Scientific Research

Use of a National Clinical Final Examination in a Bachelor's Programme in Nursing to Assess Clinical Competence—Students', Lecturers' and Nurses' Perceptions

Unn-Britt Johansson[1,2]*, Petra Lilja Andersson[3], Maria Larsson[4], Kristina Ziegert[5], Marianne Ahlner-Elmqvist[3]

[1]Sophiahemmet University, Stockholm, Sweden
[2]Department of Clinical Science and Education, Södersjukhuset, Karolinska Institutet, Stockholm, Sweden
[3]Department of Health Sciences, Faculty of Medicine, Lund University, Lund, Sweden
[4]Department of Health Sciences, Karlstad University, Karlstad, Sweden
[5]School of Social and Health Sciences, Halmstad University, Halmstad, Sweden
Email: *unn-britt.johansson@shh.se

Abstract

Objective: The objective of this study was to evaluate the perceptions of students, lecturers, nurses and clinical lecturers regarding the ability of the National Clinical Final Examination (NCFE) to assess clinical competence, and whether the assessment was consistent with the qualifications for a Bachelor of Science in Nursing as outlined by the Swedish Higher Education Authority. The NCFE is divided into two parts (written and bedside) and aims to evaluate third-year nursing students' clinical competence. Methods: Data were collected at 10 universities using study-specific questionnaires. The total response rate was 84% (n = 1652). Results: The clinical lecturers indicated that there was a need for improvement in the written part of the examination in order to adequately assess clinical competence. Regarding the bedside part the clinical lecturers, nurses and students perceived that the bedside part of the examination assessed whether the student had the clinical competence required by a newly registered nurse. Conclusion: The two-part examination described in this study was perceived as useful for assessing clinical competence and for the qualification requirements for a Bachelor of Science in Nursing as outlined by the Swedish Higher Education Authority. However, especially the written part requires further development. The model and form of assessment ought to be applicable to graduate nursing programme internationally.

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*Corresponding author.

Keywords

Assessment, Clinical Competence, Nurse Education, Students

1. Introduction

Currently in Sweden, 25 different graduate nursing programmes are offered by different universities, all of which vary regarding organization, content, and quality. Furthermore, the quality outcomes, *i.e.*, the general and professional goals outlined for nursing programmes, vary among these universities [1] [2], and there is considerable variation in the amount of clinical practice offered [2]. Similar variations are reported in other Western European countries [3]. Reforms in nursing education involving the shift into higher education have raised questions about the clinical competence of newly graduated nurses and concerns have been expressed among nurses about the assessment of students, and ensuring they have the clinical knowledge and skills necessary to work as a professional nurse [4]. To meet the future competence challenge, a systematic assessment for measuring competency in clinical practice needs to be developed [5].

Clinical competence is regarded as the interplay of interpersonal and technical skills with critical thinking and decision-making, in which cognitive, psychomotor, and affective skills are included [6] [7]. Moreover, clinical competence is predominantly described as a process in which the nurse continuously develops their own ability to respond to a changing clinical environment, simultaneous with providing safe, effective, accountable and ethical nursing care [8]. However, the definition of the term "clinical competence" lacks consensus, even though competence-based education is evident [9] [10].

The assessment of competence is complex, mainly because competence comprises a complex integration of knowledge, skills and attitudes [11]. Thus there is a need for more than one method of assessing competence. The method used must meet the criteria on quality: such as authenticity, cognitive complexity, meaningfulness, fitness for purpose, fitness for self-assessment, acceptability, fairness, transparency, educational consequences, reproducibility and comparability, and cost and efficiency. Furthermore, assessment must be aligned with the goals of the learning process (*i.e.*, the acquisition of competence), and with the instruction provided [12].

