

# A Novel Teaching Efficacy Scale for Clinical Nursing Instruction: Development and Validation Study

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## ABSTRACT

### Background

One of the significant determinants of teaching and learning outcomes in students is teacher efficacy. Clinical teaching plays an educational role in nursing as the connecting link between theory and practice. Nevertheless, the effectiveness of clinical nursing education is usually affected by the abilities, readiness, and the skill of nursing educators. Despite the fact that a number of teacher efficacy scales have been designed across various nations, there is a paucity of situation-specific scales to assess teaching efficacy in clinical nursing education in India.

### Aim

To design a Teaching Efficacy Scale (TES) and a module to measure the clinical nursing instructions provided by teachers in a few nursing colleges of Northern India.

### Methods

Both quantitative and methodological cross-sectional design are applied. The research is undertaken in the nursing colleges of Haryana, Punjab and the Delhi-NCR. Stratified proportionate random sample selection is used to choose a total of 500 B.Sc. Nursing students in 2nd, 3rd and 4th years. Delphi technique is sampled by the experts. The TES is created in a three-step, ten-step process that involves specification of content domain, item pool generation, content validity evaluation, questionnaire development, pilot study, dimensionality evaluation, reliability evaluation, and construct validation. Data analysis is done through SPSS where descriptive and inferential statistics are used.

### Results

The Teaching Efficacy Scale is likely to measure various aspects such as pedagogical learning environment, role of teacher and evaluation components. The psychometric characteristics of the scale will be determined by reliability and validity testing.

### Conclusion

The TES is a universal tool for assessing the effectiveness of clinical teaching and pinpointing levels of weakness in clinical nursing education, thus making a contribution to the enhancement of nursing education and the advancement of clinical competency.

**Keywords:** Teaching efficacy, Clinical nursing education, Nursing instructors, scale development, clinical teaching evaluation.

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## INTRODUCTION

### 2.1 Background of the Study

Another significant construct in the sphere of education is the concept of teacher efficacy which can be described as an idea in a teacher that they are capable of arranging and implementing the activities necessary to effectively accomplish certain teaching tasks[1]. It is based on self-efficacy theory that was developed by Albert Bandura, which states that the beliefs of people about their abilities have a very strong impact on their performance, motivation, and perseverance in difficult situations. In the school environment, educators with high efficacy levels are more apt to express enthusiasm, commitment, and confidence in

their teaching processes. They are likely to embrace new methods of teaching, establish interactive learning conditions and ensure that there is a good classroom discipline[2]. The research has revealed that teacher efficacy has positive effects on instructional quality and teacher professional satisfaction as well as teacher support capabilities among various students with learning needs. Thus, teacher efficacy can be regarded as a key predictor of good teaching and good educational results[3]. In the nursing education, teacher efficacy gains even greater importance since nursing students do not need only to acquire theoretical knowledge but to gain practical clinical skills needed to be able to provide safe and competent care to patient[4]. Clinical teaching is the fundamental aspect of

nursing education since it enables students to put theoretical concepts in practical clinical environments. Students acquire the knowledge of the necessary nursing practices, patient evaluation method, decision-making capabilities, and professional communication through clinical training in hospitals and community health centers. Clinical instruction thus becomes critical in equipping the nursing students to work in the complicated healthcare setup[5]. Clinical teaching is also directly related to the competence, confidence, and professional development of nursing students.

Clinical instructors play a vital role as the interface where theory and practical clinical learning are implemented. They provide mentorship to students on clinical postings, teach students about nursing practices, oversee and direct activities in patient care, and support reflective learning in students[6]. Clinical instructors also have a role in checking on the performance of students, giving them constructive feedback, and ensuring that the students observe the professional norms and ethical conduct in nurturing patients. Clinical teaching needs the integration of pedagogical, clinical, communicative, and leadership skills[7]. Nonetheless, the clinical setting is usually very dynamic and unpredictable and the instructors are called upon to balance patient safety, institutional policies and student learning needs. This therefore presents a high professional competence and confidence of nurse educators in clinical teaching.

It has been demonstrated that teacher efficacy plays a very important role in student learning, both in classroom education and clinical education. With a high level of efficacy, teachers are more inclined to stimulate the active involvement of students, their critical thinking, and independent study[8]. At the clinical setting, good teachers offer timely instructions, prompt students to employ previously acquired theoretical content in patient care scenarios, and guide them in the development of problem-solving and decision-making abilities. Consequently, the students who are taught by very effective instructors tend to practice better clinical competence, confidence, and higher academic performance[9]. In addition, teacher efficacy leads to the ability to create acceptable learning environments where students feel inspired, encouraged, and motivated to enhance their professional identity as future nurses.

## **2.2 Effectiveness of teaching in Clinical Nursing Education.**

Teaching efficacy is a concept used in clinical nursing education to denote both confidence and belief by clinical instructors in their capabilities of assisting and helping nursing students in clinical training. Clinical teaching is not an ordinary classroom teaching since it occurs in real healthcare settings in which patient care tasks should be aligned with education goals. It is the duty of clinical instructors, therefore, to not only exhibit clinical prowess but also effective teaching methods that will enable experiential learning[10].

Clinical instructors have one of the main functions of bridging the gap between theory and practice. In the classroom, the nursing students usually study such

theoretical concepts as anatomy, physiology, pharmacology, and nursing procedures. Nonetheless, the application of this theoretical understanding to safe and effective patient care would need practical experience and instruction in clinical environments[11]. Clinical instructors assist students in combining theoretical learning and clinical skills with the purpose of showing how to perform a procedure, clarifying how to make a clinical decision, and promoting reflection. They also help students to establish professional behaviors like ethical practice, empathy, teamwork, and communication with the patients and healthcare professionals[12].

Clinical instructors are also active in mentoring and guiding the students during their clinical learning experiences, in addition to imparting technical skills to them. They assist students in managing anxiety and uncertainty related to the clinical practice, foster their confidence in executing procedures and give constructive feedback to improve. Successful clinical instructors bring out a conducive learning atmosphere that allows engagement, interest, and critical thinking of the students[13]. Thus, the effectiveness of clinical instructors in teaching is critical in the quality of clinical education and competency of the future nursing practitioners.

## **2.3 Teaching Efficacy Scale Developmental Requirement.**

Although the role of teaching efficacy in nursing education is acknowledged, the number of standardized instruments that are specifically aimed at measuring the teaching efficacy of clinical nursing instructors is scarce. Most of the teacher efficacy scales employed in educational research have been designed in the Western educational setting and are mainly concentrated on classroom teaching as opposed to clinical instruction[14]. These tools might not be sensitive enough to reflect the special features of a clinical teaching setting where the tasks of patient care, clinical supervision, and practical hands-on skill acquisition are the key elements of the teaching process.

More so, the Indian education and health care systems are very different when compared to those of Western countries, in terms of infrastructure, clinical education setting, student-to-teacher ratio, and cultural expectations. During the clinical placements in India, nursing educators usually have to supervise large populations of students and, at the same time, provide care and safety to patients and comply with the institutional policies. These differences within the contexts show the necessity of a culturally and education-related tool that would be able to determine the teaching efficacy in the clinical nursing education in the Indian context with high accuracy[15].

