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Homecare professionals' observation of deteriorating, frail older patients: A mixed-methods study

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Abstract

Aim and objectives: To develop knowledge about homecare professionals' observational competence in early recognition of deterioration in frail older patients.

Background: The number of frail older patients in homecare has been rising, and these patients are at higher risk of deterioration and mortality. However, studies are scarce on homecare professionals' recognition and response to clinical deterioration in homecare.

Design: This study applies an explorative, qualitative, mixed-methods design.

Methods: The data were collected in two homecare districts in 2018 during 62 hr of participant observation, as well as from six focus group interviews. The data were subjected to qualitative content analyses. The Standards for Reporting Qualitative Research (SRQR) checklist was used to report the results.

Results: The data analyses revealed two main themes and five sub-themes related to homecare professionals' observational practices. The first main theme entailed patient-situated assessment of changes in patients' clinical condition, that is, the homecare professionals' recognised changes in patients' physical and mental conditions. The second theme was the organisational environment, in which planned, practical tasks and collaboration and collegial support were emphasised.

Conclusions: The homecare professionals in the two districts varied in their ability to recognise signs of patient deterioration. Their routines are described in detailed work plans, which seemed to affect assessment of their patients' decline.

Relevance for clinical practice: The results can inform homecare services on how homecare professionals' observational competence and an appropriate organisational system are essential in ensuring early detection of deterioration in frail older patients.

KEYWORDS

assessment, clinical observation, deterioration, frail older patients, healthcare professionals, homecare

1 | INTRODUCTION

This paper will address how healthcare professionals in homecare observe their patients' deterioration. Recent developments in health care have brought care "closer to home" (Genet, Boerma, Kroneman, Hutchinson, & Saltman, 2012), resulting in a rising number of frail care-dependent older patients who need advanced homecare (Tarricone & Tsouros, 2008). Expectations in homecare have grown with the demand for care coordination and possibilities for complex treatment at home (Genet et al., 2012).

Frail patients have a higher risk of deterioration and increased mortality (Gobbens, Luijkx, Wijnen-Sponselee, & Schols, 2010), so early recognition and response to clinical deterioration improve patient outcomes (Padilla & Mayo, 2018). Active clinical observation, early recognition, interventions to slow patients' deterioration and the potential for deterioration are all emphasised (Gray, Currey, & Considine, 2018a; Odell, Victor, & Oliver, 2009).

Healthcare professionals in homecare comprise a mix of nurses, skilled health workers and assistants (Genet et al., 2012). These workers play an important role in noticing and responding to patients' deterioration (Gray et al., 2018a; Padilla & Mayo, 2018). Greater expectations in homecare have resulted in a disparity between competence demands and actual worker competence (Bing-Jonsson, Foss, & Bjørk, 2016; Genet et al., 2011; Maybin, Charles, & Honeyman, 2016).

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

- Homecare professionals' observational practice of detecting early deterioration in frail older patients is variable, and vital signs are measured infrequently.
- Improving homecare professionals' observational competence by organising for timely and appropriate treatment is essential in successful recognition of deteriorating, frail older patients.
- This first known Norwegian study of homecare professionals' observational competence in deteriorating frail older patients provide new knowledge to health professionals and policymakers engaged in homecare globally.

2 | BACKGROUND

Frail and dependent patients are common in community health and pose clinical challenges for healthcare professionals. *Frailty* is associated with a higher risk of falls, loss of mobility and functional decline, leading to frequent hospitalisations, institutionalisation, acute events and death (De Vries et al., 2011; Gobbens et al., 2010). Deteriorating patients undergo a clinical decline, increasing their health risks and morbidity chances. Therefore, subjective and objective clinical observations, including vital signs and healthcare professionals' intuition, are important (Jones, Mitchell, Hillman, & Story, 2013; Padilla & Mayo, 2018).

Healthcare professionals in homecare mostly work alone in patients' homes without any bedside support (Genet et al., 2012; Gray et al., 2018a). This autonomous role means that these healthcare professionals carry a substantial responsibility for detecting deterioration in patients' conditions (Gray et al., 2018a; Gray, Currey, & Considine, 2018b). Three factors influence the assessment of a patient: (a) the relationship between education and experience, including clinical assessment and decision-making skills, in homecare workers; (b) homecare workers' assessment-informed decision-making, taking into account data provided by the patient and/or the patient's family; and (c) homecare workers' knowledge about the patient's environmental and individual needs (Gray et al., 2018a).

Enhanced patient acuity and complexity, heavier workloads and changes in care delivery comprise increased challenges for professional decision-making (Gillespie & Peterson, 2009). Clinical judgement and reasoning are essential elements of such decision-making processes (Cappelletti, Engel, & Prentice, 2014). Decision-making is, along with situational awareness, an important nontechnical skill, comprising cognitive and social skills that complement technical skills. Situational awareness and assessment often are used in tandem, describing the building and maintenance of awareness of a workplace situation or event (Flin, O'Connor, & Crichton, 2017). Tanner (2006) describes a model for clinical judgement in nursing, comprised of four features: (a) the knowledge that the nurse brings to the situation, (b) knowledge about the patient, (c) knowledge of the context in which the situation occurs and the nursing unit's culture, and (d) the ability to use a variety of reasoning patterns alone or in combination.