The assessment of clinical competence has become central to nurse education, although it can be difficult to decide what to assess, or whether competence should be assessed globally or through multiple competencies [9]. A multi-method strategy has been suggested [13] for the assessment of clinical competence in nursing to ensure the assessment reveals whether or not students have achieved the complex repertoire of knowledge, skills and attitudes required for competent practice. This assessment would include expert evaluation, simulated situations and self-evaluation by students and involve the patient. The benefits of inter-institutional collaboration in competence assessment and the importance of preparation for use and support for both assessors and students have been highlighted [14]. Furthermore, competence-based assessment is often developed through collaboration within the work field to bridge the gap between learning and working. Thus, competence-based assessments should appropriately reflect professional practice and offer clear guidelines for critically judging student competence in professional situations [15].

Various methods, tools and grounds for assessing competence have been developed, such as: performance assessment [16], rating scales [17], simulations [18] and portfolios or diaries [19]. These assessment should reveal different aspects of clinical competence, such as clinical/technical skills [20]-[22], critical thinking ability [23]-[25], leadership skills [26], and self-esteem [27]. It is recommended that the competence of nursing students should be accessed through direct observation of practice [28]. The observation of students in a variety of ways and settings, at different times and through a variety of assessors, would provide a reliable assessment of their clinical competence, and a comprehensive picture that allows divergent opinions to be taken into consideration [29]. In addition, reflective approaches integrating theory with practice in realistic settings appear superior, and multi-method approaches are preferable for assessing the different domains of clinical competence [30].

The model for determining nursing students' clinical competence evaluated in this study was implemented in the nursing degree programmes in Sweden in 2007, in connection with the Bologna process [31]. The development of the model began before the introduction of the Bologna process, and the focus is currently on maintaining a clear connection between learning outcomes, learning activities and examination, commonly referred to as constructive alignment. Constructive alignment is an example of outcome-based education [32].

The National Clinical Final Examination (NCFE) is divided into two parts (written and bedside), and assesses nursing students' clinical competence at the end of the programme; the aim being to assess how well the students have integrated the knowledge gained from theoretical and practical studies. Hence, the students' knowledge, skills, capacity for critical thinking, problem-solving ability, ethical reasoning, independence and readiness to act are included in the examination. In the model there is a continuous collaboration between faculty and clinical practice in all parts of the examination.

The written part of the examination (four hours), taken simultaneously at all participating universities, is based on problem-solving, and consists of two patient cases describing realistic caring situations from medical-surgical- or geriatric care, in which the patient is followed throughout the care trajectory. As the examination proceeds, the situation and the conditions change, and new information about the patient is provided: the students are not allowed to go back to previous pages and change what they have written. In order to ensure the fairness and reproducibility in the marking of the examination, a template of criteria is designed for each question and approved by the board of the NCFE. The written part is marked by experienced lecturers in nursing who are familiar with both clinical nursing and the Swedish Bachelor's programme in Nursing.

The bedside part of the examination (four hour) comes after the written part. During the bedside part of the annual clinical placement, the students care for patient in need of comprehensive medical and nursing care. During the examination the student is observed by a qualified nurse called the "nurse", who is guided by a structured assessment tool covering different areas of competence for registered nurses and includes both theoretical and practical nursing. Necessary competences are assessed in relation to the student's problem-solving ability in a caring situation. The bedside test has a clear structure involving three steps: the assessment of needs and problems, analyses and planning; the implementation and evaluation of nursing activities; and, reflections and final judgment. In the first and second steps the student assesses the needs/problems of the patient, then plans, provides and evaluates the medical and nursing care. In the third step, the student presents and reflects upon the first two steps, together with the nurse and clinical lecturer. The student is expected to demonstrate adequate capacity for reasoning based on theory about issues of relevance in patient care, and the nurse obtains feedback from the patient about the student's performance. The final assessment is made by the clinical lecturer, resulting in a decision to pass or fail the student [31]. In summary, the two-part examination involves the assessment of the learners' knowing, knowing how, showing how and doing and is in accordance to Miller'-s framework for the assessment of clinical competence/skills [33]. The students must pass both the written and bedside parts to be able to graduate and apply for registration as nurses at the Swedish National Board for Health and Welfare.

