

Evaluation Nursing Students' Views of Improved Competence Development after Clinical Supervision: An Educative Approach to the WHO Patient Safety Model

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Received 15 July 2015; accepted 18 August 2015; published 21 August 2015

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Abstract

Bachelor of Science Nursing (BSN) students' education comprises both theories and practical aspects. Access to resources is required for the development of a professional identity, which includes gaining technical knowledge and receiving feedback, guidance as well as social and emotional support from clinical supervisors. The aim of this study was to evaluate BSN students' views of professional development after clinical supervision (CS) during their undergraduate education. An additional aim was to illuminate how competence development was related to the WHO Patient Safety Educational Model. A cross-sectional study was conducted, in which CS was measured as part of a survey completed by a sample of nursing students after their clinical placement at two time-points, namely 2012 and 2013. Statistical descriptive and inferential analyses were used and differences in the responses between Time 1 and Time 2 compared. The benefit of CS for nursing students' competence development revealed a positive significant relationship between students' Interpersonal skills and the factor Improved care/skills. There were differences in terms of variables related to the Importance value of CS and Professional skills. The results can be used to inform undergraduate nursing education leaders, teachers and practice partners on individual, group and organisational level in order to enhance patient safety and highlight the importance of CS for BSN students' professional development.

Keywords

Clinical Supervision, Nursing Students, Patient Safety

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1. Introduction

Bachelor of Science Nursing (BSN) students' education comprises a theoretical and a practical part. The latter includes clinical supervision (CS) as well as systematic reflection on experiences of practical learning situations [1]. In BSN education, the development of practical professional skills is important [2]. Addressing the gap between the theory, *i.e.*, what is taught in the University BSN education, and how things are done in practice, is a challenge for the development of education in the clinical setting [3]. Students need assistance when applying theoretical knowledge in the clinical setting. The primary cognitive process in CS is reflection, *i.e.*, thinking back on clinical experiences in order to recount them as a means of deepening understanding and/or identifying areas for further improvement [4]. Reflection increases professional knowledge and the capacity to understand problems [5]. CS provides an opportunity for reflecting on clinical situations, as well as professional development [6]. A quantitative study of students' improvement in learning as a result of CS revealed personal growth, feelings of security, increased sensitivity to patient needs, willingness to assume greater responsibility in clinical settings and preparedness to listen [3]. Students' integration of knowledge was related to the development of a language that influences thinking and serves as a model for communication, thus enabling reflection on various problems and creating an awareness of the concepts and phenomena inherent in nursing care and values [3]. Studies conducted by the present research team identified the following effects of student nurse supervision; increased understanding of patient needs, preserving patients' integrity and ensuring participation by patients and family members [7] [8]. These findings emphasize the potential of CS to contribute to personal growth and a caring attitude towards patients, thereby strengthening the development of skills essential for patient safety [9].

1.1. The WHO Patient Safety Model and Competence Development

The focus on quality and safety education for nurses has increased in recent years [10]. Patient safety can be defined as the reduction of risk and unnecessary harm associated with healthcare to an acceptable minimum [11]. Patient safety is a discipline that applies safety science methods in the healthcare sector with the goal of achieving a reliable healthcare delivery system [12].

The WHO [11] Patient Safety Curriculum Guide: Multi-professional Edition, is a comprehensive guide to facilitating effective capacity building in patient safety education provided by academic healthcare institutions. It contains educational frameworks and features a variety of concepts and methods for teaching and assessing patient safety. The topics in the WHO Patient Safety Curriculum Guide [11] were selected from an evidence-based Australian Patient Safety Education Framework [13], which contains seven learning categories; Communicating effectively, Using Evidence, Adverse events, Working safely, Being ethical, Learning and teaching and Specific issues such as prevention of infections. The learning categories have 22 topics with three learning domains in each topic; Knowledge, Skills and Behaviours/Attitudes (KSAs). The WHO Patient Safety Curriculum Guide [11] also refers to the Canadian framework entitled; The Safety Competences-Enhancing patient safety across health professions (CPST) [14], which identifies the knowledge, skills and attitudes required by all healthcare professionals. Six domains of competence are identified; Contribute to a Culture of Safety, Work in Teams for Patient Safety, Communicate Effectively for Patient Safety, Manage Safety Risks, Optimize Human and Environmental Factors and Recognize, Respond to and Disclose Adverse Events [14].

