diabetes patients worldwide will force healthcare systems to adapt by finding new ways to deliver quality care to patients with diabetes, and this will crucially involve a review of the division of work and resource allocation between healthcare professionals while new models and strategies of care are also developed. In general, increasingly physicians' efforts will be directed towards caring for more difficult patients, while the efforts of nurses are directed at the basic level of care, which applies to most type 2 diabetes patients.

Nowadays in many countries, including Finland, nurses have a huge role in the management of diabetes, and they have much responsibility over the patients at primary care level. It has been given the recommendation to strengthen globally especially primary care level in the efforts to respond to noncommunicable diseases', including diabetes, caused need of care (WHO, 2016b, p. 8). As nurses often work at primary care level, their efforts within work and competence in promoting diabetes management and responding to the needs of care are highlighted. Nurses have a central role in diabetes management by the fact they are the largest sized group of health care professionals who care for the people with diabetes (Peimani et al., 2010, pp. 3–4). Thus, the role of nurses cannot be underestimated, as so many visits for patients with diabetes are made by nurses. Nurses in the primary care settings can be the first health care professional contacts for diabetes patients, ensuring their self-management skills (O'Flynn, 2022, p. 374). It is pointed out from the literature that while physicians often lead the multidisciplinary teams, the role of nurses is nevertheless highlighted in the care as nurses are in close and direct contact with patients and at the same time they perform as a link between other professionals, coordinating the care and by that the important role of nurses is emphasized (Saint-Pierre et al., 2019, p. 2). Nurses can promote and ensure by their behalf that in primary care, there are the possibilities to provide good quality care and support the diabetes management and promote diabetes patients' self-management skills.

There is no general approach identified for the care of diabetes patients, despite the fact that diabetes is a global challenge. Health care systems of different countries allow nurses to have role in

diabetes management with variation. In some countries, nurses have a major role in diabetes management while other countries emphasize the dominant role of physicians. The increase in diabetes morbidity and the aim to response to it, has resulted in changes in both nurses' role and diabetes patients care. (Nikitara et al., 2019, p. 2) There is an increasing need for new models and practices in diabetes management. As a result, nowadays more health care systems are adopting nurse-led models instead of traditional, physician-led models. Compared to the physician-led model, which is more focusing on medical treatment, nurse-led models are thought to be more patient centered. (Alshammari et al., 2021, p. 683) It is also stated to be possible and essential differences in nurses' and physicians' acts and behaves as they provide care, considering their teaching strategies. Nurses are often seen to be more emphasizing health promotion and in addition disease prevention with focusing on individual's and his/her family's context while physicians' approach is more on effective treatment of the disease, giving a bigger attention on the disease itself. (Peimani et al., 2010, p. 3) Referring to that, it could be seen as a good opportunity to make more use of the work and skills of nurses in the care of diabetes patients, especially as the number of patients is known to be increasing. It may make sense to focus more resources in health care on the responsibility of nurses, as they are able to deliver good diabetes care. According to Nikitara et al. (2019, p. 11), diabetes specialized nurses' roles and work settings in diabetes care still differs among different countries a lot, with most of these nurses working in primary care and where the emphasis of diabetes care is. Even though the diabetes specialized nurses' role has been included in health care systems in many countries, diabetes care is still usually provided by the nurses without any specialization.

Diabetes management is a complex and broad issue, that requires multiple skills and knowledge from nurses to provide the care for diabetes patients. It has been said to be necessary for primary care nurses to have adequate skills and knowledge to support diabetes patients' management of their condition effectively and improve patients' quality of life and health outcomes (O'Flynn, 2022, p. 374). Nurses', who work within diabetes care, role is stated to be both challenging and versatile. Nurses have interprofessional roles in which they act, and they perform activities that include, for example health education and support for patients. (Alshammari et al., 2021, p. 686) It has emerged from the literature that the main roles and tasks include nurses to educate, motivate and being advanced caregivers (Nikitara et al., 2019, p. 8). The work of nurses within diabetes management consists of different roles and actions, mainly regarding to aim to promote diabetes patients' self-care and patients' skills on it. Thus, when caring for people with diabetes, education and support for self-management are crucially important (Lambrinou et al., 2019, p. 56). The roles are often

performed in parallel and at the same time in the work of nurses, and the emphasis of the roles may vary depending on the care setting or the patient. Nikitara et al. (2019) found that important roles and tasks related to nurses' work in diabetes management are giving diabetes education to patients and their families, carrying out and making decisions of treatment and examinations needed and acting with each patient in a way that the care is based on best and evidence-based practice. Also screening for complications of diabetes is included in the work of nurses. The mentioned roles and tasks of nurses in diabetes management are mainly the same regardless of the setting, although the emphasis may change depending on where care is provided. (pp. 8–9) Nurses' tasks would include for example medication administration especially in hospital environment (Nikitara et al., 2022, p. 6).

It has been studied that sufficient knowledge of diabetes is relevant to patients with diabetes -them to be able to be empowered (Lambrinou et al., 2019, p. 57). Nurses should try to consider this in their education and motivation for work. Considering the role of nurses and adjusting the provided self-management education by them, it should be noticed that education should be individualized by the needs of patients. It has been stated by studies that considerations could include patients' experience of disease, patient's individual characteristics, including age, medical history, beliefs and attitudes concerning health, knowledge and skills about diabetes and health literacy skills of patients, any limitations in physical health, support of the family, socio-cultural factors and financial status as well as taking into account the environment of patient (Lambrinou et al., 2019, p. 56). Empowerment of patients through improving patients' self-care is also seen as one of the major roles of nurses in diabetes management. This empowerment is possible with consultations and information provided to patients and their families. (Peimani et al., 2010, p. 3) In the motivating and empowering efforts to diabetes patients, made by health care professionals such as nurses, different types of delivering care are possible, face-to-face communication being the most common, although new diabetes technologies are increasingly used in empowering diabetes patients. It is important to develop innovative diabetes care management in the efforts in providing and improving continuity to care and healthy lifestyle and in parallel reduce effectively risk factors and comorbidities of patients. (Lambrinou et al., 2019, pp. 56–57)

In nurses' work, when self-management of type 2 diabetes patients in primary care settings is being contributed, it is important to have effective and purposeful communication to achieve good care

relationship with each patient. Nurses need to show empathy and understanding to provide communication that meets the individual requirements and make it possible to deliver individualized education and care to patients. In addition, it is important to find the approach that fits with the needs of certain patient and helps the management planning and aim setting. (Hall & Tolhurst, 2020, pp. 2–3)

It has been found to be essential in the work of diabetes educator nurses, working in the setting of either hospitals or health centers, that as they are promoting patients' self-management skills and educate them, they need to ensure the patients have the level of education, knowledge and understanding of the issues that need to be addressed. In this assessment, nurses might use different methods or techniques to ensure the understanding of patients. With the results of this research, most nurses reported to use guidelines as a basis for their education, and brochures as well as various other visualization-based methods were used to support patient education. Insulin injection techniques were reviewed with patients, demonstrating the correct situation to enable patients to inject insulin safely and correctly at home. Three most important aspects concerning self-care of diabetes were ensured by nurses while they delivered education, and this content included diet, physical exercise, and medication. In addition, most nurses experienced that it is important to update their knowledge with different ways to ensure the capability of giving compliance education to the patients. (Awang Ahmad et al., 2022, pp. 1538–1540) Although, it was found in another research, that nurses working in different hospital wards didn't refer to any specific patient education methods or that they would use any guidelines or protocols as a base of their work (Nikitara et al., 2022, p. 7). If the delivered education or motivating patients is not done considering these important cornerstones of nurses' work, efforts to motivate patients and promote their self-management skills by education for their disease may fail. These are important issues to consider diversifying and improving the quality of education and motivation provided by all nurses working with diabetes patients. It was found that most of nurses would provide patients counselling and motivation and encourage them in self-care actions and making changes in self-care (Awang Ahmad, 2022, p. 1541). Nurses' willingness and efforts to provide motivation to the patients is without a doubt an important factor in nursing work with diabetes management. It was highlighted also that nurses need to have a wide range of experience to be able to work flexibly and to be sensitive to each patient's mood and individual issues (Awang Ahmad, 2022, p. 1541).

Nurses experience several gaps in diabetes care that challenge their ability to deliver high quality diabetes care. In diabetes management, nurses perceive especially a lack of time, diabetes related knowledge and resources. Without this crucial base of diabetes management, it remains challenging for nurses to fulfill the identified roles and achieve the good quality of diabetes management. Therefore, it would be essential to consider emphasizing this base of nurses' work in policies. (Nikitara et al., 2019, pp. 10–11) According to Koski (2021), the lack of resources in diabetes management seems to exist especially with type 2 diabetes patients (pp. 42–43). It is also noteworthy that there is an emerging and already existing shortage of training and staff in health services which will make the work of nurses more difficult in the future and this challenge should be addressed. In short, resources seem to play an important role in the delivery of diabetes care by nurses and putting efforts to them would make a significant contribution to situation of diabetes management.

Continuity of care has been seen as a challenging theme for nurses' professional practice. Different dimensions of continuity of care (relational, informational, and managerial) need to be considered to achieve better continuity of care. To address these challenges, it is important to have effective communication and collaboration between and among health care professionals. Showing trust and leadership in their actions can be promotive to make nurses' skills in continuity of care understood by others. Another aspect of the continuity of care among nurses' professional practice and especially collaboration is related to patient information. Shared access to patient's various records in electric forms and transmitting the information with systematic and structured manners is essential for health care professionals to collaborate effectively. (García-Vivar et al., 2022, p. 2)

As presented, an essential part of nurses' work is to work collaboratively in different contexts. Nikitara et al (2019) bring out that that the role between nurse and physician is particularly important in terms of examining the collaboration, as nurses seem to have an aim to fulfil the role of assisting physicians and acting by the orders of physicians even at the expense of supporting patients. However, it has been observed in studies that physicians rely on nurses' assessments of patients, as physicians often act on nurses' assessments when treating patients. Also planning and organizing diabetes care between nurses, physicians and other professionals is largely involved task within the work of nurses with the shared mission in diabetes management's efforts with other professionals. (p. 9) In primary care, care teams are expanding and adapting, and nurses are taking more role in providing long-term conditions management and coordinating the care. It has been stated that

nurse-led visits can provide good longitudinal continuity with patients while interpersonal continuity, being an essential element of relational continuity, may not be necessarily improved. The trend of practices become increasingly large, and at the same time the working culture of health care professionals change in many ways, it becomes increasingly challenging to respond to multimorbidity (such as diabetes) patients' care from a relational continuity perspective with personal contacts. The challenges occur also by the fact that access to care has been usually prioritized, often to the expense of continuity of care in primary care settings, even if they are seen as equally important. More attention has been paid to access to care while continuity has received less policy attention. At the same time there is a general and current need to increase relational continuity within health care systems to exploit the benefits of relational continuity and avoid the poor health outcomes of multimorbidity patients. (Engamba et al., 2019, pp. 92–93)

2.3 Diabetes Care and Recommendations for Type 2 Diabetes in Finland

The organization of health care in Finland is based on laws, such as the Health Care Act and the Act on the Status and Rights of Patients. Guided by these laws, health care must be evidence-based and based on good care and practice. Health care must be of high quality, safe and appropriately delivered. (Health Care Act, 2010, Section 8) Every patient has the right to receive high quality health and medical care with respect for human dignity and privacy (Act on the Status and Rights of Patients, 1992, Section 3). The Constitution of Finland (1999, Section 19) determines that social, health and medical services must be guaranteed to everyone in the country. These laws are part of the basis for organising healthcare and ensuring high quality, personalized and accessible care for all.

Health care system in Finland is based on public health care services. Besides the public health care system, there are also many private healthcare services operating in Finland. Public health care services were provided in municipalities that had the responsibility for organizing and financing health care. (Healthcare system in Finland, 2022) However, there has just recently been a reform of health care, social - and rescue services in Finland. For this reason, from the beginning of 2023, wellbeing service counties were established, and changes started to be implemented. Organizing the afore mentioned services are now the responsibility of 21 wellbeing services counties and the responsibility was transferred from municipalities. Important aim of the reform is to improve the quality and availability of basic public services throughout Finland and reduce health and wellbeing inequality.

(Health and social services reform, 2022) Finland has a lot of sparsely populated areas, and the availability of services has varied a lot until the reform and beginning of wellbeing services counties. According to Niemi (2018), diabetics will also become a large group of patients visiting these restructured services. Diagnosis, self-care guidance and prevention of the type 2 diabetes will be the responsibility of health and social services centres.

Management and follow-up of diabetes are being centralized to public health care in Finland. People with diabetes are often directed to primary care nurses´ and/or physicians' appointments in health centers, where management and follow-up are implemented. The follow-up visits for diabetes patients are intended to be carried out in the practices of a physician or diabetes specialized nurse. (Tyypin 2 diabetes - Käypä hoito suositus, 2020) In health centers, it is usual for nurses and physicians together to form the core of the services and staff is mostly working in teams or pairs. In addition, there is commonly delegation of tasks between nurses and physicians. (Raivio, Paavilainen & Mattila, 2019, p. 13)

Looking at the situation in Finland, type 2 diabetes care is however organized in many ways, varying between different care providers. Most of the care is provided in health or welfare centers, while the care of complicated and difficult-to-treat diabetes is mostly centralized, usually in a separate primary care diabetes clinic. In addition, for working-aged people, occupational health care is the main source of care for a small proportion of type 2 diabetes patients. The older the type 2 diabetes patients are, the more likely they are to be treated at a primary care health center. Overall, the focus of type 2 diabetes care remains in primary care. (Koski, 2021, pp. 34–35)

In Finland, nurses and diabetes specialist nurses are deeply involved in diabetes care, alongside the physicians. Nurses in Finland have 3,5 years of education to be qualified nurses (Finnish Nurses Association, n.d). However, usually the nurses working in diabetes care are nurses who do not have specific knowledge of diabetes, but often work from their basic training, and this is often the case in primary care for type 2 diabetes patients (Vehmanen, 2021).

Usually, when a patient with type 2 diabetes needs additional care or when their condition has become more complicated, they may see a nurse specialized in diabetes care. However, such specialist nurses are currently in the minority in primary care diabetes care, partly due to the general shortage of nurses. In Finland there are specific criteria for diabetes specialized nurses. A diabetes specialized

nurse is a registered nurse, public health nurse or midwife who has received adequate additional training and has studied diabetes care in postgraduate studies. In addition, a diabetes specialized nurse must have sufficient professional experience in diabetes care. The job description of a diabetes specialized nurse also differs regularly and clearly from the job description of other nurses, with the diabetes specialized nurse's job description emphasizing guidance, education, cooperation, research and development tasks and skills regarding diabetes. The aim of this set of criteria is to ensure the quality of diabetes care by being a tool for employers. (Simonen, 2012, pp. 37–39) These diabetes specialized nurses can work for example in centralized diabetes clinics or in primary care's health centers.

When organizing the care of diabetes patients, the aim is also to involve other professional groups in a multidisciplinary way to care management, so ideally, several professionals are involved, including for example a nutritionist, podiatrist, physiotherapist, psychologist, or oral health professional. The aim is that type 2 diabetes care should be based on multidisciplinary teams in which the skills of each professional are used to ensure the quality and continuity of care for each patient. (Tyypin 2 diabetes - Käypä hoito suositus, 2020)

There are national guidelines in Finland that are designed to cover issues related to care process, medical care, and the prevention of various diseases. They are called Current Care Guidelines, which are independent and evidence-based guidelines for clinical practice. The guidelines are intended to guide the practical work of various health professionals and form the basis for treatment decisions. They are also available to the general public. The Finnish Medical Society Duodecim is responsible for the current care guidelines and their updates in Finland. (The Finnish Medical Society Duodecim, 2022) To offer equal and good quality diabetes care for the entire population is seen as the aim of the guidelines used. Recommendations for diabetes care are provided in these national guidelines. (Husdal et al. 2021, p. 1001)

Also, in Finland, there is evidence-based clinical practice guideline for type 2 diabetes. The most important current care guideline concerning type 2 diabetes management in Finland is already several times mentioned Type 2 diabetes -current care guideline. There are also guidelines that can be used either alone or separately to care for a type 2 diabetes patient, but which focus more on the different types of diabetes and complications. The guideline for type 2 diabetes can be seen as a basis for the continuity, maintenance, and development of care for type 2 patients while it offers

recommendations to diabetes care. To achieve efficient diabetes management, it is therefore the aim that type 2 diabetes current care guideline's multiple recommendations provided are considered in the health care system in all levels and within the professionals who are working with diabetes patients.