The examination should be planned in accordance to the learning objectives of the course or the competence essential for a particular specialty [34]. The perceptions of the students and the assessors of the tools used for evaluation and assessment have an important additional value. Students' perceptions influence their approach to learning and studying and inappropriate assessment procedures can encourage a surface approach rather than a deep approach. Assessors' perceptions can also influence the assessment [35]. Therefore, the evaluation of the participants' perceptions of NCFE ensures the examination assess whether the students have the required knowledge, skills and abilities to take on the role of a graduate nurse. Furthermore, designing effective and adequate assessment methods will improve educational practice and improve the quality of learning and education for nursing students. The aim of the study was to evaluate the perceptions of the students, lecturers correcting the papers, nurses, and clinical lecturers about the ability of the NCFE to assess clinical competence, and whether, the assessment was consistent with the qualifications outlined by Swedish Higher Education Authority (SFS 2006:1053) [36].

2. Material and Methods

2.1. Design

The NCFE board formed a research team whose assignment was to develop a survey study with an evaluative and descriptive design.

2.2. Sample

The sample consisted of four groups, students (N = 577), nurses (N = 388), clinical lecturers (N = 98) and lec-

turers (N = 28) from ten Swedish Universities which had used the NCFE at least twice and were collaborating in the NCFE.

The Bachelor's degree of Science in Nursing in Sweden entails three academic years, six terms. The participating students had completed their fifth term and were in final term of the nursing programme. The lecturers and the clinical lecturers were employed at the universities. The nurses, employed at various clinical departments, were responsible for the care of the patients and the assessment of the students during the bedside part of the examination. The clinical lecturer should be a registered nurse (RN), with a one-year Master's degree in Nursing Science or Nursing Education, and the nurse at the ward should have at least two years' experience of patient care as an RN. Furthermore, nurses and clinical lecturers involved in the assessment must have experience and be familiar with the specific care required by the patient assigned to the student. The clinical lecturer has the overall responsibility for the examination.

2.3. Ethical Considerations

The ethical issues were considered and any harm was minimised through adhering to the Guiding Ethical Principles of the World Medical Association's Helsinki Declaration 1964 [37]. The participants were informed about the voluntary nature of participation that they could withdraw from the study at any time, and that the data would be treated confidentially. Informed written consent was obtained from all participants.

2.4. Data Collection

The data were collected at one point during a two months period through study-specific questionnaires. All students at the different Universities went through the National Clinical Final Examination, as an obligatory examination at the end of the education and were asked to participate in the study. The nurses, clinical lectures and lectures were all engaged in the examination and also asked to participate. There was a study coordinator on every of the ten Universities.

Questionnaires

Specific questionnaires with closed and open-ended questions were developed for each group (students, lecturers, nurses and clinical lecturers). A panel of experts discussed the objectives for the questionnaires and considered which area should be included. A pilot study was conducted to identify problems in the wording of the questions, format or responses and test the questionnaires reliability. This resulted in minor revisions.

The questionnaires were designed to obtain demographic data and for evaluating participants' perceptions about the written and bedside parts of the examination as tools for assessing clinical competence, and whether the examination adequately assessed the qualifications required of a newly graduated nurse. The first question in each questionnaire was a global question asking the participants whether they thought the written and bedside parts tested their clinical competence.

For a Swedish Bachelor of Science in Nursing, the student shall have demonstrated the knowledge and skills as outlined in the qualification descriptor by the Swedish Higher Education Authority. These requirements are divided into three areas concerning "Knowledge and Understanding", "Competence and Skills" and "Judgment and Approach", and contain a total of 17 statements (SFS 2006:1053) [36]. The 17 statements in the questionnaire are numbered correspondingly, that is Q1-Q17. The participants were asked to rate each of the statements on a four-point Likert scale, with the alternatives disagree (1), agree a little (2), agree (3) and strongly agree (4) to determine their perceptions. The questionnaires were administered after each part of the examination. No reminders were sent out. The questionnaires for the written part were completed by the lecturers and students, and bedside part was completed by the nurses, clinical lecturers and students. The completed questionnaires were collected at each university in a sealed envelope, and sent to the principal investigator of the research team. The students only marked which university they came from. Thus, the participants completing the questionnaires could not be identified by name.