Students' patient safety knowledge must be strengthened throughout their entire education and training. Education about patient safety skills and behaviours should begin as soon as a student enters a hospital, clinic or health service. By encouraging students to treat each individual patient as a unique human being and use their knowledge and skills carefully, the students themselves can serve as role models for others in the healthcare system [11]. Studies of the relationship between patient safety and CS are scarce and therefore research that explores the professional development of BSN students in relation to patient safety outcomes as a result of attending CS during their clinical placement is required.

1.2. Aim

The aim of this study was to evaluate BSN students' views of professional development after clinical supervision (CS) during their undergraduate education. An additional aim was to illuminate how competence development was related to the WHO Patient Safety Educational Model.

2. Methods

2.1. Design

A cross-sectional study design was used to evaluate BSN students' views of their professional development [15].

2.2. Sample and Data Collection

The study was based on a non-probability convenience sample of 66 second level and 59 third level BSN students who attended supervision during their clinical education [15]. Students who participated in the first round of data collection were included. Although most of the students responded on the two occasions, the data were not matched to each individual student. The questionnaires, cover letter and consent form were placed in an envelope and distributed by nursing teachers to those who agreed to participate and subsequently returned to one of the authors. The teachers from the university college were not responsible for assessing the students in this part of the study programme. Demographic characteristics are presented in **Table 1**.

Table 1. Demographic characteristics of the BSN students at Time 1 and Time 2.

	Time 1 N = 66	Time 2 N = 59*
Age, years, med ($q_1 - q_3$)	24 (22 - 30)	25 (23 - 31.5)
Female sex, No %	61 (93.8)	54 (93.1)
Previous work experience	38 (57.6)	35 (59.3)
Female supervisor, No %	59 (89.4)	49 (83.1)
<i>Supervision frequency, No %</i>		
Daily	31 (47.7)	23 (39.7)
Every week	26 (40.0)	21 (36.2)
Every second week	6 (9.2)	10 (17.2)
Every month	2 (3.1)	4 (6.9)
<i>Supervising location, No %</i>		
During work situations	23 (34.8)	19 (32.8)
In a separate room	5 (7.6)	7 (12.1)
Both	38 (57.6)	32 (55.2)
<i>Supervision context, No %</i>		
Individually	39 (59.1)	40 (69.0)
In a group	4 (6.1)	3 (5.2)
Both	23 (34.8)	15 (25.9)
<i>Supervision duration as previously agreed, No %</i>		
Yes	15 (22.7)	18 (32.1)
No	51 (77.3)	38 (67.9)
<i>Supervision per week</i>		
<15 minutes	14 (21.5)	13 (22.8)
15 - 30 minutes	26 (40.0)	18 (31.6)
31 - 45 minutes	9 (13.8)	12 (21.1)
46 - 60 minutes	4 (6.2)	6 (10.5)
<i>Supervising sufficient, No %</i>		
Yes	32 (48.5)	32 (54.2)
No	34 (51.5)	27 (45.8)

*Due to missing responses N varies between 66 and 59.

2.3. Research Questionnaires

A package of three standardized instruments was used to measure key variables [9]. The BSN students' views of whether or not professional development had improved after attending CS in their clinical placement were assessed by means of a questionnaire that included demographic items, the Manchester Clinical Supervision Scale (MCSS) [16], the Effects of Supervision Scale (ESS) [17] and the Focus on Empowerment Supervision Scale (FESS) [7]. The MCSS consists of 36 items divided into six factors; trust/rapport; supervisor advice/support; improved care/skills; finding time; personal issues and reflection. The MCSS uses a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) as a response alternative for each item. The ESS [17] comprises 27 items divided into three sub-scales (Interprofessional-, Professional- and Communications skills) and measures what the students have learnt in supervision by means of a 4-point response scale ranging from 1 (strongly disagree) to 4 (strongly agree). The FESS measures students' ability to document nursing work, patient and family member involvement in the care as well as students' perceptions of the influence of clinical supervision. The scale uses a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree).

