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Title: CLUSTERING CLINICAL LEARNING ENVIRONMENT AND MENTORING PERCEPTIONS OF NURSING AND MIDWIFERY STUDENTS: A CROSS-SECTIONAL STUDY

Running head: CLINICAL LEARNING ENVIRONMENT AND MENTORING OF NURSING AND MIDWIFERY STUDENTS

Authors:

Mari SAUKKORIIPI, student, Research Unit of Nursing Science and Health Management, Faculty of Medicine, University of Oulu, Oulu, Finland

Anna-Maria TUOMIKOSKI; Nursing Research Foundation; The Finnish Centre for Evidence-Based Health Care: A Joanna Briggs Institute Affiliated Group; WHO Collaborating Centre for Nursing, Helsinki, Finland; Research Unit of Nursing Science and Health Management, University of Oulu, Oulu, Finland. ORCID: https://orcid.org/0000-0001-9387-9058

Pirkko SIVONEN, Oulu University Hospital, Northern Ostrobothnia Hospital District, Oulu, Finland

Taina KÄRSÄMÄNOJA, Oulu University Hospital, Northern Ostrobothnia Hospital District, Oulu, Finland

Arja LAITINEN, Oulu University Hospital, Northern Ostrobothnia Hospital District, Oulu, Finland

Tanja TÄHTINEN, Oulu University Hospital, Northern Ostrobothnia Hospital District, Oulu, Finland

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Maria KÄÄRIÄINEN, Professor,; Research Unit of Nursing Science and Health Management, University of Oulu, Oulu, Finland; Medical Research Center Oulu, Oulu University Hospital and University of Oulu, Oulu, Finland

Heli-Maria KUIVILA, Research Unit of Nursing Science and Health Management, University of Oulu, Oulu, Finland

Jonna JUNTUNEN, Research Unit of Nursing Science and Health Management, University of Oulu, Oulu, Finland

Marco TOMIETTO,; Hospital Administration, Azienda per l'Assistenza Sanitaria n.5 "Friuli Occidentale", Pordenone, Italy.

Kristina MIKKONEN, researcher,;
Research Unit of Nursing Science and Health Management, Faculty of Medicine, University of Oulu, Oulu, Finland
Email: kristina.mikkonen@oulu.fi
Twitter: @Kristinamikkon
ORCID: https://orcid.org/0000-0002-4355-3428

Criteria	**Author Initials**
Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data;	MS, AMT, PS, TK, AL, TT, MK, HMK, JJ, MT, KM
Involved in drafting the manuscript or revising it critically for important intellectual content;	MS, AMT, PS, TK, AL, TT, MK, HMK, JJ, MT, KM
Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content;	MS, AMT, PS, TK, AL, TT, MK, HMK, JJ, MT, KM
Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.	MS, AMT, PS, TK, AL, TT, MK, HMK, JJ, MT, KM

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DR MARCO TOMIETTO (Orcid ID : 0000-0002-3813-1490)

DR KRISTINA MIKKONEN (Orcid ID : 0000-0002-4355-3428)

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ABSTRACT

Aims: This study aimed to explore nursing and midwifery students' evaluation of the clinical learning environment and mentoring and to identify distinct student profiles relating to their perceptions.

Design: This study employed a cross-sectional design.

Settings: The study population included nursing and midwifery students in a university hospital in Finland.

Participants: All nursing and midwifery students who completed their clinical placement were invited to take part in the study in the academic year 2017–2018.

Methods: The data (N=2609) were gathered through an online survey using the Clinical Learning Environment, Supervision and Nurse Teacher scale. The data were analyzed using a K-mean cluster algorithm to identify nursing and midwifery students' profiles.

Results: The findings from this study indicate four distinct profiles (A, B, C and D) of nursing and midwifery students in relation to the clinical learning environment and mentoring. Profile A (N=1352) students evaluated their clinical learning environment and mentoring to the highest level (mean varied from 9.44 to 8.38); and Profile D (N=151)- to the lowest (mean varied from 5.93 to 4.00).

Conclusion: The findings highlight that nursing and midwifery students evaluate their clinical learning environment and mentoring more highly when: they have a named mentor, student and mentor discuss learning goals, there is a final assessment in clinical learning, the mentor's guidance skills support student learning, the clinical learning supports the student's

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professional development and pre-clinical teaching in an educational institution supports learning in the clinical placement.

Impact: Clinical learning plays an important role in nurse and midwifery education. Mentoring of clinical practice was shown to have a great influence on students' perceptions of their success in clinical learning. We suggest that clinical practice should be strengthened by the building of collaboration between nursing teachers and registered nurses.