2.5. Statistical Analysis

Descriptive statistical methods were used and included frequency, mean, median, minimum and maximum, and percentage were used to summarize the data. The mean values were calculated for each group of participants to

estimate the significance of differences in mean scores. To determine differences between groups (students, nurses and clinical lectures) the Kruskal-Wallis H test was used for several independent samples and the Mann–Whitney U test for two independent samples (students and lectures). P-values < 0.05 were considered statistically significant. The mean frequency of missing items from each of the 17 questions was 0.6% (0.1% - 1.2%). SPSS version 18 (IBM SPSS, New York, NY, USA) was used to run statistical analysis.

3. Results

The survey was based on the responses of the four groups involved in the examination. The students were the only group answering questions on both the written and bedside part of the examination. From the 694 students asked to participate, 577 returned the questionnaire (response rate 83%): of these, 16 students did not complete the survey on the written part of the examination, resulting in 561 answers (81%). Twenty-eight lecturers responsible of the written part participated, and all 28 returned the questionnaire (100%). In the bedside part, of the 444 nurses which had observed the students 388 returned the questionnaire (87%), and of 101 clinical lecturers, 98 returned the questionnaire (97%). A total of 1961 questionnaires distributed, 1652 (84%) were returned for analysis.

Most of the bedside part of the examination took place in a department of medicine or surgery. The participants were mostly female (94%). The mean age and range was 28 (20 - 52) years for the students, 44 (25 - 64) years for the nurses, 55 (34 - 65) years for the clinical lecturers and 51 (36 - 64) years for the lecturers. Two hundred and three of the nurses had a Bachelor's degree (BSc) in Nursing, 105 lecturers had a one-year Master's degree (MSc, 60 credits), and 10 lecturers had a Doctor of philosophy (PhD) (**Table 1**).

3.1. Perceptions of the Ability of the Two Parts of the Examination to Measure Clinical Competence

The first statement in each questionnaire was a global question concerning the ability of that part of the examination to measure clinical competence. In the written part of the examination, the statement was: "The written examination tested whether the student has the clinical competence required to practice as a newly registered nurse". Seventy-nine percent of lecturers agreed, or strongly agreed, whereas, 69% of the students agreed or strongly agreed.

Table 1. Demographic data of the participants in the study.

		Students N = 577 n (%)	Nurses N = 388 n (%)	Clinical lecturers N = 98 n (%)	Lecturers N = 28 n (%)
Gender	Female	518 (90)	366 (94)	92 (94)	27 (96)
Age	Years, mean (range)	28 (20 - 52)	44 (25 - 64)	54 (34 - 65)	51 (36 - 64)
Qualifications	Reg. Nurse,		296 (77)	41 (42)	15 (54)
	Specialist Nurse		91 (23)	57 (58)	13 (46)
Highest academic degree	BSc (180 credits)		203 (57)	8 (8)	-
	MSc (60 credits)		29 (8)	8 (87)	22 (79)
	MSc (120 credits)		2 (1)	-	1 (4)
	PhD (420 credits)		-	5 (5)	5 (17)
Pedagogical qualifications	Supervisor training,		244 (79)	-	-
	Pedagogic higher education		-	39 (40)	19 (68)
	Teacher training Both[4]		-	32 (33) 21 (22)	9 (32) -
	Other		42 (21)	5 (5)	-
Years as nurse[1]/teacher[2]	Years, mean (range)		15[1] (1 - 40)	14[2] (1 - 39)	11[2] (3 - 35)
Period of using NCFE[3]	Years, mean (range)		1.5 (0 - 6)	2.5 (0 - 5)	2.5 (0 - 5)

[1]nurse/[2]teacher, [3]Examinations implemented twice a year, [4]Pedagogic higher education and Teacher training.

In the bedside part, the statement was: "The bedside examination tested whether the student has the clinical competence required to practice as a newly registered nurse". Almost all the nurses (94%) agreed or strongly agreed, 96% of the clinical lecturers agreed or strongly agreed, while 85% of the students agreed or strongly agreed.

