

## Design and Development Process of a Nutrition Minimum Data Set for Primary Health Care - A User Centered Approach

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**DESIGN AND DEVELOPMENT PROCESS  
OF A NUTRITION MINIMUM DATA SET  
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– A USER CENTERED APPROACH**

**BY  
SASJA JUL HÅKONSEN**

DISSERTATION SUBMITTED 2019



**AALBORG UNIVERSITY**  
DENMARK



# **DESIGN AND DEVELOPMENT PROCESS OF A NUTRITION MINIMUM DATA SET FOR PRIMARY HEALTH CARE – A USER CENTERED APPROACH**

by

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**AALBORG UNIVERSITY**  
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Dissertation submitted



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## CV

Sasja Jul Håkonsen (SJH) graduated as a registered nurse from the Nursing Education in Vejle, Denmark in 2006. She worked for six years in clinical practice at an abdominal surgery department at the University Hospital in Aarhus where she held a specialist position within documentation and clinical guidelines. While working as a clinical nurse, she earned her Master of Science of Nursing in 2008 at the University of Aarhus, Denmark. Since 2010 she has been working as a research assistant at Centre for Clinical Guidelines – Clearinghouse, at the University of Aalborg, Denmark. In 2014 she started as a part time PhD student with Slagelse Municipality as co-collaborator. SJH is an accredited trainer in delivering the Joanna Briggs Institutes (JBI), Comprehensive Systematic Review Training Program (CSRTP). SJH has expertise in diagnostic test accuracy and quantitative reviews and is a member of an international expert group that has published guidelines for completing systematic reviews of diagnostic accuracy. Since 2014 SJH has been an external supervisor and methods consultant (in the GRADE method) for The National Board of Health in doing National Clinical Guidelines. Currently, SJH is involved in the development of methods of integrating qualitative evidence in the recommendations of clinical guidelines based on GRADE, JBI and WHO approaches and methods.

# FUNDING

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- Center for Clinical Guidelines – Clearinghouse. Department of Health Science and Technology, University of Aalborg.
- Slagelse Municipality, Health & Older People.



## ENGLISH SUMMARY

Inappropriate admissions and readmissions due to nutrition related issues are a huge challenge for the primary healthcare sector, both nationally and internationally. Malnutrition prevalence rates range from 40% to 90% within the primary healthcare setting, dependent on the specific setting and diagnoses and entail significant costs and consequences for both the healthcare sector as well as for the individual patients. A prerequisite for high quality and continuity of nutritional care and treatment are precise and comprehensive communication between healthcare professionals. Documentation is the most important communication tool between healthcare professionals and requires the use of clear terminology, comprehensiveness and accuracy in the way it reflects clinical decisions. However, currently documentation among different healthcare professionals is inadequate and does not serve the purpose of supporting their clinical decisions. A Nutrition Minimum Data Set has been suggested as an approach in primary healthcare to increase the quality of nutritional care and documentation by supporting the healthcare professionals continuous sharing of a patient's nutritional needs and to aid intra- and inter-disciplinary communication and decision-making. Hence, the aim of this PhD project was to develop a Minimum Data Set within the nutritional area specifically for primary healthcare. The four studies within the PhD project have a core focus on integrating and collaborating with the end users and a User Centered Design frame is therefore applied. The end users in this specific project are registered nurses, social and health service assistants and social and health service helpers. They account for a large majority of the Danish primary healthcare working force.

The four studies were comprised of a cross-sectional study (Study I), a focus group study (Study II), a scoping review study (Study IIIa), a content analysis study (Study IIIb) and a workshop (Study IV). Study I and Study II aimed to map and describe the healthcare professionals' perceptions of their own competencies in delivering nutritional care and documentation, as well as other factors influencing the quality of care delivered. In Study I results showed that the primary healthcare professionals' daily documentation and nutritional care routines are associated with significantly large inconsistencies and variations. Furthermore, the level of knowledge within all three groups of healthcare professionals is inadequate and sparse, although the attitudes found towards nutrition and documentation revealed that these areas to some extent are considered to be important. Study II elaborated on the results from Study I and gave further insight into the challenges identified. Overall, quality gaps were more specifically revealed within personal, internal factors regarding inconsistency in daily routines related to unsystematic communication, lack of applying an evidence-based approach in clinical decisions and lack of positive understanding of daily documentation and nutritional care. External, organizational factors that consist of a lack of definition of professional

roles and functions, invisible leaders and priorities and incoherent culture across the same municipality were also identified.

Study IIIa, IIIb and IV aimed to develop a Nutrition Minimum Data Set specifically for primary healthcare by combining results from both review and workshop methodologies. Study IIIa and IIIb aimed to develop a prototype of a Nutrition Minimum Data Set. This prototype was based on a comprehensive literature search of existing nutritional screening instruments, clinicians' expertise and patients' perspectives. Subsequently, these data were aggregated and structured into a prototype consisting of thirty two variables in five categories by applying the content analysis approach. In Study IV the prototype were assessed for feasibility and usability by clinicians in an active workshop where the card sorting technique was applied. The final Nutrition MDS encompasses thirty nine variables structured into nine logical categories.

In conclusion, this PhD thesis specifically developed a Nutrition Minimum Data Set that can aid and support healthcare professionals in assessing which variables and elements are relevant to observe and document about patients' nutritional status; hence, a minimum set of variables that directly or indirectly influence the nutritional status of patients in primary healthcare. Additionally, several factors that can affect the delivery of high quality nutritional care and documentation have been identified and summarized. These factors are important influencing factors that should be taken into account before the implementation of a Nutrition MDS in a municipality. Without a thorough assessment of all factors it is not expected that the Nutrition MDS will fully achieve its initial purpose in supporting daily documentation and nutritional care.

## DANSK RESUME

Uhensigtsmæssige indlæggelser og genindlæggelser grundet ernæringsrelaterede problemer er en stor udfordring for den primære sundhedssektor både nationalt og internationalt. Prævalensen for underernæring ligger fra 40% til 90% inden for den primære sundhedssektor, afhængig af den specifikke diagnose og kontekst. Underernæring medfører store omkostninger og konsekvenser for såvel sundhedsvæsenet som for de enkelte patienter. En forudsætning for høj kvalitet og kontinuitet i ernæringspleje og behandling er en præcis og fyldestgørende kommunikation mellem sundhedsprofessionelle. Dokumentation er det vigtigste kommunikationsværktøj mellem sundhedsprofessionelle og indebærer, at dokumentationen består af en klar terminologi og præcist afspejler de kliniske beslutninger. Imidlertid er dokumentationen mellem de sundhedsprofessionelles daglige dokumentation og kliniske beslutninger. Et Minimums Datasæt inden for ernæring er blevet foreslået som en ramme for dokumentationen i den primære sundhedssektor for at øge kvaliteten af ernæringspleje og dokumentation. Dette ved kontinuerligt at støtte de sundhedsprofessionelles ernæringsrelaterede observationer samt understøtte den tværfaglige kommunikation og beslutningstagning. Formålet med dette ph.d.-projekt er derfor at udvikle et Minimums Datasæt inden for ernæringsområdet specifikt til primær sundhedssektor. De fire studier i ph.d.-projektet har et centralt fokus på integration af og samarbejde med slutbrugerne, og anvender derfor en bruger-centreret tilgang som overordnet ramme. Slutbrugerne består i dette specifikke projekt af sygeplejersker, social- og sundhedsassistenter og social- og sundhedshjælpere.

De fire studier bestod af et tværsnitstudie (Studie I), et fokusgruppstudie (Studie II), et scoping review studie (Studie IIIa), et indholdsanalysestudie (Studie IIIb) og en workshop (Studie IV). Studie I og Studie II havde til formål at kortlægge og beskrive de sundhedsprofessionelles opfattelse af egne kompetencer i at yde ernæringspleje og dokumentation samt andre faktorer, som påvirker kvaliteten af den daglige pleje og behandling. Resultaterne fra studiet, viste at de daglige rutiner i forhold til dokumentation og ernæringspleje er forbundet med signifikante variationer og forskelle. Endvidere er niveauet af viden inden for alle tre grupper af sundhedsprofessionelle utilstrækkelig og forbundet med store variationer. Studie II uddybede resultaterne fra Studie I og bidrog med yderligere indsigt i de identificerede udfordringer og problematikker fra de sundhedsprofessionelles perspektiv. Fundene fra begge studier afslørede en mere konkret uddybning af områder inden for ernæring og dokumentation, som er behæftet med kvalitetsbrist. Individuelle, interne faktorer, der består af usystematiske rutiner grundet dårlig kommunikation og dokumentation, manglende viden og indsigt samt manglende forståelse af betydningen af daglig dokumentation og ernæringspleje blev identificeret som faktorer, der kan påvirke kvaliteten af plejen og behandlingen.

Derudover blev der også identificeret en række eksterne, organisatoriske faktorer såsom manglende definition og afklaring af de enkeltes professionelle roller og funktioner, usynlige ledere og manglende prioritering af ernæring og dokumentation samt usammenhængende og forskellig kultur inden for samme kommune.

Studie IIIa, IIIb og IV havde til formål at udvikle et Minimums Datasæt inden for ernæring specifikt til den primære sundhedssektor ved hjælp af tre studier. Studie IIIa og IIIb havde til formål at udvikle en prototype af et Minimums Datasæt inden for ernæring. Denne prototype var baseret på en omfattende litteratursøgning af eksisterende ernæringsscreeningsinstrumenter, klinikerens ekspertise og patientens perspektiv. Derefter blev disse data aggregeret og struktureret i en prototype ved hjælp af indholdsanalyse. Prototypen bestod af 32 variabler inddelt i 5 kategorier. I Studie IV blev prototypen vurderet for anvendelighed og forståelighed af klinikere i en workshop, hvor kort-sorteringsmetoden blev anvendt. Det endelige Minimums Datasæt inden for ernæringsområdet består af 39 variabler struktureret i 9 logiske kategorier.

Sammenfattende har denne ph.d.-afhandling udviklet et Minimums Datasæt inden for ernæringsområdet, der kan understøtte sundhedsprofessionelle i at vurdere hvilke variabler og elementer, der som minimum er relevante at observere og dokumentere hos patienter i primær sektor. Altså, et minimums sæt af variabler og faktorer, der direkte eller indirekte kan påvirke patientens ernæringsstatus. Derudover er faktorer, der kan påvirke den daglige kvalitet af ernæringspleje og dokumentation, blevet identificeret og opsummeret. Disse faktorer er vigtige indflydelsesrige faktorer, som bør tages i betragtning ved implementeringen af et Minimums Datasæt i en kommune. Uden grundig vurdering af alle faktorer forventes det ikke, at et Minimums Datasæt til fulde vil leve op til sit formål og understøtte den daglige dokumentation og ernæringspleje.

# LIST OF INCLUDED STUDIES AND PAPERS

The PhD thesis is based on four studies and six papers. The results from **Study I** have been published in *Journal of Community and Public Health Nursing*. Furthermore, a duplicate publication of the study was published in *Danish Journal of Nursing*. The results and manuscript from **Study II** are currently in peer-review in *BMC Health Services Research*. The results from **Study III** have been reported in a three-step process, resulting in publications in *JBIC Database of Systematic Reviews & Implementation Reports* and *Health Informatics Journal*. The results and future manuscript from **Study IV** in conjunction and combination with the results from the other studies has been recommended for publication in *Implementation Science*. However, at the time of writing, the purpose, methods and results of Study IV are reported in the relevant sections of the dissertation. Some sentences and phrases, mainly pertaining to description of specific methods, statistics and results are exact quotations from the papers and manuscripts below.

- **Study I:** Håkonsen SJ, Bjerrum M, Bygholm A, Kjelgaard HH, Pedersen PU (2018). **The Routines, Knowledge and Attitudes towards Nutrition and Documentation of Nursing Staff in Primary Healthcare: A Cross-Sectional Study.** J Comm Pub Health Nursing 4: 220. doi:10.4172/2471-9846.1000220. Referenced to in text as **Study I, Paper 1** and referenced as (1)
- **Study I:** Duplicate publication in *Danish Journal of Nursing of Paper 1:* Håkonsen SJ, Bjerrum M, Bygholm A, Kjelgaard HH, Pedersen PU (2018). **Viden om ernæring ligger på et lavt niveau.** Danish Journal of Nursing. (4); 38-49. Referenced to in text as **Study I, Paper 2** and referenced as (2)
- **Study II:** Håkonsen SJ, Pedersen PU, Bygholm A, Thisted CN, Bjerrum M (2019). **Lack of focus on nutrition and documentation in primary healthcare: the self-perceived views of the primary care workforce.** In peer review in BMC Health Services Research. Referenced to in text as **Study II, Paper 3** and referenced as (3).
- **Study IIIa:** Håkonsen S, Pedersen PU, Bjerrum M, Bygholm A, Peters MDJ (2015). **A nursing minimum dataset for documenting nutritional care for adults in primary healthcare: a scoping review protocol.** JBI Database of Systematic Reviews & Implementation Reports. 13 (8). 92-100. Referenced to in text as **Study IIIa, Paper 4** and referenced as (4).
- **Study IIIa:** Håkonsen S, Pedersen PU, Bjerrum M, Bygholm A, Peters MDJ (2018). **Nursing Minimum Data Sets for documenting nutritional care for**

**adults in primary healthcare: a scoping review.** JBI Database of Systematic Reviews & Implementation Reports: 16(1). 117-139. Referenced to in text as **Study IIIa, Paper 5** and referenced as (5).

- **Study IIIb:** Håkonsen SJ, Pedersen PU, Bygholm A, Peters MDJ, Bjerrum M (2019). **Speaking the Same Language: Development of a Nutrition Minimum Data Set for Health Care Professionals in Primary Health Care.** Health Informatics Journal. <https://doi.org/10.1177/1460458218824707>. Referenced to in text as **Study IIIb, Paper 6** and referenced as (6).
- **Study IV:** Håkonsen SJ, Pedersen PU, Bjerrum M, Bygholm A. **Future manuscript are recommend for publication in Implementation Science.** Purpose, methods and results are reported in dissertation and referenced as **Study IV**.

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First, I wish to thank my supervisor, Professor Preben Ulrich Pedersen, who made this project and the continuation of it possible. I thank you for opening the door to this field of research, for your continuous discussions and critical input throughout the process, for your never-ending support and for your trust in me as a future researcher.

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## ABBREVIATIONS

- MDS:** Minimum Data Set
- RN:** Registered Nurses
- SSA:** Social and Health Service Assistants
- SSH:** Social and Health Service Helpers

# CHAPTER 1. INTRODUCTION

## 1.1. SETTING THE SCENE

The focus of this PhD project originates from clinical issues regarding inadequate documentation and the potential consequences thereof in a municipality in Denmark. The health care staff and managers within the municipality raised concerns regarding an excess of inappropriate readmissions and admissions due to nutritional related issues. In particular, the diagnosis of nutritional related anaemia had doubled in just one year in the municipality. This is, however, not just a municipality-specific problem but it is in fact a national and international problem as malnutrition prevalence rates range from 40% to 90% within the primary healthcare setting, depending on the specific setting and diagnoses (7, 8). Malnutrition and nutrition related problems are rarely identified in a timely manner in order to initiate relevant interventions within the primary healthcare setting and several initiatives aiming to decrease readmission and admission rate have been launched both nationally and internationally (9). The focus on preventing or decreasing inappropriate admissions and readmissions are among other due to the comprehensive economic aspects of this problem. In Denmark, each readmission and admission cost approximately 13.000 kr. In 2015, the admission rate in the municipality studied was 37.490 and the readmission rate was 2.700 leaving the municipality with a total cost of municipal co-financing of approximately 512.000.000 kr (10). This is money that could have been used for recruiting healthcare professionals to provide care and treatment of patients, employing healthcare professionals with expert knowledge and skills within specific areas as well as further education and skills training of current staff. Besides the extensive socioeconomic consequences of a poor nutritional status leading to admissions or readmissions, the consequences for the individual patients are also comprehensive and even in some cases fatal (11). Malnutrition is associated with a 41% increased likelihood of decline in activities of daily living (12). In addition, studies have shown that a low Body Mass Index (BMI) is correlated with a significantly higher mortality (13, 14). In addition, it has been found that malnutrition has a negative impact on quality of life and the overall self-rated health (15). Hence, poor nutritional status are heavily associated with negative consequences for both the individual patient as for the healthcare system.

Continuity based on a precise, concise and structured documentation that accurately reflects the clinical decisions made within the respective professions specifically concerning the individual patient's nutritional care needs and preferences are a prerequisite for high-quality nutritional care and treatment within all settings, sectors and disciplines (16). Documentation is therefore inevitable and an important part of everyday healthcare practice in order to facilitate a flow of nutritional related information between different healthcare professionals that supports the continuity, quality, and safety of nutritional care and treatment (17,18). Currently, there is no

single, nationally or globally accepted standard or approach to the diagnosis or documentation of patients' nutritional status (19). This has led to multiple approaches to both the identification of nutritional problems as well as different approaches to the subsequent documentation (19). Clinical decisions regarding nutritional care and treatment are therefore not sufficiently described in the patients' healthcare record and thus do not serve the purpose of supporting healthcare professionals' in deciding upon, initiating, evaluating and continuing on their clinical assessments and interventions (20, 21). The continuity of care and treatment are therefore comprised and at worst not present. The need to standardize characteristics related to the diagnosis and assessment of patients' nutritional status and the documentation thereof is therefore indisputable.

This dissertation, "Design and development process of a Nutrition Minimum Data Set for Primary Healthcare – a User-Centered Approach" focuses on the development of a framework for documentation within the nutritional area in close collaboration with primary healthcare. This framework, a Nutrition Minimum Data Set (Nutrition MDS), is suggested as an approach in clinical practice to increase the quality of nutritional care and documentation by preventing a decline in patients' nutritional status potentially leading to inappropriate admissions or reduced quality of life. This is done by supporting the healthcare professionals continuous sharing of and understanding of patients' nutritional needs and aids intra- and interdisciplinary communication and decision-making about patients' future nutritional care and treatment.

In order to investigate the healthcare professionals experiences, approaches and understandings of nutrition and documentation as well as the concepts and dimensions related to the development of a Nutrition MDS both quantitative and qualitative methodologies were applied in this Ph.D. project. A mix of different methodologies and methods is needed in order to capture the complexity of collecting information about patients' nutritional status and its subsequent documentation.