Keywords: clinical learning environment, clinical placement, nurse student, midwifery student, mentoring, nurse teacher

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Introduction

Clinical learning is of high importance in nurse and midwifery education. At a European level, students spend 50% of their studies in clinical learning. In the clinical learning environment, students need to practice professional competence with genuine patients (European Council, 2013; Mikkonen et al., 2017.) The quality of mentoring, the pedagogical atmosphere and nature of patient care in the clinical learning environment are just a few of the factors that influence whether or not students will be successful in their professional development (Mueller et al., 2018). A supportive clinical learning environment is essential for students to achieve positive learning outcomes (Philips et al., 2017). In a good clinical learning environment, there is a student-centered learning culture, the student receives appropriate induction, has access to appropriate learning situations and receives feedback that enables his/her professional development (Bisholt et al., 2014; Salminen et al., 2010).

The sense of personal satisfaction of students in the clinical learning environment is of great importance for their learning success. An unhappy learning experience in a clinical practice can have a profoundly negative impact on the motivation and self-confidence of students and seriously impair their development of professional competence. Hence, there is an obvious risk that dissatisfaction with clinical learning leads to poor professional competence; poorly experienced clinical practice can even lead to a decision to drop out from nursing education altogether (Flott and Linden, 2016; Henderson et al., 2010; Levett-Jones and Lathlean, 2009). The clinical learning environment affects the perceptions and expectations of students of work life; an unsatisfactory clinical learning experience and feeling a lack of support can lead to the loss of a student's motivation in nursing education (Eick et al., 2012).

The mentor of the clinical learning situation has a great impact on nursing and midwifery students' satisfaction and motivation (Ferrand et al., 2017; Maxwell et al., 2015). The support of the mentor and their guidance undoubtedly enhances the clinical competence of the students. The relationship between the student and mentor is important to the former's experience of clinical practice and a bad relationship can lead to serious dissatisfaction with clinical learning (Pitkänen et al., 2018).

There are many examples of nursing students reporting successful and unsuccessful experiences of their clinical learning (Sundler et al., 2014). Several studies have reported that students were generally disappointed in the relationship with the mentor, particularly if the mentor changed during shifts or moved wards or if there was no mentor at all in the clinical

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placement (Antohe et al., 2016; Papastavrou et al., 2016; Sundler et al., 2014). Midwifery students reported higher satisfaction with clinical learning when they had a better relationship with their mentor (Brunstad and Hjälmhult, 2014). The unit of clinical placement, a supportive learning culture and sense of belonging to the team are important to midwifery students (Bradshaw et al., 2018). Also, nursing students with a longer period of clinical learning were more satisfied than students with a shorter clinical learning period (Antohe et al., 2016; Warne et al., 2010).

The clinical learning environment is of considerable general interest to researchers and nursing and midwifery students' satisfaction with the clinical learning environment and the student-mentor relationship has been specifically addressed in various studies (see, e.g., Antohe et al., 2016; Bos et al 2015; Brunstad and Hjälmhult, 2014; Flott and Linden, 2016; Papastavrou et al., 2016; Pitkänen et al., 2018; Sundler et al., 2014; Warne et al., 2010). Those studies have found different factors which can influence levels of satisfaction with the clinical learning environment and the relationship between the student and the mentor. These factors include, for example, the structure of the academic year of a student (Pitkänen et al., 2018), whether students have a named personal mentor with whom they discussed their learning goals (Antohe et al., 2016; Papastavrou et al., 2016; Sundler et al., 2014), the duration of the clinical placement (Warne et al., 2010) and communication between the students and their mentors (Antohe et al., 2016; Brunstad and Hjälmhult, 2014; Flott and Linden, 2016). Midwifery students' intrinsic motivation for clinical learning also affects levels of satisfaction and enhances perceptions of the clinical learning environment (Comparcini et al., 2016). However, none of these studies sought to identify profiles among the students based on their behaviors or motivation. Thus, this study aimed to explore nursing and midwifery students' evaluation of the clinical learning environment and experience of mentoring and from this to identify distinct students' profiles relating to their perceptions.

Background

In this study, the term 'nursing' or 'midwifery student' includes the student who is completing a university or university of applied sciences bachelor level degree. The term 'nursing student' refers to those students studying general nursing, public health nursing or paramedic nursing. The term 'midwifery student' refers to those students studying midwifery. General nursing, public health nursing, paramedic nursing and midwifery are all university of applied sciences bachelor level programs (Ministry of Education and Culture, 2014).

