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ORIGINAL ARTICLE

Community nurse specialists' translation of newly learned knowledge in primary healthcare: A mixed methods study

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Abstract

Aim: To investigate how graduates of a Nurse Specialist Education in Community and Primary Healthcare Nursing programme self-assess their competencies and possibilities to translate knowledge into practice.

Methods: A mixed methods design based on the triangulation convergence model was used. Thirty-four community nurse specialists, who had graduated from a Nurse Specialist Education in Community and Primary Healthcare Nursing programme, participated in a cross-sectional survey and of these; seven nurses participated in a semi-structured interview. Data from the survey were analysed using descriptive statistics and data from the interviews underwent a thematic analysis. All results were combined and compared according to the study design.

Findings: The combined comparison of the results from the survey and the findings from the interviews showed, how the community nurse specialists self-assessed their competencies in direct clinical practice, professional development, ethical decision-making, clinical leadership, cooperation and collaboration, and critical thinking as high. However, they experienced very few opportunities to translate their new knowledge in practice due to low alignment between the statutory purpose of the education and their own expectations.

Conclusions: Competent clinical nurses working in community care settings who completed an education in advanced community care experienced few opportunities to use their new knowledge in practice. The community nurse specialists' expectations of how to use their new knowledge in practice after graduation does not align with the statutory order of the specialist education, which is directed towards combining direct and specialised patient care with coordination of care trajectories for the most fragile patients. It is important to include the managers in coordination of the community nurse specialists' usage of their new knowledge in practice.

KEYWORDS
community nurse specialist, competencies, knowledge translation, mixed methods, primary health care

INTRODUCTION

Over the last decade, healthcare systems have focused on faster patient assessment and treatment, resulting in shorter hospitalisations in Denmark and internationally. Care and treatment are often conducted in patients' homes in order to better manage an ageing population with an increasing number of chronic conditions [1]. Consequently, community-based healthcare has become increasingly important [2, 3] to manage the complex nursing tasks and demands of collaboration and communication across care settings [2]. An increase in evidence-based knowledge and advanced competencies among nurses working in community-based healthcare is therefore needed to secure older patients' health care and treatment, particularly in transitions from hospital to home and at home [4].

In Denmark, a national plan was initiated by the government in 2016 in response to the need to strengthen evidence-based nursing competencies among all primary care nurses [5]. The ambition was two-fold, first establishing a limited master's-level Advanced Practice Nurse (APN) at the university [6, 7] to train nurses who would be responsible for developing clinical practices related to managing complex trajectories between hospital and home for fragile patients. Secondly, the plan established a bachelor's-level Nurse Specialist in Community and Primary Healthcare at university colleges [8, 9], offered to all primary care registered nurses with intend to enhance their clinical competencies to provide specialist in-home care to older people with chronic conditions. Internationally, the clinical role of nurse specialists providing care for older patients in primary health care, henceforth referred to as community nurse specialists, are very similar to the Danish version, with a clear focus on coordinating care and assessing patients' medical, physical, psychosocial and environmental needs [10–12].

The role and competencies of the community nurse specialists have not been scientifically investigated and is still a very new degree in Denmark. Community nurse specialists have existed for many years internationally; however, this role has not yet been investigated in a Danish context. Knowledge is therefore needed on how nurses with newly achieved advanced competencies are able to integrate their knowledge into their present community-based settings.

AIM

The aim of this study was therefore to investigate how nurses from the first two graduating classes of the Nurse Specialist Education in Community and Primary Healthcare Nursing in Denmark's Zealand region self-assessed their competencies and possibilities to translate knowledge into clinical practice.

MATERIALS AND METHODS

Study design

A mixed methods design based on the triangulation convergence model was chosen in accordance with the methodological description by Creswell and Plano Clark [13]. Triangulation was performed by parallel analysis of the quantitative data from a cross-sectional survey and of the qualitative data from semi-structured interviews. Hereafter the results were combined and compared into a final interpretation of the results (Figure 1).

The mixed-method design of this study aimed to expand the survey data with qualitative interviews in order to gain greater insight into the nurses' thoughts and feelings and their context, an area of self-assessment that has been described as a 'black box' [14].

Settings and participants

Using a convenience sampling [15] all nurses ($n = 38$) from the first two graduating classes of the Nurse specialists in community and primary health care nursing education in the region of Zealand, Denmark, were invited to participate in the survey. The community nurse specialists, who graduated from the programme, were employed in community-based care settings in one of the Zealand region's 12 municipalities.

