Clinical learning environment, supervision and nurse teacher evaluation scale: psychometric evaluation of the Swedish version

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RESEARCH METHODOLOGY

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Abstract

Aim. This article is a report of the development and psychometric testing of the Swedish version of the Clinical Learning Environment, Supervision and Nurse Teacher evaluation scale.

Background. To achieve quality assurance, collaboration between the healthcare and nursing systems is a pre-requisite. Therefore, it is important to develop a tool that can measure the quality of clinical education. The Clinical Learning Environment, Supervision and Nurse Teacher evaluation scale is a previously validated instrument, currently used in several universities across Europe. The instrument has been suggested for use as part of quality assessment and evaluation of nursing education.

Methods. The scale was translated into Swedish from the English version. Data were collected between March 2008 and May 2009 among nursing students from three university colleges, with 324 students completing the questionnaire. Exploratory factor analysis was performed on the 34-item scale to determine construct validity and Cronbach's alpha was used to measure the internal consistency.

Results. The five sub-dimensions identified in the original scale were replicated in the exploratory factor analysis. The five factors had explanation percentages of 60·2%, which is deemed sufficient. Cronbach's alpha coefficient for the total scale was 0·95, and varied between 0·96 and 0·75 within the five sub-dimensions.

Conclusion. The Swedish version of Clinical Learning Environment, Supervision and Nurse Teacher evaluation scale has satisfactory psychometric properties and could be a useful quality instrument in nursing education. However, further investigation is required to develop and evaluate the questionnaire.

Keywords: clinical education, instrument development, learning environment, nurse teachers, psychometrics, Swedish version

Introduction

It has been suggested that, as professions, nursing and nurse education have dissimilar educational and professional standards, structures and procedures across the European Union (EU). There are also ongoing integrative processes aimed at promoting equalization of nurse education programmes within the EU. These types of integration processes need universally applicable tools that can provide valid information for the quality assurance of education systems that is important in the development processes in different countries (Suhonen *et al.* 2009).

Background

Since 2007, the Swedish higher education system has undergone some major changes, with most of these resulting from the Bologna process, which is a European cooperative project within higher education (European Commission; Education & Training 2009). The process was established in Bologna in 1999, with an agreement between 29 countries. It is now a driving force for many European countries to reform their educational systems to become more comparable and transparent. The purpose of the process is to promote mobility, employability/usability, along with the attractiveness of Europe as training continent (Oliver & Sanz 2007, European Commission; Education & Training 2009). This means that all nursing schools in Europe are covered by the above requirements (Davies 2008). Theoretical education and clinical experiences are integrated within Bachelor of Nursing programmes throughout Europe (Zabalegui & Cabrera 2009). Clinical training is incorporated into all courses and constitutes half of the course content. Furthermore, nursing education institutions have been transformed from hospital-based nursing schools and vocational colleges to higher educational institutions. However, a challenge for nursing education schools is that learning, from both theoretical and practical perspectives, must be achieved at an academic level. The ability to develop independence, critical judgment, problem-solving and a sense of responsibility are examples of skills required at an academic level (Swedish Code of Statutes 1992). Furthermore, students must be enabled to develop the capacity for ethical reflection (Peerson & Yong 2003), and the key challenge is to integrate these elements successfully.

The future nurse is expected to have the necessary skills and knowledge required to meet prospective challenges in health care (Foubert & Faithfull 2006), especially since care given to patients should be evidence-based (Doane & Varcoe 2008). Additionally, there is the issue of providing a clinical academic learning situation. One impediment can be that the supervisor is not pedagogically oriented, scientifically trained or aware of the curriculum content (Johansson *et al.* 2006). An important question is, therefore, what factors enable a learning environment at an academic level? From a students' perspective, a Swedish study (Lofmark & Wikblad 2001) has shown that students describe a broad spectrum of different factors that both facilitate and obstruct learning during clinical practice. Responsibility, independence, opportunity to practise different tasks and receiving feedback were examples of facilitating factors of learning. Examples of obstructing factors included supervising nurses not relying on students, lack of continuous supervision and lack of opportunity for students to practise.