The recommendations provided are about prevention, quality of life of type 2 diabetes patients and good management of the condition as well as early detection and prevention of complications. The main recommendations provide general information about diabetes as a disease and cover the patient's lifestyle related issues and professional guidance on it, drug therapy, the different forms of support available, information about the tests and screenings needed for follow-up and the regularity of them, and general treatment goals. (Tyypin 2 diabetes - Käypä hoito suositus, 2020) These recommendations guide professionals in organizing diabetes care according to the individual patient's needs, while providing a general framework for organizing care in an accepted and appropriate way. Important information is also provided in an article on the organization of care management for diabetes patients, which emphasizes recommendations for different situations for the organization of individualized care for diabetes patients and what to consider in each case (Diabeetikon hoidonohjauksen järjestäminen, toteutus ja sisältö, 2016).

In current care guideline for type 2 diabetes, routine follow-up visits are recommended to be implemented at least once a year but assessing individual circumstances even more often. Anyhow, once a year there should be a more detailed assessment concerning diabetes care and the need for supporting guidance. As mentioned before, these follow-ups are carried out by a physician and/or a nurse specialized in diabetes care. Figure 1 represents the specific contents of assessment visit for adult diabetes patient that should be addressed every 6- 12 month, once a year and every 1- 3 year. (Tyypin 2 diabetes - Käypä hoito suositus, 2020)

Figure 1

Contents of assessment visits for adult diabetes patients (Tyypin 2 diabetes - Käypä hoito suositus, 2020)

2.4 Diabetes Care and Recommendations for Type 2 Diabetes in Austria

Diabetes is a similar disease around the world, but it challenges health systems differently in different countries to manage its prevalence and ensure quality care for all their citizens. It is therefore necessary to know the basics of the health care systems in different countries to identify the strengths and weaknesses of each country or system and enable better diabetes care to be provided. The estimated amount of people (aged 20–79) with diabetes in Austria was around 447 000, in the year 2021, and is predicted to rise to 477 000 until 2030 (IDF, 2021a). By the numbers, situation with the prevalence of diabetes is quite like in Finland and diabetes is also a major chronic disease in Austria. By these numbers, there is a need, as worldwide, to focus on diabetes management's promotion more also in Austrian health care system.

Health care system in Austria is complex. The governance of Austrian health care system is divided into federal and regional level. In the federal level, social health insurance (SHI) and many provisions are regulated. In regional level, there are nine states (Länder) that are responsible for hospital care from the investments and finance to planning and implementation of both inpatient and outpatient care. (Bachner et al., 2022, p. 3)

Healthcare system in Austria is based on social insurance which is statutory. Health care in Austria is financed by several actors which are for example Austrian social health insurance funds, the Federal Government and the provinces and also local governments. (Healthcare system in Austria, 2022) In federal level, the Federal Health Agency in responsible for planning of health care system, which contains a decision-making body called Federal Target Based Governance Commission. In addition, there is a scientific expert called the Austrian Public Health Institute (GÖG) that involves the planning process at federal level. (Bachner et al., 2022, p. 3) Since the year 2020, there have been two important health reforms in Austria's health care. First, in 2020 18 of the SHI funds reformed into five. Second, in 2022 the reform of nursing and long-term care which consists of investing in nurses' education, working conditions and remuneration. (Bachner et al., 2022, p. 11–12)

The Austrian health care system consists of an outpatient and hospital (inpatient) sector and the distribution of services between them. These include for example services of general practitioners, specialists with private practices and hospital outpatient departments. (Hoffmann et al., 2019, p. 410) Patients in Austria have a freedom to choose the family physician they use, and the access to care is free to most other forms of medical care to be received. Usually, these family physicians are under the contract of social health insurance funds. (Healthcare system in Austria, 2022) In Secondary and tertiary health care sectors has been underlined in last decades compared to primary care sector in Austria, although there is evidence that countries with a strong focus on primary care are better at managing a range of chronic diseases, and these countries with a strong focus on primary care also have for example fewer diabetes-related hospitalizations. (Hoffmann et al., 2019, p. 410) The numbers concerning utilization of health care and especially specialist and hospital care are considered high in Austria compared to other similar countries. In Austria there are more specialist working in ambulatory sector then there are general practitioners. The utilization of specialized care is especially high in big cities that have a dense structure of specialized care. Free access to different levels and sectors of care and the lack of gatekeeping might influence utilization by increasing it

even to overutilization. In many countries, they have sought to promote primary care services. Within this context, health care costs are lower. Nevertheless, in Austria this ecology model of care has not been embraced and the utilization of health care overall with specialist and hospital care highlighted still exists. (Hoffmann et al., 2019, pp. 412–414)

For majority of type 2 diabetes patients in Austria, diabetes care is managed by physicians, yet the responsibility for patients is not clearly defined (Maier et al., 2008, p. 202). In Austria, type 2 diabetes is in most parts managed in private general practices by physicians, and nurses are not included to the staff of practice. Diabetes care can also be carried out in specialized practices for diabetes care or in hospital diabetes ambulances. In the Primary Health Centers, it is required that the staff include nurses. (R. Reiche, personal communication, March 22, 2023) Nurses are seen as an integral part of the core group of primary health care units (Gesundheit Österreich GmbH, n.d, p. 10). Overall, diabetes management is mostly physician-led in Austria. Nurses have an opportunity to work within diabetes care, and even more independently, when they have an additional education, although this professional group remains still a clear minority providing diabetes care in the country (R. Reiche, personal communication, March 22, 2023).

All nurses in Austria have a three-year education to become qualified nurses. In addition, nurses are meant to undergo further education to keep up to date in nursing science. To become a specialized nurse and to be able to care for some particular group of patients, a nurse has to perform a certain mandatory additional education. In Austria there is also provided further, optional education and training courses for nurses them to have an opportunity to expand and deepen the skills and competence. For example, diabetes advice and counselling include in this type of training provided. The job profile and the competence addressed to all nurses in Austria is broad. Nurses are responsible for the nursing practice of all groups of people in different settings and all levels of care. Nurses are required to have a wide range of skills and competence in nursing work, with a focus on, for example, health promotion and rehabilitative care, as well as providing quality care to maintain patients' quality of life. Nurses also carry out the instructions and orders of doctors and perform the agreed procedures. The work also involves promoting inter-professional cooperation and maintaining continuity of care in collaboration with other professionals. (Weiss et al., 2017, pp. 80–97) Basic education for nurses offers a lot of competence to work in many levels of care.

In the efforts to support diabetes managing, there exists Österreichische Diabetes Gesellschaft ÖDG, (Austrian Diabetes Association), an academic scientific association, whose primary aim is to enhance the health and quality of life of people with diabetes. The association focuses on issues such as acting as a link between professionals and patients, providing information to patients, raising diabetes awareness in the country and organizing various training and research activities. The association is also said to provide up-to-date guidelines for the comprehensive care of people with diabetes. In addition, the association's activities contribute to improving health care structures as well as supporting a preventive approach. (Österreichische Diabetes Gesellschaft [ÖDG], n.d.)

"Therapie aktiv – Diabetes im Griff" is the first systematic disease management program (DMP) concerning type 2 diabetes patients care in Austria. This DMP aims to ensure that type 2 diabetes patients get high quality care. The program consists of multiple components. The main goal in this DMP is to prolong a healthy life within this patient group using evidence-based treatment paths. With structured, high quality and continuous care this goal is considered to be achievable. (Health insurance fund, 2020, p. 2) In Thearpy aktiv –program type 2 diabetes patients individual care plan includes setting target values for hemoglobin levels and blood pressure, lipid lowering therapy plan, lifestyle changes and agreeing about routine controls. In this disease management program, routine controls are recommended at least once a year. These routine controls are carried out by a physician. In addition to contents of the care plan these routine follow-ups include inspections for eyes, feet, and kidney to avoid co-morbidities. Also, periodontal diseases and mental health should be screened regularly. (Health insurance fund, 2020, pp. 17–19)

Mental illness has an association with diabetes and is therefore its own whole to be screened. Type 2 diabetes patients suffer largely (18-45% of all) from diabetes-distress. The development of this distress is due to the excessive demands of diabetes management. Also, depression is common among type 2 diabetes patients (17,6% of diabetes patients) and type 2 diabetes patients are twice as likely to develop depression than people without diabetes. (Health insurance fund, 2020, p. 71) This care plan includes similar issues for type 2 diabetes treatment and monitoring than other national recommendations. The goals for individual diabetes care plan should be agreed between the patient and physician. In the planning of care also relatives should take part if necessary. In Therapy aktiv –program individual goals and targets must be set at least once a year. (Health insurance fund, 2020, p. 17) Therapy aktiv –program includes structured diabetes training courses for patients to

empower them in diabetes management. These courses are offered throughout Austria. (Health insurance fund, 2020, p. 20) Participation in this Therapy aktiv –program is voluntary both for patients and physicians. In order to work as a “DMP physician”, basic training concerning this program is required. (Riedl et al., 2016, p. 2)

Therapy aktiv –program has been evaluated by the Medical University of Grats, the Institute for Medical Informatics, Statistics and Documentation. The data collection period concerning this evaluation was implemented between the years 2009–2017 and the results were published in 2019. Results from the evaluation have proved that this program can improve type 2 diabetes care situation. Key-results in a long-term observation are decreased mortality and lower patient costs per year when comparing patients who have taken a part for this program for 8 years compared to control group. (Health insurance fund, 2020, p. 4; Riedl et al., 2016, p. 1) Similar outcomes have been found in other studies made.

Diabetes care in Austria concerning informational continuity could be supported with shared electronic health records (EHR). Type 2 diabetes patients, who have medical treatment had diabetes-related visits for two or more health care providers in a two-year period between January 2006 and December 2007. The care for diabetes can be seen fragmented and there is a lack of informational continuity by the fact that medical records do not transfer. Also, the existing free choice of health care practitioners is contributing to the underlying overall picture of diabetes care. This makes it challenging to make comparisons with countries that have more restricted access to health care services. (Duftschmid et al., 2012, pp. 669–671)

When comparing Austria's and Finland's health care systems there are big differences in how these are organized. Austria seems to have more complex system with fragmentation of services. Thus, patients can enter health services from their own willingness since there is lack of gatekeeping and the possibility to use the “free choice of health care professionals”. The Finnish health care system emphasizes the equal status of patients and main responsibility of health care services is on public and primary health care. On the other hand, this equal and gate-keeping system might have been one reason for challenges to access to health care which is one issue that is aimed to be contributed by the reform of health care in Finland. The differences in health care organization between these countries can be seen to have advantages or disadvantages, depending on the perspective.

The differences in organizing health care and how services are formed can be seen also in the care for type 2 diabetes patients. Both countries have existing disease management programs or guidelines on which diabetes management is based on. Austria has the Therapy aktiv – program used that is voluntary for both professionals and patients. Also, the care is fragmented into different service providers. In Finland the current care guidelines are meant to be followed by every professional despite the service provides and this guides type 2 diabetes care. Type 2 diabetes care is implemented mainly in the public sector having its own parts to be taken care of in specialized care hospitals versus primary care health centers.

There are differences between countries in diabetes management and especially when concerning the emphasis placed on professional competence and its use. While in Finland nurses in primary care are in a central role in diabetes management, in Austria nurses are a clear minority of health care specials providing the care. The competence and work of nurses in primary health care units in Austria seems to be quite similar than in Finland, although the care for diabetes is differently organized between these countries. In Finland, more utilization is made of nurses and their expertise in diabetes care while in Austria diabetes care is largely physician-led in practice and it is rarer for nurses to attend to the care of diabetes patients. In both countries there is additional education required, emphasized or at least highly recommended to provide care for type 2 diabetes patients.

3 Continuity of Care

Continuity of care is an increasingly typical issue in healthcare, as studies show that it has a wide range of effects on the quality of care, healthcare costs and satisfaction with services. Higher continuity of care has shown to be associated with lowering the usage of health care services and costs (Nicolet et al., 2022, p. 1). Continuity of care can be described as “the degree to which a series of discrete health care events is experienced by people as coherent and interconnected over time and consistent with their health needs and preferences.” (WHO, 2018, p. 8) Continuity of care can also be understood as “the extent to which medical care services are received as a coordinated and uninterrupted succession of events that are consistent with the medical care needs of patients” (Saint-Pierre et al., 2019, p. 268). To simplify even more, continuity of care represents continuum of health care events that meet the needs of patients. This includes all the work done by health care professionals individually, in multi-disciplinary teams and across organization boundaries.

Several dimensions of continuity of care have been identified in the literature and are categorized differently depending on the context. Moreover, depending on the approach, the different dimensions of continuity of care and the issues they include may partly coexist or overlap, making it challenging to classify these dimensions very precisely. Continuity of care can be classified into separate dimensions for example; Interpersonal continuity, longitudinal continuity, management continuity and informational continuity. Interpersonal continuity of care holds in the subjective experience of the relationship between the patient and his/her health care professional. In longitudinal continuity the continuity of care is seen as a continuum of interactions between one health care professional. Management continuity contains collaboration with different health care teams across care boundaries and providers. In the last remaining domain, informational continuity, continuum contains availability of information with professionals (WHO, 2018, p. 17).

In addition to this classification into four dimensions, there can be other classifications including either more or less domains. Concerning this study, a classification into five dimensions is used which consists of longitudinal continuity, relational continuity, informational continuity, team continuity and cross-boundary continuity. This classification has been chosen based on the Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R&D (NCCSDO) in 2006 (Gulliford et al., 2006). These domains are represented separately under upcoming subtitles.

Continuity of care is a multidimensional entity which implies the delivery of health care services in a timely fashion. Within system levels micro-, meso-, and macro levels need to collaborate to achieve patient-centered continuity of care. Rather than thinking about individual health care professionals' personal responsibility the focus should therefore be on the health system including all the levels that should collaborate seamlessly both horizontally and vertically. Continuity of care is a complex concept, and several terms are used overlapping in the literature, such as continuity of care, coordination of care, integration of care, patient-centered care, and case management. (Ljungholm et al., 2022, pp. 1–2)

Continuity of care needs to be highlighted to promote patient-centered care. Continuity of care has developed through time and can be seen as a multidimensional concept now a days. Also, patients' perception of the overall care coordination and individual needs for care are centered. Continuity of care and coordination of care need to act synergistically. It can be said that the acts of continuity of care promote coordination of care. Thus, continuity of care can be considered as the result of

coordinated care. Considering that nurses work in the front-line with patients and their families, they act as care coordinators. Therefore, nurses' acts can bring out continuity of care in a concrete way. (Santos et al., 2022, p. 5)

As mentioned before, continuity of care produced by health care professionals in primary care have a link to multiple benefits, such as higher patient and physician satisfaction, lower costs and decreased hospitalization and emergency department use for patients. (Goodwin, 2021, p. 1) Also, high level in continuity of care is shown to be associated with better patient outcomes and increased treatment adherence. Considering the increasing challenges caused by chronic diseases the importance of continuity of care is highlighted. (Jackson & Ball 2018, pp. 662-664) Improved clinical results in patients with chronic diseases and reduction of mortality has also been shown to be associated with the continuity of care (Saint-Pierre et al., 2019, p. 268). Because of these benefits, promoting continuity of care should be a prior goal for national health care services. To achieve effective continuity of care wide cooperation is needed linking the health care process designing to meet the needs of the implementation of care not only in one specific organization but between different service providers. Nevertheless, at the organizational level it is needed to develop their own activities to meet the common big goal.

It has been studied that medical costs and health complications of type 2 diabetes patients are enabled to be reduced with continuous care of diabetes. In patients with diabetes, it is possible to prevent further progression of the disease with continuous care. It has seen important to have continuity in diabetes care since the lack of care will lead to worsening of the disease and multiple adverse consequences for individual and strain to the health care system, for example in the terms of hospitalizations. (Nam et al., 2019, pp. 776–777) One of the major aims within diabetes care is to keep patient's glucose levels in balance to prevent complications to occur and keeping the disease under control. Regarding to this, it has been studied that primary care provider's offered continuity of care is associated with better glucose control among type 2 diabetes patients (Nam et al., 2019, p. 781). These issues highlight the importance of continuity of care provided to type 2 diabetes patients by health care systems and the health care professionals.

Continuity of care can be measured in many ways. One frequently used way to measure the continuity of care is Continuity of Care Index (COCI). COCI is an index developed by Bice-Boxermann in

1977 (THL, 2022a). COCI is an indicator that describes the frequency of ambulatory visits to primary care providers (including physicians and nurses) and the dispersion of ambulatory visits between physicians and nurses. The index values range from just greater than zero up to one. The closer the value is to zero, the more visits are made to different providers and, conversely, values close to one represent visits to the same provider. (University of Manitoba, 2020) The higher the value of the indicator, the better the continuity of care for residents in the area. In other words, the index describes the dispersion of visits made by a primary care client to different professionals in a given period, i.e. whether the client usually sees the same caregiver(s) or whether the person receiving the visit is usually different (THL, 2022a).