The thirty-eight community nurse specialists were initially approached through an email sent by the first author 3 days before the survey was sent. Of the 38 invited, four were excluded because they had yet not completed the educational programme, leaving 34 included community nurse specialists. The 34 participants completed the community nurse specialist degree in the year 2019 (61.5%) or 2020 (38.5%) in the region of Zealand, were 43 years old on

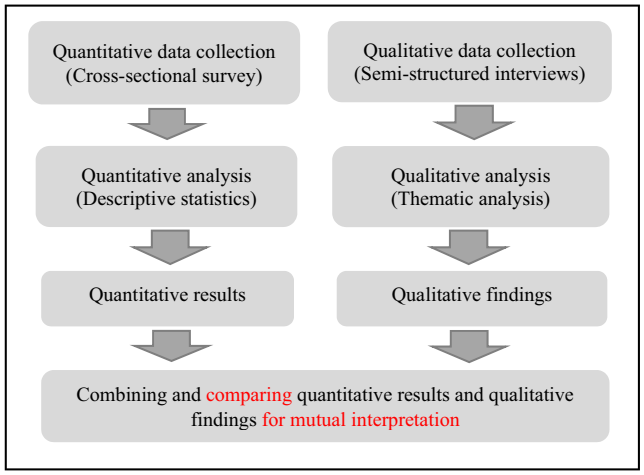

FIGURE 1 The flow of the triangulation convergence model

average, all women, and had been working as RNs for an average of 15 years (Table 1).

Five (19.2%) participants received further education after nursing school at the bachelor level prior to the community nurse specialist programme. Most of the participating nurses had been working in nursing practice for more than 9 years (88.5%) in either community-based care (100%) and/or in a hospital setting (80.8%). Additionally, 88% of the community nurse specialists reported that their workplace had been involved during the community specialist education programme and 65% reported that their workplace had indicated an intention to make use of their new competencies (Table 1).

Of the 34 community nurse specialists participating in the survey, seven participants agreed to participate in a semi-structured interview. The semi-structured interview participants ranged in age from 33 to 57 years (mean age 46 years) and completed their RN degree on average 17 years prior. Five of the semi-structured interview participants held the same position they had held before the specialist education programme, and two had moved to new roles.

TABLE 1 Participant characteristics ($n = 26$)

Variable	Range (x–x); mean ± SD
Age	(29–56); 43.65 ± 8.27
Years as educated nurse	(3–29); 15.17 ± 6.81
Educated as community nurse specialist	*n* (%)
2019	16 (61.5)
2020	10 (38.5)
Years in nursing practice	*n* (%)
≤0 years	0 (0)
1–2	0 (0)
3–4	2 (7.7)
5–6	0 (0)
7–8	1 (3.8)
9–10	4 (15.4)
Over 10	19 (73.1)
Formerly employed in	*n* (%)
Community-based care	26 (100)
Hospital	21 (80.8)
Private sector	2 (7.7)
Other places	3 (11.5)
Education after nursing school	*n* (%)
No	21 (80.8)
Yes	5 (19.2)
Partial bachelor's degree	4 (80.0)
Bachelor's degree	1 (20.0)
Master's degree	0 (0)

Data collection

Following the triangulation convergence model, data were collected using both a quantitative and qualitative approach.

The questionnaire

Quantitative data were collected using a questionnaire that combined demographic questions (age, year of graduation as RN, year of graduation from the community nurse specialist programme, years in nursing practice, places of employment and education after nursing school) with a validated Norwegian questionnaire on nursing competencies [16]. The Professional Nurse Self-Assessment Scale [16] is based on the Nordic Advanced Practice Nursing model and was constructed to evaluate nurse competencies according to the three Aristotelian dimensions of knowledge: episteme, technê and phronêsis. The instrument is based on the Swedish version of the Nurse Clinical Competence Scale (NCCS) [17], which Finnbakk and colleagues [16] translated to Norwegian and strengthened in regard to assessment of advanced clinical skills. The instrument consists of 51 items covering six categories: Direct Clinical Practice ($n = 19$), Professional Development ($n = 5$), Ethical Decision-Making ($n = 11$), Clinical Leadership ($n = 6$), Cooperation and Consultation ($n = 6$) and Critical Thinking ($n = 4$). A 10-point Likert scale was used to measure competencies from 1 (no competency) to 10 (full competency). Cronbach's alpha for this instrument ranges from 0.940 (direct clinical practice) to 0.737 (critical thinking) [16].

