Original Article

The Cles+T Scale in Primary Health Care Settings:
Methodological Study

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Abstract

Background: Primary care Learning Environment and Nurse Teacher effectiveness is vital for quality of education. Various cultural studies comprise a background for student education evaluation in both clinical and primary care learning environments.

Aim: The aim of this methodological cross-sectional study was to test the validity and reliability of the Clinical Learning Environment, Supervision, and Nurse Teacher (CLES+T) evaluation scale for primary care practices in public health nursing education.

Methodology: This study had a methodological design, where study reporting was supported by the STROBE checklist. To make sure that there would be around five times as many participants as the number of items, the sample consisted of 135 junior students plus 17 senior students taking part in a public health nursing internship program. In total, 152 students participated in the study. Helsinki Declaration ethical principles were considered throughout the process. For the data analyses quantitative parametric measures were applied. The data analysis involved Kendall's W, Cronbach's alpha, and confirmatory factor analysis**.** The scale was subject to expert judgment, and it was piloted with a group of nursing students.

Results: The content validity analysis of expert judgement was statistically significant. Cronbach's alpha coefficients varied between 0.48 and 0.94 for five sub-dimensions of factor loading, according to confirmatory factor analysis. The overall scale had a Cronbach's alpha of 0.86. The five-factor construct of the Turkish version of the CLES+T evaluation scale was confirmed and demonstrated adequate reliability and validity.

Conclusions: The scale can now be used by managers and teachers for evaluating the quality of education in primary care practices. It gives an opportunity to Turkish student nurses and teachers to evaluate their practice.

Keywords: nursing students, public health education, evaluation, primary health care, CLES+T

Introduction

Saarikoski and Lenio-Kilpi conducted a study (2002) with Finnish nursing students to evaluate their perceptions of the clinical learning environment and to develop a relevant scale of measurement, which they called the Clinical Learning Environment and Supervision Evaluation Scale (CLES) (Saarikoski & Leino-Kilpi, 2002).

The scale consisted of items measuring the effectiveness of the learning environment. This involved clinical observation, communication, and assessment of the supervisory atmosphere. Based on previous empirical research, the items

attempted to evaluate the clinical environment and the quality of supervision from a student perspective (Saarikoski & Leino-Kilpi, 2002; Saarikoski et al., 2008; Saarikoski et al., 2009). Then, Saarikoski et al. added statements concerning the nurse-teacher relationship. Named the Clinical Learning Environment, Supervision, and Nurse-Teacher relationship (CLES+T) evaluation scale, this updated version was validated as an instrument for assessing the quality of clinical education received by nursing students. It was administered for the first time in Finland (Saarikoski et al., 2008) The scale has been adapted for various European countries and used for evaluating the quality of nursing teachers within their educational systems (Meretoja R, Saarikoski, 2012; Saarikoski, 2014).

Background: For culturally adapted versions of the CLES+T evaluation scale, Cronbach's alpha coefficients varied from one country to another. It was .95 for the overall Swedish version and .75-.96 for its sub-divisions (Johansson, 2010). For the Dutch version it was .97 and .80-.95 for its sub-divisions (De Witte et al., 2011). In the Spanish version the result was .80 overall and .95-.97 for the sub-divisions (Vizcaya-Moreno, 2015). In Croatia the results were .77-.96, in the Cypriot version they were .81-.95, and finally .80-.96 for the Italian version (Lovric et al., 2016; Papastavrou, 2010; Tomietto, 2012). According to Saarikoski there are now 26 language adaptations, and 60 researchers across 45 countries have so far been involved in evaluation research (Saarikoski et al., 2013; Saarikoski, 2014).

In addition to these variations, adaptations of the CLES+T evaluation scale have helped reveal particular characteristics in different European nations (Saarikoski et al., 2013). There are different standards and procedures used to teach nursing across Europe (Johansson et al., 2010). In Cyprus, most students experience group supervision (Papastavrou et al., 2010). In the Spanish version, however, the supervisory relationship and pedagogical atmosphere are the most significant factors in the clinical learning environment (Vizcaya-Moreno et al., 2015). A large majority of students in transcultural studies report that their motivation is higher when they are involved in clinical practice with nurse teachers.

