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Titlepage

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ABSTRACT

INTRODUCTION

This paper presents an international cross-sectional study on Person-Centred Communication with older people receiving healthcare (COMHOME). Person-centred care relies on effective communication, but few studies have explored this with a specific focus on older people. The main aim of the COMHOME study is to generate knowledge on person-centred communication with older people (> 65 years) in home healthcare services, radiographic and optometric practice.

METHODS AND ANALYSIS

This study will explore the communication between care provider and older persons in home care services. Home healthcare visits will be audio recorded (n=500) in Norway, the Netherlands and Sweden. Analyses will be performed with the Verona Coding Definitions for Emotional Sequences (VR-CoDES), the Roter Interaction Analysis System (RIAS) and qualitative methods. The content of the communication, communicative challenging situations as well as empathy, power distance, decision-making, preservation of dignity and respect will be explored. In Norway, an additional 100 encounters, 50 in optometric practice (video recorded) and 50 in radiographic practice (audio recorded), will be analysed. Furthermore, healthcare providers' self-reported communication skills, empathy, mindfulness and emotional intelligence in relation to observed person-centred communication skills will be assessed using well-established standardised instruments.

ETHICS AND DISSEMINATION:

Depending on national legislation, approval of either the central ethical committees (e.g. nation or university), the national data protection officials or the local ethical committees (e.g. units of home healthcare) was obtained. Study findings will be disseminated widely through peer reviewed publications and conference presentations. The research findings will add

knowledge to improve services provided to this vulnerable group of patients. Additionally, the findings will underpin a training programme for healthcare students and care providers focusing on communication with older people.

STRENGTH AND LIMITATIONS OF THE STUDY

- The study will explore person-centred communication with old people (> 65 years).
- The settings are home health care, radiographic and optometric practice.
- Nursing staffs' communication will be compared in three European Countries.
- Key issues in emotional as well as task-focussed communication will be highlighted.
- The findings will be used in education of health care students and providers.

INTRODUCTION

Communication is a basic competence and a cornerstone in healthcare encounters [1-3]. Through verbal and nonverbal communication, patients express their symptoms and concerns, as well as their expectations, hopes and fears for treatment and care [2,4]. Healthcare providers explore the patient's situation by listening and asking questions, they discuss care and treatment alternatives with the patient and they provide the patient with information. These aspects of communication are essential for empowering patients and improving their health and quality of life. Insufficient communication caused by the healthcare provider's inability to be attentive and truly meet the patient, may result in unnecessary suffering in older people [5]. Despite the importance of high quality communication [6], few studies have systematically examined communication with older people in the setting of healthcare services frequently used by this group of people, i.e. home healthcare, radiography and optometry.

Health policies aim at active ageing and for people living at home as long as possible [6-10]. However, the rapid increase of age-related diseases [11,12], increases the complexity of procedures and the need for individualised care delivered by all healthcare professionals to older people. There is growing evidence that person-centred care have a positive impact on different patient outcomes such as patient empowerment as a way of strengthening participation and autonomy [13], patient satisfaction [14], health [15], and length of hospital stay [16]. Person-centred care is especially important for older people in order to optimise functional health, ensure independence and provide high quality care [17,18].

Communicative abilities of older people may deteriorate because of impaired hearing and vision loss, as well as cognitive impairment [19,20]. Care providers' communication behaviours encouraging patient choice and participation in decision-making can make a significant impact on older people's sense of control of their own life [21]. Different

healthcare contexts may influence the patient-provider communication as shown in home healthcare [22-25], clinical settings in hospital [26,27], in technical settings such as in a radiology department [28,29] and in a commercial setting where the patient is also a customer, such as in optometric practice. A study including both home healthcare, optometry and radiography may provide important insight into the influence of contextual factors on patient-provider communication and into factors that are transferable to a wider context. Despite the importance of communication in health care [30,31], few studies have systematically examined communication with older people in need of home healthcare services [23,32]. To our knowledge, no studies have examined communication with older people using optometry, very few including radiographers' communication when performing advanced imaging procedures [33-35], and none targeting the older patient group. More than 20 per cent of the patients encountered in optometric practice are 65 years or older [36]. Further, a rapid increase in the use of advanced, diagnostic imaging procedures like Computed Tomography (CT) is occurring in all western countries [37], and a dramatic increase of such tests is documented as being currently used when examining older people [38]. To increase the participation of older people, and to improve their care and the healthcare services in general, more knowledge will facilitate training of person-centred communication in home healthcare as well as commonly used healthcare services such as radiography and optometry.

In the COMHOME study, we will compare person-centred communication with older people in home healthcare practices in three European countries; Norway, Sweden and the Netherlands, as well as explore communication practice in optometry and radiography in Norway and develop a training programme for healthcare workers and students to enhance communication with older people.

Theoretical framework and concepts

Person-centred care and person-centred communication

During the past two decades, person-centred care and related concepts such as patient involvement and patient participation are receiving attention. The concept of person-centred care used in research and policy documents are linked to high quality care [9,10,39-41]. However, there is no consensus on one definition of person-centred care and there is a need for theory development [13].

A reoccurring theme in definitions of person-centeredness is the ethical idea that patients should be "treated as persons" [42] that is; the patient is viewed in the context of her/his own social world, is respected and is involved in her/his own care [43].

The theoretical point of departure for this study is the theory and philosophy of Carl Rogers [44] and his person-centred approach based on principles and values of acceptance, caring, empathy and sensitivity in human interactions. Essential to this and other theories on person-centred care is the providers' ability to communicate and interact with the patient in a person-centred way [3,42,45]. Person-centred communication aims specifically at ensuring the healthcare provider's attention to the whole person and includes: sharing information and decisions, providing compassionate and empowering care, and being sensitive to patient needs [46]. Person-centred communication has also been identified as a prerequisite to elicit person-centred care [45]. In this study, we define the concept of person-centred communication as a set of skills of the health provider demonstrated through verbal, para-verbal and nonverbal communication that facilitates person-centred care. Traits of the healthcare provider such as empathy, mindfulness and emotional intelligence probably influence both the care delivered and communication behaviour, and therefore these traits need to be taken into account.

