ORIGINAL PAPER

FACTORS INFLUENCING THE EFFECTIVENESS OF CLINICAL LEARNING ENVIRONMENT IN NURSING EDUCATION

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Abstract

Aim: The purpose of the cross-sectional descriptive study was to investigate how nursing students evaluate particular factors of clinical learning environment during their professional placement in hospitals. We explored which factors of clinical environment contribute significantly to students' evaluation of it. *Design:* A descriptive cross-sectional study. *Methods:* The sample included 503 nursing students in their second or third year of study at six Slovak universities. A valid and reliable questionnaire, the Clinical Learning Environment, Supervision and Nurse Teacher evaluation scale (CLES+T), was used to evaluate the student nurses' experiences and clinical placement. The data were analysed using descriptive statistics, Pearson's chi-square test, multifactorial ANOVA procedure and Pearsons' correlations, and p-value < 0.05 was taken to indicate statistical significance for all comparisons. *Results:* A significant proportion of students experienced a traditional model of group supervision. Supervision method, supervisory session frequency, and duration of clinical placement had a significant impact on their evaluation of clinical environments. *Conclusion:* Supervision methods are a significant factor influencing student evaluation of their clinical placement environment. Compared to other European studies, we found a less frequent application of individual supervision and that the Slovak university setting is dominated by a traditional group model of supervision. The study offers a valuable insight into the analysis of factors contributing to improvements in clinical learning environment and models of clinical or workplace training.

Keywords: clinical learning, clinical learning environment, supervision, mentorship, CLES+T evaluation scale.

Introduction

Research focusing on clinical setting in the professional preparation of nurses in a European environment has primarily been influenced by the transformation of pre-service training of nurses in the European Union (EU) since the 1960s (Saarikoski et al., 2013). There is a broad range of international studies (Saarikoski et al., 2007; Warne et al., 2010; Antohe et al., 2015; Dobrowolska et al., 2016) developed and published as part of multiple European projects comparing clinical learning environment in relation to organizational aspects of clinical learning or clinical supervision. Early comparative studies were mainly carried out in Western European countries. Warne et al. (2010) justify the exclusion of Central and Eastern Europe

on grounds of cultural differences, as well as differences in education and organization of clinical instruction. Following research in Western European countries, a comparative study was carried out within the EmpNURS (Empowering the Professionalization of Nurses through Mentorship) project to explore the existing situation of clinical education and student satisfaction with learning environments in four relatively new member states of the EU – the Czech Republic, Hungary, Lithuania and Romania. In Slovakia, clinical environment was mainly assessed in relation to the specific training of mentors in partial cross-sectional studies (Zanovitová et al., 2014), which involved students from only one institution.

This study was designed to compare results from Central/Eastern EU countries with previous studies from Western European societies. Evidence from Slovakia suggests Clinical practice and student supervision issues have not received sufficient attention. Following previous European studies (Saarikoski, Leino-Kilpi, 2002; Saarikoski et al.,

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2008; Warne et al., 2010; Saarikoski et al., 2013; Antohe et al., 2015) and partial local studies (Zanovitová et al., 2014), the construct of clinical learning environment was operationalized by the *Clinical Learning Environment, Supervision and Nurse Teacher evaluation scale* (CLES+T, Saarikoski et al., 2009). This instrument is one of the most commonly used tools to measure students' perceptions of clinical learning environment in European countries and has been validated in different empirical studies for clinical and research purposes. The CLES+T scale has commonly been used as an audit instrument for measuring the quality of clinical education in higher nursing education (Sirkka et al., 2015). The instrument was developed on content analysis of the results arising from a number of empirical studies, audit instruments and systematic literature reviews, and is primarily used to evaluate nursing teachers' pedagogical and social role-dimensions in the clinical practice of student nurses and the impact of different supervision models (Saarikoski et al., 2009) on students' perceptions of clinical learning enviroment. The CLES+T scale is a modified and improved version of the Clinical Learning Environment and Supervision (CLES) scale (Saarikoski, Leino-Kilpi, 2002). The CLES has been used more often in Sloviakia than the recent version – the CLES+T scale. The psychometric properties of this widely used instrument are well established (Saarikoski et al., 2009; Papastavrou et al., 2016).

The study was supported by Grant *KEGA: Evaluation of clinical learning enviroment in nursing pre-gradual education (016PU-4/2015).* Within this project we focused on a more representative sample of nursing students from several higher education institutions in Slovakia to describe the situation of clinical placements for student nurses and compare students' perceptions of learning environments with the results of other European studies.