# CHAPTER 2. BACKGROUND

## 2.1. THE CLINICAL ISSUE: “A PUZZLE TO MAKE SENSE OF DATA”

Nutrition care and treatment takes place 24 hours a day in all settings and sectors, and the documentation is essential for communication between healthcare professionals and different sectors (22). Documentation is essential for the individual patient in contact with the healthcare system in order to benefit the patient through less time lost on repeating tests or questionnaires and by preventing unnecessary, inappropriate or even harmful interventions (23). Continuity in the patient’s healthcare records are of vital importance to patient care in primary healthcare as many different healthcare professionals are involved in the care and treatment of a single patient, access to physicians and specialists in nutrition is limited and the area’s tasks are complex and multifaceted (24). Furthermore, documentation of nutritional care and treatment are the entire foundation of the different professions’ further development and progress. If a profession cannot document its assessments, actions and their outcomes then it is impossible to evaluate whether the care and treatment is optimal and it is difficult to legitimize the profession that carries out nutritional care (25). Documentation attempts to show what decision-making is based on by presenting information about assessments, diagnoses, interventions, and the evaluation of progress and outcome (26-28).

A random sample of twenty healthcare records, from the municipality from which data for this PhD project was collected were, before the initiation of the project, thoroughly examined for nutritional related data. The rationale for this random preliminary sample was to verify or reject the assumption that there were issues or challenges related to the documentation within the nutritional area. Specifically, the healthcare records were scrutinized for “easy access” to nutritional related data. In this case “easy access” meant that specific data could easily be retrieved. Firstly, it was found that no action or care plans specifically within nutrition had been developed in the random sample. Secondly, in twelve out of twenty records there were data related to nutrition. However, the nutrition related data, such as information about intake, dietary restrictions etc., were not found under keywords related to “nutrition”, and it was therefore a puzzle to retrieve data of relevance for nutrition as they were documented under various headings and keywords. Finally, the keywords “interventions” and “status” were frequently used while “diagnosis” and “goal/evaluation” were infrequent and even absent. The preliminary findings of these random and inconsistent nutritional related data are supported by studies that have found issues with documentation within the healthcare sector (21). A systematic review found inaccurate documentation of diagnoses and interventions, despite the use of process-based documentation systems (21). Furthermore, in

relation to the structure and process features of documentation, problems included not only inconsistency in the use of terminology, but also abstract and unclear reporting, inappropriate phrasing of statements, documenting under wrong sections and indications of the data documented were not fully adequate and accurate (21). Inadequate and incomplete documentation is therefore a problem within the healthcare sector both nationally and internationally.

## **2.2. POOR DOCUMENTATION: WHY IT HAPPENS AND WHAT ARE THE CONSEQUENCES?**

Documentation within primary healthcare is developed by any healthcare professional who documents within the patients' healthcare record, regardless of whether it is on paper, in electronic form or a mix of the two (29). When documentation is accurate and complete it can perform miracles in describing the patient's pathway and experiences of and through the healthcare system. Documentation can improve patient care and treatment by facilitating communication regarding e.g. nutritional observations and ensure that observations, actions or evaluations are systematically executed by other healthcare professionals, thereby ensuring effective continuity of care (30). However, no person and no process is perfect or without flaws. The overall major purpose of documentation is to provide the basis for effective and safe patient care and treatment. Failure to properly document can have severe consequences, resulting in incorrect and unnecessary care and treatment decisions and unclear communication between different healthcare professionals resulting in a lack of follow through with evaluation and intervention plans (31, 32). The phrase "poor documentation" has permeated the healthcare sector and has been mentioned and discussed in both the media and in the scientific literature. Several studies have investigated the extent of poor documentation and as few as 5% of healthcare records investigated have been considered to be good documentation and in accordance with quality standards set in the specific studies (21, 33, 34). Poor documentation typically refers to a lack of clarity, lack of accuracy, lack of specificity, lack of completeness and an overall poor quality of documentation (32). The lack of accuracy, consistency and completeness with documentation is present in almost all settings and contexts as well as within all healthcare disciplines (35-40). A literature search of causes of poor documentation revealed that a large number of studies have investigated this issue. Studies found that poor documentation was centered around a lack of understanding of the specific data and variables that needs to be included in the patients' healthcare record, insufficient education with a specific focus on documentation and the tools and systems that support daily documentation, inadequate routines regarding documentation and a lack of time and resources allocated for documentation (20, 32, 41-43).

Studies show that healthcare professionals are not aware that nutrition is important (44-46), and find it difficult to identify what needs to be documented about patients'

nutritional care, what is relevant and what is important (44, 46, 47). Using general terms like “nutrition” as an overall keyword in the patients’ healthcare record does not guide healthcare professionals to make adequate and relevant observations and systematically document patients’ nutritional care. Therefore, it is apparent that healthcare professionals need more specific guidance in order to collect information, to assess the patients’ needs, prepare a plan for care and treatment, carry out interventions and evaluate the outcome of the interventions. If healthcare professionals do not know which terminology to use about nutritional care, it is difficult to identify areas that are of importance to the patient and what needs to be documented, and thereby be able to initiate and follow-up on interventions that can potentially prevent patients from being malnourished. Therefore, tools are needed to support the continuous communication and decision-making about the patient’s condition. Such tools are vital to ensure that the continuity, safety, and quality of care endure across the multiple handovers made by the many healthcare professionals involved in a patient’s care, as a primary purpose of documentation and recordkeeping systems is to facilitate information flow that supports the continuity, quality, and safety of care (48). Valid and reliable documentation in clinical practice requires a structured and standardized clinical language based on terminology from current evidence and science (49, 50) and a Minimum Data Set has been proposed as a method of routinely collecting information on core aspects of the healthcare professionals’ contribution to care.

### **2.3. A NUTRITION MINIMUM DATA SET AND ITS POTENTIAL IN CLINICAL PRACTICE**

A Minimum Data Set (MDS) is organized primarily in terms of problems, interventions and outcomes and is therefore a way to structure and systematize documentation (51). Uniform categories are used to describe the items of information relevant to document (52, 53). The issues and difficulties that healthcare professionals experience with documenting what seem like simple and core aspects of everyday nutritional care and treatment can be supported and aided by a Nutrition MDS. A Nutrition MDS can provide healthcare professionals with a common terminology and can clarify what, as a minimum, is relevant to document and thereby ensure continuity and comparability of data.

Studies show that an increase in the quality of documentation improves patient outcomes such as the ability to eat, weight gain and physical function status (54-56). Furthermore, several studies suggest that the quality of documentation may have significance in regard to patients being admitted or readmitted to the hospital (57-59), indicating that high quality documentation could be a method to prevent avoidable admissions or readmissions. The potential correlation between enhanced documentation and enhanced patient outcomes can be further explored and supported by the descriptions by Avedis Donabedian (60). Donabedian described approaches to evaluating the quality of health care (61) and held that information



about quality of care can be drawn from three categories: “structure,” “process,” and “outcomes” (60). Structure describes the context in which care is delivered, including staff and equipment (61). Process describes the transactions between patients and healthcare professionals throughout the delivery of healthcare (61). Finally, outcomes refer to the effects of care and treatment on the health status of patients, such as improvements in weight (61). According to this quality model, improvements in the structure of care, including that of a Nutrition MDS documentation frame, should lead to improvements in clinical processes, such as improved documentation practices, that should in turn improve patient outcomes, such as fewer admission or readmission. A Nutrition MDS could therefore potentially benefit structures, processes and clinical outcomes in clinical practice and hence contribute to the improvement of quality standards and quality strategies.

In order to solve the issues related to a varied and inconsistent terminology, several initiatives have been launched by different organizations in different countries in order to make efforts to align and clarify the clinical language within nursing and other healthcare professions. These initiatives are developments of standardized communication and terminology to support the documentation. The section below will briefly describe these standardized terminologies as well as discuss the difference between them and MDS.

## **2.4. STANDARDIZED TERMINOLOGY TO SUPPORT DOCUMENTATION**

Nutritional care and treatment are performed by different healthcare professionals within different settings and contexts around the world and are characterized by many different terms. “Nutrition” is for some healthcare professionals associated with “food”, for others with “balanced diet” and for others it encompasses “social interactions during mealtimes”. Some will say that it involves all of the above. Nutritional care and treatment are a multifaceted practice and healthcare professionals’ perceptions of what nutritional care encompasses are varied and inconsistent (62). This may be the reason why nurses and other healthcare professionals have documented their care and treatment using individual and self-constructed terms, which has led to a wide range of terms that describe the same care (30, 63). Terminology is a discipline which systematically labels concepts particular to one or more domains, such as problems (diagnoses) related to nutritional care, for the purpose of documenting and promoting correct usage (64). Typically, terminology is structured and classified in groups with common or related terms or ideas (64). Standardized nursing and multidisciplinary terminologies are all based on the same principles, which are that data from the patients’ healthcare record can be reused, recognized and retrieved. Overall, these standardized terminologies are developed with the aim of facilitating communication between healthcare professionals and decreasing misinterpretations and misunderstandings (50, 65). Several standardized terminologies have been developed, such as the North

American Nursing Diagnosis Association-International (NANDA-I), Nursing Outcome Classification (NOC), International Classification for Nursing Practice (ICNP), Omaha System, International Classification of diseases (ICD) and Systematized Nomenclature of Medicine - Clinical Terms (SNomed-CT) (66). The Uniform Hospital Discharge Set (UHDS), Long Term Care Minimum Data Set (LTC-MDS) and The Nursing Minimum Data Set (NMDS) are examples of Minimum Data Sets developed within the healthcare area (65). Internationally, there is no consensus on the specific terminology to be used; hence several countries avoid recommending a specific terminology (66). Both standardized terminologies and Minimum Data Sets are clinical terminology standards, although minimum data sets are described as “data element sets” and recognized terminologies are described as “mono- or multidisciplinary interface terminologies” (66). Although they are connected and intertwined, they are indeed quite different as minimum data sets are typically operationalized by the recognized terminologies, such as the International Classification for Nursing Practice (INCP) (66). Minimum data sets are independent of the interfaces and technology that are used and instead describe the minimum set of data elements with uniform definitions and categories concerning e.g. nutritional care (66). They contain the standardized collection of e.g. essential nutrition data provided under e.g. the primary healthcare system. Minimum data sets can therefore subsequently “come to life” using the specific terminologies applied in the specific setting in the specific country, such as the Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT) (66). Therefore, our concept of MDS is that they are a prerequisite for the development of and selection of appropriate standardized terminologies in clinical practice.

Due to the above rationale a minimum data set is therefore the sole focus of this PhD project and will be the sole focus in the sections to come.

## **2.5. HOW SHOULD A NUTRITION MINIMUM DATA SET BE DEVELOPED?**

Minimum data sets can be developed in various ways and there is no international consensus on how to do it (67). The methods commonly used range from stakeholder committees, interviews, surveys to chart reviews. Typically though, MDS are developed through Delphi consensus techniques with a panel of experts within the specific area (67). In recent years different methods and processes have been applied to the development of MDS, such as the case with the development of a MDS of the information management system for burns, which consisted first of a review of medical records of burn injuries and second of a Delphi consensus technique in order to establish consensus about the data elements to be included in a MDS (68).

Our conception and concept of a MDS, is that it should be developed upon an evidence-based approach in order to accommodate the clinical practice needs for

informing clinical decisions on best available evidence. Therefore, a multimodal approach that applies systematic methods to incorporate scientific evidence, patient preferences and clinicians' expertise is needed in the process of developing a nutrition MDS. By presenting a systematic approach to the development of a nutrition MDS the current PhD project attempts to provide researchers and organizations with a coherent methodology and framework for not only a Nutrition MDS but also the future development of other MDS.

## **2.6. THE THESIS WITHIN THE GREATER PICTURE**

The PhD study is part of a larger project aiming to assess the effectiveness of a Nutrition Minimum Data Set in primary health care. The overall hypothesis for the project is,

*If documentation, in primary healthcare, is structured on the basis of a Minimum Data Set (MDS) within the nutritional area, this will lead to an improvement of the quality of documentation, care and outcomes, as the healthcare professionals to a greater extent will initiate interventions on the basis of the identified problems in the documentation, that either prevent or treat malnutrition – including fluid balance – in the citizens receiving home care / home nursing or living at a nursing home, hence preventing admissions or readmissions.*

Within this project there are several mutually dependent stages. The project's overall hypothesis contains both the development of a Nutrition MDS, the piloting stage, evaluation stage and the long-term follow-up stage. All stages are equally important and relevant in order to meet the criteria set in the hypothesis. Though, the phases are iterative activities rather than sequential stages.

This PhD project solely focuses on the development phase (development of a Nutrition MDS) as this is the first step in the process. In order to conduct the best possible research and develop the best possible foundation for a future effectiveness study, it is necessary to both understand the context in which research is to be conducted and also identify the evidence base for the development of a Nutrition MDS (69). As the context is essential in developing specific frames, products or designs, a user-centered design was chosen as the overall inspiration and approach in the development of a Nutrition MDS.

## **2.7. PURPOSE OF THE PHD PROJECT**

The overall purpose of the PhD study is to develop a MDS within the nutritional area specifically for primary healthcare based on a user-centered design approach and process.

### **2.7.1. A USER-CENTERED APPROACH**

The user-centered design and approach requires that a research team not only create solution for the end users, such as a Nutrition MDS that supports their daily documentation, but also that it be developed in close collaboration with the end users (70). User-centered design is a repetitive design process in which designers focus on the end-users and their needs in each phase of the design process. The user involvement can be done in a variety of ways using different research methods and design techniques (70). The overall goal of applying a user-centered design is to make design, products or even documentation systems which have a very high level of usability and accessibility (70). In order to accommodate this goal a user-centered design (UCD) typically consists of the following four phases; 1) Identify who the primary users of the product are and the context. 2) Identify the requirements of the product and what it consists of. 3) Start an iterative process of product design and development. 4) Get feedback from the end-users on the product. Often, these phases will be repeated to further finish the product (70). This overall frame has helped focus the different study designs and methods within the PhD project. A UCD frame to develop a Nutrition MDS specifically for primary healthcare was used in order to ensure visibility, accessibility and terminology which are typical within the UCD approach – especially when developing websites or documentation systems (70). When developing a Nutrition MDS with the aim of supporting healthcare professionals' daily documentation as well their planning and initiation of nutritional related interventions, it is important that the MDS be visible and transparent. Visibility means that the MDS helps the healthcare professionals in visualizing and constructing mental models of both nutritional assessment and nutritional interventions. It helps them predict what is relevant and what is not relevant to assess and document in daily practice (70). Healthcare professionals should also be able to tell at a glance how they should use and how they should not use the MDS. Furthermore, the development of a Nutrition MDS should assist healthcare professionals in finding information about nutrition quickly and easily due to a logical structure and setup (70). The MDS should be provided with sufficiently detailed information on patients' nutritional status, ensuring that the MDS is useful in supporting clinical decisions. "Chunking" is a useful strategy especially within user-centered web development, and it involves breaking information or data into smaller pieces that can be organized into some type meaningful order hierarchy or categories (71). This allows the end-users to skim the MDS quickly to find their piece of information rather than reading entire documents. Additionally, the language used in the MDS must be understood by the end-users, which encompass both registered nurses and nursing staff with various educational levels. The language should be unambiguous and precise, to eliminate any misunderstandings (70, 71).

Applying the UCD approach is undoubtedly a time and resource consuming process and the obvious question is whether it is worth the time and resources to include

user experiences and knowledge. Studies have shown that research and methods that actively involve end-users have a positive effect of process related measures, such as the extent to which the users uses a webpage or the extent to which it supports clinical decisions, as well a positive effect on outcomes related measures, such as the management and treatment of symptoms or diseases (72, 73). It is therefore expected that when applying a UCD approach in this development project, this will have a positive effect on not only the implementation of a Nutrition MDS but also a derived effect on the subsequent quality of documentation and patient related outcomes.

## **2.8. SUMMARY**

In summary, current practice does not accommodate healthcare professionals needs for documenting nutrition related data and therefore gives no reason for the existence of tools that can support daily documentation among a varied group of health care professionals within primary healthcare. A Nutrition MDS was proposed as a solution of interest. The different professions themselves will be the primary beneficiary of the information related to the Nutrition MDS and it will increase the level of communication between them. Current data collection efforts and documentation will be enhanced and this will essentially benefit patients in relation to improved outcomes and results. Ideally, clinical decisions should be based upon best possible evidence, and a Nutrition MDS that is developed using systematic and transparent methods, will increase healthcare professionals ability to make evidence-based decisions.

The research questions in the present dissertation were investigated in four studies structured as illustrated below in Figure 1.