Empathy and empathic accuracy

Empathy is regarded as a basic competence in all helping relationships [3,47]. Intermediate outcomes of empathic communication such as trust, mutual understanding, medication adherence, social support, and self-efficacy are factors that are shown to correlate with positive health outcomes and should therefore be promoted in encounters with patients [48]. However, studies have shown that empathic communication is not sufficiently applied in clinical practice [49,50].

Mindfulness and Emotional Intelligence

In this study we specifically address two concepts closely related to person-centred communication and care: Mindfulness and Emotional Intelligence. We apply the concept of mindfulness as a psychological concept defined as the process of drawing novel distinctions by being present here and now [51]. The degree of mindfulness may affect the healthcare provider's ability to observe what is going on and to act according to what is being noticed [52]. Furthermore, healthcare providers who score high on mindfulness are shown to be more person-centred when they communicate, and they have more satisfied patients [53,54]. Emotional intelligence is defined as the ability to recognize, express and regulate feelings and emotion in oneself and in others and to utilize feelings and emotions to motivate, plan and develop actions. Emotional intelligence is closely related to interpersonal skills and communication skills which are important in clinical work and professional practice [55,56]. To date, we do not know how emotional intelligence corresponds with communication practice in home healthcare, optometric or radiographic practice.

Measurement of person-centredness

We define person-centredness by observation of communication patterns using established coding schemes. The Verona Coding Definintion for Emotional Sequences (VR-CoDES) [57]

identifies moments in the interaction regarding patient´s emotional expression that needs exploration or confirmation in the form of empathy and understanding from the provider. The Roter Interaction Analysis System (RIAS) codes all communication and distinguishes task-focused and socio-emotional focused behaviour [58]. To date we have found no measurement instrument, neither a rating scale nor a questionnaire, that is suitable for measuring person-centred communication and person-centred care in the home health setting. Most instruments developed focus on older people with cognitive impairments in nursing homes [59,60], or the consultation in a hospital setting [61]. There is a need to evaluate the quality of the interaction with and care given to older people and a need for development of a rating scale for person-centred care and communication with older people.

Aims of the study

This article describes the research protocol of the COMHOME study. The COMHOME project aims at providing knowledge on current practice in healthcare for community-dwelling older people. Findings will underpin a research-based online training platform for person-centred communication with older people (age ≥ 65) targeting healthcare providers and healthcare students of different professions.

To achieve the aims of this study we are going to explore how and to what extent healthcare providers practice person-centred communication in three different settings: home healthcare, optometric practice and during CT examinations. We will compare communication with older people and identify which factors facilitate or hinder person-centred communication such as time constraints, characteristics of the patient, the tasks and the provider. Furthermore, we will explore the relationship between person-centred communication and healthcare providers' self-reported communications skills, level of empathy, mindfulness and emotional intelligence and develop a rating scale for person-centred communication and care.

METHODS AND DESIGN

Study design

This is an international cross-sectional study with a descriptive and comparative design.

Settings and samples

The study includes three studies; study one targets communication in home healthcare in the three participating European countries. In Norway, additional two studies target communication during CT examinations (study 2) and in private optometric practices (study 3). For all three studies the patient samples comprises older people (≥ 65 years) living at home who utilize these health services. All patients included are able to give informed consent, excluding persons with diagnosed dementia.

Nurses, nurse assistants, radiographers and optometrists with a contract of long-term or permanent employment are eligible to participate in the study to ensure that participants are present and to allow for planning of data collection. A maximum variation sampling strategy to recruit healthcare providers ensures variation in gender, age, time of employment and professional experience.

The data collection utilizes three different sources. The communication between older people and care providers is audio-recorded for study 1 and 2 and video recorded for study 3. Questionnaires yield information about participating care providers including demographics, self-efficacy of communication skills, aspects of empathy, mindfulness and emotional intelligence (Table 1). The local computer-based registration systems of the respective units of healthcare services provide anonymous data on representativeness of participants compared to all patients in the unit, their service needs and healthcare workers (staff composition, age, education).

All observational data is coded with the Roter Interaction Analysis System (RIAS) [58] and the Verona Coding Definitions of Emotional Sequences (VR-CoDES) [57,62]. Study 3 includes additional data on patient-centred communication described in section Study 3.

Study1. Current practice in home healthcare: Targeted care providers are registered nurses and nurse assistants working in home healthcare. Units of home healthcare services are located in two municipalities in Norway, one municipality in Sweden and in the Netherlands in different parts of the country, providing around 500 audio recordings of encounters between older people and home healthcare providers.

Study 2. Person-centred communication during CT examination: Targeted care providers are radiographers (n=10) performing CT examinations and five of their encounters each with older outpatients (n=50).

Study 3. Person-centred communication in optometric practice: All private optometric practices in Drammen and Hallingdal municipalities receive invitation to participate in the study. The study sample will consist of practicing optometrists (n=10) and five of their encounters each with older patients (n=50).

The optometric encounters are additionally analysed using Four Habits Coding Scheme (FHCS) [63] and the older people's reports on optometrists' communication and preference of communication are collected using the Four Habits Patient Questionnaire [63].

Procedure for participant recruitment

The management at the specific units of healthcare services recruit the healthcare staff. Information about the study and participation is presented by members of the national research teams both written and orally to all healthcare providers at routine staff meetings in each unit. A staff member at the different sites will collect written informed consent. Participants, older people and care providers, can withdraw from the study at any time and have their data deleted.

Study 1. Current practice in home healthcare: Care providers employed at each site serve as gatekeepers in contact with older people who receive home healthcare. The staff will recruit the patients in accordance with the procedure developed and presented by the research team including three steps: 1) Identification of older people that fit the inclusion criteria. 2) Delivery of standardized written and oral information about the study to eligible patients during routine visits. 3) Collection of written informed consent from patients who agree to participate after a minimum of 24 hours after given the information.