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The European Union has stated that the education of nurses shall comprise at least three years of study or 4600 hours of theoretical and clinical learning. The duration of theoretical training should represent at least 1/3 of the training and the duration of clinical learning at least 50% of the training (European Council, 2013). In Finland, public health nurses and paramedic nurses have their own professional qualification with an additional year built into their chosen study specialization (Ministry of Education and Culture, 2014). In the United States, public health nurses first graduate in nursing and then specialize in community/public health nursing (Canales and Drevdahl, 2014). In the United Kingdom, registered nurses can specialize in public health nursing (i.e., Specialist Community Public Health Nurses, SPCHN) (Pettit et al., 2018), while health and care professionals with a foundation degree, or diploma of higher education, aspiring for a bachelor's degree, or those with a bachelor's degree, can apply for postgraduate studies for paramedics (College of Paramedics, 2014).

Internationally midwifery education programs differ among the countries. For instance, in Australia, Canada and United Kindom, the education programs have direct entry, which means that training of midwives does not require to complete nursing education (Zhou and Lu, 2018). However, in Nordic countries, including Scandinavia and Baltic countries, midwife education includes additional parts of the nursing degree program (Pajalić et al., 2019). The International Confederation of Midwives (ICM) has developed a minimum education standard for teaching programs. The midwifery curriculum must include a minimum of 50% practice and 40% theory and consist of at least three years of nursing education and at least 18 months of specialization in midwifery. The midwifery student must also have adequate practical experience of midwifery in a variety of settings, aided by clinical mentors who can facilitate and assess the progress of their learning (ICM, 2013). Midwife students in New Zealand and in Europe need to assist with at least 40 births/women in labor while in clinical practice to meet the criteria for certification (Zhou and Lu, 2018; Marshall, 2017). In this vein, it is crucial that mentors provide adequate learning opportunities in clinical practice to ensure students' effective clinical competences.

During clinical learning, students should have the opportunity to practice clinical skills, clinical reasoning, critical thinking, ethical decision-making, professional communication and to apply theory to practical work (European Council, 2013; Pitkänen et al., 2018). Clinical learning environments may include hospitals, clinics and simulation laboratories (Kirkman, 2013): above all, the clinical learning environment should be an authentic clinical space where students practice their clinical skills and develop their professional skills with the right

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patients. The learning atmosphere, the depth of student involvement in clinical nursing, the mentor's pedagogical commitment, the student/mentor relationship and the student's self-motivation and active engagement with learning are essential elements of an educationally productive clinical learning environment (Pitkänen et al., 2018; Tuomikoski et al., 2018). The physical space itself, psychosocial and interaction factors, the organizational culture and teaching and learning components are also characteristics of the clinical learning environment which affect student learning experiences and may determine the achievement of learning outcomes and student self- confidence (Flott and Linden, 2016).

Conceptually, clinical mentoring is defined as the guiding and teaching of students by qualified nursing and midwifery professionals; the role includes teaching practical skills during the clinical learning period and completing student assessments (Jokelainen et al., 2013; Hanson et al., 2018; McIntosh et al., 2014). The central task of a mentor is to work closely with the student during his/her shift, offering support to students in the clinical learning setting and to strengthen their professionalism (Tuomikoski et al., 2018). The clinical mentor is thus a person who guides and supports the development of students' competence.

The mentor needs the competence to integrate theoretical learning with practical skills (Jokelainen et al., 2011). He/she also needs good communication skills as well as the competence to assess the outcomes of students' learning (Rashid et al., 2015). The ability to identify students' competencies, support their learning processes, set individual learning outcomes and provide feedback and constructive assessment are also essential components of quality mentoring (Jack et al., 2018). However, a teacher from the relevant educational institution is in charge of actual grading and assessment of learning outcomes in clinical learning. Mentor and teacher collaborate closely and the teacher supports mentors by providing information about the student and helping to integrate pedagogic methods in the mentoring process and building the foundations of the student-mentor relationship (Jokelainen et al., 2013; Kristofferzon et al., 2013). Nursing students and mentors often have high expectations of how much the teacher will be involved in the clinical learning period. Yet these expectations are frequently not met and students feel dissatisfied with the teacher's participation in clinical practice (Hardy et al., 2016). With cuts in educational resources, necessity means that nursing teachers are being completely replaced by mentors who must provide all guidance and support for a student (Heinonen et al., 2019). Due to this

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fundamental change, the mentor's role is becoming increasingly important in nursing and midwifery education.

The Study

Aim

The aim of this study was to explore nursing and midwifery students' evaluation of the clinical learning environment and mentoring and to identify distinct student profiles relating to their perceptions.

Study design

This research was conducted according to a cross-sectional study design.

Participants

The data were collected through an online survey of all health care students (N=5776) during the academic year 2017–2018 at one university hospital in Finland. All nursing and midwifery students (N=2609) who completed their clinical practice at one university hospital (including inpatient and/or outpatient units) in Finland were chosen to participate in an evaluation of their clinical learning experience. Nursing and midwifery students did their clinical learning in, for example, emergency departments, maternity wards, intensive care units, internal medicine wards, operating rooms or orthopedic wards. Data were analyzed with Missing at Random (MAR), Missing Completely At Random (MCAR) and Missing Not at Random (MNAR) values. The cut-off for removing missing data was set at ≥5% listwise. No missing data <5% listwise was detected.

