Self-reported Professional Competence Among Swedish Contact Nurses in Cancer Care: A Cross-sectional Study

Kaisa Bjuresäter, PhD; Cecilia Olsson, PhD; Maria Larsson, PhD; Jan Nilsson, PhD

Background: Since 2011, patients in Swedish cancer care have been offered a contact nurse (CN). The CN role is to improve patient participation, care continuity, and provide information and manage patients’ symptoms and needs across the whole continuum of the cancer pathway. A competence profile for the CN role is yet to be developed, and it is important to assess CNs’ self-reported competence to assure that they are well equipped for the role.

Objectives: To assess self-reported professional competence among contact nurses working in Swedish cancer care and relate the findings to education level and clinical experience.

Methods: The Nurse Professional Competence scale short form (35 items) was used to assess the nurses’ professional competence. Data were collected through a web-based survey in 2017 in 2 regional cancer centers in Sweden.

Results: One hundred eight CNs participated in the study and reported highest scores in “value-based nursing care” and lowest scores in “development, leadership, and organization of nursing care.” Higher age, extended clinical work experience, and academic degree were significantly associated with higher competence.

Conclusions: CNs with extensive work experience and CNs with an academic degree reported higher scores concerning their generic competence. There is a need in future studies to assess CNs’ specific competence in cancer care.

Implications for Practice: There is room for improvement in the competence development of CNs, primarily in the areas of leadership and organization of nursing care.

What is Foundational: CNs’ competence regarding leadership and organization should be improved, preferably as part of academic education.

Keywords: cancer care, competence, contact nurses, Nurse Professional Competence scale, professional nursing

Background

Nurses represent the largest group of professionals providing care to people with cancer and are central in all stages of cancer care. Alongside developments in the care and treatment of patients with cancer, new and more autonomous roles and functions have been developed for nurses to support this group of patients. Nurse-led interventions and extended roles for nurses in cancer care aim to improve the physical, psychosocial, and emotional wellbeing of people living with and beyond cancer. These roles include the follow-up of treatment side-effects, and psychosocial interventions including the provision of education and support during and after complex treatment regimens, and cancer rehabilitation.

In line with the international development of cancer care and in accordance with the Swedish cancer strategy adopted in 2009, contact nurses (CNs) have gradually been introduced into Swedish cancer care since 2011. Today, all patients diagnosed with cancer should be assigned a CN with the goal being to improve patient participation in care, and the continuity and quality of patient care. In Sweden, patients with cancer are mostly cared for at the outpatient departments of surgical or medical clinics, only attending oncology clinics for a short period for oncologic treatment.

The role of a CN, which has similarities to both that of the oncology nurse navigator and clinical nurse specialist in cancer care, includes coordination of care, providing information of coming steps in treatment and care, and managing patients’ symptoms and needs across the whole continuum of the cancer pathway. In addition, CNs should provide patients and their next of kin with emotional and psychosocial support and mediate contacts with other health care professionals if needed.

Due to the autonomy and complexity of the role, CNs need comprehensive knowledge and high general competences within the areas of nursing care, medical care, psychosocial care, and leadership as well as a high level of morality and ethical awareness. No studies have yet assessed the competence of CNs. Therefore, a larger project aiming to assess and evaluate CNs’ competence and need for competence development was initiate—the Contact Nurse Competence Project (CoNCm). Results from the project will guide the development of and improvements made to the education and preparation of CNs. This is the first paper of the project, reporting on one area of the collected data.

Aim

The aim was to assess self-reported professional competence among CNs working in Swedish cancer care and relate the findings to the education level and clinical experience.
Methods

Approach and Design

This study had a cross-sectional survey design with descriptive aims. The results reported in this article are part of a larger study, aiming to assess and evaluate CNs’ competence, related factors of importance for the role, and need for competence development.

Recruitment

All clinically active CNs from 2 of 6 regional cancer centers representing both urban and rural areas in the middle of Sweden were invited via e-mail to participate in the study. E-mail addresses were retrieved from a regional coordinator in each region. The CNs were working in hospital care both at university hospitals and county council hospitals.

Instrument

Data were collected using the Nurse Professional Competence scale short form (NPC scale-SF). The original NPC scale (88 items) was developed to assess nurses’ competence and has been psychometrically tested. To enhance the usability of the NPC scale, a short form with 35 items (NPC scale-SF) has been developed, which shows good psychometric properties with a stable factor solution (factor loadings from 0.447 to 0.793) and Cronbach Alphas ranging from 0.71–0.86 to 0.86–0.93.

