

The undergraduate nursing student evaluation of clinical learning environment: an Italian survey

La valutazione dell'ambiente di apprendimento clinico da parte degli studenti del Corso di Laurea in Infermieristica: una indagine italiana

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ABSTRACT

Background: Nursing students have to deal with many different clinical and practical aspects of knowledge to become skilled professionals. Student perception may be considered an indicator of teaching quality, since positive perception of students is strictly related to their effective professional learning. The Clinical Learning Environment and Supervision plus Nurse Teacher (CLES+T) scale is considered the gold standard psychometric instrument to evaluate both the quality and the climate of clinical learning environment.

Aims: To evaluate the quality of nurse teaching by means of CLES+T scale and to highlight significant correlations between CLES+T scale and selected characteristics of both students and clinical environments.

Methods: On 4 March 2013, a cross-sectional survey was conducted at University of Modena: CLES+T scale was administered during a plenary convocation to 242 nursing students who attended the second and third years of Nursing Degree. All 34 items of the scale were statistically analysed using the median test.

Results: The median values were uniformly represented by "4" level (on the Likert scale). The final marks of clinical learning experience were the only variable statistically significantly related to the scale scores ($p < 0.01$). The paediatrics and emergency areas obtained the highest scale scores.

Conclusions: The nursing student evaluations were uniformly positive and related to their positive final marks. A positive ward atmosphere was identified as especially important in this study. These data indicate that a non-hostile and hospitable environment can favour the best clinical learning. We conclude that CLES+T scale can be a useful instrument to explore the clinical climate in all hospital areas and to highlight critical clinical situations.

Key-words: clinical learning environment, nursing student, CLES+T scale

RIASSUNTO

Introduzione: Per divenire dei professionisti qualificati, gli studenti infermieri sperimentano diverse esperienze di tirocinio clinico. L'opinione dello studente può essere considerata un indicatore della qualità dell'insegnamento e una percezione positiva dell'esperienza di tirocinio si correla strettamente ad un apprendimento efficace. La scala CLES+T (Clinical Learning Environment and Supervision plus Nurse Teacher) è lo strumento psicometrico "gold standard" per valutare la qualità dell'ambiente di apprendimento clinico.

Scopo: Valutare la qualità dell'ambiente di apprendimento clinico mediante la scala (CLES+T) ed evidenziare significative correlazioni inerenti le caratteristiche degli studenti, del modello tutoriale e dell'ambiente clinico.

Metodo: Il 4 marzo 2013, durante una convocazione plenaria, è stata somministrata la scala CLES+T ai 242 studenti del 2° e 3° anno del Corso di Laurea in Infermieristica di Modena (Università di Modena e Reggio Emilia). Tutti i risultati sono stati statisticamente analizzati (Test della mediana).

Risultati: Tutti i valori mediani si sono attestati ad un livello "4" (scala di Likert). La valutazione ottenuta dallo studente al termine del tirocinio clinico è l'unica variabile statisticamente correlata ai punteggi della scala ($p < 0.01$), più il voto è basso peggiore risulta la valutazione dell'esperienza di tirocinio. In base all'opinione degli studenti le aree cliniche pediatriche e critiche hanno valutazioni più elevate.

Conclusioni: Le valutazioni degli studenti erano uniformemente positive ed erano correlate al voto finale di tirocinio. Un clima di apprendimento positivo è stato considerato molto importante in questo studio. Questi risultati suggeriscono che un ambiente di apprendimento clinico favorevole e non ostile può influenzare gli esiti dell'apprendimento degli studenti. Concludiamo affermando che la scala CLES+T può essere uno strumento utile per esplorare il clima in tutte le aree ospedaliere e consentire di mettere in evidenza situazioni critiche.