Other measures to evaluate continuity of care:

- The Usual Provider Continuity index (UPC) describes the number of visits that patient has to his/her regular physician out of all visits.
- Modified Modified Continuity Index (MMCI) which is focused on the provider dispersion only.
- The Sequential Continuity index (SECON) focuses on the number of visits patient had to the most recently seen provider. (Blozik et al., 2020, p. 2255)

These measures mentioned are focusing mainly on the longitudinal aspect of continuity of care. Measuring and evaluating continuity of care remains challenging. According to Raivio (2017, p. 1564), more precise indicators should therefore be created and developed to measure, for example, differences in continuity of care between organizations. Another challenge is that most of the current methods for measuring continuity of care measure only one definition of continuity, even though one method cannot assess all aspects of continuity. To improve continuity of care, the current state of healthcare in many countries calls for efforts to increase resources and reform care delivery (Schwarz et al., 2019, p. 3). Increasing and targeting resources to improve the quality, continuity and accessibility of care is essential for such large targets. Another challenge to current health care and continuity of care is that as more and more people become elderly and/or multi-diseased, the services provided must meet complex needs. This change also needs to be considered in primary care, as it is the most common point of contact between professionals and patients. This change needs to be reflected in primary health care practice and its efforts to develop continuity of care, with the practice being the most common meeting place between professionals and patients.

Patients with chronic disease, such diabetes, have often healthcare pathways where they transfer between different healthcare settings. If there are frequent transfers the possibility to medicine errors can increase, which can be crucial concerning diabetes patients. Therefore, health care professionals need to provide successful continuity of care concerning each patient transfer. (Ruszala, 2019, p. 65) As diabetes is a chronic disease, and the duration of the disease can be long, it is natural that diabetes patients will possibly change the institution of care frequently, and that creates challenges to provide continuous care. This can result in reduce of continuity of care, because in a different institute it is required to re-examine the patient and take again tests that have already been taken, even with the same symptoms. (Nam et al., 2019, p. 777) Considering this as effecting on continuity of care, health care systems could try to harmonize their services and, for example, their record-keeping practices as much as possible to meet this challenge. There should also be well-established type 2 diabetes care practices and guidelines in place as a basis for practice. There should also be clarity about the job descriptions of professionals and the division of work within units should be organized and informed for everyone.

The care plan is an important element in the care and management of type 2 diabetes, and should include the needs and goals of care, how it will be delivered and how it will be monitored and evaluated. The care plan is intended to be used and supplemented or modified by all professionals involved in the patient's care. A patient care plan used jointly by professionals is therefore an important, concrete part of ensuring continuity of care for patients with type 2 diabetes. (Diabeetikon hoidonohjauksen järjestäminen, toteutus ja sisältö, 2016) As the guideline is evidence-based, it is desirable to be used in the settings of health care and in diabetes care. From a team continuity perspective, it is important that the team that is caring for a patient with type 2 diabetes and its professionals strive to act in accordance with evidence-based knowledge and implement the recommendations made as far as possible. The systematic use of the care plan by professionals is therefore important for team continuity. It is commonly said that a well-developed and documented care plan reduces the need for personal or relational continuity of care (Ljungholm et al., 2022, p. 8). A care plan reduces the need for a particular professional, as another person can act in accordance with the care objectives described in the care plan, and so, for example, staff absences are more secure in terms of continuity of care. However, according to Koski (2021, p. 42) professionals feel that there are still gaps in making the care plans for type 2 diabetes patients and there is also a variation between professionals' experiences: some say that in their organization, care plans are in

place for all people with diabetes in care; others say that they are in place for only a small proportion.

Alignment of goals and shared decision-making support the implementation of well achieved continuity of care. Therefore, there should be organized frequent meetings with health care professionals working at all levels, coordinating care visits, promoting accountability across organizational boundaries and finally by being aware of other service providers interventions. (Ljungholm et al., 2022, p. 12) In the management of type 2 diabetes continuity of care is crucial to maintain optimal medical treatment and personal goals concerning lifestyle changes, physical activity and eating habits. In addition, to empower patients with their self-management still having the feeling of support from health care providers and be able to contact familiar professionals if necessary.

In summary, it can be said that continuity of care requires well organization of health services. The overall view should focus on the system level across organization boundaries instead of personal performance of health professionals. Teamwork needs to be the basis for planning and implementing person-centered continuity of care. In addition, shared patient records and the transfer of information are in a central role.

3.1 Continuity of Care in Different Settings and from Different Perspectives

Continuity of care has been globally the subject of much research in recent years, in many different settings and patient groups. Many studies and literature address continuity of care from the perspective of patients or physicians, or between patients and their physicians. It seems that much less research has been done on the views of other professional groups, such as nurses, on continuity of care. Regarding diabetes, notable is that continuity of care has been examined broadly for physicians but the emphasize has not been on continuity of care considering the role of nurses or other professional groups, even nurses are in very significant role in managing diabetes (Saint-Pierre et al., 2019, p. 10). Research with continuity of care has generally been made in the settings of primary care and with several different chronic conditions. However, settings of primary care, especially nurses' consultations in Finland, and patient group of people with chronic conditions, especially type 2 diabetes, have been the major field of interest within this study.

Although during last years, studies have been made a lot concerning continuity of care, nurses´ perceptions of continuity of care for patients with chronic conditions or more precisely with type 2 diabetes have been studied relatively little. According to Raivio (2017) it has been said that continuity of care in primary care can be assessed or measured from different perspectives, which could include primary care professional or provider organization, as well as from patients' experiences. Continuity of care can mean different things to patients and providers. (p. 1564) It is therefore essential to understand the possible differences in perceptions between different actors in terms of continuity of care. When examining continuity of care, different views and experiences can be found, depending on the perspective or the actor, which can be examined to try to form a picture of what the situation of continuity of care is and how it can be developed in different settings, organization or at individual level. It remains challenging to compare the experience of continuity of care with different actors, for example between nurses, because of the current limitation of research from their perspective.

According to Raivio (2017) the goal of continuity of care in primary care is to maintain and achieve health and well-being outcomes. It is said that equality and inclusion are important principles in this context, as well as the use of appropriate technology and the smoothest possible cooperation between all actors. (p.1564) The importance of continuity of care is recognized with type 2 diabetes and the aim to better management of this condition (Husdal et al., 2021, pp. 1000–1001). This importance of continuity of care among patients with type 2 diabetes has become more important as the number of patients has increased and the quest for effective and quality care has grown. Jalilian et al. (2021, p. 1) suggest that as diabetes is a complex chronic disease, it needs to be treated with the approach of continuous care. If care is delayed or there is a complete lack of care, it may worsen the severity of the disease. In general, disadvantages of continuity of care or consequences of lack of continuity of care in addition to those already identified are misuse of and deviations from treatment recommendations by professionals, increased workload for professionals and reduced job satisfaction, increased admissions and resulting costs, duplication of care and delays in diagnosis or initiation of treatment (Raivio, 2017, p. 1567).

In Finland, more attention has been paid to continuity of care, and monitoring of continuity of care in primary care in recent years. Maintained by THL (n.d), it has been just recently introduced Sotekuva–service, which contains a variety of indicators that generate registry data. At the moment,

there are six indicators to continuity of care. These continuity of care indicators highlight the outpatient visits to primary care by nurses and physicians for different groups of people. The Sotekuva–service provides information on the state of continuity of care in Finland. As an example, the continuity of care in primary care outpatient nurses' visits; according to THL (n.d) Sotekuva–service, the COC index for the whole country was 0.16 in 2021 (index no. 5503). Data from other indicators of continuity of care in primary care outpatient nurses' visits show a similar trend; in 2021, the COC index for the whole country was 0.19 for patients aged 65 and over (index no. 5505), and 0.18 for patients with multiple diseases (index no. 5507) It has been noticed that continuity of care is especially important to patients with multiple diseases, where treatment should consider the overall situation, rather than the treatment of just a single disease (Niemi & Suomela, 2021). Even though these current indicators don't provide straight vision of continuity of care for type 2 diabetes, them not concerning continuity of care with type 2 diabetes, these indicators still suggest, that as continuity of care has decreased with most vulnerable people, such as elderly people and people with multiple diseases, to which groups type 2 diabetes patients usually are included in. This way, situation with continuity of care with type 2 diabetes can partly be equated with the situation with these other groups of people and their indicators. No direct statistics or indicators on continuity of care for type 2 diabetes are yet available in this context.

The registry data produced by the indicators show that continuity of care in primary care in Finland varies even significantly by region, and that continuity has declined and is declining across the country (Niemi & Suomela, 2021). This kind of variation in continuity of care between municipalities has been existing already earlier in Finland (Raivio, 2016, p. 59). Decrease of continuity of care in primary care has been seen to be a trend in Finland even earlier. Between the years 1998 and 2013, continuity of care decreased at nurses' receptions by 15 percentage points from 67% to 52% (Raivio, 2016, p. 58).

In Finland, a decrease in continuity of care has been observed in primary care physician and nurse visits according to the COCI index also in 2015-2018, with continuity of care related to physician visits being slightly better than nurse visits, while differences between municipalities and regions remain large and variable (Suomela & Linnosmaa, 2020, pp. 1693–1695). For type 2 diabetes, the Diabetes Barometer shows that half of type 2 diabetes patients feel that they have access to a diabetes nurse or nurse practitioner according to their needs, and 48% have access to a health center

physician according to their needs (Koski, 2021, p. 36). This reflects in part the availability and accessibility of care but is also closely related to continuity of care in general. Continuity of care with type 2 diabetes patients appears to be in a similar situation in Finland as in primary care in general.

This trend of decrease in continuity of care is also illustrated by the Diabetes Barometer data in Finland, where both patients and carers experience demonstrate a lack of continuity of care for type 2 diabetes. Continuity of care was examined by asking patients whether they always see the same professional during their appointments. Of the type 2 diabetes patients who responded to the survey, 38% say they see a different physician every time they visit, while 48% say they see the same physician at least sometimes. The results show a slightly better situation regarding nurses, with 60% of respondents saying that they see the same nurse on at least some of their visits, but at the same time 27% of respondents say they see a different nurse at each visit. The results show that only a proportion of patients always see the same health professional, while around a third see a different professional at each visit, creating a major gap in continuity of care. The lack of continuity of care, according to the experience of nurses, is reflected in the results of assessments such as the success of the organization of care and the fluency of diabetes care. According to the responses of nurses, about a quarter of them consider that diabetes management does not work well in their organization and a third say that diabetes care is not well organized in their organization. (Koski, 2021, p. 37 & 43) In the light of these results, the challenge of continuity of care in current type 2 diabetes care in Finland can be identified in the experience of both patients and nurses.

An interesting finding concerning continuity of care in primary care setting in Finland is that while in general, continuity of care for physician visits are better realized than nurse visits according to the COC indices, the Diabetes Barometer data for type 2 diabetes care show the opposite for this patient group, with nurse visits being better realized than physician visits according to the respondents. The lower continuity in the nurses' professional group in general in primary care may be explained by the different nature of the visits (Suomela & Linnosmaa, 2020, p. 1696). This may be explained by the fact that as type 2 diabetes is largely managed by nurses rather than physicians, this type of nurse-led care may contribute to the difference in continuity of care in primary care compared to, for example, other conditions managed in primary care, which are more physician-led or the visits are more addressed to physicians. Such potentially identifiable differences in continuity

of care may vary depending on the different diseases or groups of diseases. It is therefore recommended that continuity of care should be measured in different occupational or disease groups (Suomela & Linnosmaa, 2020, p. 1696).

3.2 Longitudinal Continuity

Longitudinal continuity has been defined in a few different emphases. In one definition longitudinal continuity refers to care longitudinally over time. Another definition refers also to considering the number of caregivers combined with the continuum of care events so that better longitudinal continuity is succeeded with as few caregivers as possible who participate in patients care. (Gulliford et al., 2006, p. 19) Both definitions include care follow ups by health care professionals. The latter definition can be seen in the concept where, for example, certain physicians and/or care coordinators who are named to be responsible for individual patients' care and they monitor these individuals mainly when they are available in practice.

Longitudinal continuity of care consists of follow-up and care by one health care professional or a team in various context and care levels. In addition, it contains for example discharge planning as well as links and referral strategies for health care professionals. Overall, health care professionals can be seen as care navigators and support carers. (WHO, 2018, p. 18)

Especially patients with chronic disease or complex conditions value consulting health care professionals, who know their previous medical history. Professionals working in general practice primary care consider longitudinal continuity to be of a high importance when tailoring individual care. (WHO, 2018, p. 23) Longitudinal continuity can be promoted by finding ways to ensure that routine follow-ups are implemented as planned over time. This includes carefully prepared individual care plans and models of action to make sure patients understand and participate in follow-up. It might be necessary to evaluate these needed actions at an organizational level.

Longitudinal continuity can be measured for example with “the usual provider-of-care index” (UPC), in order to find out the number of visits patients have had to the health care professional that they have met most frequently. Evidence suggests that admissions to emergency department can be decreased and patient satisfaction to care is better when patients have contacts to their usual health

care professional in primary care. (WHO, 2018, pp. 22–23) The UPC index is considered easy to calculate and interpret. Although, the UPC index is missing the information about the number of different providers. Another commonly used measure for longitudinal continuity is Continuity of care index (COCI) that was presented in the main chapter of continuity of care. The COCI index is instead overly sensitive for the number of providers. Therefore, both of these measures are challenging when used for patients with chronic disease who usually see many different providers. (Nicolet et al., 2022, p. 26)

Longitudinal continuity is often observed in studies where the data is collected from claims-data. Although, the measures used do not identify the effects concerning other dimensions of continuity of care that are closely related to longitudinal continuity. For example, informational continuity which plays a big role in longitudinal continuity. It is also noted that longitudinal continuity can be operationally promoted through informational continuity and ensuring that information is available and easily accessible to health care professionals and several providers. (Nicole et al., 2022, pp. 26–27)

Overall longitudinal continuity is a concrete dimension of continuity of care demonstrating the implemented care visits. The longitudinal dimension of continuity of care can be measured with many indicators. Thus, longitudinal continuity is strongly influenced by other dimensions of continuity of care which are not well recognized within these indicators.

3.3 Relational Continuity

Relational continuity is often defined in the literature as one of the three main types of continuity of care, alongside informational continuity, and management continuity (Kristjansson et al., 2013, p. 1). Relational continuity, which is also variously called personal or inter-personal continuity, is referred with the on-going, therapeutic relationship between a patient and a professional providing care and it is also strongly referred with the subjective experience of the relationship between a patient and the health care professional. (Kristjansson et al., 2013, p. 1; WHO, 2018, p. 17). By the previous studies, relational continuity refers to expressed implicit contract between the patient and the professional providing care, which emphasizes a sense of trust and affiliation (Kristjansson et al., 2013, p. 1). In the context of relational continuity, the professional's commitment to patient care

is also seen important for patients in building and fostering a trusting relationship. The importance of providing personalized care from the professional and the patient's experience that "they are not just a number" was seen important. (Waibel et al., 2018, p. 6)

An important factor among relational continuity is that the relationship between patient and provider consist in addition to trust, consistency, and continuity of the relationship as well as flexibility and adaptability with the care (WHO, 2018, p. 18). When communication and conversation within an ongoing care relationship are based on encouragement and shared understanding, patients feel more comfortable, and this leads to more open and easy conversations. This in turn has been perceived to result in better health for patients. (Waibel et al., 2018, p. 5) Relational continuity is said to be highly valued among vulnerable patient groups, especially those with more severe or long-term illnesses, while for mild and acute illnesses, relational continuity was much less valued (Alazri, 2007, p. 198). This suggests that with chronic and long-term conditions such as type 2 diabetes, it is precisely this kind of relational continuity and relationship between the patient and the professional providing care that is emphasized.

Mutual understanding as well as knowledge play an important role in efforts to achieve relational continuity. Same professionals caring for the patient is seen enabling the development of need-based and meaningful relationships which then lead to professional's ability to get an overview of the patient’s situation. Being aware of the patient’s situation covers professional to understand and know patient’s history and diseases and also the current needs and resources of patient. Essential in improving relational continuity is also to have enough time for patients to help them to participate and plan their care and boost self-management skills. Professional’s skills, including ability to listen, build trust and implementing adaptive communication, were also seen to have a positive effect to relational continuity. This can help to achieve the goals set for treatment. (Ljungholm et al., 2022, p. 5) The abilities and characteristics of health care professional as well as available resources seem to have significant effect on relational continuity’s achievement. The pursuit of a trusting relationship between professionals and patients would be desirable for relational continuity.