Variability exists in how healthcare professionals recognise and respond to clinical deterioration, often as a result of practice-based and contextual factors (Jones et al., 2013). The homecare context in which professionals make their decisions is markedly different from that of hospitals (Gray et al., 2018a, 2018b). Assessment of deterioration in patients has been conducted in hospital-based research with the goal of reducing in-hospital deaths (Chan, Jain, Nallmothu, Berg, & Sasson, 2010). However, little is known about homecare professionals' recognition of and response to clinical deterioration, and studies of homecare professionals beyond nurses are even more scarce (Gray et al., 2018a). Therefore, this study's aim is to develop knowledge about homecare professionals' observational competence in early recognition of deterioration in frail older patients.

We base our understanding of observational competence as professionals' ability to perform their tasks and meet their obligations (Boyatzis, 1982; Eraut, 1994) using different features of clinical judgement (Tanner, 2006). To specify the aim, the following research question will guide the study: How can homecare professionals' practices and experiences with early recognition of deterioration in frail older patients be described? This paper reports the first phase of a process evaluation of an improvement project designed to

improve homecare professionals' competency and skills in recognising and responding to deteriorating older patients.

3 | METHODOLOGY

Given the limited knowledge of observational competence in the context of homecare, an explorative, qualitative mixed-methods design (Morse & Niehaus, 2009) was deemed appropriate.

3.1 | Design

The qualitative mixed-methods design comprised two methods: participant observation (homecare professionals' practices) and focus group interviews (homecare professionals' experiences). While mixed-methods designs often are associated with studies that combine quantitative and qualitative methods, they also are acknowledged when designing studies involving multiple qualitative methods (Morse, 2010). Morse and Niehaus (2009) claim that in a qualitative mixed-methods design, the two qualitative components should not be weighted equally, and thus, one of the data materials should form the core, while the other should be viewed as supplemental. In this study, participant observation comprised the core component and, thus, involved the main part of data collection. Focus group interviews comprised the supplemental component, that is, the interview data collected were used to complement and better understand the observational data. The data sets were collected simultaneously (Morse & Niehaus, 2009). According to Morse (2010), the use of mixed methods contributed complementary data sources to provide a more nuanced picture of the topic under study—in this case, homecare professionals' observational competence. The Standards for Reporting Qualitative Research (SRQR) checklist was used to report qualitative research (see Supplementary File 1; O'Brien, Harris, Beckman, Reed, & Cook, 2014).

TABLE 1 Characteristics of the two homecare districts

Homecare	A	B
Municipality inhabitants	Over 100.000	20.000
Homecare professionals	80	65
Nurses	30	20
Skilled health workers	30	30
Assistants	20	15
Patients	400	280
Geographic areas	Two	Two
Organisation	Three groups of homecare professionals	Two groups of homecare professionals

3.2 | Setting

The study was carried out in two different municipalities in western Norway. Both municipalities have several homecare districts, and one homecare district (A and B) in each of the municipalities participated in the study (see Table 1).

As observed in these two homecare districts, the professionals visited the patients in their own homes, usually alone. Sometimes, due to the patient's needs, two homecare professionals visited the patient together.

A work shift in homecare started with the homecare professionals reading up on their patients using the documentation system. They attended a meeting at the homecare office, where messages were conveyed, special concerns or issues relating to patients were discussed and patient medications were delivered to the homecare professionals according to their patient lists. The homecare districts organised their daily work according to preplanned work plans, and the homecare professionals visited patients according to their assigned lists. The work plans stated times and schedules for home visits, estimated durations of visits and tasks required. Assigned homecare professionals were responsible for preparing the lists daily. Specific clinical procedures—such as injections, catheterisations and wound care—were expected to be performed by nurses and, thus, had to be taken into account when assigning patient lists to homecare professionals.

3.2.1 | Sample

Homecare professionals comprise nurses (with bachelor's degrees), skilled health workers (with healthcare education at the upper secondary school level) and assistants (without any healthcare education). Most assistants are temporary workers, and some are nursing students who mainly work on weekends. In the remainder of this paper, we will use the abbreviation *HCP* to represent all homecare professionals, including nurses, skilled health workers and assistants.

3.2.2 | Homecare A

Homecare A is located in a city covering two densely populated geographic areas. The HCPs were organised into three groups. Group 1 comprised nurses who visited patients who needed special nursing tasks in both geographic areas. Groups 2 and 3 comprised skilled health workers and assistants who visited patients in the two areas. These two groups included a "resource nurse" who had a consultancy role with the other HCPs and also was visiting patients due to a preplanned working list. One department manager was responsible for all HCPs in the three groups. When home visits were conducted, the HCPs had printouts of their daily work plans. They did not have a digital version of the patient journal system while they conducted home visits, so they needed to update patient journals at the homecare office before and after homecare visits.

3.2.3 | Homecare B

The municipality in homecare B comprised a combination of urban and rural areas. The HCPs were organised into two groups comprising nurses, skilled health workers and assistants, with a department manager supervising each of the groups. The digital work plans were available on HCPs' smartphones; thus, they could update and edit patient journals continuously during visits.