The other key issue is the fact that a large number of nursing professionals become involved in clinical teaching without being trained in the field of educational methods or clinical supervision strategies. Consequently, differences in methods of teaching, practice of supervision, and evaluation may exist among institutions. It is also challenging to objectively assess the efficiency of clinical teaching and determine the areas that need improvement because there is no unified measurement tool at the moment[12]. The development of the Teaching Efficacy Scale (TES) targeted

at clinical nursing education in particular can thus aid in measuring the teaching performance of instructors, discovering their strong and weak points, and support faculty development process to enhance the quality of clinical teaching.

#### **2.4 Conceptual Framework of the Study.**

The theoretical model of the current study is founded on the Clinical Learning Environment, Supervision and Nurse Teacher Scale (CLES+T) created by Mikko Saarikoski. CLES+T scale is another scale that is utilized in nursing education research to determine how students perceive the clinical learning environment, supervision, and the role of a nurse teacher in clinical education. This model is a holistic method of evaluating the influences that determine both quality clinical teaching and student learning experiences in health care facilities[14].

The Teaching Efficacy Scale (TES) designed in the research is based on the domains of the conceptual structure of the CLES+T framework. These domains address significant areas of clinical instruction, including direction of instruction, oversight of clinical practice, interaction with students, assessment of student performance, and facilitation of professional growth[16]. The TES is designed to assess the performance of clinical instructors in promoting student learning in clinical postings by adjusting these areas to the conditions of Indian nursing education.

The model focuses on the relationship among the clinical instructors, learners, and clinical learning setting. A good clinical teaching is achieved when the teachers are able to give clear instructions, facilitate learning, and also make the learning environment friendly to the learners to enable them to acquire clinical competence and professional confidence. Through this conceptual model, the given research has developed a Teaching Efficacy Scale systematically to prove the scale and its usage in assessing clinical nursing instruction through the nursing student lens. Finally, the application of such a scale can help to increase the quality of the clinical teaching process, support the nursing education programs, and provide the healthcare system with competent nursing professionals[17].

Considering the critical role of clinical teaching in nursing education and the limited availability of standardized instruments to assess teaching efficacy in the Indian context, the present study aims to develop and validate a Teaching Efficacy Scale (TES) for evaluating clinical nursing instructions provided by nursing educators during clinical postings. The study seeks to systematically construct the scale based on relevant domains of clinical teaching and to establish its psychometric properties, including validity and reliability, to ensure its scientific rigor and applicability. Furthermore, a structured module is developed to facilitate the effective implementation and use of the Teaching Efficacy Scale in the evaluation of clinical teaching practices[12]. In addition, the study assessed the acceptability of the TES among nursing students, who, as primary recipients of clinical instruction, are well positioned to provide informed feedback regarding the effectiveness and quality of teaching practices in the clinical learning environment.

## **MATERIALS AND METHODS**

### **Research Approach**

The quantitative research approach is selected in the present study because it is deemed to be relevant in cases where the researcher will have to measure variables objectively and conduct statistical analysis. Quantitative research enables the researcher to gather numerical information in a systematic manner and analyse relationships among variables with the help of structured measuring tools and statistical calculations[14]. The quantitative method is appropriate in this research due to the main aim of designing and testing a consistent tool, the Teaching Efficacy Scale (TES), to assess the efficacy of clinical nursing teaching. By obtaining quantifiable feedback about the perceptions of nursing students about clinical teaching, the research has produced credible data that can be evaluated to define the psychometric characteristics of the scale[18]. This method will help in the detection of patterns, trends, and relationships that are associated with teaching efficacy, hence making sure that the instrument developed is a scientific instrument that can give valid and reliable results.

### **RESEARCH DESIGN**

The research design used in the study is a cross-sectional research design. Methodological research aims at the construction, testing, and proving of research instruments that can be applied to measure certain constructs precisely. In the current research, the methodological design is applied to construct and test the Teaching Efficacy Scale (TES), such that the tool sufficiently assesses the construct of teaching efficacy in clinical nursing education. A cross-sectional design was used since the data is obtained at a single time from the participants and not over a multiple time period. This type of design is mostly applied in the instrument development research when it is necessary to determine the perceptions or reactions of a certain population at a given time[19]. The cross-sectional approach of the study thus allow the researcher to assess the reliability, validity, and dimensionality of the TES effectively, besides drawing the perception of the students towards clinical teaching experiences during the current academic programs.

### **Study Setting**

The research was carried out in some of the nursing colleges within the states of Haryana, Punjab, and the Delhi-National Capital Region (Delhi-NCR), of Northern India. These areas have many nursing institutions that are associated with universities and health centres where nursing students undergo clinical training. The chosen colleges offer B.Sc. Nursing courses, which include two levels i.e. theoretical learning, and long-term clinical placements in hospitals and medical centres. The study was carried out in various institutions in different states, which is beneficial in ensuring that the students experience diversity in their educational and clinical setting. This variety contributes to the increase in the generalizability of the results and guarantees that the created Teaching Efficacy Scale represents the greater reality of clinical training of Northern Indian nursing.

### Target Population

The study population is B.Sc. Nursing students who are enrolled in the selected nursing colleges in Northern India. Nursing students are the respondents who are best suited to this research since they are the ones who receive clinical training and are in close contact with clinical instructors during hospital placements. Their impressions and judgments were useful in assessing the efficacy of clinical teaching practices. The target audience of the B.Sc. Nursing students is specifically applicable as the program comprises organized clinical training commencing in the second year or subsequent, where the students acquire the practical nursing skills within the guidance of the clinical instructors. Sample

The research population is of 500 students studying in the second, third, and fourth years of the B.Sc. nursing program who have finished their minimum of one month of clinical posting. Such students have already been exposed to the clinical learning environment and have already interacted with nursing instructors during their practical training period. As such, they could judge the efficacy of teaching of the clinical instructors in terms of their practical experiences in the hospitals. The choice of students of various academic years could further enable the researcher to have a more inclusive representation of individuals who have different levels of clinical exposure, as well as learning experiences, which has allowed the study to offer a more holistic evaluation of teaching efficacy.

### Sampling Technique

This study used two sampling techniques. In selecting the student participants, stratified proportionate random sampling was employed. The eligible student population was initially stratified (according to academic year) in this approach (second, third, and fourth years). Participants were chosen randomly in proportion to the number of people in the respective stratum[20]. The method ensured that the sample is sufficiently representative of students who represent every academic year; hence, enhancing the representativeness and validity of the research findings.

In the process of scale development and validation, experts were selected through purposive sampling were be involved in the Delphi technique. Nursing education experts, clinical teaching, and methodology specialists were consulted to review the items created to be included in the Teaching Efficacy Scale. The relevance, clarity, and appropriateness of the scale items were judged by the use of their expertise, thus ensuring high levels of content validity.

### Inclusion Criteria

The learners in the study program are of the following criteria:

Students pursuing a B.Sc. Nursing program in the second, third, or fourth year of the selected nursing colleges were considered eligible to take part in the research. The participants should also possess a minimum of one month of clinical training since they would have enough exposure to the clinical learning setting, and to the clinical instructors. Moreover, inclusion of only those students who give informed consent and willingly consent to be in the study was done.