Data collection

The data were collected electronically via an anonymous link provided for the students on the completion of their clinical practice. The target university hospital collected data and the mentors personally invited the students to participate in the study. The students completed the study at the end of their clinical learning period. The university hospital is the largest hospital in a particular area of Finland, uniting nearly 30 municipalities of almost half a million inhabitants.

Instrument

The data were collected by asking for information about students' background (18 items) and by using as an instrument the Clinical Learning Environment, Supervision and Nurse Teacher

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scale (CLES+T) (Saarikoski et al., 2008). The CLES+T scale consists of five sub-dimensions and 33 items: the supervisory relationship (eight items), pedagogical atmosphere on the ward (nine items), role of the nurse teacher (nine items), leadership style of the ward manager (three items) and premises of nursing on the ward (four items) (Saarikoski et al., 2008). The items were collected by implementing a 1–10 Likert scale (1=fully disagree; 10=fully agree). Additionally, the target hospital added items relating to students' satisfaction (two items).

Data analysis

Descriptive statistics, including percentage (%), mean and standard deviation (SD) values were analyzed using the BMI SPSS Statistic (V25.0) computer program. CLES+T scale sub-dimensions served as inputs for the K-mean cluster algorithm to identify nursing and midwifery student profiles. The participating students were classified according to their answers to the CLES+T scale, which were divided into A-, B-, C- and D-profiles. Several runs of cluster formation were performed to identify the optimal cluster configuration. This study's criterion for cluster solutions was reasonable sample representation, which means that every cluster should contain at least 5% of the study sample. Kurtosis, skewness and Kolmogorov-Smirnov tests were used to evaluate the skewness of the CLES+T scale answers and clusters. Dependence between classified background variables and clusters were analyzed with crosstabs, Chi-square and Kruskal-Wallis tests. Any detected differences between the four groups were considered to be statistically significant when the p-value < 0.05. (Munro, 2005.)

Ethical considerations

Research permission was obtained from the target university hospital in spring 2019, as per the hospital's own research approval protocol. In the covering letter of the survey, the use of the study and the research aim were described. Responding to the survey was optional and anonymous and throughout the study the anonymity of the respondents was fully maintained. The data have been kept safely on a computer data-protected file by a member of the study group under a password (Personal Data Act, 523/1999; RCR, 2012).

Validity and reliability

The CLES+T scale has been slightly modified by changing two items and deleting one item, which may raise questions about the scale's construct validity conducted by Saarikoski et al. (2008). The modification was permitted in agreement with the scale's developer Dr Saarikoski and a network of all university hospitals nationally. The items changed were as

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follows: *The ward's nursing philosophy was clearly defined* was changed to *Nursing care/client the foundations of values were clearly defined; The ward can be regarded as a good learning environment* was changed to *Patient/client care situations were utilized in my supervision.* The deleted item was: *The ward manager was a team member.*The scale's internal consistency was evaluated by calculating Cronbach's Alphas, which varied from 0.78-0.97.

Results

Nursing and midwifery students' profiles and characteristics

A total of 2609 nursing and midwifery students participated in this study. Most were nursing students (70%), with midwifery students comprising 19% of the study population and the rest being public health nurses and paramedic nurses (11%). Students were mostly 20–24 years old and in their second or third academic year. The most common duration of clinical practice was four to five weeks. The students' characteristics are reported according to A, B, C and D cluster profiles (see Table 1).

Nursing and midwifery students' evaluation of the clinical learning environment and mentoring

There were statistically significant differences between the four distinct nursing and midwifery students' profiles we identified (Tables 1 & 2). Profile A included 51.80% (N=1352) of all students. Profile A students evaluated their clinical learning environment and mentoring to the highest level (mean varied from 8.38 to 9.44) and were very happy to recommend their clinical placements to other student colleagues (mean 4.79, standard deviation 0.47 in Likert scale 1–under no circumstance to 5–very happy to recommend). In Profile A, 87.60% of students discussed their learning goals with the mentor and students judged that they had largely achieved their learning goals in the clinical learning (mean 4.57, standard deviation 0.54 in Likert scale 1–very bad to 5–very well). Students from Profile A estimated that the guidance provided by the mentor during clinical learning supported their professional development (mean 4.75, standard deviation 0.46 in Likert scale 1–very bad to 5–very well). It is notable that students fitting Profile A estimated that the mentor's guidance skills strongly supported them in their clinical practice (mean 9.47, standard deviation 0.74). Of the students with Profile A, 88.10% had their final assessment included in the clinical learning period. When we asked how teaching in the educational institution before the clinical learning period supported clinical learning, Profile A students evaluated it as good on

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a Likert scale 1–very bad to 5–very well (mean 3.84, standard deviation 0.84). The overall evaluation from their clinical learning was graded as excellent (mean 9.35) (see Tables 1 and 2).