3.3 | Recruitment

The county's Centre for Development of Institutional and Home Care Services (USHT) initiated the improvement project and required researchers to follow the project. A project manager at the USHT organised and led the improvement project. The homecare districts were asked to participate in the improvement project and in the research following the process. Both districts were eager to participate in the project and found the research useful and interesting.

The USHT project manager established contact between the two homecare districts and the researcher. A meeting was arranged at the homecare offices between the first author and the department managers and development nurses. The meeting's purpose was to share information about the research related to the project and to agree on the researcher's role in the two homecare districts.

The professional development nurses in each district acted as contacts for the study, and the department managers in both homecare districts recruited participants for data collection. The department managers asked different HCPs to participate in observations, and the HCPs were recruited in accordance with their time periods and shifts. The first author was not present when the HCPs were asked to participate.

The first author then met at the homecare district at the agreed upon shift to greet and follow the recruited participants. They were also informed about observation as a research method in which the aim was to learn how current practices worked. The department managers also recruited participants for the focus group interviews. Different HCPs were recruited in three different groups based on their competence levels (i.e. nurses, skilled health workers and assistants). The managers informed the first author about dates, times and numbers of participants assigned to the three focus group interviews. The interviews were scheduled with the HCPs' approval and were carried out at the homecare office during their work shifts.

3.4 | Data collection

Data collection was conducted using participant observation and focus group interviews with HCPs.

3.4.1 | Participant observation

Moderate and active participant observations were conducted (DeWalt & DeWalt, 2011) to gain knowledge about HCPs' practices during home visits with patients. The researcher appeared at the office of the homecare district at the start of the work shift (day or evening) and shadowed an HCP (i.e. registered nurse, skilled health worker or assistant) during the shift. Moderate participant observation was used during patient home visits (DeWalt & DeWalt, 2011). During each visit, the researcher remained in the background and did not intervene in any situations or provide any care. To move physically between the patients' home visits, a car was necessary. Active participant observation was used while travelling from one patient's home to the next (DeWalt & DeWalt, 2011). During this travel time, the homecare professional and researcher discussed or reflected on each patient's situation. The HCP shared his or her thoughts on the visit, and the researcher asked supplementary questions for clarification (DeWalt & DeWalt, 2011). An observational guide (see Supplementary File 2) was used during home visits and focussed on work practices, performance of skills related to observation of patient deterioration, interaction between HCP and the patient, job and competency demands, the use of discussions and reflections, and contextual factors. During patient home visits, a few keywords, for example phrases or key elements, were noted. Furthermore, while travelling between patients' homes or while at the homecare district's office, more written information was added. Detailed field notes were written immediately after each observed shift.

The observational core component of the study comprised approximately 62 hr of observation (32 in municipality A, 30 in municipality B) resulting in 51 written pages of field notes.

3.4.2 | Focus group interviews

The study's simultaneous focus group interview component was carried out in the two homecare districts (Morgan, 1997). Six focus group interviews with 30 informants were completed, three in each homecare district. Most of the groups comprised five to seven personnel, with one containing two workers. A semi-structured interview guide was developed (see Supplementary File 3), focusing on how the HCPs detected deterioration in patients, observational routines and practices, which vital signs normally were checked and when, and questions about the organisational structure.

The first author led the interviews and guided the discussions. The second and third authors took field notes and observed interactions in the group. The interviews, lasted about one hour each, were tape-recorded and yielded 82 pages of transcripts. The HCPs in the focus groups showed great interest in the topics.

3.5 | Analysis

The transcripts from the participant observations and focus group interviews were analysed separately (Morse, 2010). Qualitative

TABLE 2 Analysis of observational data related to the theme "Patient-situated assessment of changed clinical condition"

Meaning units	Condensed meaning units	Codes	Sub-themes	Theme
We are talking about clinical deterioration, and I wonder why the nurse thinks she detects deterioration. She is telling it is probably the "clinical sign" then, and laughs…I guess it is about a changed normal condition. And she continues talking about a situation from last Monday. She is visiting a patient who was not feeling well and had a poor appetite. They visited the patient later, the condition had worsened… and they contacted the general practitioner).	The nurse is detecting deteriorating because of changes in the normal clinical condition. The patient she visited had a poor appetite and did not feel well. Later the condition worsened.	Knowing the patient's normal condition/ situation	Knowledge of the patient	Patient-situated assessment of changed clinical condition
While driving the car a nurse is talking about a patient who had fallen on several occasions, and whose condition was worsening.	The patient has fallen lately, deteriorating.	Changed condition	Changed physical and mental function	
The assistant was visiting a patient whose condition has lately changed. Normally the patient managed to stand and walk. The assistant reported the change and the situation was discussed during the report. The general practitioner was contacted and the patient was hospitalised with pneumonia.	The patient did not manage to stand and walk as normal. The changed condition was reported and the patient hospitalised with pneumonia.	Worsened physical condition		

content analysis was used to structure both data sets (Graneheim & Lundman, 2004). The observational data were analysed, with the focus group interviews following the same procedure. The analysis and interpretation of data comprised four stages. In the first stage, all three co-authors read the transcribed data several times to find similarities and differences between parts of the texts. The authors have varied backgrounds in nursing and health services research. The first author has a nursing background and specialises in intensive care nursing, the second author has an engineering background and specialises in quality and safety, and the third author has a nursing background and specialises in operating theatre nursing. The authors discussed the data text in meetings to arrive at a common understanding of the data and tentative codes. In the second stage, the content then was divided into meaning units of related words and statements with the same central meaning. The first author then condensed these meaning units. In stage three, the text was reduced, the core content was preserved, with codes used to label the meaning units. In the fourth stage, the codes were sorted into themes and sub-themes. A discussion of manifest or latent content was central. *Manifest content* comprises descriptions close to the participants, and *latent content* is the underlying meaning (Graneheim & Lundman, 2004). This was a process of working both independently (first author) and collectively, reviewing and discussing the data across all three authors in several meetings. Table 2 offers an example of the analysis related to one of the themes.

