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Clinical teaching competencies training program for nurse teachers and its effect on their self-esteem

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Background: Clinical teaching competencies are fundamental for nurse educators, as they play a crucial role in enhancing the self-esteem of nurse teachers within clinical settings.

Objectives: The aim of the study was to assess the training program to improve the clinical teaching competencies of nurse teachers and to evaluate its effect on their self-esteem.

Methods: A quasi-experimental design was employed, involving all available nurse teachers (N = 50) from the Technical Institute of Nursing, Faculty of Nursing, Ain Shams University, Cairo, Egypt. A total of three tools were utilized: (1) a knowledge questionnaire on clinical teaching competencies, (2) an observational checklist for clinical teaching competencies, and (3) the Rosenberg self-esteem scale.

Results: There was a highly significant improvement in the knowledge and performance of the nurse teachers in relation to clinical teaching competencies. Knowledge scores increased to 100% in both the immediate post-training and follow-up phases, while performance scores improved to 96.0% in the immediate post-training phase and 60.0% in the follow-up phase. In addition, the majority of the nurse teachers (64%) demonstrated a high level of self-esteem immediately after the training program, and 62.0% maintained a high level in the follow-up phase, compared to only 4.0% before the training program.

Conclusion: There was a highly statistically significant positive correlation between total knowledge, performance related to clinical teaching competencies, and the self-esteem of nurse teachers in the immediate post-training program phases. In addition, there was a statistically significant positive correlation between total knowledge, performance related to clinical teaching competencies, and the self-esteem of nurse teachers in the follow-up phase.

KEYWORDS

clinical teaching competencies, training program, nurse teachers, self-esteem, Egypt

1 Introduction

Clinical teaching is essential and serves as the cornerstone of nursing education. Compared to theoretical classroom learning, it plays a significantly more important role in the educational process. The quality of interaction between nursing students and teachers in the clinical setting can facilitate or hinder the integration of theory with practice. The competencies required for clinical teaching constitute a dynamic process that takes place within a range of socio-cultural

contexts (Pedregosa et al., 2020). In addition, nursing teachers must be competent and experts in clinical nursing and capable of assuming legal and ethical responsibility for nursing students and patient care (Monsivais and Nunez, 2022).

Competency in clinical teaching improves the effectiveness of clinical education, aids in achieving laboratory-specific goals, fosters time management skills, and offers opportunities for new educational research endeavors. It also promotes good leadership quality, enhances interaction between nursing teachers and students, and motivates them to design and organize curricular and co-curricular activities. Therefore, trained nursing teachers are essential for nursing professional development (Nakamura et al., 2021).

A training program is an organized process designed to increase the knowledge and skills of nursing teachers for a certain purpose and helps them acquire the necessary knowledge and competencies to effectively perform their job duties (Sadullayevich, 2021). A nursing teacher is a nurse practitioner who teaches nursing students through real-life situations in clinical practice. Nursing teachers have an opportunity to greatly influence the learning of students, who eventually graduate and shape nursing practice (Pramila-Savukoski et al., 2023).

Self-esteem refers to an individual's overall positive or negative attitude toward themselves and their personal value assessment. Individuals who are driven to maintain high self-esteem show signs of positive self-consideration, which can be cultivated through daily experiences. It is a component of self-concept, defined as the totality of an individual's thoughts and feelings that refer to themselves as an object (Carr et al., 2022). Nursing teachers' self-esteem is related to their sense of identity, ethics, and skills that they exhibit in the classroom, in the professional space, and outside the school. Self-esteem inspires teachers to accept their students as they are, fosters warm and positive relationships, promotes personal and professional success, and helps teachers feel comfortable with their self-image and satisfied with their job (Granjo et al., 2021).

Teachers with high self-esteem require students to actively participate in classroom tasks. Similarly, teachers with high self-esteem have been found to be more effective in the classroom and to feel less stressed about their work. However, stress reduces self-esteem and diminishes the scholastic effectiveness of teachers. There were no differences in effort, stress, or feelings of exhaustion between teachers based on gender, nor were these factors correlated with the number of years they had served (Galanakis et al., 2020).

Clinical teaching prepares nursing students to become competent practitioners capable of providing quality nursing care and promoting the health of the people they serve. Therefore, nursing teachers must have the knowledge and skills required to meet these competencies, which are gained through training (Ahmed Rady et al., 2023; Mallek and El-Hosany, 2020).

Numerous studies have suggested that, to improve teaching roles, strategies, and methods in clinical settings, training programs should be implemented for all nursing teachers. In line with this, Mahfouz (2011) recommended that nursing instructors participate in training programs to improve their clinical teaching competencies (Mahfouz, 2011). Badran (2014) also recommended that an orientation program on clinical teaching skills is highly needed for newly appointed clinical instructors (Badran, 2014). This study aimed to assess the effectiveness of a clinical teaching competencies training program for nurse teachers and its effect on their self-esteem.

