ORIGINAL ARTICLE

Characteristics of the relationship that develops from nurse-caregiver communication during telecare

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Aims and objectives. To explore the relationship between nurses and caregivers using a web camera and web forum as the communication methods.

Background. In Norway and other European countries, there is an increased focus on ageing at home, which is aided by technology, as well as formal and informal care. The literature reveals that caregivers endure physical and mental burdens. With computer-mediated communication, such as telecare, it is possible for nurses to provide supportive care to caregivers in their homes.

Design. An explorative design using qualitative content analysis.

Method. Six nurses and nine caregivers with residential spouses suffering from stroke or dementia were interviewed two times over a six-month period.

Results. The nurses responded dynamically to the information they received and helped to empower the individual caregivers and to strengthen the interpersonal relationships between the caregivers. While some participants thought that meeting in a virtual room was close and intimate, others wanted to maintain a certain distance. The participants' altered their roles as the masters and receivers of knowledge and experience; this variation was based on a relationship in which mutual respect for one another and an interest in learning from one another allowed them to work together as partners to demonstrate the system and to follow-up with new caregivers.

Conclusions. The flexibility of the service allows the possibility of engaging in a close, or to some extent, a more distant relationship, depending on the participants' attitudes towards using this type of service.

Relevance to clinical practice. Nurses can provide close care, support and information to caregivers who endeavour to master their everyday lives together with their sick spouses. The support seems to help the caregivers cope with their own physical and emotional problems.

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

- With the use of flexible technology, such as a web camera or web forum, nurses can use the system dynamically to support individual caregivers and to strengthen the interpersonal relationship among caregivers.
- The study findings highlight the sense of closeness and distance in the nurse-caregiver relationship, of which nurses must be aware when telecare is used.
- Findings provide information to bridge the gap between the perceptions of technology and nursing care as conflicting interests.

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Introduction

In Norway, as in many other European countries, changes in the average life expectancy have led to an increased focus on ageing at home for older people. This practice can be accomplished by using home care services, adapted technology and informal caregivers (Ministry of Health & Care Service 2006, Dale *et al.* 2008, Rechel *et al.* 2009). Informal caregivers contribute significantly to home-based care services; therefore, it is essential to focus on their status. The literature reveals that the caregivers for people with dementia and stroke endure physical and mental burdens. Mental burdens are described as depression, guilt, feelings of inadequacy, anger, sorrow, pain, emptiness, powerlessness, worrying, etc. Physical burdens include the constant need to organise practical work and are described as burn out, exhaustion and social dysfunction (Fläckman *et al.* 2009, Fex *et al.* 2011, Nordtug *et al.* 2011). For caregivers, the need to talk to someone about their situations is crucial. Most older caregivers do not have anyone to confide in at home, they are homebound and are basically isolated (Gallienne *et al.* 1993, Teel *et al.* 2001, Lundh & Nolan 2003, Nordtug *et al.* 2011). The use of information and communication technology (ICT) is expected to provide these people with support in their homes through communication with health care professionals (Ministry of Health & Care Service 2006).

By using ICT, such as telecare, it is possible to provide computer-mediated communication (CMC) between people in synchronous and asynchronous time. Telecare is defined as 'the use of information, communication, and monitoring technologies which allow healthcare providers to remotely evaluate health status, give educational intervention, or to deliver health and social care to patients in their homes' (Solli *et al.* 2012, p. 2812). The introduction of telecare in nursing practice has triggered important discussions about the risk of it negatively affecting the nurse-patient relationship because of less time and fewer physical interactions with the patients (Barnard & Sandelowski 2001, Sandelowski 2002). A core competence in nursing practice is to have the capacity to form good relationships with patients and their relatives (Travelbee 1966, Orem *et al.* 2001). The main component of forming a relationship is face-to-face communication, in which the nurse and the patient or caregiver communicates with their appearances, behaviours, facial expressions and gestures (Watzlawick & Beavin 1967, Melnechenko 2003). Telecare transforms traditional communication from being face-to-face in the same room to being face-to-face at a distance (Pols 2011, 2012, Emme *et al.* 2013, 2014). After this new method of online verbal and written communication has become a part of our everyday live, one might question whether another type of dialogue has been instituted. Nurses must determine how this technology might enhance or limit nursing practices (Pols 2012, Nagel *et al.* 2013). Therefore, the purpose of this study was to investigate how the use of telecare might affect the nurse-caregiver relationship.