### Exclusion Criteria

The students who failed to meet the eligibility requirements were not included in the study. This would include the first-year B.Sc. Nursing students, who are still generally not yet subjected to enough clinical training, would thus not have sufficient capacity to assess clinical teaching experiences. The students who underwent less than one month of clinical exposure is not included either, as limited clinical experience may fail to give enough interaction with instructors to determine the effectiveness of teaching. Besides, learners who were not willing to take part or refuse to give informed consent were not featured in the study.

### Sample Size Calculation

To calculate the size of the sample size required in the study, the usual statistical formula used to estimate the sample size in a population-based study was used:

$$n = \frac{(Z)^2 \times p(1 - p)}{e^2}$$

Where:

Z is the desired level of confidence in the form of a Z-score, p is the actual prevalence rate of the characteristic of interest in the population.

e indicates the margin of error.

In this case, the following values were employed:

Z = 1.96 (which is equal to 95% confidence level).

p = 0.5 (presumption because the true proportion is unknown, to accomplish the maximum sample size)

e = 0.05 (acceptable margin of error)

With these parameters, one came up with a calculated sample size of 500 participants. This is a sufficiently large sample size to undertake scale development research, as well as to undertake statistical analysis to test its validity and reliability.

### DATA ANALYSIS

The collected data was entered and analysed using the statistical software IBM SPSS Statistics. Data analysis included both descriptive and inferential statistical methods. *Descriptive statistics* such as frequency, percentage, mean, and standard deviation were used to summarize the demographic characteristics of the participants and their responses to the Teaching Efficacy Scale items. These statistics provided an overview of the distribution and central tendencies of the data.

In addition, *inferential statistical techniques* were used to examine relationships and differences between variables. Comparisons were made between Teaching Efficacy Scale categories and students' satisfaction scores to determine whether perceived teaching efficacy is associated with students' clinical learning experiences. Statistical significance was determined at a *p-value of less than 0.05*,

which indicates that the probability of the observed results occurring by chance is less than five percent. Through these analyses, the study aimed to validate the Teaching Efficacy Scale and demonstrate its usefulness as a tool for evaluating **clinical nursing instructions**.

**RESULTS AND DISCUSSION**

**Demographic profile of the participants**

Table 01 presents the demographic profile of the study participants (N=500). The data indicated that a majority of students (65%) were aged more than 20 years, while 35% were less than 20 years of age. In terms of gender distribution, female students constituted the vast majority at 86.8%, with only 13.2% being male.

The participants were nearly evenly distributed across seven different nursing colleges. Prem Institute of Medical Sciences had the highest representation at 15%, followed by Nightingale Institute of Nursing (14.6%), Florence College of Nursing and Sandhu Institute of Nursing (each with

14.4%), RPIIT (14%), and both Rural Institute of Nursing and Pal College of Nursing (each with 13.8%). This indicated a fairly balanced institutional representation in the sample.

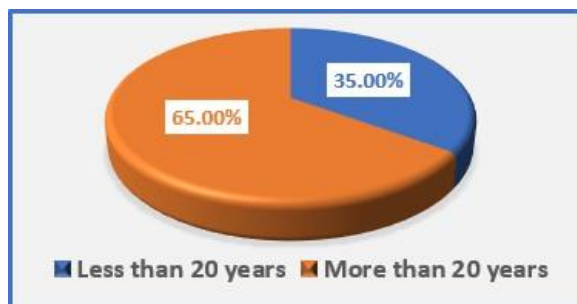
Regarding the academic year of study, 34.4% of students were in their 2<sup>nd</sup> year, 33.2% in the 3<sup>rd</sup> year, and 32.4% in the 4<sup>th</sup> year. As for the number of nursing teacher visits during clinical postings, 40.8% of students reported receiving 3–4 visits, while 30.2% had 1–2 visits, and 29% experienced frequent visits. In terms of hospital infrastructure, 39.8% of students were posted in hospitals with 100–200 beds, 38.4% in hospitals with more than 200 beds, and 21.8% in smaller hospitals with fewer than 100 beds. With respect to clinical posting hours per day, 61.4% of students reported having less than 6 hours of clinical duty, while 38.6% had more than 6 hours. Similarly, the duration of clinical postings showed that 61.4% of students underwent clinical training for 4–8 weeks, whereas 38.6% had postings lasting more than 8 weeks, indicating that shorter clinical rotations were more prevalent.

**Table 01: Demographic Profile of the study Participants.**

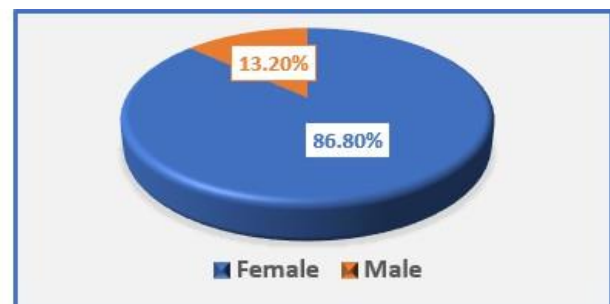
(N=500)

Demographic Variables	Frequency (f)	Percentage (%)
<b>Age</b>		
Less than 20 years	175	35.00%
More than 20 years	325	65.00%
<b>Gender</b>		
Female	434	86.80%
Male	66	13.20%
<b>Nursing College</b>		
Prem Institute of Medical Sciences	75	15.00%
Florence College of Nursing	72	14.40%
Sandhu Institute of Nursing	72	14.40%
Nightingale Institute of Nursing	73	14.60%
Rural Institute of Nursing	69	13.80%
RPIIT	70	14.00%
Pal College of Nursing	69	13.80%
<b>Academic Year of Study</b>		
2nd Year	172	34.40%
3rd Year	166	33.20%
4th Year	162	32.40%
<b>Nursing Teacher Visits</b>		
1–2 visits	151	30.20%
3–4 visits	204	40.80%
Frequent visits	145	29.00%
<b>Bed Strength of Hospital</b>		

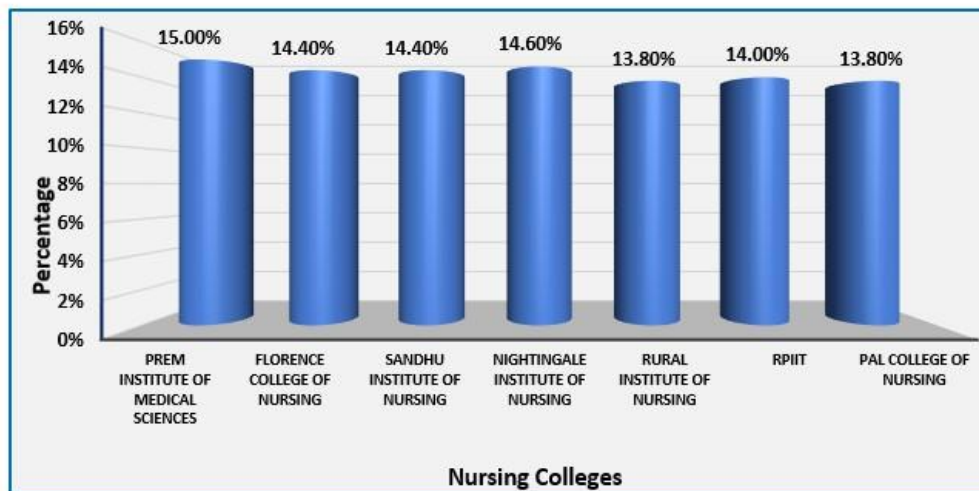
<b>Less than 100 beds</b>	109	21.80%
<b>100–200 beds</b>	199	39.80%
<b>More than 200 beds</b>	192	38.40%
<b>Hours of Clinical Posting Per Day</b>		
<b>Less than 6 hours</b>	307	61.40%
<b>More than 6 hours</b>	193	38.60%
<b>Duration of Clinical Posting</b>		
<b>4–8 weeks</b>	307	61.40%
<b>More than 8 weeks</b>	193	38.60%



**Figure 1:** Pie chart showing the percentage distribution of study participants by age group.



**Figure 2:** Pie chart showing the percentage distribution of study participants by gender



**Figure 3:** Multiple bar chart showing the percentage distribution of study participants by nursing college.

**Pie chart showing the percentage distribution of study participants by bed strength of hospitals assigned for clinical posting.**



Figure 4: Pie chart showing the percentage distribution of study participants by academic year of study.