Research indicates that there is a strong link between relational continuity and patient satisfaction (Kristjansson et al., 2013, pp. 1–2). In general, as Engamba et al. (2019, p. 92) have brought out, different studies have shown that relational continuity is associated with many desired issues. These

studies show the association of relational continuity with above mentioned improved patient satisfaction, but also better care coordination and specific patient outcomes. In addition, there is an association in relational continuity and the reduction of health care costs, fewer prescriptions and investigations for patients and reduction in any unplanned emergency or hospital admissions. Relational continuity also increases the adherence of patients to long-term preventive actions and care. With all the known benefits concerning relational continuity and it being one relevant dimension of continuity of care, it has been overlooked with other issues.

Relational continuity is strongly linked to the patient-professional care relationship, where the experience of continuity is enhanced by the quality of interaction in the care relationship and consultation, as well as the experience of safety, trust and community, and these aspects should be considered when studying the functioning of relational continuity.

3.4 Informational Continuity

A range of approaches can be recognized when talking about informational continuity. This includes care records, information shared between providers and standardized clinical protocols. When informational continuity is well achieved there is a positive outcome to communication between patient and health care professional. This is related to the appropriate information available for the health care professional so that it can be used to assess, plan, and evaluate the individual care plan and continuity of care. (WHO, 2018, p. 18)

The quality of recording is important in informational continuity. The importance of care recording is recognized in Finnish health care system and is widely guided as well as education arranged for professionals. With high quality recording the continuous of care records is recognizable, and information is easily accessible between providers. Thus, different patient information systems challenge the transfer of information, considering they do not always pass on information. High quality records are also needed for data collected for the National Institute of Health and Welfare in Finland. This data is collected for national and international statistics, studies for decision making, legislative monitoring, indicators, scientific research, and requests for information (Mölläri et al., 2022, p. 15). Harmonization of recording improves the quality of information and can ensure the collection of data both for National Institute of Health and Welfare and for organizational matters.

Informational continuity of care can be thought to have dimensions concerning data tools, data content, data structures and the quality of information. Data tools are used to transfer information, for example phone, paper, mail, email, electronic summaries, and national patient records. The data content consists for example from identification of provider, medication data, clinical data, patient summary, nursing interventions, goals and needs for care. When it comes to data structures, standards-compliant interoperability is the cornerstone. The quality of information consists of correctness and sufficiency of information as well as spelling and grammar. (Kuusisto et al., 2019, p. 670)

The information available is one tool for better continuity of care. By developing and making use of new technological solutions for communication and sharing health records it is possible to improve targeting care continuity and coordination for better outcomes. (WHO, 2018, p. 43) Data tools can be said to play a central role enabling informational continuity. Even though electronic systems are widely in use, there are challenges by the fact that systems do not “talk to each other”. Therefore, traditional data tools, such as paper-based referrals, are still in use even if they are not considered secure data tools. The data contents, for example concerning discharge summaries, have developed over time but are still in need of improvement to harmonise high quality recording that includes existing standards for summaries. This could be improved by generated automatic patient summary forms in the patient information system that health care professionals fill with required information. (Kuusisto et al., 2019, p. 671)

Informational dimension of continuity of care is big entity that links to every other dimension. The exchange of information is strongly influenced by the electronic record systems that are in use. Technical solutions concerning patient information and communication systems can be seen in the implementation happening at macro level (Ljungholm et al., 2022, p. 9). In addition, the quality of records is a cornerstone of the content of information that transfers between health professionals and service providers.

3.5 Team Continuity

The definition of team continuity in literature is referred to care obtained from a group of healthcare professionals working in different settings, in addition them providing patients consistent communication and coordination of care. Team continuity can be described as care provided by a care team,

where permanence and continuity of the care relationship and good interaction are present. (Alazri et al., 2007, p. 199) The effectiveness of communication between professionals and services is being highlighted when it comes to team continuity (Gulliford et al., 2006, p. 19).

At the micro-level of healthcare, it has been seen important that the relationships between professionals in cross-disciplinary teams in organization are long-lasting and customized. It is also emphasized that there should be a holistic approach towards patients. These are essential aspects to achieve continuity in care. (Ljungholm et al., 2022, p. 5) From the aspect of team continuity, it is important for nurses to have knowledge of the patient´s condition and local services. As nurses promote continuity of care, essential elements are flexibility and collaborative approach to practice and coordinating role. (Raivio, Paavilainen & Mattila, 2019, p. 13) A prerequisite for continuity of care from a team continuity perspective is that there is a quality dialogue between the patient and all providers and networks involved in the care (Raivio, 2017, p. 1564).

Nowadays, primary care´s practices are even more run by different professionals with multidisciplinary teams, strongly including nurses. These teams have a responsibility to care for the patients with chronic diseases such as diabetes. (Gulliford et al., 2006, p. 31) In primary care settings, multidisciplinary teams consist often of a doctor-nurse duo whose work is supported by other health care specialists (Saint-Pierre et al., 2018, p. 134). This widespread organizational change makes it increasingly important to look at how team continuity works across professionals and services in primary care. Depending on the organization providing the care and the practical organization of the care, the care team may include different professionals from the same or different professional groups, so care is often provided by different sets of professionals who need to work seamlessly together to ensure continuity of care. Important for team and cross-boundary continuity is that there would be information systems, training and skills sharing possibilities to improve communication and increase the awareness of team members' roles and responsibilities (Gulliford et al., 2006, p. 121). All the above factors and functions are highlighted in terms of continuity of care and to maintaining and developing it from the perspective of team continuity.

When looking at team continuity, the use of guidelines and treatment or care plans can be examined, as well as the consistency of advice given by professionals and consultation and interaction

between professionals. These themes were identified by Gulliford et al (2006, p. 112) in their research. A care plan is an important, required element to ensure continuity of care, and this is no exception for people with type 2 diabetes. When healthcare or medical treatment is provided, a care plan must be drawn up, if seen necessary, and it must indicate the specific and concrete arrangements for the patient's treatment and the timetable for its implementation, and it must be drawn up in agreement with the patient (Act on the Status and Rights of Patients, 1992, Section 4a). A care plan can have an impact on continuity of care. Ljungholm et al. (2022, p. 8) stated that existing well-prepared care plan and routine care following guidelines can reduce the need for relational continuity by reducing the need of specific healthcare professional's work. Therefore, care plans and guidelines can be seen as something to aim for in terms of team continuity.

3.6 Cross-Boundary Continuity

Cross-boundary continuity can be seen as the communication and coordination between different health care providers (Gulliford et al., 2006, p. 121). In some definitions this cross-boundary continuity is included in a continuity of care domain called "management continuity" (WHO, 2018, p. 18). Cross-boundary continuity includes aspects from informational continuity concerning information shared between providers. This is why, in some definitions, cross-boundary continuity can be included also as a part of informational continuity domain. In addition to information shared between providers, cross-boundary continuity is related to the care process and how the patient moves and is guided to move between providers. Often there is created a diagnosis-specific treatment pathway concerning this. Cross-boundary can refer to any cooperation between two different service providers. In this study cross-boundary continuity was viewed between general practice health center and specialized care hospital. Guidelines, laws, and policies are in a central role in creating conditions that facilitate cross-boundary coordination of care (Ljungholm et al., 2022, p. 12).

Cross-boundary continuity of care consists of seamless care across-boundaries where health care professionals implement both sequential and parallel coordination of care. (WHO, 2018, p. 17) In order to optimize sequential coordination range of interventions are needed. This includes for example cross-sectoral care plans, referral pathways and processes for primary and specialized care

and transfer of information making use of technology systems available. Considering parallel coordination there should be roles for care coordination, interdisciplinary teams that collaborate, individually tailored care plans as well as specialist education. (WHO, 2018, p. 19)

To achieve successful cross-boundary continuity of care it requires succeed implementation of other domains of continuity of care. Informational continuity is beneficial in order to be up to date with patients' health care visits and also the current care plan. Also, team continuity is required in the matter of multidisciplinary teams that collaborate between organization-boundaries.

Chronic care model (CCM) is developed by American Edward. H. Wagner based on the reality that primary care can't cope with the rising number of chronically ill patients without actions to develop health care systems. (Innokylä, 2020) This is probably the best-known model for chronic disease and the approach focuses on patients and health care teams together with the request of well-organized health care services. This health system includes the delivery, system itself and design which is thought to include care providing and coordination in all care levels cross-boundaries. (Pan American Health Organization, 2013, p. 24)

The importance of cross-boundary continuity is highlighted within patient groups that transfer often between health service providers. This counts patients with chronic disease such as type 2 diabetes. Cross-boundary continuity can be seen to implement in meso-level, which encompasses the management of health care services (Ljungholm et al., 2022, p. 7).

4 Research Question, Purpose and Objectives

This study was slightly linked to an organizational development program, which consists of the development of receptions in health centers at primary care in one big city in Finland. This development program has identified the need to further improve processes in outpatient reception services to ensure quality of care for chronically ill patients. A further key theme in this development program is to improve the continuity of care for patient groups with chronic diseases.

Because the field of chronic diseases is massive, it was needed to limit the research to concern one specific chronic disease. Type 2 diabetes as a chronic disease was chosen for processing in detail

because diabetes threatens public health worldwide by its dramatic increase in volume and its multiple threats to health and well-being. Type 2 diabetes is the most common type of diabetes and because of that, it was chosen for this research.

In addition to limiting the topic to a single chronic disease, it was also necessary to limit the perspective, which was chosen to be a view of continuity of care. As presented earlier, the continuity of care as a theme is named to be essential part concerning organizational development program and this identified need-based perspective guided the choice of this study's perspective.

In the field of disease management for patients with type 2 diabetes, background research has been made, for example to study and describe contents of self-management of patients with type 2 diabetes from data of nurses' documentations. Järvinen studied in her research how these patients' self-management competence developed during counselling. (Järvinen, 2017, p. 6) In addition to this, several studies have been conducted to investigate patients' experiences. These studies are made for example to explain what patients with type 2 diabetes perspectives are on how to improve diabetes care and self-management (Ndjaboue et al., 2020, p. 1), and on what are patients' perspectives on technology assisted diabetes self-management education (Young et al., 2020, p. 1). Also, nurses' perspectives have been studied for example to find out what are nurses' perspectives on supporting self-management of type 2 diabetes patient in primary care (Hall & Tolhurst, 2020, p. 1).

The purpose of this thesis was to describe nurses´ perspective to continuity of care for patients with type 2 diabetes. Nurses in Finland who work in health centers at primary care, have a broad first-hand view of continuity of care of patients with type 2 diabetes while they care and monitor this group of patients. Their perspective of the continuity of care for type 2 diabetes patients is valuable information to highlight. Also, previous research concerning nurses' perspectives on type 2 diabetes patients' continuity of care was perceived to be minor and therefore it was not only interesting but also a relevant topic of research.

Research question was;
What are nurses´ perspectives to continuity of care for patients diagnosed with type 2 diabetes?

The research question was approached from various dimensions of continuity of care. In this study these dimensions are longitudinal-, relational-, informational-, team- and cross-boundary continuity. These domains emerged from the measurement instrument in the study and its thematization of continuity of care. For every dimension, the indicator in this study was nurses' perspective. Concerning longitudinal continuity, the aim was to find out whether routine controls are carried out as often as recommended and are reminders used to support the implementation of routine follow-ups. Regarding relational continuity the aim was to find out if there are gaps in the delivery for routine care, are the consultations functioning and how the patient-nurse relationship is perceived by nurses. Concerning informational continuity, the aim was to know if professionals consider they have all the necessary clinical information available within reception. For team continuity, to find out if nurses perceive that care is properly coordinated, whether the communication is effective between team members and how care plans and guidelines are being used. And finally, when it comes to cross-boundary continuity the aim was to explain at a very general level how our sample perceives continuity and coordination of care between general practice and specialized hospital care.

The hypothesis concerning longitudinal continuity of care was that routine controls are carried out at minimum of once a year based on the national recommendations. This hypothesis is supported by the fact that these recommendations are commonly followed in Finnish health care. The second hypothesis is regarding relational continuity. There is a high probability of bigger or smaller gaps in the delivery of routine care by nurses, which can differ between health care service providers. The hypothesis concerning informational continuity was that healthcare professionals working in general practice have the necessary clinical information available. This hypothesis is strengthened by the fact that in Finland patient data concerning primary health care is mostly saved in a common KANTA service independent of various patient information systems. The hypothesis concerning team continuity was that there might be different opinions if the proper coordination is well implemented or not. The composition and dynamics of working teams can affect the experience of care coordination. The hypothesis concerning cross-boundary continuity was that the need for closer cooperation may arise. This is a common topic among healthcare professionals working in primary care general practice.

This study aimed to produce information about continuity of care concerning patients with type 2 diabetes in that kind of level where the information can be identified in specific dimensions of continuity of care. This identification was considered useful for future development of care processes in local outpatient reception services. Also, to recognize in this context which dimensions of continuity of care are already working and where there may be room for improvement, as highlighted by nurses' responses. With the knowledge gained from this study it is possible to start working on and developing the potential challenges in the work of primary care nurses when they are caring for continuity of care for type 2 diabetes patients.

5 Methodology

Methodological choices are an integral part of the research and influence the whole research process. According to Kankkunen & Vehviläinen-Julkunen (2015, p. 15), a key part of conducting research is reflecting on methodological solutions. The phenomenon to be studied determines the methods and methodological commitments chosen, and the research is also determined by what is wanted to know about the phenomenon. The generalizability of research results and the assessment of their reliability are supported by the disclosure of methodological starting points, thus promoting the accumulation of scientific knowledge. (Kankkunen & Vehviläinen-Julkunen 2015, p. 15) These points of the research process were given attention by both authors when planning and executing the research. The methodological choice to this research was decided with the thought of what was wanted to be known about the topic and with what scale. In addition, the purpose and aim of the research were also considered when making the methodological choice. The research sought to be as transparent and clear as possible about the choices made.

This study was conducted as quantitative research. Quantitative research is based on numerical analysis using statistical software. Quantitative research method is useful method when the aim is to explain, describe, map, compare or predict things, characteristics, experiences, or phenomena. With quantitative method it is possible to receive a general picture of the relationships and differences between variables. (Vilkka, 2021a, p. 23) Decision to use quantitative method within this study was driven by the aim, purpose, and research question. A quantitative method was chosen because the aim was to collect data from the largest possible number of nurses within the context. By using

quantitative method, it was possible to plan gathering data from a larger number of people, make some comparisons with previous theories, and also generate new, locally exploitable knowledge.

The choice of a quantitative method was supported by the fact that it is relatively easy, fast, and economic to conduct among the context of diabetes care provided by nurses in primary care. The aim was to make it as easy as possible for nurses to respond and to lower the threshold for participation. Thus, the participants were considered in advance in the choice of the method, so that the questionnaire was in electronic format, allowing participants to complete the questionnaire regardless of time and place and in parallel to reach as many nurses as possible.

Considering the research question, the purpose and aim of the study, this thesis follows a descriptive design and was conducted as a cross-sectional study. Descriptive research aims to present accurately the most visible and central features of the subject, phenomenon, or activity under study (Vilkka, 2021a, p. 25). In cross-sectional study, the data is collected in one given point in time. The data collection concerning cross-sectional studies can contain either the whole population or a sample of (sub)relevant population that is chosen. Cross-sectional studies can be presented in a descriptive way, like in this study, or in an analytical matter. (Kesmodel, 2018, pp. 388–389)

In this study the aim was to describe with sufficient accuracy the current state of nurses' perceptions in this one specific organization. As presented in the previous chapter four, the purpose of this thesis was to describe nurses' views on continuity of care for people with type 2 diabetes. For this purpose, a descriptive approach was seen appropriate. Similarly, when the aim was to generate information for further development locally, a quantitative, descriptive study was appropriate to reflect the aim.

Careful planning and adequate use of time in quantitative research requires planning the collection of data. When the aim is to obtain accurate data, the measurement instrument used must be carefully designed. The questions, measurement- and attitude scales and sampling method of the instrument should therefore be carefully considered before the survey is conducted (Vilkka, 2021a, p. 25) Wherever possible, it is good to use pre-established measurement instruments. In the case of a foreign-language measurement instrument, it needs to be ensured that the translation works. The method used here is translation and back-translation. The aim is to get the measure instrument translated so that the language versions match identically. Cultural aspects must be considered, and

the instrument must also be adapted to the context, as these will affect the understanding of the instrument. Sometimes the measurement instrument needs to be modified, but even then, it must be ensured that the meaning of the concepts remains the same. (Vastamäki & Valli, 2018, pp. 136–139)

This study was guided by the aim of objectivity. In quantitative research, objectivity refers to the attempt to produce information that is as independent as possible of the researcher and the situation in which the data were collected (Vilkka, 2021a, p. 26). According to Kananen (2015, p. 340), quantitative research is seen more objective than qualitative research, when the data collection tool is not the researcher but the questionnaire. In this study, the data was collected with an electronic questionnaire which was precisely the same for all the participants. Therefore, there was less room for interpretation. There was also no researcher effect in this quantitative research because the authors were not in direct contact with the participants in any phase of the study. Authors´ only connection to participants was when the questionnaire and reminder messages were sent via email.

