

VALIDATION AND ABRIDGEMENT OF CLINICAL LEARNING ENVIRONMENT SCALE.

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1. Study conception and design: AAE & ESI
2. Data collection: AAE
3. Data analysis and interpretation: All authors
4. Drafting of the article: AAE & ESI
5. Critical revision of the article: AAE & ESI

ABSTRACT

Background: In nursing education, Clinical Learning Environment (CLE) plays a pivotal role in nursing curriculum and periodic assessment of CLE ensures quality clinical experience to produce competent nurses'. The Clinical Learning Environment Scale (CLES) was designed to assess Nursing students' perception on Clinical Learning Environment.

Purpose: CLES has been predominantly used in the west. However the CLE Scale needs to be validated before it can be used in Indian setting to assess the Clinical Learning Environment among nursing students. The objective of the study was to test the reliability and validity of the CLES.

Methods: Principal components analysis using varimax rotation was conducted to explore the factor structure of the instrument. Construct validity was tested using exploratory and confirmatory factor analysis. Using Cronbach's alpha, reliability was tested to assess the internal consistency of the instrument.

Results: There were 375 participants in the study. The participants were between the ages of 17 to 25, with a mean of 20 years and 2 months. In the exploratory factor analysis, the principal component analysis (PCA) yielded four factors with Eigen values greater than 1. Five models were tested in the confirmatory factor analysis, and the three – factor

model resulting from the PCA showed the best fit, accounting for 59.18% of the variance. Cronbach's Alpha values obtained for the student contentment, nurse manager committal, and work culture subscales were 0.87, 0.81, and 0.46. **Conclusion/ Implications for Practice:** Our results suggest that the abridged CLES is a valid and reliable tool for measuring students' perception towards their clinical learning environment.

Keywords: *Nursing Education, Clinical Learning Environment, Perception, Nursing students', Validation, Abridgement.*

INTRODUCTION

Curriculum is the blueprint of education. The constant changes in health care scenarios and practices make curriculum development in nursing education as an ongoing process. This process helps to organize evidence based, context relevant and unified curriculum that aims to produce competent nurses'. As Nursing is both an art and science, the learners have to integrate theory into practice for a quality patient care. A unique and most challenging step in curriculum development is organizing a better Clinical learning environment. The core responsibility of Nurse Educators' is to design a meaningful yet a practical clinical experience based on students' needs.

The Clinical Learning Environment (CLE) is the interactive network of forces within the clinical setting that influences the student's clinical learning outcomes¹. CLE's are highly complex settings but they are integral in nursing education as it provides ample opportunities for the students' to develop skills, professional socialization and also to integrate theory into practice. Hence clinical learning is an important aspect in nursing education.

The clinical experience should be efficient, cost effective and should ensure the best learning outcomes in an individual. Attainment of those educational outcomes of a clinical placement may be enhanced by modifying the CLE in ways that make it more congruent with the environment preferred by students². Continuity, sequence and integration of theory into practice have to be followed while organizing the learning experience for students. Faculty also anticipate an exciting clinical rotation and the goal of the clinical experience is to prepare students for practice as registered nurses.

Learning in a clinical setting creates challenges that are not seen in a classroom. Though the educator teaches in classroom, the applicability and complexity arises in the clinical area as the student strives to apply theory into practice. The Clinical Learning Environment has a lot of external stimuli which may confuse or combat nursing students to identify the apt learning opportunities³.

Msiska asserts that the lack of equipment, lack of guidance, supervision, and negative attitude of nurses alters or disturbs the effectiveness of the clinical learning⁴. Certain studies reveal that anxiety, attitude, academic level, commitment to the work and use of mobile phones by the nursing students affect the quality of learning in the clinical environment, which in turn compromises the patient care⁵. The workload, higher numbers of student teacher ratio in the clinical area and in the classroom also affect the teachers' role in the clinical teaching.

Organizing a good learning arena in clinical settings is crucial for bachelor students in nursing because a major part of their studies and training take place in that context. Students view hospital practice areas as more meaningful and educative as they provide them with opportunities of clinical practice and linking the theoretical aspect of their studies. A good learning environment facilitates the student to feel like a team member and feeling welcomed at a clinical placement creates a good sense of involvement in the patient care⁶.

In an experiential learning process, evaluation of outcomes is a major part of the clinical experience. Hence it is pivotal to assess students' clinical experience periodically to monitor whether the set objectives are met or if they require any modification. Ozga also believes that the quality of the clinical education has great impact on the quality of the education as a whole⁷. This will provide important feedback for clinical education and potential curriculum revisions.