Figure 5: Pie chart showing the percentage distribution of study participants according to the number of visits by nursing teachers.



Figure 6: Pie chart showing the percentage distribution of study participants by bed strength of hospitals assigned for clinical posting.



Figure 7: Pie chart showing the percentage distribution of study participants by hours of clinical posting per day.



Figure 8: Pie chart showing the percentage distribution of study participants by duration of clinical posting.

### Reliability analysis of the Teaching Efficacy Scale.

Reliability analysis was conducted to ensure the internal consistency of the Teaching Efficacy Scale (TES). The scale was evaluated using Cronbach's alpha, item-total statistics, and an inter-item correlation summary. The TES comprised 30 items representing four key factors.

#### 2.1: Reliability Statistics (Cronbach's Alpha)

Reliability analysis was conducted to ensure the internal consistency of the Teaching Efficacy Scale (TES) using Cronbach's Alpha. This ensured that the items within each factor measure the same underlying construct consistently.

**Table 2: Reliability Statistics of the Teaching Efficacy Scale (TES) and Its Factors**

Scale Factor	No. of Items	Cronbach's Alpha	Cronbach's Alpha (Standardized)	Reliability Level
Teaching Efficacy Scale (Overall)	30	0.959	0.959	Excellent
Factor I	16	0.953	0.953	Excellent

Factor II	7	0.870	0.871	Good
Factor III	4	0.804	0.821	Good
Factor IV	3	0.693	0.698	Acceptable (Needs Caution)

Table 2 displays the reliability statistics for the Teaching Efficacy Scale (TES) and its four underlying components. The overall scale demonstrates excellent internal consistency, with a Cronbach's alpha value of 0.959, indicating that the 30 items included in the scale are highly cohesive and measure the intended construct reliably.

Among the components, the first subset of 16 items showed excellent reliability ( $\alpha = 0.953$ ), supporting the internal consistency of items grouped under this dimension. The second subset, consisting of 7 items, yielded a good reliability score ( $\alpha = 0.870$ ), indicating that the items are sufficiently interrelated to assess the targeted aspect of teaching efficacy. The third subset with 3 items showed acceptable reliability ( $\alpha = 0.804$ ), which is considered satisfactory for shorter scales.

However, the fourth subset, comprising 4 items, obtained a Cronbach's alpha of **0.693**, which is slightly below the

generally accepted threshold of 0.70. While this value may still be considered adequate in exploratory research, it suggests that this component may benefit from further refinement—either by revising or expanding the items to improve consistency.

In summary, the Teaching Efficacy Scale as a whole demonstrates strong psychometric reliability. Most components are consistent and reliable, though one dimension may require further development to enhance its measurement strength.

**Table 3: Item-Total Statistics for the Teaching Efficacy Scale (TES)**

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
STET01	94.09	496.130	0.660	0.616	0.958
STET02	93.98	496.531	0.675	0.604	0.958
STET04	93.69	510.213	0.550	0.406	0.959
STET06	94.50	496.507	0.670	0.645	0.958
STET10	93.66	517.980	0.497	0.457	0.959
STET13	94.09	495.365	0.708	0.611	0.958
STET15	94.40	490.426	0.745	0.697	0.957
STET18	93.86	510.010	0.437	0.406	0.960
STET22	93.78	509.082	0.566	0.437	0.959
STET28	93.70	509.616	0.455	0.457	0.959
STET30	93.55	508.000	0.603	0.447	0.959
STET34	94.38	506.845	0.431	0.455	0.960
STET40	95.13	510.604	0.418	0.324	0.960
STET41	94.53	495.416	0.735	0.622	0.958
STET42	94.27	491.701	0.704	0.558	0.958
STET44	94.35	494.664	0.703	0.578	0.958
STET45	94.15	495.995	0.690	0.561	0.958
STET46	94.49	491.068	0.742	0.630	0.957
STET47	94.58	504.878	0.529	0.469	0.959
STET48	94.48	493.461	0.705	0.603	0.958
STET50	94.36	493.145	0.679	0.603	0.958
STET57	94.21	493.855	0.682	0.602	0.958
STET59	94.56	488.888	0.709	0.643	0.958
STET60	96.12	502.604	0.597	0.746	0.959
STET62	95.15	478.666	0.861	0.789	0.956
STET63	94.84	480.052	0.804	0.750	0.957
STET64	94.90	491.526	0.697	0.572	0.958
STET65	95.10	482.598	0.782	0.715	0.957
STET66	95.25	481.368	0.801	0.721	0.957
STET67	95.70	499.770	0.603	0.726	0.958

Table 3 presents the item-total statistics for the Teaching Efficacy Scale (TES). The corrected item-total correlations for most items are above the acceptable threshold of 0.40, indicating that individual items are contributing positively

to the overall internal consistency of the scale. Several items, including STET62 (.861), STET63 (.804), and STET66 (.801), show particularly strong correlations with the total score, suggesting they are highly representative of

the construct being measured. On the other hand, a few items such as STET40 (.418), STET34 (.431), and STET18 (.437) fall at the lower end of the correlation spectrum. Although these still meet the minimum acceptable level, they may benefit from further review or refinement to enhance the overall coherence of the scale.

Importantly, the “Cronbach’s Alpha if Item Deleted” values remain consistently high across all items, with none suggesting a substantial increase in reliability if removed. This confirms that each item contributes adequately to the overall reliability and that the scale exhibits strong internal consistency, making it a dependable tool for measuring teaching efficacy.