Background

We explored scientific databases to identify studies that focused on nurse-caregiver relationships using a web camera and/or web forum as their method of communication. In this search, we were unable to find any studies with this focus. Related nursing studies were found that focused on nurses providing written psychosocial support to caregivers through a computer network (Gallienne *et al.* 1993), caregivers' positive experiences of using network support through peers (Brennan *et al.* 1991, 1992, Torp *et al.* 2008, Pfeil *et al.* 2009) and reduced strain and increased well-being in caregivers through network support (Tanis *et al.* 2011).

Aim

The aim of this study was to explore the relationship between caregivers and nurses who were participating in a closed healthcare service in which web cameras and web forum were used as the main communication tools. We investigated the characteristics of the relationship between nurses and caregivers who use telecare.

Methods

An exploratory design using a qualitative approach was used to obtain insight into the relationship between nurses

and caregivers as they used CMC to communicate (Polit & Beck 2012). Content analysis, a method used to analyse written, verbal and visual communication messages, was used to analyse the study data. The method focused on the meaning, intentions, consequences and context of the communication; therefore, we believed that it was suitable to help develop an understanding of the meaning of communication (Graneheim & Lundman 2004, Elo & Kyngäs 2007).

Setting and sample

Our research project was linked to a public healthcare service in one county in the southern part of Norway. The network, which has operated for six years, has been implemented in three municipalities. The objective of the CMC network was to support the caregivers of patients with stroke or dementia as they cared for their spouses at home for as long as they wanted. The support included four ser-

vices, (Fig. 1) and it was expected that every participant should use all four services. This study is limited to reporting data from the use of a web forum and web cameras in nurse–caregiver communication. A convenience sample consisting of four nurses, two nurse-assistants (henceforth nurses) and nine caregivers were recruited from the network.

The six nurses, 44–70 years of age, were part-time workers and comprised the entire staff. Three female nurses worked at the call centre, and one male and two female nurses worked in the municipalities. Their network experiences varied from one month to two and one-half years from the time of study inclusion.