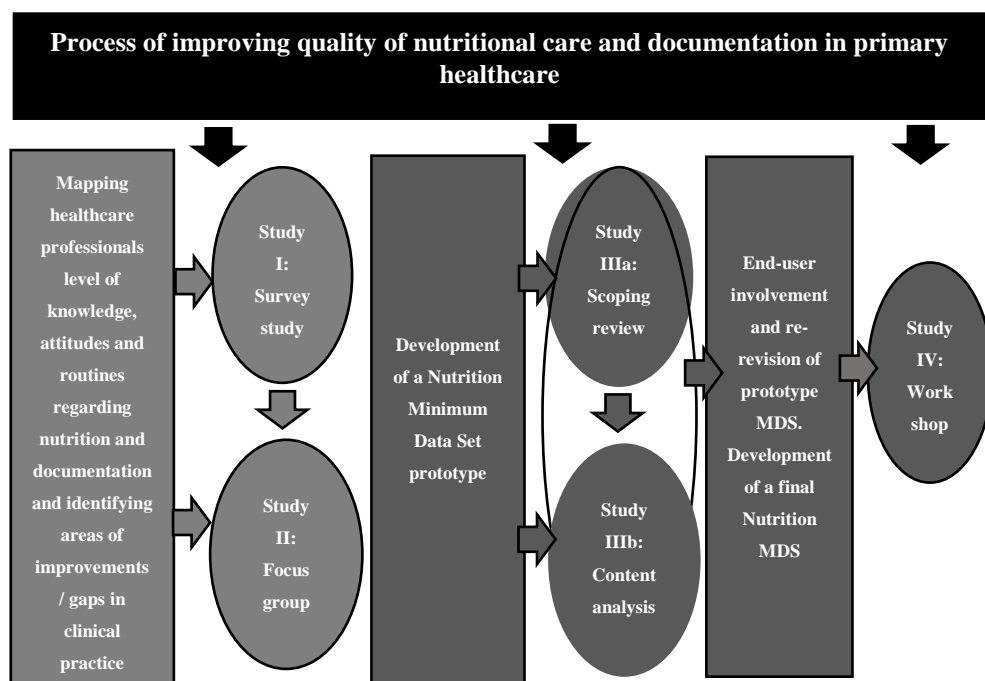
In order to improve the quality of nutritional care and documentation with the support of a Nutrition MDS it was imperative to learn more about the future end-users and the context. The future end-users are a mixed group of healthcare professionals consisting of registered nurses, social and health service assistants and social and health service helpers. These three groups of healthcare professionals are typically employed in the Danish primary healthcare sector and deliver nutritional care and documentation on a daily basis. Firstly, to develop a Nutrition MDS that essentially is intended to be used by healthcare professionals and implemented within a specific context, the healthcare professionals' attitudes, knowledge and routines in regard to documentation and nutrition are investigated and described in two studies; a cross-sectional study and a focus group study. The cross-sectional study was conducted before the focus groups as the results from the cross-sectional study informed the interview-guide and research questions in the focus groups. The results from the cross-sectional study and focus group study will not only inform the research team of specific knowledge of the end-users and context but also provide a

valuable overview of strengths and weaknesses of current nutritional care and documentation practices.

Secondly, the structure and content of a Nutrition MDS was developed in a two-step process using three types of methods. A scoping review were conducted in order to identify relevant data for a MDS within the nutritional area. Subsequently, the data from the scoping review were analysed using content analysis and a Nutrition MDS prototype was developed by the research team. As a final step, a workshop was conducted in order to refine, revise and assess the feasibility and usability of the prototype in close collaboration with end-users. As a result, a final Nutrition MDS was developed.

To the best of our knowledge, no one has developed a Nutrition MDS and thoroughly described the development process within a user-centered frame. The four studies in this dissertation are described in detail in the sections to come.

**Figure 1: Overview of the four studies included in the PhD project**





## CHAPTER 3. AIM

The overall aim of the PhD study is to develop a minimum data set within the nutritional area specifically for primary healthcare based on a user-centered design approach and processes.

Study I: This aim of this study was to investigate the routines, knowledge and attitudes towards nutrition and documentation in primary health care of a primary healthcare workforce (*published*).

Study II: The aim of this study was to investigate how primary healthcare professionals' self-perceived competencies within nutrition and documentation and organizational structures influence their daily work and the quality of care provided (*in peer-review*).

Study IIIa & b: The aim of this study was to identify data elements to be included in a Nutrition MDS and develop a prototype of a Nutrition MDS specifically for primary healthcare in order to facilitate a standardized approach to the documentation of nutritional care (*published*).

Study IV: The aim of this study was to assess the feasibility of the developed Nutrition MDS prototype on a selected group of end-users. The results from the testing will result in a redeveloped and refined Nutrition MDS (*reported in dissertation*).





# CHAPTER 4. METHODS

In the following section, methods of studies I, II, III and IV are presented. This includes information on methods, participants, material, data collection, and data analyses based on the completed papers and also study IV which only is reported in the dissertation.

## 4.1. THE CROSS-SECTIONAL STUDY (STUDY I)

### Design

In order to map and describe registered nurses, social and health service assistants and social and health service helpers' routines, knowledge and attitudes towards nutrition and documentation in primary healthcare an observational, descriptive survey study was applied (1).

### Setting and data collection period

A municipality in Denmark participated in the study representing a primary care setting. The data were collected within these four districts from April 2017 to June 2017 (1).

### Questionnaire development and validation

A web-based questionnaire was developed specifically for this study, as no existing questionnaire on this topic was available. An expert team within nutrition and documentation was set up and involved in both the development and validation of the questionnaire (1). The expert team consisted of five people. The development and validation of this questionnaire consisted of six phases:

#### Phase 1 Development (Item generation)

First, we created an item pool of relevant items, variables and questions within these topics. Items were generated from a literature review of existing nutrition and documentation questionnaires, as well as a review of existing guidelines and quality standards within the topics.

#### Phase 2 Development (The questionnaire development)

The expert team critically discussed the relevant pool of items and customized them and added new items related to a Danish primary healthcare context. Furthermore, the expert team determined the format of the questions (open ended versus close ended questions), response options (yes/no versus numeric scale) as well as the exact wording and phrasing of the questions. Finally, the expert team developed a questionnaire consisting of 40 questions which were divided in to four domains,

concerning: demographic data consisting of nine questions, routines in relation to nutrition and documentation consisting of 10 questions, knowledge in relation to nutrition and documentation consisting of 11 questions and attitudes in relation to nutrition and documentation consisting of 10 questions (See questionnaire in appendix A). The 40 questions encompass the reporting of healthcare professionals' personal knowledge, their routines and attitudes towards nutrition and documentation.

### **Phase 3 Validation (Face validation)**

Face validity indicates whether the items seem, on the surface, to measure what the developers claim they measure (74). Face validity was assessed by asking four registered nurses, social and health service assistants and social and health service helpers, three leaders within primary health care and three experts within the nutritional area and documentation to comment specifically on the ambiguity of the items and questionnaire (1). Participants commented in a comments box after each item. Arising from the comments from the participants, three items required reformulating in order to rule out misunderstandings. The introductory paragraph was also reworded following this procedure, to ensure that future participants would answer with respect to their own opinion and not feel pressured to give the "right" answer as perceived by e.g. their organization or standards of care.

### **Phase 4 Validation (Content validation)**

To test the content validity (75) of the questionnaire, four registered nurses, social and health service assistants and social and health service helpers, three leaders within primary health care and three experts within the nutritional area and documentation were asked to judge whether the questions covered relevant and important data with clarity (1, 75). This was done using a 4 point scale ranging from "not relevant" (1) to "highly relevant" (4). If questions were scored three or less the item were revised. The total score was 3.7 and resulted only in minor linguistic changes and layout changes (75).

### **Phase 6 Pilot testing with target population**

The pilot testing was performed with a random sample of 56 healthcare professionals working in primary healthcare. The primary purposes of the pilot testing were to assess both the user friendliness of the online web based survey tool and whether there were any questions there were left unanswered or misunderstood. It was assessed that the online survey tool was easily understandable and user friendly and could therefore be applied in the full survey. Furthermore, it appeared that the questions in the questionnaire were reasonable and understandable.

### **Phase 7 Internal consistency**

To test internal consistency, Cronbach's alpha coefficients were calculated, resulting in coefficients of 0.85 (domain 2: routines), 0.56 (domain 3: knowledge) and 0.69 (domain 4: attitudes). The summarized Cronbach's alpha coefficient for the three

subscales is 0.86 (1). Due to pragmatic conditions no further validation, such as construct validation, was initiated.

## **Participants**

The questionnaire were distributed to 1391 eligible registered nurses, social and health service assistants and social and health service helpers in a municipality in Denmark. The overall response rate was 32%, leaving a total number of 449 respondents (1). A total of 54 % of eligible registered nurses, 47 % of eligible social and health service assistants and 26 % of eligible social and health service helpers responded to the questionnaire (1). Employees from all four districts in the municipality were represented among the respondents (1).

## **Data analysis**

For statistical analyses, the Statistical Package for Social Sciences (SPSS), version 22.0 (SPSS Inc., Chicago, IL, USA), was used. The dichotomous results are presented as percentages. The remaining results are given as means  $\pm$  1 SD. Parametric data were tested for distribution by the F-test. If data were normally distributed Student's paired and unpaired two-tailed t-test was used. To test for significance between more than two groups of data the one-way ANOVA was used. P-values below 0.05 were considered significant. Linear regression analyses were conducted to determine whether knowledge and attitude scores predicted routine scores (1).

## **Ethical considerations**

The registered nurses, social and health service assistants and social and health service helpers' participation in the study was voluntary. They responded anonymously and all data were treated with confidentiality (1). In the information letters to the heads of departments and to the registered nurses, social and health service assistants and social and health service helpers, we emphasized that the aim of the study was not to audit individual staff members, but to describe the routines, knowledge and attitudes towards nutrition and documentation of the healthcare staff surveyed (1).

## **4.2. THE FOCUS GROUP STUDY (STUDY II)**

### **Design**

A qualitative inductive research design based on a descriptive explorative approach, with semi-structured open-ended focus groups interviews was chosen as a method.

## **Population, recruitment and setting**

The study was carried out in the same Danish municipality as the previous study. A combination of fourteen registered nurses social and health service assistants and social and health service helpers participated in a total of two focus groups (3). In each focus group two registered nurses, three social and health service assistants and two social and health service helpers participated. A local coordinator working in the municipality carried out the recruitment of the participants. The project coordinator followed a set of inclusion criteria that were set out by the PhD student and team of supervisors (research team) (3). The overall purpose of the inclusion criteria was to construct two focus groups that to the widest possible extent reflected the clinical reality and collaboration among different healthcare professionals. Hence, the inclusion criteria were based on the healthcare professionals age, years of working experience, education etc. Both focus groups took place in the municipality in a secluded meeting room without the possibility of disturbances from either colleagues or managers (3).

## **Data collection**

The focus groups interviews were conducted in September 2017 and lasted between 84-94 minutes. The discussions among the focus groups participants were audiotaped and transcribed verbatim by a transcription service and carefully checked for transcription errors and accuracy by SJH (3).

A semi-structured interview-guide (see Appendix B for full interview guide) was used to ensure consistency and to steer the focus groups towards the phenomena of interest (research questions) (3). In order to ensure internal validity and coherence between Study I and Study II the interview guide was designed to answer nine assumptions that were revealed from the results from the survey study (3). The interview guide comprised six domains: 1) Routines in relation to nutrition and documentation, 2) Knowledge in relation to nutrition and documentation, 3) Attitudes towards nutrition and documentation, 4) The context of their daily work, 5) Collaboration between different healthcare professionals and 6) The organization of their employment. Open-ended questions and probing questions were used to explore and clarify the participants' views and perceptions (3).

## **Data analysis**

The transcribed interviews were analyzed using the qualitative inductive content analysis methodology (76-78). The participants' views and perceptions were constantly analyzed and considered within the social interaction dynamics (3). Consensus, disagreements and diverse views among the informants were acknowledged and emphasized as equally as important by the interviewers. All observations on group dynamics were analyzed and assessed within the context of their collaborative interaction (3). The analysis was conducted in four steps. Firstly; the interviews were read by SJH several times gaining an overall understanding of

the transcripts and notes were made throughout the reading. Secondly; meaning units relevant to the purpose of the study were identified using two research questions: 1) What are the self-perceived competencies (routines, knowledge and attitude) towards nutrition and documentation of registered nurses, social and health service assistants, social and health service helpers working in nursing homes or home care or home nursing? 2) Which factors (context, collaboration, and organization) do registered nurses, social and health service assistants, social and health service helpers believe influence their daily work and the quality of care provided? Thirdly; (the descriptive level), the derived meaning units were examined for similarities and divided into six categories, hence describing the essence of the healthcare professionals self-perceived knowledge, routines and attitudes towards nutrition and documentation and the quality of care delivered. Fourthly; (the explanatory level), these categories were comparatively examined to interpret and explain how healthcare professionals perceive their own competencies and organizational structures, and finally grouped into two overall themes (3). The analysis was conducted in a constant dialogue between SJH and MB, and the main outlines were discussed with PUP and CNT in order to rule out misunderstandings and maximize validity (3).

The analysis process was combined with an inter-rater reliability test performed by CNT and SJH (3). Prior to the coding process, SJH carefully introduced CNT to the coding frame. From a sample of the transcripts SJH and CNT independently extracted meaning units using the two research questions developed. The coded meaning units were then compared and reasons for disagreements discussed and a refined set of meaning units were agreed upon (79). After the categories were developed, SJH coded the meaning units from the all transcribed interviews to the list of categories. CNT then independently attached these categories to segments from a selected sample of the transcribed interviews (80-82). The two coders then compared the set of codes that each other had assigned to the text and discussed their reasons for their disagreements and refined the categories and codes. Coding and statistical analyses were carried out using ReCal2: Reliability for 2 Coders. The inter-rater agreements were calculated for both research questions and meaning units and meaning units and categories adopting Krippendorff's alpha reliability coefficient ranging from 0 (complete disagreement) and 1 (complete agreement) and its use is recommended when data is grouped into categories derived from content analysis (80-82). No cut-off for an acceptable Alpha was established beforehand, as it was the degree and severity of agreement and disagreement that determined the final Alpha. Alpha was therefore used to clarify and focus the analysis process (3).

### **Ethical considerations**

All participants were informed verbally and in writing about the study and assured full anonymity and confidentiality, they were reminded of the possibility to withdraw from the study at any time (see Appendix C). To ensure anonymity, all data were safely stored and each participant was assigned a non-identifying code in the report. No participants withdrew from the study (3).

### 4.3. SCOPING REVIEW (STUDY IIIA)

#### **Design**

A scoping review, using the methodology described by the Joanna Briggs Institute, was conducted in order to map existing evidence and to inform part two of Study III (5, 6). The following steps are included in the review process: formulating a review question; defining inclusion and exclusion criteria; locating studies through systematic searching; selecting studies for inclusion; extracting data; synthesizing the relevant studies and presenting results (83). This process requires that a protocol must be published first and followed strictly throughout the process of conducting the review. Likewise two reviewers are required during the process (83). In accordance with the requirements of the Joanna Briggs Institute the systematic review was based on a peer-reviewed, published protocol to ensure a rigorous and transparent method (4) and two reviewers participated in the development of the review (5).

The primary objective of the scoping was to identify all published nutritional screening instruments that had been validated within an adult population in primary healthcare. Furthermore, the review sought to include published evidence from the perspective of relevant experts in the field as to what was viewed as appropriate to assess about adults nutritional care in primary healthcare. Published evidence of adults and relatives views of nutritional assessment and documentation was also reviewed (5).

#### **Participants, concept and context**

The research question was based on the following mnemonic criteria (PCC): Population, concept and context.

##### *Participants*

This scoping review included studies with participants who were adults (aged >18) of any sex, culture, diagnoses, and ethnicity as well as studies that reported upon the views and opinions of nutritional experts, the views of patients and their relatives were sought as well (5).

##### *Concept*

Studies that reported upon the nature and content of any validated nutritional screening tools (regardless of the type of validation) in the adult population in primary healthcare were included. The views and opinions of eligible participants regarding the appropriateness of nutritional assessment were the concept of interest. Furthermore consensus statements, reports, interviews etc. from nutritional experts on the same concept of interest was also included (5).

### *Context*

It was a criterion that studies that were included were conducted in a primary healthcare setting. This included studies both within home care and nursing home facilities (5).

### *Types of studies*

The scoping review considered all quantitative, qualitative studies of any design or methodology, and text and opinion sources (5).

### **Search strategy**

The search strategy aimed to find both published and unpublished studies. Databases were searched from their inception to September 2016. The search sought all published and unpublished studies. A three step literature search strategy was developed to find both published and grey literature with an initial limited search in MEDLINE via PubMed and CINAHL. The second search was conducted across all relevant databases and finally a third search was carried out in the reference lists of all identified reports and papers for additional studies (5).

The search strategy was developed in close collaboration with a search librarian specialist and included some of the following search terms: nutrition, screening, nutritional screening, instrument, nutritional assessment, malnutrition, adult, primary care, Minimum Data Set, consensus / expert opinion / work conference (5).

### **Extracting the results**

Data were extracted from the studies using a self-constructed data extraction table for each of the research questions.

E.g. one data extraction table included the following domains; author/year of publication, source of point of view/statement/opinion, population, point of view/opinion/statement (5).

## **4.4. CONTENT ANALYSIS AND A NUTRITION MDS PROTOTYPE (STUDY IIIB)**

### **Design**

This study is a part of a two-step sequential methodological approach. Firstly, the scoping review, as described in the above section, was conducted (5). Secondly, the



data included from the scoping review were analysed using the content analysis approach in order to develop a Nutrition MDS prototype (6).

### **Data material and analysis**

The data material that was analysed in this study consisted of 29 nutritional screening and assessment instruments and two consensus statements from nutritional experts. No reports or data were collected from the patients' perspective (5).

In order to develop a prototype for a nutrition minimum data set consisting of those minimum number of items that may have an impact on patients' nutritional status in primary healthcare, the content analysis approach was chosen (6). A three-step analysis approach was applied. Firstly, relevant data and variables were mapped and extracted in accordance with the research questions. Secondly, the data were mapped in a draft dataset where the meaning of the original text related to nutrition was condensed. Where possible, the condensed text typically contained the full information from the original text in order to adequately represent the original meaning. If the original text contained several pieces of information, then a separate condensed statement was created for each piece of information. To analyse and summarize the information about items and variables that may influence nutrition, a coding scheme was inductively developed in the author group based upon previous work on categorizing MDS. Thirdly, items and categories were developed (6).

## **4.5. WORKSHOP AND FINAL NUTRITION MDS (STUDY IV)**

### **Design**

An active co-designing workshop with future end users was conducted in order to evaluate the Nutrition MDS prototype and initiate further redevelopment and refinement.

### **Participants and setting**

The workshop consisted of ten participants; two managers, two quality coordinators, one nurse, two social and healthcare assistants, two social and healthcare helpers and one dietician. The participants for the workshop were recruited by a local project coordinator with insights into local structures and organization.

The workshop took place in a larger meeting room, in their local work environment, with the possibility of sitting in small groups without disturbances from others.

## Procedure

### *Background:*

The practice of *co-design* allows future users to play an active part of the creative development of a frame for their documentation within the nutrition area, by interacting directly with not only the design and product itself, but also the research teams (70, 84). It is basically grounded in the belief that all people are creative and that users, as experts of their own experiences and expertise, bring different points of view that will inform the design and innovation direction of the Nutrition MDS (70, 84).

The workshop participants were invited to a half-day workshop consisting of a presentation of the purpose of the workshop from the PhD student and subsequently actively working in small groups with a fixed assignment set out by the research team. The agenda for the workshop were prepared in close collaboration with one of the supervisors (AB).