The NPC scales are based on formal competence requirements, derived from the World Health Organization’s (WHO) European Strategy for Nursing and Midwifery. NPC scales have been used internationally to assess professional competence among newly graduated nurses and among registered nurses and specialist nurses with clinical experience in various contexts.

The NPC scale-SF includes 6 competence areas (CAs); nursing care (CA 1, 5 items), value-based nursing care (CA 2, 5 items), medical and technical care (CA 3, 6 items), care pedagogics (CA 4, 5 items), documentation and administration of nursing care (CA 5, 8 items), and development, leadership, and organization of nursing care (CA 6, 6 items). The response alternatives are given on a 4-point scale ranging from 1 "to a very low degree" to 4 "to a very high degree." The response alternative "cannot decide" is also given.

Demographic and professional data included age, sex, work experience as a registered nurse (RN), postgraduate diploma in specialist nursing, academic degree, completed CN course (7.5 ECTS), percentage of working hours spent as a CN, and what cancers the patients that they meet in their work as a CN have been diagnosed with.

Procedures and Data collection

After consent was granted from the Head of the Department of each respective clinic, the work e-mail addresses of CNs were given to the research group. Thereafter, the web-questionnaire was e-mailed to the CNs during the period October to November 2017. Reminders were sent twice.

Data Management

The primary material in the research project, that is, the web-questionnaires, was stored in a secure cloud service at the university and only processed by the research group. The data are archived at the university and will be destroyed after 10 years. Clinical working experience as a RN varied from 1 to 41 years, with a mean of 16.6 years (SD 15.8 years). The mean amount of work experience as a RN varied from 1 to 41 years, with a mean of 16.6 years (SD 15.8 years). The mean amount of work experience as a CN was 3.75 years (45 months, SD 24 months) (not shown in table). The CNs had a varying proportion of their working time as a RN allocated to CN work; half of them had 51% or more of their full-time working hours assigned to CN work (Table 1). Most of them (77%) were stationed at an outpatient unit.

Some CNs were working with a particular group of cancer patients, while others had responsibility for patients with differing cancer diagnoses. The most common group of cancers was breast cancer (18.5% of CNs were working with this group), prostate cancer (18.5%), head and neck cancer (15%), colorectal/lower gastrointestinal cancer (13%), upper gastrointestinal cancer (12%), urological cancer (10%), gynecological cancer (9%), hematological cancer (8%), sarcoma (7%), melanoma (6%), brain tumors (6%), lung cancer (5%), and others (23%). Fifty-eight percent of the participating CNs responded to <60% of the NPC scale-SF questions so were counted as inevaluable and are not included in the analyses. Of 35 items, 20 items were unanswered by 1–4 respondents respectively (0.8%–3.5%, mean 1.83%). Those items were replaced by the group mean of the sample. A sum score for each of the 6 competence areas was calculated by adding together all items and dividing them by the highest possible score in the competence area and then multiplied by 100, resulting in 1–100 values. A higher score indicated better-perceived professional nursing competence. For differences between groups, independent t-test and one-way ANOVA with Tukey and Hochbergs post-hoc test were used. The Levene test was used to assess the equality of variances for a variable calculated for two groups. Statistical significance was set at P < 0.05.

Ethics

This study was granted ethical approval by the Regional Ethical Review Board, Uppsala, Sweden, Dnr 2017/325. CNs were informed of the study procedure and the study aim via an information text included in the web-questionnaire, which also informed them of its voluntariness and confidentiality. The act of CNs answering and submitting a questionnaire was considered as them providing informed consent.

Results

All CNs working in the 2 regions (n = 453) were invited to participate in the study, and 114 of them agreed to participate (response rate 25%). Responses from 6 CNs were incomplete and were therefore excluded from the analysis. Thus, the sample consisted of 108 CNs including 103 women and 3 men (2 missing answers), with a mean age of 47.5 years, (SD 48, range 27–64 years) (Table 1).

Educational Level and Clinical Experience

Nearly half of the participating CNs had undergone a postgraduate diploma in specialist nursing (47%); specialization in surgical care 5%, oncological care 19%, and other areas such as district nursing, children care, intensive care, anesthesia, or midwifery 22% (Table 2). More than half of the participating CNs had an academic degree (60%) and more than half of the participants had completed a CN course worth 7.5 ECTS focusing on the role and function of the CN (61%).