We educators believe that we create a better clinical learning environment, but many studies reveal that the students' experiences in CLE and how they perceive the quality of their CLE vary a lot. Hence scales are useful means of capturing the variation in these settings. Clinical Learning Environment Scales must be tested for factor structure as well as internal consistency to monitor the quality of CLE. Although the CLE has been investigated in various educational institutions, studies exploring the nursing students' point of view about their satisfaction with the CLE on a worldwide basis are very minimal.

The objective of this study was to validate Clinical Learning Environment Scale (CLES) to assess CLE of nursing students. The two challenges that evolve in evaluating the CLE are the complex nature of clinical learning environment and lack of an appropriate tool. Failure to identify the challenges and problems the students face with in the clinical learning environment prevents their learning and growth. Although in recent years, few tools were developed for assessment of the quality of clinical learning environment in the foreign setting. In Indian setting to assess the CLE there is no reliable scale available. So the researcher felt the need of a valid tool to evaluate the CLE periodically that provides feedback to the teachers and also identifies the gaps and deficiencies in the clinical experience to organize a better clinical learning environment for students.

METHODOLOGY

It's a descriptive study conducted among Undergraduate Baccalaureate Nursing students, College of Nursing, CMC, Vellore. All (I, II, III & IV year) Baccalaureate Nursing students of College of Nursing, CMC, was invited to participate. Total enumeration sampling was used. The minimum sample size needed to detect underlying factors in a set of items for factor analysis is an item ratio of 5:1 and 10:1 respectively⁸⁻⁹. CLES has 23 items hence a sample size of 375 was opted.

The instrument used was the Clinical Learning Environment Scale (CLES) developed by Dunn & Burnett¹⁰. It is a self-administered questionnaire that comprised of 23 items on a 5 point Likert scale rated as "strongly agree to strongly disagree" with a reliability coefficients ranging from 0.85 to 0.63. CLES has 23 items with 5 factors such as staff-student relationships, hierarchy and rituals, nurse manager commitment, patient relationship and student satisfaction. Written permission was obtained from the authors to use the instrument. Demographic data collected included age, gender, year of study, area and duration of clinical placement.

To collect the data, lists of nursing students were obtained from the Clinical master rotation. The students who met the inclusion & exclusion criteria and willing to participate in the study after obtaining the informed consent were asked to fill the CLES by Dunn & Burnett¹⁰. The questionnaires were given to students and students were asked about their viewpoints regarding quality of their CLE in that academic year after completion of 20 weeks (midway) of clinical experience. Data was collected from May to July 2018. Each student was administered a CLES questionnaire in their classroom after their class hours to rate. Time required by the student to complete the questionnaire was 20-25 minutes.

Ethical Consideration: Permission was obtained from the Head of the institution after obtaining clearance from the Institutional Review Board. IRB number is 282/8-4-2017. Informed written consent was taken from the participants and only those who consented were included in the study. Confidentiality was maintained as the participants were not required to reveal their personal identity. All the data was coded for the purpose of analysis.

Data analysis: The data was analyzed using the SPSS version 22.0. Descriptive statistics such as frequencies, mean and standard deviation were used to describe the demographic data. The Kaiser–Meyer–Olkin (KMO) index of sampling adequacy was employed, which detects whether there is sufficient covariance in the scale items to warrant factor analysis. Principal components analysis using Varimax rotation was conducted to explore the factor structure of the instrument. Construct validity was tested using exploratory and confirmatory factor analysis. Reliability was tested using Cronbach's alpha to assess the internal consistency of the instrument. The CLES was analyzed using factor analysis.

Analysis of the 23-item CLE Scale

Exploratory Factor Analysis (EFA)

EFA was conducted using the principal-components factor extraction method with a non-orthogonal rotation (Promax). Promax was carried out to test the loading strength of the items on factors. The factor loading (λ) was fixed at 0.5 in the EFA to guide item reduction and to shorten the scale. Items with factor loadings <0.5 was removed to produce abridged scale.

Confirmatory Factor Analysis (CFA)

CFA of the original 23-item CLE scale was performed on the entire participants (375) using the original 5 domains: staff- student relationships, hierarchy and rituals, nurse manager commitment, patient relationship and student satisfaction. A Chi-square test for goodness of fit was used to assess model fit between the model and the sample. The Root Mean Square Error of Approximation (RMSEA) was calculated, with a goal of 0.05 for good model fit. The Bentler's Comparative Fit Index (CFI) was computed with a cut point of 0.90 set for good model.

Objective: To test the reliability and validity of the CLES.

Analyses of the Abridged Clinical Learning Environment Scale

Structured reduction of a scale is called as abridgement of a scale. Abridgement is a piece of writing that has been made shorter by removing some details or less important information. A scale needs to be shortened to enhance its clinical and research utility.