2.4. Data Analysis

The data were analysed using the Statistical Package for the Social Sciences (SPSS) for Windows version 20.0 [18]. Descriptive statistics and reliability were examined for all scales followed by factor analysis with varimax rotation to reduce the number of underlying items. The existing sub-scale labels were retained. We created medians for each of the instruments and quartiles for each of the factors. Demographic information (*i.e.*, age, sex, previous work experience, supervision experience such as frequency, location, context, duration of session and appropriateness) was also collected. A p -value < 0.05 was deemed significant. The difference in the responses between Time 1 and Time 2 was measured by the Mann-Whitney U-test [19]. Reliability was measured by means of Cronbach's alpha. The total score for the MCSS was 0.80 and for the ESS 0.93, while in the FESS Documentation was 0.87, User involvement 0.89 and Influence of supervision 0.87. The Spearman rank correlation coefficient (r) was used to calculate correlations between the factors.

2.5. Ethical Considerations

Ethical approval was granted by the principal tutor and the dean of the Faculty of Health Sciences, Buskerud and Vestfold University College, Norway. The BSN students who participated were provided with verbal and written information about the study and signed their informed consent. All of the students agreed to participate, having been informed of their right to decline, to withdraw at any time and assured of confidentiality. The Helsinki declaration guidelines [20] were adhered to.

3. Results

3.1. Demographic Characteristics of the Participants, Frequency of Sessions and Supervision Context

The demographic characteristics of the participants are presented in **Table 1**. The majority was female (93%). The median age of the sample was 24 years at Time 1 and 25 years at Time 2, while 38 had previous work experience at Time 1 and 35 at Time 2. The clinical setting at Time 1 was the medical and the surgical department. At Time 2 it was home nursing care and psychiatric care. 40% (Time 1) and 31% (Time 2) of the students reported that the duration of contact with their supervisor was between 15 - 30 minutes. 51.5% (Time 1) and 45.8% (Time 2) reported that the supervision was not sufficient. The response rate was 86.8% (Time 1) and 93% (Time 2).

3.2. Comparing Students' Competence Development between the Second and Third Year of Clinical Education

Table 2 presents differences between the students' development at Time 1 and Time 2 by means of factor medians and quartiles in the scales. Differences between the two measurements indicate that the students' competence development was related to the factors Improved care/skills and Importance of clinical supervision (p -value < 0.047). A comparison of the factors in the ESS revealed that the factor Professional skills differed over the course of the two years, increasing from 32 to 33 (ns).

Table 2. Descriptive data and comparisons between Time 1 and Time 2 for the BSN students' development.

	2012	2013	<i>p</i> -values*
	Medians (Q1, Q3)	Medians (Q1, Q3)	
<i>MCSS</i>			
Trust/rapport time	21 (20.0, 23.0)	21 (18.0, 22.0)	0.217
Supervisor advice/support	24 (21.0, 27.3)	24 (20.0, 27.3)	0.579
Improved care/skills	28 (24.5, 32.0)	30 (26.5, 33.0)	0.113
Importance of CS	11 (10.0, 13.0)	12 (10.0, 14.0)	0.047*
Finding time	12 (10.0, 14.0)	12 (9.0, 13.0)	0.494
Personal issues	10 (8.0, 11.0)	10 (9.0, 11.0)	0.475
Reflection	12 (12.0, 14.5)	12 (11.0, 13.0)	0.455
<i>FESS</i>			
<i>Influence of supervision</i>			
Supportive yet challenging relationship	17 (12.8, 18.0)	14 (13.0, 18.0)	0.175
Preparatory and confirming professional relationship	9 (7.8, 10.0)	8 (6.0, 10.3)	0.160
<i>Documentation</i>			
Increased patient participation	14 (12.0, 16.0)	13 (11.0, 15.3)	0.196
Increased communication and documentations skills	12 (10.0, 14.0)	11 (10.0, 13.0)	0.354
<i>User involvement</i>			
Preserving integrity	16 (15.0, 16.0)	16 (14.0, 16.0)	0.109
Enabling participation by patients and family members	11 (9.5, 12.0)	11 (9.9, 12.0)	0.501
<i>ESS</i>			
Interpersonal skills	36 (30.9, 41.0)	35 (32.0, 39.0)	0.477
Professional skills	32 (28.8, 37.0)	33 (29.0, 36.0)	0.500
Communications skills	10 (9.0, 11.0)	10 (8.8, 11.0)	0.338

* $p < 0.05$, CS = clinical supervision, *Mann-Whitney's U-test.