The recruited caregivers were from the three municipalities, and they consisted of six women and three men (65–87 years of age). Five caregivers had spouses with dementia, and four caregivers had spouses suffering from the effects of stroke. The caregivers' experience using the network varied from one month to six years. All caregivers had experience using a computer. The caregivers met the
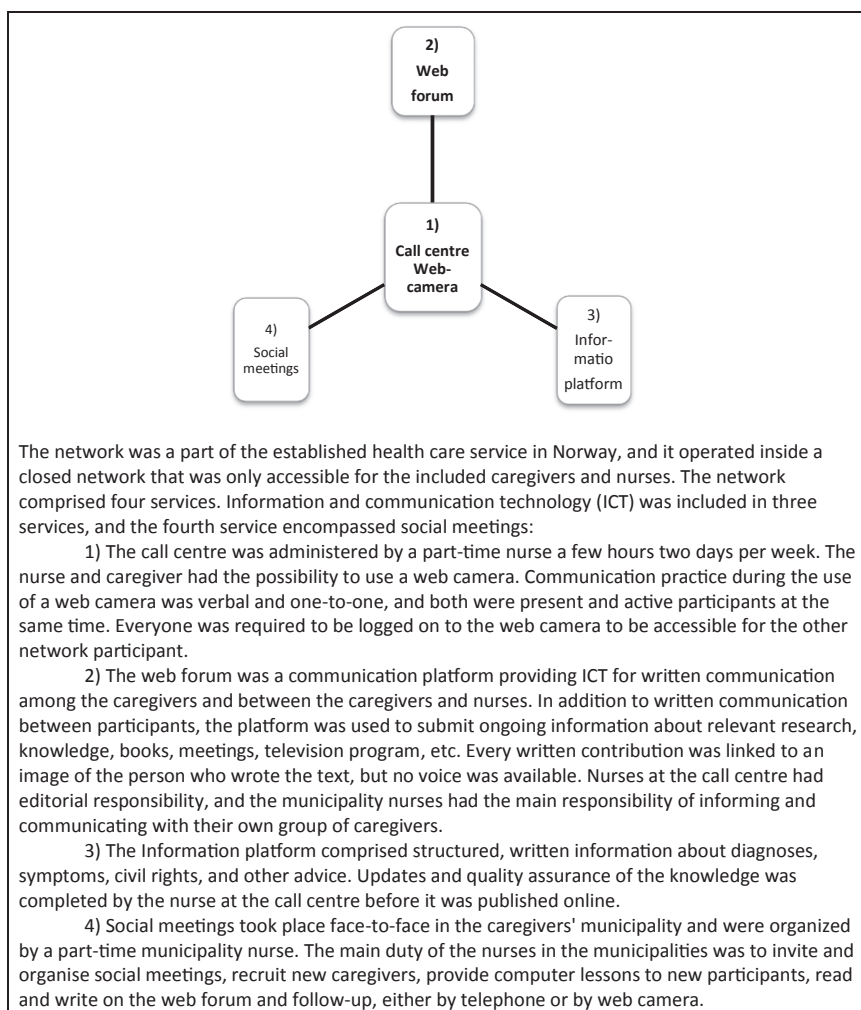

Figure 1 The network organisation.

The network was a part of the established health care service in Norway, and it operated inside a closed network that was only accessible for the included caregivers and nurses. The network comprised four services. Information and communication technology (ICT) was included in three services, and the fourth service encompassed social meetings:

1) The call centre was administered by a part-time nurse a few hours two days per week. The nurse and caregiver had the possibility to use a web camera. Communication practice during the use of a web camera was verbal and one-to-one, and both were present and active participants at the same time. Everyone was required to be logged on to the web camera to be accessible for the other network participant.

2) The web forum was a communication platform providing ICT for written communication among the caregivers and between the caregivers and nurses. In addition to written communication between participants, the platform was used to submit ongoing information about relevant research, knowledge, books, meetings, television program, etc. Every written contribution was linked to an image of the person who wrote the text, but no voice was available. Nurses at the call centre had editorial responsibility, and the municipality nurses had the main responsibility of informing and communicating with their own group of caregivers.

3) The Information platform comprised structured, written information about diagnoses, symptoms, civil rights, and other advice. Updates and quality assurance of the knowledge was completed by the nurse at the call centre before it was published online.

4) Social meetings took place face-to-face in the caregivers' municipality and were organized by a part-time municipality nurse. The main duty of the nurses in the municipalities was to invite and organise social meetings, recruit new caregivers, provide computer lessons to new participants, read and write on the web forum and follow-up, either by telephone or by web camera.

following inclusion criteria: (1) a minimum of 65 years of age, (2) lived with a person suffering from the effects of stroke or dementia and (3) agreed to use the web forum and web camera.

Data collection

The network coordinator asked the nurses and the caregivers who fit the criteria to participate. When they agreed, the coordinator provided their name and address to the researcher. The researcher phoned the informants and informed them verbally, before an information document was sent by post. All participants returned signed informed consent documents to the researcher.