Parole Chiave: ambiente di apprendimento clinico, studente infermiere, scala CLES+T

INTRODUCTION

The need for complete, integrated and multi-dimensional training, aimed not only to learning scientific

topics but also to performing professional skills, is growing among nursing students. Since the eighties, many aspects related to clinical learning have been evaluated: the supervisory relationship between mentor and student, the leadership style of the ward manager, the quality of nursing care on the ward and the climate and culture of the clinical environment (Andrews & Wallis, 1999; Chan, 2001; Marriott, 1991; Saarikoski & Leino-Kilpi, 2002; Saarikoski et al., 2008, 2009; Wakefield, 2000). Moreover, different pedagogical approaches have been compared, such as group clinical training in comparison to one-to-one supervision (Crawford et al., 2000; Jokelainen et al., 2011). Most

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authors consider the one-to-one relationship the main factor which facilitates clinical setting learning (Allan et al., 2008; Hsieh & Knowles, 1990; Saarikoski et al., 2005; Scheetz, 1989; Warne et al., 2010), since it favours the students' verbal communication of feelings and experiences (Laschinger & MacMaster, 1992; Shatkin, 1995). Only recently, the relationship between the clinical training evaluations of nursing students and the quality of nursing care delivered on the ward have been analysed (Lofmark et al., 1999; Shin, 2000; Smith, 1987, 1991). According to these studies, the quality of care delivered to the patient represents the main factor necessary to gain significant learning experiences (Quinn, 1995). Other authors have shown that the relationship between nursing student and staff was similar to the relationship between patients and staff (Beck, 1993). High quality care is provided by a nursing team who pursues a well-defined philosophy of care based on individual patients' needs. In fact, the nurse who takes care of a patient through the complete nursing process can offer a more personalized assistance than other professionals involved in partial and non-integrated activities (Davis, 1990). An important factor that can reduce the quality of clinical learning is represented by high level of stress and low satisfaction experienced by the staff of the ward where training takes place. In this regard, many studies suggest that stress is not only related to the frantic modality of work or to the critical conditions of the patients, since lower levels of stress are paradoxically reported in intensive care units compared to other medical and surgical wards. In support of this theory, other studies reported that the clinical training in wards with medium/low intensity of care, low technological impact and long duration of stay was defined as "poor" and "unsatisfactory" by nursing students (Fretwell, 1980; Lewin & Leach, 1982; Parkes, 1980). The clinical environment has to be characterized by good relationships within the staff, based on equity, mutual fairness, loyalty, clarity and honesty, in order to develop the professional skills of nursing student. As noted by the same authors (Dunn & Burnett, 1995; Neville & French, 1991; Orton et al., 1994; Wilson-Barnett et al., 1995), "good" clinical learning environments have to be characterized by a non-hierarchical structure with positive atmosphere and team spirit. Moreover, it has to be tolerant and not extremely rigid in order to transform professional mistakes into an integral part of the learning process. In a good clinical environment, workloads are correctly assigned to nursing students according to their achieved competencies. Otherwise, in clinical environments where nursing students do not take part in the clinical activities and have reduced contacts with patients, the learning experience is unsatisfactory. Most of the researchers evidenced that some departments are strongly

oriented to teaching whereas others, where the ward manager gives a very low priority to nursing student teaching, are oriented to considering nursing student as an additional worker. In fact, according to the other studies, the professional figure who can improve the supervision of students and create the best conditions for clinical learning is the ward manager (Chun-Heung & French, 1997; Fretwell, 1983; Hyland et al., 1988; Orton et al., 1994; Troskie et al., 1998). A research project, that lasted five years evaluated the integrated tutorial activity contemporarily offered by a university nursing teacher and a clinical supervisor to a nursing student for the duration of clinical training (Ferguson & Jinks, 1994). This model has attracted the interest of many researchers and has undermined the traditional practice of clinical teaching, suggesting new models and experimental approaches based on cooperation between university teachers and clinical nurses (Baird et al., 1994; Melander & Roberts, 1994; Packer, 1994; Paterson, 1997; Shah & Pennypacker, 1992). The Clinical Learning Environment, Supervision and Nurse Teacher (CLES + T) scale is internationally considered the gold standard for the assessment of clinical learning environments in hospital settings (Tomietto et al., 2012). The more recent version of CLES+T is composed of 34 items which assess 5 factors of the clinical environment: pedagogical atmosphere, leadership style of the ward manager, supervisory relationship, premises of nursing care on the ward and the role of university nursing teacher (Saarikoski et al., 2008; Warne et al., 2010). Students answer each statement on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The studies for validation of the CLES + T scale were conducted by Saarikoski in Finland in 1995, who developed a tool that allowed the student to evaluate his own experiences in the clinical environments and also highlight his own expectations for clinical learning. This assessment tool takes account the complexity of clinical learning environments, which include organizational, practical and management factors (Saarikoski, 2002). The CLES+T scale assesses the role of the university nursing teacher, who guides the clinical learning of students through the development of many strategies such as "briefing and debriefing" on clinical experience. The university nursing teacher ensures the collaboration between university teachers and ward managers of clinical departments in order to maximize the translation of clinical experience into theoretical learning and to provide a good clinical environment (Gillespie, 2002). Moreover, the role of the university nursing teacher mainly consists of favouring the link between activities and facilities of the university (Saarikoski et al., 2007). In this regard, the CLES + T scale includes 9 items on the student perception of the role of the university nursing teacher