Swedish nursing researchers were the first to undertake the adaptation of the scale to primary care practices, and the items were easily adapted and tested for this purpose (Bos et al., 2012). Confirmatory factor analysis suggested strong correlations between learning environment and supervisory relationship (r=.83), and between supervisory relationship and the nurses perceptions (r=.69). There were moderate correlations between supervisory relationship and role of the nurse teacher (r=.26), and also between supervisory relationship and leadership style (r=.48). Both the validity and reliability of the Turkish version of the CLES+T evaluation scale have recently been tested in a clinical setting, and the findings have been published (Iyigun, 2015).

This study has been undertaken because, up till now, there has been no valid and reliable instrument for evaluating the quality of education of public health nurses and their learning environment in primary health care in Turkey. The use of such a scale will facilitate an evaluation of students' perceptions of the learning environment and of their nurse teachers. Accordingly, the aim of this methodological cross-sectional study is to test the validity and reliability of the CLES+T evaluation scale for primary care practices.

Methods

Design: This was a methodological cross-sectional study to test the validity and reliability of the Turkish version of the CLES+T evaluation scale for primary care practices. The study report was also consistent with " Enhancing the Quality and Transparency of Health Research " (EQUATOR) guidelines, using the checklist " Strengthening the Reporting of Observational Studies in Epidemiology" (STROBE).

Setting and Sample: The population was composed of all-volunteer junior and senior nursing students who were studying in the nursing faculty (n=147 and n=17, respectively). The initial objective was to have a sample of around 170 students (five times as many participants as the number of items on the scale). Since some students did not attend the classes on the day that the test was administered, or did not agree to participate in the study and complete the forms, the final sample was composed of 135 junior students (93.7% of the target population of junior students) and 17 senior students of public health nursing (the whole target population of senior students), who were also attending an internship program. In total, 152 students

participated in the study.

Ethical Considerations: The study protocol was evaluated and approved by the Dokuz Eylül University Nursing Faculty research commission (91829616/804-728). In addition, written permission to carry out the study was obtained from the Dean of Faculty. In addition, Helsinki Declaration principles for ethical aspects of the study were followed. Informed consent was obtained from the students, who participated voluntarily. Students' anonymity, confidentiality and right to refuse were guaranteed. Written consent was also obtained from both the authors who had translated the original scale into Turkish, as well as from the author who had previously developed the English version (İyigün, 2014; Saarikoski et al., 2008). The design of the study did not demand the use of identifiable questionnaries so the privacy of respondents was protected.

Instruments: The data were collected using two instruments, namely a demographics survey and the CLES+T evaluation scale. The validity and reliability of the Turkish version of the CLES+T evaluation scale had already been tested in clinics by Iyigun (İyigün, 2014). As already stated, those authors granted their consent for the use of the scale in this study. Measured on a five-point Likert scale, the instrument consisted of five sub-divisions as follows: the content of the supervisory relationship (8 items), the learning environment (8 items), the role of the nurse teacher (9 items), the leadership style of the ward manager (4 items), and the nursing quality on the ward (4 items). The scale did not have a cutoff point; higher scores represented higher agreement. The demographics survey contained four questions for the students, one for each of the following: their grade level, the location of their most recent internship experience, the length of this internship, and the name of their supervisor. Prior to its use in Turkey, the scale had already been adapted for Sweden, the Netherlands, Spain, Croatia, Cyprus, Italy, Germany, and Norway (Bergjan & Hertel, 2015; De Witte et al., 2011; Johansson et al., 2010; Lovric et al., 2016; Papastavrou et al., 2010; Skaalvik, Normann & Henriksen, 2011; Tomietto et al., 2012; Vizcaya-Moreno et al., 2015).

Data Collection: The data collection instruments were distributed to the junior and senior students in different class sessions. The students were also reminded that they did not have to write their names or surnames on their responses. The administration took around five minutes. The

researchers were coded and identified with case numbers to ensure anonymity.

Procedures: Written consent had been obtained from both the authors who had translated the original scale into Turkish as well as the author who had developed the English version (İyigün, 2014; Saarikoski et al., 2008).

Expert Judgment: The items in the scale were arranged in accordance with primary care practices and submitted to three specialists who were nursing lecturers. They were asked to rate each item on a three-point scale: 0= Irrelevant, 1=Relevant, and 2=Needs revision.