Consequently, it is important to develop appropriate quality indicators for both theoretical and clinical education and to develop validated questionnaires to measure these. Saarikoski (2002, 2003), Saarikoski *et al.* (2002, 2005) & Saarikoski and Leino-Kilpi (2002), based on literature reviews and empirical studies, have identified the crucial factors for an effective academic and clinical learning environment and incorporated these into a measuring instrument – the Clinical Learning Environment, Supervision and Nurse Teacher (CLES + T) evaluation scale. The scale is an evaluation tool that can be used as a part of the total quality assurance of nurse education programmes. The scale includes the concepts of a clinical learning environment, the supervisory relationship and the role of nurse teacher within clinical practice (Saarikoski 2002, Saarikoski & Leino-Kilpi 2002, Saarikoski *et al.* 2008).

To date, there has been a lack of valid instruments in Sweden to evaluate a clinical learning environment for nursing students. The study reported in this article was conducted based on the fact that the CLES + T has previously not been translated to Swedish and its psychometric properties have not been evaluated in a Swedish context.

The study

Aim

The aim of the study was to develop and test the psychometric properties of the Swedish version of the CLES + T evaluation scale.

Sample

The instrument was tested with a convenience sample consisted of first-, second- and third-year nursing students from three university colleges located throughout Sweden. As

a pre-requisite, the students must have undertaken a clinical placement within a hospital setting. The study was carried out between March 2008 and May 2009, with a total of 324 participating students.

In accordance with the recommendation regarding an acceptable sample size for factor analysis, it was determined that 350 students were needed, with at least 10 respondents per item (Polit & Beck 2008).

The clinical learning environment, supervision and nurse teacher evaluation scale

For the purposes of this study, the English version of the CLES + T evaluation scale (Saarikoski *et al.* 2008) was translated into Swedish. This scale is a further development of the original instrument – CLES scale (Saarikoski 2002, Saarikoski & Leino-Kilpi 2002).

The scale CLES + T consists of 34 statements, which form five sub-dimensions: (i) pedagogical atmosphere on the ward/9 items; (ii) supervisory relationship/8 items; (iii) leadership style of the ward manager/4 items; (iv) premises of nursing on the ward/4 items and (v) role of nurse teacher in clinical practice/9 items. The students responded using a 5-point Likert-type scale: (1) fully disagree, (2) disagree to some extent, (3) neither agree nor disagree, (4) agree to some extent and (5) fully agree (Saarikoski *et al.* 2008). 'Premises of nursing on the ward' refers to the content of nursing care being an important issue in clinical practice as it provides the context for clinical learning of nursing student. As a sub-dimension of the CLES + T scale, it evaluates basic quality elements of nursing care like, e.g. individuality of care, nursing documentation, etc.

There is also a sub-dimension measuring students' total satisfaction and the items here included: 'The ward can be regarded as a good learning environment'; 'Overall I am satisfied with the supervision I received' and 'I am satisfied with the clinical placement that has just ended'. The 5-point scale of the CLES + T was used for all statements: (1) fully disagree; (2) disagree to some extent; (3) neither agrees, nor disagrees: (4) agree to some extent and (5) fully agree (Saarikoski *et al.* 2009).

The concept of supervision is used as an overarching concept within the questionnaire. The term supervisor refers to a person who guides, supports and assesses the student and is responsible for the intended learning outcomes within clinical education. Tutoring can be conducted on an individual or group basis.

The term nurse teacher (NT) refers to the role of a qualified nursing teacher employed by an educational institution. This teacher's role is to facilitate the integration of theory and practice in co-operation with clinical placement staff. The NT has the responsibility for ensuring that mentors and practising students are supported and well-informed. In Sweden, the aim is for all NTs/working within the Swedish education system to have at least a 1-year Master's degree. NTs and supervisors work in collaboration in terms of tutoring. However, the university is responsible for evaluating the learning outcomes in addition to examination.

Data on the students' age, gender and time of study, ward type, type of hospital, length of clinical placement, along with the introduction of ongoing quality assurance and research, and use of e-communication during clinical placement were also obtained.

Translation procedure

The English version of the scale was translated into Swedish. An expert panel of eight skilled nursing teachers evaluated the relevance of each item within the Swedish version. Thereafter, an authorized bilingual translator translated the Swedish version of the CLES + T back into English without having seen the original English version. The next step involved discussions between the researchers and the author of the original questionnaire to verify the cross-cultural equivalence of the final Swedish version. The translation process adhered to the recommended procedure that provides semantic equivalence (White & Elander 1992, Behling & Law 2000).