After the observational and focus group interview data were analysed, the two data analyses were combined to produce the results descriptions at the point of interface (Morse & Niehaus, 2009), illustrated in Figure 1. The results from both data sets were written together as a single textual description, following the research question. Consistent with our qualitative mixed-methods design, data from the focus group interviews were supplemental to the core observational data and, therefore, were added or used to verify components of the observational data (Morse, 2010).

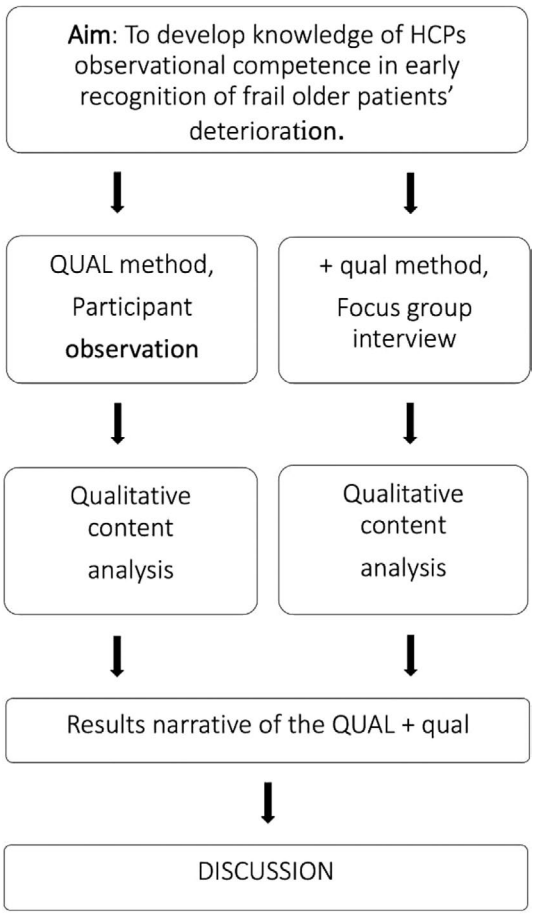

FIGURE 1 The mixed-methods analysis process

3.5.1 | Transparency

Saturation was discussed among the co-authors during data collection and during the analysis process. Assessment of the amount of data needed until no new issues appeared was a continuous process (Saunders et al., 2018). Data collection was discontinued when no additional data were found. Furthermore, the researchers discussed saturation during the analysis process. We found that the complementary data justified the themes emerging from the observations and focus group interviews. We concluded that saturation was reached and was consistent with the research question.

The results from the analysis were presented to HCPs at staff meetings in both homecare districts. The feedback from HCPs was that they recognised the findings and could relate to them as characteristic of their work practices.

3.6 | Ethics

The study was approved by the Norwegian Centre for Research Data (NSD; no 54855). All participants were informed of their right to withdraw at any time and that their confidentiality was protected. All participants provided informed written consent. Transcripts were made anonymous through deletion of identifying information. The participants were assured that the data tapes, and transcripts were stored in line with ethical guidelines and would be deleted after the study was completed. One of the participants in a focus group interview chose to withdraw, and the associated data in the form of interview quotes were not used.

The participant observation involved observing patients during visits from homecare professionals. The first author, who conducted the observations, signed a declaration of confidentiality in the two homecare districts.

The department managers of the two homecare districts were informed that professional ethics would take a higher priority than researcher neutrality (Guillemin & Gillam, 2004), that is, HCPs would be notified if adverse situations arose, but none did.

4 | RESULTS

As a result of the analysis, which entailed integrating observational data with the focus group interview data into common descriptions, two main themes and five sub-themes emerged, as presented in Table 3 and described below.

The themes and sub-themes are described with quotes from the observational data and focus group interviews with the nurses, skilled health workers and assistants. The quotes are labelled to identify type of data collection, homecare district and homecare professional quoted.

TABLE 3 Themes and sub-themes related to early recognition of homecare patients' deterioration

Sub-theme	Theme
Knowledge of the patient	Patient-situated assessment of changed clinical condition
Changed physical and mental function	
Basic understanding of vital signs	
Focus on planned practical tasks	Organisational environment
Collaboration and collegial support	

4.1 | Patient-situated assessment of changed clinical condition

The HCPs focussed on the importance of knowing their patients. Knowing patients was a prerequisite for detecting changed clinical conditions, which were observed as changes in patients' physical or mental conditions. Communication with the patient was emphasised, and the HCP described the documentation system as an important tool for acquiring knowledge about the patient. The HCPs rarely monitored vital signs to detect changed clinical conditions.