Pilot Study: After the scale was evaluated by the specialists, it was piloted with a volunteer group of 10 sophomore students. Since no negative feedback was received, it was decided that the scale could be administered to a larger sample to test its validity and reliability.
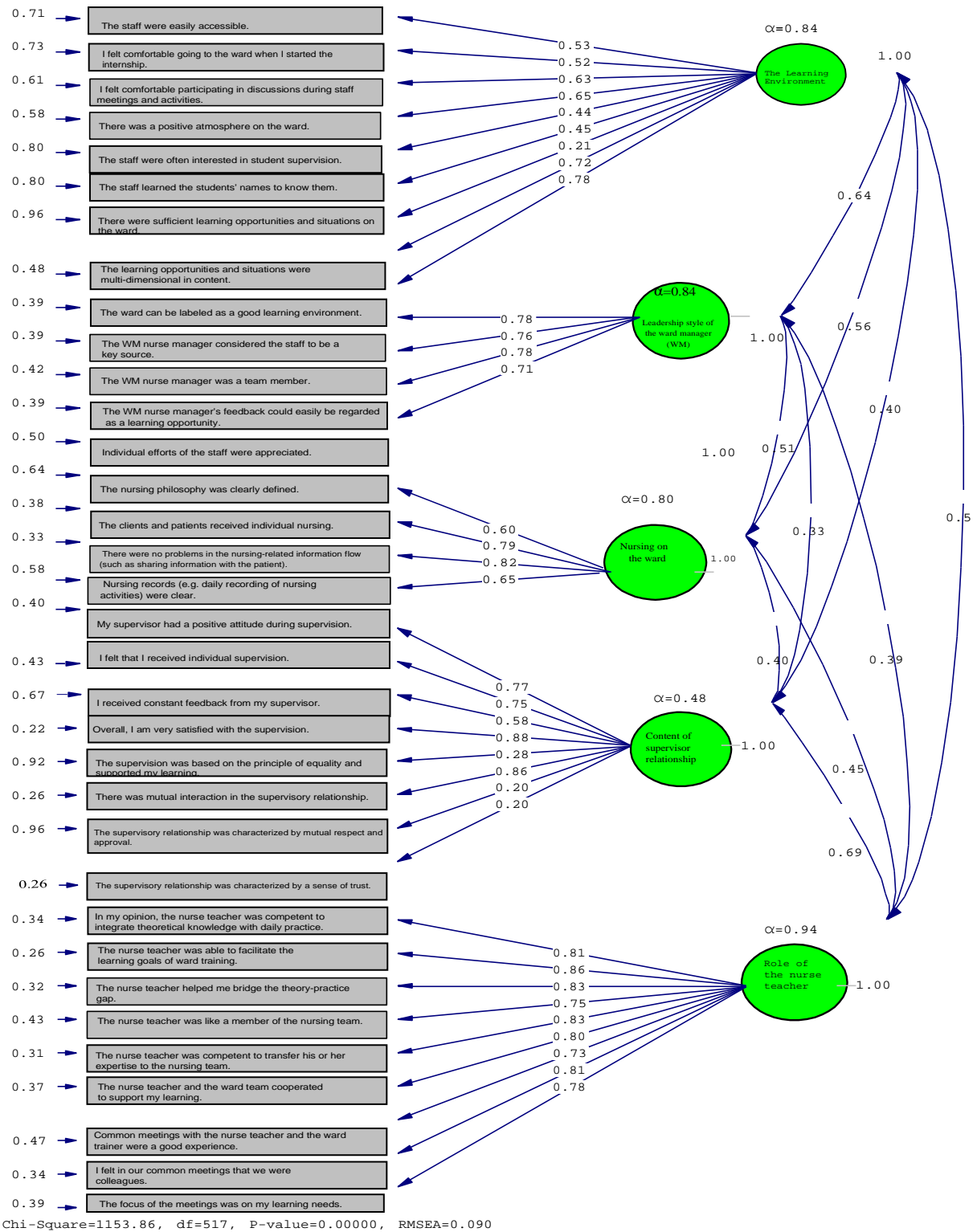
Data analysis: The data were coded and then analyzed using the LISREL 8.0 statistical analysis program. Data analysis involved Kendall's W, Cronbach's alpha, and confirmatory factor analysis. An item analysis was conducted to see how well each individual item correlated with other items in the sub-divisions. Correlations of .40 or higher are usually considered unacceptably low. A Cronbach's alpha below .80 indicates that items are not adequately inter-related (Polit & Beck, 2014).

Results

The study was conducted with 93.7% of the junior students and 100% of the senior students of public health nursing, who were attending an internship program. The distribution of the students by internship location was as follows: Fahrettin Altay Region(12.8%), Yelki Region (13.4%), Konak Region (11.4%), Balcova Region (12.8%), Esentepe Region (14.8%), Koruturk Region (11.4%), and Narlidere Region (23.4%). The length of internship was 14 weeks.