Data collection

The data were collected at the conclusion of the students' clinical hospital placements and they were requested to evaluate the whole placement. They were either emailed a web-link to an electronic version of the CLES + T questionnaire ($n = 147$) or were sent the questionnaire with a covering letter and a pre-paid return envelope ($n = 177$). The completed questionnaires were returned anonymously either via online or mail. A written electronic reminder was sent to all students within 2 weeks.

Ethical consideration

In the Swedish nurse education system, ethics approval (from the Regional Ethical Review Board) to undertake a research study is required only where the study involves patients or relatives. Written consent to conduct the study was obtained from the directors of the respective university colleges prior to engaging the students in the study. The directors were also informed that comparisons between the university colleges

would not be undertaken. Each student received a written brief about the study and was notified that participation was voluntary and that they could refuse participation without penalty. The researchers did not have any grading or evaluation responsibilities relating to the students. The data was coded and identified with a case number to ensure anonymity. The questionnaires were completed anonymously and participants were assumed to have consented to participation once the questionnaire was completed online or returned via mail.

Data analysis

Statistical analyses were performed using the SPSS software package 17.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used for demographic data (frequency, mean, standard deviation, per cent and range). An exploratory factor analysis (EFA) was performed on the 34-item scale using the principal axis factoring method with varimax rotation to determine the factor structure of all the items. The distribution of the variables within the factor analysis was not normal, based on the fact that in respondents' answers positive attitudes were more common than negative ones. Consequently, principal axis factoring was used as the extraction method as it does not have any distributional assumptions. Additionally, multicollinearity was investigated. The Kaiser–Meyer–Olkin (KMO) index of sampling adequacy was used to establish whether or not the partial correlation among variables was small. In addition, Bartlett's test of sphericity was used to ascertain whether the correlation matrix was an identity matrix.

Item analysis was conducted to provide information about how well each individual item correlated to other items in the sub-scale, with correlations of 0·40 or higher generally recommended (Spector 1992). Item-total correlations below 0·30 are usually considered unacceptably low (Polit & Beck 2008).

To determine internal consistency of the total scale and the sub-scales, Cronbach's alpha was calculated. An alpha below 0·80 indicates that the items are not adequately inter-related (Polit & Beck 2008).

Results

The mean age of the respondents was 28·6 years (range: 19–50 years) and 91% were female. Most of the students were in their third year of nursing studies (47%) and 9% in their first and 44% were in their second year. They had undertaken clinical placements in hospital settings in a range of different clinical departments (elder care 8%, surgical or orthopaedic 31%, gynaecological 3%, medical 36%, paediatric 1% and psychiatric 18% and other 3%). The majority of the students were placed in university hospitals (85%) and the mean length of the clinical placement was 7·4 weeks (range: 2–10 weeks). The mean frequency of student–nurse teacher contact was 2·8 times (range: 1–4 times) during the clinical placement. Thirteen per cent of respondents did not use any form of e-communication. Only 44% reported that they were introduced to the clinical department's ongoing quality development/research in nursing or teaching during their clinical placement period. The majority of respondents (60%) used e-communication with their NTs one to three times during their placement, but 13% never used this form of communication.

The mean value ($\pm$SD) for students' total satisfaction (possible score 3–15 scale, with a higher score indicating greater satisfaction) with their clinical placement was 12·9 $\pm$ 2·9, and 89% of the total sample of students scored between 10 and 15.

Exploratory factor analysis

Multicollinearity was weak. However, the KMO index of sampling adequacy was good at 0·93, and Bartlett's test of sphericity decisively rejected the null hypothesis that a correlation matrix is an identity matrix ($P < 0.001$).

The 5-factor model explained 60·2% of the variance in the 34-item scale. Factor 1 'Supervisory relationship' had an eigenvalue of 7·7, which accounted for 22·5% of the response variance; Factor 2 'Pedagogical atmosphere on the ward' had an eigenvalue of 4·5, which accounted for a response variance of 13·3%; Factor 3 'Role of the nurse teacher' had an eigenvalue of 3·7, which accounted for a response variance of 11·0%; Factor 4 'Leadership style of the ward manager' had an eigenvalue of 2·5, which accounted for a response variance of 7·3% and Factor 5 'Premises of nursing on the ward' had an eigenvalue 2·1, which accounted for a response variance of 6·1% (Table 1). The factor analysis showed that six of the total of 34 items had loadings < 0·50, and some of the factors loaded on different factors in the Swedish student sample compared with the Finnish student sample (Saarikoski *et al.* 2008).