3.2. Perceptions Regarding Whether NCFE Assesses the Qualifications Required for the Degree of Bachelor of Science in Nursing

3.2.1. "Knowledge and Understanding" (Q1-Q4)
Bedside part

In the bedside part, students, nurses and clinical lecturers had different perceptions about the first four statements (Q1-Q4). Although the mean values of the students (2.91) and the nurses (2.88) for Q1 "*demonstrated knowledge of the disciplinary foundation of the field and awareness of current research and development work as well as the links between research and best practice and the significance of these links for professional practice*" were similar, the mean for the clinical lecturers were lower (2.57). The same pattern was observed for all four questions in this part. None of the groups in this question indicated agreement with the statement (score 3). The clinical lecturers gave lower scores in Q2 "*demonstrated knowledge of the planning, management and coordination of health care measures*", but the scores of the whole groups were agreeing (score 3) (**Table 2**).

Written part

In the written part in this area there were only significant differences (p-value 0.028) between the students and the lectures (mean 2.47/2.04) in one question: Q3 "*demonstrated knowledge of social circumstances that affect the health of children, women and men*" (**Table 2**).

3.2.2. "Competence and Skills" (Q5-Q13)
Bedside part

In the bedside part, Q5 "*demonstrated the ability to identify health care needs, draw up care plans and provide care and treatment autonomously and in cooperation with patients and those close to them*" and Q6 "*demonstrated the ability to manage pharmaceuticals appropriately and also to inform patients of the effects and side effects of pharmaceuticals*" were perceived to be measured, although there were differences among the groups for Q6-Q8 and Q13 (**Table 3**). The bedside part was perceived as providing a better measure of the students' competence and skills.

Written part

The mean scores for most of the statements in this part were lower than 3 ("agree"). The exception was Q6

Table 2. Comparison of mean scores on items Q1-Q4 for measuring perceptions about whether the National Clinical Final Examination assesses "Knowledge and Understanding" among students, nurses and clinical lecturers (Bedside part) and between students and lecturers (Written part).

Knowledge and Understanding Items Q1-Q4[1]	Bedside part				Written part		
	Students N = 577	Nurses N = 388	Clinical lecturers N = 98	*p-value*[2]	Students N = 561	Lecturers N = 28	*p-value*[3]
I believe that the goal:							
Q1 "demonstrated knowledge of the disciplinary foundation of the field and awareness of current research and development work as well as the links between research and best practice and the significance of these links for professional practice"	2.91	2.88	2.57	<0.001	2.67	2.35	0.067
Q2 "demonstrated knowledge of the planning, management and coordination of health care measures"	3.37	3.42	3.16	0.004	2.62	2.29	0.053
Q3 "demonstrated knowledge of social circumstances that affect the health of children, women and men"	2.42	2.23	1.93	<0.001	2.47	2.04	0.028
Q4 "demonstrated knowledge of the relevant statutory provisions"	2.66	2.82	2.84	0.010	2.42	2.38	0.844

[1]Each items is rated on a 4-point Likert scale ranging from disagree (1) to strongly agree (4). [2]Kruskal-Wallis H test [3]Mann-Whitney U test.

Table 3. Comparison of mean scores on items Q5-Q13, for measuring perceptions about whether the National Clinical Final Examination assesses "Competence and Skills" between students, nurses and clinical lecturers (Bedside part) and among students and lecturers (Written Part).