Profile B included 17.20% (N=448) of all students and they evaluated their clinical learning environment and mentoring to the second highest level (mean varied from 4.53 to 9.15). Profile B students felt that they had achieved their learning goals in the clinical learning environment (mean 4.45, standard deviation 0.60). Profile B students estimated that the guidance provided by the mentor supported professional development (mean 4.57, standard deviation 0.57). Of the students in Profile B, 81.30% had their final assessment included in the clinical learning period. Profile B students evaluated teaching in the educational institution before the clinical learning period as moderately supportive of the latter (mean 3.10, standard deviation 0.95). Profile B students evaluated their overall clinical learning experience as excellent (mean 9.04, standard deviation 0.77) (Tables 1 & 2).

Profile C students included 23.30% (N=609) of all the students and they evaluated the clinical learning environment and mentoring to the third highest degree (mean varied from 7.92-6.98). Of the students in Profile C, 32.30% had a named personal mentor and mentoring happened as planned. Profile C students favorably estimated that the guidance provided by the mentor during clinical learning provided good support for professional development (mean 4.34, standard deviation 0.84). Of the students in Profile C, 83.70% had their final assessment included in the clinical learning period. Students in Profile C offered a good evaluation of how teaching in the educational institution before the clinical placement provided support during the clinical learning period (mean 3.51, standard deviation 0.79). Profile C students' overall experience at clinical learning was good (mean 8.23, standard deviation 0.78) (Tables 1 & 2).

Profile D included 5.80% (N=151) of the all students and they evaluated the clinical learning environment and mentoring the lowest (mean varied from 5.93-4.00). Profile D students were not sure if they wanted to recommend their clinical placements to other student colleagues (mean 2.74, standard deviation 1.06). Only 19.20% of Profile D students had a named personal mentor and mentoring happened as planned. Profile D students moderately evaluated that they had achieved learning goals in the clinical placement (mean 3.61, standard deviation 0.85). The guidance provided by the mentor during clinical learning to support professional development was also described as moderate by Profile D students (mean 3.17, standard deviation 0.92). In Profile D, 74.80% of students' clinical learning

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included a final assessment. Of the Profile D students, 18.50% had the final assessment with a mentor and teacher and 42.40% had the assessment with the teacher alone. Profile D students evaluated the mentor's guidance skills to support students learning in clinical practice at a low grade (mean 4.44, standard deviation 2.31). Students in Profile D felt that the teaching in the educational institution before the clinical learning period could only be evaluated as moderate (mean 3.13, standard deviation 0.90). These students also graded their overall clinical learning experience at the poorest level (mean 6.75, standard deviation 1.26) (Tables 1 & 2).

Discussion

In this study we identified four different profiles of students (A, B, C & D); the gap between perceptions of clinical learning environment and mentoring was the largest between Profile A and Profile D. From previous studies we know that on a general level students evaluate their clinical learning environment and mentoring as satisfactory (Antohe et al., 2016; Bos et al., 2015; Lamont et al., 2015; Pitkänen et al., 2018; Shivers et al., 2017; Sundler et al., 2014).

In our study, Profile D included the highest percentage of students between 25-29 years old and the lowest between 20-24 years old, compared with other profiles. Earlier studies by D'Souza et al. (2015) and Shivers et al. (2017) also found significant differences in student experience between age groups. D'Souza et al. (2015) found that older student nurses were more satisfied with the clinical learning environment and Shivers et al.'s (2017) study showed age groups 25-34 years and 35-44 years were more satisfied compared with other age groups – the opposite result to that which we found in our study. Older students have more life experience behind them and maybe more work experience than younger students, so they may perhaps have more expectations about the clinical learning environment.

Profile D students also included the highest percentage of second-year students and the least number of third- and fourth-year students. That is the opposite result found in Pitkänen et al. (2018), where third-year students were most critical. Also, Shivers et al. (2017) found that second-year students are not as satisfied as first- or third-year students. Shivers speculates that this may be because second- and third-year students have a better understanding of the learning environment and what is expected of them and their mentor and thus look at these issues more critically.