All participants were informed before the workshop by email on the purpose and tasks of the workshop day.

### *Workshop process:*

*Presentation:* The workshop began with an oral presentation by the PhD student. During this presentation the following topics and highlights were discussed and presented: 1) purpose of the PhD study, 2) the participants role in the project, 3) nutrition in primary healthcare, 4) documentation in primary healthcare, 5) the Nutrition MDS prototype as developed by the research team, 6) agenda for the rest of the workshop (how, what and why).

Actively working in groups of two; following the presentation, the participants were presented with a blueprint of the Nutrition MDS prototype (size 40x60cm) as developed by the research team. Since the prototype of The Nutrition MDS prototype was a draft developed by the research team using systematic methods and approaches, end user perspectives were required in order to assess the terms and structures applied, therefore increasing its usability in clinical practice. The assignment that the participants were asked to complete were fixed and based on the already developed work.

The workshop assignment was based on the open card sorting approach (Hinkle V 2008). Card sorting is typically used to organize larger sets of ideas or items into clusters or categories and facilitates group collaboration and coming to an agreement (85).

The participants were paired in groups of two (self-administered) and a white cardboard sheet (40x60cm), 32 yellow sticky notes with the items identified in the

previous study, 20 green blank sticky notes and 20 blank empty sticky notes and pens were distributed to all groups.

The participants were briefed in detail about their specific tasks;

1) Read thoroughly the 32 items on the yellow sticky notes with the following questions in mind: *How do you understand each item? Are the individual items understandable? Are they understood unambiguously?*

2) Identify any missing items. *Are all data that may affect the nutritional status of patients represented in the 32 yellow sticky notes?* Additional items should be added to the pink sticky notes.

3) Organize related items (the 32 items and e.g. additional items) into distinct clusters and categories. Write the categories on the green sticky notes.

Afterwards, the groups presented their white cardboards and considerations in plenum. Figure 2 displays some of the data collected from the workshop.

**Figure 2: Data from workshop**



## Data analysis

The data from the workshop were analysed in four steps: 1) Common categories, re-suggestions and additional items were identified among the responses. 2) Three spreadsheets were developed. A spreadsheet listing the items in the rows and the categories in the columns was developed. From the card sorting's results it was determined how that the participants had grouped the items into categories. A second spreadsheet listing the re-suggestions of the items and a third spreadsheet listing additional items was developed. Raw counts were added to the spread sheets. 3) Re-grouping the cards from the new suggestions made from the participants. 4) Making of decisions on the construction of the final Nutrition MDS (85). The results from the analysis are presented as basic descriptive measures as well as a final, revised Nutrition MDS.

### **Ethical considerations**

All participants in the workshop volunteered and could choose not to attend at any time. No participants withdrew from the study (see Appendix D).



# **CHAPTER 5. RESULTS**

## **5.1. RESULTS FROM THE CROSS-SECTIONAL STUDY (STUDY I)**

The results from the survey study were reported in relation to the two research questions: 1) What routines, knowledge and attitudes do registered nurses, social and health service assistants and social and health service helpers have in relation to nutrition and documentation in primary health care? 2) Are there differences in routines, knowledge and attitudes towards nutrition and documentation between these groups of healthcare professionals in nursing homes and home care/home nursing? (1)

### **5.1.1. ROUTINES IN RELATION TO NUTRITION AND DOCUMENTATION**

Routines regarding nutrition and documentation were significantly different in seven out of ten questions when comparing educational levels. Where results were statistically significant, social and health service assistants had the highest score (closer to always maintaining a routine) and social and health service helpers had the lowest score (closer to never maintaining a routine) (1).

Routines concerning nutrition and documentation were significantly different in five out of ten questions when comparing the setting (home care/home nursing versus nursing homes). Where results were statistically significant, nursing homes entered the highest score (closer to always maintaining a routine) and home care/home nursing entered the lowest score (closer to never maintaining a routine) (1).

### **5.1.2. KNOWLEDGE IN RELATION TO NUTRITION AND DOCUMENTATION**

Knowledge of nutrition and documentation were significantly different in nine out of eleven questions when comparing educational level. Social and health service helpers showed a lower level of knowledge in nine questions when compared to nurses and social and health service assistants. No differences between nurses and social and health service assistants were found (1).

Knowledge about nutrition and documentation was significantly different in seven out of eleven questions when comparing the setting (home care/home nursing versus nursing homes). Where results were statistically significant, nursing homes showed the highest level of knowledge and home care/home nursing the lowest level (1).

### **5.1.3. ATTITUDES IN RELATION TO NUTRITION AND DOCUMENTATION**

Attitudes towards nutrition and documentation were significantly different in eight out of ten questions when comparing educational levels. The main differences were related to the individual professions' perceptions of areas of responsibilities. Social and health service helpers differed from the two other groups in eight out of ten questions. Especially in relation to areas of responsibilities, they stated that they feel less obliged to perform nutritional related activities than the two other groups. Registered nurses and social and health service assistants however stated that all three groups have equal responsibility when it comes to nutritional care and documentation (1).

Attitudes towards nutrition and documentation were significantly different in five out of ten questions when comparing the settings (home care/home nursing versus nursing homes). Where results were statistically significant, nursing homes displayed the highest level of positive attitude and home care/home nursing the lowest level (1).

## **5.2. RESULTS FROM FOCUS GROUP STUDY (STUDY II)**

From the two focus groups six categories were inductively identified: 1) Lack of uniform and systematic communication affects nutritional care practices 2) Experience-based knowledge among the primary workforce influences daily clinical decisions, 3) Different attitudes towards nutritional care lead to differences in the quality of care 4) Differences in organizational culture affect quality of care, 5) Lack of clear nutritional care responsibilities affect how daily care is performed and 6) Lack of clinical leadership and priorities makes nutritional care invisible (3). Two explanatory themes were subsequently identified from the transversal analysis; 1) Absent inter- and intra-professional collaboration and communication obstructs optimal clinical decision-making and 2) quality deterioration due to poorly established nutritional care structure (3).

### **5.2.1. MAIN THEME: ABSENT INTER- AND INTRA-PROFESSIONAL COLLABORATION AND COMMUNICATION OBSTRUCTS OPTIMAL CLINICAL DECISION MAKING**

“Absent inter- and intra-professional collaboration and communication obstructs optimal clinical decision-making” emerged from analysing and interpreting across categories and signalled that the collaboration and documentation within and between the different healthcare professions are compromised by poor documentation and poor professional knowledge of and attitude to nutritional care. Inadequate documentation and knowledge about nutrition may lead to suboptimal daily clinical decisions regarding care and treatment. The theme encompasses the problems identified related to imprecise, inconsistent and ambiguous clinical

language and terminology. The healthcare professionals had heterogeneous understanding and use of clinical terms, such as actions plan and nutritional care, leading to misunderstandings and challenges in their daily routines and practices. Furthermore, the healthcare professionals' prerequisites for delivering high-quality nutritional care were affected by a lack of and poorly understood formal guidelines for the daily workflow and collaboration within and between the different healthcare professions (3). The challenges related to communication and collaboration are all barriers to delivering safe, high-quality nutritional care and treatment.

### **5.2.2. MAIN THEME: QUALITY DETERIORATION DUE TO POORLY ESTABLISHED NUTRITIONAL CARE STRUCTURE**

"Quality deterioration due to poorly established nutritional care structure" was the second theme that emerged from analysing and interpreting across categories. In the present study, it was found that the leaders and managers do not sufficiently prioritize nutritional care and documentation to a high level of quality, and they do not allocate resources targeted on continuous, systematic training in nutritional care and documentation. Furthermore, the healthcare professionals' decisions about the point of care are experience based, as their clinical decisions rely on their own and their colleagues experience within the nutritional area and documentation. When leaders do not focus on and take explicit responsibility for making other sources of evidence available and useful for the healthcare professionals employed in their area and insist that they incorporate it in their daily clinical decisions, it has a negative impact on patients' nutritional care and treatment. Additionally, quality differences within the same municipality were identified in this study. These differences are due to organizational structures that are not consistent in all parts of it. An organization should therefore be attentive to establishing common nutrition and documentation guidelines for patients with e.g. identical symptoms and problems, so that it can be expected that all patients, regardless of where they live, will receive high quality care and treatment (3).

## **5.3. RESULTS FROM SCOPING REVIEW & CONTENT ANALYSIS – A NUTRITION MDS PROTOTYPE (STUDY IIIA AND IIIB)**

Thirty two meaningful patterns representing variables and items that may have an impact or influence on patients' nutritional status were identified. From these patterns five categories were generated to establish the main content of a Nutrition MDS prototype for primary healthcare: 1) Physiologic measurements, 2) Ability to eat, 3) Intake, 4) Stress factors, and 5) Factors which indirectly affect intake and needs (6).

### **5.3.1. CATEGORY 1: PHYSIOLOGIC MEASUREMENTS**

Five items have been categorized under "Physiologic measurements", as they refer to body measurements of the human individual. Items that have been categorized



under “Physiologic measurements”: 1) Biochemistry (e.g. serum albumin), 2) muscle and fat mass, 3) BMI (weight/height), 4) Weight gain / weight loss, and 5) nutritional status (both objective and subjective view of nutritional status) (6).

### **5.3.2. CATEGORY 2: ABILITY TO EAT**

“Ability to eat” encompasses three parameters that can affect patients’ nutritional status. Items that have been categorized under “Ability to eat”: 1) Feeding status (need for assistance, independent) and need for assistance in self-care, 2) Oral cavity state (tooth loss, mouth pain), and 3) Chewing and swallowing problems. These can be considered possible barriers to patients meeting their nutritional needs if problems occur with them; hence, a thorough nursing anamnesis seems reasonable (6).

### **5.3.3. CATEGORY 3: INTAKE**

“Intake” and the five items included in this category are related to the documentation and observation of quality and quantity of food intake as well as the type of food consumed. Items that have been categorized under “Intake”: 1) Types of diet / food avoidances / use of meal replacements, 2) Number of daily meals consumed, 3) Changes in food intake (reduced / increased intake), 4) Daily consumptions of medicine, 5) Daily consumption of liquid (including alcohol consumption) (6).

### **5.3.4. CATEGORY 4: STRESS FACTORS**

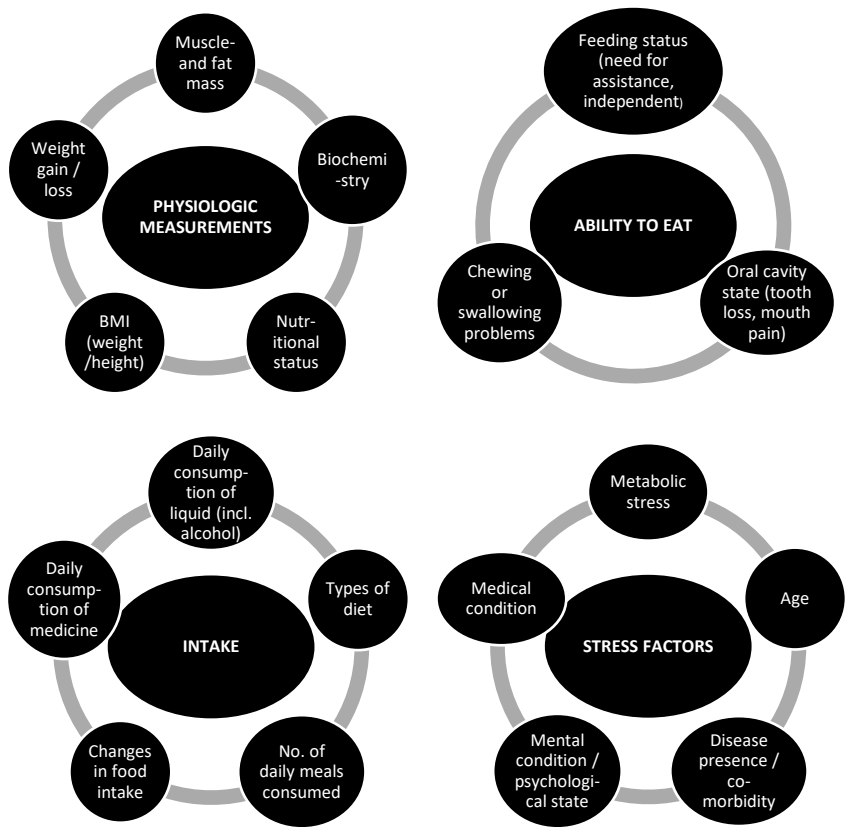
Stress, both physiological and psychological, has been considered to have a serious impact on nutritional status. Items that have been categorized under “Stress factors”: 1) Mental condition/physiological state (state of happiness, mood), 2) Medical condition (diagnosis), 3) Metabolic stress (presence of pressure ulcer, inflamed skin or skin ulcer), 4) Disease presence /co-morbidity, 5) Age (>70 years old) (6).

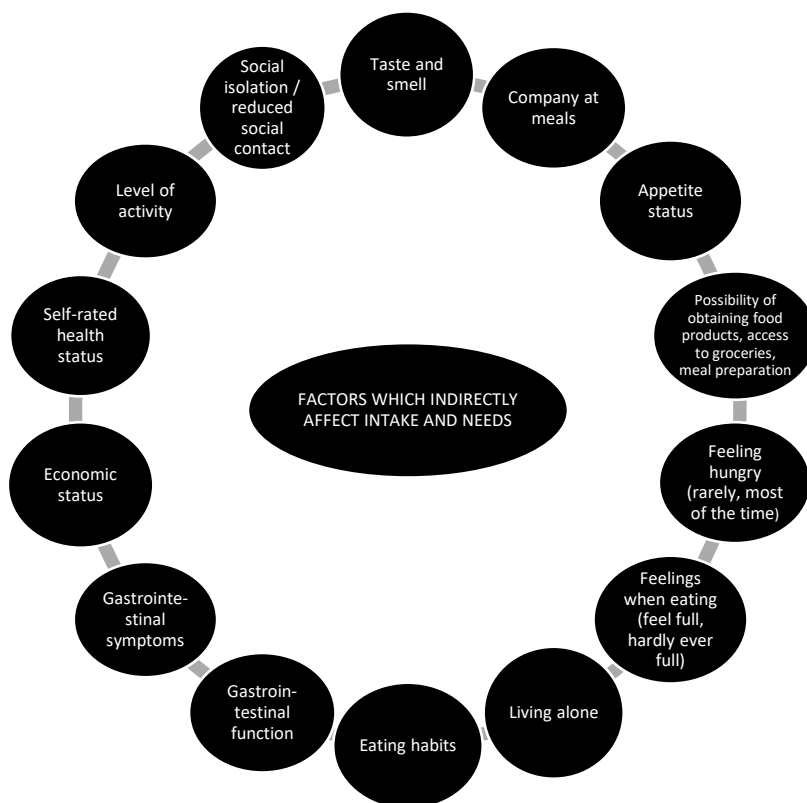
### **5.3.5. FACTORS WHICH INDIRECTLY AFFECT INTAKE AND NEEDS**

“Factors which indirectly affect intake and needs” has a total of fourteen items. These items are a group of factors which may not have a direct impact on patients’ nutritional status, but may indirectly affect intake and needs. Items that have been categorized under “Factors which indirectly affect intake and needs”: 1) Self-rated health status, 2) Level of activity (mobility), 3) Taste and smell of food and beverages, 4) Appetite status (loss of appetite), 5) Feelings when eating (feel full, hardly ever full, 6) Feeling hungry (rarely, most of the time), 7) Eating habits, 8) Gastrointestinal symptoms, 9) Gastrointestinal functions, 10) Living alone, 11) Company at meals, 12) Reduced social contact / social isolation, 13) Possibility of obtaining food products (transport) and access to groceries and meal preparation, 14) Economic hardship (economic issues hindering food purchase) (6).

The thirty-two items structured into five categories are the prototype and proposal of a Nutrition MDS developed by the research team on the basis of current evidence. The Nutrition MDS is displayed in Figure 3.

**Figure 3: 1. Prototype of a Nutrition MDS**





*Source: Model developed by Håkonsen SJ 2019*

#### 5.4. RESULTS FROM WORKSHOP AND FINAL NUTRITION MDS (STUDY IV)

A total of thirty two items structured into five categories were developed in Study IIIa and IIIb (6). During the workshop, the participants developed five proposals for a Nutrition MDS structured after their own logic, their own knowledge and their expectations to what a Nutrition MDS should contain, as well as how it should be structured in order to support clinical decisions and documentation.

Thirteen of the original thirty two items required re-wording as the participants “on a quick glance” did not understand what the term encompassed. None of the thirty two original items were assessed as irrelevant or unimportant in relation to nutrition. An additional seven items (that were not a part of the original thirty two items) were identified by the participants as highly relevant to nutrition and were therefore added to the Nutrition MDS. The additional items, that the healthcare professionals believed were lacking, were primarily related to the patient and his or her nutritional

knowledge and personal data related to intellect, culture etc. Furthermore, it was found that information regarding the patients' preferences regarding sensory stimulations concerning sense, table setting etc. are considered as important by the clinicians in relation to nutrition and the potential lack of nutritional intake.

All five groups structured the items into more categories than those in the prototype Nutrition MDS. The groups structured their items into 7-10 categories. The revised Nutrition MDS consists of thirty nine items structured in nine categories.

#### **5.4.1. CATEGORY 1: MASTER DATA**

The workshop participants grouped twelve variables into one category called "master data". The items and variables within this category are considered by the participants to be primary and essential data to obtain from the patients in order to make a complete assessment, observations and plans for future treatment and care: 1) age, 2) muscle- and fat mass, 3) BMI (Height / weight), 4) biochemistry, 5) nutritional status, 6) level of activity, 7) civil status (married, single), 8) family and friends network, 9) intellect / mental resources, 10) knowledge about nutrition, 11) culture (ethnicity), 12) need for self-care.

#### **5.4.2. CATEGORY 2: STRESS FACTORS**

The category "stress factors" contains a total of three items; 1) medical condition, 2) disease presence / co-morbidity, 3) metabolic stress.