**Table4: Item-Total Statistics for the subscales of Teaching Efficacy Scale (TES)**

Subscales	Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Factor 1	STET13	46.66	201.873	0.716	0.569	0.951
	STET15	46.97	197.675	0.785	0.646	0.949
	STET41	47.1	202.312	0.73	0.56	0.951
	STET42	46.84	200.348	0.685	0.502	0.951
	STET44	46.91	201.458	0.709	0.539	0.951
	STET45	46.72	202.055	0.704	0.533	0.951
	STET47	47.14	206.753	0.576	0.377	0.953
	STET48	47.05	201.17	0.696	0.523	0.951
	STET50	46.93	199.959	0.699	0.561	0.951
	STET57	46.78	200.42	0.704	0.569	0.951
	STET59	47.13	197.04	0.735	0.614	0.95
	STET62	47.72	192.006	0.847	0.744	0.948
	STET63	47.41	191.161	0.838	0.739	0.948
	STET64	47.47	199.031	0.714	0.534	0.951
	STET65	47.67	194	0.781	0.658	0.949
STET66	47.81	194.424	0.767	0.631	0.95	
Factor 2	STET01	22.32	20.24	0.7	0.508	0.844
	STET02	22.21	20.64	0.685	0.481	0.846
	STET04	21.93	23.634	0.565	0.329	0.862
	STET06	22.74	20.482	0.695	0.513	0.845
	STET22	22.01	23.34	0.586	0.346	0.86
	STET30	21.78	23.217	0.613	0.395	0.857
	STET46	22.73	19.967	0.707	0.51	0.843
Factor 3	STET10	6.21	7.23	0.609	0.381	0.79
	STET40	7.68	5.842	0.502	0.26	0.815
	STET60	8.67	4.908	0.758	0.618	0.68
	STET67	8.25	4.683	0.72	0.6	0.703
Factor 4	STET18	7.36	3.432	0.527	0.285	0.58
	STET28	7.2	3.493	0.527	0.284	0.582
	STET34	7.87	3.066	0.482	0.232	0.646

Table4 demonstrates item total statistics of the four subscales of Teaching Efficacy Scale (TES) that depict the internal consistency and reliability of individual items. The corrected item- total correlation shows the degree to which

an item correlates to the total score of the corresponding subscale. In the case of Factor 1, the corrected item-total correlations of the items vary between 0.576 (STET47) to 0.847

(STET62), with majority of items being above 0.70 which suggests a high degree of consistency. STET62 (0.847) and STET63 (0.838) have the best correlations. Cronbach Alpha with the deletion of an item is also high (the majority of the values are above 0.95), which is an indicator of high internal consistency and deleting any item would not enhance its reliability.

Factor 2 has corrected item-total correlations of 0.565 (STET04), to 0.707 (STET46). Even though the correlation between STET04 and STET22 is relatively lower, all the items are above the acceptable level of correlation, which is 0.30. Alpha of Cronbach in the case of deleting an item is between 0.843 and 0.862, which is satisfactory internal consistency.

Factor 3 indicates that item-total corrections are 0.502 (STET40) up to 0.758 (STET60). Items STET60 and STET67 have better correlations, and STET40 is a relatively low value, yet acceptable. Alpha of Cronbach Deleting Items shows that there is consistency of reliability among items.

Factor 4 shows the most minimal correlations, with the values between 0.482 (STET34) and 0.527 (STET18 and STET28). Even though these values are higher than the required minimum level, they are a sign of lower internal consistency. The Alpha of Cronbach on the deletion of an item is between 0.58 and 0.646 and it may indicate that this subscale needs to be refined or other items that are more reliable to include.

Table 5: Inter-Item Correlation Matrix for the Teaching Efficacy Scale (TES)