Data were collected from February 2010 to February 2012. A semi-structured interview guide was developed, and the informants were questioned about their experiences using a web camera and their contact and communication with the caregiver or nurse. Questions about their experience using the web forum, how they used it and what information the web forum communication covered were also investigated. We conducted two interviews with each informant to ensure that the participants had an opportunity to become familiar with the technology. The first interview took place one or two months after study inclusion, and the second interview occurred approximately six months afterwards. However, two nurses at the call centre left their job after performing the first interview. The interviews lasted approximately 30–90 minutes and were recorded and transcribed verbatim.

Ethical considerations

The study was approved by the Regional Committee for Medical and Health Research Ethics in Norway and the Norwegian Social Science Data Service. The head of county administration approved the research project, and the network coordinator was given the authority to assist the researcher in participant enrolment. The number of participants was limited, and the presentation of the findings is presented in a manner that allows for the anonymity of the participants (Ryen 2007).

Analysis

Qualitative analysis of the manifest content was completed (Graneheim & Lundman 2004). The first author listened to the interviews, and the transcripts were read several times to become familiar with them in their entirety. Data from the nurses and the caregivers were separately organised into

meaning units, condensed and labelled with codes (Table 1). All codes were grouped, sorted into categories and sub-categories and placed in tables to obtain a better overview of the themes (Table 2). The two separate analyses were combined through a continuous process of comparing the similarities and differences in the findings and returning to the unedited texts to bring the analytical process to a higher level of abstraction.

To enhance rigour and ensure trustworthiness, the co-authors examined and discussed the material several times throughout all phases of the analysis. The process of abstraction in the analysis and the use of quotes was discussed until consensus regarding coherence in the categories and content was achieved (Creswell 2007).

Findings

Three overall categories, which were closely related to one another, resulted from our analysis. The first category, 'A flexible and dynamic relationship', shows how caregivers and nurses choose their level of participation in an interdependent, dynamic and flexible relationship. The second category, 'Closeness and distance in the relationship', illustrates how caregivers and nurses experienced their interpersonal relationship. The third category, 'A relationship with variation in roles', explains a changing role pattern among the participants.

A flexible and dynamic relationship

The use of CMC allowed the participants the possibility of being flexible and dynamic in the manner in which they communicated. Flexibility was related to the opportunity to choose the time, tool and frequency of their communication, while dynamics were related more to the pattern of communication that evolved as a consequence of the flexibility that the use of CMC provided them.

The caregivers' option to be flexible as to which extent they chose to use the technology either increased or decreased their active contributions to the relationship. The active caregivers said that they used CMC either every week or every day. CMC had become a lifestyle for them. They checked for knowledge updates, responded to messages, and initiated both web forum and web camera communications. They stated that they were often in contact with the nurse at the call centre, and that nurse support was essential for them to master their strains at home. Other caregivers (henceforth, spectators) said that they rarely used CMC. The spectators used CMC to check on news and links and to read messages written by others;

Table 1 From meaning units to codes

Meaning unit	Condensed meaning unit	Code
Caregiver: It works well, we know that we can contact her if there's anything... we feel that she keeps a close eye on the forum... so we simply write, 'I have something I need to talk to you about, can you please call me?' Then, she can call when it's appropriate for her	They know that the nurse is keeping a close eye on the forum. If the call-centre is closed, they write a message to the nurse and she calls them when it is possible for her to do so	Forum; ask for camera communication
Caregiver: The nurse has called me and asked me to put on the web camera for a communication. When she asks me, I put it on, but I don't have the computer on daily. So..., you might say that that I maintain an attitude of reservation	She maintains an attitude of reservation and puts on the camera when the nurse asks her to do so	Camera reservation
Nurse: The camera communication has to be individual and based on their situation. I asked one man, 'Have you eaten lately?' No, he had not. 'Eat something, and I will call you up again in half an hour'. I knew he had diabetes, and I understood his blood sugar was low...	Camera communication allows the nurse to see the context and to determine whether the words spoken aligned with the speaker's body language	Consider and individualise the camera communication
Nurse: This work has given me so much professional and personal knowledge. I think I have been a more tolerant person. I think I meet people more open-mindedly and with more modesty than I did before. Everyone has a life story that they carry with them......	She has gained a more nuanced view of people; everybody has their own life history. She is approaching people more thoughtfully now than before	Reflective approach