The students placed in Profile D also form the highest percentage of those having three weeks or less in clinical placements. This finding – that the duration of the clinical learning period is

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connected with nurse and midwifery students' satisfaction: the students with longer clinical placements were more satisfied than the students with shorter clinical placements – is in line with other studies (Antohe et al., 2016; Warne et al., 2010). Students with shorter clinical placements have limited time to demonstrate their skills or talk through events in a meaningful way with a mentor and to build an effective relationship with the rest of the team (Williams and West, 2012). In longer placements the students have greater opportunities to learn the art of working more effectively and more interdependently with other nurses in the ward (Warne et al., 2010). Furthermore, short placements affect students' integration into the ward team and the students' adjustment in the organizational environment. The organizational socialization process requires time and it's essential to fostering students' clinical learning experiences and the mentoring process (Tomietto, 2018). When the students are recognized as part of the ward team and they participate in patient care, more positive student learning was created (D'Souza et al., 2015). To ensure that nurse and midwifery students have a better chance of feeling part of the ward staff and doing patient work, educational institutions should pay attention to the duration of clinical placements and maybe avoid shorter clinical placements.

The main finding in this study was that we have found several factors closely connected to successful/unsuccessful outcomes from the clinical learning environment and mentoring as perceived by students. More specifically, those factors were: the quality of the student-mentor relationship; the mentor's involvement in the student's learning process; discussion of the student's learning goals and an assessment; and the mentor's support of the student's professional development. Our study showed that nursing and midwifery students are more satisfied with the clinical learning environment and mentoring when they have a permanent, named mentor and when they feel that the mentor's guidance skills supports their learning. The mentor creates a positive clinical learning environment which helps students to achieve learning goals. Students can more easily seek support and assistance with learning from a receptive and friendly mentor (Phuma-Ngaiyaye et al., 2017). Jack et al. (2018) found four essential qualities in the good mentor: to be a role model, legitimizer, advocate and respecter. These qualities help students to get positive experiences from clinical learning. The study by Tuomikoski et al. (2018) showed that mentors who evaluate their own competence to a higher level are also more motivated than mentors who feel less competent. When mentors are supportive yet also challenge the mentees' critical thinking and reflection, students feel more satisfied with their clinical learning (Kristofferzon et al., 2013).

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Nursing and midwifery students were more satisfied with the clinical learning environment and mentoring when learning goals were discussed and students felt that they had achieved their learning goals. The setting of appropriate goals is an essential part of the learning process; it also improves interactions between students and mentors and may reconcile possible contradictions coming up during work-based learning (Larsen at al., 2017).

Jokelainen et al.'s (2011) systematic review of mentoring students in clinical placements concluded that mentors can strengthen students' professionalism by treating students as fellow professionals and personal equals. In our study, students generally felt that the guidance received during the clinical learning period supported professional development. However, there were several students who evaluated support of professional development only moderately. A further group also suggested that the mentor's guidance skills did not provide sufficient support for students during their clinical learning period. Good mentoring competence is important to nursing students, because they are more motivated when the mentor can build a good pedagogical atmosphere (Bos et al., 2015). However, this is not always straightforward: for example, when profiling mentors' competence, various challenges to supporting the students' learning process and evaluating their learning outcomes were identified (Tuomikoski et al., 2018).

This study also shows that the lack of a final assessment undermines satisfaction with the clinical learning environment and mentoring. Student assessment is a complicated process and includes many elements. The, sometimes, arbitrary nature and subjectivity of assessments, lack of consistency and the mentors failing to judge student performance are existing concerns; clear guidance is thus needed on achieving better student assessment. Usually, students' competences are assessed by using ongoing achievement records that track their growth and development. These records follow the student's activities throughout the clinical learning period. The most challenging factor in a student's assessment is adequate assessment of caring behaviors, interpersonal interactions, ethical attitudes and the process of decision making (Burden et al., 2017; Dobrowolska et al., 2015). Helminen et al. (2014) highlighted the importance of assessment skills of mentors and the important role of the teachers. Mentors should spend sufficient time with the students to assess their behavior. Both nursing students and mentors attach great importance to teacher involvement in the final assessment discussion (Helminen et al., 2014). The final assessment in clinical learning is supposed to ensure a sufficiently high quality of education for the nursing students (Fong Leung et al., 2008). The students feel that the final assessment discussion is very stressful

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(Levett-Jones et al., 2011); for students it is important that they feel treated as equals when sharing their opinions (Helminen et al., 2014).

Profile D included the lowest percentage of students where the final assessment took place with the mentor and the teacher present; Profile D also has the highest percentage of students where the final assessment took place under the supervision of the teacher alone. The absence of the mentor in the final assessment may adversely affect student satisfaction with clinical learning environment and mentoring because the students value their mentor's opinion. Helminen et al.'s (2017) study shows that the final assessment given by mentors is important for ensuring the high quality of the assessment overall and nursing students feel that the final assessment appears to be fairer and more consistent with the mentor being involved. Our study also showed that of the students assigned to Profile D, 25.20% did not have any final assessment at all. The reason may be because Profile D has the shortest placement duration and the mentor or teacher may not see any reason to hold a final assessment for such curtailed placements. Still, the final assessment of competencies is important and should be encouraged (Dobrowolska et al., 2015).