Validity and Reliability Analysis

Content validity of the CLES+T evaluation scale was tested as follows. The ratings of the three specialists were evaluated using Kendall's W. The analysis showed that there were no statistical discrepancies among the specialists (Kendall's W=0.51, p=.108). Construct validity and reliability of the CLES+T evaluation scale were also tested. According to the confirmatory factor analysis (Figure 1), the factor loadings for the sub-divisions were as follows:

0.71 — The staff were easily accessible.

0.73 — I felt comfortable going to the ward when I started the internship.

0.61 — I felt comfortable participating in discussions during staff meetings and activities.

0.58 — There was a positive atmosphere on the ward.

0.80 — The staff were often interested in student supervision.

0.80 — The staff learned the students' names to know them.

0.96 — There were sufficient learning opportunities and situations on the ward.

0.48 — The learning opportunities and situations were multi-dimensional in content.

0.39 — The ward can be labeled as a good learning environment.

0.39 — The WM nurse manager considered the staff to be a key source.

0.42 — The WM nurse manager was a team member.

0.39 — The WM nurse manager's feedback could easily be regarded as a learning opportunity.

0.50 — Individual efforts of the staff were appreciated.

0.64 — The nursing philosophy was clearly defined.

0.38 — The clients and patients received individual nursing.

0.33 — There were no problems in the nursing-related information flow (such as sharing information with the patient).

0.58 — Nursing records (e.g. daily recording of nursing activities) were clear.

0.40 — My supervisor had a positive attitude during supervision.

0.43 — I felt that I received individual supervision.

0.67 — I received constant feedback from my supervisor.

0.22 — Overall, I am very satisfied with the supervision.

0.92 — The supervision was based on the principle of equality and supported my learning.

0.26 — There was mutual interaction in the supervisory relationship.

0.96 — The supervisory relationship was characterized by mutual respect and approval.

0.26 — The supervisory relationship was characterized by a sense of trust.

0.34 — In my opinion, the nurse teacher was competent to integrate theoretical knowledge with daily practice.

0.26 — The nurse teacher was able to facilitate the learning goals of ward training.

0.32 — The nurse teacher helped me bridge the theory-practice gap.

0.43 — The nurse teacher was like a member of the nursing team.

0.31 — The nurse teacher was competent to transfer his or her expertise to the nursing team.

0.37 — The nurse teacher and the ward team cooperated to support my learning.

0.47 — Common meetings with the nurse teacher and the ward trainer were a good experience.

0.34 — I felt in our common meetings that we were colleagues.

0.39 — The focus of the meetings was on my learning needs.

The Learning Environment α=0.84 — 1.00
Loadings: 0.53, 0.52, 0.63, 0.65, 0.44, 0.45, 0.21, 0.72, 0.78

Leadership style of the ward manager (WM) α=0.84 — 1.00
Loadings: 0.78, 0.76, 0.78, 0.71

Nursing on the ward α=0.80 — 1.00
Loadings: 0.60, 0.79, 0.82, 0.65

Content of supervisor relationship α=0.48 — 1.00
Loadings: 0.77, 0.75, 0.58, 0.88, 0.28, 0.86, 0.20, 0.20

Role of the nurse teacher α=0.94 — 1.00
Loadings: 0.81, 0.86, 0.83, 0.75, 0.83, 0.80, 0.73, 0.81, 0.78

Correlations: 0.64, 0.56, 0.40, 0.5, 0.51, 0.33, 0.40, 0.39, 0.45, 0.69

Chi-Square=1153.86, df=517, P-value=0.00000, RMSEA=0.090

- .40-.78 for the learning environment,

- .71-.78 for the leadership style of the ward manager,

- .60-.82 for the nursing on the ward,

- .20-.88 for the content of the supervisory relationship, and

- .73-.86 for the role of the nurse teacher.

Confirmatory factor analysis of the clinical learning environment, supervision, and nurse teacher evaluation scales was carried out. It was found that the degree of freedom was 51781.85 (p=.000), and Cronbach's alpha coefficients for the five sub-divisions of the CLES+T evaluation scale varied from .48 to .94. The overall scale had a Cronbach's alpha of .86. The indices of model fit were as follows: RMSEA=0.092, NFI=0.85, NNFI=0.90 and GFI= 0.68.