Aim

The study objective was to determine how nursing students evaluate selected clinical factors during their placement in healthcare facilities. We examined the relationship between the factors of clinical instruction (supervision methods, frequency of supervision sessions, supervisors' job title and the length of placement) and students' evaluation of clinical learning environment.

Methods

Design

A descriptive cross-sectional study.

Sample

The research sample consisted of 503 nursing students in the second or third year of a Bachelor degree from six universities in Slovakia. The students were selected on the basis of predetermined criteria and were guaranteed anonymity. In order to obtain a homogeneous sample of respondents in terms of type of workplace and study class, the sample included only students in the second and third year of a Bachelor degree in nursing who have carried out continuous clinical practice within inpatient healthcare facilities. Participants were recruited between March and November 2015. Researchers contacted selected universities, the study was explained, and permission for the purpose of gathering data was sought. The CLES+T scale was individually administered in the last week of each student's clinical placement or one week after students' clinical placement. A total of 600 questionnaires were distributed to eligible respondents at the six participating universities, of which 503 were returned. The overall response rate was 83.8%.

Data collection

The domains of clinical learning environment were measured with the CLES+T scale. The CLES+T scale (Saarikoski et al., 2009) consists of 34 items grouped into five domains: pedagogical atmosphere on the ward (nine items); supervisory relationships (eight items); leadership style of ward managers (four items); healthcare on the ward (four items); and the role of the teacher (nine items). Students evaluated each item on the questionnaire using the five-point Likert scale (1 = "strongly disagree", 5 = "strongly agree"). The CLES+T scale is a modified and improved version of the Clinical Learning Environment and Supervision (CLES) scale (Saarikoski, Leino-Kilpi, 2002). Cronbach alphas for each of the five subscales in the original instrument ranged from 0.77 to 0.96. Cronbach alphas for each of the five subscales in our study ranged from 0.80 to 0.97, confirming good internal consistency of the scale in the current study. Permission to use the CLES+T scale in this study was obtained. The CLES+T scale was then translated into Slovak. The translation process consisted of three steps: forward translation; back translation into English by a qualified translator; comparison of the back translation with the original version and panel discussion (cognitive debriefing), with pilot testing on a small sample of nursing students (Gurková et al., 2015).

Data analysis

Statistical analysis was performed with the Statistical Package for Social Sciences 20.0. Results concerning evaluation of clinical learning environment were calculated in the context of descriptive statistical analysis (means, standard deviation, absolute and relative frequencies) For group comparisons, multifactorial ANOVA and Fisher's least significant difference (LSD) procedure were performed where appropriate. To determine the associations and correlations between variables, parametric Pearson correlations were used. Proportion comparisons were carried out with the chi-square test. P-value < 0.05 was taken to indicate statistical significance for all comparisons.

Results

Students' experiences of clinical environments and supervision

The majority of supervisors in our sample were ward nurses (70.4%). The remainder of the supervisor sample was made up of ward managers or assistant ward managers (29.6%). 53.7% of students did not have scheduled sessions with their supervisor at all.

Only 20.3% of students had scheduled sessions with their supervisor about once a week or more. Significant differences were found in frequency of supervision sessions in relation to the job title of supervisors (Pearson's chi-square test = 52.7; p = 0.001). Higher frequency of supervision sessions was indicated by students working under mentorship of managers or divisional nurses. Within the CLES+T tool, the individual methods of supervisory relationship could be identified and the students could choose from six alternatives (Table 1). Based on a multinational European study (Warne et al., 2010), we combined these items into three groups: unsatisfactory supervisory experience, group supervision, and satisfactory supervisory experience. Only 15.9% of the sample students indicated satisfactory supervisory experiences. 24.8% of students indicated unsatisfactory individual supervisory experiences (no named supervisor, unplanned change of supervisor, a personal supervisor was named, but the relationship with them did not function). 57.9% of students indicated that group supervision was the method used.