4.1.1 | Knowledge of the patient

The HCPs highlighted the importance of knowing the patient well, as knowledge of the patient's normal situation made it easier to detect signs of deterioration. Not knowing the patient seemed to hinder assessment of the patient and affected the HCP's consideration of any changes in condition. Several homecare professionals found it difficult to assess clinical condition when they did not know the patient well:

> We are now going to a patient the nurse does not normally visit. The patient is usually on the skilled health workers' list. The nurse talks about a situation a few weeks ago, when the alarm phone called, and the patient described chest pain. The nurse considered the need for hospitalisation and called the emergency number. The pain was not related to the heart, and the patient was not hospitalised. The nurse says that she did not know the patient well enough.
>
> *(observation, homecare A, nurse)*

They found it difficult to visit unfamiliar patients. When the patient's normal clinical situation was unknown, it was difficult to assess whether the patient's condition changed. Therefore, the HCPs preferred to visit patients regularly. They described this as continuity in their work, in which they could compare a patient's condition from one day to the next and be able to notice changes in the patient's clinical condition early:

> It is easier when the patient is well known. Then I can see the changed clinical condition by using the 'clinical eye'. It is also of great help when patients describe their clinical conditions as changed or bad. Often we come to a patient we do not know—for example on acute alarms—then it is very difficult to discover changes.
>
> *(focus group interview, homecare A, nurse)*

Visits to patients often started with a "Hello," "How are you" or "How do you feel?" When the HCPs visited the patients, they asked questions about each patient's clinical condition and usually asked follow-up questions reflecting the patient's responses or what they knew about their problems or challenges. Findings from the focus group interviews confirm this situation. The informants talked about communication as a tool to detect changed conditions. One nurse explained: "I discover changes by listening to the patient and how they speak. It might also be a risk that I do not recognise possible changes" (focus group interview, homecare B, nurse). Communication was emphasised as a tool from which to elicit information about the patient's situation. Nevertheless, several situations showed that such communication did not lead to further clinical observation of the patient's situation. A gap seemed to exist between the questions asked and the clinical measures implemented:

> This morning, the skilled health worker has three patients on her list at the day care centre. She is going to hand out medications. One of the patients is suffering from COPD. When we arrive, he is eating breakfast. The skilled health worker asks him to come to the usual place to have his inhalations and eye drops. It is easy to see that the patient is struggling with his breathing, with severe obstruction. She sits down by the patient and asks, 'How are you?' and 'Is it hard to breathe?' The patient answers the questions, and talks about his difficulty breathing. She looks at the patient and continues with her planned tasks.
>
> *(observation, homecare B, skilled health worker)*

To gain knowledge about normal and changed patient conditions, the HCPs in both homecare districts attached great importance to precise nursing documentation. The two homecare districts had different documentation systems. HCPs at Homecare B updated the information on patients' situations on smartphones during the visits. This was described as an important tool with which to remain updated about patients' situations. If they needed to call the general practitioner, complete information was available:

> We have the documentation system on our handheld smartphones. There, it is possible to see what is documented about the patient, and who completed the documentation at the last home visit…. Then I can compare. It might happen that the situation is equal. Maybe it is the normal situation or maybe the situation shows a changed condition.
>
> *(focus group interview, homecare B, nurse)*

At Homecare A, the situation was different. The HCPs read and documented the nursing care when they were at the office. The HCPs found that the IT system made it difficult to remain updated on patients' conditions, especially when the HCP had to consider whether the patient's condition was normal or had changed. Furthermore, their computers were described as outdated and their access to terminals limited:

> It is very important for patient safety that I document the patients' conditions. The computers are very bad; they are garbage—they should be thrown out of the window. It is critical. And then we need to wait for an available computer because of the limited access….Documentation is necessary for patient safety. Documentation is evidence of what the homecare professional has observed regarding the patients' clinical situation. We need to have the opportunity to look back and keep updated.
>
> *(focus group interview, homecare A, skilled health worker)*

4.1.2 | Changed physical and mental function

All the HCPs focussed on their patients' clinical condition, which was described as each patient's physical and mental functioning. In many situations, the HCPs described deterioration as a general decline in physical condition, marked by decreased appetite, feeling sick, feeling weak, breathing problems, pain, inability to walk steadily, pedal oedema or falls. Recognising changed patient function was based on patients' descriptions and HCPs' observations:

> I was visiting a patient suffering from dementia. One morning, she did not answer the doorbell. Therefore, I unlocked the door. She was sitting on a chair in the kitchen. She did not speak, I observed weakness in her left foot and arm, and her mouth was drooping. I was quite sure it was a stroke. I called her son and the general practitioner. She was hospitalised and treated for stroke.
>
> *(focus group interview, homecare B, skilled health worker)*

Changed mental function was described when the patient experienced changed behaviour, seemed confused or forgot more than usual:

> I visited a patient who is normally decent and in a good mood and always greets us when we arrive. One day when I came to see her, she scolded me. I understood that something was wrong because this was unusual. I called the nurse… I do not remember what was wrong. In any case, there was a considerable clinical deterioration.
>
> *(focus group interview, homecare A, assistant)*