Study 2. Radiographer communication practice during CT examination: Eligible older people will receive oral and written information about the study from the receptionists of the department on the day of examination. The participating radiographers collect written, informed consent from the patients who choose to participate before the CT examination starts.

Study 3. Person-centred communication in optometric practice: Eligible older people will receive oral and written information about the study from the staff of the participating optometric practice. The optometrists collect written, informed consent from the patients before the consultation starts.

Questionnaires and coding systems

Questionnaires: In addition to demographic data, questionnaires include information about healthcare providers` self-reported communication skills, empathy, mindfulness and emotional intelligence including: “Clear-cut communication with patients” [64], Jefferson Empathy Scale [65,66], Langer 14 items scale [51], and Trait Emotional Intelligence Questionnaire–Short Form [67] as showed in table 1.

Insert table 1 about here

Coding systems for verbal communication - *VR-CoDES C-C (Cues and concerns):*

The coding system has a detailed description of *concerns* (expression of a negative emotion), and specification of seven different ways of hinting or cueing emotionally important topics [57]. VR-CoDES C-C has been validated with patients having chronic pain (fibromyalgia) and found to have a very high degree of sensitivity and specificity, giving a real picture of patients' major health concerns and also of other life concerns [68].

VR-CoDES –P (Provider responses): In the coding system [62], care providers' responses to the cues and concerns of older people are coded according to two major conceptual dimensions of the coding system: whether or not the response explicitly refers to the cue/concern and whether or not the provider provides space for further disclosure of the cue or concern. The classification system provides four main classes of provider responses. Each class may be subdivided providing 17 separate categories.

Roter Interaction Analysis System (RIAS): RIAS is a coding system extensively used in communication research, mostly in physician-patient consultations, but also in other professional settings such as nurses [32], radiographers [69], nurse assistants [70], pharmacists [71] and veterinary practice [72]. All utterances made by the care provider and the older person during a visit are coded and classified [58,73]. An utterance is defined as the smallest discriminable speech segment to which a coder can assign a classification and that expresses or implies a complete thought. RIAS has 39 exclusive and exhaustive categories; 13 are socio-emotional and 26 task-focused. Examples of coding categories are open-ended medical or therapeutic questions, close-ended medical or therapeutic questions, reassurance, and agreement. Several studies in the participating countries have used the system [74-77].

Four Habits Coding Scheme (FHCS): Four Habits Coding Scheme is a rating scale, which combines evaluative and descriptive elements of communication behaviour [78] and provides an outcome measure for communication skills [79]. The coding scheme scores 23 items organised into four habits: investing in the beginning, eliciting the patient's perspective,

demonstrating empathy and investing in the end of the visit. The score is the sum of the 23 items scored on a 5-point scale, from one = not very effective to five = highly effective. A study on communication training of physicians in Norway has used The Four Habits program [63].

Qualitative analysis

Qualitative methods such as content analysis [80] will be used on a sub-set of data to further provide in-depth analyses on good and effective communication patterns and challenging communication situations. The qualitative analyses will also aim to discover characteristics of person-centred communication. These analyses will illuminate both the older person's expressions and the care provider's expressions in the encounters. The analysis of verbal communication will focus on discourses found in the sending and receiving of words and cues, and directed towards patterns of discourse of power and vulnerability in the communication. Patterns of differences or similarities on dominance or subordination may be compared, for example, as well as other expressions of power and vulnerability found in the analysis [81]. We will also use gender- and intersectional theories [82]. The analysis will identify and analyse challenging communicative situations with respect to the content of these situations. Furthermore, 10-15 transcribed audio recordings will be analysed according to principles of Conversation Analysis (CA). One focus in this analysis will be on expressions of power and vulnerability in the communication. Another focus is the understanding of interaction when using a CA methodology compared to the understanding of interaction using RIAS or VR-CoDES. By this approach, CA can contribute to a development of methodological understanding [83].

Statistical analyses

Information about the respective healthcare units including patients and demographics on staff will describe the sample. Observational data from audio- and video recordings, and the

questionnaires will provide data at an individual level. Descriptive statistics are used to describe characteristics of the verbal communication in home healthcare, during CT examinations and in optometric practice in terms of frequency and distribution of categories within the two observational methods, RIAS and VR-CoDES, and from the questionnaires. Variation is expected to be found in both care providers' standards and care providers' levels of training within and across participating countries, similar to earlier studies on competence of staff and staffing levels at nursing homes [22,84]. Differences in communication behaviours between professionals within groups of care providers can be expected on the basis of different levels of education [22]. Moreover, differences are expected to be found between professionals in different healthcare settings. To examine these aspects more closely, analyses aimed at determining differences in staffing standards, educational levels or professional background have significant and distinct effect on communication behaviour are performed. This will be explored statistically using linear mixed models (LMM). LMM will allow comparison of data at different levels, and thus to investigate whether communication behaviours and/or characteristics differ between groups of care providers, units, settings or countries. LMM will also explore the influence of factors extracted from the questionnaires and the communication expressed as results from RIAS and VR-CoDES. This can identify possible correlations between given individual characteristics of reported communication skills, empathy, mindfulness and emotional intelligence and communication behaviours. For all statistical analysis, a p-value of .05 or less are considered statistically significant.

ETHICS AND DISSEMINATION

Depending on national legislation, approval of either the central ethical committees (e.g. nation or university), the national data protection officials or the local ethical committees (e.g. units of home healthcare) was obtained. The study has been ethical reviewed in a) Norway: Norwegian Social Science Data Services (NSD) no 36017 and Regional Comittees for

Medical aand health research Ethics (REK) No. 2013/1626/REK sør-øst B, b) Sweden: Regional ethics committee in Uppsala, Dnr 2014/018 and c) The Netherlands: Commissie Mensgebonden Onderzoek, Radboud University Medical Center; No. 2014/045.