Most of the RNs were employed by the county council (89%) and the others were employed by a private caregiver (11%). Clinical working experience as a RN varied from 1 to 41 years, with a mean of 16.6 years (SD 15.8 years). The mean amount of work experience as a CN was 3.75 years (45 months, SD 24 months) (not shown in table). The CNs had a varying proportion of their working time as a RN allocated to CN work; half of them had 51% or more of their full-time working hours assigned to CN work (Table 1). Most of them (77%) were stationed at an outpatient unit.

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## Table 1.

Contact Nurses’ Self-reported Professional Competence for the Total Group and in Relation to Educational Level and Clinical Experience (n = 108)

<table>
<thead>
<tr>
<th>Age*</th>
<th>N (%)</th>
<th>CA 1, Mean (SD)</th>
<th>CA 2, Mean (SD)</th>
<th>CA 3, Mean (SD)</th>
<th>CA 4, Mean (SD)</th>
<th>CA 5, Mean (SD)</th>
<th>CA 6, Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>108</td>
<td>87.2 (9.8)</td>
<td>93.9 (7.5)</td>
<td>87.3 (9.8)</td>
<td>83.4 (10.3)</td>
<td>84.1 (9.1)</td>
</tr>
<tr>
<td>Mean 47.2 (27–64 years)</td>
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</tr>
<tr>
<td>27–47 years</td>
<td>55 (51)</td>
<td>87.2 (9.7)</td>
<td>95.9 (5.4)</td>
<td>87.8 (10.1)</td>
<td>82.9 (10.1)</td>
<td>83.9 (9.8)</td>
<td>77.8 (8.8)</td>
</tr>
<tr>
<td>48–64 years</td>
<td>53 (49)</td>
<td>87.2 (10.0)</td>
<td>91.9 (8.7)</td>
<td>86.7 (9.5)</td>
<td>83.9 (10.6)</td>
<td>84.2 (9.6)</td>
<td>77.8 (10.1)</td>
</tr>
<tr>
<td>Academic degree*</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yes (bachelor or master 1 year)</td>
<td>66 (61)</td>
<td>87.7 (9.7)</td>
<td>95.1 (6.5)</td>
<td>87.4 (9.8)</td>
<td>84.8 (10.2)</td>
<td>86.0 (9.0)</td>
<td>80.1 (10.1)</td>
</tr>
<tr>
<td>No</td>
<td>41 (38)</td>
<td>86.3 (9.9)</td>
<td>92.5 (8.2)</td>
<td>87.3 (9.8)</td>
<td>81.6 (10.5)</td>
<td>81.3 (8.8)</td>
<td>74.8 (7.6)</td>
</tr>
<tr>
<td>Contact nurse course 7.5 ECTS*</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>66 (61)</td>
<td>87.9 (9.7)</td>
<td>94.6 (7.0)</td>
<td>88.7 (9.4)</td>
<td>84.6 (10.3)</td>
<td>85.0 (9.4)</td>
<td>79.1 (9.4)</td>
</tr>
<tr>
<td>No</td>
<td>42 (39)</td>
<td>86.2 (10.1)</td>
<td>93.0 (8.1)</td>
<td>85.2 (10.3)</td>
<td>81.6 (10.1)</td>
<td>82.7 (8.7)</td>
<td>76.0 (9.5)</td>
</tr>
<tr>
<td>Work experience as an RN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1–2 years</td>
<td>5 (4)</td>
<td>72.8† (5.2)</td>
<td>93.0 (10.3)</td>
<td>77.6 (7.1)</td>
<td>78.0 (8.7)</td>
<td>72.6 (10.3)</td>
<td>69.7 (7.8)</td>
</tr>
<tr>
<td>3–5 years</td>
<td>7 (6)</td>
<td>83.5 (8.5)</td>
<td>95.7 (4.9)</td>
<td>79.1† (11.2)</td>
<td>76.7 (4.1)</td>
<td>83.9 (11.1)</td>
<td>79.1 (13.4)</td>
</tr>
<tr>
<td>6–41 years</td>
<td>77 (71)</td>
<td>87.5 (11.1)</td>
<td>94.1 (7.5)</td>
<td>88.1 (10.8)</td>
<td>85.5 (11.5)</td>
<td>84.9 (10.3)</td>
<td>78.9 (11.1)</td>
</tr>
<tr>
<td>Percent of full time working hours allocated as CN*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1%–50%</td>
<td>52 (48)</td>
<td>84.9 (10.2)</td>
<td>93.1 (8.3)</td>
<td>87.8 (9.3)</td>
<td>82.2 (10.5)</td>
<td>82.9 (9.1)</td>
<td>77.2 (9.9)</td>
</tr>
<tr>
<td>51%–100%</td>
<td>55 (51)</td>
<td>89.5 (9.1)</td>
<td>94.6 (6.7)</td>
<td>87.3 (9.7)</td>
<td>85.2 (9.0)</td>
<td>85.5 (8.8)</td>
<td>78.6 (9.0)</td>
</tr>
<tr>
<td>Consider themselves to be competent in the CN role*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>97 (90)</td>
<td>87.8 (10.1)</td>
<td>94.4 (7.3)</td>
<td>87.6 (9.8)</td>
<td>84.1 (10.3)</td>
<td>84.6 (9.1)</td>
<td>78.5 (9.3)</td>
</tr>
<tr>
<td>No</td>
<td>11 (10)</td>
<td>82.0 (5.8)</td>
<td>89.6 (7.5)</td>
<td>84.5 (9.8)</td>
<td>77.8 (8.7)</td>
<td>79.4 (9.0)</td>
<td>71.9 (9.0)</td>
</tr>
</tbody>
</table>