The final questionnaire comprised 57 items on demographic data ($n = 6$) and nursing competencies ($n = 51$). The Norwegian questionnaire was translated into Danish and then

back into Norwegian by the first and second author to confirm the Danish translation; linguistically, there is a high degree of similarity between the two languages. The final questionnaire in Danish was evaluated for face validity and content validity (14) by two students attending the Community and Primary Healthcare Nursing programme in the capital region of Denmark. The students' comments were primarily linguistic and on specifying the demographic data. Comments on the translation were discussed among all authors and corrections were made to the questionnaire if necessary.

The semi-structured interviews

Qualitative data were collected via interviews performed by the first author using a semi-structured interview guide. The interview guide consisted of overall questions, beginning with preliminary questions on the participants' background and their considerations in undertaking the specialist education. Furthermore, the guide consisted of four main areas of questions on the community nurse specialists' nursing-, scientific-, collaborative- and organisational perspective after graduation, covering the six categories of the questionnaire, and focused on how the participants translated their new knowledge to clinical practice when working with complex transitional care trajectories. The sessions were digitally recorded and transcribed verbatim by a student worker from the third author's workplace.

Process of data collection

As shown in Figure 1, the process of the data collection reflects the first step of the triangulation convergence model [13].

A link to the survey was sent by the second author via email to the 34 participating community nurse specialists using SurveyXact® in February 2021. The participants had 1 week to complete the questionnaire; reminders were sent at one, 2 and 3 weeks after the first email. Of the 34 community nurse specialists, 26 replied to the questionnaire, resulting in a response rate of 77% after the third reminder.

At the end of the questionnaire, the participants were invited to participate in a semi-structured interview in a setting of their choice. Nine community nurse specialists accepted the invitation; two nurses declined to participate, citing personal reasons and an on-going strike in the municipality. Due to long travel distances in the region, four community nurse specialists chose to participate in the interview over Zoom and three interviews were conducted at the participants' workplaces. The interviews lasted from 31 to 54 min with an average of 45 min. The Zoom interviews were on average 10 min shorter than the face-to-face interviews.

Data analysis

As proposed in the triangulation convergence model, the quantitative and qualitative data were analysed separately [13].

Descriptive analysis was used to analyse data from the questionnaire, using IBM SPSS version 25.0 and was conducted by the second author. The results are presented as the mean and standard deviation of the self-assessed competencies on the 10-point Likert scale and the number and percentage of the highest-rated competencies (rated 9–10 on the scale).

Data from the qualitative interviews were analysed using thematic analysis based on Braun and Clark's [18] methodology. The themes constituting the six categories of the questionnaire were used as focal points for extracting knowledge from the interviews regarding the study aim. Each author performed the analysis separately by generating initial codes and searching for the six themes in the transcribed data material. The authors then met and discussed the content of the themes to be reported.

Finally, the quantitative results and the qualitative findings were combined according to the six categories of the questionnaire and afterwards compared for a mutual interpretation.

Ethical considerations

The participants were informed in writing about the study process, anonymity and confidentiality in the invitation for the survey via e-mail and received a printed folder of the same information before the interview, which was either sent via email or handed to the participants. Consent to participate in the survey was considered present when the participants returned the questionnaire and when consent forms were completed by the participants prior to the interviews. The study was approved by the Danish Data Protection Agency regarding the handling and storage of data (REG-107-2020).

FINDINGS

In this section, the results from the quantitative and qualitative analysis will be presented separately according to the six categories, followed by a combined comparison of the results to show the overall interpretation of data on the community nurse specialists' competencies and possibilities to translate new knowledge into clinical practice.

Direct clinical practice

Quantitative results

The community nurse specialists assessed their competencies in 'direct clinical practice' highly (SD 8.86 ± 1.23), with 68.4% of nurses self-assessing as fully competent in this area (Table 2). The highest scores in this area were in identifying patients' health problems, symptoms and deviations in health status, as well as being both subjective and objective in examinations, with 88.5% of the community nurse specialists assessing their competency in this area at the highest level. The community nurse specialists also rated their competencies in being independently responsible for health assessments (systematic physical examination), examination and treatment of patients with complicated and uncomplicated medical conditions, and being able to map patients' health histories based on their assessments as being their top competencies (80.8%). The lowest rated competencies were evaluating and modifying patients' medical treatment (SD 7.08 ± 2.33; 30.8%) and having knowledge of the side effects and interactions of various types of medications (SD 7.81 ± 1.44; 34.6%) (Table 2).