A theoretical or deductive approach, where the aim is to test hypotheses based on theory and interpret the data based on theoretical premises, can be used in the thesis process. Such theoretical analysis and research theory are closely linked to the process of quantitative research. A theoretical approach is best applied to topics on which a lot is already known. (Vilkka, 2021a, pp. 45–46) In practice, the knowledge that emerged from theory was sought to be compared with the data that was formed in this thesis. The choice of a quantitative study and a deductive approach was made, although it was considered that, although there is a lot of theoretical knowledge available around the topic itself, given the limitation of the topic, there is less theoretical knowledge to carry out the comparison. From a methodological point of view, however, it was considered possible to use this method and approach with a sufficient amount of theory in the background. In line with the aim of the thesis, the analysis was able to obtain local empirical knowledge at a given moment.

6 Data Collection

The data was collected with a structured questionnaire in an electronic format. The questionnaire was addressed straight for the sample group. The purposive sample consisted of 29 nurses, all of whom see patients with type 2 diabetes regularly either daily, weekly, or at least monthly and work in primary health care general practice in one specific city in Finland. The participated nurses work

in different parts of the city, and there are therefore several work units from which the nurses participated. The sample group was identified and contacted with the help of managers of this organization's departments. The sample size was limited because of the limitation of this whole group of professionals on a Finnish scale. Despite this, the validity of the responses received is higher for this homogenic purposive sample than it would be for a bigger group of professionals including those who have less or not at all experience working with type 2 diabetes patients.

The questionnaire used as a base of this survey is "Continuity of care in type 2 diabetes – General-Practice questionnaire" that was presented in the Report for the National Co-ordinating Centre for NHS Service Delivery and Organisation R&D (NCCSDO) in 2006. This questionnaire is developed by contribution of all the authors based on qualitative fieldwork and analysis of the qualitative data that was collected from views of both patients and professionals concerning the continuity of care among type 2 diabetes patients (Gulliford et al., 2006, p. 6). The full questionnaire includes separate parts targeted for patients and professionals. The questionnaire parts targeted for health care professionals are also divided concerning general practice and hospital care. (Gulliford et al., 2006, pp. 150–182) The original questionnaire made for health care professionals working in general practice can be found in the appendix of this thesis. For this study, permission was asked to use this original questionnaire from one of the authors who developed the questionnaire. In response, permission was given to use this questionnaire as it is and to modify it if necessary.

Questionnaires are often used as a data collection tool in survey studies. Questionnaires can include structured or open questions or both. (Järvinen, 2012, p. 143) The questionnaire used in this study had structured questions or statements, similar to the original questionnaire, and at the end the respondent was given the option of a free word. The structured questions presented to respondents in this study were Likert scale questions. The Likert scale is a ranking scale that measures attitudes or opinions. It describes the response options given in words, allowing respondent to respond to a statement in a way that describes his/her own opinion. (Valli, 2018, p. 106) Ranking scale-based measurement instrument was an appropriate indicator to find out nurses' perceptions, while it guided participants to answer their opinions to each statement.

For this study, the questionnaire was transferred to an online platform called Webropol and the questions were translated in Finnish language. It was decided to transfer the questionnaire to elec-

tronic format and send it to respondents via email based on the speed and ease of use. The translation work was done with the aim of keeping the concepts the same as in the original, although decisions were made consciously to make minor changes and modifications to some of the statements. The participants' understanding of the measurement used, in this case the questionnaire, was considered as far as possible.

The original questionnaire was transferred to Webropol with only minor modifications. Some terms were clarified, for example the term “diabetic patient” was clarified to “type 2 diabetic patient” and some of the general practice questionnaire sections were omitted. There were also some changes to the classifications of response options used in the questions. For this study, the authors formulated and selected to use two background questions, concerning socio-demographics of the participants to get further information of respondents´ background and to identify correlations in analysis. At the beginning of the questionnaire, the survey's purpose was described to the participants. On the cover letter, participants were informed openly and briefly about the research process, including information on research permits, the voluntary and confidential nature of participation and the timetable.

The questionnaire was tested before sending it to participants. The testing of the questionnaire was implemented at the end of October, and it was targeted to three (3) students from Jamk University of Applied Sciences who were studying master’s degree programme of health promotion and who had a professional background in nursing. With the comments received, the questions were slightly clarified before the actual questionnaire was sent out. The concepts were defined as clearly as possible so that there would not be room for interpretation of the questions. Attention was also paid to the fact that the questions would be certain to answer the research question and –problem. Ensuring this, the validity of this research was considered to improve. The official survey was implemented in November 2022 so that the first delivery of the questionnaire was on 7.11.2022 and the reminder was delivered on 25.11.2022. The link for this questionnaire was delivered by email straight for the target group. The questionnaire was open for respondents for three and half weeks.

From the whole sample of 29 nurses, there were finally 10 responses (n=10). This means 34% of nurses who received the link for this questionnaire. The number of responses received limited the interpretation and generalizability of the results. Although, the results were possible to analyze in a descriptive level.

The respondent's age varied from 26 years to 59, with the average age 39,67. Age range was also reflected in the health care working experience which varied from 2 years to 30 years, with the average 10,9 years of working experience. The respondents' age and working experience are represented in Table 1. Respondents who were older also had the greatest amount of working experience in health care, which points out that there are not likely to be people changing occupations.

Table 1

Age and working experience of the respondent

	Minimum value	**Maximum value**	**Average**	**Median**	**Standard deviation**
Age (n=9)	26,0	59,0	39,7	37,0	13,3
Working experience in health care (n=10)	2,0	30,0	10,9	8,0	8,6

7 Data Analysis

Data consists of recorded values. After data collection putting together all the data it makes the dataset. Usually, this dataset is set out as a table in an electric form or a specific software where it forms a data matrix. After the data collection and construction as a data matrix the preparation work can be seen to be done and it is possible to start data analysis. In the data matrix, software works best if all the data is presented numerically. This means that also the values that have had wording are given numbers that act as codes. (Kent, 2018, p. 63–64)

This study was conducted as a quantitative study and analyzed using quantitative data analysis. Quantitative analysis aims to solve cause-and-effect relationships, the prevalence, and connections between phenomena by making use of numbers and statistics. Statistical describing analysis is a

typical way to begin a quantitative analysis. Depending on the study it is possible to continue the data analysis to correlations, covariation, classifications and/or time series. (University of Jyväskylä, 2021) Concerning this survey the quantitative analysis was limited because of the limited data. Therefore, the analysis included statistical describing analysis and limited number of correlations.

In quantitative analysis the dependence between variables is analysed in the matter to find connections between variables and the effects of background variables towards the survey variables. These dependencies can be analysed between two variables or multiple variables. By analysing the dependence of two variables it is possible to use for example correlations, cross-tabulation and grouping averages. (Heikkilä, 2014, p. 2) In the analysis of correlations, the coefficients are normalized between –1 and 1. These coefficients represent if the dependence between variables is decreasing versus increasing as the other variable increases. The value of 0 can be interpreted as no linear dependence between variables. Correlation is presented by the letter r. For example, r = 0,97 strong positive correlation and r = -0,99 strong negative correlation. (Heikkilä, 2014, p. 10) Statistical values of different variables are always from a specific measurement scale. Concerning numerical measurement there can be distance scale and ratio scale. Then concerning verbal measurement there can be classification scale and ranking scale. Likert scale is one common example of ranking scale measurements used. (Tuni, 2007)

With statistical testing, it is possible to test whether the dependencies, differences in groups and changes in data would be generalized to the entire population or are they due to change. This is possible to implement with statistical programs. Sample size, the number of groups that are compared, and the measurement scale used are factors that influence the choice of testing. (Heikkilä, 2014, p. 3) For each statistical test one result that can be interpreted is a so-called p-value that indicates the probability of incorrect conclusion. Values that are under 0,05 can be said to be statistically “almost significant”, values under 0,01 “significant” and values under 0,001 as “highly significant”. In tables these can be marked and separated with the amount of asterisk so that one asterisk (*) illustrates “almost significant”, two (**) illustrates “significant” and three (***) illustrates “highly significant” result. (Tuni, 2003)

With this study the data collection was saved automatically in Webropol database. After data collection the data was analyzed using “Professional statistics”, Webropol platforms analyzing tool.

With this tool it was possible to find out where there was statistical significance concerning correlations and p-values between variables from the data collected. Due to the limited sample size and data in this study, it was impossible to perform further statistical analyses as it would have been for larger data sets.

In addition to Webropol platforms analyzing tools all individual reviews were examined more closely from start to finish. In addition, all individual reviews were viewed analyzing every single question and statement to clarify the links between respondents' backgrounds and questions about continuity of care. The background questions that were considered were respondents age, working experience in health care and the amount of type 2 diabetes patients nurses saw on a monthly basis. Also viewing individual reviews, it was possible to identify if there were signs about misunderstandings about single questions. In the presentation of results concerning the free formal questions the anonymity of comments was considered so that there are only presented such comments that came from several respondents.

The final data analysis was carried out on a more limited scale than originally planned. This was due to the amount of data that was received in the end. Therefore, many statistical tests were not able to perform. This affects the ability to generalize results for the entire population. Nevertheless, data analysis was performed carefully, and the results can be thought to give an insight into the topic in this context.

8 Validity and Reliability

The trustworthiness of research is often examined and assessed in two different ways, by validity and reliability of the research. The concept of validity refers to whether the study in question has succeeded in measuring exactly what it was intended to measure. The concept of reliability refers to the stability of the results; this means the ability of the chosen measure to produce non-random results. (Kankkunen & Vehviläinen-Julkunen, 2015, p. 189) Reliability means the consistency and reproducibility of results from one study to the next. If a study produces exactly the same result regardless of the researcher, it is a reliable and accurate study. (Hirsjärvi et al. 2015, p. 231)

In this study, there was a 66% loss of respondents. The limitation of the final amount of data affects the reliability of this study. One cause of the loss of respondents might be the number of compulsory questions. The survey was designed to ensure that every respondent answers all the questions to make sure that it is possible to analyze all the various aspects about continuity of care. Only the age of respondent was not a compulsory question. It was considered meaningful to make sure that every given response contains as much information as possible. This was highlighted because of the small group of people who received the questionnaire. It could be that without this number of compulsory questions there would have been more responses and still could analyze all the various aspects of continuity of care. In the future, when implementing similar kinds of surveys this is important to consider. Busy work schedules and possible attitudes to this type of questionnaire may also have affected the response rate as the questionnaire was opened several times, but still not completed. It may be that some of the questions were perceived as challenging or uninteresting, or that the topic was not relevant to the respondent for some reason or if the length of the questionnaire was considered too long to answer alongside work. Some sentence structures and word forms in questionnaire would have been beneficial to be even more clear so there wouldn´t have been any interpretation, though authors tried to be as specific as possible with this by operationalizing the questionnaire when modifying and translating it. It is also well known that the response rate to electronic surveys is often low, and this fact probably influenced also to this study.

The response rate remained at around 34%, which was slightly increased with reminder messages. However, the small sample size of the survey reduced the reliability of this quantitative survey. Due to the small number of respondents, it was not possible to carry out an analysis using multiple statistical methods. Reliability tests, for example, could not be carried out in this context. As mentioned before, this contributed to weakening the reliability of the study. Due to the limited sample size, the results cannot be generalized to entire population.

The reliability and validity of the study were considered throughout the thesis process, for example in the terms of choosing the questionnaire, used questionnaire design and operationalizing it and in the sampling. For example, the concepts used in the questionnaire, such as multiple-choice questions concerning respondents' opinion were believed to be familiar to respondents and were therefore chosen for use.

The reliability of the study is enhanced by the fact that both authors have worked individually throughout the thesis process, but at the same time in good cooperation, complementing each other. It is also important to note that both authors, in addition to their individual work, have revised each other's writing throughout the process to increase reliability. This individual work and the related review of each other's writing took place during the design, data search, the actual questionnaire related stages as well as data collection stages, and the presentation and evaluation of the results.

Good scientific practice was considered by both authors throughout the research process. Good scientific practice requires researchers to exercise honesty, accuracy, and diligence in their research (Vilkka, 2021b, p. 42). In the process of conducting research, the ethical standards of research must be considered, which the researcher must internalize and act in accordance with throughout the process. Finnish Advisory Board on Research Integrity (2012, pp. 28–31) has set the guidelines to promote responsible conduct of research and states that in research process integrity must be adopted by researchers in research activities and researchers should act by the norms of responsible conduct of research. These norms and guidelines of research ethics and good scientific practice were considered in this thesis by both researchers to achieve as reliable and valid data as possible. These were considered throughout the process, in implementing, evaluating, and reporting the research.

The validity of this study is enhanced by the fact that the chosen original measurement instrument was developed by a group of researchers familiar with the topic and it being specifically designed to measure health care professionals' perspective on the continuity of care for type 2 diabetes patients in general practice. Thus, the questionnaire used in this study, which was translated and developed from the original questionnaire, the operationalization and adaptation of the questionnaire, as well as the selected and thematized questions in the instrument, were able to provide exactly the information that was sought in this study. Since only minor modifications were made to the final questionnaire compared to the original, it is reasonable to say that the measurement instrument used itself increases validity. The instrument was therefore able to measure the desired perceptions of nurses in relation to continuity of care and to identify which dimensions of continuity of care were potentially working and in which there are needs for development. It should be noted that for a significant proportion of the questions, several nurses answered neither agree nor disagree, which is nevertheless a matter for reflection in terms of the validity of the measurement instrument and as these answers couldn’t be analyzed.

As the original measurement instrument was in English, translating and operationalizing it into Finnish to fit the context of this study may have been a bit challenging, and therefore undermined the reliability of the study. The language translation and operationalization choices might be different in another study, so there is a small risk of compromising reliability. However, in this study, the changes made to the questionnaire were kept to a minimum and were considered as much as possible in the choice of words and context so as not to compromise reliability.

Neither of the thesis authors have had any previous or other contacts with the participants before, during or after the research. One of the authors (B) works in the same organization to where the research was addressed, but in a different field of health care and different department. In line with the good scientific practice, it was taken care of the necessary research authorizations before the research was implemented. Research authorization was applied from the organization whose employees were the sampling in this study.

The anonymity of respondents and answers they gave were protected throughout the research process, and participants were informed of this. Answering the questionnaire was voluntary, and respondents were given the opportunity to decline participating in the research, without giving a reason, by not answering. The responses were anonymous for authors who received the data. Individual responses are part of the statistics and will not reflect anyone's personal responses. The data was handled and stored safely and carefully throughout the process being only in Webropol - program. The data will be destroyed after two years after completion of the study and in a manner acceptable to all parties. This means on a concrete level that authors carefully destroy all the data which has been collected and stored in electric form from every device or system by deleting the electric files including all the saved files.

9 Results

Background questions in the questionnaire were age, working experience in health care and how many type 2 diabetes patients nurses estimate to see on a monthly basis. Respondents' age and working experience are represented in the data collection chapter. The question “On average, how many type 2 diabetes patients would you estimate visit your practice for diabetes treatment or follow-up in a month?” was asked to respond numerically so that no categorized response options

were given. The amount of type 2 diabetes patients that respondents estimated they see within a month varied significantly. Nurses who saw this patient group the least reported seeing two patients per month. Instead, nurses who saw type 2 diabetes patients most reported seeing up to 100 patients per month.

In the following sections where continuity of care is categorized into five themes, there were multiple-choice questions in the questionnaire. Respondents were asked to answer to classified scales (1-5), where response options were given and presented as a Likert´s scale. Likert´s scale consists of numerically and/or verbally defined scales according to which the respondent answers the extent to which the statement presented describes his or her opinion on the issue presented in the given statement. The statements concerning respondents' opinion were in the scale were 1 represented to fully agree with the statement, 2 partly agree, 3, don't agree nor disagree, 4 partly disagree and 5 fully disagree. In the questions about these opinions these numbers were not seen in the official questionnaire for respondents, but they are linked to the numbers concerning average and median values that are represented. The responses are represented by themed into each dimension of continuity of care. Tables and figures are found at the end of each dimension. Correlations between variables are collected and represented in a single table at the end of result chapter in Table 4.