Table 2 Extracts from one of the categories in the analysis of (a) caregivers and of (b) nurses

(a) Category	CAREGIVERS: Contributions to mastering one's situation		
Sub-categories	Practical help	Knowledge	Mental support
Codes	Help with application papers Provide explanations about the healthcare services Camera training Forum training	Nurses contribute factual knowledge Appreciate reading and not answering Appreciates easy, accessible knowledge	Camera and forum cheer up the day A vent for frustration Support in difficult times Contribute to stability
(b) Category	NURSES: Personality and professionalism		
Sub-categories	Confidential and honest	Empathy and support	Acceptance and respect
Codes	Camera more personal than phone Context influences the dialogue Body language important Camera eye contact	Talk about everything CMC reduces feeling of being alone Difficult situations Conversation partner	Be patient, adapting takes time Using ethical guidelines Push carefully Being a catalyst

they contributed little to a mutual relationship among the caregiver peers. Moreover, they also initiated little contact with the nurse at the call centre. Over time, the spectators did not change their attitudes to participate more in CMC.

The nurses worked dynamically and moved between being spectators or active participants, depending on the caregivers' activities. Their main goal was to support each and every one of the caregivers and to motivate them to communicate and support one another, and in this respect, to build a strong relationship between them. Their experi-ence was that some caregivers needed more time to adapt to telecare compared to others. Therefore, new caregivers were frequently educated and motivated to use CMC at the beginning, and when they managed it on their own, the nurses gradually withdrew to become spectators. In the general follow-up, the nurses occasionally phoned the care-givers if the caregivers had not contacted them for a while or were not seen in the web forum.

When the discussions went back and forth between the caregivers in the web forum, the nurses were mostly specta-tors. If, however, the activity among the caregivers

decreased, the nurses took action and were catalysts by intervening to provide a link to an article, a humorous story or asking a question about a relevant topic. Furthermore, if a question or problem seemed to be insolvable for the caregivers, then the nurses changed from being spectators to participants. As one of the nurses described it, 'I take care of the problems that appear on the web forum, and I try to read between the lines to figure out what it's all about'. In this regard, the nurses used the flexibility of the web forum to form a general view of the caregivers' activities and situations. They responded dynamically to the information they received, and in this manner, they contributed to supporting the caregivers individually and strengthening the interpersonal relationships between caregivers and their peers.

Closeness and distance in the relationship

How often the caregivers used CMC seemed to influence their attitudes and needs, in terms of having either a close or a more distant relationship with the nurses. Consequently, the caregiver's attitude towards using CMC regulated how the nurses supported each of them. The relationship between the caregivers and nurses, therefore, was characterised as being close or more distant. Both closeness and distance were related to the caregivers' emotional openness and to their adaption to the context of their communication practice.

The contextual closeness nurses and caregivers experienced during web camera communication was described as having the feeling of being in the same room without any distance. The sense of closeness they experienced when they saw one another inspired their dialogue, which could start with utterances such as, 'Are you tired today?' or 'How nice you are looking today'. The nurses expressed that this sense of closeness provided them an extended opportunity to observe the caregivers' physical and mental health conditions. A nurse stated that 'It's easier when you can watch them and are not just listening to their voice. You can see if they are sad'. Thus, the nurse-caregiver communication was influenced by the contextual framework of the online meetings. The caregivers who maintained a distanced attitude towards using CMC expressed that they were unfamiliar with web camera communication, and they felt that this type of interaction was strange or unnatural. These caregivers stated that, for them, social meetings were the best support, and they had no intention of changing this practice. The nurses occasionally phoned these caregivers to maintain contact with them and to ask about their situations, as described above.