Qualitative findings

The community nurse specialists reported that they were less involved in direct clinical practice after completing their specialist education, even though direct care was their top qualification, as nurses. Direct nursing care roles had been exchanged for coordination roles, leaving direct patient care

TABLE 2 Direct clinical practice assessment results

	Mean of total ± SD	Full competencies *N* (%)
Direct clinical practice (total)	8.86 ± 1.23	18 (68.4)
I am independently responsible for health assessment (systematic physical examination), examinations and treatment of patients with complicated medical conditions	9.12 ± 1.24	21 (80.8)
I am independently responsible for health assessment (systematic physical examination), examinations and treatment of patients with uncomplicated medical conditions	9.19 ± 1.20	21 (80.8)
I plan and prioritise nursing and medical interventions	8.81 ± 1.41	16 (61.5)
I identify patients' health problems	9.42 ± 1.03	23 (88.5)
I assess patients' symptoms	9.50 ± 1.03	23 (88.5)
I evaluate and modify patients' medical treatment	7.08 ± 2.33	8 (30.8)
I exclude differential diagnoses when assessing patients' health conditions	8.54 ± 1.48	17 (65.4)
I interpret, analyse and reach alternative conclusions about patients' health conditions after a detailed mapping of health history and health assessment (physical examination)	9.12 ± 0.91	21 (80.8)
I apply both subjective and objective methods when examining, treating and caring for patients	9.50 ± 0.71	23 (88.5)
I carry out systematic clinical examinations of my patients	9.04 ± 1.15	17 (65.4)
I utilise medical equipment in an appropriate and accurate manner	9.12 ± 1.24	19 (73.1)
I have knowledge of the effects of medication and treatment for the patients I am responsible for	8.62 ± 1.24	14 (53.8)
I assess the patients' health	9.08 ± 1.06	19 (73.1)
I identify deviations in the patients' state of health and state of disease	9.42 ± 0.81	23 (88.5)
I develop and administer health-promoting and illness-preventive actions for patients	8.23 ± 1.63	12 (46.2)
I assess changes in the patients' pathological picture	9.35 ± 0.94	20 (76.9)
I systematically gather information from each patient about his/her health resources	8.81 ± 1.30	16 (61.5)
I have knowledge of the interactions of various types of medication and what side effects they may cause for the patients I am responsible for	7.81 ± 1.44	9 (34.6)
I take preventive actions regarding the patients' medical problems	8.56 ± 1.26	16 (61.5)

to licensed practical nurses (LPNs). The community nurse specialists expressed a desire to work in a more comprehensive position after their specialist education because they did not pursue further education just to return to the same tasks. As one community nurse specialist said:

> I mean, it is okay to revisit the basic nursing knowledge but that is not my plan for my work. It's something else now. I'm not interested in washing patients and performing basic nursing. That's not where I am.

The community nurse specialists described their desired tasks as planning and coordinating complex trajectories and care, delegating care tasks to other healthcare professionals, and being responsible overall for patient care.

Direct clinical practice – combined comparison

The qualitative and quantitative data revealed similar findings regarding the community nurse specialists taking on coordinating roles in nursing care. The community nurse specialists rated their competencies in being independently responsible for mapping patients' health history and in the health assessments of patients with complicated and uncomplicated medical conditions very highly in their self-assessment scores. However, their link to direct care had been altered during their education, leaving patient care to lower educated colleagues.

Professional development

Quantitative results

The community nurse specialists rated 'professional development', concerning generating a creative learning environment and taking responsibility for the development of quality and competencies, as the lowest of their competencies (SD 7.65 ± 2.19) (Table 3). Only 42.3% self-assessed their competency in 'professional development' to be at the top level. However, 65.4% of the community nurse specialists assessed their competency in taking active responsibility for their own professional development as high (SD 9.00 ± 1.20) (Table 3).

Qualitative findings

Consistent with working in more coordinating roles after graduation, the community nurse specialists reported that the programme did not teach them anything new in nursing; instead, they considered the programme to have renewed nursing knowledge they already possessed. They strengthened their knowledge in nursing coordination and superficial knowledge on nursing concepts. Even though the community nurse specialist had gained more knowledge, they felt prohibited by their managers to use their new competencies in practice. As one participant stated:

> I thought it was very difficult to come back to work after completing the education. You get this boost while studying to get new knowledge and ideas and then you come back to an organization where everything stands still (...). I almost had a work-depression where I thought: Why do you send me to school when you don't want to change anything?