Longitudinal continuity

The questionnaire included four statements concerning longitudinal continuity (Table 2 & Table 3). To the first statement "How many visits would you estimate a patient with type 2 diabetes undergoing routine follow-up would make in 12 months?" respondents answered as follows; one visit per 12 months was answered five of respondents, two visits per 12 months was answered three of respondents and five or more visits was answered two of respondents.

"How many times a year is a reminder letter sent from the practice to a type 2 diabetes patient to participate in follow-up?" was a statement that every respondent (100%) answered one time per year. According to this statement three of the respondents corrected in the free formal question that the practice does not send reminders and the correct answer would have been 0% if there would have been this option.

"How many times a year is the HbA1c (long-term blood glucose) level of a type 2 diabetes patient under routine monitoring measured at follow-up visits?". Eight out of ten of the respondents reported that HbA1c levels are measured once a year during routine control visits. Two times a year was reported from one of responses and five or more times was reported also from one of the responses.

Table 2

Nurses' perception on the following amounts in relation to longitudinal continuity (n=10)

	1	2	3	4	5+	Average	Median
"How many visits would you estimate a patient with type 2 diabetes undergoing routine follow-up would make in 12 months?"	**5**	**3**	**-**	**-**	**2**	**2,1**	**1,5**
"How many times a year is a reminder letter sent from the practice to a type 2 diabetes patient to participate in follow-up?"	**10**	**-**	**-**	**-**	**-**	**1**	**1**
"How many times a year is the HbA1c (long-term blood glucose) level of a type 2 diabetes patient under routine monitoring measured at follow-up visits?"	**8**	**1**	**-**	**-**	**1**	**1,5**	**1**

"According to your estimate, what is the average percentage of all people with type 2 diabetes who are invited to an appointment who do not show up for their scheduled visit?" The responses varied between 0% to 20%. One responded 20%, two responded 10%, five responded between 1- 5% and the rest two responded 0%.

Table 3

The average percentage of all people with type 2 diabetes who are invited to an appointment and who do not show up for their scheduled visit according to nurses (n=10)

Minimum value (%)	Maximum value (%)	Average value (%)	Median (%)	Amount (%)	Standard deviation
0,0	20,0	5,3	3,0	53,0	6,4

Relational continuity

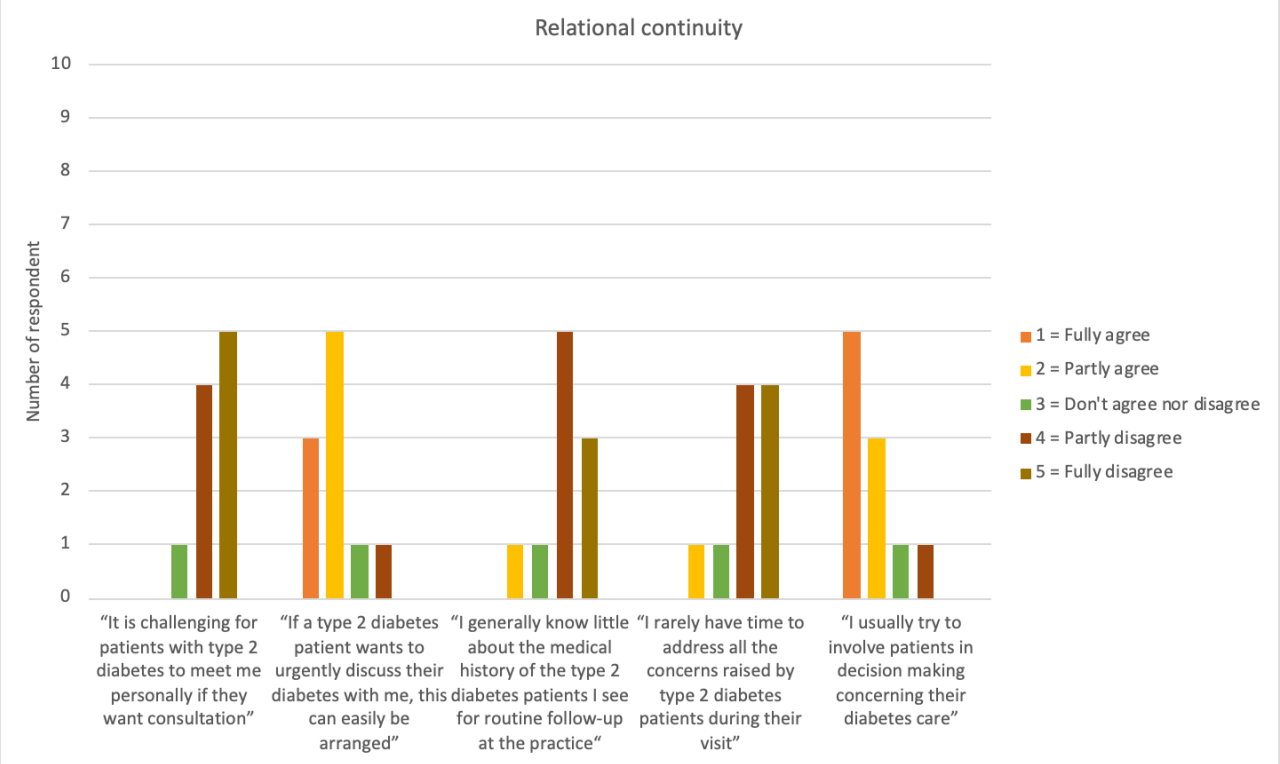
Concerning relational continuity there were five statements that were presented to the respondents (Figure 2). First statement "It is challenging for patients with type 2 diabetes to meet me personally if they want consultation" nobody agreed either fully or partly with the statement while one respondent neither agreed nor disagreed. Nine out of ten respondents either fully or partly disagreed with the statement. To the second statement "If a type 2 diabetes patient wants to urgently discuss their diabetes with me, this can easily be arranged" respondents answered so that eight out of ten either fully or partly agreed with the statement. One respondent neither agreed nor disagreed with the statement. One respondent partly disagreed with this statement. Nobody fully disagreed with the statement.

The third statement was regarding the medical history of a patient. To the statement "I generally know little about the medical history of the type 2 diabetes patients I see for routine follow-up at the practice", nurses gave answers so that eight out of ten respondents either fully or partly disagreed, one respondent neither agreed nor disagreed and one respondent partly agreed with the statement. Nobody fully agreed with the statement. From the results and analysis between variables it could be interpreted that respondents who had more experience of working in health care are more likely to disagree with the statement (p=0,008). Correlation r = 0,78. This result can be said to be statistically significant (**). To the fourth statement "I rarely have time to address all the concerns raised by type 2 diabetes patients during their visit" respondents gave the following answers:

eight out of ten respondents either fully or partly disagreed with the statement. One respondent neither agreed nor disagreed with the statement. Also, one respondent partly agreed with the statement. Nobody fully agreed with the statement. From the responses given and analysis between variables it seems that nurses who had more age were more likely to disagree with this statement (p=0,036). Correlation r = 0,72. This result can also be said to be statistically almost significant. (*). Finally, fifth statement concerning relational continuity was: "I usually try to involve patients in decision making concerning their diabetes care". Here eight out of ten respondents either fully or partly agreed with the statement, one respondent neither agreed nor disagreed and one respondent partly disagreed with the statement. Nobody fully disagreed with the statement.

Figure 2

Responses from the statements concerning relational continuity



Informational continuity

There were five questions regarding informational continuity (Figure 3). With the given responses all the participants fully or partly agreed to the statements "I always have access to type 2 diabetes

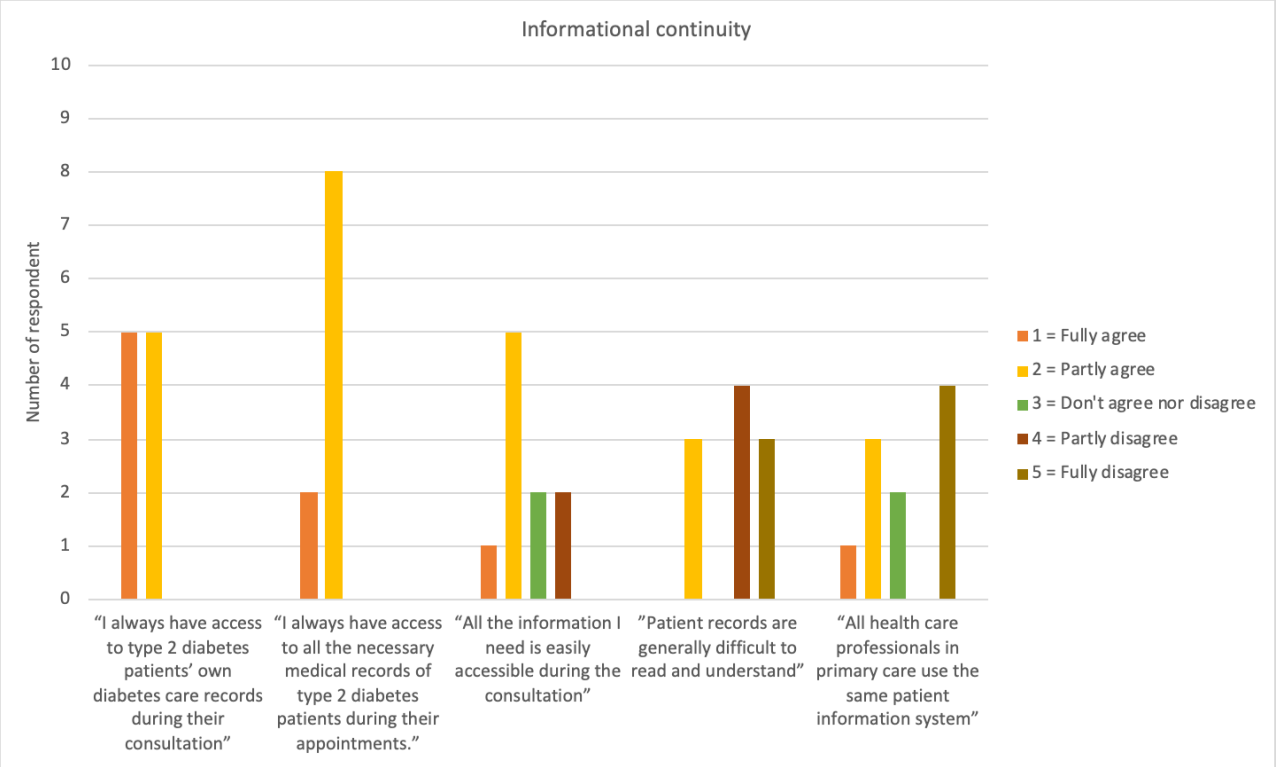
patients' own diabetes care records during their consultation". To the statement "I always have access to all the necessary medical records of type 2 diabetes patients during their appointments" two out of ten responded to fully agree and eight partly agreed with this statement. Other answer options were not answered.

There was some variation in the respondents´ answers to the statement "All the information I need is easily accessible during the consultation" when one of the respondents fully agreed, five partly agreed and two partly disagreed. The rest of the responses did not agree nor disagree with this statement. With the statement "Patient records are generally difficult to read and understand", seven out of ten of respondents either strongly disagreed or partly disagreed, with three partly agreeing.

Respondents answered the statement "All health care professionals in primary care use the same patient information system" with variation. One respondent fully agreed, three partly agreed and two neither agreed nor disagreed. Four respondents fully disagreed with the statement.

Figure 3

Responses from the statements concerning informational continuity



Team continuity

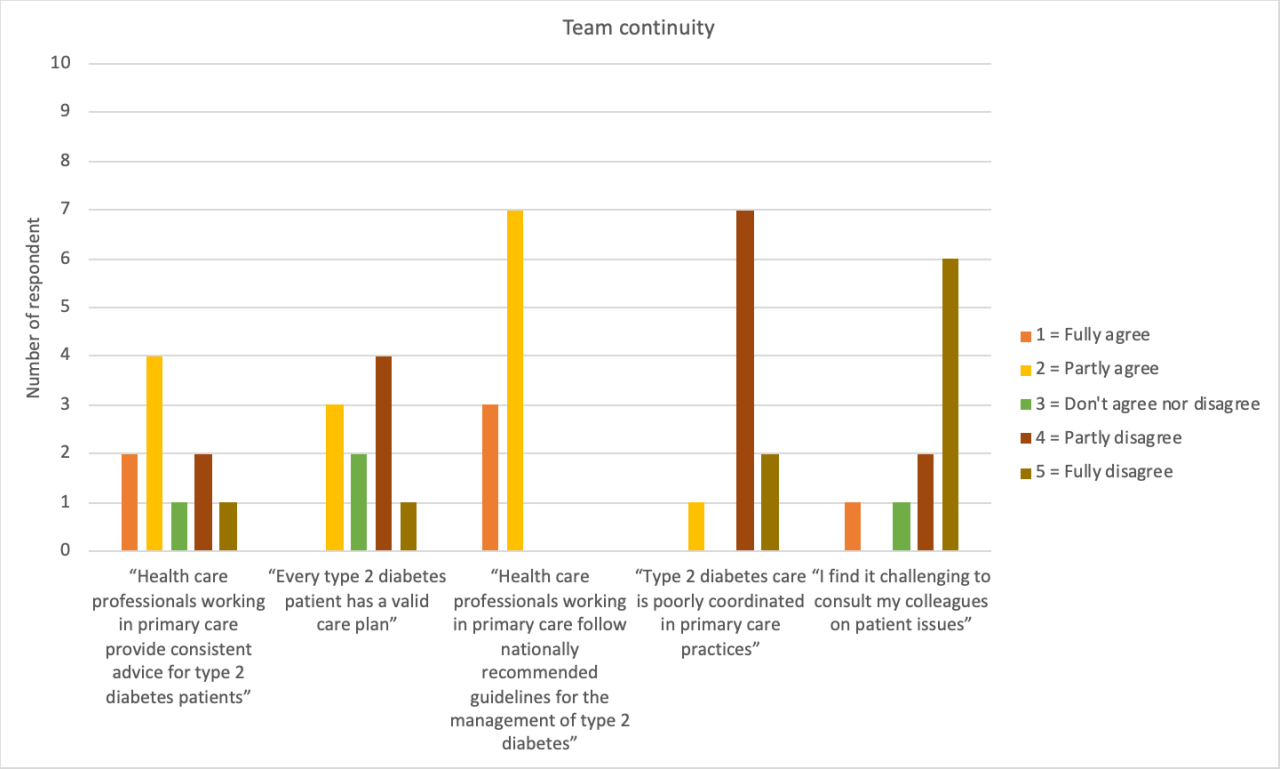
There were five statements regarding team continuity, that respondents could answer (Figure 4). Respondents´ answers to statement "Health care professionals working in primary care provide consistent advice for type 2 diabetes patients" described, that six out of ten respondents fully or partly agreed to the statement while three respondents either fully or partly disagreed. One respondent neither agreed nor disagreed.

Responses to the statement "Every type 2 diabetes patient has a valid care plan" stated that three out of ten respondents partly agreed with and half of all respondents either fully or partly disagreed with the statement. Two respondents neither agreed nor disagreed with the statement. Nobody fully agreed with the statement. Responses to the statement "Health care professionals working in primary care follow nationally recommended guidelines for the management of type 2 diabetes" indicate that all the respondents either fully or partly agreed with the statement. Other answer options were not answered.

"Type 2 diabetes care is poorly coordinated in primary care practices" statement was answered by respondents as follows; nine out of ten respondents disagreed either fully or partly. One respondent partly agreed with the statement. Nobody fully agreed and nobody answered to agree nor disagree with the statement. "I find it challenging to consult my colleagues on patient issues" statement got following answers; eight out of ten respondents disagreed either fully or partly, one respondent agreed fully and one respondent neither to agree nor disagree with the statement.

Figure 4

Responses from the statements concerning team continuity



Cross-boundary continuity

There were four statements for cross-boundary continuity (Figure 5). Respondents answered to the statement "Primary care and specialized hospital care provide inconsistence advice for people with type 2 diabetes" so, that six of respondents were partly or fully disagreeing to the statement while two neither agreed nor disagreed, and two partly agreed. From analysis between variables, it can be said that the more age and working experience in health care respondent had, they would more

likely disagree to this statement. Correlation r = 0,93 (p=0,00). This result can be said to be highly significant (***).

“Primary care and specialized hospital care share an understanding of the agreed care plan on a patient-by-patient basis” statement was answered as follows; five out of ten respondents neither to agree nor disagree to the statement, four partly or fully agreed and one partly disagreed. The statement “Primary care and specialized hospital care follow the treatment guidelines for type 2 diabetes management according to national recommendations” was responded so that eight out of ten of respondents partly or fully agreed, one partly disagreed, and one neither agreed nor disagreed to the statement. “Type 2 diabetes care is poorly coordinated between primary care practices and specialized hospital care” statement was responded as follows; six out of ten of respondents answered that they partly or fully disagree while two partly agreed, two neither agreed nor disagreed with the statement.