Abbreviations: CA, competence area; CA 1, nursing care; CA 2, value-based nursing care; CA 3, medical and technical care; CA 4, care pedagogics; CA 5, documentation and administration of nursing care; CA 6, development, leadership, and organization of nursing care; CN, contact nurse.

The higher the score is, the better the self-reported competence.

*Independent t-test.
†Significant differences using one-way ANOVA with post-hoc test Tukey and Hochberg.

## CN’s Self-reported Professional Competence in Relation to Educational Level and Clinical Experience

Participating CNs’ self-reported competence scores in the 6 competence areas ranged between 77.8 and 93.9. The highest scores were found in the CA “Value-based Nursing Care” (CA 2), and the lowest scores were found in “Development, Leadership, and Organization of Nursing Care” (CA 6). When exploring the connection between age, clinical experience, educational level, and the 6 CAs, there were several significant differences. A lower age (27–47 years old) was significantly associated with higher scores in “Value-based Nursing Care” (CA 2).

Having an academic degree was significantly associated with higher scores in “Documentation and Administration of Nursing Care” (CA 2), “Development, Leadership, and Organization of Nursing Care” (CA 6), and “Value-based Nursing Care” (CA 2). and the lowest scores were found in “Development, Leadership, and Organization of Nursing Care” (CA 6). When exploring the connection between age, clinical experience, educational level, and the 6 CAs, there were several significant differences. A lower age (27–47 years old) was significantly associated with higher scores in “Value-based Nursing Care” (CA 2).

## Discussion

The aim of the current study was to assess self-reported professional competence among CNs working in Swedish cancer care and relate the findings to education level and clinical experience. As CN is a new role for nurses in cancer care in Sweden, it is important to describe and evaluate the CN role in terms of competence. The results showed that half of the participating CNs in the study had undergone a postgraduate diploma in specialist nursing or a specialization in oncology care or other relevant area, and more than half of the participating CNs had an academic degree.

## Table 2.

### Number of Contact Nurses with a Post Graduate Diploma in Specialist Nursing and an Academic Degree

<table>
<thead>
<tr>
<th>Total (n)</th>
<th>No Academic Degree (n)</th>
<th>Bachelor Degree (n)</th>
<th>Master, 1-y Degree (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialization in surgery care</td>
<td>6</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Specialization in oncology care</td>
<td>21</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Specialization in other areas</td>
<td>24</td>
<td>10</td>
<td>7</td>
</tr>
</tbody>
</table>
Holding an academic degree has also been shown in previous studies to be associated with high scores regarding self-reported competence.\textsuperscript{25-28} As the CN role requires independent responsibility, it is necessary to stress the importance of CNs having an academic degree as RNs’ academic competence has been shown to be vital to quality of care and patient safety.\textsuperscript{17,29} An academic degree can also strengthen CNs’ leadership skills and independency, which is in accordance with the national description of the CN role. Leadership and organization skills are important in both CNs’ nursing work and in organizing care and quality development.\textsuperscript{20,21}

The CN role includes providing information of treatment and care as well as managing patients’ symptoms and common nursing problems related to oncology treatment across the continuum of the cancer pathway.\textsuperscript{30} It also includes supporting patients and their families during the cancer trajectory. All this together requires in-depth knowledge of cancer care.\textsuperscript{31}

The need for specialized oncology nurses and advanced nursing roles in cancer care is increasing.\textsuperscript{2} The development of an autonomous advanced nursing role in cancer care has been evolving over the last 20 years both in Europe and in the United States.\textsuperscript{31} Both the role of clinical nurse specialist in oncology\textsuperscript{41} and oncology nurse navigator\textsuperscript{41} have several similarities with the Swedish CN role, but one difference is that many CNs often work in a surgical care context, and few CNs have a specialization in oncology nursing, which also was shown in the current study. The Swedish CN also has a stronger focus on direct nursing care in terms of assessing and managing patients’ symptoms and needs and less coordination of and education within the role than the oncology nurse navigator. Since the role and function of CN is rather new in Sweden, studies within this area are needed. Furthermore, to ensure an optimal care model for CN, future research should be directed toward a sustainable care from an organizational and health economic perspective.