A second CFA was conducted to assess the fit of the abridged CLE scale. Cronbach's alpha was calculated on the abridged scale overall and for each domain, which was then compared with that of the original scale.

RESULTS

There were 375 participants in the study. Of these 25.9% ($n=97$) were 1st year, 23.5% ($n=88$), 26.1% ($n=98$), 24.5% ($n=92$) were 2nd, 3rd & 4th year undergraduate Bachelor of Nursing degree students respectively. The participants were between the ages of 17 to 25, with a mean of 20 years and 2 months.

Using SPSS version 22, a Principal Component Analysis (PCA) was run on the CLES 23 item for the data reduction that measured the perception of CLE among 375 nursing students. To assess the applicability of Clinical Learning Environment Scale in the Indian set up, Exploratory Factor Analysis was done. The findings revealed that the overall Kaiser – Meyer – Olkin (KMO) measure was 0.91 and Bartlett's Test of Sphericity was statistically significant ($p < 0.05$), indicating that the data was likely to be factorizable¹¹.

Reliability

The internal consistency reliability of the instrument was assessed using Cronbach's alpha procedure. The overall internal consistency for the entire 23 item CLES was high with a Cronbach's alpha of 0.88 (Table 1). It was also good for the Student satisfaction factor (0.88), whereas the internal consistency for the initial three factors was found to be marginal as described in Table 1. The internal consistency for the factor patient relationship was relatively low (0.42).

Table 1: Reliability assessment of original 23- item CLES and the abridged 16 –item scale

Factors	CLE Scale	Abridged Scale
Overall		
Number of items	23	16
Cronbach's alpha	0.88	0.88
Number of domains	5	3
Factor 1	Student Satisfaction	Student Contentment
Number of items	4	5
Cronbach's alpha	0.88	0.87
Factor 2	Nurse Manager Commitment	Nurse Manager Committal
Number of items	4	5
Cronbach's alpha	0.73	0.81
Factor 3	Hierarchy and Ritual	Work Culture
Number of items	5	6
Cronbach's alpha	0.56	0.46
Factor 4	Patient Relationships	-

Number of items	4
Cronbach's alpha	0.42
Factor 5	Student Staff Relationships
Number of items	5
Cronbach's alpha	0.68

Reliability of the abridged scale: Overall internal consistency for the abridged scale remained high and same as the original scale. Scree testing yielded 3 major factors (Factor 1: Student Contentment (Cronbach's alpha-0.87), Factor 2: Nurse Manager Committal (Cronbach's alpha-0.81) and Factor 3: Work Culture (Cronbach's alpha - 0.46) was relatively low. These three factors loaded 5, 5 and 6 items respectively from the questionnaire are depicted in Table 2.

Table 2: Clinical Learning Environment Scale CFA loadings

	Factor loadings from EFA ^a	Student contentment	Nurse Manager committal	Work culture
22 ^b	I am happy with the experience I have had on this ward.	.869		
20	This was a good unit for my learning.	.840		
23	This experience has made me more eager to become a Registered nurse.	.803		
21	The work I did was mostly very interesting.	.794		
3	This was a happy ward for both patients and nurses.	.704		
13	The NM devotes a lot of her/his time to teaching nursing students		.752	
12	The NM attaches great importance to the learning needs of nursing students.		.741	
6	Our questions were usually answered satisfactorily.		.707	
5	We are generally able to ask as many questions as we want to.		.659	
14	The NM has a teaching programme for students on this ward		.641	
16	Patient allocation, rather than task allocation, is the practice on this ward			-.797
17	Nursing care is individualized for each patient on this ward.			.801
4	I did not feel I was treated as an individual, but rather as 'just another student'.			.768
18	The patients' needs really are given first priority			.717

9	*Nursing students are expected to obey Registered Nurses' instructions without asking questions.		.665
8	*Nursing students learn more from other students on the unit than from the nursing staff.		.633
1	All staff on the unit, from the CNC to the newest student, feels part of a health care team.		
2	In planning the shift, allowance is made for postgraduate nursing students to gain the widest possible experience.		
19	Learning aids such as books/articles are available to nursing students on this ward.	Did not load any factors	
15	*The NM here was too busy with more important matters to be able to spend time with us.		
13	The NM devotes a lot of her/his time to teaching nursing students.		
11	*The NM regards the nursing student as a worker rather than as a learner.		
7	*The NM does not usually explain instructions coming from a higher level to Registered Nurses.		
Eigen values ^c		7.53	2.15
		3.92	

^a Promax rotation with Kappa= 4

^b Number as used for the assessment of 23 item CLE Scale

^c Extracted Eigen value > 1 derived 3 factors

*Items had reverse scorings

In the exploratory factor analysis, the principal component analysis (PCA) yielded six factors with Eigen values greater than 1. Five models were tested in the confirmatory factor analysis, and the three factor model resulting from the PCA showed the best fit, accounting for 59.18% of the variance.