in integrating both theory and clinical practice and in promoting a good relationship between student and tutor (Saarikoski et al., 2008). Most studies have shown that there is a correlation between student satisfaction and learning outcomes, so that the opinion of students is taken into account in order to identify the situations that can favour clinical learning (Espeland & Indrehus, 2003; Scalorbi & Burrai, 2008; Sharif & Masoumi, 2005). Other studies showed that positive clinical experience may reduce dropouts before the end of the Degree Course in Nursing (Pellatt, 2006; Pearcey & Elliott, 2004).

The aims of this study were:

- 1) to assess the quality of training environments by means of the evaluation of student satisfaction;
- 2) to highlight the correlation between CLES+T scale scores and selected characteristics of nursing students and clinical environments.

METHODS

On 4 March 2013 at the University of Modena a cross-sectional survey was carried out: the CLES + T scale was administered to all students who attended the second and third year of the Nursing Degree Course in a plenary convocation. Many studies have demonstrated the validity and reliability of the CLES+T scale, which was applied in countries with different educational systems, cultures and language (Saarikoski et al., 2008; Warne et al., 2010). Recently, this scale was tested and validated in an Italian context, where it showed the same aggregation of items in factors as other international studies and the following validation values: Cronbach's alpha ranged between 0.80 and 0.96 for reliability; Keiser-Meyer-Olkin index was 0.95 and Bartlett's test showed a p -value < 0.000 for validity (Tomietto et al., 2012). The first-year students were excluded because, at the time of the questionnaire administration, they had not yet completed their clinical training. Students who were attending outpatient care training (the CLES+T scale has been mainly applied in hospital settings) or who were attending foreign university courses (eg. Erasmus courses) were excluded.

Our sample included 242 students. The questionnaire was distributed to nursing students 2 weeks after the conclusion of their clinical training, attended between 10 December 2012 and 11 February 2013; clinical training had lasted 224 hours for third-year students and 240 hours for second-year students. All the students who answered the questions of the CLES+T scale completed a form with personal data (age, sex, years of study, high school diploma with final marks, possession of other degrees) and data regarding previous clinical training experiences (clinical areas

frequented and training marks received). The overall time required for the compilation of the scale and the personal form was about 20 minutes. Participation in the survey was voluntary and anonymous. The statistical analysis of CLES+T scale scores was focused on the overall rating: the median of all 34 item scores, plus the interquartile range between the 25th and 75th percentile, with minimum and maximum values, were calculated. The same calculation was separately performed for each item of the 5 factors analyzed by the CLES+T scale (pedagogical atmosphere, leadership style of the ward manager, supervisory relationship, premises of nursing care on the ward and the role of university nursing teacher). We identified some demographic and scholastic characteristics of our sample: gender, high school final marks, year of attendance and regular attendance at the Nursing Degree Course, clinical training area and final marks in clinical training. To assess the correlations between CLES+T scale scores and the variables of our sample, we used the median test, which compared the median of the total CLES+T scale score to each demographic and scholastic variable.

The statistical analysis was performed with the STATA software version 11.

RESULTS

We obtained a response rate of 74%, which represents the participation of 179 students.

We observed the following characteristics (Table 1):

- 65% of the students were between 19 and 22 years old, 26% between 23 and 26, 3% between 27 and 30, whereas 6% were over 30 years old;
- 74% of our sample was represented by females and 26% males;
- there were 84 2nd year students and 95 3rd year students;
- 174 students regularly attending and 5 students did not attend regularly;
- 69% of nursing students had obtained high school diploma, 26% technical school diploma and only 4.5% vocational school diploma (0.5% answered "other");
- the high school mark was 77 (\pm SD 12) on average (range between 60-100).