The community nurse specialists reported that there were no requests or plans from their managers about using their new knowledge and competencies after graduation, which was discouraging. The managers also failed to provide time for the community

TABLE 3 Professional development assessment results

	Mean of total ± SD	Full competencies *N* (%)
Professional development (total)	7.65 ± 2.19	11 (42.3)
I generate a creative learning environment for staff at my workplace	7.31 ± 2.02	8 (30.8)
I participate in quality development work at my workplace	6.88 ± 2.92	9 (34.6)
I take responsibility for competence development at my workplace	7.46 ± 2.44	11 (42.3)
I improve routines that fail to meet patients' needs at my workplace	7.58 ± 2.39	11 (42.3)
I take active responsibility for my own professional development	9.00 ± 1.20	17 (65.4)

nurse specialists to develop practice or their colleagues' competencies.

Professional development – combined comparison

The community nurse specialists reported their lowest competencies in generating a creative learning environment and taking responsibility for the development in practice. Additionally, the interviews revealed the community nurse specialists' experiences of having few opportunities for professional development of practice, colleagues or self. The quantitative results showed that only one-third of the community nurse specialists perceived opportunities to develop practice quality, and in the interviews they stated that this lack stemmed from managers' inability or unwillingness to allot resources to this type of work.

Ethical decision-making

Quantitative results

The community nurse specialists assessed their competencies in 'ethical decision-making' highly (SD 9.23 ± 1.04), with 76.6% of nurses believing they were fully competent in this area (Table 4). The highest scores in this area were in taking patients' physical (SD 9.65 ± 0.63), mental (SD 9.38 ± 0.80), and spiritual (SD 9.15 ± 1.41) needs into account in planning care, and adopting an ethical approach in their relationships with patients (SD 9.62 ± 0.70). Furthermore, 80.8% of the community nurse specialists assessed themselves as highly competent in identifying patients' health resources in planning nursing care (SD 9.42 ± 0.90) and emphasising patients' wishes when assessing and planning for nursing care and medical treatment (SD 9.42 ± 0.99). Half of the community nurse specialists (57.7%) self-assessed their competency as high in considering patients' social health needs in care planning (SD 8.88 ± 1.34), supporting patients in mastering their illness (8.73 ± 1.25) and taking active responsibility for creating a good working environment (SD 8.73 ± 1.51) (Table 4).

Qualitative findings

The community nurse specialists explicitly described their work in coordinating and planning care for patients; however, none of them spoke about their ethical considerations in the area of nursing care. Their work consisted of practical issues and the majority held management positions as chief nurses; sometimes they were the only nurse in their workplace.

TABLE 4 Ethical decision-making assessment results

	Mean of total ± SD	Full competencies *N* (%)
Ethical decision-making (total)	9.23 ± 1.04	20 (76.6)
I take patients' mental health needs (mood swings, feelings of hopelessness, depression, etc.) into account when assessing and planning for the health and life situation of patients	9.38 ± 0.80	23 (88.5)
I take patients' spiritual health needs (feelings of meaninglessness, existential needs, beliefs, fear of death, etc.) into account when assessing and planning for the health and life situation of patients	9.15 ± 1.41	22 (84.6)
I take patients' physical health needs (illness, pain, disabilities, etc.) into account when assessing and planning for the health and life situation of patients	9.65 ± 0.63	24 (92.3)
I adopt an ethical approach in my relationship with patients	9.62 ± 0.70	23 (88.5)
I identify and assume responsibility for patients' own health resources in planning nursing care	9.42 ± 0.90	21 (80.8)
I take patients' social health needs (leisure activities, friends, financial situation, etc.) into account when assessing and planning for the health and life situation of patients	8.88 ± 1.34	15 (57.7)
I support and guide patients in mastering their illnesses and health problems	8.73 ± 1.25	15 (57.7)
I maintain an ethical approach towards my colleagues	9.04 ± 1.18	18 (69.2)
I take active responsibility for creating a good working environment	8.73 ± 1.51	15 (57.7)
I put emphasis on patients' own wishes when assessing and planning for nursing care and medical treatment	9.42 ± 0.99	21 (80.8)
I act ethically when caring for patients	9.54 ± 0.76	22 (84.6)

Ethical decision-making – combined comparison

A significant contrast was discovered between the quantitative and qualitative results regarding ethical decision-making. The community nurse specialists self-assessed their competencies in taking an ethical approach in caring as high. However, when asked during the interviews about circumstances concerning the coordination and planning of care, they did not mention taking patients' spiritual and social health care needs into consideration, which can be viewed as related to ethical approaches in health care. Ethical considerations in nursing care may be seen as an integral part of nursing, however, and thus not seen as an additional skill worth mentioning.