Based on the results, Principal Component Analysis (PCA) was done. Rotation performed was Varimax with Kaiser normalization. Rotation converged in 6 iterations. A further confirmatory analysis was done on the refined 3 factor scale. The analysis revealed RMSEA= 0.0609, Bentler Comparative Fit Index= 0.9053 and Bentler Bonnett = 0.8487, which are acceptable.

Construct validity was determined by Confirmatory Factor Analysis (CFA) with maximum likelihood estimation to evaluate the applicability of CLE Scale. CFA was conducted to determine if the data collected from this study sample were consistent with the theoretical basis of the instrument¹²⁻¹³ (Bentler, 1997, as cited by Weis & Schank, 2009) and each of the three factors had 3 or more items from the from the questionnaire loading. CFA approaches examined whether existing data are consistent with a highly constrained a priori structure that meets conditions of model identification¹³. Out of the 23 items in the questionnaire 7 items did not load on to any factor.

DISCUSSION

Clinical Learning Environment is considered as an essential component to promote professional competence in most health care professions especially in nursing. The primary goal of the clinical experience is to prepare students as

competent registered nurses for practice. In addition to didactic portion of the curriculum, the clinical experience gives students an opportunity to develop entry-level competencies. The transition from student nurse to professional nurse is a culture change as well as a reality shock for novice nurses. This transition can be made smooth and fearless if the students were guided, molded in an organized, meaningful clinical environment.

Clinical Learning Environment prepares, equips the nursing students to learn and imbibe clinical skills to provide holistic care. Various studies have been conducted to assess the perception of nursing students in regard to CLE. It was found that there were significant differences between students' perceptions of the actual clinical learning environment and the ideal clinical learning environment they desired.^{14,15} In the field of nursing, there is a strong demand for high-quality, cost-effective clinical education and experience that facilitates learning among nursing students.

A clinical experience influences positively on nursing students attitudes. Dale et al., (2013); Sundler, et al., (2019) outline that regular feedback, reflections, and practical advice from the clinical supervisors are important factors for improving the nursing students' practical competence, confidence, motivation, and self-esteem. The study highlights the need for a supportive clinical learning environment which is of paramount importance for students in clinical practice^{16, 17}. Students expressed that feeling welcomed and being valued as part of the health care team improved their motivation, and self- confidence⁶. A study conducted by Saarikoski & Leino-Kilpi demonstrates the most important factors that enhance students' clinical learning are the method of supervision, the number of separate sessions and the psychological impact of those contacts within a positive ward atmosphere¹⁸.

Many studies report that the nursing students were not completely satisfied with their clinical experience as they experienced anxiety and stress during their clinical experience. The teachers have to prepare students with a specific focus that reduces students' stress and anxiety which also boost their confidence level. A qualitative study conducted by Jamshidi among nursing students in Iran states that the students are faced with many challenges such as inadequate knowledge and experience, discrimination, and communication difficulties in the clinical learning environment¹⁹. Mazalová et al. also reports that there is a significant relationship between the clinical learning environment and the perception of academic stress²⁰.

There are many scales to assess the CLE but CLES by Dunn & Burnett was found to be the most appropriate scale for our clinical setting. Hence we sought to abridge, adapt and validate the CLE Scale for use in Indian setting, using a sample of 375 undergraduate nursing students. The CLE scale used in the original study as discussed above had 23 items with 5 factor loadings. Dunn & Burnett (1995) developed the Clinical Learning Environment Scale (CLES) for nurse educators to assess/ evaluate the Clinical Learning Environment of nursing students to ensure that it offers best possible setting for the achievement of learning outcomes.

Dunn & Burnett conducted surveys initially with a scale of 34 statements. These statements were submitted to specialists to be examined in terms of context, clarity and similarity of statements and the number of statements to assess perception and satisfaction regarding CLE. Exploratory Factor analysis was done and the items were reduced to 23 by Dunn & Burnett. After analysis of the items in the contexts, the first factor (5 items) was named "staff- student relationships", the second factor (4 items) "nurse manager commitment, the third (4 items) "patient relationships", the fourth factor (4 items) "student satisfaction" and "hierarchy & ritual" as the fifth factor (5 items). The construct validity of CLES was tested by Confirmatory Factor Analysis. Overall Cronbach's alpha reliability coefficient is 0.88. Test-re test reliability coefficient was 0.88.