The major difference was that items such as 'The NT was like a member of the nursing team', 'The NT was capable to provide his or her pedagogical expertize to the clinical team' and 'The NT and the clinical team worked together to support my learning' appeared in the Factor 5 'Premises of nursing on the ward' compared with Factor 3 'Role of the nurse teacher' in the Finnish student sample (Saarikoski *et al.* 2008). The items 'I felt comfortable going to the ward at the

Table 1 Clinical learning environment, supervision and nurse teacher (CLES + T scale) factor loadings for the five extracted factors (*n* = 324)

Items on factor	Supervisory relationship (Factor 1)	Pedagogical atmosphere on the ward (Factor 2)	Role of nurse teacher (Factor 3)	Leadership style of the ward manager (Factor 4)	Premises of nursing on the ward (Factor 5)
My supervisor showed a positive attitude towards supervision	0·78				
I felt that I received individual supervision	0·69				
I continuously received feedback from my supervisor	0·73				
Overall I am satisfied with the supervision I received	0·82				
The supervision was based on a relationship of equality and promoted my learning	0·88				
There was a mutual interaction in the supervisory relationship	0·88				
Mutual respect and approval prevailed in the supervisory relationship	0·85				
The supervisory relationship was characterized by a sense of trust	0·86				
The staffs were easy to approach	0·40	0·47		0·31	
I felt comfortable going to the ward at the start of my shift	0·65	0·44			
During staff meetings (e.g. before shifts) I felt comfortable taking part in the discussion		0·32			
There was a positive atmosphere on the ward 5	0·52	0·48		0·38	
The staffs were generally interested in student supervision	0·47	0·48			
The staff learned to know the students by their personal names	0·41	0·46			
There were sufficient meaningful learning situations on the ward	0·46	0·63			
The learning situations were multidimensional in terms of content	0·35	0·63			
The ward can be regarded as a good learning environment	0·45	0·68			
In my opinion, the NT was capable to integrate theoretical knowledge and everyday practice of nursing			0·64		
The NT was capable of operationalize the learning goals of this clinical placement			0·71	0·30	
The NT helped me to reduce the theory-practice cap			0·64		
The NT was like a member of the nursing team 34					0·82
The NT was capable to give his or her pedagogical expertize to the clinical team			0·33		0·84
The NT and the clinical team worked together supporting my learning			0·42		0·62
The common meetings between myself, mentor and NT were comfortable experience			0·74		
Climate of the meetings was congenial			0·78		
Focus on the meetings was in my learning needs			0·65		
The WM regarded the staff on her/his ward as key resource		0·33		0·67	
The WM was a team member				0·29	
Feedback from the WM could easily be considered a learning situation				0·64	
The effort of individual employess was appreciated				0·70	
The ward's nursing philosophy was clearly defined		0·48			
Patients received individual nursing care		0·58			

Table 1 (*Continued*)

Items on factor	Supervisory relationship (Factor 1)	Pedagogical atmosphere on the ward (Factor 2)	Role of nurse teacher (Factor 3)	Leadership style of the ward manager (Factor 4)	Premises of nursing on the ward (Factor 5)
There were no problems in the information flow related to patients'care		0·52			
Documentation of nursing (e.g. nursing plans, daily recording of nursing procedures, etc.) was clear		0·50			
Eigenvalues, cumulative eigenvalues and total variance (%) by factors					
Eigenvalue	7·7	4·5	3·7	2·5	2·1
Total percentage and cumulative addition	22·5%	13·3%	11·0%	7·3%	6·1%
Total percentage of the factor model					60·2

NT, nurse teacher; WM, ward manager.

start of my shift' and 'There was a positive atmosphere on the ward' loaded on Factor 1. These items loaded in Saarikoski *et al.* (2008) study on Factor 2. The items 'There were sufficient and meaningful learning situations on the ward', 'The learning situations were multidimensional in terms of content' and 'The ward can be regarded as a good learning environment' loaded on Factor 2 'Pedagogical atmosphere on the ward' compared with Factor 5 in the Finnish student sample (Saarikoski *et al.* 2008).

Internal consistency and inter-item correlations

Cronbach's alpha internal consistency reliability coefficients of the CLES + T for the total scale were 0·95, for Supervisory relationship 0·96, Pedagogical atmosphere on the ward 0·89, Role of the nurse teacher 0·89, Leadership style of the ward manager 0·75, Premises of nursing on the ward 0·80. Cronbach's alpha for the sub-dimension student's total satisfaction with the clinical placement was 0·87. These values reflect those achieved in the previous validation study (from 0·96 to 0·77) (Saarikoski *et al.* 2008).