The use of web camera communication also provided a feeling of belonging to an extended family or fellowship. As some of the caregivers experienced less contact and communication with their spouses and friends, the web camera contact with the nurse became extremely important. Through this communication, a more familiar nurse–caregiver relationship evolved, as described by one caregiver, 'I use to phone the nurse weekly at the call centre, because we have the same sense of humour'. A relationship in which the caregivers disclosed their feelings also evolved, and some of the caregivers described this evolvement as having pushed their emotional limits by exposing their inner feelings through technology. The nurses expressed that they believed their communication practices could benefit the caregivers; therefore, they tried to care for the caregivers by showing sympathy and understanding for their situations. One nurse stated, 'It isn't just something I believe. I know that it really is to care for a person when I'm listening to a caregiver who has a demented spouse'. However, distance was also noticed in the manner in which some of the caregivers expressed themselves in their web camera dialogue with the nurses. The caregivers described this practice as just talking about practical things with the nurses. One caregiver explained her choice of distance as 'Actually, I have more people to talk to. I have my sister, son and daughter-in-law, and I usually talk to them. Poor nurse if all of us would burden her with everything!'

A feeling of emotional togetherness was experienced related to the use of the web forum. As one caregiver stated, 'When I'm logged on to the web forum, I don't feel alone anymore, even though I'm not physically together with them'. The feeling of togetherness inspired some of the caregivers to write their messages when their situations were too difficult to discuss on the web camera. If the emotions became too overwhelming during the writing process, the technology gave them the option to take a break before they finished the message. In their written communications, they sometimes used emoticons to underline the meaning of their text. However, some of the caregivers criticised the messages written about everyday life because they wanted more factual knowledge related to their own situations. They showed no interest in participating in changing the content in the web forum. 'Messages such as "Today the weather is beautiful – today I have worked in the garden" – it's just twaddle to me', stated one caregiver. The nurses tried to motivate these caregivers to influence the web forum, and one nurse described her request as follows:

In my group, they are complaining about the content in the web forum, but they don't do anything about it. I tell them to be active

contributors themselves, to make the agenda and to ask for points of view from the others, but they are holding back. (Nurse)

These findings indicate that the technology, despite the physical distance, has the potential to create closeness in healthcare relationships. However, for some reason, this technology also has the potential to create distance in relationships.

A relationship with variation in roles

The findings revealed moderated nurse–caregiver roles compared to the usual power differential within this type of relationship. The relationships indicated that the role variations were based on a relationship in which mutual respect for one another and an attitude of being interested in learning from one another also provided the participants with the opportunity to work together as partners.

In the web forum, nurses were the masters by taking the editorial responsibility of providing relevant information and knowledge to the caregivers. The service was appreciated by the caregivers and was important for their self-development. As one caregiver expressed, 'I've learned so much about this disease and how to handle my home situation. I'm stronger now, and I've improved mentally and become much more secure'. During such relationships, caregivers became receivers of care through written communication. The role of master or receiver in the nurse-caregiver relationship could also be reversed. One nurse said that the oldest caregiver had taught her how to use an alternative platform to obtain a larger image on the web camera. The nurses showed an interest in stimulating the caregivers to come forward to be masters and to express themselves with their qualifications. One nurse expressed the following sentiments:

One thing I've been thinking about a lot lately is that they possess a great deal of knowledge about so many things. I think it's important to call forth experiences from their past. They give so much of themselves, and we will have the opportunity to know each other in a different way. (Nurse)

The nurses showed flexibility in their roles based on an attitude of respect for the caregivers and an interest in learning from them. A nurse reflected, 'Though I'm a nurse, I've gained an insight into the very deep grief they feel when they have to send their spouse away for a stay of respite. It's knowledge I didn't have before I met these beautiful people'.