The sampling of care providers and patients, the storage, flows and access of the data are in accordance with legislation and safety routines in each country and the collaborating research institutions respectively, to safeguard the security, privacy and confidentiality.

Study findings will be disseminated widely through peer reviewed publications and conference presentations. The research findings will add knowledge to improve services provided to this vulnerable group of patients. Additionally, the findings will underpin a training programme for healthcare students and care providers focusing on communication with older people.

DISCUSSION AND CONCLUSION

We expect that comparing communication and interaction between older people and healthcare providers in different settings and countries will provide valuable insight into aspects of person-centred communication. All three countries have a healthcare system of high quality; they have different organizational models of healthcare services and have to meet the challenges relating to an ageing population and limited healthcare resources while aiming for providing person-centred healthcare. This cross-national design allows us to explore patterns and attributes of communication practice within and between participating countries and enables us to make suggestions for best practice that can serve as examples for future healthcare and healthcare education.

Theoretical contribution

Person-centred healthcare and person-centred communication is a complex issue and this may be one of the reasons for the many definitions of the concepts. We believe that this project will make a significant contribution to research and theory of person-centred communication

between care providers and older people both by providing descriptions of communication behaviour in practice, by identifying important traits relating to care providers, and by examining what factors facilitate or hinder the fulfilment of person-centred communication. Findings will highlight aspects important to increasing the participation and enhancing the self-determination of older persons as well as decreasing unnecessary distress. All of this may, in turn, contribute towards improving the overall health and well-being of older persons. The providers' self-reported rating of communication skills, empathy, mindfulness and emotional intelligence will give a broad description of traits shown to have an impact on communication in healthcare settings. The combination of data from the observational analysis of the visits, rating scales and the questionnaires can give indications of the traits of the healthcare provider that are important to facilitating person-centred communication.

Methodological contribution

There are many ways to analyse communication in healthcare. We have chosen to use two instruments, VR-CoDES and RIAS, and additionally FHCS for optometric practice. RIAS is a commonly used instrument for describing provider-patient communication and has been used in numerous studies in various healthcare contexts [58]. RIAS has previously been used to identify person-centred talk between patients and physicians identified as the doctor's ability to include conversation pertaining to psychosocial aspects and lifestyle, engaging with the patient in partnership-building utterances, welcoming patients' questions and being attentive to patients' information about psychosocial aspects and lifestyle [39]. The VR-CoDES scheme identifies patients' utterances that contain concerns and the providers' responses to the patients' concerns [57]. Exploring how these emotional moments unfold and are met in practice contributes towards describing person-centred communication as shown by Eide and colleagues, who explored fibromyalgia patients' emotional utterances and nurses' responses in an out-patient clinic context [26]. Research shows that the physician's ability to

communicate effectively with older patients impacts on patients' emotional outcomes and decreases hospitalization [85]. The ability of the healthcare provider to respond to older peoples' emotional concerns may be important both to ensure health and wellbeing, but also to enable older people to cope with daily tasks and live at home as long as possible. Exploring different dimensions of the communication between the older person and the care provider in home healthcare, during CT examinations and optometric examination can shed light on what facilitates or hinders person-centred communication in different health contexts.

Implications for practice

Further analysis of the real-life visits using qualitative methods can provide a deeper understanding of the mechanisms in play in the health provider-patient relationship. Hence, the combination of both observational and qualitative methods might provide a broad and rich picture of how communication between healthcare providers and older people naturally occurs. The quality and level of person-centred communication in these visits is essential for the well-being and participation of the older people, which are vital since attitudes towards care for the elderly need to be improved [85].

The study includes samples from different countries and enables both broad descriptions and comparisons, and provides as a solid base for further studies. The present study will also contribute to develop the use of RIAS and VR-CoDES in other professional groups than the patient-physician encounter, providing valuable methodological input. Finally, the descriptive data from the participating countries will give grounds for an evidence-based education platform, targeting both healthcare staff working with older people and healthcare students on different levels.

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AUTHOR CONTRIBUTIONS

HE conceived the idea of the study. LH, AJS, IH, VS, SvD, and HE initiated the study design and implementation. All authors read and approved the final manuscript.

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CONFLICT OF INTEREST STATEMENT

There is no conflict of interest.

Table 1 Questionnaires used to mesure care providers` self-reported communication skills, empathy, mindfulness and emotional intelligence

Concept	Questionnaires	Items and scale	Focus
Communication self-efficacy	*Klar tale til patienterne* (Clear-cut communication with patients)	21 items Numerical 1-10 5-point Likert scale	• Communication skills in clinical practice • Confidence to succeed in daily work related to managing emotions, the use of time, conveying messages and involving patients • Confidence and importance to succeed in communication with patients
Empathy	*Jefferson Scale of Empathy*	20 items 7-point Likert scale	• Empathy in clinical practice • Understanding the patient's concerns, pain and suffering and having a desire to help them
Mindfulness	*Langer 14-item Mindfulness Scale*	14 items 7-point Likert scale	• Components of socio-cognitive mindfulness: • Novelty seeking, novelty producing and engagement • Presence or absences of attention to and awareness of what is

			occurring in the present
Emotional intelligence	*Trait Emotional Intelligence Questionnaire –Short Form*	30 items 7-point Likert scale	• Fifteen facets of emotional intelligence: • How well people understand and manage their emotions, interpret and relate to the feelings of others and use this knowledge in relationship

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A cross-sectional study on person-centred communication in the care of older people – The COMHOME study protocol

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A cross-sectional study on person-centred communication in the care of older people – The COMHOME study protocol

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ABSTRACT

INTRODUCTION

This paper presents an international cross-sectional study on Person-Centred Communication with older people receiving healthcare (COMHOME). Person-centred care relies on effective communication, but few studies have explored this with a specific focus on older people. The main aim of the COMHOME study is to generate knowledge on person-centred communication with older people (> 65 years) in home healthcare services, radiographic and optometric practice.