1.1 Objectives

The objectives of the study were as follows:

- 1 To assess nurse teachers' knowledge regarding clinical teaching competencies.
- 2 To assess the levels of self-esteem among nurse teachers.
- 3 To develop and implement a training program on clinical teaching competencies for nurse teachers.
- 4 To evaluate the effects of the training program on nurse teachers' self-esteem.

2 Materials and methods

2.1 Study design

A quasi-experimental design was implemented using a one-group pretest, posttest, and follow-up (after 3 months). This study aimed to assess the impact of a clinical teaching competencies training program on nurse teachers' knowledge, performance, and self-esteem. To achieve these objectives, a one-group pretest–posttest design with a follow-up phase was employed, enabling the measurement of changes over time.

2.2 Participants and setting

The study enrolled a census sample of 50 nurse teachers and was conducted between August 2022 and July 2023. The sample size and the focus on a single institution (Ain Shams University) were determined by resource availability and the exploratory nature of this initial study. Given the study's aim to evaluate the feasibility and immediate effects of a clinical teaching competencies training program, a focused institutional setting allowed for better control and consistency of the intervention.

The study was conducted at the Technical Institute of Nursing, Faculty of Nursing, Ain Shams University, Cairo, Egypt. The institute was established in 1986 and was initially affiliated with the Faculty of Medicine. It is now affiliated with the Faculty of Nursing as a division under the leadership of a manager who reports to the Dean of the Faculty of Nursing.

In Egypt, the program at the Technical Institute of Nursing consists of 2 years of academic study followed by a six-month internship at Ain Shams University Hospitals, Cairo. Upon completion, students are awarded the certificate "Technical Nursing Institute Diploma Above Average." Students have the opportunity for admission to the Faculty of Nursing if they have a grade point average of 75%. This setting has 50 nurse teachers.

2.2.1 Training program planning

The training program was created in the form of an English-language booklet to improve the clinical teaching competencies of nurses. It was developed by the researchers in February 2024, based on a comprehensive review of relevant literature, including textbooks, scientific articles, and online searches. The researchers designed the training program for nurse teachers. The general objective of the program was to improve their clinical teaching

competencies. The program content was divided into theoretical and practical components, and each session incorporated case studies, role-playing activities, and group discussions to reinforce learning. In addition, the teaching methods were identified, and the venue for conducting the program sessions was booked and prepared in collaboration with the Dean of the Faculty and the Director of Training and Development at Ain Shams University Hospital, Cairo, Egypt.

2.2.2 Implementation of the training program

The program was implemented over 2 months (from March 2024 to the end of May 2024). The researchers distributed educational training booklets to the participants on the first day of the implementation of the training program. Daily feedback was provided at the beginning of each session about participants' expectations and at the end of each session about the session and activity delivered to the participants. The training program was conducted over 12 weeks, with sessions held 2 days per week, totaling 6 h each week—3 h dedicated to theoretical content and 3 h to practical training. The program consisted of 12 sessions in total, as follows: First session: The researchers explained the purpose of the training program, the objectives, the content outline, the methods, and the evaluation process. They also provided an introduction to key concepts, such as definitions, determinants of learning, methods for assessing learning needs, and training on adult learning. Second session: This session covered the definition of teaching practice competence, its importance, general goals, characteristics, and challenges related to clinical teaching training (clinical teaching competencies). Third session: This session covered the definition of the components of competence in teaching practice, definitions, characteristics, influencing factors, types of educational objectives, and strategies for developing a clinical learning environment (effective clinical learning environment). Fourth session: This session focused on the definition, types of professional competence, advantages, characteristics, formulation, components, and levels of educational objectives (How to formulate educational objectives). Fifth session: This session focused on the definition of teaching practice competence, factors, types, and application of appropriate teaching strategies [clinical teaching strategies (Methods)]. Sixth session: This session covered the definition of knowledge competency, steps involved, materials, qualities, and the use of visual aids that reflect good instructional design properties, with training on effective presentation skills. Seventh session: This session focused on the definition of clinical competence, purpose of pre-clinical and post-clinical conferences in clinical settings, possible activities during a conference, and methods involved in the preparation of clinical conferences (conducting clinical conferences in the clinical setting). Eighth session: This session covered the definition and characteristics of the teaching method, such as lecture, demonstration and re-demonstration, seminars, role-playing, problem-solving, and simulation. This session also addressed the principles, characteristics, role of each member participating, steps, benefits, and disadvantages (problem-based learning effectively). Ninth session: This session covered the definition and types of professional competence and the role of the nursing teacher in laboratory sessions, briefing sessions, practice sessions, debriefing sessions, and clinical teaching. It also addressed the ethical responsibilities of the nursing teachers (responsibility of the nursing teachers in clinical teaching). Tenth session: This session focused on the definition and characteristics of

personal competence, its importance, dimensions, levels, barriers, and strategies of critical thinking training (critical thinking). Eleventh session: This session focused on the definition of personal competence, its importance, principles, steps, strategies, barriers, and ways to use time more effectively (time management). Twelfth session: This session covered the definition of evaluation competence, its purpose, types, roles of the clinical supervisor, types of evaluation, methods, and effective feedback (Evaluation strategies in clinical teaching).