#### **5.4.3. CATEGORY 3: MENTAL CONDITION / PSYCHOLOGICAL STATE**

Category 3 consists of variables that are essential to collect in order to gain information about the patients' mental state. Mental state is considered by the participants to be a highly influential factor in nutritional care: 1) feeling hungry (rarely, most of the time), 2) self-rated health status, 3) feelings when eating (feel full, hardly ever full), 4) mental condition / physiological state (state of happiness, mood).

#### **5.4.4. CATEGORY 4: PHYSIOLOGICAL SYMPTOMS**

"Physiological symptoms" contains variables that all are related to bodily functions. Bodily functions can e.g. be affected by a decline in nutritional parameters and hence they are important indicators of potential morbidities; 1) gastrointestinal function (constipation, diarrhoea), 2) weight loss / gain, 3) symptoms of digestive problems (nausea, vomiting, and reflux).

#### **5.4.5. CATEGORY 5: ABILITY TO EAT**

“Ability to eat” comprises three items; 1) chewing and swallowing problems, 2) oral cavity state (tooth loss, mouth pain, 3) feeding status (need for assistance, independent).

#### **5.4.6. CATEGORY 6: NUTRITIONAL INTAKE**

The category “nutritional intake” relates to the actual consumption of food, nutrients and liquids and consists of four variables; 1) daily consumption of medicine, 2) daily consumption of liquid (including alcohol consumption), 3) number of daily meals consumed, 4) changes in food intake (reduced, increased).

#### **5.4.7. CATEGORY 7: EATING HABITS AND MEAL PATTERNS**

“Eating habits and meal patterns” includes the understanding of the patients of their eating habits and meal patterns: 1) eating habits, 2) types of diets food avoidance / use of meal replacements, 3) appetite (increased / reduced).

#### **5.4.8. CATEGORY 8: THE MEAL**

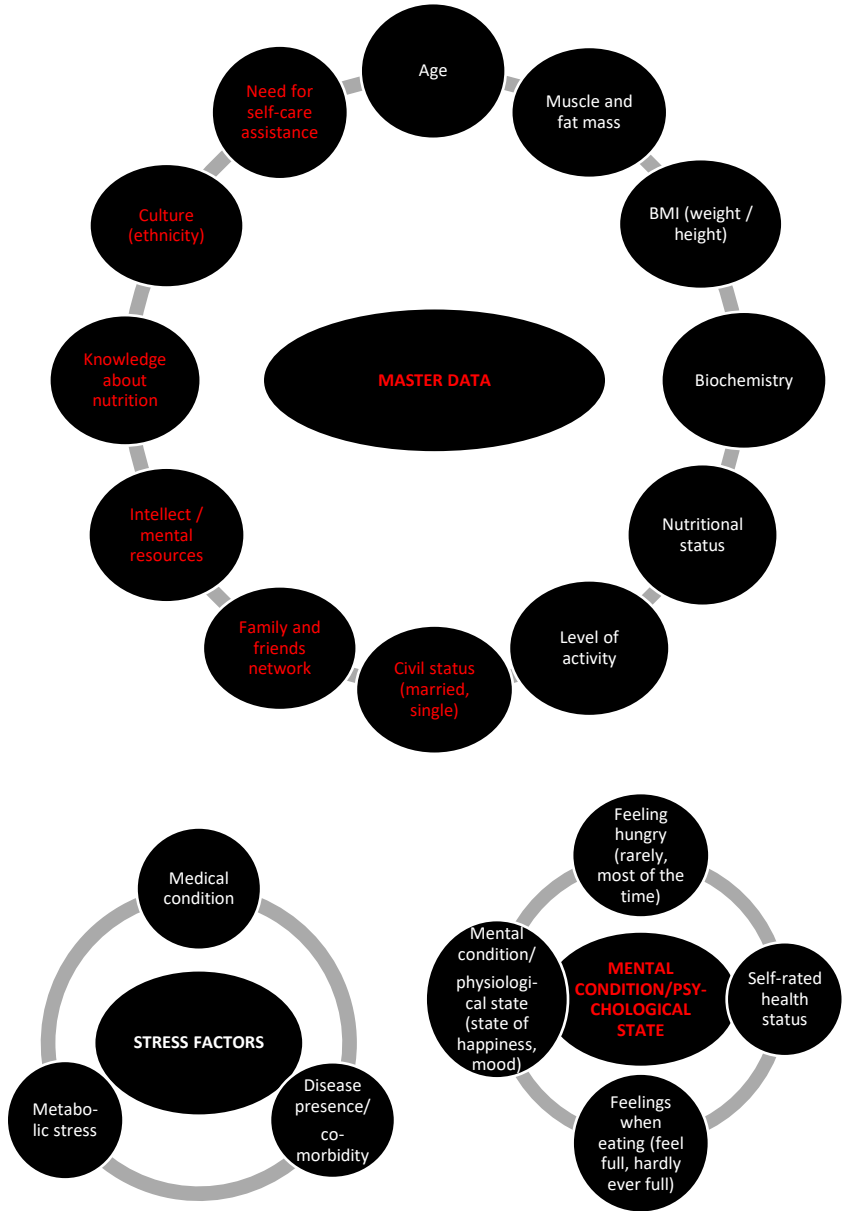
“The meal” refers to the meal itself and how the patients value these daily situations. Four items are placed under this category and considered to be relevant in order to collect the minimum set of data within this area; 1) significance of sensory stimulation (smell, serving “the good meal”), 2) sense of taste, 3) company at meals, 4) significance of dining and mealtime environment.

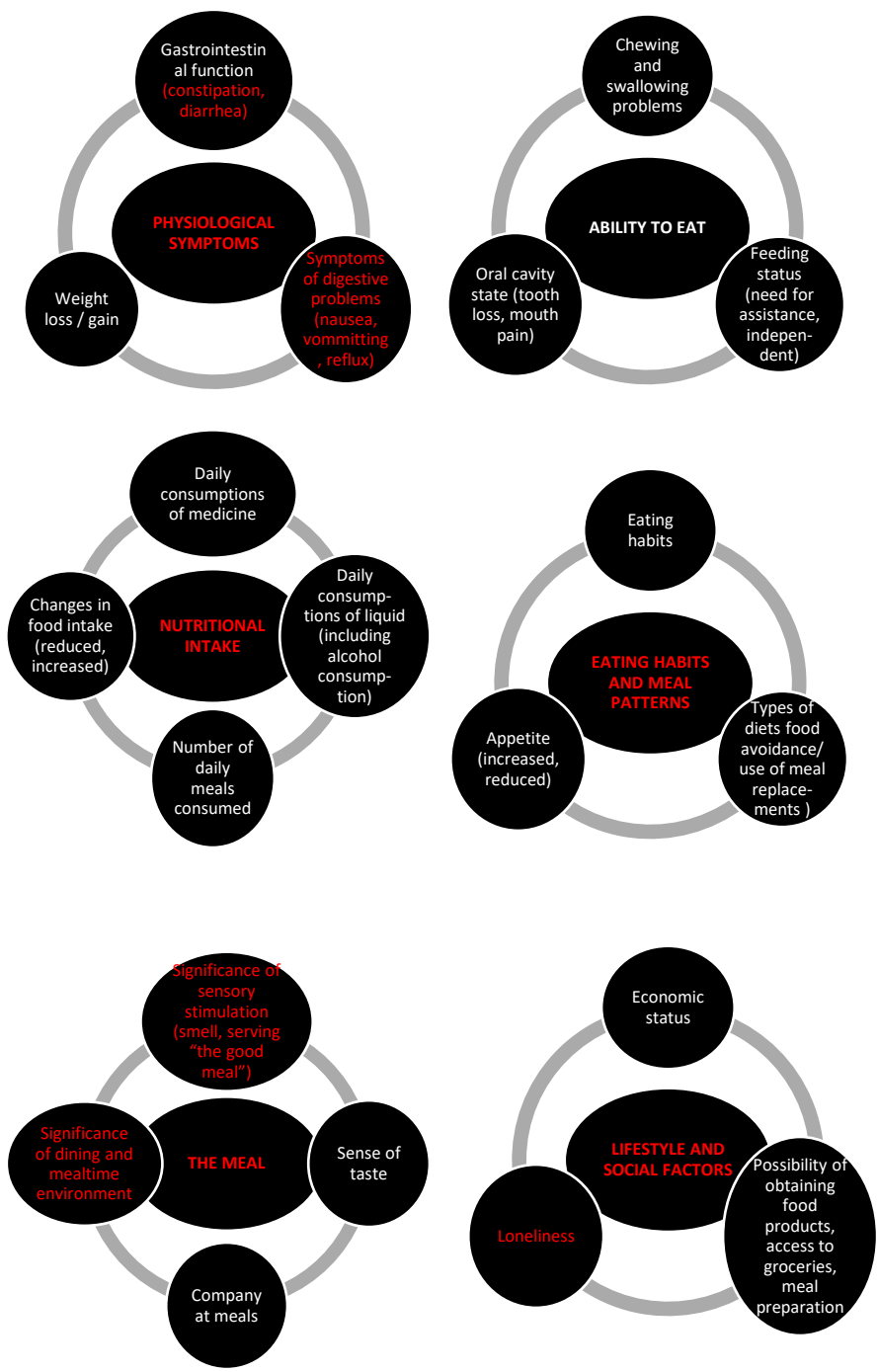
#### **5.4.9. CATEGORY 9: LIFESTYLE AND SOCIAL FACTORS**

The final category are “lifestyle and social factors” which also are considered to be important influential factors and can affect patients nutritional status both negatively and positively: 1) economic status, 2) loneliness, 3) possibility of obtaining food products, access to groceries, meal preparation.

Figure 4 illustrates a revised Nutrition MDS. Writing in *red* represents new categories or items.

Figure 4: Revised model of Nutrition MDS





Source: Model developed by Håkonsen SJ 2019

# CHAPTER 6. DISCUSSION

The current nutritional care and documentation practice in primary healthcare is not optimal. The consequences of poor nutritional care and documentation practices are, among other things, inappropriate and preventable admissions and readmissions that are highly costly for not only the patients but also the society and healthcare system. Thus, the overall purpose of this present dissertation was to develop a frame, a Nutrition MDS, for documentation within the nutrition area that can support healthcare professionals working in primary healthcare in their daily documentation, ensuring high-quality communication regarding nutritional care and treatment. Due to the complexity of developing a frame for documentation within the nutritional area, several methods were used in the development process, as described by the user centered approach. The goal was to not only develop a Nutrition MDS that can be applied and used by clinical practice, but also to investigate current documentation and nutrition competencies among the healthcare professionals intended to use this MDS. All this in order to ensure that the future implementation and subsequent investigation of the effectiveness of an MDS truly targeted the end-users. Furthermore, it will most likely increase the success rate concerning both usability and outcome, such as a higher quality of documentation and improved nutritional care practices.

## 6.1. DISCUSSION OF THE MAIN RESULTS

### 6.1.1. MAPPING END-USERS COMPETENCIES AND THEIR VIEWS ON QUALITY OF CARE (STUDY I & II – PAPER 1, 2 & 3)

*Study I: This aim of this study was to investigate the routines, knowledge and attitudes towards nutrition and documentation in primary health care of a primary healthcare workforce.*

*Study II: The aim of this study is to investigate how primary healthcare professionals' self-perceived competencies within nutrition and documentation and organizational structures influence their daily work and the quality of care provided.*

The cross-sectional study (Study I) and the focus groups (Study II) had a primary focus on displaying and mapping current nutrition and documentation competencies (routines, attitudes and knowledge) among healthcare professionals working in primary healthcare (1, 3). By mapping their competencies and identifying potential gaps and quality flaws it will be possible for managers and organizations to target



and tailor future education and skills training for their employees and improve the quality of nutritional care and documentation (1, 3).

The primary healthcare setting encompasses nursing homes, home care and home nursing. Some patients receive care and treatment for only a short period whereas others are dependent on life-long service, care and treatment (86). The healthcare professionals taking care of and treating patients in their own home or nursing home are varied and diverse in regard to education and include both registered nurses and other healthcare staff with a short or no educational background within healthcare or nursing (87). It could be anticipated that the level of nutrition and documentation knowledge, routines and attitudes would be very varied within the primary healthcare setting. A shorter education could anticipate poorer competencies within nutritional care and documentation in comparison to more highly educated staff (88). The present cross-sectional study displayed knowledge and routines that were indeed varied and inconsistent (1). However, the variations and inconsistency were not between the different healthcare professions as one could anticipate, but were equally present within the individual healthcare professions. In fact, SSAs displayed within a large number of questions a more coherent and uniform level of knowledge and routines than did RNs. These findings are somewhat both in contrast with and consistent with international studies. Several studies have found a poor level of knowledge and practices of primary healthcare workers within different areas and disciplines of the primary healthcare sector and encouraged an upgrading of qualifications (89, 90). However, this is, to our knowledge, the first study that has shown that the healthcare group with the highest education (RNs) displayed a significantly poorer level of knowledge and routines within several areas of nutritional care and documentation in comparison to a healthcare group with a shorter education (SSAs). The group with the lowest educational background (SSHs) overall displayed the lowest level of knowledge, routines and attitudes towards nutrition and documentation when compared to SSAs and RNs (1). When looking upon possible explanations for the differences discovered between these three groups of healthcare professionals it is obviously necessary to look into their workflows and educational background within a Danish national primary healthcare context. In primary healthcare, there has in the past 10-15 years, been an increase in work assignments and the complexity of care and treatment tasks (86). This has led to a sliding of work assignments from RNs to SSAs and in some cases to SSHs, among others due to a lack of RN staff (91). The RN group is undoubtedly the smallest group of health care professionals working in primary healthcare in all communities in Denmark. This can to some extent explain why their daily functions in regard to nutritional care and documentation routines and practices are blurred and why they have difficulties defining what they as a professional group in fact do and what distinguishes them from the SSA group especially (92). The focus group study conducted in this PhD project also supports this assumption (3). One of the main results from the focus group study was the lack of clear nutritional care and documentation responsibilities within and between the different groups of healthcare professionals, and this influences how daily care is performed (3). These challenges in relation to lack of transparency of professional role definition have not only been

discussed and investigated internationally (93, 94) but also in a Danish primary healthcare context and are deemed to be one of the biggest issues within the municipality setting (92, 95). This specific finding and result are therefore one of the most important findings within the focus group study that may potentially explain some of the significantly inconsistent and varied routines and knowledge level that were found in the cross sectional study.

When looking upon and merging the results from the two studies (1, 3) it is evident that the quality of nutritional care and documentation and the prerequisite for delivering optimal and tailored care within the primary healthcare setting are dependent on two overarching factors; internal and external.

## **INTERNAL FACTORS**

Internal factors includes in this context and PhD project the individual healthcare professional's prerequisite and competency to deliver nutritional care and subsequently document daily observations, interventions and evaluations. Competence has been defined internationally as "a complex combination of knowledge, skills, and values displayed in the context of task performance" (96). Skills and values are equated with routines and attitudes in the present studies. Within the primary healthcare setting, Studies I (1) and II (3) have provided an overview of quality flaws and gaps within the internal domain. These areas are centered around the following three quality gaps:

*1: Lack of uniform and systematic communication in the reporting of nutritional care and treatment.* Within this area lies the healthcare professional's challenge with consistent and systematic routines and practices in regard to nutritional care and documentation (1, 3). The daily documentation concerning nutritional observations at the bedside is missing, which leads to a lack of initiating relevant interventions and evaluating upon them. Furthermore, the lack of a precise communication, both verbally and in writing, between different healthcare professionals is influencing the daily workflow leading to misunderstandings and misinterpretations of crucial information (1, 3).

*2: Lack of applying an evidence-based approach in daily clinical decisions.* Within this area lies the healthcare professionals' lack of knowledge within both nutrition and documentation (1, 3). The results from the questionnaire in the cross-sectional study provide an overview of areas of improvement, such as the lack of knowledge regarding existing nutrition screening instruments, the difficulties with interpreting Body Mass Index as well as the difficulties with developing a care plan within nutrition (1, 3). Quality improvements within these specific areas in the context of best available evidence, clinician's expertise and patient's preferences should undoubtedly be focus areas for managers and leaders within the primary healthcare setting when planning training and education (1, 3).

*3: Lack of positive attitude towards nutritional care and documentation.* Within this domain lies the potential for quality improvements that are aimed at the individual healthcare professional's attitude toward nutrition and documentation (1, 3).

All of the above factors are dependent of each other and a quality boost within all three factors is necessary in order to expect practical success and a quality improvement.

## **EXTERNAL FACTORS**

External factors include in this context and PhD project, the organizational structure, composition and workflow. *External* refers to circumstances that the individual healthcare professional is to some extent powerless to alter, but both indirectly and directly influence their daily work and the quality of care that they deliver. These areas are centred on the following three quality gaps:

*1: Lack of coherent and consistent organizational culture.* Within this domain lies the challenges with multiple “mini-organizations”, such as nursing homes, home care, home nursing and specific geographical areas with separate referring managers, within the same municipality. As we found in the cross-sectional study there were significant differences in the quality of care between home care/home nursing and nursing homes, with nursing homes displaying the highest level of nutrition and documentation knowledge, more consistent routines and positive attitudes towards nutrition and documentation (1, 3).

*2: Lack of clinical leadership and priorities.* Within this domain is found the lack of daily support from leaders and managers and the continuous articulation of the importance and relevance of nutritional care and documentation within a hectic, complex and multifaceted setting (1, 3).

*3: Lack of consistent and clear professional role distributions.* As discussed in the previous section this domain refers to the lack of transparency concerning the professionals roles and functions that each of the group of healthcare professionals encompass (1, 3).

Both internal and external factors are highly dependent on a common quality increase and focus. If an organization only focuses on improvements within the internal factors, it is likely that quality improvements will be unsuccessful as the internal factors will inevitably depend on the external factors.