Many of the symptoms that the patients described were vague and could be an early sign of deterioration or a change in the patients' normal conditions. At numerous home visits, the HCPs defined the situation as normal, although the HCPs experienced variations related to patients' changed conditions. In one case, a skilled health worker visited a patient with Parkinson's disease and noticed a decline in the patient's physical and mental function. The HCP explained that sometimes the patient could walk, but other times could not, and that sometimes the patient also hallucinated. The changed function did not lead to further awareness and assessment of the patient's condition. The skilled health worker described all changed signs as a normal condition. In another situation, a skilled health worker described the following situation of a patient's changed disability in which the patient normally gave many instructions, but on this day, the situation was different:

> The last visit of this day is to a bedridden patient. The patient has nutritional challenges and has extensive need of homecare several times a day. At this visit, the skilled health worker prepared a meal while the patient gave precise orders on how to make the food…. After the visit, the skilled health worker described the patient's situation some time ago. The patient was not well. She prepared the meal as planned, but the patient didn't give any instructions. This day, the patient was somnolent and reacted only while the patient was spoken to; 'the patient was almost unconscious'.
>
> *(observation, homecare A, skilled health worker)*

No common guidelines existed for responding to patients' changed conditions. The HCPs acted differently: "It is very individual how we, as persons and professionals, consider the patients' clinical conditions and deterioration" (focus group interview, homecare A, skilled health worker). There were variations in how the homecare professionals responded to the patients' changed conditions. The assistants claimed that they always contacted nurses when patients' clinical conditions seemed to have changed. Several skilled health workers said that they were unsure what to assess when they were in situations with deteriorating patients. They viewed these situations as being difficult and called the nurses for help. The nurses acted individually. The nurse in the following quote made an extra visit to a patient due to changed physical condition, then decided to contact the general practitioner, and the patient was admitted to the hospital:

> Last Monday, she came to a well-known patient. The patient described a changed and worsening condition with decreased appetite. The information provided the basis for an extra visit in the daily work plan. Then she found a patient who was somnolent, had reduced awareness and seemed to be deteriorating. She measured the blood pressure, which was normal. Measured CRP, which was high – 97. The nurse contacted the general practitioner, and the patient was admitted to the hospital.
>
> *(observation, homecare B, nurse)*

In other situations, when HCPs worried about patients' conditions, they sometimes decided to "wait and see," monitor the patient's vital signs and/or call the general practitioner.

4.1.3 | Basic understanding of vital signs

In a few situations, the HCP monitored vital signs to detect a changed clinical condition. When vital signs were measured, differences existed between the nurses, skilled health workers and assistants.

The assistants in both homecare districts stated that they were not trained to measure vital signs. In homecare A, assistants were not expected to monitor vital signs. This decision was made as the assistants were not trained to take vital signs. However, in homecare B, the assistants measure blood pressure when asked, and when it was specified in the work plans.

The skilled health workers had different expectations in measuring vital signs. In homecare A, they did not usually measure vital signs. In homecare B, the skilled health workers did measure vital signs when planned for.

Nurses in both homecare districts measured vital signs, and in some situations, they observed early deterioration. Respiration rate rarely was checked. They stated that they detected changed respiration merely by looking at the patient, using some kind of intuition or "the clinical eye." Pulse also rarely was checked, but blood pressure was taken more frequently.

Several situations indicate a gap between the patient's clinical situation and what was assessed. In the following situation, the patient had trouble breathing, and the nurses checked the patient's blood pressure:

> On this day shift, we are visiting a patient who is over 90 years old. She lives alone in a semi-detached house. She suffers from COPD and has heart failure and diabetes II. She has just been hospitalised because of pneumonia, and the nurse expresses a concern about the patient to the student nurse while driving the car. The patient had severe heavy breathing, and at the last visit, the nurse checked the blood pressure.
>
> *(observation, homecare A, nurse)*

The nurses took vital signs more often when the patient was critically ill. During a day shift in homecare A, a nurse talked about monitoring vital signs. She described homecare with no common routines, understandings or discussions related to the assessment of vital signs. She said vital signs rarely were monitored and believed they were checked more often when the patient was in a very bad condition, or if the general practitioner (GP) had asked for them. In the following incident, a nurse took the vital signs of a severely ill patient:

> Patient, 70, is suffering from COPD. The alarm phone rings, and the patient announces that he does not feel well and is wondering whether the nurse can check his vital signs. Upon arriving, the patient is sitting on a chair outside the house. The patient has increased sputum production and is struggling to breathe. He follows the nurse and the nurse student inside the house. The nurse asks questions about his situation. He does not feel well at all. He is breathing heavily. The nurse and student nurse start to check the vital signs. The respiration rate is high, 42/min, and the saturation is low, 81%. The patient explains that he does not normally have this low saturation. Normally, it is around 96%…. The nurse wants to call the GP and asks the patient if it is OK.
>
> *(observation, homecare A, nurse)*

4.2 | Organisational environment

The daily work in the two homecare districts was organised in fixed work plans, which affected the HCPs' performance. The patients' needs were preplanned, and changes in the patients' conditions were reflected less in these plans. Furthermore, the HCPs described an organisational environment with busy workdays. Collaboration and collegial support were important, but sometimes described as challenging.