	STET01	STET02	STET04	STET06	STET10	STET13	STET15	STET18	STET22	STET28	STET30	STET34	STET40	STET41	STET42	STET44	STET45	STET46	STET47	STET48	STET50	STET57	STET59	STET60	STET62	STET63	STET64	STET65	STET66	STET67
STET01	1.00	0.55	0.42	0.63	0.30	0.48	0.45	0.31	0.48	0.40	0.49	0.31	0.32	0.44	0.54	0.46	0.42	0.58	0.44	0.49	0.48	0.51	0.41	0.28	0.52	0.51	0.47	0.53	0.48	0.32
STET02	0.55	1.00	0.46	0.55	0.34	0.54	0.47	0.28	0.47	0.39	0.55	0.36	0.33	0.59	0.51	0.55	0.38	0.54	0.32	0.47	0.39	0.49	0.45	0.45	0.63	0.47	0.43	0.48	0.53	0.37
STET04	0.42	0.46	1.00	0.43	0.22	0.39	0.41	0.27	0.41	0.30	0.41	0.16	0.21	0.45	0.44	0.43	0.37	0.49	0.23	0.40	0.28	0.41	0.41	0.38	0.51	0.44	0.34	0.43	0.41	0.36
STET06	0.63	0.55	0.43	1.00	0.37	0.56	0.35	0.25	0.45	0.38	0.43	0.34	0.30	0.47	0.51	0.41	0.39	0.61	0.29	0.57	0.41	0.50	0.41	0.53	0.57	0.51	0.43	0.49	0.57	0.45
STET10	0.30	0.34	0.22	0.37	1.00	0.35	0.30	0.25	0.23	0.29	0.22	0.23	0.40	0.40	0.28	0.32	0.37	0.30	0.16	0.32	0.37	0.28	0.25	0.57	0.42	0.38	0.34	0.49	0.49	0.57
STET13	0.48	0.54	0.39	0.56	0.35	1.00	0.57	0.23	0.42	0.22	0.39	0.25	0.28	0.56	0.52	0.53	0.48	0.54	0.41	0.50	0.52	0.65	0.57	0.40	0.65	0.59	0.55	0.56	0.60	0.43
STET15	0.45	0.47	0.41	0.35	0.30	0.57	1.00	0.41	0.46	0.30	0.45	0.29	0.27	0.61	0.58	0.61	0.62	0.54	0.47	0.52	0.60	0.56	0.68	0.31	0.70	0.67	0.59	0.62	0.61	0.39
STET18	0.31	0.28	0.27	0.25	0.25	0.23	0.41	1.00	0.27	0.48	0.31	0.42	0.15	0.30	0.38	0.34	0.34	0.35	0.19	0.23	0.25	0.23	0.30	0.28	0.39	0.34	0.23	0.32	0.42	0.22
STET22	0.48	0.47	0.41	0.45	0.23	0.42	0.46	0.27	1.00	0.35	0.44	0.30	0.22	0.38	0.39	0.45	0.40	0.46	0.31	0.44	0.30	0.45	0.47	0.29	0.52	0.40	0.36	0.37	0.42	0.25
STET28	0.40	0.39	0.30	0.38	0.29	0.22	0.30	0.48	0.35	1.00	0.31	0.41	0.23	0.26	0.32	0.29	0.37	0.33	0.09	0.25	0.33	0.21	0.32	0.34	0.36	0.32	0.30	0.33	0.44	0.18
STET30	0.49	0.55	0.41	0.43	0.22	0.39	0.45	0.31	0.44	0.31	1.00	0.33	0.29	0.47	0.43	0.46	0.41	0.49	0.31	0.44	0.39	0.43	0.43	0.35	0.55	0.44	0.39	0.43	0.46	0.36
STET34	0.31	0.36	0.16	0.34	0.23	0.25	0.29	0.42	0.30	0.41	0.33	1.00	0.22	0.22	0.38	0.28	0.31	0.34	0.15	0.26	0.33	0.15	0.34	0.32	0.43	0.30	0.25	0.25	0.51	0.16
STET40	0.32	0.33	0.21	0.30	0.40	0.28	0.27	0.15	0.22	0.23	0.29	0.22	1.00	0.36	0.25	0.25	0.26	0.25	0.13	0.27	0.30	0.22	0.28	0.48	0.35	0.32	0.30	0.38	0.35	0.43
STET41	0.44	0.59	0.45	0.47	0.40	0.56	0.61	0.30	0.38	0.26	0.47	0.22	0.36	1.00	0.53	0.55	0.52	0.56	0.41	0.53	0.49	0.54	0.61	0.49	0.68	0.63	0.53	0.62	0.58	0.53
STET42	0.54	0.51	0.44	0.51	0.28	0.52	0.58	0.38	0.39	0.32	0.43	0.38	0.25	0.53	1.00	0.52	0.47	0.59	0.44	0.52	0.46	0.53	0.50	0.37	0.63	0.63	0.48	0.55	0.57	0.38
STET44	0.46	0.55	0.43	0.41	0.32	0.53	0.61	0.34	0.45	0.29	0.46	0.28	0.25	0.55	0.52	1.00	0.55	0.53	0.45	0.45	0.53	0.50	0.59	0.37	0.66	0.58	0.54	0.54	0.59	0.39
STET45	0.42	0.38	0.37	0.39	0.37	0.48	0.62	0.34	0.40	0.37	0.41	0.31	0.26	0.52	0.47	0.55	1.00	0.46	0.41	0.51	0.53	0.50	0.57	0.39	0.64	0.63	0.52	0.62	0.55	0.44
STET46	0.58	0.54	0.49	0.61	0.30	0.54	0.54	0.35	0.46	0.33	0.49	0.34	0.25	0.56	0.59	0.53	0.46	1.00	0.44	0.66	0.52	0.53	0.54	0.41	0.66	0.63	0.53	0.56	0.60	0.41
STET47	0.44	0.32	0.23	0.29	0.16	0.41	0.47	0.19	0.31	0.09	0.31	0.15	0.13	0.41	0.44	0.45	0.41	0.44	1.00	0.43	0.40	0.50	0.44	0.13	0.49	0.56	0.40	0.49	0.40	0.31
STET48	0.49	0.47	0.40	0.57	0.32	0.50	0.52	0.23	0.44	0.25	0.44	0.26	0.27	0.53	0.52	0.45	0.51	0.66	0.43	1.00	0.54	0.51	0.52	0.44	0.64	0.62	0.51	0.62	0.61	0.45
STET50	0.48	0.39	0.28	0.41	0.37	0.52	0.60	0.25	0.30	0.33	0.39	0.33	0.30	0.49	0.46	0.53	0.53	0.52	0.40	0.54	1.00	0.46	0.48	0.35	0.59	0.68	0.58	0.61	0.60	0.40
STET57	0.51	0.49	0.41	0.50	0.28	0.65	0.56	0.23	0.45	0.21	0.43	0.15	0.22	0.54	0.53	0.50	0.50	0.53	0.50	0.51	0.46	1.00	0.51	0.33	0.62	0.65	0.51	0.58	0.51	0.40
STET59	0.41	0.45	0.41	0.41	0.25	0.57	0.68	0.30	0.47	0.32	0.43	0.34	0.28	0.61	0.50	0.59	0.57	0.54	0.44	0.52	0.48	0.51	1.00	0.35	0.70	0.64	0.54	0.52	0.61	0.33
STET60	0.28	0.45	0.38	0.53	0.57	0.40	0.31	0.28	0.29	0.34	0.35	0.32	0.48	0.49	0.37	0.39	0.41	0.13	0.44	0.35	0.33	0.35	1.00	0.57	0.42	0.40	0.53	0.60	0.75	
STET62	0.52	0.63	0.51	0.57	0.42	0.65	0.70	0.39	0.52	0.36	0.55	0.43	0.35	0.68	0.63	0.66	0.64	0.66	0.49	0.64	0.59	0.62	0.70	1.00	0.73	0.61	0.64	0.72	0.51	
STET63	0.51	0.47	0.44	0.51	0.38	0.59	0.67	0.34	0.40	0.32	0.44	0.30	0.32	0.63	0.63	0.58	0.63	0.63	0.56	0.62	0.68	0.65	0.64	0.42	0.73	1.00	0.63	0.71	0.62	0.47
STET64	0.47	0.43	0.34	0.43	0.34	0.55	0.59	0.23	0.36	0.30	0.39	0.25	0.30	0.53	0.48	0.54	0.52	0.53	0.40	0.51	0.58	0.51	0.54	0.40	0.61	0.63	1.00	0.63	0.60	0.52
STET65	0.53	0.48	0.43	0.49	0.49	0.56	0.62	0.32	0.37	0.33	0.43	0.25	0.38	0.62	0.55	0.54	0.62	0.56	0.49	0.62	0.61	0.58	0.52	0.53	0.64	0.71	0.63	1.00	0.64	0.65
STET66	0.48	0.53	0.41	0.57	0.49	0.60	0.61	0.42	0.42	0.44	0.46	0.51	0.35	0.58	0.57	0.59	0.55	0.60	0.40	0.61	0.60	0.51	0.61	0.60	0.72	0.62	0.60	0.64	1.00	0.53
STET67	0.32	0.37	0.36	0.45	0.57	0.43	0.39	0.22	0.25	0.18	0.36	0.16	0.43	0.53	0.38	0.39	0.44	0.41	0.31	0.45	0.40	0.40	0.33	0.75	0.51	0.47	0.52	0.65	0.53	1.00

Note: The p-value for all the correlation values in the table is < 0.001, indicating that the correlations are statistically significant at the 0.01 level.

Table5 presents the inter-item correlation matrix for the Teaching Efficacy Scale (TES), which is a key indicator of the scale’s internal consistency and overall reliability. The correlation coefficients among the 30 selected items majority range from approximately 0.30to 0.70, reflecting mostly moderate positive relationships between items. This pattern suggests that the items are sufficiently related to one another, which is desirable for a reliable scale. In the context of reliability, moderate inter-item correlations (typically between 0.30 and 0.70) indicate that items are measuring the same underlying construct without being redundant. Notably, all correlations in the matrix are

statistically significant at the 0.01 level (p < 0.001), further reinforcing the consistency among items.

However, some items with very low correlations—such as the 0.09 correlation between STET28 and STET47—may indicate weaker alignment with the overall construct, potentially lowering the scale’s reliability. On the other hand, extremely high correlations between certain items may suggest redundancy and could be reviewed to improve the scale’s efficiency without compromising its reliability. Overall, the inter-item correlation matrix supports the internal consistency of the TES, suggesting that it is a reliable tool for measuring teaching efficacy. Nonetheless, specific items with very low or very high correlations might

require further evaluation to enhance the scale's psychometric properties.