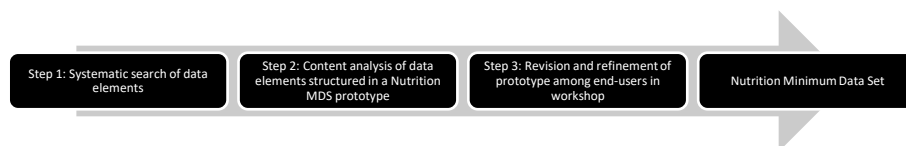
### 6.1.2. THE DEVELOPMENT OF A NUTRITION MINIMUM DATA SET (STUDY IIIA, IIIB & IV – PAPER 4, 5 & 6)

Study IIIa & b: *The aim of this study is to identify data elements to be included in a Nutrition MDS and develop a prototype of a Nutrition MDS specifically for primary healthcare in order to facilitate a standardized approach to the documentation of nutritional care.*

Study IV: *The aim of this study is to assess the feasibility of the developed Nutrition MDS prototype on a selected group of end users. The results from the testing will result in a redeveloped and refined Nutrition MDS*

Two studies were conducted in order to develop a Nutrition MDS for primary healthcare. The two studies consists of a three step process (figure 5)

**Figure 5: Development of a Nutrition MDS in a three-step process**



The three-step process development resulted in a Nutrition MDS specifically for primary healthcare that consisted of thirty nine items structured into nine categories. These items are all solely related to the assessment and observation of patients' nutritional status and depict what can potentially influence, both negatively and positively, their nutritional status. The Nutrition MDS developed in the PhD project does therefore not give a minimum description of interventions or outcomes of relevance to nutrition but solely focuses on diagnosis/assessment. MDS are developed in a various ways with different aims. Some MDS encompass diagnosis, interventions and outcomes and others only one of the mentioned areas. The overall purpose of developing a nutrition MDS that solely focuses on items related to the assessment/diagnosis within the nutritional area is not only to support healthcare professionals in their daily observations and documentation, but also to drive quality improvements within the primary healthcare setting. The developed Nutrition MDS can therefore be used as a tool to measure quality of e.g. documentation and other quality parameters related to either process or outcomes. The Nutrition MDS can be applied by specific departments, wards or even entire organizations as a quality standard tool that depicts specific quality indicators related to the nutritional area. The MDS developed also stimulates a patient centred care and approach, as it captures the individuality of patients. The MDS has been developed through an evidence based approach that comprises the best possible evidence, the clinician's

expertise and the patients' perspective. In order to gather the information that corresponds to the variables within the Nutrition MDS, healthcare professionals must involve, inform and listen to the patients and plan their care and treatment path in close collaboration. This will accommodate the current needs for patient involvement in daily care and treatment. Both nationally and internationally, patients are encouraged to be actively involved in the clinical decision making process (87, 98). However, studies show that the healthcare professionals largely underestimate the patients' preference to play an active and autonomous role in planning of their care and treatment (99, 100). It is anticipated that this Nutrition MDS will support daily patient involvement and help healthcare professionals to consider patients' views and perspectives as valid and valuable.

The current high prevalence rates for malnutrition and the admission and readmission rates due to nutritional related diagnoses and the consequences thereof are indisputable. However, what the results from the three-step process (Figure 5) show is not only the number of terms and variables that are related to nutrition, but also the complexity of nutritional care and treatment. The term nutrition encompasses not only height, weight, intake etc. but also other variables such as economic factors, personal knowledge, psychological state etc. One of the most important results and findings from the development process is therefore the comprehensiveness and complexity of nutritional care, and that healthcare professional should in fact possess great knowledge within the area in order to deliver high quality care. The complexity of nutritional care should ideally be captured in the daily documentation, as there are many variables that can influence the nutritional status and that should be documented. The Nutrition MDS developed in this PhD project possesses some clear advantages over existing MDS, such as the Nursing Home MDS 3.0 Version (65), regarding the level of details within a specific area. MDS are typically quite generic and does not guide healthcare professionals in the complexity of care and treatment that lies within each area. Again, observations and what to document are therefore left for the individual healthcare professional to assess. This Nutrition MDS are more specific and provides a more detailed guidance and overview of variables that as a minimum can influence patients nutritional status in primary health care.

However, the complexity does not only lie within the comprehensiveness of nutritional care but equally as much within the healthcare professionals understanding of each of the variables. The workshop (Study IV) displayed differences in the terms and categories developed by the research team and the workshop participants group. The main differences between these two groups were the wording of the items/variables and categories and the number of categories developed. The card sorting technique that was used can be effective in reflecting how the individuals construct items and categories to reflect their understanding of a certain phenomenon (101). It is well known that experts organize information differently from novices (101, 102). Experts form their wording and categories

based on semantic characteristics fundamental to the domain of their expertise, whereas novices base their wording and categories on syntactic, domain-irrelevant or familiar characteristics (such as alphabetical organization or grouping by shape or colour) (102). Furthermore, novices typically organize their items in more categories than that of experts as their knowledge within a specific domain or area is less abstract than that of experts, who require that the knowledge and information be divided into more categories (101). These theories are consistent with the results from the workshop. The research team which consisted of experts within both the nutritional area and documentation organized their variables in only five categories and used phrasing and wordings of the variables that are well-known within the domain to experts. The non-specific experts, also referred to as novices, needed more categories in order to gain an overview of the total number of variables, and also used what is known as basic level wording and categorization. Rosch (103) defines the basic level as that level that has the highest degree of cue validity which is the conditional probability that an object falls in a particular category given a particular feature or cue (103). This means that novices typically will place a variable such as “age” and “BMI” under a category called “Master Data”, as these variables are consistent with current documentation practices where this type of information are placed under “Master Data”. Hence, they refer it to a well-known and familiar frame that they can visualize, create a picture of or visualize themselves with. The research team on the other hand placed these two variables under the categories “Physiologic Measurement” and “Stress Factors”. What is interestingly here is not the actual placing of the variables, but the fact that the two groups place them differently, and that a translation process of items and categories to a basic level are a necessity. This is crucial knowledge as it underpins the importance of actively involving and constructing such frames and tools in close collaboration with the end users. The consequences of leaving out end users in such a process may be that the developed frame will turn out to be useless and will not be used as the healthcare professionals do not understand either the terms or categories developed. The user centered approach that this PhD project is based upon not only focuses on the development of a nutrition MDS, but also focuses on the end users, that is, the healthcare professionals that eventually should and will apply this MDS in their daily practice. A prerequisite for a successful construction and implementation of any design, documentation systems or tools is the involvement of end users to make sure that whatever you are developing works well, and that a person of average experience can use it for its intended purpose without getting frustrated (70). Specifically, in this project it means that the nutrition MDS should consist of terms, a structure and purpose which are understandable to healthcare professionals with various educational levels in primary healthcare.

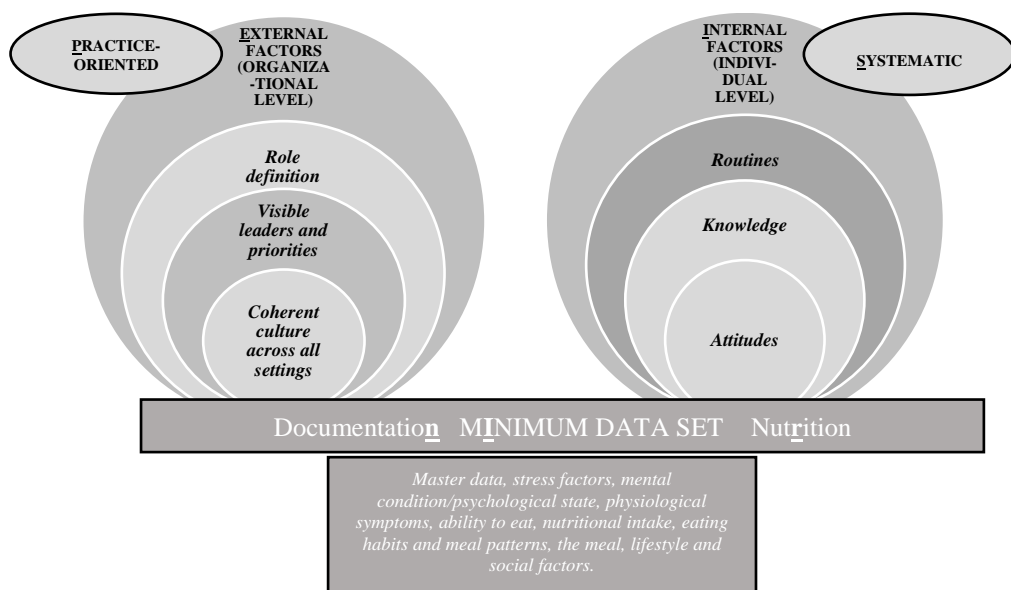
*“...When you have trouble with things—whether it’s figuring out whether to push or pull a door or the arbitrary vagaries of the modern computer and electronics industries—it’s not your fault. Don’t blame yourself: blame the designer....”*  
(Norman, Donald A. “Introduction to the 2002 Edition. ” *The Design of Everyday Things*. New York: Basic, 2002 (104).

### **6.1.3. PUTTING THE “PUZZLE” TOGETHER: WHAT HAVE WE LEARNED?**

A Nutrition MDS seems most likely to achieve its potential if it operates within a multifaceted quality improvement framework. This section will describe the different elements of the quality improvement framework in an overall unit, which are referred to as collecting the different pieces of the PhD project in a “puzzle”.

It is not anticipated that a frame for documentation within the nutritional area, a Nutrition MDS, specifically designed to primary healthcare, as a sole intervention or strategy either can or will solve the issues regarding inappropriate readmissions due to nutrition related problems. It would be naïve to expect that a set of items presented in a structure of categories could, on its own, increase the level of quality to an extent that fewer patients would be admitted or readmitted. It is, however, anticipated that a nutrition MDS in conjunction with other initiatives within a multifaceted quality improvement framework will and can increase the quality of care and treatment. A future prerequisite for the usage of the Nutrition MDS is thorough training and education in the different elements that can lead to a gathered quality improvement in a clinical setting. Implementation of the MDS will solve nothing unless it, as a minimum, is done in close interaction and consideration with the quality gaps and flaws that we have identified in Study I and Study II. Based on the four studies in the PhD project the INSPIRE model has been developed and aggregates the different studies and their main results in a model for inspiration and use in clinical practice.

**Figure 6: The INSPIRE model** (Internal, documentationN, Systematic, Practice-oriented, mInimum data set, nutRition, External)



*Source: Model developed by Håkonsen SJ 2019*

The INSPIRE model is a model that primary healthcare can be inspired by when planning competence development and skills training within nutritional care and documentation for their health care staff. The model seeks to encompass the main results from the PhD project and therefore also seeks to accommodate the overall clinical purpose of the project; using this model primary healthcare are provided with information on how to structure their documentation within the nutritional area in order to support the healthcare professionals daily communication and to ensure continuity of nutritional care and documentation. Furthermore, the model provides insights into specific elements of quality gaps among healthcare professionals and organizational structures that may be beneficial to be primary focus of future quality improvement strategies within the primary health care setting.

The keywords within the INSPIRE model are **I**nternal, **d**ocumentation**N**, **S**ystematic, **P**actice-oriented, **m**Inimum data set, **nutR**ition, **E**xternal. Internal and external refers to the previously mentioned factors that may influence the delivery of high quality nutritional care and documentation. Nutrition and documentation are core areas of daily care and treatment within the primary healthcare setting and are the overall focus of this model. The Minimum Data Set is the overall frame that provides themes for education and training (the main categories), quality indicators and a structure and content for daily documentation. Systematic refers to the fact



that competence development and skills training of healthcare professionals should be done on a regular basis in order to accommodate the complexity and continuous developments within the nutritional area and documentation. Practice oriented means that the training and education always must have a practice oriented approach so that the healthcare professionals with various educational levels can understand and apply the knowledge in their daily practice.

## **6.2. DISCUSSION OF METHODOLOGICAL ISSUES**

By using both quantitative and qualitative elements within the frame of a user-centered approach this dissertation gained both a broad and profound insight into the different phases of developing a Nutrition MDS. The results from the process of developing a Nutrition MDS would not have been as comprehensive if a single method had been used.

### **6.2.1. THE PHD PROJECT**

As described in the background section, this PhD project chose the user-centered design approach as an overall frame for the development of a Nutrition MDS. Typically, this process consists of 4 phases; 1) Identify who the primary users of the product are and the context. 2) Identify the requirements of the product and what it consists of. 3) Start an iterative process of product design and development. 4) Get feedback from the end-users on the product. (70). The phases are described in quite general terms and the approaches and methods applied with each of the phases are dependent on the individual problem and project. The UCD approach is an iterative process that has been tailored and adjusted by many different organizations and researchers within different contexts and settings. Kent State University is one of many who have developed a more specific model and process within the UCD approach (105). The LUMEN (Learn, Understand, Imagine, Evaluate and Inform) model is designed to navigate and assist researchers in the development especially of applications, websites and devices and consists of five steps; 1) **Learn**: Gather all information that can inform the project and details about the users and contexts. 2) **Understand**: Create models, that display and utilize the knowledge learned. These developments will inform the design principles used throughout the process. 3) **iMagine**: Begin to create specific solutions, such as blueprints and prototypes. 4) **Evaluate**: Constant testing must take place to ensure that the solution works as intended. Based on the results, adjustments can then be made to improve the final solution. 5) **iNform**: Create a product that clearly and concisely communicates the solution and decision rationale (105).

The studies conducted in this dissertation are consistent with the phases described in the LUMEN model and are therefore a positive validation of the methods chosen to develop the Nutrition MDS. Table 2 depicts the different studies in this PhD project in conjunction with the LUMEN model.

**Table 2: Overview of methods within PhD project** (Model from Kent State University – LUMEN model (105))

| Phases             | (L)earn  | (U)nderstand   | I(M)agine  | (E)valuate   | I(N)form   |
|--------------------|--|--|--|--|--|
| <b>Definitions</b> | Discovery phase. Learn and/or identify the user and context.   | Models are developed to clarify and communicate the data   | Building on the understanding gained in the previous stages.   | As the design and product evolves, testing must take place to ensure that is works as intended.        | The final stage is to create a product that clearly and concisely communicates the solution and decision rationale.      |
| <b>Methods:</b>    | <p><b>Study I:</b> Survey of primary health care professionals (end users) competencies regarding nutrition and documentation.</p> <p><b>Study II:</b> In-depth focus groups of end users competencies concerning nutrition and documentation.</p> | <p><b>Study IIIa:</b> Scoping review of existing nutritional screening instruments, views of nutrition and documentation experts and patients on what is viewed as appropriate to assess about adults' nutritional care in primary healthcare.</p> | <p><b>Study IIIb:</b> The data from the scoping review were analysed using the content analysis approach. The prototype of a Nutrition Minimum Data Set was developed.</p> | <p><b>Study IV:</b> The prototype was evaluated and revised through end user involvement workshop.</p> | <p>The final Nutrition Minimum Data Set and a conceptual model of strategies for implementation – the INSPIRE model.</p> |

The core aspect of applying a UCD approach in any project is the integration and close collaboration with end-users. The methods chosen in this PhD project all encompasses the involvement of end-users (healthcare professionals) either directly where the healthcare professionals' "voices" are represented and heard or indirectly where secondary literature concerning their preferences is sought and incorporated. The table below (Table 3) explicitly displays where in the different phases and methods that the healthcare professionals' experiences and inputs were incorporated and represented either directly or indirectly.

**Table 3: User involvement in PhD project**

| Phases                  | (L)earn  | (U)nderstand                         | I(M)agine   | (E)valuate                   | I(N)form  |
|-------------------------|--|--------------------------------------|---|------------------------------|---|
| Methods                 | <b>Study I:</b><br>Survey<br><br><b>Study II:</b> In-<br>depth focus<br>groups | <b>Study IIIa:</b><br>Scoping review | <b>Study IIIb:</b><br>prototype of a<br>Nutrition MDS | <b>Study IV:</b><br>Workshop | Final Nutrition<br>Minimum Data<br>Set and a<br>conceptual<br>model of<br>strategies for<br>implementation. |
| End-user<br>involvement | X (Directly)   | X (Indirectly)                       | X (Indirectly)  | X (Directly)                 | X (Indirectly)  |

The overall construction of the PhD project therefore seems both in line with methods and approaches recommended within the UCD approach as well as in line with methods and approaches that are both reasonable and sensible to apply when developing models or tools for a specific group of users and context.

### 6.2.2. THE CROSS-SECTIONAL STUDY (STUDY I)

A cross-sectional study was conducted in this PhD project in order to gain an overview of nutrition and documentation routines, knowledge and attitudes of healthcare professionals working in primary healthcare (1). The study had purely descriptive purposes and a questionnaire based survey was applied. The results from the study generated a number of assumptions that were further explored in the focus group study.

The sample consisted of healthcare professionals working in primary health care and the three groups of healthcare professionals were registered nurses, social and health service assistants and social and health service helpers. This is to our knowledge the first study that has mapped the competencies within nutrition and documentation of these three collaborative groups. Unlike other studies that have investigated e.g. routines or knowledge level within other domains and areas, this study does not simply refer to the healthcare professionals as the “the primary care workforce” as a whole (106). Analyses were made separately for all the groups of professionals and settings hence making the results transparent and consistent. Due to the differences across countries in the composition of the primary care workforce, it is important to clarify what educational background each of the groups in the workforce has in order to generalize the results to other countries and for other countries to make use of the data.

Among the limitations to the cross-sectional study may be that it was only conducted in one municipality and not a number of municipalities within different

geographical locations. However, the municipality concerned consists of both rural and urban areas with a diverse and varied population. The population of the municipality are therefore largely considered representative of that of Denmark as a whole. Furthermore, the response rate of 32% is unfortunately considered low and are a challenge to the generalizability and representativeness (1, 107). A nonresponse bias of 68% is undoubtedly a blow to the study design and potentially to the findings. However, responses were made from healthcare professionals from all education levels, all geographical areas and all settings (nursing home, home care, home nursing). Hence, there were representatives from all areas and domains of interest to the study and a response rate of 32% might not be as alarming as if there had been non-responders from one or more areas of domains of interest. Several efforts were made to increase the response rate, such as frequent reminders, an online survey system with easy access and well-informed leaders and managers who supported and encouraged participation in the study (1).