4.2.1 | Focus on planned practical tasks

The HCPs' work plans outlined patients' needs, estimated visit durations and listed what practical tasks were expected to be performed. The patients needed help with many tasks, including hygiene, clothing, administration of medications, meal preparation and feeding, wound care and procedures that included catheterisation, checking blood sugar and helping the patient put on compression stockings. Some patients needed extensive assistance, while others needed less. This was reflected in the work plans indicating allocated time for different tasks. All HCPs visited the patients, though some special practical tasks were allocated to the nurses. Sometimes, the work plan reminded the HCP to assess vital signs, mainly when the GP asked for them. All HCPs followed the work plans, which seemed to affect awareness of patients' conditions:

> It is at an evening shift, and we visit an older man living alone. The skilled health worker rings the bell, opens the door and shouts 'Hello'. The patient is sitting in the living room, without light. He has just returned from the hospital, where he was treated for pneumonia. A letter from the hospital is lying at the table. The medications have been changed, which confuses the patient. The number of tablets does not match. The skilled health worker tries to explain without reassuring. She asks if the patient needs any help. He does not want anything, and the skilled health worker says 'Goodbye'.
>
> *(observation, homecare B, skilled health worker)*

The pneumonia and the recent hospitalisation weakened the patient. The skilled health worker was unaware of the patient's condition and performed the preplanned practical tasks. Overall, limited attention was given to the patient's actual situation in several situations observed; the HCPs mainly followed preplanned tasks.

The HCPs described busy workdays with full work plans, in which their main aim was to accomplish all the tasks. When staff called in sick, it was especially busy. Then, the other homecare professionals received additional patients in their pre-established work plans:

> The day shift starts with three homecare professionals calling in sick, and their pre-planned list of patients needs to be shared with the other lists…. The homecare professionals take care of this situation themselves…. One speaks out and says: 'Today this is not OK. There are not enough of us'. Many patients need help at the same time. Another is looking at a colleague's list and says:'No, you cannot have a list like this. This patient needs to be helped by another person; she is speaking loudly to the others. Afterward, she says, 'I feel sad for this colleague. This is a heavy shift'.
>
> *(observation, homecare A, a report situation)*

The number of patients listed in the pre-established work plans often resulted in limited time for each patient; thus, the HCPs had little time to consider other actions. They tried to keep the visits as short as possible, but if additional tasks or extra visits were needed, it became difficult to finish all the tasks, which the HCPs described as frustrating.

4.2.2 | Collaboration and collegial support

The HCPs worked autonomously, mostly visiting patients alone and conducting assessments and decisions on their own. They emphasised the importance of collaboration and collegial support, which made

them more confident about different patients' situations. In particular, the skilled health workers and assistants stressed the importance of being "safe at work," which they described as having a daily overview of working tasks and a good relationship with their colleagues. Collaboration and collegial support included willingness to ask questions in unexpected situations, request help and discuss patients, which helped them trust their assessments. In some situations, they were certain, while in other situations, they did not feel "safe at work":

> I feel safe when I come to work and know what to do. It is important for me to know what to do, and that my colleagues have the knowledge and know what to do. If others do not know what to do, my burden will increase. It is also important that colleagues dare to ask questions – 'What am I supposed to do in this situation?' …. I do not always feel safe at work because I do not know what to do or how to perform some tasks. This is very frustrating.
>
> *(focus group interview, homecare A, skilled health worker)*

Several HCPs described how the organisational structure of homecare affects collaboration. In homecare A, skilled health workers experienced situations in which it was difficult to ask questions and request help. They related the collaboration problems to how the homecare district was organised. Most of the nurses were organised in a separate group and did not have enough knowledge about the patients in the other groups. Several homecare workers described situations in which nurses did not respond to their questions or concerns and found it easier to collaborate when their group had nurses with joint responsibility for their patients, which this nurse described:

> Many of the nurses only visit patients when responding to an acute alarm, but I often work as a resource nurse in the same group as the skilled health workers. They express frustration, due to the missing support from the nurses. The skilled health workers do not dare to go into the nurses' room because the answers from the nurses often are negative. I do understand their feelings. The collaboration is very difficult.
>
> *(focus group interview, homecare A, nurse)*

The nurses in homecare A described a collaborative distance between the nurses and skilled health workers. Nurses found that the skilled health workers asked many questions and lacked confidence in their judgements of patients' clinical situations. Furthermore, the nurses found it difficult to assess when their competence as nurses was particularly needed.

In homecare B, collaboration generally was viewed positively. Several times during a shift, the HCPs met and discussed patients and situations. Handheld smartphones helped facilitate collaboration between HCPs. Here, they could both visualise where the other HCP was and ask direct questions if needed.

In both homecare districts, temporary staffers were used, and many were assistants who found it easy to ask questions and request help. They described their collaborative experiences as positive.

The HCPs described both positive and negative experiences related to the collaboration. Regardless of experiences, collaboration was described as important, particularly in unexpected patient situations.

5 | DISCUSSION

In this paper, we documented that HCPs' observational competence varies and that early recognition of deterioration in frail older patients is a complex practice comprising a set of issues.