In the current study, the sample size required to assess the suitability of CLES was at least 5-10 samples per parameter²¹. A good sample size of 375 i.e., 16 samples per item was obtained for the study. The results showed RMSE of 0.06. Out of the 23 item scale, 16 items loaded on to 3 factors only. Factor 1 had an Eigen value of 7.5 and accounted for 32.76 % of the variance. Five items loaded on this factor labeled "**Student contentment**" that primarily describes on student satisfaction about their CLE. Factor 2 also had 5 items that focuses on "**Nurse Manager Commitment**" towards Clinical learning environment making it a better learning experience for student. Six items loaded on the third factor named "**Work culture**" that reflects the routine or the working nature of the unit and the nursing personnel as summarized in Table 2.

Student contentment

Contentment is the state of being happy and satisfied. Several studies indicate that nursing students were found to be satisfied when their CLE is student centered with ample opportunities to develop their skills, and to integrate theory into practice. According to Jaganath, student satisfaction within the clinical learning environment is a key contributor to the teaching and learning process²².

Abridged Student contentment subscale loaded 5 items. These items depict students' interest and the attitude towards their CLE. Items such as "I am happy with the experience I have had on this ward", "This experience has made me more eager to become a Registered nurse" and "The work I did was mostly very interesting" had the highest factor loadings which clearly illustrates that the success of organizing a CLE purely depends on student satisfaction. This subscale demonstrated highest reliability and factor loadings. The literature identifies various reasons for the nursing students' to perceive that the clinical areas are laden with stress and anxiety²³.

The current generation students are technologically sound and they are interested in learning environments that promote creativity and critical thinking. In addition to the existing literature on student satisfaction with CLE, DiMaggio & Hudacek believes that Gen Z learners satisfaction improves when they can make decisions, work at their own pace, and receive direction, feedback, and support. It is imperative for the teachers to identify strategies to organize a better CLE to promote satisfaction among Gen Z nursing students to retain them in nursing²⁴.

In the present study, data reveals that 1st year students were highly satisfied with their CLE compared to other years. This is congruent with the study done by Papastavrou et al. that the 1st year nursing students were found to be more satisfied with their clinical experience than the students in other years²⁵.

Nurse Manager Commitment

Effective teaching is about the quality of the relationship between the teacher and the student. It doesn't end when the class or the workday is over. Great teachers exude passion as well as purpose. If teacher has it, the students are most likely to get it. Students learn when teachers show them how much they need to learn. Hence make students aware of the gap between where they are and where they need to be. It is important for the teachers to be committed to their role to produce quality nurses.

Nurse Manager Commitment loaded items such as "The NM devotes lot of her time to teach nursing students". The teachers or Nurse Manager's commitment is vital in meeting the clinical requirements of the students. They are instrumental in making students to integrate theory into practice.

Timmina and Kaliszer also reveal that nursing students' perceive their clinical experience very intimidating. Students' usually perceive it more stressful and anxious when they don't receive adequate support and supervision from their teachers in their CLE²³. Larson et al. also believes that a working environment that imposes psychosocial strain and high levels of stress among the staff negatively affected the students' learning²⁶. It's the teacher's responsibility to create a meaningful and ideal learning environment for students to practice and learn. It also loaded items like "We were generally able to ask as many questions and our questions were answered satisfactorily" which helps us to assess that the teacher student relationship is good where students were able to clarify their doubts. A similar study describes students' evaluated supervisory relationship as the most influential factor in their satisfaction with the clinical learning environment²⁵.

In European countries efforts have been taken to produce a high quality of CLE focusing on creating a pedagogical atmosphere⁷. They strengthen the connection between class work and clinical experience by placing preceptor or mentor and Nurse Teacher confirming theory into practice. Woo and Li exclaims that a supportive and favorable clinical learning environment is critical for promoting their optimal learning during clinical placements²⁷. In our Institution, we practice integration model, where the teaching faculty are also responsible for the clinical teaching of students" in the clinical areas which bridges the gap between theory and practice contributing to better learning environment. Alammari et al. suggests the need for enhancement of teacher's role in better communication and collaboration between nursing schools and the clinical training hospital²⁸.

Studies have found that effective supervision was key to positive CLE. They identified that the CLE offered student nurses opportunities for translating the classroom learning experiences into competences and skills necessary for the acquisition of the required competencies²⁹. Cant et al. also emphasize that Faculty need to set priorities for their

learners and keep it clear. Ensure that the objectives or learning requirements are made simple for students to learn³⁰. However complex and intense the CLE's are, the *best teachers can* make learning interesting, exciting and important.