### **6.2.3. THE FOCUS GROUP STUDY (STUDY II)**

In order to examine and gain deeper understanding about the findings from the cross-sectional study a qualitative focus group study was carried out (3, 108). Two focus groups were carried out with a total of 14 participants representing healthcare professionals with an RN, SSA and SSH educational background. The participants were not only selected to represent education, but also to represent a variation of number of years educated, number of years within a primary healthcare setting and current employment in a primary healthcare setting (3). Two focus groups were conducted, thereafter data saturation was obtained. This meant that the research team did not expect that further focus groups would add new data or understandings to the topics and nor did it expect that new coding would appear. Data saturation is a concept that is quite controversial as there is no golden standard or power calculations for assessing it (109). A sampling plan was made before the conduct of the focus groups. This plan consisted of a number of practicalities that essentially determined and supported the research team's decision about data saturation. A first step in the sampling plan was to make use of the local coordinator in the easy-access of and recruitment of the participants. Subsequently, the inclusion criteria enabled us to recruit the participants who would provide us with the richest information. Finally, this plan – as well as the inclusion criteria – was evaluated in between the two focus group in order to adapt or refine the sampling plan. No changes were however made in between the two focus groups.

By applying an inductive content analysis in the study, the purpose was not to cover everything about these topics, but rather to present certain patterns relevant to the aim, which the research team believed was obtained to the fullest with the two focus groups. The research questions were sufficiently answered and new knowledge was generated about the topics. By using an interview guide the focus groups were guided in a consistent and systematic manner and the questions worked well in

terms of getting the participants to open up and share their experiences. It was obvious that questions with more specific guidance such as “what are your specific areas of responsibility within nutrition and what other collaborators and colleagues do you also think have a nutritional care responsibility?” produced more reflections and discussions among the participants than question such as “tell me what comes to your mind when I say documentation?”. The quality of the interview was judged to be good, as an experienced researcher participated in both focus groups. The PhD student was inexperienced in the research technique and had only previously conducted one pilot focus group interview with the presence of the experienced researcher. This allowed for the PhD student to gain feedback and constructive criticism on the interview technique, physical presence and overall handling of the focus groups.

As the overall purpose of this study also was to gain insights into the social interactions among a group of participants that share a common social frame of reference, that being their employment in primary health care, the focus group method was chosen. The participants questioned each other and shared experiences, which provided the research team with valuable information on their daily practice, as well information about their disagreements, agreements and how they responded to each other’s statements and opinions. The group aspect enabled the participants to help each other to think and formulate their attitudes and opinions and in that sense, it provided us with a dynamic interview. However, the benefits of the focus groups may also have downsides. Some participants may monopolize the time during the focus group or suppress or mock other participants’ opinions. The participants may affect each other in a negative way so that those participants with opinions or preferences other than those of the majority will adjust and adapt to the majority. However, the interviewer and experienced researcher only experienced this behavior a few times and made efforts to create a safe and friendly environment in the focus group and made sure that all participants had an opportunity to speak up and express their opinions.

Alternatively, individual interviews could have been used as a method of getting participants perspectives on nutrition and documentation in a clinical practice (108). Individual interviews can provide access to another form of knowledge than focus groups. In individual interviews, the researcher is on a one to one basis with the interviewee, and he or she can speak without interruption in a more confidential space. This means that one can gain a deeper insight into the person's reality and can access his or her stories. This could have been a preferable method to accommodate some of the quieter participants. However, as the main purpose was to be a “fly on the wall” to a social field and its interpretations, norms and behaviours focus groups method was undoubtedly the best choice. It was therefore accepted that the participants to some extent influenced each other negatively.

#### **6.2.4. THE PROTOTYPE DEVELOPMENT OF A NUTRITION MDS (STUDY IIIA & IIIB)**

Two studies were conducted in order to develop a Nutrition MDS prototype (5, 6). A systematic scoping review is a method used to comprehensively map evidence across a range of study designs in an area, with the aim of informing future research practice, programs and policy. Since no universal agreement exists on terminology, definition or methodological steps the methodology described by the Joanna Briggs Institute was used (83). The scoping review was conducted as a first step to develop a Nutrition MDS prototype (5). The purpose was to systematically identify items and related variables of relevance to assessing patients' nutritional status. This was done by collecting validated nutritional screening instruments within the primary healthcare area, statements from experts within the nutritional area and patients' perspectives on what is relevant to assess about nutrition. Only data from nutritional screening instruments and experts' opinions was found, none from the patients' perspective (5). The scoping review is a systematic process which is documented both in a protocol and a subsequent review, and a strict and thoroughly described methodology was used which are considered as a strength in this process (4, 5, 83). Not only does the strict methodology allows other researchers or clinicians to duplicate or update the systematic literature search, but it also allows for different types of evidence within a specific area of interest to be included within the same comprehensive review. Within the scoping review process, it is not mandatory according to the Joanna Briggs Institutes guidelines, that the quality of the literature included be critically appraised by a validated tool (83). This was also not done in the developed scoping review, as it was assessed that it was not a crucial criteria in order to gain an overview of current evidence within the area. Furthermore, an inclusion criterion was that the nutritional screening instruments included were validated within the concerned context and therefore lived up to a specific quality criterion.

The initial primary focus of the scoping review protocol and full scoping review was to map evidence in order to develop a MDS within nursing, also known as a Nursing MDS (4, 5). The reason for this was that the PhD project initially had a purely nursing focus due to clinical practicalities and a request from clinical practice only to focus on nursing. However, within two years the clinical reality changed which meant that the managers and leaders were no longer divided and that the work force within nursing and home care was managed by the same leaders and not two separate institutions as previously. The municipality accordingly requested the inclusion of other health care professions, such as the SSH and SSA, in the PhD project and for the Nutrition MDS to be applicable to other collaborators. This was not deemed an issue or challenge as the scoping review did not include any nursing specific nutritional screening instruments and nor did it only seek expert knowledge within the nursing profession. Therefore, the evidence base found in the scoping review is considered generic and not profession specific. The change in focus from a

Nursing MDS to a more profession generic Nutrition MDS was therefore estimated to be unproblematic.

The qualitative content analysis that was conducted in the second step of the prototype development was chosen due to both the nature of the data retrieved from the scoping review and the focus of developing a prototype consisting of a number of variables structured within several categories (6). The content analysis approach is a research method that describes the presence of certain words or concepts within texts or sets of texts (76, 77). Texts can be defined broadly as books, book chapters, essays, interviews, discussions, newspaper headlines, articles speeches or any type of communicative language. The type of data retrieved from the scoping review consisted both of nutritional screening instruments and consensus statements which can be considered to be a simple form of textual data. Due to the simplicity and objectivity of the data included, only the manifest content of the data, and not the latent content, were analysed (76). An inductive approach was chosen as categories and themes emerged from the raw data through repeated examination and analysis. The categories are revised, eventually reduced to main categories and checked in respect to their reliability (79). Within the frame of the Nutrition MDS prototype construction, the research group decided before the conduct of the study and planning of the analysis that the MDS should be structured into some form of a tree structure or diagram. The tree structure is a widely used data type structure, especially within computer science and the development of documentation tools or frames. Even though, this project did not intend to develop specific set-ups for computers or IT systems, it was still considered an advantage to draw parallels to well-known structures within the healthcare system. The content analysis approach seemed to be the most appropriate method to serve the purpose of the prototype development as it reduces the items and variables identified into meaningful groups of categories and seeks some understanding of the phenomena of interest.

#### **6.2.5. THE FINAL DEVELOPMENT OF A NUTRITION MDS (STUDY IV)**

Workshop are defined as a short, intensive educational program for a relatively small group of people within a specific field of interest (110). Workshops as research methodology focus on fulfilling participants' expectations to achieve something in relation to the area of interest. The workshop is also specifically designed to fulfil a research purpose; to produce reliable and valid data about the area of interest (111). Within the PhD project, the aim was to apply the workshop approach as a research methodology to assess the feasibility and usability of the Nutrition MDS prototype and to develop a final Nutrition MDS. Furthermore, the workshop also aimed to co-interact and collaborate with end users, managers, leaders, specialists within nutrition and documentation to engage them in the process and product.

It is considered an advantage that the assignment for the workshop participants consisted of a fixed assignment with an evidence based approach. The participants had to reflect upon results from an already developed prototype and had the unique opportunity to dissect and be critical of this structure, the variables and categories. Given these circumstances and the fact that only one workshop was conducted, this allowed the participants to work very systematically and focused from the start. This also meant that the participants could present their suggestions and considerations in an elaborate and well-thought format at the end of the workshop. The fact that the participants consisted of a varied group of healthcare professionals, managers and specialists within nutrition and documentation is also regarded as a strength, as the dynamics within the group and the respect for each other's competencies within the group was very high and acknowledged. It could, however, be expected that if the workshop were conducted with other participants in another setting and setup the results of the workshop would be quite different. Therefore, it is important to acknowledge that the findings from the workshop only comment on the specific context that they have been developed within. However, they point to some important trends, tendencies and questions that could be examined further within a more systematic frame, such as the differences between experts and novices and the lack of items and variables related to patients' preferences.

Ideally, the results from the workshop, which are referenced at the final Nutrition MDS, should be tested and assessed for usability and feasibility among individual groups of end users. This means that a workshop consisting purely of SSH, a workshop with SSA and finally a workshop with RN could be conducted in order to better validate the results from the different healthcare professionals perspectives, without the interference of other healthcare groups. The workshop methodology shares many characteristics with focus group research, and the considerations in regard to sampling, participants characteristics, moderator skills should overall be the same within the two research types. A workshop is however typically more active and collaborative than that of focus groups, which is why the workshop methodology is still recommended within this type of area of interest and research where ideas and creative solutions are the focus.

The workshop was a very explorative approach where it was attempted to bring the prototype into "play" in a clinical reality of clinicians. By doing so and applying this type of methodology it became clear that the prototype Nutrition MDS is indeed a prototype that requires local adaption and anchoring prior to implementation. To evaluate the extent to which our results from the workshop can apply or can be transferred to other settings and other countries is up to the reader. However, it can be assumed that there would be some changes to the final Nutrition MDS if a workshop were conducted in a country with a different staff composition and organizational structure than in Denmark.



### **6.3. FINAL CONSIDERATIONS**

In order for the entire PhD project as well as the studies and results within to be useful, it is first and foremost very important to acknowledge what in fact have been developed and what is yet to come. This PhD project is a development project aiming to develop a Nutrition MDS for primary healthcare and identify strategies that can help support a successful implementation. The next step would be to conduct a pilot test and assess the effectiveness of implementing a Nutrition MDS in primary healthcare on a selected number of process and outcomes related measures, such as quality of documentation, admissions and readmissions. Subsequently, the process might be repeated and actions to improve the development process, for example, could be taken.

This PhD project has taken the first crucial step in the quality improvement process to improve documentation within the nutritional area among the primary care workforce in order to enhance communication and continuity of care and treatment.

# CHAPTER 7. CONCLUSION

The overall purpose of this dissertation was to develop a minimum data set within the nutritional area specifically for primary healthcare based on a user-centered design approach and processes.

Based on the studies included in this dissertation the following can be concluded:

A cross-sectional study and focus group study found that the current routines, attitudes and knowledge of nutrition and documentation within the primary care workforce were inadequate. The inadequacy was primarily related to three overall factors: lack of uniform and systematic communication in the reporting of nutritional care and treatment, lack of applying an evidence based approach in daily clinical decisions and a lack of positive attitude towards nutritional care and documentation. Furthermore, a number of factors that influence the healthcare professionals' ability to deliver high-quality nutritional care and documentation on a daily basis were identified: lack of coherent and consistent organizational culture, lack of clinical leadership and priorities and lack of consistent and clear professional role distributions.

In order to develop a Nutrition MDS a three step strategy was conducted: firstly, a scoping review was developed. Secondly, a content analysis of the items and variables identified in the scoping review was conducted in order to develop a nutrition MDS prototype. Thirdly, a workshop where the prototype was the focus of activity was conducted in order to develop a final Nutrition MDS. The final MDS within the nutritional area specifically developed for primary healthcare consisted of thirty nine items and variables structured into nine categories that can have either a direct or indirect impact and influence on patients' nutritional status.

In summary, a prerequisite for the successful development of a frame for documentation within the nutritional area that aims to support healthcare professionals' clinical decisions on a daily basis is the identification of the specific context and the subsequent mapping of current gaps within the quality of nutritional care and documentation. Based on the results from the studies included in the dissertation the INSPIRE model was developed to inform stakeholders and primary healthcare on a conceptual model that aggregates main results from the PhD project and inspire and inform clinical practice of potential areas that should be the attention of quality improvement strategies.



## CHAPTER 8. IMPLICATIONS FOR PRACTICE

The results from this PhD project have generated both scientific and public attention and discussion. They add important knowledge to an area that is challenged by great flaws in quality and is the current focus of attention in primary healthcare. The findings from the PhD project are very applicable in a Danish context. Based on the already published results, the municipality that was a part of the PhD project has initiated several actions and interventions targeted its healthcare professionals' competencies in order to increase quality of care. It has initiated a step-by-step program for the increase of competencies of the staff where the first focus was to ensure greater consistency and systematic routines in their daily practice. As a tool to measure its quality of care and whether improvements have taken place it will distribute the questionnaire from Study I on a regular basis to its healthcare professionals. Hence, the questions from the questionnaire are used as quality indicators and a quality improvement tool. Furthermore, as a result of the duplicate publication of Study I in Danish in the Danish Journal of Nursing (2), attention has been brought to the important results from the study. The focus of inadequate competencies among primary healthcare professionals has resulted in the study papers (1, 2) being a part of the curriculum for Special Education for RN in Community Based Nursing at the University College in Northern Jutland. An e-learning module has been developed on the basis of Study I and its results. An article in the Danish Journal of Nursing where healthcare professionals from the Municipality concerned and the PhD student were interviewed was published in February 2019. The focus was on the current initiatives that the municipality has launched arising from the results of the PhD project and its overall focus.

The results from the studies in the PhD project can also assist primary healthcare providers with organizing their local educational activities, e.g. the cross-sectional study showed that there were no obvious differences between the routines, knowledge level and attitudes of RNs and SSAs. This could imply that future training and education in a local context does not have to be targeted on an individual profession but instead can be held as generic training courses targeted on professionals' roles and functions. Furthermore, the variables and categories identified in the scoping review and workshop provides practice for an overview of training topics, e.g. the education and re-training of staff could be divided into nine sessions corresponding to the categories developed. By doing so, these organisations provide themselves with a list of topics to educate and train the healthcare professionals in.

Primary healthcare faces future complex and comprehensive challenges in regard to tasks and functions. It is therefore essential that the healthcare professionals that are employed within this setting are competent and skilled in living up to these

requirements. The results from this dissertation can aid the primary healthcare sector in prioritizing and setting goals for quality improvement strategies in the area of nutrition and documentation.

## CHAPTER 9. IMPLICATIONS FOR RESEARCH

The present dissertation has developed a MDS in relation to assessment and diagnosis within the nutritional area. One can partially identify derived interventions based on the assessment. However, the MDS should preferably be developed specifically within nutritional interventions and outcomes to support the clinical decision making process start to finish. The methodology and approaches applied in this dissertation could be transferred to the future development of new MDS within intervention and outcomes in the nutritional area.

The developed Nutrition MDS could obviously be refined in a larger scale study consisting of several municipalities within a national context in order to increase generalizability. This could be done in conjunction with larger organizations such as the Union of Municipalities in Denmark in order to increase uptake of and successful implementation of the MDS. Furthermore, it is now feasible to conduct a pilot study based on the PhD project. The pilot study would provide information on the appropriateness of the Nutrition MDS and make it possible to revise the already developed work or continue with a full-scale randomized controlled trial.

This future work is very important in order to increase competencies and increase documentation and nutritional care across municipalities in order to ensure continuity of care even if patients are transferred or visiting another municipality. The quality of care should not be municipality dependent but the same across all settings and disciplines in Denmark.



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# CHAPTER 11. APPENDICES

**APPENDIX A:** Questionnaire (Routines, Knowledge and Attitudes towards Nutrition and Documentation in Primary Health Care)

**APPENDIX B:** Interview guide

**APPENDIX C:** Informed consent (focus groups)

**APPENDIX D:** Informed consent (workshop)



# CHAPTER 12. APPENDIX A:

## QUESTIONNAIRE

### Questionnaire (Routines, Knowledge and Attitudes towards Nutrition and Documentation in Primary Health Care)

#### Domain 1) demographic data consisting of nine questions:

|  |
|--|
| 1. Gender? Female (1) Male ____ (2) ____   |
| 2. Age? _____year  |
| 3. What is your education: Nurse (1) ____ other (2) ____   |
| 4. How many years have you been educated?_____   |
| 5. Have you completed a Bachelor's degree? Yes (1) ____ No (2) ____  |
| 6. Have you completed a diploma? Yes (1) ____ No (2) ____<br>If yes, please state which and when you exited the program (years): |
| 7. Have you completed other relevant health profession: Yes (1) ____ No (2) ____   |
| 8. In which district are you employed? District 1____District 2____District 3____District 4____                                  |
| 9. Within which setting are you employed? Nursing home____Home care/home nursing____   |

#### Domain 2) routines in relation to nutrition and documentation consisting of 10 questions:

|  |
|--|
| 10. Do you assess newly referred patients' nutritional status within the first 14 days of the first visit?<br>(10 = always, 0 = never) |
|--|

|  |
|--|
| 11. Are newly referred patients weighed at the first visit? (10 = always, 0 = never)   |
| 12. Do you plan regular assessments (eg. Every 14 days, every 3 months.) of the patient's nutritional status? (10 = always, 0 = never)   |
| 13. Do you report nutritional issues in the care plan? (10 = always, 0 = never)  |
| 14. Do you report about the patient's nutritional issues if there IS a problem? (10 = always, 0 = never)   |
| 15. Do you report about the patient's nutritional issues if there is NOT a problem?<br>(10 = always, 0 = never)  |
| 16. Do you contact the patient's General Practitioner if you suspect a nutritional problem or have identified a nutritional problem? (10 = always, 0 = never)  |
| 17. Do you report nutritional intake in patients who are estimated to be at nutritional risk?<br>(10 = always, 0 = never)  |
| 18. Do you assess the patient's need for energy (Calories, carbohydrates, protein, fat, etc.) Before starting nutritional therapy in patients you assessed to be at nutritional risk? (10 = always, 0 = never) |
| 19. To what extent is it routine (through careplans) that patients at nutritional risk are being weighed?<br>(10 = always, 0 = never)  |