We evidenced the following data concerning the nursing clinical training attended by our sample (Table 2):

- 53% of the students attended the Public General Hospital of Azienda USL di Modena, 31% attended the University Public Hospital of Modena and 16% attended the Private Hospitals Accredited and Affiliated with the National Health Service;

- 76 students did their internship in medical area, 50 in surgical area, 40 in emergency area and 8 in obstetrics and paediatrics areas;
- the final marks of nursing clinical training ranged between 29 and 30 for 77% of students, between 25 and 28 for 21% of students and below this threshold for only 1% of students (range between 18-30).

The median value, either of global scale or single factor scale, remained at a level of 4, on the Likert scale. In all areas, the minimum and maximum values ranged between 1 and 5. In this regard, the students' perception of clinical learning environment quality was high, since the median scores of all items consistently remained at the high level of 4. The differences observed among the 5 scale factors were represented by the interquartile value, ranged between the 25th and the 75th percentile (Table 3, Figure 1). Among the 5 scale factors, as evidenced in the blox plot (Figure 1), "pedagogical atmosphere" and "premises of nursing care on the ward"

Characteristics of our sample (179 nursing students)	
Age	65% between 19 and 22 years old, 26% between 23 and 26 years old, 3% between 27 and 30 years old, 6% over 30 years old
Gender	74% females 26% males
Year of school attendance	2nd year students: 84 3rd year students: 95
Regularity of school attendance	174 regularly attending students 5 not regularly attending students
High school diploma	69% high school diploma, 26% technical school diploma, 4.5% vocational school diploma, (0.5% answered "other")
High school final marks	77 (±SD 12) on average (range between 60-100).

Table 1. Characteristics of our sample

Nursing Clinical Training attended by our sample	
Hospital	53% Public General Hospital of Azienda USL di Modena 31% University Public Hospital of Modena 16% Private Hospitals Accredited and Affiliated with the National Health Service
Clinical areas	76 students in medical area 50 in surgical area 40 in emergency area 8 in obstetrics and paediatrics area
Final marks	77% between 29 and 30 21% between 25 and 28 1% below this threshold (range between 18-30)

Table 2. Clinical Training attended by our sample

CLES+T scale factors	Interquartile values			Min-max values	
	p 50	p 25	p75	min	max
Total score	4	4	5	1	5
Pedagogical atmosphere on the ward	4	4	5	1	5
Leadership style of the ward manager	4	3	4.5	1	5
Supervisory relationship	4	3.5	4.5	1	5
Premises of nursing care on the ward	4	3.5	5	1	5
Role of nurse teacher	4	3	4	1	5

Table 3. The interquartile values of 5 CLES +T scale factors

Student and clinical environment variables	Median test (Pearson chiz)	p-value
Gender	2.3608	NS
High school diploma	3.8928	NS
Year of attendance Nursing Degree Course	1.5179	NS
Regular attendance at the Nursing Degree Course	0.0552	NS
Clinical training area	74.857	NS
Final mark of clinical training	11.4028	p<0.01

Table 4 Median test between the global median score of the CLES+T scale and Student and clinical environment variables

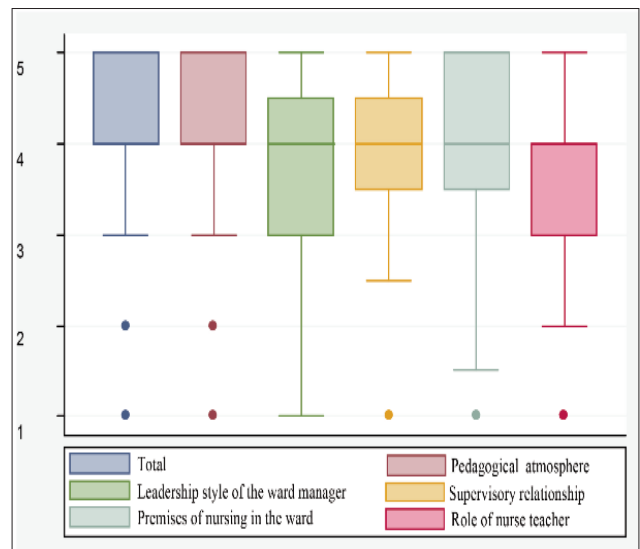


Figure 1. The interquartile values of 5 CLES +T scale factors

did not show a symmetric distribution, “pedagogical atmosphere on the ward” obtained the highest score in comparison to the other factors, whereas “leadership style of the ward manager” and “premises of nursing care on the ward” obtained the lowest scores. There was only one statistically significant correlation found between the global median score of the CLES+T scale and the final rating obtained by students at the end of their clinical training (Table 4). In fact, it was observed that the lowest ratings were related to the worse evaluations of clinical experience by students.