Work culture

A healthy workplace culture enables nurses to experience valuable learning. The term workplace culture is defined as the unit level culture that patients and staff experience every day. Nurses and nursing students' need to learn within a workplace that supports the implementation of evidence-based professional practice and enables the best patient outcomes. The influence of workplace culture may play a role in this.

The third factor "Work culture" contained elements related to rituals or practices that prevailed predominantly in the work area in relation to direct nursing care and education. Items such as "Nursing students are expected to obey the Registered nurses instructions without asking questions and there is too much ritual on this ward" which has an impact on student learning. According to Gifford, Zammuto & Goodman nurses' are negatively and positively affected by workplace culture³¹.

Hahtela et al emphasize that a good work place culture enhances safe and effective patient care³². Previous studies suggest that better patient outcomes are influenced by positive characteristics of the work environment and adequate staffing. The most studied patient outcomes are pressure injuries, falls, patient satisfaction, healthcare-associated infections, medical errors, mortality, and failure-to-rescue. Thus workplace culture demonstrates positive correlation among patient outcomes.

The CLE is the place where the theoretical components of the curriculum can be integrated with the practical and transformed into professional skills and attitudes within an emotionally safe environment. According to Melrose et al. clinical education is foundational to the learning process of all healthcare professionals³³. However, balancing safe patient care with supportive learning opportunities for students can be challenging.

The success of a CLE also depends on student preparedness, readiness and willingness to learn. Saarikoski & Leino-Kilpi identified that the two most important factors constituting a 'good' clinical learning environment are the management style of the ward manager and the premises of nursing (work culture) on the ward. An optimal workplace culture is central for nurses and nursing students to experience valuable and relevant learning in the CLE¹⁸. Yet another literature points out that in general, students prefer a more positive CLE than what they actually have experience and would prefer an environment with higher levels of clarification of personalization, student involvement, satisfaction, task orientation, innovation, and individualization³⁴.

Students enrolled in health care education programs are expected to complete clinical requirements in a CLE in addition to their academic classes. Clinical practicums or experiences are considered essential to develop professional competence in most health care professions. In the field of medicine and nursing, clinical experience are viewed as essential to the curriculum^{35,36}. They believe that CLE has a vital role and supervisors need to take efforts to improve the CLE are critical to the learning, professional socialization and well-being of trainees as they learn and participate in patient care, and to the future quality of care, they will deliver over decades of practice following graduation. As there are more number of educational institutions mushrooming and lack of parent hospitals to most of the institutions, the quality of nursing education and CLE is compromised.

Clinical Learning Environment is highly complex setting but they are integral to nursing students learning. Nursing work places have become more intense, complex and demanding environments, which ultimately has an impact on student learning. Generally nursing students are not really aware of their role in clinical practice sessions, which could also become one of the barriers for this learning environment³⁷. Students were also faced with 'confusion of identity' as a result of the inadequacy of the educational environment³⁸. Hence, periodic assessment of the CLE ensures a standard and more meaningful experience so that the best possible outcomes are achieved. In CLE, students learn how to apply nursing knowledge, nursing skills, patient communication, professionalization and it prepares them as well – educated, competent registered nurses for practice in future workplaces.

LIMITATIONS: We have succeeded in abridging the CLE scale to 16 items though we did not test the abridged scale in a separate population but we hypothesize that the validated and abridged 16 item CLE scale will be relevant to assess the Clinical Learning Environment in Indian setting. It is the most needed assessment in order to monitor

and evaluate the quality of CLE as it aims to mold a novice nursing student to a full-fledged expert registered nurse to provide a quality care.

CONCLUSION:

The assessment of the clinical settings as learning environment is a significant concern within the contemporary nursing education. The Clinical Learning Environment Scale by Dunn & Burnett (1995) is highly suitable to study the phenomenon in Indian context. The three factors identified- Student Contentment, Nurse Manager Commitment and Work culture are the important aspects of CLE and are relevant to nursing education in organizing a better CLE for nursing students. CLES was found to be reliable and valid tool as it vividly assess the nursing students' perception of CLE. Clinical Learning Environment Scale (CLES) is a useful means of capturing the variation in these settings that enables the educator to create safe learning environment.

SOURCE OF FUNDING: The research was funded by the College of Nursing, Christian Medical College, Vellore.

CONFLICT OF INTEREST: No conflict of interest reported.