2.2.3 Post-program evaluation

After the implementation of the training program, an immediate posttest was performed to assess the knowledge and performance of the nursing teachers regarding clinical teaching competencies, using the same tools as the pretest. This helped to evaluate the effect of the implemented training program. This was conducted immediately after the training program and again after 3 months as a follow-up. Data collection took place in December 2024.

2.3 Data collection

Data were collected using self-administered questionnaires distributed by the researchers to all participating nurse teachers. A total of three distinct instruments were employed at three time points: before the training program (pretest), immediately after completion (posttest), and 3 months post-intervention (follow-up). The study spanned 9 months, from January to September 2024, with the training program implemented over 4 months, from September to December 2023.

The first instrument was a structured questionnaire assessing socio-demographic characteristics (age, gender, marital status, years of experience, and educational level) and the nurse teachers' knowledge regarding clinical teaching competencies. The knowledge section included 50 items—multiple-choice and true/false questions—adapted from [DeYoung and DeYoung \(2009\)](#), [Ghadery \(2018\)](#), and [Knox and Mogan \(1985\)](#).

The second instrument was an observational checklist evaluating the nurse teachers' performance in clinical teaching competencies across five dimensions: professional, interpersonal, personal, teaching practice, and evaluation competence. This tool was also adapted from the same sources and consisted of 80 items scored on a binary scale (yes/no).

The third instrument was a self-esteem scale that combined the Rosenberg self-esteem scale ([Rosenberg et al., 1995](#)) and the Sorensen self-esteem test ([Sorensen, 2006](#)). This 20-item scale included subscales for positive self-esteem, negative self-esteem, and social personality, with four items reverse-scored to control for response bias.

The training program was developed by the researchers based on an extensive literature review, including textbooks, articles, and current research ([Ahmady et al., 2021](#); [Ahmed Rady et al., 2023](#); [Cecilio et al., 2021](#); [Chaiklin and Sievert, 2019](#); [Oermann et al., 2017](#); [Pedregosa et al., 2020](#); [Rahimi et al., 2023](#); [Raterink, 2005](#)).

2.4 Tool II: observational checklist for clinical teaching competencies

This tool consists of two parts: socio-demographic data and 50 knowledge items related to clinical teaching competencies. Responses

are scored as 1 for correct and 0 for incorrect, with a maximum total score of 50. Scores $\geq 60\%$ (≥ 30 points) indicate satisfactory knowledge, while scores below 60% (< 30 points) are considered unsatisfactory.

2.5 Tool II: observational checklist for clinical teaching competencies

The checklist contains 80 items across five competency dimensions: professional, interpersonal, personal, teaching practice, and evaluation. Each item is scored as 1 (yes) or 0 (no), with a maximum total score of 80. Scores $\geq 60\%$ (≥ 48 points) reflect adequate competence, and scores below 60% (< 48 points) reflect inadequate competence.

2.6 Tool III: self-esteem scale

The combined Rosenberg and Sorenson self-esteem scale includes 20 items assessing positive self-esteem, negative self-esteem, and social personality. A total of four items are reverse-scored to reduce bias. This instrument measures nurse teachers' self-perceptions related to their professional role.

2.6.1 Scoring system

The responses of the students were measured using a five-point Likert scale, ranging from "strongly agree" (5) to "strongly disagree" (1). The scoring was as follows: strongly agree = 5, agree = 4, somewhat agree = 3, disagree = 2, and strongly disagree = 1. For negative statements, the scores were reversed to ensure consistency in interpretation. The level of self-esteem was considered high if the percentage score was 80% or above, and low if it was below 80%.

In the current study, to achieve the objective of assessing nurse teachers' knowledge of clinical teaching competencies, a structured questionnaire was administered at three time points: before the intervention (pretest), immediately after completion (posttest), and 3 months later (follow-up). This allowed for the evaluation of knowledge acquisition and retention. For the objective of evaluating clinical teaching competence, an observational checklist and a self-assessment tool covering dimensions such as professional skills, interpersonal communication, teaching, and evaluation were used at the same three time points. This approach enabled objective and subjective measurement of teaching performance and its development post-intervention. Regarding the objective of assessing changes in self-esteem, a validated self-esteem scale was administered alongside the other assessments at all three time points. This instrument captured shifts in the nurse teachers' self-perception and confidence related to their professional role.