Discussion

Content Validity: A scale was submitted to a group of specialists to test its content validity and revised in accordance with their opinions (Gözün & Akasayan, 2003; Ozguven, 2000). Agreement among most members of a group of specialists is acknowledged to be indicative of content validity (Sencan, 2005). In this study, the Turkish version of the scale was submitted to a group of three nursing specialists to evaluate each item for its relevance to primary health care. They also evaluated the linguistic and cultural appropriateness of the items. The results of Kendall's W analysis showed that there was agreement among the specialists. This suggested that the items in the CLES+T evaluation scale are appropriate for the culture and measure what they are intended to measure, so content validity is achieved.

Construct Validity: Confirmatory Factor Analysis tests whether items that comprise a factor are relevant to this factor (Sencan, 2005; Şimsek, 2007). Factor loadings are expected to be at or above 0.40. A confirmatory factor analysis is a particularly useful indicator of validity when attempting to adapt a scale for a culture different from the one originally intended (Büyüköztürk, 2014).

The results of the analysis showed that the factor distribution of the items complied with the original scale. The factor loadings for the sub-dimensions were as follows: .40-.78 for the learning environment, .71-.78 for the leadership

style of the ward manager, .60-.82 for the nursing on the ward, .20-.88 for the content of the supervisory relationship, and .73-.86 for the educational role of the nurse teacher. The supervisory relationship was the most important out of the five factors tested and was strongly correlated with the role of the nurse teacher. These findings were inconsistant with those of Saarikoski et al. and Johansson et al. (Johansson, 2010; Saarikoski et al., 2008). However, we observed higher factor loadings for the role of the nurse teacher (Figure 1) than those authors. A possible explanation for these outcomes lies in the differences between hospital and primary care nursing. Hospital working requires teamwork and many supervisors. A primary health care setting requires long-term patient care at home and the nurse working alone, supervised by one teacher. As previously shown by Bos et al., our study demonstrated that the CLES+T evaluation scale is a reliable instrument for primary care settings (Bos et al., 2012).

In addition, the indices of model fit were as follows: RMSEA=0.092, NFI=0.85; NNFI=0.90 and GFI= 0.68. These values indicated that the data fit the model, the five-factor construct is confirmed, the items and sub-divisions are relevant to the scale, and each item sufficiently defines the sub-division it is grouped under. In other words, construct validity is achieved, suggesting that the scale is a valid instrument and can be further used for Turkish samples.

Compared to previous research, Cronbach's alpha coefficients were lower than those for the Swedish and German versions but higher than the Spanish version (Bergjan & Hertel, 2013; Johansson et al., 2010; Vizcaya-Moreno et al., 2015). Three items had lower factor loadings than the others. These were as follows: "Sufficient learning opportunities and situations were available on the ward." (item 7 in the learning environment), "The supervisory relationship was characterized by mutual respect and approval" (item 7 in the content of supervisory relationship), and "The supervisory relationship was characterized by a sense of trust" (item 8 in the content of supervisory relationship).

Reliability of the CLES+T Evaluation Scale

Internal Consistency Analysis of the Sub-Divisions: Cronbach's alpha coefficients were calculated to determine the internal consistency

of the overall scale and of the sub-divisions. Cronbach's alpha shows the extent to which all items measure the same property and are relevant. In an instrument, the reliability coefficient must be as close to 1 as possible (Tavsancıl, 2014; Tezbasaran, 2008). An alpha below .80 indicates that items are not adequately inter-related (Polit & Beck, 2004). The overall scale had a Cronbach's alpha of .86, and the coefficients for the sub-divisions varied between .48 and .94. These findings are supported by that of Iyigun and Bos et al (Bos et al., 2012; İyigün, 2014).

Conclusion: The CLES+T evaluation scale is a reliable instrument for measuring students' perceptions of nurse teachers during primary care public health practices. The results generated will contribute to the multi-dimensional evaluation of ward practices and help managers to objectively determine the areas that should be subject to improvements. The results from the sub-dimensions could reveal the level of agreement between teachers and students during primary care practices, and also identify the extent to which learning opportunities are facilitated to attain the learning goals.

Relevance to Clinical Practice: This scale can be used by educational planners and managers to evaluate learning programs in order to achieve the best possible quality for primary care nursing students. Researchers can acquire comparative data on different aspects of practices. Future research could focus on comparing different educational approaches in terms of their effects on practices.

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