Clinical leadership

Quantitative results

The community nurse specialists self-assessed their competencies to be the highest in 'clinical leadership', with 91.7% of the community nurse specialists scoring their competencies at 9 or 10 (SD 9.65 ± 0.62) (Table 5). The category of Clinical Leadership consisted of items related to making their own decisions, working both systematically and autonomously, and taking full responsibility for their actions. All community nurse specialists assessed their competencies to be high in making their own decisions at work (SD 9.69 ± 0.47) and working systematically and autonomously (SD 9.73 ± 0.45). Also related to this area of inquiry, 25 of the 26 nurses assessed their competencies in being correct and accurate in speech and writing highly (SD 9.88 ± 0.43) (Table 5).

Qualitative findings

The community nurse specialists had various perceptions about the concept of clinical leadership in practice, but they were very aware of it as a topic during their specialist education and identified it as something they did all the time in practice. They described working autonomously in coordinating and management positions and reported that their independent work tasks depended on consent from their managers. One nurse specialist proposed a role as a coordinating wound specialist for the municipality and said, when asked about how her workplace expected her to use her new competencies:

> Yes, well [laughing], it was kind of as a joke I wrote [that] in my application. Because I could see it would be meaningful if I became a coordinating wound specialist in the municipality (…) but management was obviously not interested so I'm still in the same position.

The community nurse specialists also described clinical leadership as their main priority after graduating the specialist education and were determined to work in administrative roles.

Clinical leadership – combined comparison

The community nurse specialists rated their competencies as highest in clinical leadership and their possibilities to work autonomously, make their own decisions and take full responsibility for their actions. However, the interviews revealed a contrast in this area, as the community nurse specialists had difficulty defining the concept of clinical leadership. Moreover, the nurses felt restrained in their autonomy and their opportunities for clinical leadership by their nurse managers' lack of acceptance of engaging in new tasks.

Cooperation and collaboration

Quantitative results

Nineteen (73.1%) community nurse specialists self-assessed their competencies to be high (SD 8.94 ± 1.29) in 'cooperation and collaboration' (Table 6). All community nurse specialists believed themselves to be highly competent (SD 9.81 ± 0.40) in consulting other professional experts when needed, and 24 of 26 (92.3%) said they were aware when their medical knowledge was insufficient. The community nurse specialists assessed their competencies in cooperation with physicians (SD 8.15 ± 2.09) and dividing responsibilities between the physician and herself as a nurse (SD 7.85 ± 2.24) as the lowest of their competencies (Table 6).

Qualitative findings

The community nurse specialists described an improvement in their knowledge and competencies in collaboration and cooperation with other health professionals from their education. Their new knowledge enhanced collaboration with physiotherapists, who were excellent at documenting patient plans – sometimes better than the nurses' documentation. However, the community nurse specialists missed collaborating with care teams because they held important knowledge on the patient. The community

nurse specialists also explained that collaboration with patients' general practitioners (GPs) could be problematic. The GPs lacked knowledge about patients' situations and illnesses and were considered by the community nurse specialists as too far removed from the patients. As one participant stated:

> I still think we are behind when it comes to collaboration with the GPs. I think the knowledge we gain during the education makes us more competent and we need more attention from the GPs (...) But it is a struggle. Yesterday I spent 20 min explaining to a GP over the telephone that the patient was not amputated as proposed, though the GP claimed he was.

The community nurse specialists stated that an internship with a general practitioners during their education could potentially improve collaboration.

Cooperation and collaboration – combined comparison

The results from the survey and the interviews revealed that the community nurse specialists found collaboration with the patients' GPs to be problematic. Even though the community nurse specialists had gained knowledge about collaboration and cooperation with other healthcare professionals during their education, translating this knowledge into practice was difficult due to the lack of willingness and/or interest from GPs in particular. However, the community nurse specialists experienced improvements in their collaboration with physiotherapists in coordination of care for the patients.