The item analysis (Table 2) showed that for Factors 1–5, the corrected item-total correlation ranged from 0·35 to 0·91. The item means varied between 2·4 and 4·4 (on 1–5 scale). The percentage of missing values was 2% for Factors 1–2 and 4–6% for Factors 3–5.

Discussion

Study limitations

The participants consisted of students from three university colleges located in different parts of Sweden and it is difficult to generalize the results from this study to other clinical environments.

Interpretation of the factor analysis

The five sub-dimensions identified in the original version of CLES + T were in general confirmed in the EFA. Despite this, the factor loadings for some of the sub-dimensions were generally lower than those in the Finnish sample of nurse students (Saarikoski *et al.* 2008). In our EFA, the supervisory relationship was found to be the most important factor contributing to clinical learning experiences. This was also confirmed by Saarikoski *et al.* (2008). Furthermore, our study supports the fact that the CLES + T has good internal consistency and that the inter-item correlations are consistent with previous results (Saarikoski *et al.* 2008). We note that Factor 1 in our study had a high Cronbach's alpha.

The item about the nurse teacher being like a member of a nursing team (Factor 3) loaded on a different factor compared with the original CLES + T (Saarikoski *et al.* 2008). There may be various reasons for this difference. One explanation may be that the issue is not relevant to Swedish conditions. Another explanation may be that the translation did not correspond to the meaning of the original version. This difference requires further analysis.

The factor loading for Factor 4 'Leadership style of the ward manager' was similar compared with the original version. In the future, it is considered important to add and develop items that focus on the ward nurse's role within a learning environment, such as organizational conditions, resources and attitudes to education.

The most problematic differences in our study compared with that of Saarikoski *et al.*(2008) is that all the items in Factor 5 cannot be separated from Factor 2.

Consequently, a strong Factor 5 does not exist within the Swedish version. One proposal is to increase Factor 2 to include items from Factor 5. As a result, the title of this new factor could be 'The pedagogical and caring atmosphere on the ward'.

Table 2 Item statistics for Factors 1–5 of the Swe-CLES + T ($n = 324$)

	Mean Swe-CLES + T	SD ($\pm$)	Missing values (%)	Corrected item-total correlation	Cronbach's alpha if item deleted
Factor 1: Supervisory relationship ($\alpha=0.96$)					
I felt comfortable going to the ward at the start of my shift	4·2	1·1	2	0·76	0·96
There was a positive atmosphere on the ward	4·1	1·1	2	0·69	0·96
My supervisor showed a positive attitude towards supervision	4·4	1·0	2	0·78	0·96
I felt that I received individual supervision	4·4	1·0	2	0·73	0·96
I continuosly received feedback from my supervisor	4·1	1·1	2	0·72	0·96
Overall I am satisfied with the supervision I received	4·3	1·1	2	0·79	0·96
The supervision was based on a relationship of equality and promoted my learning	4·2	1·1		0·83	0·96
There was a mutual interaction in the supervisory relationship	4·3	1·1	2	0·91	0·96
Mutual respect and approval prevailed in the supervisory relationship	4·4	1·0	2	0·89	0·96
The supervisory relationship was characterized by a sense of trust	4·3	1·0	2	0·88	0·96
Factor 2: Pedagogical atmosphere on the ward ($\alpha = 0.89$)					
The staffs were easy to approach	4·3	0·9	2	0·65	0·88
During staff meetings (e.g. before shifts) I felt comfortable taking part in the discussions	4·1	1·1	2	0·47	0·89
Patients received individual nursing care	4·2	0·9	2	0·55	0·88
There were no problems in the information flow related to patients' care	4·0	0·9	2	0·56	0·88
Documentation of nursing (e.g. nursing plans, daily recording of nursing procedures, etc.) was clear	3·8	1·1	2	0·48	0·88
The staff were generally interested in student supervision	3·8	1·2	2	0·72	0·87
The staff learned to know the students by their personal names	4·4	1·0	2	0·63	0·88
There were sufficient meaningful learning situations on the ward	4·4	0·9	2	0·74	0·87
The learning situations were multidimensional in terms of content	4·2	0·9	2	0·69	0·87
The ward can be regarded as a good learning environment	4·3	1·1	2	0·80	0·86
Factor 3: Role of nurse teacher ($\alpha = 0.89$)					
In my opinion, the NT was capable to integrate theoretical knowledge and everyday practice of nursing	3·8	1·1	6	0·69	0·87
The NT was capable of operationalize the learning goals of this clinical placement	3·9	1·1	6	0·71	0·87
The NT helped me to reduce the theory-practice cap	3·6	1·2	6	0·67	0·88
The common meetings between myself, mentor and NT were comfortable experience	3·7	1·3	6	0·73	0·87
Climate of the meetings was congenial	3·6	1·2	6	0·79	0·86
Focus on the meetings was in my learning needs	4·0	1·2	6	0·66	0·88
Factor 4: Leadership style on the ward manager ($\alpha = 0.75$)					
The WM regarded the staff on her/his ward as key resource	4·1	1·0	6	0·69	0·61
The WM was a team member	3·5	1·2	6	0·35	0·80
Feedback from the WM could easily be considered a learning situation	3·1	1·2	6	0·59	0·66
The effort of individual employess was appreciated	3·8	1·1	6	0·58	0·67
Factor 5: Premises of nursing on the ward ($\alpha = 0.80$)					
The wards nursing philosophy was clearly defined	3·3	1·2	1	0·32	0·88
The NT was like a member of the nursing team	2·4	1·4	4	0·69	0·71
The NT was capable to give his or her pedagogical expertize to the clinical team	2·6	1·2	4	0·77	0·68
The NT and the clinical team worked together supporting my learning	2·9	1·3	4	0·73	0·70