The HCPs in the two homecare districts describe and experience situations in which nonspecific signs and symptoms may be the only indicators of a patient's decline. To detect these vague conditions, HCPs emphasise the importance of knowing patients. Many find it difficult to visit unfamiliar patients to assess their clinical conditions. Knowing how HCPs describe the patient can be the basis for revealing physical and mental changes. Gray et al. (2018a) describe having different data and information sources, creating a holistic view of each patient's situation. Knowing the patient well enough to detect physical and behavioural changes is important in ensuring accurate clinical assessment and decision-making. Similar findings are reported in Odell et al.'s (2009) review of ward patients. Nursing staff in wards struggle to detect and manage patients who are in decline. Tanner (2006) claims that clinical judgement only partially rests on knowledge of the patient. While knowing the patient's salient response patterns, comparing the patient's actual situation to his or her normal situation and allowing for individual responses and interventions are important, there is a risk of taking the patient's situation for granted.

Our results document that HCPs' basic understanding of vital clinical signs and what is needed to monitor deterioration can vary. Early detection of deterioration rarely is considered, and we did not find clear differences among nurses, skilled health workers and assistants in how they notice early signs of deterioration. In a few situations, changes in physical and mental functioning led to the HCPs communicating with the patient and monitoring certain vital signs. However, in most instances, HCPs described relying on intuition and feeling a sense of concern to pinpoint signs of decline. Intuition is fundamental in clinical nursing (Dalton, Harrison, Malin, & Leavey, 2018), though clinical decision-making is complex, and the process of clinical judgement involves more aspects (Tanner, 2006). The results indicated differences when a patient's situation was vague or critical. In these situations, vital signs were measured more frequently. These findings illustrate variations in detecting early deterioration in patients' clinical conditions.

Monitoring and measuring the patient's vital clinical signs were not a priority among HCPs in the two homecare districts studied here. The HCPs expected actions and tasks during home visits to

be part of detailed work plans. This method of organising homecare services might have influenced the possibilities for making independent decisions related to patients' clinical conditions. The relationship between abnormal vital signs and clinical deterioration is well-documented (Padilla & Mayo, 2018), and the real-time issue of such possible clinical change is not specified in the work plans. HCPs then must act beyond the plan in such situations and depend on their autonomous professional role (Gray et al., 2018a; Hughes, 2008). This can in some situations be interpreted as if administrative tasks over-ride clinical practice and patient needs.

In sum, successful recognition of patient deterioration is a complex process involving a routine workflow system, measurements of clinical vital signs, HCPs' interpretation of clinical data and services that can respond rapidly to provide appropriate treatment.

6 | LIMITATIONS

Conducting a mixed-methods study in two homecare districts in Norway creates challenges related to generalisability in both local and international settings. With the aim of establishing knowledge in a new research area, the need to generate rich data using a combination of observations and focus group interviews were prioritised over generalisation. By providing detailed descriptions of HCPs' observational competence, we assert that readers can evaluate the importance of this knowledge in other home-visit contexts (Polit & Beck, 2018; Seale, Gobo, Gubrium, & Silverman, 2007).

Another limitation to address is the role of the participant observer, in which it is important to consider the researcher's influence on the HCPs being observed (DeWalt & DeWalt, 2011). The first author, who conducted all observations, specialises in nursing, which might have led to increased uncertainty among the homecare professionals during the home visits. To compensate, the first author did not mention her background and experience unless asked. There also were benefits to having a health background, including credibility, knowing what to look for and understanding practices during home visits, as well as easier integration of the researcher into the group.

7 | CONCLUSIONS

In this study, we described HCPs' practices and experiences with early recognition of deterioration in frail older patients. We found that awareness of signs of deterioration in the two homecare districts varied and sometimes was quite low. Vital signs were measured infrequently, most often in relation to critical illnesses. HCPs reported that familiarity with the patient facilitated recognition of changed physical and mental status and made dialogue about patients' conditions possible. In addition, the homecare districts' organisational environment influenced the HCPs' practices. HCPs' workdays are organised in preplanned work plans, which affect HCPs' assessments of patients' deterioration.

HCPs have an autonomous role in detecting patients' deterioration. In homecare, many frail, dependent patients exist; thus, HCPs' observational competence including assessment skills are needed to accommodate these patients' needs. Furthermore, it is essential to have an organisational system in which HCPs are expected to act beyond the detailed work plans to detect early deterioration in their patients.

More research is needed to explore how an educational intervention can improve HCPs' competence in recognising and responding to deteriorating patients. In addition, further research is needed that investigates how different organisational systems and policy guidelines affect HCPs' work practices for detecting deterioration in frail older patients.

As described, the homecare field faces a rising number of care-dependent, frail older patients with extensive needs (Genet et al., 2012). A commitment to homecare is needed, requiring increased focus at both the service and research levels.

7.1 | Relevance for clinical practice

Overall, this study's results provide managers and HCPs working in homecare services with important knowledge to consider in facilitating early recognition of deterioration in frail older patients. HCPs' observational competence of deterioration involves a complex set of practices and requirements such as knowing the patient, a basic understanding of vital clinical signs, knowing what is needed to monitor deterioration, intuition, and independent decision-making. There is therefore a need to strengthen the awareness of observational competence of deteriorating, frail older patients consisting of timely and appropriate treatment including measurement of vital signs, both within homecare settings and in educating HCPs. Furthermore, it is essential to have an organisational system in homecare in which HCPs can respond properly to patients' deterioration.

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CONFLICT OF INTEREST

No conflict of interest has been declared by the authors.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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