METHODS AND ANALYSIS

This study will explore the communication between care providers and older persons in home care services. Home healthcare visits will be audio recorded (n=500) in Norway, the Netherlands and Sweden. Analyses will be performed with the Verona Coding Definitions for Emotional Sequences (VR-CoDES), the Roter Interaction Analysis System (RIAS) and qualitative methods. The content of the communication, communicative challenging situations as well as empathy, power distance, decision-making, preservation of dignity and respect will be explored. In Norway, an additional 100 encounters, 50 in optometric practice (video recorded) and 50 in radiographic practice (audio recorded), will be analysed. Furthermore, healthcare providers' self-reported communication skills, empathy, mindfulness and emotional intelligence in relation to observed person-centred communication skills will be assessed using well-established standardised instruments.

ETHICS AND DISSEMINATION:

Depending on national legislation, approval of either the central ethical committees (e.g. nation or university), the national data protection officials, or the local ethical committees (e.g. units of home healthcare) was obtained. Study findings will be disseminated widely through peer reviewed publications and conference presentations. The research findings will

add knowledge to improve services provided to this vulnerable group of patients. Additionally, the findings will underpin a training programme for healthcare students and care providers focusing on communication with older people.

STRENGTH AND LIMITATIONS OF THE STUDY

- The study will explore person-centred communication with older people (> 65 years).
- The settings are home health care, radiographic and optometric practice.
- Nursing staffs' communication will be compared in three European Countries.
- Key issues in emotional as well as task-focussed communication will be highlighted.
- The findings will be used in education of health care students and providers.

INTRODUCTION

Communication is a basic competence and a cornerstone in healthcare encounters [1-3]. Through verbal and nonverbal communication, patients express their symptoms and concerns, as well as their expectations, hopes and fears for treatment and care [2,4]. Healthcare providers explore the patient's situation by listening and asking questions, they discuss care and treatment alternatives with the patient and they provide the patient with information. These aspects of communication are essential for empowering patients and improving their health and quality of life. Insufficient communication caused by the healthcare provider's inability to be attentive and truly meet the patient, may result in unnecessary suffering in older people [5]. Despite the importance of high quality communication [6], few studies have systematically examined communication with older people in the setting of healthcare services frequently used by this group of people, i.e. home healthcare, radiography and optometry.

Health policies aim at active ageing and for people living at home as long as possible [6-10]. However, the rapid increase of age-related diseases [11,12] increases the complexity of procedures and the need for individualised care delivered by all healthcare professionals to older people. There is growing evidence that person-centred care has a positive impact on different patient outcomes such as patient empowerment as a way of strengthening participation and autonomy [13], patient satisfaction [14], health [15], and length of hospital stay [16]. Person-centred care is especially important for older people in order to optimise functional health, ensure independence and provide high quality care [17,18].

Communicative abilities of older people may deteriorate because of impaired hearing and vision loss, as well as cognitive impairment [19,20]. Care providers' communication behaviours encouraging patient choice and participation in decision-making can make a significant impact on older people's sense of control of their own life [21]. Different

healthcare contexts may influence the patient-provider communication as shown in home healthcare [22-25], clinical settings in hospital [26,27], in technical settings such as in a radiology department [28,29] and in a commercial setting where the patient is also a customer, such as in optometric practice. A study including both home healthcare, optometry and radiography may provide important insight into the influence of contextual factors on patient-provider communication and into factors that are transferable to a wider context. Despite the importance of communication in health care [30,31], few studies have systematically examined communication with older people in need of home healthcare services [23,32]. To our knowledge, no studies have examined communication with older people using optometry, very few including radiographers' communication when performing advanced imaging procedures [33-35], and none targeting the older patient group. More than 20 per cent of the patients encountered in optometric practice are 65 years or older [36]. Further, a rapid increase in the use of advanced, diagnostic imaging procedures like Computed Tomography (CT) is occurring in all western countries [37], and a dramatic increase of such tests is documented as being currently used when examining older people [38]. To increase the participation of older people, and to improve their care and the healthcare services in general, more knowledge will facilitate training of person-centred communication in home healthcare as well as commonly used healthcare services such as radiography and optometry.

In the COMHOME study, we will compare person-centred communication with older people in home healthcare practices in three European countries; Norway, Sweden and the Netherlands, as well as explore communication practice in optometry and radiography in Norway and develop a training programme for healthcare workers and students to enhance communication with older people.

Theoretical framework and concepts

Person-centred care and person-centred communication

During the past two decades, person-centred care and related concepts such as patient involvement and patient participation are receiving more attention. The concept of person-centred care used in research and policy documents are linked to high quality care [9,10,39-41]. However, there is no consensus on the definition of person-centred care and there is a need for theory development [13].

A reoccurring theme in definitions of person-centeredness is the ethical idea that patients should be "treated as persons" [42] that is; the patient is viewed in the context of her/his own social world, is respected and is involved in her/his own care [43].

The theoretical point of departure for this study is the theory and philosophy of Carl Rogers [44] and his person-centred approach based on principles and values of acceptance, caring, empathy and sensitivity in human interactions. Essential to this and other theories on person-centred care is the providers' ability to communicate and interact with the patient in a person-centred way [3,42,45]. Person-centred communication aims specifically at ensuring the healthcare provider's attention to the whole person and includes: sharing information and decisions, providing compassionate and empowering care, and being sensitive to patient needs [46]. Person-centred communication has also been identified as a prerequisite to elicit person-centred care [45]. In this study, we define the concept of person-centred communication as a set of skills of the health provider demonstrated through verbal, para-verbal and nonverbal communication that facilitates person-centred care. Traits of the healthcare provider such as empathy, mindfulness and emotional intelligence probably influence both the care delivered and communication behaviour, and therefore these traits need to be taken into account.

Empathy and empathic accuracy

Empathy is regarded as a basic competence in all helping relationships [3,47]. Intermediate outcomes of empathic communication such as trust, mutual understanding, medication adherence, social support, and self-efficacy are factors that are shown to correlate with positive health outcomes and should therefore be promoted in encounters with patients [48]. However, studies have shown that empathic communication is not sufficiently applied in clinical practice [49,50].