3.3. Correlation Analysis

Inter correlations among the major study variables are presented in **Table 3**. The evaluation of CS revealed a moderate positive significant correlation between the factor *Trust/Rapport Time* and the variables included in the FESS factors; *User involvement* (Preserving integrity $r = 0.36$ and Enabling participation by patients and family members $r = 0.36$). *Documentation* was strongly correlated with Increased patient participation ($r = 0.42$), Increased communication and documentation skills ($r = 0.44$), Influence of supervision ($r = 0.67$), Supportive yet challenging relationship ($r = 0.68$), Preparatory and confirming professional relationships ($r = 0.49$) and with the ESS factors (Interpersonal—($r = 0.51$), Professional—($r = 0.40$) and Communications kills ($r = 0.39$). The *Influence of CS* showed a positive correlation between Interpersonal skills ($r = 0.53$), Professional—($r = 0.40$) and Communication skills. There was also a significant correlation between *Reflection* and *Interpersonal skills* (0.48).

4. Discussion

The aim of this study was to evaluate BSN students' views of professional development after CS during their undergraduate education. An additional aim was to illuminate how competence development was related to the WHO Patient Safety Educational Model.

Table 3. Spearman's correlation between factors.

MCCS	Trust/rapport time	Supervisor advice/support	Improved care/skills	Importance value of CS	Finding time	Personal issues	Reflection
<i>FESS</i>							
<i>User involvement</i>							
F1	0.360**	0.433***	0.350**	-0.164	-0.244	0.159	0.229*
F2	0.358**	0.433***	0.244	-0.084	-0.324*	0.014	0.091
<i>Documentation</i>							
F1	0.425***	0.482***	0.321*	-0.076	0.134	0.112	0.031
F2	0.442***	0.559***	0.348**	-0.130	0.276*	0.191	0.145
<i>Influence on supervision</i>							
F1	0.672**	0.804***	0.594***	-0.346**	-0.314*	0.248	0.370**
F2	0.486***	0.589***	0.431***	-0.239	-0.362**	0.237	0.272*
<i>ESS</i>							
<i>Effect of supervision</i>							
F1	0.513***	0.629***	0.529***	-0.307*	0.190	0.276*	0.477***
F2	0.395**	0.414***	0.350**	-0.138	-0.192	0.157	0.277*
F3	0.388**	0.444***	0.326*	-0.212	-0.185	0.119	0.307*

4.1. Improved Development after CS

Competence was increased in the following factors; *Improved care/skills*, *Professional skills* and the *Importance value of CS*. The BSN students' development was related to improved care and awareness of interpersonal skills. Improved care/skills is associated with the formative functions of CS [21], where the supervisee considers that CS has improved her/his delivery of care. Learning professional skills in CS involves items such as being able to explain a situation, help the patient to describe her/his feelings, as well as the ability to understand and support others. The *Professional skills* factor consists of items such as knowing when to request advice from colleagues, ability to work in interdisciplinary teams and inform others about things that do not work properly. The *Interpersonal skills* factor concerns gaining a professional identity and an ethical stance, which enable students to assume responsibility for the patient and ward activities. Interpersonal skills also involve being able to "face" the patient, listen, see the patient's needs and to plan the care together with her/him, which is in accordance with previous research on CS [5]-[7] [9]. There is also a positive correlation between *Improved care/skills* and *Professional skills* (Table 3).