REFERENCES:

1. Dunn SV. The development of a clinical learning environment scale. *Journal of advanced nursing*. 1995 Dec; 22(6):1166-73. <https://doi.org/10.1111/j.1365-2648.1995.tb03119.x>
2. Chan DS. Nursing students' perceptions of hospital learning environments-an Australian perspective. *International Journal of Nursing Education Scholarship*. 2004 Jan 11;1(1). <https://doi.org/10.2202/1548-923X.1002>.
3. Chan D. Development of the clinical learning environment inventory: using the theoretical framework of learning environment studies to assess nursing students' perceptions of the hospital as a learning environment. *Journal of Nursing Education*. 2002 Feb 1;41(2):69-75. <https://doi.org/10.3928/0148-4834-20020201-06>
4. Msiska G, Smith P, Fawcett T. The "lifeworld" of Malawian undergraduate student nurses: The challenge of learning in resource poor clinical settings. *International Journal of Africa Nursing Sciences*. 2014 Jan 1;1:35-42. <https://doi.org/10.1016/j.ijans.2014.06.003>
5. Rajeswaran L. Clinical experiences of nursing students at a selected institute of health sciences in Botswana. *Health Science Journal*. 2016;10(6):1. <http://dx.doi.org/10.21767/1791-809X.1000471>
6. Rodríguez-García MC, Gutiérrez-Puertas L, Granados-Gámez G, Aguilera-Manrique G, Márquez-Hernández VV. The connection of the clinical learning environment and supervision of nursing students with student satisfaction and future intention to work in clinical placement hospitals. *Journal of Clinical Nursing*. 2021 Apr;30(7-8):986-94. <https://doi.org/10.1186/s12909-022-03609-y>
7. Ozga D, Gutysz-Wojnicka A, Lewandowski B, Dobrowolska B. The clinical learning environment, supervision and nurse teacher scale (CLES+ T): psychometric properties measured in the context of postgraduate nursing education. *BMC nursing*. 2020 Dec;19:1-0. <https://doi.org/10.1186/s12912-020-00455-5>
8. NORMAN GR, STREINER DL. PDQ. *Pretty Darned Quick Statistics*. Hamilton, Canada: BC Decker. 2003.
9. Polit D, Beck C. *Essentials of nursing research: Appraising evidence for nursing practice*. Lippincott Williams & Wilkins; 2020 Dec 30.
10. Dunn SV, Hansford B. Undergraduate nursing students' perceptions of their clinical learning environment. *Journal of advanced nursing*. 1997 Jun;25(6):1299-306 <https://doi.org/10.1046/j.1365-2648.1997.19970251299.x>
11. Williams TK. *Understanding internalized oppression: A theoretical conceptualization of internalized subordination*. University of Massachusetts Amherst; 2012. <https://doi.org/10.7275/3527678>
12. Bentler PM. EQS for Windows (Version 5.6)[Computer software]. Encino, CA: Multivariate Software
13. Weis D, Schank MJ. Development and psychometric evaluation of the nurses professional values scale-3. *Journal of Nursing Measurement*. 2017 Jan 1;25(3):400-10. <https://doi.org/10.1891/1061-3749.17.3.221>
14. Chan DS. The relationship between student learning outcomes from their clinical placement and their perceptions of the social climate of the clinical learning environment. *Contemporary Nurse*. 2004 Jul 1;17(1-2):149-58. <https://doi.org/10.5172/conu.17.1-2.149>