Mindfulness and Emotional Intelligence

In this study we specifically address two concepts closely related to person-centred communication and care: Mindfulness and Emotional Intelligence. We apply the concept of mindfulness as a psychological concept defined as the process of drawing novel distinctions by being present here and now [51]. The degree of mindfulness may affect the healthcare provider's ability to observe what is going on and to act according to what is being noticed [52]. Furthermore, healthcare providers who score high on mindfulness are shown to be more person-centred when they communicate, and they have more satisfied patients [53,54]. Emotional intelligence is defined as the ability to recognize, express and regulate feelings and emotion in oneself and in others and to utilize feelings and emotions to motivate, plan and develop actions. Emotional intelligence is closely related to interpersonal skills and communication skills which are important in clinical work and professional practice [55,56]. To date, we do not know how emotional intelligence corresponds with communication practice in home healthcare, optometric or radiographic practice.

Measurement of person-centredness

We define person-centredness by observation of communication patterns using established coding schemes. The Verona Coding Definintion for Emotional Sequences (VR-CoDES) [57]

identifies moments in the interaction regarding patient´s emotional expression that need exploration or confirmation in the form of empathy and understanding from the provider. The Roter Interaction Analysis System (RIAS) codes all communication and distinguishes task-focused and socio-emotional focused behaviour [58]. To date we have found no measurement instrument, neither a rating scale nor a questionnaire, that is suitable for measuring person-centred communication and person-centred care in the home health setting. Most instruments developed focus on older people with cognitive impairments in nursing homes [59,60], or the consultation in a hospital setting [61]. There is a need to evaluate the quality of the interaction with and care given to older people and a need for the development of a rating scale for person-centred care and communication with older people.

Aims of the study

This article describes the research protocol of the COMHOME study. The COMHOME project aims at providing knowledge on current practice in healthcare for community-dwelling older people. Findings will underpin a research-based online training platform for person-centred communication with older people (age ≥ 65) targeting healthcare providers and healthcare students of different professions.

To achieve the aims of this study we are going to explore how and to what extent healthcare providers practice person-centred communication in three different settings: home healthcare, optometric practice and during CT examinations. We will compare communication with older people and identify which factors facilitate or hinder person-centred communication such as time constraints, characteristics of the patient, the tasks and the provider. Furthermore, we will explore the relationship between person-centred communication and healthcare providers' self-reported communications skills, level of empathy, mindfulness and emotional intelligence and develop a rating scale for person-centred communication and care.

METHODS AND DESIGN

Study design

This is an international cross-sectional study with a descriptive and comparative design.

Settings and samples

The study includes three studies; study one targets communication in home healthcare in the three participating European countries. In Norway, additional two studies target communication during CT examinations (study 2) and in private optometric practices (study 3). For all three studies the patient samples comprises older people (≥ 65 years) living at home who utilize these health services. All patients included are able to give informed consent, excluding persons with diagnosed dementia.

Nurses, nurse assistants, radiographers and optometrists with a contract of long-term or permanent employment are eligible to participate in the study to ensure that participants are present and to allow for planning of data collection. A maximum variation sampling strategy to recruit healthcare providers ensures variation in gender, age, time of employment and professional experience.

The data collection utilizes three different sources. The communication between older people and care providers is audio-recorded for study 1 and 2 and video recorded for study 3. Questionnaires yield information about participating care providers including demographics, self-efficacy of communication skills, aspects of empathy, mindfulness and emotional intelligence (Table 1). The local computer-based registration systems of the respective units of healthcare services provide anonymous data on representativeness of participants compared to all patients in the unit, their service needs and healthcare workers (staff composition, age, education).

All observational data is coded with the Roter Interaction Analysis System (RIAS) [58] and the Verona Coding Definitions of Emotional Sequences (VR-CoDES) [57,62]. Study 3 includes additional data on patient-centred communication described in section Study 3.

Study1. Current practice in home healthcare: Targeted care providers are registered nurses and nurse assistants working in home healthcare. Units of home healthcare services are located in two municipalities in Norway, one municipality in Sweden and in the Netherlands in different parts of the country, providing around 500 audio recordings of encounters between older people and home healthcare providers.

Study 2. Person-centred communication during CT examination: Targeted care providers are radiographers (n=10) performing CT examinations and five of their encounters each with older outpatients (n=50).

Study 3. Person-centred communication in optometric practice: All private optometric practices in Drammen and Hallingdal municipalities receive an invitation to participate in the study. The study sample will consist of practicing optometrists (n=10) and five of their encounters each with older patients (n=50).

The optometric encounters are additionally analysed using Four Habits Coding Scheme (FHCS) [63] and the older people's reports on optometrists' communication and preference of communication are collected using the Four Habits Patient Questionnaire [63].

Participant recruitment

The local regional and county councils of the participating universities (Norway and Sweden) will be used for data gathering in Norway and Sweden. In Norway, two municipalities (one urban and one rural district) will participate in order to get a broad sample, representative for the different challenges the health care providers face. In Sweden, home health care settings in a mid-sized town area will be approached for the data gathering and recruitment of health care providers and elderly persons. In the Netherlands, recruitment of the home health

caregivers will be done through home care organisations and individual caregivers, located in different parts of the country. The optometric and the radiographer participants will be explorative convenience samples recruited in collaboration with existing partners.

The management at the specific units of healthcare services recruit the healthcare staff. Information about the study and participation is presented by members of the national research teams both written and orally to all healthcare providers at routine staff meetings in each unit. A staff member at the different sites will collect written informed consent. Participants, older people and care providers, can withdraw from the study at any time and have their data deleted.

Study 1. Current practice in home healthcare: Care providers employed at each site serve as gatekeepers in contact with older people who receive home healthcare. The staff will recruit the patients in accordance with the procedure developed and presented by the research team including three steps: 1) Identification of older people that fit the inclusion criteria. 2) Delivery of standardized written and oral information about the study to eligible patients during routine visits. 3) Collection of written informed consent from patients who agree to participate after a minimum of 24 hours after given the information.