The BSN students reported a greater insight into the *Importance value of CS* from Time 1 to Time 2. The results of this study demonstrate that 61.5% (Time 1) and 54.4% (Time 2) of the students stated that the duration of contact with their supervisor was less than 30 minutes per week, while 51.5% (Time 1) and 45.8% (Time 2) of the students found the supervision insufficient. Comparison of the results from Time 1 and Time 2 revealed that they were stable, thus no major improvement took place between the two measurement occasions. This outcome was unexpected and calls for attention, due to the fact that at Time 2 the data were collected one year after the first occasion, when BSN students had more experience of CS and were about to graduate, which calls for attention. At the same time, the importance of CS increased at Time 2. It can be discussed whether the BSN students would have reported a greater improvement in their professional development if they had considered the CS more sufficient. A possible explanation is that they experienced the potential of CS and regretted not having more time with their supervisors. Another argument is that CS has a greater influence on students' complex and challenging everyday clinical placement than they can identify, recognize or describe [9].

A common model for BSN students' clinical placement is the use of registered nurses employed in the clinical setting as clinical supervisors. Their role is described as guiding students from the theory of nursing to its appli-

cation in practice [3]. In order to promote patient safety the students need the possibility to combine scientific and evidence-based knowledge. The lack of integration of theory into clinical practice has been identified in many studies [22] [23]. The supervisor also functions as a role model, teaching clinical skills as well as reflective thinking [24]. However, the competence level of supervisors varies and Jonsén *et al.* [24] noted the lack of opportunities for students to reflect together with their supervisors. Reflective practice is an integral part of learning [25] [26] and essential for professional development [6]. Universities in Norway have little influence on which nurses are appointed to supervise BSN students during their clinical practice. However, the Norwegian authorities are working on quality indicators for clinical practice that will hopefully improve the quality of CS [27]. It should be considered whether all supervisors are competent enough to provide support for reflection and assist the students in applying theoretical knowledge to the clinical setting. A more formal supervision qualification for supervisors has been discussed in the literature. Some countries, such as the UK, have national standards for supervising nursing students, which include requirements on training, local registration, review and annual updating of qualifications [28]. A tolerant atmosphere and visible supervisors are crucial if learning is to be maximized [29]. Consequently, it is important to set aside time for supervisors to be more visible and ensure that the culture of safety functions. BSN students' learning process is associated with how they are prepared for the clinical education and how the supervisor creates an appropriate learning environment [7]. The universities could prepare students by placing more focus on a patient-centred curriculum in which patient safety is highlighted throughout the three year bachelor programme. The use of simulation and laboratories could also be increased to help students strengthen their quality and safety competencies in quality and safety issues [30] [31]. Nurses are a core part of the changing quality and safety paradigm in healthcare [10]. Sherwood & Drenkard [32] stated that new roles for and expectations on nurses make it necessary to transform nursing curricula and graduate competencies to match the new safety paradigm. According to Saarikoski *et al.* [33], there are many challenges for nurse teachers and clinical supervisors in changing inappropriate and outdated approaches and developing new practices that better meet the requirements of students' learning and patients' need to feel safe. The authors suggest that practice partners and educators should work together to determine ways of evaluating and redesigning clinical learning and CS for nursing students. There is a need for a more systematic exposure to quality and safety issues, in addition to the development of competencies to ensure patient safety [32]. The WHO [11] recommended that patient safety skills and behaviour should begin as soon as a student enters a hospital, clinic or health service. The effectiveness of qualified supervision for students' professional development must be addressed and verified by means of research. The potential of CS for facilitating students to develop interpersonal, professional and communication skills, which are essential components of patient safety, is confirmed by **Table 3**. From a relational perspective, the quality of the care provided may serve as a motivational factor for developing a professional identity.

4.2. The Relationship between the Patient Safety Educational Model and the BSN Students' Improved Competence Development after Attending CS

The components of the patient safety educational model related to the BSN students' competence development after attending CS are presented in **Table 4**.