DISCUSSION

Our results, in accordance with those of the earlier studies in the 1980s in other countries (Fretwell, 1980) and also with later studies (Saarikoski & Leino-Kilpi, 2002; Wilson-Barnett et al., 1995), supported the importance of the ward manager in implementing a positive ward culture and in favouring an adequate attitude toward students and their learning needs (Saarikoski & Leino-Kilpi, 2002). The meaning of ‘good’ management and the importance of ward managers were emphasised in earlier studies (Chun-Heung & French, 1997; Fretwell, 1983; Hyland et al., 1988; Orton et al., 1994; Saarikoski & Leino-Kilpi, 2002; Troskie et al., 1998). Our statistical analysis evidenced that some clinical areas where training took place appeared to be more qualified than others to teach clinical experiences: emergency, obstetrics and paediatrics areas presented statistically significantly higher scores in comparison to other medical and surgical areas. This result, which was overlapped to those reported in the literature (Fretwell, 1980; Lewin & Leach, 1982; Parkes, 1980), indirectly suggested that clinical environments characterized by high level of stress and frenetic activities favoured the best clinical learning since they induced strong affective involvement of students with universally engaging emotions like birth and death.

The positive statistical significance correlation between the global median score of the CLES+T scale and the final rating obtained by students at the end of their clinical training represented both good motivation of the student to learn professional skills and good quality of teaching from the clinical environment. Moreover, this data indicated that the student’s positive perception of clinical environment could favour their best clinical learning and confirmed that the quality of clinical environment could influence the capacity to learn as indicated by literature (Milton-Willey et al., 2013).

Our data, in accordance with most authors, suggested that clinical training could be interpreted as an

“interactive network of forces within a clinical setting” and could represent a privileged place where nursing student acquires professional skills and translates the acquired knowledge into expert knowledge (Dunn & Burnett, 1995; De Marinis et al., 1999; Scalorbi & Burrai, 2008). Both clinical learning and competency development are essential parts of the curriculum, since nursing is a practical discipline and its knowledge is based on theoretical and practical components (Benner, 1984; Papp et al., 2003; Tomietto et al., 2012; Yim & Chan, 2004). In Italy, out of a total of 180 credits necessary to become registered nurses over 3 years, 60 credits are dedicated to practical clinical learning and the hours spent in clinical training represent one third of the total time necessary to complete the Bachelor course (Dalponte et al., 2007).

The instrument (CLES + T) used for this survey could be used as self-report of systematic training experiences in order to monitor clinical learning contexts, to investigate the critical areas and to implement strategies for reassessment and improvement of clinical training. In fact, the development of quality indicators could be an essential element to improve the professional growth of students (Lockwood-Rayermann, 2003).

CONCLUSIONS

The nursing student evaluations were uniformly positive and related to their positive final marks in clinical training. A positive ward atmosphere was identified as especially important in this study. Our data supports the empirical observation that only a motivated and skilled staff can teach students to become similarly skilled and motivated professionals in patient care. We conclude, in accordance with most researchers (Johansson et al., 2010; Tomietto et al., 2012), that the CLES+T scale can be a useful instrument to explore the clinical climate in all hospital areas and to highlight the critical clinical situations. In this regard, the perception of young people like nursing students can contribute to improve both the climate among the clinical staff and the tutorship.

Limits and implications for future

The main limitation consisted of the lack of comparison with other samples from other Universities. The leadership style of the nursing coordinator should be further investigated, even by means of qualitative research, to identify areas of possible improvement useful to student learning. It is desirable, however, that in order to have a comprehensive and objective assessment of the quality of clinical learning environments, other instruments, in addition to the CLES + T scale, could be taken into account to obtain the contributions of

other actors involved (university nursing teachers, nursing coordinators and clinical tutor) and so compare different points of view concerning the quality of clinical “learning” and “teaching”.

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