Table 1 Students' experience of clinical environments and supervision (n = 492; 11 students had missing data on items of measures)

Method of supervision	n	%
the student did not have a named supervisor	95	18.9
a personal supervisor was named, but the relationship with this person did not work	20	4.1
the named supervisor changed during the training course, even though no change had been planned	7	1.4
the supervisor varied according to shift or place of work	130	26.4
the supervisor had several students and was a group supervisor rather than an individual supervisor	155	31.5
a personal supervisor was named and the relationship worked during the placement	78	15.9
other (not specified)	7	1.4

Students' evaluation of clinical learning environment

The mean values between sub-dimensions varied between 2.93 (± 1.34) and 3.61 (± 0.87). The highest mean value was in the sub-dimension *premises of nursing on the ward* (3.61) and on the sub-dimension *leadership style of ward managers* (3.52 ± 0.89). The midpoint of the Likert-type scale (3.00–3.49) represents balanced agreement. Students in our sample were more satisfied with external aspects/sub-dimensions of clinical learning environment such as (Table 2) – *leadership style of ward managers* (3.52 ± 0.89); *premises of nursing on the ward* (3.61 ± 0.87) and *pedagogical atmosphere on the ward* (3.20 ± 0.77). The sub-dimension *supervisory relationships* achieved the lowest scores (2.93 ± 1.34). Students

reported higher satisfaction with leadership style of ward managers, premises of nursing on the ward, and pedagogical atmosphere on the ward than with the supervisory relationship with their mentor.

Table 2 Mean scores of sub-dimensions of the Slovak version of the CLES+T (n = 503)

	mean	SD
pedagogical atmosphere on the ward	3.20	0.77
leadership style of the ward manager	3.52	0.89
premises of nursing on the ward	3.61	0.87
mentorship relationship	2.93	1.34
role of nurse teacher	3.27	0.86

SD – standard deviation

Factors influencing clinical learning environment

Multifactor ANOVA was used to investigate significant differences in overall mean score of CLES+T scale according to selected variables such as – duration of the placement, occupational title of supervisor, and students' previous experience on the ward or methods of supervision (Table 3). Significant differences in mean overall score were found only in methods of supervision. Results of post hoc tests (the Fisher's LSD procedure) revealed that students with satisfactory individual mentorship (3.89 ± 0.89) reported better clinical learning environment than students who indicated group supervision (3.28 ± 0.71) or a variation of an unsatisfactory supervisory experience (2.88 ± 0.84).

Table 3 Factors of clinical learning environment supervision (n = 492, 11 students had missing data on items of measures), results of multifactor ANOVA

Variable	type III sum of squares	df	mean square	F	p
students' perceptions of the clinical learning environment (overall mean CLES+T score)					
duration of the placement (1–2 weeks/ 3–4weeks/more than 4 weeks)	**0.27**	**3**	0.09	0.25	0.86
occupational title of supervisor (nurse, nurse specialist/ward manager, assistant ward manager)	1.48	4	0.59	1.61	0.17
students' perceptions of supervision (unsuccessful supervisory experience/group supervision/successful supervisory experience)	**20.01**	**3**	**6.16**	**16.76**	**0.000**

*df – degrees of freedom; F – ratio; p < 0.01; ***p < 0.001*

A negative (although not statistically significant) correlation was found between duration of the placement and student perceptions of clinical learning environment. Positive low correlations were noted between frequency of supervision sessions and student perceptions of clinical learning environment. Higher frequency of supervision sessions of students with mentors was associated with better overall student evaluation of clinical learning environment (Table 4).

Table 4 Correlations between overall mean CLES+T score and duration of the placement and frequency of supervisory sessions

	Duration of the placement	Frequency of supervision meetings
students' perceptions of the clinical learning environment (overall mean CLES+T score)	-0.04	0.31**

*p < 0.05; **p < 0.01; ***p < 0.001

Discussion

The evaluation of effectivness of selected factors influencing student perceptions of clinical learning environment has been of interest to many investigators in a number of quantitative and qualitative studies. Papastavrou et al. (2010) provided a chronological review of studies focusing on the evaluation of clinical environment. The primary focus of early studies was aimed at clinicial environment as a source of stress in relation to signs of stress and anxiety during clinical placement and coping strategies (Sheu et al., 2002; Melo et al., 2010; Melincavage, 2013).

In more recent studies, clinical learning environment has been investigated from the psychosocial/educational perspective, particularly student perceptions of personalisation, involvement, task orientation, innovation, and individualisation (Chan, 2001; Chan, 2002; Midgley 2006). Other studies have questioned the effectiveness of cultural and organizational factors in the ward, supervision strategies, supervisory relationships or staff-student