The four profiles showed variations in how satisfied students were with the pre-clinical teaching in educational institutions before the clinical learning period. The students of Profile A and C were more satisfied than their counterparts in Profiles B and D. Based on the details of these results, it will be seen that a permanent personal mentor, good mentor-student relationships, discussions between mentor and student about learning goals, the mentor's help for students to achieve learning goals, support for a student in his/her professional development and clinical learning all had close connections to the final evaluation of students' experience of clinical practice, even in cases where students were not satisfied with pre-clinical teaching in the educational institution.

Despite their recently diminished input, the role of teachers is still important to both students and mentors. The teachers give pedagogical and psychological support to the mentors (Price et al., 2011) and the students can discuss problems they face in clinical learning with the teachers, who can help students and give emotional support should it be needed. The teachers are in charge of assessment of the clinical learning and the teachers help the students to set goals if the student does not do so independently (Gustafsson et al., 2015). The job of a nursing teacher is also to ensure a good atmosphere in the clinical learning environment with open communication and cooperation, commitment and good relationships between mentors and students (D'Souza et al., 2015). The mentors and students need support from nursing

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teachers to ensure the completion of a relevant assessment process (Helminen et al., 2017). For the end result of the clinical learning to be the best possible for the student's learning and for the student to feel satisfied with the clinical learning environment, collaboration between the teacher and the mentor is important (Löfmark et al., 2012).

Limitations and strengths

This study has some limitations. The participants were taken from a single large university hospital, representing just one of the five university hospitals in Finland. Obviously, a larger national and/or international sample would provide outcomes and results which could be generalized into educational practices. However, against this it should be said that the reliability of this data set has been tested and shown to be acceptable. The study was also assessed and evaluated with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies (Von Elm et al., 2007) to enhance the validity of the study.

Conclusion

The findings from this study confirm that nursing and midwifery students estimate their clinical learning environment and mentoring more highly when: they have a named mentor, student and mentor discuss learning goals, there is a final assessment in clinical learning, the student feels that he/she has achieved the learning goals set during the clinical learning period, the mentor's guidance skills support students' learning, the clinical learning supports the student's professional development and pre-clinical teaching in the educational institution complements and supports learning in the clinical placement. For this reason, we suggest that healthcare organizations and nursing and midwifery teachers pay close attention to opportunities to enhance further collaboration with mentors to develop clinical practices. Since mentoring competence and practices are connected to the outcomes of students' professional development, mentoring practices need to be revisited and reassessed. Healthcare organizations should give mentors the necessary resources for good mentoring. Mentors should have sufficient time to discuss and assess learning goals with students and arrange a final assessment with students. By arranging mentoring education, organizations can ensure mentors have sufficient competence for final assessment, the mentor's mentoring competence supports students' learning and the clinical practice supports the student's professional development. Courses on clinical practice should not be reduced but rather enlarged by creating a possibility for nursing teachers to collaborate with clinical practitioners on a regular basis.

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Conflict of Interest

The authors declare no conflicts of interest.

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Table 1. Students' profiles, characteristics and outcomes of CLES+T (n=2609)