Study 2. Radiographer communication practice during CT examination: Eligible older people will receive oral and written information about the study from the receptionists of the department on the day of examination. The participating radiographers collect written, informed consent from the patients who choose to participate before the CT examination starts.

Study 3. Person-centred communication in optometric practice: Eligible older people will receive oral and written information about the study from the staff of the participating optometric practice. The optometrists collect written, informed consent from the patients before the consultation starts.

Questionnaires and coding systems

Questionnaires: In addition to demographic data, questionnaires include information about healthcare providers` self-reported communication skills, empathy, mindfulness and emotional intelligence including: "Clear-cut communication with patients" [64], Jefferson Empathy Scale [65,66], Langer 14 items scale [51], and Trait Emotional Intelligence Questionnaire–Short Form [67] as showed in table 1.

< Insert table 1 about here >

Coding systems for verbal communication - *VR-CoDES C-C (Cues and concerns):*

The coding system has a detailed description of *concerns* (expression of a negative emotion), and specification of seven different ways of hinting or cueing emotionally important topics [57]. VR-CoDES C-C has been validated with patients having chronic pain (fibromyalgia) and found to have a very high degree of sensitivity and specificity, giving a real picture of patients' major health concerns and also of other life concerns [68].

VR-CoDES –P (Provider responses): In the coding system [62], care providers' responses to the cues and concerns of older people are coded according to two major conceptual dimensions of the coding system: whether or not the response explicitly refers to the cue/concern and whether or not the provider provides space for further disclosure of the cue or concern. The classification system provides four main classes of provider responses. Each class may be subdivided providing 17 separate categories.

Roter Interaction Analysis System (RIAS): RIAS is a coding system extensively used in communication research, mostly in physician-patient consultations, but also in other professional settings such as nurses [32], radiographers [69], nurse assistants [70], pharmacists [71] and veterinary practice [72]. All utterances made by the care provider and

the older person during a visit are coded and classified [58,73]. An utterance is defined as the smallest discriminable speech segment to which a coder can assign a classification and that expresses or implies a complete thought. RIAS has 39 exclusive and exhaustive categories; 13 are socio-emotional and 26 task-focused. Examples of coding categories are open-ended medical or therapeutic questions, close-ended medical or therapeutic questions, reassurance, and agreement. Several studies in the participating countries have used the system [74-77].

Four Habits Coding Scheme (FHCS): Four Habits Coding Scheme is a rating scale, which combines evaluative and descriptive elements of communication behaviour [78] and provides an outcome measure for communication skills [79]. The coding scheme scores 23 items organised into four habits: investing in the beginning, eliciting the patient's perspective, demonstrating empathy and investing in the end of the visit. The score is the sum of the 23 items scored on a 5-point scale, from one = not very effective to five = highly effective. A study on communication training of physicians in Norway has used The Four Habits program [63].

Qualitative analysis

Qualitative methods such as content analysis [80] will be used on a sub-set of data to further provide in-depth analyses on good and effective communication patterns and challenging communication situations. The qualitative analyses also intend to discover characteristics of person-centred communication. These analyses will illuminate both the older person's expressions and the care provider's expressions in the encounters. The analysis of verbal communication will focus on discourses found in sending and receiving words and cues, and directed towards patterns of discourse of power and vulnerability in the communication. Patterns of differences or similarities on dominance or subordination may be compared, for example, as well as other expressions of power and vulnerability found in the analysis [81]. We will also use gender- and intersectional theories [82]. The analysis will identify and

analyse challenging communicative situations with respect to the content of these situations. Furthermore, 10-15 transcribed audio recordings will be analysed according to principles of Conversation Analysis (CA). One focus in this analysis will be on expressions of power and vulnerability in the communication. Another focus is the understanding of interaction when using a CA methodology compared to the understanding of interaction using RIAS or VR-CoDES. By this approach, CA can contribute to a development of methodological understanding [83].

The qualitative analyses will be carried out by four different researchers, all trained and well experienced in qualitative approaches. These analyses will start by the researchers reading through a number of transcribed dialogues, and analysing them together. The results of the analysis will be discussed and compared in order to establish consensus on the coding and analysis process. Thereafter, the researchers will continue to analyse the transcripts independently and continue to discuss and compare their work on a regular basis. Finally, the results of all analyses will be discussed within the whole research team. The qualitative analyses will adhere to the quality criteria outlined by Lincoln and Guba [84] to assure trustworthiness and rigor, i.e. credibility, transferability, dependability and confirmability.

Statistical analyses

Information about the respective healthcare units including patients and demographics on staff will describe the sample. Observational data from audio- and video recordings, and the questionnaires will provide data on an individual level. Descriptive statistics are used to describe characteristics of the verbal communication in home healthcare, during CT examinations and in optometric practice in terms of frequency and distribution of categories within the two observational methods, RIAS and VR-CoDES, and from the questionnaires.

Variation is expected to be found in both care providers' standards and care providers' levels of training within and across participating countries, similar to earlier studies on competence of staff and staffing levels at nursing homes [22,85]. Differences in communication behaviours between professionals within groups of care providers can be expected on the basis of different levels of education [22]. Moreover, differences are expected to be found between professionals in different healthcare settings. To examine these aspects more closely, analyses aimed at determining differences in staffing standards, educational levels or professional background have significant and distinct effect on communication behaviour are performed. This will be explored statistically using linear mixed models (LMM). LMM will allow comparison of data at different levels, and thus to investigate whether communication behaviours and/or characteristics differ between groups of care providers, units, settings or countries. LMM will also explore the influence of factors extracted from the questionnaires and the communication expressed as results from RIAS and VR-CoDES. This can identify possible correlations between given individual characteristics of reported communication skills, empathy, mindfulness and emotional intelligence and communication behaviours. For all statistical analysis, a p-value of .05 or less are considered statistically significant.