**Domain 3) knowledge in relation to nutrition and documentation consisting of 11 questions:**

|  |
|--|
| 20. Do you find it difficult to identify people who are at nutritional risk?<br>(10 = very difficult, 0 = not difficult)   |
| 21. Do you need screening tools to identify people who are at nutritional risk? (yes/no)   |
| 22. Are you familiar with locally recommended screening tools? (yes/no)  |
| 23. Do you use the locally recommended screening tools? (yes/no)   |
| 24. Do you consider patients with chronic diseases as a vulnerable groups and therefore perform nutritional screening as fixed routine? (10 = always, 0 = never) |
| 25. Do you consider palliative and/or cancer patients as a vulnerable groups and perform nutritional screening as fixed routine? (10 = always, 0 = never)        |

|  |
|--|
| <p>26. Do you find it complicated to develop a careplan with in nutrition?<br/>(10 = very complicated, 0 = not complicated)</p> <p>If YES to question 26 (ticked a box between 1-10), please state why it is complicated to develop a careplan within nutrition:</p> |
| <p>27: To what extent do you consider that your training as a nurse have given you a reasonable basis for making decisions and taking action on patient nutrition-related issues?<br/>(10 = to a high degree, 0 = not at all)</p>                                    |
| <p>28. To what extent do you think that malnutrition (including both under- and over-nutrition) is a frequent condition in home care? (10 = to a high degree, 0 = not at all)</p>  |
| <p>29. Can you calculate BMI (Body Mass Index)? (yes/no)</p>   |
| <p>30. Can you interpret BMI (Body Mass Index) (10 = to a high degree, 0 = not at all)</p>   |

**Domain 4) attitudes in relation to nutrition and documentation consisting of 10 questions:**

|  |
|--|
| <p>31. Should one of the following healthcare professionals evaluate all newly referred patients' nutritional status at the first visit? 1a: Registered Nurses 1b: Social-and Health Service Assistants 1c: Social- and Health Service Helpers (10 = always, 0 = never)</p>  |
| <p>32. Should there be a careplan for routine evaluation of patients' nutritional status?<br/>(10 = always, 0 = never)</p>   |
| <p>33. 3. How often do you think that one of the following healthcare professional should weigh newly referred patients at the first visit? 1a: Registered Nurses 1b: Social-and Health Service Assistants 1c: Social- and Health Service Helpers (10 = always, 0 = never)</p>   |
| <p>34. Do you feel obliged to discuss nutrition with the patients that have an identified or suspected nutrition-related problem? (10 = to a high degree, 0 = not at all)</p>  |
| <p>35. Do you think that nutrition and dietary advice to your patients is an efficient use of your professional time? (10 = to a high degree, 0 = not at all)</p>  |
| <p>36. 6. Should nutrition and dietary advice to your patients solely be performed by other health professionals (such as dieticians, diet consultants, practitioners) rather than: 1a: Registered Nurses 1b: Social-and Health Service Assistants 1c: Social- and Health Service Helpers (10 = always, 0 = never)</p> |
| <p>37. If no to question 36, do you ever refer patients to other health care professionals for nutritional advice?</p>   |
| <p>38. Do you know where you need to report the nutritional problems of the patient, including establishing careplans?</p>   |

39. To what extent do you think that documentation on nutrition is too time and resource consuming?  
(10 = to a high degree, 0 = not at all)

40. To what extent do you feel that the time for the reporting is adequately adapted and incorporated  
into your work? (10 = to a high degree, 0 = not at all)

# CHAPTER 13. APPENDIX B:

## INTERVIEW GUIDE

| RUTINER   | VIDEN   | HOLDNINGER   |
|---|---|--|
| Når I hører ordet ernæring og at arbejde i hjemmeplejen/hjemmesygeplej en   | Når nu vi snakker om ernæring og fokusområder er det oplagt måske lige at gå et skridt tilbage og spørge:   | Anser I ernæring som en del af Jeres arbejdsområde?  |
| – hvad tænker I så?   | Hvordan bliver I opmærksomme på hvis en patient er i risiko for fejlnæring eller måske er fejlnæret? ( <i>Gør I brug af screeningsinstrumenter eller andre redskaber?</i> ) | Er det vigtigt? Hvorfor er det vigtigt? Prioriteres det? Prioriteres det ikke?   |
| Prøv at fortælle mig lidt mere om hvad I forstår ved ernæring?  | Og hvad gør I så?   | Nu har vi talt om ansvarsfordelingen i forhold til at dokumentere - Kan I sige noget om ansvarsfordelingen I forhold til ernæring?   |
| Kan I komme med et eksempel på hvordan I arbejder med ernæring?   | Kan I fortælle om en situation hvor nogle observationer hos patienten virkelig fik alarmklokkerne til at ringe hos Jer?   | <b>ORGANISATIONEN</b>  |
| Hvad er Jeres specifikke daglige opgaver eller rutiner i forhold til ernæring?  | Hvordan handler I på Jeres observationer – kan I give mig nogle eksempler?  | I har jo forskellig uddannelsesmæssig baggrund – har I forskellige ansvarsområder?   |
| Er ernæring noget i tænker på dagligt?  | Prøv at fortælle mig om en situation hvor I har talt om ernæring med borgeren?  | Er denne ansvarsfordeling klar for Jer alle sammen?  |
| Hvordan er det dagligt på dagsordenen?  | Hvorfor gjorde I det og hvad talte I om?  | Er det nedskrevet og præciseret? Introduceres man til dette?   |
| Hvordan taler om I om det?  | Hvordan sikrer I opfølgning og evaluering?  | Hvad er Jeres specifikke ansvar og hvilke andre samarbejdspartnere eller kolleger ser I også har et ansvar og i så fald hvilket ansvar? Er der nogen som har hovedansvaret for ernæring eller er det alles ansvar (patienten, pårørende, kolleger, læge, diætist)? |
| Kan I fortæller hvilken betydning ernæring kan have for patienterne?  | Hvilken baserer I jeres råd og vejledning til borgerne på?(evidens / erfaring)  | Sig lidt om hvilken betydning dokumentationen har når I kommunikerer med Jeres kolleger?   |
| I det spørgeskema som I alle har udfyldt vedr. Jeres rutiner omkring ernæring og dokumentation ser det ud til at der en meget stor variation i besvarelsenerne. | Prøv at nævne nogle af de sidste råd I har givet til Jeres borger?  |  |
| Dvs der i kommunen er meget forskellige rutiner i forhold til om der udarbejdes handleplaner indenfor ernæring, systematisk iværksættes handlinger,             |   |  |



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| <p>dokumenterer omkring det i journalen osv.</p> <p>Hvordan oplever I det i Jeres dagligdag? Hvad betyder det for Jeres arbejde?</p> <p>Når nu vi snakker om kontinuitet eller sammenhængende patientforløb – hvordan sikrer I så at dette finder sted?</p> <p>Hvilke overvejelser gør I Jer i forhold til dette?</p> <p>I spørgeskemaerne nævnes det af flere bl.a. at det er svært at få handlinger udført hos borgeren og sikre opfølgning.</p> <p>At der mangler kommunikation med aftenholdet osv.</p> <p>Hvordan oplever I det i Jeres dagligdag? Hvad betyder det for Jeres arbejde?</p> <p>De her forskelle i rutiner osv - har det nogen betydning for patienterne?</p> <p>Hvilken betydning kan det have for borgeren hvis et forløb ikke er sammenhængende eller der ikke er kontinuitet i forløbet?</p> <p>Handleplaner/fokusområder indenfor ernæring - Hvad synes I om det og er det noget I bruger?</p> <p>Hvornår synes I det er nødvendigt at udarbejde handleplaner indenfor ernæring?</p> <p>Hvordan kan en typisk handleplan indenfor ernæring indeholde eller dreje sig om?</p> <p>Kan I komme med nogle</p> | <p><b>SAMARBEJDE</b></p> <p>Hvis en kollega f.eks. har udarbejdet en handleplan eller oprettet et fokusområde indenfor ernæring uden præcise handlingsanvisninger eller den er svær at følge og forstå – hvad gør I så?</p> <p>(Snakker I og reviderer den med den pågældende kollega? Undlader at bruge den? Reviderer den selv uden inddragelse af den person som har udarbejdet den?)</p> <p>Hvad tænker I om feed-back?</p> <p>Prøv at sige noget om hvordan I giver feed-back (sparrer med hinanden) til hinanden i dagligdagen og i særdeleshed i forhold til ernæring og dokumentation?</p> <p>Når I nu bliver opmærksom på at borgeren har et ernæringsmæssigt problem – hvad gør I så?</p> <p>Henvender I Jer til nogen? (hvad gjorde I før diætisten kom?)</p> <p>Hvordan bruger I hinanden som kolleger i forhold til at sparre med hinanden omkring en patients ernæringstilstand?</p> | <p>Er det Jeres primære kommunikationsform?</p> <p>Hvilke fordele eller ulemper er der ved dokumentationen?</p> <p>Kan der være noget med systematik der sikrer man får det hele med og er en måde at kommunikere med samarbejdspartnere på?</p> <p>Understøtter det Jeres rutiner og sikrer at pleje og behandlingen dokumenteres?</p> <p>Nu har vi talt om handleplaner og fokusområder– alt det omhandler selvfølgelig det at dokumentere.</p> <p>Hvem har ansvaret for dokumentation?</p> <p>Kan I sige lidt om ansvarsfordelingen i forhold til at dokumentere omkring ernæring (ikke kun at udarbejde handleplaner?)</p> <p>Hvis alle har ansvaret – er der så forskellige variationer i ansvaret?</p> <p><b>KONTEKSTEN</b></p> <p>I forhold til ernæringspleje- og behandling, er der så nogle begrænsninger eller nogle fordele ved at arbejde i primær sektor (i patientens eget hjem)?</p> <p>Kan I give mig et eksempel fra egen praksis, hvor I evt. skulle ”tænke-ud-af-boksen” grundet de fysiske forhold eller vilkår, for at sikre, at patienten fik den bedste ernæringspleje- og behandling?</p> |
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| <p>eksempler på hvornår det sidst har været relevant for Jer at udarbejde eller have en handleplan indenfor ernæring? Og hvilke områder indeholdt det?</p> <p>Hvilken betydning tænker I egentlig at handleplaner har?</p> <p>(Kan I sige lidt mere om det (hvorfor/hvorfor ikke?)</p> <p>Har det nogen betydning?</p> <p>Synes I det er vigtigt?</p> <p>Prøv at fortælle mig lidt mere om hvad I forstår ved dokumentation?</p> <p>Kan I fortælle hvordan I arbejder med dokumentation i Jeres dagligdag?</p> <p>Kan I sige lidt om hvordan I egentlig dokumenterer?</p> <p>Har I nogle særlige rutiner herfor?</p> |  |  |
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# CHAPTER 14. APPENDIX C: INFORMED CONSENT (FOCUS GROUP)

## Information til deltagere om ph.d.-projektet *"Rutiner, viden og holdninger*

*om ernæring og dokumentation blandt sundhedspersonale i Slagelse Kommune"*

Jeg henvender mig til dig med henblik på, din deltagelse i ph.d.-projektet *"Udvikling af et minimum data sæt indenfor ernæringsområdet i primær sektor"*.

Projektet gennemføres ved Institut for Medicin og Sundhedsteknologi ved Aalborg Universitet af undertegnede, ph.d.-studerende, Sasja Jul Håkonsen. Hovedvejleder er Preben Ulrich Pedersen, Professor MSO, PhD, og medvejledere er Merete Bjerrum, lektor, PhD og Ann Bygholm, Professor, PhD.

Gennem ph.d.-projektet undersøges, hvilke rutiner, hvilke holdninger og hvilken viden sygeplejersker, social-og sundhedsassistenter og social- og sundhedshjælpere har i forhold til ernæring og dokumentation af ernæring i primær sektor. Med din deltagelse bidrager du til, at kortlægge dels hvordan praksis ser ud lige nu og her, og dels være med til at identificere og kortlægge hvilke elementer, hvilket indhold og hvilken struktur der skal indgå i et minimum data sæt indenfor ernæringsområdet (dokumentation). Denne viden kan derudover danne grundlag for strategier, der kan understøtte udviklingen af et minimum data sæt indenfor ernæringsområdet.

Du vil blive inviteret til et interview, der varer ca. 1,5 time, og det foregår på Torvegade 15 i Slagelse og vil foregå som gruppeinterview af dig og 5-7 af dine kolleger. Interviewet består i, at jeg vil stille nogle spørgsmål, som giver dig og dine kolleger mulighed for at fortælle mig om Jeres helt specifikke og unikke holdninger, Jeres rutiner og Jeres viden i forhold til ernæring og dokumentation af ernæring. Der vil tillige deltage en observatør for at sikre, at interviewet foregår i overensstemmelse med etiske retningslinjer.

Interviewet optages på diktafon. Alle oplysninger behandles fortroligt, dvs. at oplysninger anonymiseres, og det vil kun være mig og mine vejledere, der kender din identitet. I ph.d.-afhandlingen og artikler vil data være anonymiseret, således at andre ikke kan genkende enkeltpersoner i resultaterne.

Det er frivilligt, om du vil deltage i undersøgelsen, og du kan på et hvilket som helst tidspunkt trække dit tilsagn tilbage. Det har ingen konsekvenser i forhold til din ansættelse, hvis du vælger ikke at deltage i undersøgelsen.

Ønsker du at deltage, bedes du underskrive vedlagte samtykkeerklæring og aflevere den til mig ved interviewets start.

Har du spørgsmål angående interviewet eller din deltagelse heri, er du meget velkommen til at kontakte mig på tlf. 61677268 eller mail [sjh@cfkr.info](mailto:sjh@cfkr.info)

Med venlig hilsen

Sasja Jul Håkonsen, Ph.d.-studerende, cand.cur.

### Samtykkeerklæring

Jeg bekræfter hermed at have modtaget mundtlig og skriftlig information om ph.d.-projektet "*Rutiner, viden og holdninger om ernæring og dokumentation blandet sundhedspersonale i Slagelse Kommune*", og jeg indvilliger i at deltage.

Projektet udføres af:

*Sasja Jul Håkonsen, ph.d.-studerende, cand.cur.*

*Aalborg Universitet, Institut for Medicin og Sundhedsteknologi*

*Telefon: 61677268*

*E-mail: [sjh@cfkr.info](mailto:sjh@cfkr.info)*

Jeg giver hermed mit samtykke til at deltage i ovenstående forskningsprojekt og dermed, at Sasja Jul Håkonsen interviewer mig om hvad mine rutiner, holdninger og viden i forhold til ernæring og dokumentation er.

Jeg er informeret om og har forstået at:

- det er frivilligt at deltage
- jeg til enhver tid, uden begrundelse, kan trække mit udsagn om at deltage tilbage, også selvom jeg har underskrevet samtykkeerklæringen
- alle oplysninger om mig vil blive behandlet **fortroligt** og **anonymt**

Navn:

Dato:

Underskrift:

# CHAPTER 15. APPENDIX D: INFORMED CONSENT (WORKSHOP)

**Information til deltagere om Phd project:** *"Udvikling af et minimum data sæt indenfor ernæringsområdet i primær sektor".*

Projektet gennemføres ved Institut for Medicin og Sundhedsteknologi ved Aalborg Universitet af undertegnede, ph.d.-studerende, Sasja Jul Håkonsen. Hovedvejleder er Preben Ulrich Pedersen, Professor MSO, PhD, og medvejledere er Merete Bjerrum, lektor, PhD og Ann Bygholm, Professor, PhD.

Formålet med projektet er at udvikle en ramme for et struktureret minimum data sæt i den daglige dokumentation indenfor ernæringsområdet i primær sektor.

I alt tre overordnet formål indgår i projektet;

- 1) Udvikling af en metodisk tilgang til at udvikle minimum data sæt samt udvikle et specifikt minimum data sæt indenfor ernæringsområdet.
- 2) Udvikle et spørgeskema vedrørende sygeplejerskers, social- og sundhedsassistenter og social- og sundhedshjælperes viden, holdninger og rutiner i forhold til ernæring og dokumentation. Derudover vil fokusgrupper blive afviklet mhb på at uddybe og reflektere over evt. sammenhænge identificeret i spørgeskemaerne.
- 3) Udvikle en præliminær model for en struktureret dokumentation (minimum data sæt) indenfor ernæringsområdet vha workshops (lokal arbejdsgruppe). Du er inviteret til studie 3 som er afholdelse af en workshop med dine kolleger. Workshoppen varer ca. 4 timer og vil bestå af dels en præsentation og aktivt workshoparbejde som I vil blive præsenteret nærmere for på dagen. Det foregår på Torvegade 15 i Slagelse. Alle oplysninger behandles fortroligt, dvs. at oplysninger anonymiseres, og det vil kun være mig der kender din identitet. I ph.d.-afhandlingen og artikler vil data være anonymiseret, således at andre ikke kan genkende enkeltpersoner i resultaterne.

Det er frivilligt, om du vil deltage i undersøgelsen, og du kan på et hvilket som helst tidspunkt trække dit tilsagn tilbage. Det har ingen konsekvenser i forhold til din ansættelse, hvis du vælger ikke at deltage i undersøgelsen.

Ønsker du at deltage, bedes du underskrive vedlagte samtykkeerklæring og aflevere den til mig ved start af workshoppen.

Har du spørgsmål angående interviewet eller din deltagelse heri, er du meget velkommen til at kontakte mig på tlf. 61677268 eller mail sjh@cfkr.info

Med venlig hilsen

Sasja Jul Håkonsen, Ph.d.-studerende, cand.cur.

### **Samtykkeerklæring**

Jeg bekræfter hermed at have modtaget mundtlig og skriftlig information om ph.d.-projektet *"Udvikling af et minimum data sæt indenfor ernæringsområdet i primær sektor – en workshop"* og jeg indvilliger i at deltage.

Projektet udføres af:

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*E-mail: sjh@cfkr.info*

Jeg giver hermed mit samtykke til at deltage i ovenstående forskningsprojekt og dermed, at Sasja Jul Håkonsen anvender data fra workshoppen.

Jeg er informeret om og har forstået at:

- det er frivilligt at deltage
- jeg til enhver tid, uden begrundelse, kan trække mit udsagn om at deltage tilbage, også selvom jeg har underskrevet samtykkeerklæringen
- alle oplysninger om mig vil blive behandlet **fortroligt** og **anonymt**

Navn:

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