Nurses and experienced caregivers also collaborated as partners when they demonstrated web camera communi-

cation to other healthcare providers or to new caregivers. A buddy system was also arranged in which experienced caregivers became buddies for new caregivers. If a caregiver was in a difficult situation, the buddy and nurse developed a strategy for further interaction. In this manner, nurses and caregivers became partners and worked together to increase use of the network.

Discussion

We want to highlight two primary issues based on the findings of the study. First, the nurse-caregiver relationships, in which the nurses play a supportive role in using the CMC to strengthen the relationships among the caregiver peer group, are discussed. Thereafter, we discuss the sense of closeness and distance because it highlights the issues that nurses should be aware of when telecare is introduced.

The nurses strengthening the relationship among the caregiver peers

The study findings provide new insights into how the nurse-caregiver relationship evolved during their use of CMC. Depending on the caregiver's activity, the nurses altered their CMC participation from being an active participant or a spectator. The nurses' motivation for this flexibility was to support the caregiver and to strengthen the relationship between the group of caregivers. It was expected that a strong relationship among the caregivers would empower them, and the nursing care would gradually become less dominant. The nurses' approach to their use of CMC aligns with Orem's supportive-educative nursing system (Orem *et al.* 2001). The supportive-educative nursing system will work differently in a CMC network than in a regular face-to-face discussion. Face-to-face conversation is a synchronous communication, in which the nurses might enter the conversation before some of the caregivers have responded. However, the web forum provides an asynchronous communication that gives nurse extended time to observe how everyone interacts in the discussions and to decide when to contribute to the discussion. In a review by Barak *et al.* (2008), asynchronous communication is described as a mechanism that contributes to more open communication than that allowed by synchronous communication. The authors maintain that asynchronous communication provides people with time to write a thoughtful response without feeling pressured for an immediate response, which people might feel in synchronous communication. It also provides people with the opportunity to leave and re-enter the virtual group after having sent

an emotional message. The freedom to leave and return to the group can help people address emotions that have been activated in the web forum. In the present study, we also found that it was important for some caregivers to have the ability to take a break in their writing when their emotions became too hard to manage; therefore, they preferred to write compared to face-to-face communicating.

Computer-mediated communication provides quick and easy access to communication with others, but we also found that some of the caregivers did not like to participate in this type of communication. In this study, some of the caregivers wanted to obtain useful information from the nurses, but they did not share messages with others in the web forum. The effects of contributing messages in online support groups are regarded as empowering for those who convey them (Barak *et al.* 2008). To convey a message makes the passive person into an active contributor, which gives him or her roles as a guide or helper. In this study, it was important for the nurses to inspire the spectators to share their experiences with others. However, their motivation was not enough to change the spectators into active participants. Note that it can be difficult to stimulate people to participate in online groups (Brennan *et al.* 1992). Pfeil *et al.* (2009) found that older people in online support groups were sceptical towards writing self-disclosure e-mails to people they did not know well. Some of them also thought that the necessary level of trust would only be possible to obtain in off-line, face-to-face communication. The opposite perspectives (i.e. the anonymity and invisibility available in online support groups) are also described (Barak *et al.* 2008) as effects that encourage people to disclose more information than they otherwise would have provided. People feel less vulnerable when they write anonymously online, and the invisibility makes it possible to avoid seeing signs of disapproval that would otherwise inhibit some people to communicate. These perspectives show that people have different preferences with regard to online communication.

Closeness versus distance

The findings showed that this technology could create a sense of closeness or distance between the nurses and caregivers. Using the web camera was described as an open and intimate experience. Pols (2011, 2012) also argued that the experience of closeness was more intense with the web camera than with an ordinary phone. The web camera makes the concentration level more intense because the setting is fixed in front of the screen, and people sit and gaze at one another. These descriptions are comparable with the

findings in this study. The focused setting in front of the web camera gave the nurses an opportunity to observe the caregivers' reactions and body language. Some people appreciate that nurses sense that they are unwell. Other people want to maintain a distance and might not like to be questioned about such things. They might feel that this questioning is an invasion of privacy. Pols (2011) describes a situation in which the statement 'You look very tired' was made to the patient and it felt more like surveillance than a follow-up communication. The patient was tired, but not because of her illness. When the topic was broached by the healthcare provider, she felt forced to justify herself for looking tired. The feeling of being invaded and trapped in a rather intense web camera communication might influence how the person adapts to this type of technology. Therefore, the attitude of the healthcare provider seems to be important in delivering virtual care (Travelbee 1966, Barnard & Sandelowski 2001, Nagel *et al.* 2013).