ETHICS AND DISSEMINATION

Depending on national legislation, approval of either the central ethical committees (e.g. nation or university), the national data protection officials or the local ethical committees (e.g. units of home healthcare) was obtained. The study has been ethical reviewed in: a) Norway: Norwegian Social Science Data Services (NSD) no 36017 and Regional Committees for Medical and health research Ethics (REK) No. 2013/1626/REK sør-øst B, b) Sweden: Regional ethics committee in Uppsala, Dnr 2014/018, and c) The Netherlands: Commissie Mensgebonden Onderzoek, Radboud University Medical Center; No. 2014/045.

The sampling of care providers and patients, the storage, flows and access of the data are in accordance with legislation and safety routines in each country and the collaborating research institutions respectively, to safeguard the security, privacy and confidentiality.

Study findings will be disseminated widely through peer reviewed publications and conference presentations. The research findings will add knowledge to improve services provided to this vulnerable group of patients. Additionally, the findings will underpin a training programme for healthcare students and care providers focusing on communication with older people.

DISCUSSION AND CONCLUSION

We expect that comparing communication and interaction between older people and healthcare providers in different settings and countries will provide valuable insight into aspects of person-centred communication. All three countries have a healthcare system of high quality; they have different organizational models of healthcare services and have to meet the challenges relating to an ageing population and limited healthcare resources while aiming for providing person-centred healthcare. This cross-national design allows us to explore patterns and attributes of communication practice within and between participating countries and enables us to make suggestions for best practice that can serve as examples for future healthcare and healthcare education.

Theoretical contribution

Person-centred healthcare and person-centred communication are complex issues. This complicates the definitions of the concepts. We believe that this project will make a significant contribution to research and theory of person-centred communication between care providers and older people both by providing descriptions of communication behaviour in practice, by identifying important traits relating to care providers, and by examining what factors facilitate or hinder the fulfilment of person-centred communication. Findings will

highlight aspects important to increasing the participation and enhancing the self-determination of older persons as well as decreasing unnecessary distress. All of this may, in turn, contribute towards improving the overall health and well-being of older persons.

The providers' self-reported rating of communication skills, empathy, mindfulness and emotional intelligence will give a broad description of traits known to impact on communication in healthcare settings. The combination of data from the observational analysis of the visits, rating scales and the questionnaires can give indications of the traits of the healthcare provider that are important to facilitating person-centred communication.

Methodological contribution

There are many ways to analyse communication in healthcare. We have chosen to use two instruments, VR-CoDES and RIAS, and the FHCS for optometric practice. RIAS is a commonly used instrument for describing provider-patient communication and has been used in numerous studies in various healthcare contexts [58]. RIAS has previously been used to identify person-centred talk between patients and physicians identified as the doctor's ability to include conversation pertaining to psychosocial aspects and lifestyle, engaging with the patient in partnership-building utterances, welcoming patients' questions and being attentive to patients' information about psychosocial aspects and lifestyle [39]. The VR-CoDES scheme identifies patients' utterances that contain concerns and the providers' responses to the patients' concerns [57]. Exploring how these emotional moments unfold and are met in practice contributes towards describing person-centred communication as shown by Eide and colleagues, who explored fibromyalgia patients' emotional utterances and nurses' responses in an out-patient clinic context [26]. Research shows that the physician's ability to communicate effectively with older patients impacts on patients' emotional outcomes and decreases hospitalization [86]. The ability of the healthcare provider to respond to older peoples' emotional concerns may be important both to ensure health and wellbeing, but also

to enable older people to cope with daily tasks and live at home as long as possible. Exploring different dimensions of the communication between the older person and the care provider in home healthcare, during CT examinations and optometric examination can shed light on what facilitates or hinders person-centred communication in different health contexts.

Implications for practice

Further analysis of the real-life visits using qualitative methods can provide a deeper understanding of the mechanisms in play in the health provider-patient relationship. Hence, the combination of both observational and qualitative methods might provide a broad and rich picture of how communication between healthcare providers and older people naturally occurs. The quality and level of person-centred communication in these visits is essential for the well-being and participation of the older people, which are vital since attitudes towards care for the elderly need to be improved [86].

The study includes samples from different countries and enables both broad descriptions and comparisons, and provides a solid base for further studies. The present study will also contribute to develop the use of RIAS and VR-CoDES in other professional groups than the patient-physician encounter, providing valuable methodological input. Finally, the descriptive data from the participating countries will give grounds for an evidence-based education platform, targeting both healthcare staff working with older people and healthcare students on different levels.

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AUTHOR CONTRIBUTIONS

HE conceived the idea of the study. LH, AJS, IH, VS, SvD, and HE initiated the study design and implementation. All authors read and approved the final manuscript.

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CONFLICT OF INTEREST STATEMENT

There is no conflict of interest.

Table 1 Questionnaires used to mesure care providers` self-reported communication skills, empathy, mindfulness and emotional intelligence

Concept	Questionnaires	Items and scale	Focus
Communication self-efficacy	*Klar tale til patienterne* (Clear-cut communication with patients)	21 items Numerical 1-10 5-point Likert scale	• Communication skills in clinical practice • Confidence to succeed in daily work related to managing emotions, the use of time, conveying messages and involving patients • Confidence and importance to succeed in communication with patients
Empathy	*Jefferson Scale of Empathy*	20 items 7-point Likert scale	• Empathy in clinical practice • Understanding the patient's concerns, pain and suffering and having a desire to help them
Mindfulness	*Langer 14-item Mindfulness Scale*	14 items 7-point Likert scale	• Components of socio-cognitive mindfulness: • Novelty seeking, novelty producing and engagement • Presence or absences of attention to and awareness of what is

			occurring in the present
Emotional intelligence	*Trait Emotional Intelligence Questionnaire –Short Form*	30 items 7-point Likert scale	• Fifteen facets of emotional intelligence: • How well people understand and manage their emotions, interpret and relate to the feelings of others and use this knowledge in relationship