Figure 5

Responses from the statements concerning cross-boundary continuity

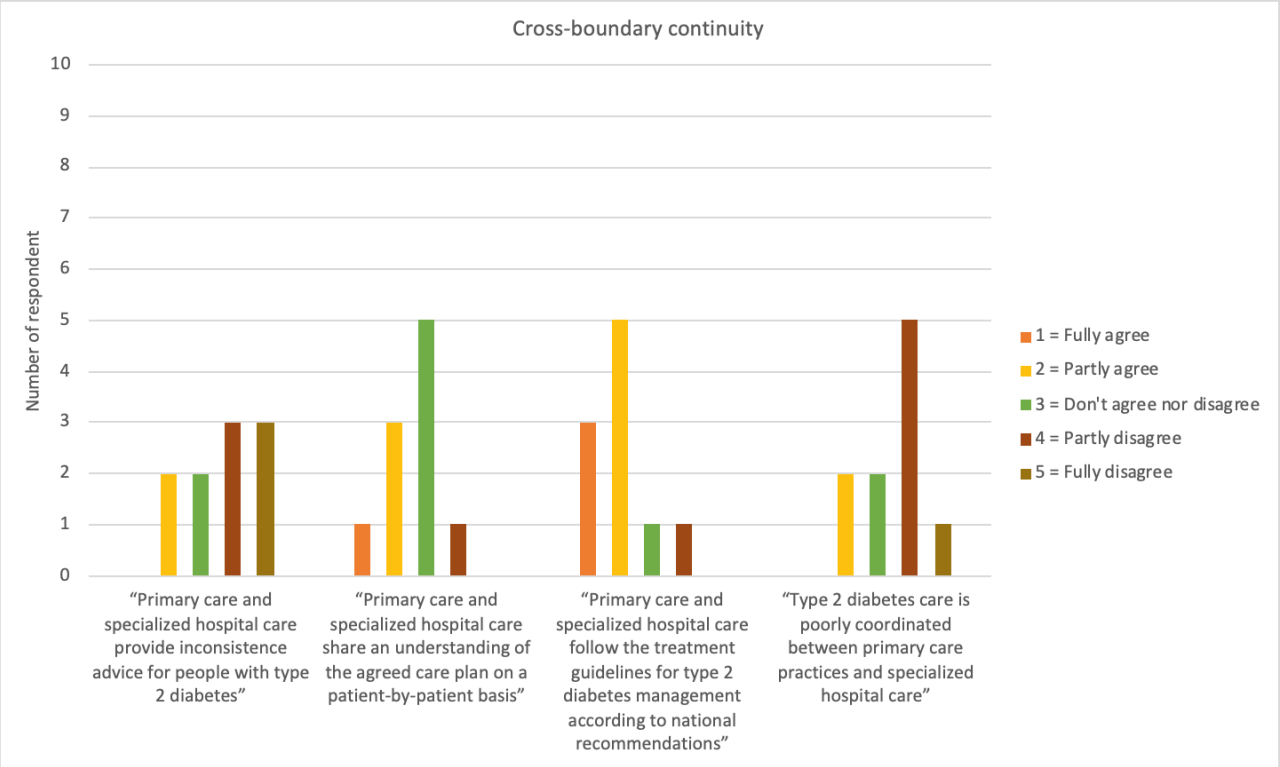


Table 4

Correlation between variables concerning statements and background variables where there were statistical significancy to be seen

Statement	**Background variable: Age**	**Background variable: Working experience in health care**
"I generally know little about the medical history of the type 2 diabetes patients I see for routine follow-up at the practice" (relational continuity)		r= 0,78 (**) p 0,008
"I rarely have time to address all the concerns raised by type 2 diabetes patients during their visit" (relational continuity)	r= 0,72 (*) p=0,036	
"Primary care and specialized hospital care provide inconsistence advice for people with type 2 diabetes" (cross-boundary continuity)	r=0,93 (***) p=0,00	r=0,93 (***) p=0,000

Additional details from free-formal question

In the free-formal question, there were a total of four respondents who had written comments. In most of these comments (¾) it was mentioned, for clarification to the earlier multiple-choice questions, that in this organization the general practice health center does not send reminder letters for type 2 diabetes patients to attend routine controls.

10 Conclusions

Reflecting the research question, the purpose and objectives of the study, the results of this study highlighted nurses' perspectives and experiences on the continuity of care for patients with type 2 diabetes in primary care general practice. The results show that the different dimensions of continuity of care in this organization are perceived with some variation by nurses who participated in this study. It should be noted that many of the responses received for the different questions had to be excluded from further analysis after respondents answered neither to agree nor disagree with the statements given.

Longitudinal dimension

From the analysis about how many of type 2 diabetes patient respondents saw per month one could interpret that those who reported seeing bigger amounts of type 2 diabetes patients are likely to be nurses specialized in diabetes care and diabetes care being their main job. The ones who saw type 2 diabetes patients least are more likely to be nurses, who see this patient group alongside other work. With a bigger sample size, it would be possible to assess differences between nurses' perspectives on continuity of care depending on if the responses are given by a nurse whose job description is based on care for type 2 diabetes patients versus nurses who see this patient group alongside other work. In this study this comparison was not possible to make.

Analysis from longitudinal continuity was partly to be expected due to the national recommendations and the expectations that the recommendations are followed. Most of the respondents reported routine controls for this patient group either once or twice per year. In addition to this, also the statement concerning measuring Hba1c levels seemed to be mostly in line with the number of

routine visits that are carried out. Regarding the clarifying responses concerning longitudinal continuity from free-formal questions that reminder letters to attend routine controls are not sent from health center makes one wonder if this could be a contributing factor to more systematic attending to routine controls if reminder letters were sent. In addition to systematic attending, this could increase the longitudinal continuity of care and identify the needs in disease management at an early stage to minimize complications. According to responses about wasted visits where type 2 diabetes patients do not show up the responses had some variation, but there was no clear connection for example to respondents age, working experience nor to the amount of type 2 diabetes patients they saw on a regular basis. It would be interesting to assess whether these wasted visits were in line with all patient groups or if there could be seen differences between type 2 diabetes patients and other patient groups.

Putting together the analysis concerning longitudinal continuity, it can be said that routine controls and monitoring of blood glucose levels in the practice are carried out in line with national recommendations. Still, this does not count those patients who are missing their routine controls for one reason or another. The longitudinal dimension of continuity would be beneficial to measure regularly to be up to date about the implementation of routine control visits. Also, it would be crucial to catch up with the patients that have fallen from the continuum of routine controls. To deepen the understanding about reasons that could be behind this fall from the longitudinal continuum it would be necessary to target further research to focus on type 2 diabetes patients including those who are home managing with their condition. Also, supportive activities, such as reminders, could be beneficial to develop in the matter to increase longitudinal continuum within type 2 diabetes patients.

Relational dimension

The answers with the statements concerning the functioning of the consultation process in relational continuity's perspective are in line with each other in the nurses' responses. Analysis on relational continuity, based on the responses, is that nurses experience that it is relatively easy for a patient with type 2 diabetes to arrange a personal meeting with a professional if necessary. It can be argued that although there might be challenges in terms of resources in healthcare in general, and as the number and availability of nurses, as well as possibly accessibility to care can be poor, nurses still seem to experience that they are able to reach this patient group. Regarding the speed

of consultation, nurses mostly agreed with the statement that patients receive urgent consultations when they need them and that they are easy to organize. This again can refer to the same perceived experience of resource adequacy that nurses may experience they had in caring for this patient group. Since nurse consultation is important for relational continuity of care for patients with type 2 diabetes, a quick and easy consultation can for its part to help achieve continuity of care for this patient group. By the results, overall nurses experience that consultations are easy and quick to arrange if needed.

Most nurses experience that they generally have enough information concerning the medical history of their type 2 diabetes patients on routine follow-ups. The results showed that the more years of experience a nurse has, they are more likely to feel that they have knowledge of the medical history of the type 2 patients they see. This suggests that, compared to nurses with less experience, more experienced nurses are more likely to feel that they have sufficient and necessary knowledge of a patient's medical history to support the provision of care. Knowing the medical history of patients is an important base to nurses in their efforts to achieve effective management of type 2 diabetes. When nurses have knowledge of their patients' medical history, it allows nurses, in terms of relational continuity of care, to create, for example, a sense of trust and affiliation with patients by knowing enough about the patient's situation. This is important and desirable for the patient-nurse relationship.

Nurses mostly experienced that they generally have time to address all the potential concerns raised by patients during their consultation. This can be seen as providing individualized and flexible care for the patient, and in the experience of nurses, this was well achieved and could be organized. This can also refer to a nurse's commitment to the patient, which has also been shown to improve relational continuity of care. Addressing patients' concerns during the consultation contributes to patient satisfaction, as patients feel that they are being listened to in their interactions with a nurse. It seems that working experience has an influence on how nurses experience they are aware of type 2 diabetes patients' medical history and with more age nurses experience they have time to respond to patients' individual concerns during routine controls. These results are on the one hand to be expected considering that with more working experience health care professionals have gained knowledge and confidence in practical work which enables grasping the bigger picture. The nurses who had more age, may have a different perspective when it comes to the patients concerns and

they seem to be able to experience there is enough time for them to address all the concerns patients raise. By the nurses' responses, they generally try to involve patients in their diabetes treatment. Involvement and engagement have been seen as major factors to relational dimension of continuity of care and from nurses' experience, there is an effort to achieve patient involvement by nurses' actions at their practices.

In short, it can be said that consultations for type 2 diabetes patients are easy and quick to arrange and by that the consultations seems to be working well from this aspect. Nurses seem to have sufficient time for patients and enough medical information about them and nurses are making efforts in involving patients. These findings suggest that issues relating to relational continuity are on a good base regarding this dimension of continuity of care.

Informational dimension

In the analysis concerning informational continuity nurses seem to experience that they have well enough access to patients both own and necessary medical records during appointments. Then at the same time nurses experienced that all the information is not always easily accessible during consultations. There were no clear links with this experience and nurses' age or working experience to be seen. This is an interesting finding and could be beneficial to take a closer look at what is behind this. For example, are there differences within this experience concerning different patient information systems. Within a bigger sample size, it would be also possible to make further statistical analysis concerning this. According to nurse's experience in understanding the information it seems that nurses find it easy to interpret the records of other health care professionals. This is an important part of informational continuity. One could interpret from this that the quality of contents of the records are at a good level.

There was some variation with the answers in statement on informational continuity "Health care professionals use of same patient information system". This question seemed to be misunderstood and therefore could not be used as intended in the analysis. One reason behind this misunderstood might be the fact that there are several different patient information systems across Finland. It seemed that some of the respondents interpreted the question concerning the whole country and

some concerning this organization that has the same patient information system. It makes one wonder whether the question wording might have been too open to interpretation, and whether this might have caused a dispersion in the answers. Adding the words “when treating type 2 diabetes patient in your organization” at the end of the statement would possibly have been clearer to respondents and would have limited the statement more to treatment of a type 2 diabetes patient and just the professionals who are organizing the care for this group of patients in their own organization. This statement´s answers brought out, that the experiences varied a lot. If there wasn´t interpretation, it is an interesting finding, if nurses experience that the use of the same clinical records or patient information system varies widely in primary care, and whether and how this affects treatment of type 2 diabetes patient and continuity of care.

Team dimension

Analysis for team continuity highlights that type 2 diabetes patients seem to get consistent advice from nurses working at primary care. However, about 1/3 of nurses brought out that consistent advice isn’t provided to patients by nurses and here it can be seen to be some variation between nurses’ experiences. It is important to provide consistent advice to patients to achieve team continuity, and the results suggest that this is achieved with variation. Consistent guidance supports patient self-care, for example by reducing uncertainty and mistrust of members of the multidisciplinary healthcare team. Therefore, it is important that attention would be paid to the provision of consistent guidance by nurses with the results emerged from this study.

Another question of team continuity, which had largely variated results, was concerning care plans. Half of nurses' experience that type 2 diabetes patients do not have valid care plan to support the management of the condition. It is also notable that nobody fully felt that there is valid care plan for type 2 diabetes patients, and only about one third partly felt that there are care plans for type 2 diabetes patients. Since a valid, up-to-date and personalized care plan is known to be supporting the quality and continuity of care as well as personalized care, the situation with regard to care plans is a concern in this study. However, some variation on the care plan question is evident among respondents, with some nurses partly agreeing that every type 2 diabetes patient has a valid care plan, indicating that they would be still in use in care at some level. However, there is clearly a need for

improvement with the care plans of type 2 diabetes patients in primary care nurses' practices to improve continuity of care.

According to the analysis it seems that in primary care nationally recommended guidelines are being followed by nurses with the management of type 2 diabetes. It is relevant information that evidence-based guidelines for type 2 diabetes are being used in practice. It creates an image that healthcare for type 2 diabetes patients is evidence-based, as it should be, and builds experience of trust and equality of care for patients. From a continuity of care perspective, it is also essential that type 2 diabetes patients receive high quality and evidence-based care and monitoring from primary care nurses. It can be said that this part concerning continuity of care is on a solid base by the results.

Coordination of care for type 2 diabetes in primary care seems to be at good level by nurses, suggesting that in general, nurses perceive care coordination to be effective. However, it is not possible to draw any major conclusions from the responses to what are the reasons behind this experience. However, regarding continuity of care for type 2 diabetes patients, it is encouraging that nurses generally have this experience of care coordination working. Concerning the collaboration between colleagues, nurses experience it easy to consult colleagues with patients' issues. As learnt, the effective and interactive relationships between professionals are seen to be important for achieving team continuity and this experience of nurses suggests this kind of relationship is working well.

The analysis of team continuity brought out that as relationships between professionals were seen easy, coordination of care perceived working and guidelines being followed, there where gaps in delivering consistent advice to patients and variation with having valid care plans. Therefore, more attention should be paid to these last two to achieve better the dimension of team continuity with type 2 diabetes patients. In delivering consistent advice, it could be achieved with the support of organizational level by providing all carers involved in care with materials to support guidance and information on local diabetes care guidance. In addition, raising awareness of the work and responsibilities of other professionals could help to harmonize guidance. It would also be important to ensure regular, high-quality training on this issue for all those involved in the care of people with type 2 diabetes. With care plans, the responses and interpretations mentioned before it is also possible that the location of care plans is challenging, and health care professionals do not easily find them. Therefore, these care plans might exist, but are yet hard to locate. This possible issue can be

solved by developing a patient information system and recording so that care plans are in one place and easily accessible.

Cross-boundary dimension

Analysis concerning cross-boundary continuity indicates how nurses working in general practice receive this dimension of continuity of care. There were some variations in how nurses experience primary care and specialized hospital care provide inconsistent versus consistent advice to patients with type 2 diabetes. An interesting finding was that with more age and working experience in health care respondents were more likely to think that general practice and specialized hospital provide consistent advice for this patient group. This was one of the statistically significant results from this study. One could interpret from this that nurses who have more age and working experience in health care also have a better vision about the cross-boundary care between general practice and specialized hospital care.

Nurses seem to perceive some variation when it comes to experience if primary care and specialized hospital care share and understand individual agreed care plans for patients with type 2 diabetes. It would be good to deepen understanding about the reasons behind this. For example, as mentioned within the analysis of relational continuity, if the care plans are difficult to find in the patient information system. Within this sample group there were not to be seen connections between this experience and age, working experience of health care and/or the amount of type 2 diabetes patients nurses saw on a regular basis. Nurses seem to experience that treatment guidelines are mostly well followed in primary care and specialized care hospital concerning national recommendations for type 2 diabetes care. Nurses seem to experience some variation in how type 2 diabetes care is coordinated between primary care and specialized hospital care. More than half (60%) of this sample experienced coordination was not poorly organized. Still a notable 20% considered there is lack of coordination, and the rest took no position on this issue. It was not possible to analyze if there would be connections to, for example working experience with the experience of care coordination.

Overall, the cross-boundary dimension was presented on a very general level focusing on the facts about following national guidelines, individual care plans and care coordination between general practice and specialized hospital care. Nurses' experiences varied a lot concerning statements

around this theme. To deepen understanding about cross-boundary continuity the future research would be good to include professionals from both primary care settings and also professionals from specialized care hospital. In this context it would be interesting to make analysis between variables from the responses gathered from general practice compared to specialized hospital care.