Competence and Skills Items Q5-Q13[1]	Bedside part				Written part		
	Students N = 577	Nurses N = 388	Clinical lecturers N = 98	*p-value*[2]	Students N = 561	Lecturers N = 28	*p-value*[3]
I believe that the goal:							
Q5 "demonstrated the ability to identify health care needs, draw up care plans and provide care and treatment autonomously and in cooperation with patients and those close to them"	3.46	3.54	3.59	0.183	2.93	2.88	0.723
Q6 "demonstrated the ability to manage pharmaceuticals appropriately and also to inform patients of the effects and side effects of pharmaceuticals"	3.47	3.62	3.69	0.005	3.00	3.08	0.777
Q7 "demonstrated the ability to identify the need for measures to promote health and prevent ill-health and implement them"	3.35	3.21	3.07	<0.001	3.15	2.92	0.076
Q8 "demonstrated the ability to initiate methodological improvements and quality assurance"	2.70	2.53	2.23	<0.001	2.4	1.87	0.006
Q9 "demonstrated the ability to apply his or her knowledge to deal with different situations, phenomena and issues on the basis of the needs of individuals and groups"	3.19	3.19	3.03	0.101	2.95	2.89	0.546
Q10 "demonstrated the ability to inform and instruct different audiences and also to undertake supervisory duties"	3.35	3.33	3.23	0.133	2.6	2.37	0.001
Q11 "demonstrated the ability to present and discuss, in speech and writing, interventions and treatment outcomes with those concerned, and to document them in accordance with the relevant statutory provisions"	2.83	2.87	2.65	0.118	2.66	2.57	0.163
Q12 "demonstrated the capacity for teamwork and cooperation with other professional categories"	3.27	3.34	3.15	0.113	2.28	1.67	0.507
Q13 "demonstrated the ability to review, assess and use relevant information critically, and to discuss new data, phenomena and issues with various audiences and so contribute to the development of the profession and professional practice"	2.94	2.75	2.41	<0.001	2.46	1.86	0.001

[1]Each items is rated on a 4-point Likert scale ranging from disagree (1) to strongly agree (4). [2]Kruskal-Wallis H test [3]Mann-Whitney U test.

"*demonstrated the ability to manage pharmaceuticals appropriately and also to inform patients of the effects and side effects of pharmaceuticals*", where the mean scores were 3.0 for the students and 3.08 for lecturers, and Q7 "*demonstrated the ability to identify the need for measures to promote health and prevent ill-health and implement them*", where the students' mean score was 3.15 (**Table 3**).

3.2.3. "Judgment and Approach" (Q14-Q17)
Bedside part

All groups agreed (scored > 3) with the statements in the bedside part, although non-significant differences were found among the groups (**Table 4**).

Written part

The groups perceived Q14 "*demonstrated self-awareness and the capacity for empathy*" and Q17 "*demonstrated the ability to identify the need for further knowledge and undertake ongoing development of his or her skills*" as difficult to measure in the written part. All questions had mean scores below 3 ("agree"), and differences were found between the perceptions of the various groups, especially in Q14 and Q17 (**Table 4**).

Table 4. Comparison of mean scores on items Q14-Q17 for measuring perceptions regarding whether the National Clinical Final Examination assesses "Judgments and Approach" among students, nurses and clinical lecturers (Bedside part) and between students and lecturers (Written part).

Judgments and Approach Q14-Q17[1]	Bedside part				Written part		
	Students N = 577	Nurses N = 388	Clinical lecturers N = 98	*p-value*[2]	Students N = 561	Lecturers N = 28	*p-value*[3]
I believe that the goal:							
Q14 "demonstrated self-awareness and the capacity for empathy"	3.63	3.63	3.70	0.554	2.48	2.11	0.051
Q15 "demonstrated the ability to assess interventions using a holistic approach to individuals informed by the relevant disciplinary, social and ethical aspects, and taking particular account of human rights"	3.39	3.16	3.26	<0.001	2.91	2.75	0.402
Q16 "demonstrated the ability to adopt a professional approach to clients or patients and those close to them"	3.62	3.65	3.73	0.425	2.71	2.64	0.722
Q17 "demonstrated the ability to identify the need for further knowledge and undertake ongoing development of his or her skills"	3.41	3.31	3.25	0.008	2.80	1.86	<0.001

[1]Each items is rated on a 4-point Likert scale ranging from disagree (1) to strongly agree (4). [2]Kruskal-Wallis H test [3]Mann-Whitney U test.

4. Discussion

There are several illustrations of how clinical competence can be assessed in practicing nurses [5] [17]. The present study evaluated a model designed to assess if nursing students have adequate skills and abilities to undertake the role of graduate nurses. The National Clinical Final Examination is implemented in collaboration between the university and the students' clinical training unit [31]. This approach is valuable, as there is an identified need for dialogue among staff nurses for preparing them for contact with students and for their supervisory role in modern nursing education [38]. In addition, collaboration is expected to help create a good learning environment [3] [39], and improve the assessment of clinical competence. Currently, the attention is on students' learning needs and whether the intended learning outcomes are attained, rather than, health care service delivery [40].