Critical thinking

Quantitative results

73.1% of the community nurses self-assessed their competencies in 'critical thinking' to be high (SD 8.96 ± 1.41). The majority of community nurse specialists (92.3%) assessed their competencies to be the highest in reflection on their own actions (SD 9.58 ± 0.86) and continuously analysing

TABLE 5 Clinical leadership assessment results

	Mean of total ± SD	Full competencies *N* (%)
Clinical leadership (total)	9.65 ± 0.62	24 (91.7)
I make my own decisions in my work	9.69 ± 0.47	26 (100)
I work systematically	9.23 ± 0.99	20 (76.9)
I work autonomously	9.73 ± 0.45	26 (100)
I take full responsibility for my own actions	9.69 ± 0.68	23 (88.5)
I am correct and accurate in speech and writing	9.88 ± 0.43	25 (96.2)
I understand the consequences my decisions may have for patients	9.69 ± 0.68	23 (88.5)

TABLE 6 Cooperation and collaboration

	Mean of total ± SD	Full competencies *N* (%)
Cooperation and collaboration (total)	8.94 ± 1.29	19 (73.1)
I experience a division of responsibility between the physician and me as a nurse	7.85 ± 2.24	11 (42.3)
I cooperate well with the physician	8.15 ± 2.09	13 (50.0)
I consult other professional experts when required	9.81 ± 0.40	26 (100)
I cooperate actively with other health professionals when coordinating the patients' nursing, care and treatment	9.15 ± 1.12	21 (80.8)
I am cognizant of when my medical knowledge is insufficient when assessing patients' health conditions	9.62 ± 0.75	24 (92.3)
I document the steps taken in assessing patients' needs for nursing, care and treatment	9.04 ± 1.11	17 (65.4)

and evaluating their work (SD 9.00 ± 1.47). However, only 57.7% self-assessed their competencies in having a vision of how nursing should be developed at their workplace as high (Table 7).

Qualitative findings

The community nurse specialists were very explicit in their reflections on improving practice based on the knowledge they gained through their education:

> My colleague and I agree that we have been lifted to see everything from above. We don't frustrate easily over things not working anymore, although we can still be frustrated. But we can pull ourselves back and see it from other perspectives as well.

The new knowledge about organisation and advanced care provided the community nurse specialists with opportunities to take charge, ask questions and initiate improvements in both care and practice. Some of the community nurse specialists reported conducting reflective meetings with care teams, and some shared their knowledge on complex discharges of older patients with care teams.

Critical thinking – combined comparison

A contrast appeared between the quantitative results and the qualitative findings on 'critical thinking'. Only 57.7% of the community nurse specialists reported high competencies on how to develop their workplace but the interviews revealed enhanced critical reflections on this part. The community nurse specialists described critical thinking as a specific competency gained during their education and both survey and interviews revealed that the community nurse specialists reflected critically on their own practice.

DISCUSSION

The aim of this mixed-methods triangulation study was to investigate how nurses from the first two graduating classes of the Nurse Specialist Education in Community and Primary Healthcare Nursing in Denmark's Zealand region self-assessed their competencies and possibilities to translate knowledge into clinical practice. Henceforth the discussion will revolve around the most prominent findings of the combined comparisons in the study.

The community nurse specialists rated their competencies in direct clinical practice as very high, specifically in being independently responsible for mapping patients' health history and in health assessments of patients with complicated medical conditions. However, the community nurse specialists reported that after graduating from the specialist education, their interests moved away from direct patient care, and they preferred to take a more overall role of coordinating care instead of returning to their prior roles. According to the statutory order establishing the specialist education, community nurse specialists are intended to provide direct nursing care for patients with complicated care needs such as multi-morbidity, psychiatric illnesses and substance abuse [9]. In order to provide that care, community nurse specialists should be able to connect clinical, organisational and developmental knowledge. The community nurse specialist programme is not intended to result in moving specialist nurses from patient care to administrative positions. On the contrary, the specialist knowledge gained through the programme should result in advanced care initiatives directed at the most fragile patients [9]. The statutory order therefore proposed a role combining nursing care for the most fragile and complex patients with coordination of care between hospitals and communities [9].

The fact that community nurse specialists reported aiming for coordination or overall roles after graduation potentially feeds into the 'too posh to wash' debate regarding advanced education for nurses and whether it

TABLE 7 Critical thinking assessment results

	Mean of total ± SD	Full competencies *N* (%)
Critical thinking (total)	8.96 ± 1.41	19 (73.1)
I reflect on my actions	9.58 ± 0.86	24 (92.3)
I analyse and evaluate my work continuously	9.00 ± 1.47	20 (76.9)
I perceive opportunities and have visions for how nursing and clinical paths for patients can be developed	8.69 ± 1.59	16 (61.5)
I have a vision of how nursing should be developed at my workplace	8.58 ± 1.70	15 (57.7)