**Association with demographic variables**

**Table No. 6: Association Between Sociodemographic Variables and Teaching Efficacy Scores (Overall and by Factors)**

Sociodemographic variables	N	(N=500)									
		Teaching Efficacy Scale (Overall)		Factor1		Factor2		Factor3		Factor4	
		Median (IQR)	p-Value	Median (IQR)	p-Value	Median (IQR)	p-Value	Median (IQR)	p-Value	Median (IQR)	p-Value
Age											
Less than 20 years	175	91 (76-123)	0.107 <sup>U</sup>	49 (38-66)	0.381 <sup>U</sup>	22 (20-31)	<b>&lt;0.001<sup>U</sup></b>	9 (8-11)	0.665 <sup>U</sup>	11 (10-14)	0.400 <sup>U</sup>
More than 20 years	325	94 (79-124)		51 (36-67)		26 (23-31)		9 (8-11)		11 (9-14)	
Gender											
Female	434	93 (79-116)	0.596 <sup>U</sup>	50 (38-63)	0.542 <sup>U</sup>	25 (22-31)	0.776 <sup>U</sup>	9 (8-11)	<b>0.004<sup>U</sup></b>	11 (10-13)	0.041 <sup>U</sup>
Male	66	120 (68-126)		66 (35-69)		31 (19-33)		8 (8-11)		13.5 (8-14)	
Name of Nursing College											
Prem Institute of Medical Sciences	75	125 (123-127)	<b>&lt;0.001<sup>K</sup></b>	69 (67-71)	<b>&lt;0.001<sup>K</sup></b>	33 (32-34)	<b>&lt;0.001<sup>K</sup></b>	9 (8-10)	<b>&lt;0.001<sup>K</sup></b>	14 (14-15)	<b>&lt;0.001<sup>K</sup></b>
Florence College of Nursing	72	72 (67.5-75.5)		35 (32-37)		19 (16.5-22)		8 (7.5-8)		9 (8-11.5)	
Sandhu Institute of Nursing	72	92 (90-95)		50 (48-53)		22 (21.5-24)		9 (9-10.5)		10 (9-11)	
Nightingale Institute of Nursing	73	101 (97-104)		55 (53-57)		27 (24-29)		10 (9-11)		10 (9-10)	
Rural Institute of Nursing	69	84 (81-87)		40 (39-43)		25 (23-27)		9 (9-10)		9 (8-10)	
RPIIT	70	74 (69-78)		30 (29-32)		22 (21-24)		8 (8-9)		13 (11-14)	
Pal College of Nursing	69	135 (133-136)		71 (70-72)		33 (33-34)		17 (17-18)		14 (13-14)	
Academic Year of Study											
2nd Year	172	91 (75.5-122)	0.077 <sup>K</sup>	49 (38-66)	0.562 <sup>K</sup>	22 (20-31)	<b>&lt;0.001<sup>K</sup></b>	9 (8-11)	0.605 <sup>K</sup>	11 (10-14)	0.198 <sup>K</sup>
3rd Year	166	92.5 (78-123)		51 (37-68)		25 (22-31)		9 (9-11)		10.5 (8-14)	
4th Year	162	95.5 (81-124)		52 (36-67)		28 (24-32)		9 (8-11)		12 (10-14)	
Nursing Teacher Visits											
1-2 visits	151	78 (69-97)		38 (32-54)		22 (19-26)		9 (8-10)		10 (8-12)	
3-4 visits	204	88 (79-101)	<b>&lt;0.001<sup>K</sup></b>	45 (34-55)	<b>&lt;0.001<sup>K</sup></b>	25 (22-29)	<b>&lt;0.001<sup>K</sup></b>	9 (8-11)	<b>&lt;0.001<sup>K</sup></b>	11 (9-13)	<b>&lt;0.001<sup>K</sup></b>
Frequent visits	145	125 (98-129)		69 (54-71)		32 (24-33)		10 (9-13)		14 (12-14)	
Bed Strength of Hospital											
Less than 100 beds	109	75 (71-81)	<b>&lt;0.001<sup>K</sup></b>	35 (30-40)	<b>&lt;0.001<sup>K</sup></b>	21 (20-23)	<b>&lt;0.001<sup>K</sup></b>	8 (8-10)	<b>&lt;0.001<sup>K</sup></b>	10 (9-12)	<b>&lt;0.001<sup>K</sup></b>
100-200 beds	199	90 (81-100)		49 (39-55)		24 (22-28)		9 (8-11)		10 (9-12)	
More than 200 beds	192	124 (99-129)		67 (53.5-70)		32 (26-33)		10 (8.5-12)		13 (10-14)	
Hours of Clinical Posting Per Day											
Less than 6 hours	307	81 (73-91)	<b>&lt;0.001<sup>U</sup></b>	39 (32-49)	<b>&lt;0.001<sup>U</sup></b>	22 (20-25)	<b>&lt;0.001<sup>U</sup></b>	9 (8-10)	<b>&lt;0.001<sup>U</sup></b>	10 (8-12)	<b>&lt;0.001<sup>U</sup></b>
More than 6 hours	193	126 (112-133)		69 (60-71)		32 (31-33)		11 (9-17)		14 (12-14)	
Duration of Clinical Posting											
4-8 weeks	307	81 (73-91)	<b>&lt;0.001<sup>U</sup></b>	39 (32-49)	<b>&lt;0.001<sup>U</sup></b>	22 (20-25)	<b>&lt;0.001<sup>U</sup></b>	9 (8-10)	<b>&lt;0.001<sup>U</sup></b>	10 (8-12)	<b>&lt;0.001<sup>U</sup></b>
More than 8 weeks	193	126 (112-133)		69 (60-71)		32 (31-33)		11 (9-17)		14 (12-14)	

K = Independent Samples Kruskal-Wallis Test; U = Independent Samples Mann-Whitney U Test; p-values in bold indicate statistical significance at  $p < 0.05$ .

Table 6 presents the association between various sociodemographic variables and the Teaching Efficacy Scale scores, including the overall score and its four factors. The medians and interquartile ranges (IQR) are shown for each category, along with p-values from the appropriate non-parametric tests (Mann-Whitney U or Kruskal-Wallis test).

Age: There was no statistically significant association between age and the overall teaching efficacy scale or most of its factors ( $p > 0.05$ ), except for Factor 2 (median 22 vs. 26,  $p < 0.001$ ), where those aged more than 20 years scored higher, indicating better performance in that specific dimension.

**Gender:** Gender was not significantly associated with the overall teaching efficacy score or Factors 1 to 3 ( $p > 0.05$ ). However, Factor 3 ( $p = 0.004$ ) and Factor 4 ( $p = 0.041$ ) showed statistically significant differences, with males scoring higher than females, suggesting gender-based differences in these specific domains of teaching efficacy.

**Nursing College:** There was a highly significant association ( $p < 0.001$ ) between the nursing college and the teaching efficacy scores across all factors and the overall scale. For instance, students from Pal College of Nursing had the highest median scores, while those from Florence College had the lowest. This suggests considerable institutional variation in teaching efficacy perception or experience.

**Academic Year of Study:** No significant differences were found in the overall teaching efficacy score across academic years ( $p = 0.077$ ). However, Factor 2 ( $p < 0.001$ ) showed a significant association, with later year students scoring better. This may indicate that students gain confidence and efficacy with academic progression, particularly in areas measured by Factor 2.

**Nursing Teacher Visits:** A strong positive association was observed between the frequency of nursing teacher visits and the teaching efficacy scores ( $p < 0.001$  for all factors and overall scale). Students who reported frequent teacher visits had significantly higher median scores than those with fewer visits, highlighting the beneficial impact of increased teacher support and supervision.

**Bed Strength of Hospital:** Teaching efficacy scores significantly varied with hospital bed strength ( $p < 0.001$  across all dimensions). Students posted in hospitals with more than 200 beds scored highest, indicating that exposure to larger clinical environments may positively influence students' perceived teaching efficacy.

**Hours of Clinical Posting Per Day:** There was a significant association between clinical posting hours per day and all teaching efficacy scores ( $p < 0.001$ ). Students posted for more than 6 hours daily scored notably higher, reflecting the importance of longer clinical exposure in enhancing teaching efficacy.

**Duration of Clinical Posting:** Similarly, the duration of clinical posting was significantly associated with higher teaching efficacy scores ( $p < 0.001$  for all). Those who had more than 8 weeks of clinical posting consistently reported better scores across all factors, emphasizing that extended clinical practice contributes to stronger teaching efficacy.