To have a meeting on a web camera is described in this study as 'being together in their dining-room', and the same experience of closeness is also described in other studies (Pols 2011, 2012). When using a web camera, the fact that people are invited into the home and are shown aspects of life that are considered to be private might constrain some people from using this technology. Magnusson and Hanson (2003) described that several frail, older informants in their study felt that people could look into their homes, and, therefore, they switched off the web camera. By using the web camera, you change the geographical distance into a relational closeness, which might feel unnatural for some people. If they feel the relationship with be unnatural, then the web camera communication seems to add to the strangeness, and the communication might become uninteresting for them (Pols 2012). Many people might feel that it is much easier to adapt to using a web camera if they have met the person face-to-face before they connect in virtual communication.

There is reason to believe that the degree of effectiveness the health care service is perceived to have is comparable with the attitude towards the use of technology (Brennan *et al.* 1992, Peeters *et al.* 2012). Arnaert and Delesie (2001) reported that the main reason that older people do not accept the use of technology is that they do not feel that it is useful for their needs. They also state that older people who have little opportunity to connect with others will increasingly accept and adapt to CMC. This finding is consistent with the findings in this study, in which the caregivers who did not experience web camera communication to be supportive for them preferred to attend social meetings instead. There are reasons to believe that the use of

communication technology is not suitable for everyone, and for that reason, it should be given as an option together with face-to-face healthcare services.

Methodological considerations

The strength in this study is that the data have been generated from a well-established health care service, which has been operational for several years, and in this regard, has developed a solid nurse-caregiver practice in CMC. There are, however, some limitations related to the participants. One of the new caregivers' spouse moved into a nursing home and then died during the time of data collection. She wanted to continue to interact with the network and to fulfil her second interview. Her experience could have influenced her sense of belonging to the network in a different manner than if her husband had lived and remained at home. Furthermore, two of the most experienced nurses at the call centre left their jobs soon after their first interview was completed, and this loss might have also influenced the study.

Conclusion

The nurses acquired a general view of the caregivers' activities and situations and responded dynamically to support them individually and also to strengthen the interpersonal relationships among the caregivers. The nurse–caregiver relationship was also characterised by a feeling of closeness to one another, as well as providing the opportunity to withdraw from this closeness to maintain a certain distance. Likewise, the relationship provided possibilities for developing flexible roles of being both a master and receiver of knowledge. A role pattern more like a partnership also evolved between the nurses and experienced caregivers related to the demonstration of the system and in following up with new caregivers. In general, the system has the ability to provide good care to the participant who adapts to the system. However, it is not suitable for everyone; and for this reason, it is important to provide an additional healthcare service.

More research is still needed regarding caregivers and their reservations towards using CMC. Additionally, more research is needed about the experience of changes within the traditional nurse–caregiver pattern when telecare is used to support caregivers in their efforts to care for their sick spouses.

Relevance to clinical practice

This study contributes to the knowledge of telecare dialogue and the interaction that is experienced between the nurses and caregivers. It also helps to bridge the gap between technologies and nursing care as conflicting dimensions.

Disclosure

The authors have confirmed that all authors meet the IC-MJE criteria for authorship credit (www.icmje.org/ethical_1author.html), as follows: (1) substantial contributions to conception and design of, or acquisition of data or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, and (3) final approval of the version to be published.

Conflict of interest

No conflict of interest has been declared by the authors.

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