The competence development reported by the students was increased ability to understand and support others, knowing when to request advice and to inform others about things that do not function properly. This can be interpreted as the learning categories: learning and teaching, using evidence, working safely and specific issues in the APSEF [13]. It also corresponds to the competence outcomes in the CPSI, *i.e.*, contributing to a culture of safety, working in teams for patient safety and managing safety risks [14]. The development of professional identity and an ethical stance, listening to and seeing the patient's needs, helping her/him to describe feelings and planning the care together with the patient are competencies that correspond with being ethical in the APSEF [13] and optimizing human and environmental factors including patient-centred care in the CPSI [14]. Assuming responsibility for the patient and ward activities and being able to explain a situation can be interpreted as components of adverse events and the ability to communicate effectively in the APSEF [13] and as the skill to recognize, respond to and disclose adverse events and to communicate effectively to ensure patient safety in the CPSI [14], **Table 4**.

CS motivated the BSN students to request advice from colleagues and increased their ability to engage in interdisciplinary cooperation. They also learnt to inform others about things that do not function properly and

Table 4. The relationship between the patient safety education model and BSN students' improved competence.

Learning categories (APSEF)	Learning domains (KSAs)	Competence outcomes (CPSI)	BSN students' competence development after CS
Learning and teaching (I) Using evidence (I) Working safely (I)	Knowledge (I, II, III) Skills (I, II, III) Behaviours/attitudes (I, II, III)	Contribute to a culture of patient safety (I) Work in teams for patient safety (I) Manage safety risks (I)	Understand and support others (I) Knowing when to request advice from others (I) Inform others about things that do not function properly (I) Ability to engage in interdisciplinary cooperation (I)
Being ethical (II)		Optimize human and environmental factors including patient-centred care (II)	Professional identity and ethical stance (II) Listen to and see the patient's needs (II) Help the patient describe her/his feelings (II) Plan the care together with the patient (II)
Adverse events (III) Communicate effectively (III)		Recognize, respond to and disclose adverse events (III) Communicate effectively to ensure patient safety (III)	Assume responsibility for the patient and ward activities (III) Ability to explain a situation (III)

APSEF= Australian Patient Safety Education Framework [13]. KSAs = Knowledge, skills, behaviours/attitudes [13] [14]. CPSI = Canadian Patient Safety Institute [14].

dared to assume responsibility. These important skills are related to the WHO Patient safety competencies [11], especially providing patient-centred care, communicating effectively, working in teams and contributing to a culture of safety (Table 4). By daring to assume responsibility the BSN students' ethical ability was improved [13].

According to Sullivan [10], a major national initiative in the US sought to define competencies for nursing students. The primary goal of these national guidelines was to address the challenge of providing future nurses with the knowledge, skills and attitudes (KSAs) necessary to continuously improve the quality and safety of the healthcare systems in which they work [34]. These competencies underpin The WHO curriculum guide [11] and include patient-centred care, teamwork and collaboration, evidence-based practice, quality improvement, safety and informatics. Each of these competencies is defined and explained by statements about the KSAs to be developed during nursing education programmes [10].

4.3. Limitations of the Study

A limitation is that this study is solely quantitative. The results might have been richer if some qualitative data had been obtained from students by means of a mixed method approach and open-ended items in the questionnaire, or through the use of interviews or focus groups in order to explore some of the issues in greater depth. Another limitation is the small sample size and it could be argued that the data were collected from just one university. A suggestion for future research is a study with a qualitative design based on questions arising from the results of this study focusing on BSN students' views of the effects of CS and its potential for enhancing patient safety.

5. Conclusion

The results can be used to inform undergraduate nursing education leaders, teachers and practice partners at individual, group and organisational level in order to enhance patient safety and highlight the importance of CS. The results underline the close relationship between students' professional development and patient safety competencies.

Contributions

Study design: ES, AL, KA. Data collection: AL, KA. Data analysis: ES, AL, KA. Manuscript writing: AL, KA, ES. ES supervised the study. The authors declare that there is no conflict of interest.

Acknowledgements

The authors wish to thank the nursing students and the teachers who distributed and collected the questionnaire

for the time they invested in the study. We would also like thank Monique Federsel for reviewing the English language and Vibeke Horstmann for statistical assistance. This study was funded by the Centre for Women's, Family & Child Health, Buskerud & Vestfold University College, Norway.

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