Characteristics and outcomes of clinical learning environment and mentoring	**Profile A (n=1352) 51.80%**	**Profile B (n=448) 17.20%**	**Profile C (n=609) 23.30%**	**Profile D (n=151) 5.80%**	**p-value**
Age in years, %					**<0.01[a]**
Under 20 y.	0.40	0.00	0.80	0.00	
20–24 y.	42.00	45.30	46.60	40.40	
25–29 y.	20.60	23.40	24.00	28.50	
30 ys. or older	37.10	31.00	28.10	30.50	
Education, %					0.35[a]
Nurse	68.60	71.00	71.40	70.20	
Midwife	19.40	19.40	18.90	15.90	
Public health nurse	8.80	6.00	7.90	11.30	
Paramedic nurse	3.20	3.60	1.80	2.60	
Previous professional education, %					0.53 [a]
Yes	63.90	61.20	63.90	65.60	
No	34.90	38.40	35.80	33.10	
Academic year, %					**<0.01[a]**
1st year student	3.80	6.70	5.40	3.30	
2nd year student	36.30	35.90	39.20	43.70	
3rd year student	40.50	38.80	42.20	39.70	
4th year student or higher	19.20	18.30	12.80	11.90	
Duration of clinical placement, %					**<0.01[a]**
3 weeks or less	21.90	33.30	26.40	34.40	
4–5 weeks	62.40	52.70	61.10	60.30	
6 weeks or more	15.20	13.40	12.00	4.60	
Sum-variables of CLES + T, mean (SD) ^, Likert scale 1-10					
Pedagogical atmosphere	9.27 (0.57)	8.86 (0.82)	7.44 (0.97)	4.20 (1.48)	**<0.01***
Leadership style of the ward manager					
Nursing care on the ward	9.10 (0.80)	8.42 (1.15)	7.18 (1.10)	4.21 (1.81)	**<0.01***
The supervisory relationship	9.18 (0.64)	8.69 (0.93)	7.92 (0.93)	5.93 (2.05)	**<0.01***
Role of the nurse teacher	9.47 (0.59)	9.15 (0.76)	7.62 (1.20)	4.00 (1.76)	**<0.01***
	8.38 (0.94)	4.53 (1.52)	6.98 (1.16)	4.85 (2.12)	**<0.01*[b]**
Students' overall evaluation of their clinical learning experiences (grade from 4=poor to 10=excellent), mean (SD) ^	9.35 (0.62)	9.04 (0.77)	8.23 (0.78)	6.75 (1.26)	**<0.01***
Students' recommendation of clinical placements to other student colleagues (Likert from 1-under no circumstance to 5-very happy to recommend), mean (SD) ^	4.79 (0.47)	4.57 (0.69)	3.90 (0.87)	2.74 (1.06)	**<0.01***

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^ *M*:mean (*SD*: standard deviation)

[a] Chi-Square

* Kruskal-Wallis test

p < 0.05 (marked in bold)

[b] Between profiles A-B, A-C, A-D, B-C, C-D

Table 2. Students' profiles, outcomes of mentoring (n=2609)

Mentoring of clinical placements	**Profile A (n=1352) 51.80%**	**Profile B (n=448) 17.20%**	**Profile C (n =609) 23.30%**	**Profile D (n=151) 5.80%**	**p-value**
Occurrence of mentoring, %					**<0.01[a]**
A personal mentor was named and mentoring realized as planned	52.70	52.90	32.30	19.20	
A personal mentor was named but mentoring did not take place as planned	4.70	8.00	12.80	20.50	
The named mentor changed during the placement, even though no change had been planned	1.10	0.90	1.50	5.30	
I did not have a named mentor at all	3.80	5.40	7.10	9.30	
The named mentor changed during the placement or shift	20.60	20.10	23.20	23.20	
Same mentor had several students					

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(group mentoring)	1.80	1.10	3.00	2.00	
Other method of mentoring	14.90	11.20	19.70	20.50	
Student and mentor discussed the learning goals, %					**<0.01[a]**
Yes	87.60	86.40	74.90	60.90	
No	10.10	11.80	22.50	35.10	
There was an interim evaluation during the clinical placement, %					**<0.01[a]**
Yes	76.00	59.80	69.30	55.60	
No	23.90	39.70	30.20	43.70	
The student achieved learning goals in the clinical placement, (Likert from 1–very bad to 5–very well), mean (SD) ^	4.57 (0.54)	4.45 (0.60)	4.12 (0.60)	3.61 (0.85)	**<0.01***
How did the guidance you received during the cycle support your professional development (Likert from 1–very bad to 5–very well), mean (SD) ^	4.75 (0.46)	4.57 (0.57)	4.34 (0.84)	3.17 (0.92)	**<0.01***
Clinical placement included a final assessment, %					**<0.01 [a]**
Yes	88.10	81.30	83.70	74.80	
No	11.50	17.40	15.90	25.20	
In the final assessment was present, %					**<0.01 [a]**
Same time with the named mentor and teacher	37.30	26.80	27.40	18.50	
With named mentor	11.20	16.50	8.70	8.60	
With teacher	35.20	31.30	41.90	42.40	
Other	6.20	8.70	6.60	8.60	
How did your courses support your learning during this period ?, (Likert from 1–very bad to 5–very well), mean (SD)^	3.84 (0.84)	3.10 (0.95)	3.51 (0.79)	3.13 (0.90)	**<0.01***
Familiarization with the work unit was well implemented, Likert scale 1–10, mean (SD) ^	9.25 (0.98)	8.62 (1.61)	7.69 (1.83)	5.09 (2.89)	**<0.01 ***
Mentor's guidance skills supported learning, Likert scale 1–10, mean (SD) ^	9.47 (0.74)	9.19 (0.95)	8.35 (2.29)	4.44 (2.31)	**<0,01***

^ *M*:mean (*SD*: standard deviation)

[a] Chi-Square

* Kruskal-Wallis test

$p < 0.05$ (marked in bold)

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