negatively impacts direct care of patients. In the United Kingdom especially, the discussion of whether nurses should be further educated, or if patient care is more paramount, has been thriving in the last decade [19]. Political stakeholders, patients and the public have argued in favour of preventing nurses from further university education out of a fear that nurses will lose their compassion [20]. As Oliver states: 'Nursing seems to be the only profession where people argue that too much education is the cause of problems' [19 p.1]. However, the population of people with multiple chronic conditions is increasing worldwide alongside a growing ageing population [1]. The care of older patients with multi-morbidity is complex [21] and specialist care is necessary, and it is increasingly performed by nurses in the patients' home as a result of shorter hospital stays [2, 3]. It is therefore of highest importance that nurses working in community care settings are educated to provide specialist care and treatment for this population, and that their clinical competencies are valued and strengthened as well as used in direct patient care. In Denmark, the majority of municipalities have ruled that all nurses working in community care must complete the community nurse specialist education programme to upgrade their knowledge. However, this decision may reflect political realities rather than the needs or opinions of care managers at the municipality level.

The community nurse specialists reported few opportunities to translate knowledge into clinical practice due to managers' lack of support, interest or awareness of the intended outcomes of the education. In order to develop practice, management needs to be open to change and the implementation of new knowledge and competencies [22]. In a review study investigating factors that optimise the impact of continuing professional development in nursing, King and colleagues [23] found that organisational support is paramount. Furthermore, King and colleagues [23] found that a lack of managerial support results in poor knowledge translation and generates frustration among otherwise motivated staff. The frustration of being unable to translate new knowledge into practice or further educate colleagues was shared by the community nurse specialists in our study, who felt stymied by managers' focus on everyday practice. This frustration was related to the community nurse specialists' feelings of restraints in their autonomy and in their possibilities to take on clinical leadership due to managers' lack of acceptance of engaging in new tasks. Kitson and Harvey [24] describe that leadership and organisations must prioritise understanding and supporting an initiative as well as provide capacity in order to facilitate successful translation of knowledge into practice. A discussion of the function and value of the specially trained nurses could therefore be facilitated between the community nurse specialists and their managers to merge expectations and build mutual support and understanding. Beside the management, the problem could also have occurred within the education programme itself, if the curriculum was not fully aligned with community nurse specialists' actual roles and functions in practice.

Method discussion

The sample of participants from the region was high, related to the amount of community nurse specialists graduating from the two first classes in the Zealand Region of Denmark. Even though 34 of 38 possible graduates participated, with a response rate of 77%, the sample will still be considered small for a cross-sectional survey [15]. The same limitation can be described for the qualitative interviews, where seven community nurse specialists participated. According to Polit and Beck [15], there should be more than 10–12 interviewees to fulfil saturation. However, by triangulating the two datasets, a broader description is gained [13]. Self-assessment is inherently subjective and it is not possible to verify whether the quantitative assessments of the nurses in this study are reliable or accurate in individual cases [25]. It is therefore profitable to combine the survey results with individual interviews.

This study would have strengthened if it had been possible to include an assessment of expectations of the local community managers regarding the community nurse specialists' new competencies and knowledge in practice. Furthermore, the faculty members of the Nurse Specialist Education in Community and Primary Healthcare Nursing programme could have provided insights about their expectations of the roles of community nurse specialists after graduation, and/or how these expectations were conveyed during the programme.

CONCLUSION

Competent clinical nurses working in community care settings who completed an education in advanced community care experienced few opportunities to use their new knowledge in practice. The community nurse specialists' expectations of how to use their new knowledge in practice after graduation does not align with the statutory order of the specialist education, which is directed towards combining direct and specialised patient care with coordination of care trajectories for the most fragile patients. Likewise, it is important to include the managers in coordination of the community nurse specialists' usage of their new knowledge in practice, to maximise

the benefits from the community nurse specialists' improved knowledge and competencies, and to improve outcomes regarding the nurses' roles and functions after graduation. According to the national plan initiated by the government in 2016, the aim of the Nurse Specialist in Community and Primary Healthcare Nursing programme, was to enhance the professional knowledge and competencies of nurses working in primary care. However, based on the results from this mixed methods study on the two first graduating classes in the Zealand Region of Denmark, there is still room for improvements. Perhaps there is a way to upgrade nurse competencies in community care without moving community nurse specialists out of direct patient care roles.

AUTHOR CONTRIBUTIONS

All authors have contributed to the following: Study design: CB, NM, BHH; data collection: CB, NM; data analysis: CB, NM, HMA, AB, MBR, BHH; manuscript preparation: CB, NM, HMA, AB, MBR, BHH and critical review of the manuscript: CB, NM, HMA, AB, MBR, BHH. All authors approved the final manuscript.

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CONFLICT OF INTEREST

None.

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