NT, nurse teacher; WM, ward manager

What is already known about this topic

- The Clinical Learning Environment, Supervision and Nurse Teacher evaluation scale is a validated questionnaire for measuring students' views of crucial factors for an effective, academic and clinical learning environment within a hospital placement used for nursing education.
- The instrument is suggested as suitable to form part of the total quality assessment of nursing education and form part of the decision-making process used to further develop the nursing education system.

What this paper adds

- The Swedish version of the Clinical Learning Environment, Supervision and Nurse Teacher evaluation scale has satisfactory psychometric properties.
- A supervisory relationship was found to be the most important factor contributing to clinical learning experiences.

Implications for practice and/or policy

- The Clinical Learning Environment, Supervision and Nurse Teacher evaluation scale could be used as a future tool to facilitate discussion on how to obtain quality in clinical nursing education nationally.

There are further results within this study that require comments. Some of the students had a low score on the items in Factor 3 'Role of the nurse teacher'. There is an ongoing debate about how nurse teachers should offer support within the field of clinical learning (Pollard *et al.* 2007). One of the items which evaluated the role of the nurse teacher does not seem to be relevant to Swedish educational conditions. One explanation could be that the teacher is not employed by the clinical department and was not perceived by students as one of the staffs. Also, the reason why students did not perceive the teacher as an educational expert who worked together with the clinical supervisor to support their learning needs to be investigated further.

The results of this study indicate that participants rated their total satisfaction with their clinical placement as good, with 89% of the sample giving scores of 10–15 on a 3–15 scale.

To achieve quality assurance in nurse education and to have a tool to assess the quality of clinical education, collaboration between the health care and nursing education systems is a pre-requisite. Previous studies have revealed that the CLES + T had acceptable validity and reliability and therefore could be used to evaluate the total quality of clinical courses in hospital placements for nursing education. However, there is still a need for further research into the instrument's utility and value within a European context.

Conclusion

This study shows that the Swedish version of the CLES + T evaluation scale has satisfactory psychometric properties and could be a useful instrument for measuring quality within nursing education. The supervisory relationship was found to be the most important factor contributing to clinical learning experiences. However, more research is required to develop and evaluate the questionnaire further.

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Conflict of interests

No conflict of interest has been declared by the authors.

Author contributions

U-BJ, PK and MS were responsible for the study conception and design. U-BJ, PK, MAE and JL performed the data collection. U-BJ and HI performed the data analysis. U-BJ, PK, MAE, JL, HI and MS were responsible for the drafting of the manuscript. U-BJ, PK, MAE, JL, HI and MS made critical revisions to the paper for important intellectual content. HI provided statistical expertize. U-BJ and JL obtained funding. U-BJ provided administrative, technical or material support.

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