Today’s advances in oncologic treatments and cancer rehabilitation places high demands on CNs to have in-depth knowledge and a high level of competences in cancer care, treatment of side effects, and survivorship care.\textsuperscript{2,22} A specialist nurse education on advanced level aims to promote RNs’ clinical competence in assessment, planning, and provision of care.\textsuperscript{33} However, in the present study, there were only a few participating CNs who were specialists in oncology or cancer care. All RNs who provide complex supportive care for cancer patients should be oncology specialists,\textsuperscript{34} and this should also include CNs.

The prevalence and incidence of patients living with cancer is increasing which constitutes a challenge for RNs and other healthcare workers.\textsuperscript{35} Nursing care is important as patients living with cancer report unmet needs in relation to their care,\textsuperscript{2,36} and CNs can play an important role in this. All cancer-patients in cancer care are supposed to get the same high-quality level of care.\textsuperscript{37} It is therefore of utmost importance that those who plan and organize the care ensure that the CNs have optimal competence for the assignment. In Sweden, a generic university course for CNs worth 7.5 ECTS has been developed focusing on the CN role, aiming to strengthen CNs’ ability to independently provide patients and their relatives with high-quality nursing care.

In the current study, there were no significant differences found in self-reported competence between the participating CNs who had completed the CN course and those who had not undergone the course. However, this is not surprising as the course focuses on the CN role and function rather than on strengthening the CNs’ competence autonomously with specific competence in, for example, care pedagogics, development, and leadership in nursing cancer care. In this study, we have assessed CNs’ generic competence using the NPC scale-SF. In future studies, there is a need to assess CNs’ specific competence in cancer care concerning, for example, consequences of illness, treatment, and cancer rehabilitation, and additional instruments specific to cancer nursing and cancer services should be used. It is important to identify what competence CNs need to meet current and future care where more patients live with the consequences of illness and treatment for a long time.

**Methodological Considerations**

Since it was desirable to assess the CNs’ self-rated competence with a scale based on formal competence requirements for nurses, the NPC-scale SF was an appropriate instrument for measuring nurses’ generic self-reported competence, and for relating this to education level and clinical experience. The NPC-scale SF has previously been used to assess newly graduated\textsuperscript{17,37} and registered nurses\textsuperscript{14} self-reported competence. The NPC-SF with 35 items has shown good psychometric properties.\textsuperscript{13,14} The Cronbach’s alpha for the NPC scale-SF in the current study was >.70 for all competence areas and >.90 for the total scale, indicating acceptable internal consistency. The participating CNs responded to all items in the questionnaire to a high extent. The response alternative ‘cannot decide’ was selected on 31 of the 35 items ranging from 0.9% to 17.6%, mean 3.67% of the participants’ responses. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist for cross-sectional studies was used.

**Limitations**

This is a small study, which must be considered when reading the results. One limitation of this study is the low response rate, which reduces the possibility to generalize the findings to a wider population, and another is the differences in some of the subgroup sizes. We do not know the reason for nonparticipation nor if nonparticipating CNs would have answered differently. However, the study was conducted in both rural and urban areas in Sweden and CNs working with a wide range of patients with different cancer diagnoses are represented, which strengthens the transferability of the results. Data were collected in 2017 which can be seen as a limitation. The CN education has not changed during this period but changed work environment conditions during the pandemic may have had an impact on CNs’ competences.

**Conclusion**

To conclude, the role of the CN is relatively new in Swedish cancer care and therefore it is of importance to assess CNs’ competencies to guide future competence development. This can contribute to strengthening their supporting role when caring for patients living with and beyond cancer. The CNs included in this study reported the highest scores in “Value-based nursing care” and the lowest scores in “Development, leadership, and organization of nursing care.” CNs with extensive work experience and those with an academic degree reported higher scores concerning their own competence. As this study measured CNs’ generic nursing competence, there is a need in future studies to assess CNs’ specific competence in cancer care.

**Acknowledgments**

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