In the present study everyone involved in the bedside part of the examination perceived the examination adequately assessed whether the student has the clinical competence required by a newly registered nurse. However, the perceptions in the written part of the examination differed between students and lecturers involved. The lecturers considered the written part of the examination needed improvement to be able to adequately assess the theoretical part of clinical competence. However, the students perceived the written part adequately assessed the clinical competence required by a newly registered nurse. This findings was in accordance with another study on strengths and weakness of the NCFE [41], where students' considered the interactive approach of the written test, in which the correct answer given on the next page, contributes to their learning, and the NCFE, especially the written part, made them reconsider their education as whole.

There was a difference between lecturer's educational level and clinical competence. The lecturers, involved in the written part had at least a one year Master's degree, and many had a degree as a specialist nurse, however, some clinical lecturers did not have a Master's degree. Education level to master degree is considered important for supporting, challenging and supervising nursing students, help students become critical thinkers and strong believers in the implementation of research results and to contribute evidence based practice [42], and ensures a minimum standard level of qualifications for nursing educators [43]. The aim of the NCFE is to measure the degree to which the intended learning outcomes have been achieved in the Bachelor's programme in Nursing. The level of competence is expressed in terms of learning outcomes and learning outcomes and competence focus on the requirements of the discipline in terms of preparing prospective nurse for employment. The intention is not to assess all learning outcomes in both parts of the examination, *i.e.* the written and bedside part, as the two parts should complement each other. However, it is important to ensure that the learning outcome is followed-up in at least one of these parts. The present study showed that the bedside part better assessed some of the learning

outcomes for example capacity for teamwork and cooperation with other professional categories and their ability to initiate methodological improvements and quality assurance. Furthermore, the results showed that the clinical lecturers are more reserved if the NCFE assess the clinical competence. In 12 of 17 questions they scored lower than both students and nurses, but however they all still scored between "agree a little" to "agree". In the written part compared to the bedside part the students and lecturers were more consistent. In the written part both students and lecturers give overall a lower score, and showed a more critical stance that NCFE really assess clinical competence. However it is clear that the written and bedside part complement each other.

The findings indicated the examination needs further development. In order to contribute to the development of the profession and professional practice particular areas within the assessment need to be addressed. In particular, the areas demonstrating the student's ability for initiating methodological improvements and quality assurance, to present and discuss interventions and treatment outcomes, verbally and in writing with other care providers, and document them in accordance with the relevant statutory provisions, to review, assess and use relevant information critically, and to discuss new data, phenomena and issues with different audiences.

"Judgment and Approach" were considered as adequately assessed in the bedside part, and this could be the result of stimulating the student to reflect and to show judgment in the care of the patient. Reflection is an effective method of learning within professional practice, as it integrates theory with practice and assists autonomy and judgement [30] [44]. Furthermore, a unique patient and caring situation requires reflection and problem-solving techniques to underpin decision-making in relation to nursing activities. An excellent nurse is often described as one who makes appropriate decisions in relation to the specific caring situation, and who carries out the required nursing activities [45].

5. Conclusion

The clinical competence of newly registered nurses has become an important issue related to professional standards and patient safety. The Swedish NCFE in the Bachelor's programme in Nursing is perceived as a useful tool for assessing clinical competence, but especially the written part has to be further developed. The model and form of assessment ought to be applicable to graduate nursing programme internationally.

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Author Contributions

U-B J, PLA, ML, KZ and MAE were responsible for the conception and design of the study and the data collection. MAE performed the data analysis. U-B J and MAE were responsible for drafting the manuscript. PLA, ML and KZ made critical revisions to the paper regarding intellectual content. U-B J and MAE provided statistical expertise and administrative, technical and material support. U-B J secured the funding.

Conflict of Interest

No conflict of interest has been declared by any of the authors.

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