Summary

The questionnaire used in this study made it possible to create an overview of various dimensions of continuity of care. With the analysis there can be recognized parts from different dimensions that could benefit from deepening understanding. Concerning longitudinal continuity, the implementation of reminders would be recommended to consider and whether this would increase the attendance to routine follow-up visits among type 2 diabetes patients as well as any other patient group dealing with chronic disease. To achieve relational continuity, it would be beneficial to maintain or increase the resources in primary care nurses' work to support diabetes management, even now this dimension of continuity was seen to be implemented well by the experiences. Concerning informational continuity, it would be beneficial to take a closer look at what reasons are affecting the experience that information is not easily accessible. In addition, concerning care plans that influence in many dimensions (informational, relational, team- and cross-boundary) there is a need for clarify, if care plans are not made or is there challenges concerning the location of care plans, which affects that professionals do not find them and might consider they don’t exist at all. Considering team continuity, especially organizational level improvements could be useful, not forgetting the support of any versatile communication between all professionals attending the care. By offering sufficient training and structured systems for nurses to provide consistent advice could be the key to achieving team continuity better. Cross-boundary continuity would benefit from expanding gathered information about professionals' experience both from general practice and from specialized hospital care. This idea is supported by the fact that development needs what may appear affect in both ways and also the promoting actions for service delivery should include cooperation with both parties.

11 Discussion

In terms of continuity of care, the experiences of nurses have been clearly less studied than those of patients or physicians. However, some comparison of nurses' experiences can be made by looking at previous studies and drawing conclusions about whether the findings of this study are in line with previous studies and theory. As known from theory chapters of this publication, continuity of care in primary care in Finland has declined in recent years, and it is only recently that more accurate statistics on continuity of care have been collected in Finland. According to Koski's (2021) Diabetes Barometer, both type 2 diabetes patients and nurses perceive challenges in achieving continuity of care. In the results obtained in this study, the experiences of nurses appear to be similar compared to Diabetes Barometer's information. Compared to previous knowledge, the results concerning different dimensions of continuity of care appear to be same kind and challenges are perceived to be in connection with care plans and in the flow of information. At least indirectly, it can be interpreted that the results of this study support the knowledge that time- and education-related resources are perceived as major challenges in Finnish type 2 diabetes care and continuity of care from the nurses' point of view. Especially nurses' perspective and describing their experiences regarding the continuity of care for this large, even growing group of patients, is important to consider because of the acknowledged, significant role of nurses in diabetes care that requires extensive expertise and competence.

Continuity of care has several dimensions that are overlapping with each other. This may be one reason for many ways to thematize continuity of care in literature and studies that have been made. This challenges the assessment of individual dimensions of continuity of care in various contexts, since there is lack of valid indicators to evaluate separate dimensions, and this was a challenge in this study as well. The aim of this study was to create a holistic understanding of continuity of care, so several different dimensions of continuity were considered.

In line with the objectives of this master's thesis, the study provided new information to support the development of local outpatient reception services in primary care for patients with type 2 diabetes. The results provided a current understanding of the perceptions of nurses in this one large city on the implementation of different aspects of continuity of care for type 2 diabetes patients. From the results it could be recognized that some of the aspects of continuity would benefit from

being taken into closer consideration. These were explained more specifically in the conclusion chapter. Overall, it can be argued that the results of this study suggest that in diabetes care it is needed to consider the many dimensions of continuity, both together and separately, and develop ways and measures to further understand and respond to this complex whole.

Although the results from this study are not generalizable or transferable to a larger population, still at regional level, some areas can, by the results, be identified where further development can be made and used to develop outpatient reception services for patients with type 2 diabetes in this specific region. Issues related to care plans and informational flow, as well as organizational resourcing and enabling care provision and organization at meso- and macro levels, could be presented as areas for local development.

This study has some limitations that need to be addressed in further research. A limitation of this study is the small sample size, which makes it difficult to generalize and transfer the results. In addition, the choice of method should be seen in the light of the fact that a qualitative study could also provide data on the subject, and reflection on this option was also undertaken before deciding on a quantitative study. In this study, the questionnaire's age and functionality in the Finnish health care context were challenging and required decision-making. In addition, the adaptation and operationalization of the questionnaire as well as the translation work, proved to be challenging processes, and other choices could have been made.

A further research proposal is to study a larger sample using a quantitative method. This would enable the generalizability of the results. On the other hand, a qualitative interview study could provide interesting insights into nurses' experiences. A topic of further research is also proposed to investigate the continuity of care of another group of patients with long-term conditions from the perspective of nurses. This would provide much-needed new insights into the perceptions of this important group of health professionals on continuity of care. Also, it is necessary to consider that the questionnaire used fits into each different context. In the use of questionnaire, in future, when using this specific “Continuity of care for type 2 diabetes patients general practice questionnaire for health care professionals” as a basis of survey, it would be good to add a socio-economic, clarifying background question to the survey's beginning about the respondent's professional title. This would

help to analyze the variation between answers with a wide standard deviation affected by the content of individual professionals' content of work. Although, asking for professional titles in this questionnaire requires a larger sample size to ensure the anonymity of respondent.

In addition, in future research it would be necessary to deepen understanding of the implementation of the individual components concerning continuity of care in different contexts. If there are recognizable gaps in the implementation for example regarding on informational-, team- or longitudinal continuity, it would be relevant to target further research around these themes to get concrete understanding of the possible development activities needed to improve models of action.

Diabetes, especially type 2, is one of the most common chronic diseases and the number of those who get this diagnosis will rise in the future. Therefore, health care systems need to be better prepared to manage and monitor this disease among other chronic diseases. The number of professionals, the functioning of practices and the development of different service processes are at the heart of chronic disease management and ensuring high quality, effective, efficient, and individualized care. Diabetes management requires multidimensional seamless continuity of care. Type 2 diabetes patients often transfer between services, and it is necessary to ensure the care continuum. Development actions should take place firstly in system level including micro-, meso-, and macro levels. Finally, the development made in the system level should appear concrete in the implementation that defines patients care continuum. Recognizing the important role of nurses in the care of patients with type 2 diabetes is one key to supporting continuity of care. The efforts to achieve continuity of care are based on Finland's political and legal objectives of ensuring that all citizens receive the highest quality of care possible, to which continuity of care is also intrinsically linked.

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Appendices

Appendix 1. Cover letter/ Saatekirje

Hyvä sairaanhoitaja/ terveydenhoitaja/ diabeteshoitaja,

Pitkäaikaissairauksien, kuten tyypin 2 diabeteksen, hallinnassa hoidon jatkuvuus on tärkeää. Tyypin 2 diabetespotilaiden hoidon jatkuvuudella pystytään muun muassa vahvistamaan potilaiden omahoitoa ja näin vähentämään diabeteksen komplikaatioita. Terveydenhuollon ammattilaisten näkemykset hoidon jatkuvuudesta ovat arvokasta tietoa, jota voidaan hyödyntää toiminnan kehittämisessä.

Haluamme Terveyden edistämisen YAMK-opinnäytetyössämme selvittää nimenomaan sairaanhoitajien, terveydenhoitajien ja diabeteshoitajien näkemyksiä ja kokemuksia liittyen tyypin 2 diabetespotilaiden hoidon jatkuvuuteen. Tutkimus toteutetaan kyselynä. Kyselyn täyttämiseen menee aikaa noin 5-10 minuuttia.

Tässä linkki kyselyyn: https://link.webropolsurveys.com/S/1EF7DCA6CAA66814
Kyselyyn osallistuminen on vapaaehtoista ja täysin luottamuksellista. Vastaamalla annatte luvan käyttää vastauksianne tutkimuksessamme aineiston osana. Vastaukset tulevat meille nimettöminä, eikä vastaajien henkilöllisyys tule esiin missään aineiston käsittelyn vaiheessa. Tutkimus toteutetaan Jyväskylän ammattikorkeakoulun YAMK-opinnäytetyönä, joka on tavoitteena julkaista kevään 2023 aikana. Tutkimuksen toteuttamiseen on saatu organisaatioltanne tutkimuslupa.

Kyselyyn on mahdollista vastata 30.11. asti. Suuri kiitos mahdollisesta kyselyn täyttämisestä ja tutkimukseen osallistumisesta.

Ystävällisin terveisin,
Riikka Sikiö (ab7165@student.jamk.fi) ja Maria Vuori-Peurala (ab7511@student.jamk.fi)
Terveyden edistämisen YAMK-tutkintolinja
Jyväskylän ammattikorkeakoulu

Appendix 2. Questionnaire/ Kyselylomake

Tyypin 2 diabetespotilaiden hoidon jatkuvuus

☐ Pakolliset kysymykset merkitty tähdellä (*)

Tällä kyselytutkimuksella halutaan selvittää perusterveydenhuollossa työskentelevien sairaanhoitajien, terveydenhoitajien ja diabeteshoitajien näkemyksiä ja kokemuksia tyypin 2 diabetespotilaiden hoidon jatkuvuudesta. Tutkimus on osa Terveyden edistämisen YAMK-opinnäytetyötä.

Taustakysymykset

1. Ikä

_____

2. Terveydenhoitoalan työkokemus vuosina

*

_____

3. Kuinka monta tyypin 2 diabetespotilasta arvioisit käyvän vastaanotollasi diabeteksen hoidon tai seurannan vuoksi keskimäärin kuukauden aikana?

*

_____

5. Arviosi mukaan, kuinka monta prosenttia keskimäärin kaikista vastaanotolle kutsutuista tyypin 2 diabetespotilaista jättää saapumatta suunnitellulle käynnille?

*

Pitkän aikavälin jatkuvuus - Koskien tyypin 2 diabetespotilaiden rutiininomaista jatkohoitoa perusterveydenhuollon vastaanotolla

4. Miten arvioisit seuraavia määriä?

	1	2	3	4	5+
Kuinka monta vastaanottokäyntiä arvioisit toteutuvan rutiiniseurannassa olevalla tyypin 2 diabetespotilaalla 12 kuukauden aikana? *	○	○	○	○	○
Kuinka monta kertaa vuodessa vastaanotolta lähetetään muistutuskirje tyypin 2 diabetespotilaalle seurantaan osallistumisesta? *	○	○	○	○	○
Kuinka monta kertaa vuodessa rutiiniseurannassa olevalta tyypin 2 diabetespotilaalta mitataan HbA1c (pitkäaikainen verensokeri) seurantakäynnin yhteydessä? *	○	○	○	○	○

Suhteellinen jatkuvuus - Koskien tyypin 2 diabetespotilaiden säännöllisen hoidon tarjoamista perusterveydenhuollon vastaanotolla

6. Missä määrin olette samaa tai eri mieltä seuraavista väittämistä?

	Täysin samaa mieltä	Osittain samaa mieltä	En samaa enkä eri mieltä	Osittain eri mieltä	Täysin eri mieltä
Halutessaan konsultaatiota tyypin 2 diabetespotilaiden on haastavaa tavata minut henkilökohtaisesti *	○	○	○	○	○
Jos tyypin 2 diabetespotilas haluaa kiireellisesti keskustella kanssani diabeteksestaan niin tämä on helposti järjestettävissä *	○	○	○	○	○
Tiedän yleensä vain vähän vastaanotollani rutiiniseurannassa käyvien tyypin 2 diabetespotilaiden lääketieteellisestä historiasta *	○	○	○	○	○
Minulla on harvoin aikaa käsitellä kaikkia tyypin 2 diabetespotilaiden vastaanotolla esiin nostamia kysymyksiä *	○	○	○	○	○
Pyrin yleensä osallistamaan tyypin 2 diabetespotilaita mukaan päätöksentekoon koskien heidän diabeteksensa hoitoa *	○	○	○	○	○

Tiedollinen jatkuvuus - Koskien vastaanoton aikana saatavilla olevia kliinisiä tietoja

7. Missä määrin olette samaa tai eri mieltä seuraavista väittämistä?

	Täysin samaa mieltä	Osittain samaa mieltä	En samaa enkä eri mieltä	Osittain eri mieltä	Täysin eri mieltä
Minulla on aina mahdollisuus tarkastella tyypin 2 diabetespotilaiden omia diabeteksen hoitoon liittyviä kirjauksia heidän vastaanottokäyntiensä aikana *	○	○	○	○	○
Minulla on aina pääsy tyypin 2 diabetespotilaiden kaikkiin tarvittaviin potilastietoihin heidän vastaanottokäyntiensä aikana *	○	○	○	○	○
Kaikki tarvitsemani tiedot ovat helposti saatavilla vastaanottokäynnin aikana *	○	○	○	○	○
Potilastietoja on yleensä vaikea lukea ja ymmärtää *	○	○	○	○	○
Kaikki terveydenhuollon ammattihenkilöt perusterveydenhuollossa käyttävät samoja potilastietoja *	○	○	○	○	○

Rajat ylittävä jatkuvuus - Koskien tyypin 2 diabetespotilaiden hoidon yhteensovittamista perusterveydenhuollon ja erikoissairaanhoidon välillä

9. Missä määrin olette samaa tai eri mieltä seuraavista väittämistä?

	Täysin samaa mieltä	Osittain samaa mieltä	En samaa enkä eri mieltä	Osittain eri mieltä	Täysin eri mieltä
Perusterveydenhuolto ja erikoissairaanhoito tarjoavat keskenään epäjohdonmukaista ohjausta tyypin 2 diabetespotilaille *	○	○	○	○	○
Perusterveydenhuolto ja erikoissairaanhoito jakavat ymmärryksen sovitusta hoitosuunnitelmasta potilaskohtaisesti *	○	○	○	○	○
Perusterveydenhuolto ja erikoissairaanhoito noudattavat valtakunnallisten suositusten mukaisia tyypin 2 diabeteksen hoitolinjoja *	○	○	○	○	○
Tyypin 2 diabeteksen hoito on heikosti koordinoitua perusterveydenhuollon ja erikoissairaanhoidon välillä *	○	○	○	○	○

10. Vapaamuotoinen kommentti

Continuity of care in type 2 diabetes

Regarding the provision of regular care to diabetic patients in the General Practice. To what extent do you agree or disagree with the following statements?

	Agree very strongly	Agree strongly	Agree	Disagree	Disagree strongly	Disagree very strongly
R5. It is difficult for diabetic patients to see me personally for their consultation if they want to.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
R6. If a diabetic patient wants to speak to me urgently about their diabetes, it is easy for them to speak to me.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
R7. I generally know little about the medical history of the patients I see for routine follow-up at the Practice.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
R8. I rarely have time to address all the concerns raised by patients during their consultation.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
R9. I generally try to involve patients in decisions about their diabetes treatment.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0

Regarding the clinical information available during consultation. To what extent would you agree with the following statements?

	Agree very strongly	**Agree strongly**	**Agree**	**Disagree**	**Disagree strongly**	**Disagree very strongly**
I10. I always have access to patients' diabetes notes during their consultation.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
I11. I always have access to patients' full medical records during their consultation.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
I12. All the information I need is easily accessible during the consultation.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
I13. The information is generally difficult to read and understand.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I14. All staff share the same clinical records.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0

Continuity of care in type 2 diabetes

Regarding the coordination of care within your General Practice. To what extent do you agree with the following statements?

	Agree very strongly	Agree strongly	Agree	Disagree	Disagree strongly	Disagree very strongly
T15. All staff provide consistent advice to patients.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
T16. All staff share an agreed treatment plan for each patient.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
T17. All staff share agreed guidelines for the management of diabetes.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
T18. Overall, diabetes care is poorly coordinated at the Practice.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
T19. It is difficult to speak to colleagues about a patient at the Practice.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Shared care between General Practice and Hospital

Regarding staff communication for diabetic patients referred to the Hospital. To what extent would you agree with the following statements?

	Agree very strongly	**Agree strongly**	**Agree**	**Disagree**	**Disagree strongly**	**Disagree very strongly**
CB20. It is difficult to obtain information about a diabetic patient from the Hospital.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CB21. When I see a patient, Hospital letters/summaries are readily available.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
CB22. The advice given by the Hospital is clearly stated.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
CB23. The patient's current medication is clearly stated.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
CB24. All the information I need is provided in the letter/summary.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0

Continuity of care in type 2 diabetes

Regarding the co-ordination of care between the General Practice and Hospital. To what extent would you agree with the following statements?

	Agree very strongly	**Agree strongly**	**Agree**	**Disagree**	**Disagree strongly**	**Disagree very strongly**
CB25. The Practice and Hospital provide inconsistent advice to patients.	☐ 0	☐ 1	☐ 2	☐ 3	☐	☐ 5
CB26. The Practice and Hospital share an agreed treatment plan for each patient.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
CB27. The Practice and Hospital share agreed diabetes treatment guidelines.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0
CB28. Overall, diabetes care is poorly coordinated between Practice and Hospital.	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5