The findings support the initial validation of the Teaching Efficacy Scale, indicating that the scale demonstrates sensitivity to contextually relevant variables (e.g., teacher visits, clinical exposure) while remaining stable across demographics like age and gender. This supports construct validity. Further testing (e.g., confirmatory factor analysis) is needed to confirm discriminant validity and responsiveness.

**ROC curve analysis of the teaching efficacy scale**

To determine the optimal cutoff score of the developed Teaching Efficacy Scale (TES) in distinguishing between

efficacious and less efficacious clinical nursing instructors, a Receiver Operating Characteristic (ROC) curve analysis was conducted.

The TES total score was used as the test (predictor) variable, while the binary classification variable, *efficacy level*—coded as 1 (Efficacious) and 0 (Less Efficacious)—served as the true state (criterion) variable. This binary outcome was derived using the median split (50th percentile) method, with a score of 93 identified as the median. Accordingly:

Participants scoring  $\geq 93$  were labelled as Efficacious (coded = 1), and

Participants scoring  $< 93$  were labelled as Less Efficacious (coded = 0).

The ROC curve was plotted to evaluate the sensitivity and specificity of the TES across various threshold values. The Area Under the Curve (AUC) served as a summary measure of the scale's diagnostic accuracy. An AUC of 1.0 indicates perfect discrimination, whereas an AUC of 0.5 suggests no discriminative ability.

**Table7: Case Processing Summary for ROC Curve Analysis**

TES Group	N (Cases)
Positive (Efficacious)	254
Negative (Less Efficacious)	246
<b>Total</b>	<b>500</b>

Table 7 shows the Case Processing Summary for ROC Curve Analysis for TES. A total of 500 cases were included in the ROC curve analysis. Among these, 254 participants were categorized as efficacious and 246 as less efficacious based on the median split of the Teaching Efficacy Scale (TES) scores.

**Table 8: Summary of Selected factors and statement of Teaching Efficacy Scale (TES)**

S. No	Factor No.	Factor Name	No. of Components	Statement Numbers and Descriptions of Loaded Components
1	Factor I	Teacher's Support and Facilitation of Learning	16	STET15: Adequate preparation of the patient, articles, and environment was done before the demonstration. STET63: The teacher helped to reduce the theory-practice gap. STET47: The students were directed to read useful literature in nursing. STET59: The teacher demonstrated good communication skills with the patient and the students. STET50: The teacher is approachable and listens attentively. STET45: Adequate internal rotations within a particular department were done by the teacher. STET65: Learning objectives of the posting were achieved. STET64: The overall focus was on the learning needs of the student. STET62: Students felt confident to care for patients independently at the end of posting. STET44: The teacher functioned as an accountable member of the health team. STET57: The teacher used verbal and non-verbal communication effectively. STET41: The teacher guided the students for the development of independent judgment and clinical decision-making. STET13: Cooperation was received from other health team members. STET66: The teacher encouraged the students to reflect upon and share their knowledge and experience gained during the posting. STET48: The teacher demonstrated evidence-based practice while clinical teaching. STET42: The teacher conducted frequent bedside rounds/clinical discussions.
2	Factor II	Clinical Environment and Resource Availability	7	STET06: Infection prevention measures were adequately available. STET02: Availability of patients was in adequate number. STET01: Articles and equipment in the ward were sufficient and in working order. STET22: Documentation/Nursing notes were maintained at the end of each demonstration. STET04: Overcrowding of students was not there in the clinical area. STET46: The teacher discussed current developments related to the area of posting. STET30: The teacher helped students identify and use practice opportunities.
3	Factor III	Supervision and Structured Learning Activities	4	STET60: Clinical evaluation was done at the end of posting. STET67: The teacher used a clinical criteria evaluation checklist. STET10: Nursing staff had good interactions and was willing to support the learning of students. STET40: The teacher exhibited constructive criticism.
4	Factor IV	Evaluation and Feedback Mechanisms	3	STET28: Students' performance was observed frequently. STET34: Case discussions and bedside rounds were done adequately. STET18: Steps and accurate techniques of the procedure were followed.

**DISCUSSION:**

The present study focused on the development of a Teaching Efficacy Scale (TES) tailored specifically for clinical nursing education in the Indian context. Teaching efficacy was recognized as a critical determinant of student learning outcomes, particularly in professional disciplines like nursing where the integration of theoretical knowledge with clinical practice is essential. The findings of this study contributed to addressing the existing gap in context-specific assessment tools.

The developed TES emphasized multiple dimensions of teaching efficacy, including the pedagogical learning environment, the role of the teacher, and evaluation practices. These domains were consistent with existing literature, which has highlighted that effective clinical teaching requires not only subject expertise but also strong interpersonal skills, supervision ability, and competency in assessment. By incorporating these multidimensional aspects, the TES provided a comprehensive evaluation framework.

The use of the Delphi technique for content validation strengthened the scientific rigor of the scale development process. Expert consensus ensured that the items included in the scale were relevant, representative, and culturally appropriate for the Indian nursing education system. Furthermore, the methodological rigor applied through pilot testing, dimensionality assessment, and reliability and

validity testing enhanced the credibility and generalizability of the instrument.

The selection of a large and diverse sample from multiple regions (Haryana, Punjab, Uttarakhand and Delhi-NCR) improved the external validity of the findings. Stratified proportionate random sampling ensured adequate representation of students across different academic years, thereby capturing varied clinical learning experiences. This diversity was important in understanding how teaching efficacy was perceived across different levels of clinical exposure.

The psychometric evaluation of the TES, including reliability and construct validity, established its utility as a standardized tool. The scale demonstrated potential for use by educators, administrators, and policymakers to identify strengths and gaps in clinical teaching practices. It also served as a foundation for faculty development programs aimed at enhancing teaching competencies.

Despite its strengths, the study had certain limitations. Being cross-sectional in nature, it did not capture changes in teaching efficacy over time. Additionally, the study was geographically limited to Northern India, which may have affected the generalizability of findings to other regions with different educational and clinical settings. Future research was recommended to focus on longitudinal validation and adaptation of the TES across diverse cultural and institutional contexts.

In conclusion, the development of a context-specific Teaching Efficacy Scale represented a significant step

toward improving the quality of clinical nursing education. By providing a structured and validated tool, this study supported evidence-based evaluation and continuous improvement in teaching practices, ultimately contributing to better clinical competence among nursing students.

#### CONCLUSION:

The development and the validation of the Teaching Efficacy Scale (TES) offers a qualitative and context-specific instrument in evaluating the efficiency of the clinical nursing instruction within nursing colleges within Northern India. The scale has proven to be reliable in assessing various dimensions of teaching efficacy such as pedagogical learning environment, teacher roles and assessment practices in clinical settings. TES can be used to determine the strengths and weaknesses in the clinical teaching practices of nursing educators by systematically measuring their instructional competencies. The adoption of this tool, together with the module that comes with it, can facilitate evidence-based changes in the teaching approaches, improve the quality of clinical education, and eventually lead to the improved learning outcomes and competence in nursing students.

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**Informed consent Statement:** All participants received written information about the study and provide written informed consent prior to participating.

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**Abbreviation:** Teaching Efficacy Scale (TES)

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