15. Bigdeli S, Pakpour V, Aalaa M, Shekarabi R, Sanjari M, Haghani H, Mehrdad N. Clinical learning environments (actual and expected): perceptions of Iran University of Medical Sciences nursing students. *Medical journal of the Islamic Republic of Iran*. 2015;29:173.
16. Dale B, Leland A, Dale JG. What factors facilitate good learning experiences in clinical studies in nursing: bachelor students' perceptions. *International Scholarly Research Notices*. 2013;2013. <https://doi.org/10.1155/2013/628679>.
17. Sundler AJ, Blomberg K, Bisholt B, Eklund A, Windahl J, Larsson M. Experiences of supervision during clinical education among specialised nursing students in Sweden: A cross-sectional study. *Nurse Education Today*. 2019 Aug 1;79:20-4. <https://doi.org/10.1016/j.nedt.2019.05.009>
18. Saarikoski M, Leino-Kilpi H. The clinical learning environment and supervision by staff nurses: developing the instrument. *International journal of nursing studies*. 2002 Mar 1;39(3):259-67. [https://doi.org/10.1016/S0020-7489\(01\)00031-1](https://doi.org/10.1016/S0020-7489(01)00031-1)
19. Jamshidi N, Molazem Z, Sharif F, Torabizadeh C, Najafi Kalyani M. The challenges of nursing students in the clinical learning environment: A qualitative study. *The scientific world journal*. 2016 Oct;2016. <http://dx.doi.org/10.1136/bmjopen-2018-028052>
20. Mazalová L, Gurková E, Štureková L. Nursing students' perceived stress and clinical learning experience. *Nurse Education in Practice*. 2022 Oct 1;64:103457. <https://doi.org/10.1016/j.nepr.2022.103457>
21. Suhr DD, Shay M. September. Guidelines for reliability, confirmatory and exploratory factor analysis. In *Procedure of 2009 Western Users of SAS Conference*, San Jose, CA 2009.
22. Jaganath C, Bimerew M, Mthimunye KD. Nursing students' perceptions of the clinical learning environment at a university in South Africa. *International Journal of Africa Nursing Sciences*. 2022 Jan 1;17:100467. <https://doi.org/10.1016/j.ijans.2022.100467>
23. Timmins F, Kaliszer M. Aspects of nurse education programmes that frequently cause stress to nursing students—fact-finding sample survey. *Nurse education today*. 2002 Apr 1;22(3):203-11. <https://doi.org/10.1054/nedt.2001.0698>
24. DiMattio MJ, Hudacek SS. Educating generation Z: Psychosocial dimensions of the clinical learning environment that predict student satisfaction. *Nurse education in practice*. 2020 Nov 1;49:102901. <https://doi.org/10.1016/j.nepr.2020.102901>
25. Papastavrou E, Dimitriadou M, Tsangari H, Andreou C. Nursing students' satisfaction of the clinical learning environment: a research study. *BMC nursing*. 2016 Dec;15:1-0. <https://doi.org/10.1186/s12912-016-0164-4>
26. Larsson M, Sundler AJ, Blomberg K, Bisholt B. The clinical learning environment during clinical practice in postgraduate district nursing students' education: a cross-sectional study. *Nursing open*. 2023 Feb;10(2):879-88. <https://doi.org/10.1002/nop2.1356>
27. Woo MW, Li W. Nursing students' views and satisfaction of their clinical learning environment in Singapore. *Nursing Open*. 2020 Nov;7(6):1909-19. <https://doi.org/10.1002/nop2.581>
28. Rezaee R, Ebrahimi S. Clinical learning environment at Shiraz medical school. *Acta Medica Iranica*. 2013:62-5.
29. Alammari K, Ahmad M, Almutairi S, Salem O. Nursing students' perception of the clinical learning environment. *The open nursing Journal*. 2020 Aug 19;14(1). <http://dx.doi.org/10.2174/1874434602014010174>
30. Cant R, Ryan C, Cooper S. Nursing students' evaluation of clinical practice placements using the Clinical Learning Environment, Supervision and Nurse Teacher scale—A systematic review. *Nurse Education Today*. 2021 Sep 1;104:104983. <https://doi.org/10.1016/j.nedt.2021.104983>
31. Gifford BD, Zammuto RF, Goodman EA, Hill KS. The relationship between hospital unit culture and nurses' quality of work life/Practitioner application. *Journal of Healthcare management*. 2002;47(1):13.
32. Hahtela N, McCormack B, Paavilainen E, Slater P, Helminen M, Suominen T. The relationship of workplace culture with nursing-sensitive organizational factors. *JONA: The Journal of Nursing Administration*. 2015 Jul 1;45(7/8):370-6. DOI: 10.1097/NNA.0000000000000217
33. Melrose S, Park C, Perry B. Creative clinical teaching in the health professions. Athabasca University Press; 2021 Aug 30. <https://doi.org/10.15215/aupress/9781771993319.01>
34. Yazdankhahfard M, Ravanipour M, Mirzaei K. The gap in the clinical learning environment: The viewpoints of nursing students. *Journal of Education and Health Promotion*. 2020 Jan 1;9(1):311. <https://doi.org/10.4103%2Fjehp.jehp.438.20>

35. Nordquist J, Hall J, Caverzagie K, Snell L, Chan MK, Thoma B, Razack S, Philibert I. The clinical learning environment. *Medical teacher*. 2019 Apr 3;41(4):366-72. <https://doi.org/10.1080/0142159X.2019.1566601>
36. Sellberg M, Palmgren PJ, Möller R. –A cross-sectional study of clinical learning environments across four undergraduate programs using the undergraduate clinical education environment measure. *BMC Medical Education*. 2021 May 5;21(1):258.
37. Tran Thi H. Challenges for Nursing Students in the Clinical Learning Environment
38. Kalyani MN, Jamshidi N, Molazem Z, Torabizadeh C, Sharif F. How do nursing students experience the clinical learning environment and respond to their experiences? A qualitative study. *BMJ open*. 2019 Jul 1;9(7):e028052. <http://dx.doi.org/10.1136/bmjopen-2018-028052>