relationships on students' learning experiences (Saarikoski, Leino-Kilpi, 2002; Saarikoski et al., 2008; Warne et al., 2010; Antohe et al., 2015). The results of the later group of studies confirmed that supervisory relationship is the strongest factor influencing organization of workplace training. An individualised supervisory approach is of prime importance to the students' learning and professional development in clinical practice (Warne et al., 2010). One of the most important and interesting findings of our study came from descriptive statistics. It was suprising that 24.8% of students in our study had had some type of unsatisfactory supervisory experience (no named supervisor, unplanned change of supervisor, a personal supervisor was named, but the relationship with them did not function). Students' experiences of clinical environments and supervision was reflected in their evaluation of clinical learning environment sub-dimensions. Students were more satisfied with external aspects/sub-dimensions (leadership style of ward managers; premises of nursing on the ward and pedagogical atmosphere on the ward) of clinical learning environment than with their supervisory relationship with a mentor. However, these findings are consistent with results of our pilot study focusing on testing the CLES+T scale (Gurková et al., 2015) on a more homogeneous sample of student nurses. The results of both of our studies suggest a correlation between student perceptions of individual areas of clinical learning environment and the type of supervisory relationship or their methods. A functioning individualised, supervisory relationship between student and mentor has an impact on student perceptions of all domains or sub-dimensions of clinical learning environment (Zanovitová et al., 2014). A partial cross-sectional study of Slovak authors (Zanovitová et al., 2014) investigated the effectiveness of clinical supervision depending on the number of trained mentors and confirmed increased student satisfaction with clinical environment being directly proportional to the specific training and availability of trained mentors.

A significant number of Slovak students in our sample had experienced a traditional model of group supervision associated with lower overall CLES+T score in contrast to individualised supervisory relationships. These results are consistent with the results of a European study by Antohe et al. (2015), confirming that group supervision was the most typical supervision model in Central/Eastern EU countries. Consistent with this study (Antohe et al., 2015), our study concludes that an individualised supervisory relationship was associated with higher satisfaction in students. European researchers investigating student perceptions and experience of clinical placements in a Western European context (Saarikoski, Leino-Kilpi, 2002; Saarikoski et al., 2008; Warne et al., 2010; Saarikoski et al., 2013) unanimously reported that the individualized supervisory model was predominant. Warne et al. (2010) unambiguously confirmed a move from a group supervision approach to a one-to-one supervision orientation in Western European countries. A considerable amount of empirical evidence indicates the effectiveness of the individualized supervisory model on student learning experiences (Saarikoski, Leino-Kilpi, 2002; Saarikoski et al., 2008; Warne et al., 2010; Saarikoski et al., 2013).

The second factor influencing students evaluation and assessment of clinical placements investigated in this study was the duration of the clinical training placement. In other European studies, the duration of the clinical training placement was identified as the determining factor of higher student satisfaction with the supervisory relationship and the pedagogical atmosphere on the ward. Warne et al. (2010) in their study performed in nine EU countries, confirmed that the students with longer placements (seven weeks or more) were more satisfied with clinical learning environment than the students with shorter placements (under seven weeks). However, in comparison with previous influential European studies (Warne et al., 2010) we did not confirm a significant relationship between the duration of the clinical training placement and student evaluation and assessment of clinical placements. One explanation for these findings might be the fact that only 34% of students in our sample were enrolled on placements of more than four weeks. Conditions such as a traditional schedule of clinical training divided into two semesters, as well as planning of clinical training in all basic departments, do not allow the students to remain at one workplace for more than four weeks. Higher frequency of supervisory sessions was associated with better overall student evaluation of clinical learning environment. Significant differences were found in frequency of supervisory sessions in relation to the position (job title) of supervisors. Clinical supervisors who worked as ward managers or assistant ward managers had lower frequency of supervisory sessions with students than clinical supervisors who worked as nurses or nurse specialists, most probably caused by the workload and time constraints.

Conclusion

Student evaluation of clinical environment and supervision were reflected in their assessment of the sub-dimensions of clinical learning. Supervision method was confirmed as a significant determinant influencing student perceptions of clinical learning environment. In contrast to previous influential European studies, we did not confirm the dominance of individualized supervisory models in clinical training. Group supervision was the most common supervision model at Slovak universities providing nursing education. The study provides an insight into the factors important for ensuring the quality of clinical nursing education.

Ethical aspects and conflict of interest

All respondents were fully informed of the research objectives, and agreed to participate in the research process. The authors declare that they had no conflict of interest and followed ethical guidelines when conducting the research.

Acknowledgements

Author contribution

Conception and design (EG, KZ), data collection, data analysis and interpretation (EG, KZ, SC, DM, AH), manuscript draft (EG, KZ), critical revision of the manuscript (EG, KZ, SM, SC), final approval of the manuscript (EG, KZ, SM).

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