2.7 Content validity and reliability

Face validity and content validity were established by a panel of five experts in nursing administration, including two professors from the Nursing Administration Department at Ain Shams University and three professors from the Nursing Administration Department at Cairo University, Egypt. The experts reviewed the tools for clarity,

relevance, completeness, simplicity of language, and usability. Some changes were made when the final forms were being developed. In addition, the reliability of the developed tools was assessed using Cronbach's alpha coefficients. The reliability coefficients were 0.908 for the self-esteem scale, 0.980 (using the Guttman split-half test) for the clinical teaching competencies knowledge questionnaire, and 0.967 for the observational checklist assessing clinical teaching competencies. Implementing principal component analysis (PCA) and confirmatory factor analysis (CFA) in future studies would offer a more robust evaluation of construct validity and increase confidence in the generalizability and interpretability of the findings across different populations and contexts.

2.8 Pilot study

A pilot study was conducted in January 2024 with 10% of the sample size (five nurse teachers) to evaluate the applicability, clarity, and effectiveness of the tools, as well as to estimate the time required to complete them, which ranged between 20 and 25 min. No adjustments or changes were made, and nurses were included in the study sample based solely on the findings of the pilot study.

2.9 Data analysis

Statistical analysis was performed using SPSS version 25. Quantitative data were presented as mean $\pm$ standard deviation, whereas categorical variables were presented as percentages. The internal consistency approach was used to assess the reliability of the tools, with the estimation of Cronbach's alpha coefficients for the self-esteem tool and Guttman split-half coefficients for the knowledge and practice tools. Analytic statistics included chi-squared or Fisher's exact tests for comparing categorical variables and Spearman's rank correlation to examine the relations among quantitative and ranked variables. Multiple regression analysis was performed to identify independent predictors of knowledge, practice, and self-esteem scores. The level of statistical significance was set at a p -value of < 0.05 .

2.10 Ethical considerations

Ethical approval for this study was obtained from the Research Ethics Committee of the Faculty of Nursing, Ain Shams University, Cairo, Egypt (Registered number 25.04.629). In addition, written informed consent was obtained from all participants. The participants were informed of their right to withdraw from the study at any time without providing a reason.

3 Results

A total of 50 nurse teachers participated in the study, with ages ranging from 25 to 60 years. The mean age of the participants was 39.3 ± 11.2 years, with a median age of 37.5 years. The majority of the participants were married ($n = 41$; 82.0%). Regarding nursing qualifications, 29 nursing teachers (58%) held a higher degree in nursing science, and 31 (62.0%) had more than 10 years of experience,

with a mean of 15.4 ± 11.7 years, ranging from less than 1 year to 39 years. In addition, more than half of the nursing teachers ($n = 29$; 58.0%) reported that they had not attended any previous training courses in clinical teaching competencies (Table 1).

To determine the knowledge of clinical teaching competencies among the nurse teachers, pretest, posttest, and follow-up assessments were conducted. The findings indicated statistically significant differences in the total satisfactory knowledge of clinical teaching competencies and their dimensions: professional, interpersonal, personal, teaching, and evaluation between the pretest and posttest phases of the training program, as well as between the pretest and follow-up phases. Moreover, there was a notable increase in the total satisfactory knowledge of the studied teachers in the post-training and follow-up phases compared to the pre-training phase (Table 2).

The findings revealed statistically significant differences in the total adequate clinical teaching competence of the studied nurse teachers between the pretest and posttest phases, as well as between the pretest and follow-up phases of the training program. There was an increase in the total adequate clinical teaching competence in the posttest phase compared to the pretest phase, followed by a decline at the follow-up phase (Table 3).

The findings showed statistically significant differences in the total high self-esteem of the studied nurse teachers and its total dimensions—positive and negative personality—between the pretest and posttest phases, as well as between the pretest and follow-up

phases of the training program. There was an increase in the total high self-esteem and its dimensions in the posttest phase compared to the pretest phase, followed by a decline at the follow-up phase (Table 4).

The correlation matrix demonstrated statistically significant correlations among the total scores of knowledge, competence, and self-esteem among nurse teachers. Specifically, there was a statistically significant positive correlation between total knowledge and total competence, as well as between total knowledge and total self-esteem ($0.355, p < 0.01, 0.526, p < 0.01$, respectively). Moreover, there was a statistically significant correlation between total competence and total self-esteem ($0.223, p < 0.01$) (Table 5).

The findings showed that the only statistically significant independent positive predictor of the self-esteem score was the intervention, with a coefficient of 7.34 ($p < 0.001$). This suggests that participation in the intervention is associated with a significant increase in self-esteem among nurse teachers (Table 6).

4 Discussion

The challenge for nursing education is to prepare graduates to deal with the demands of today's healthcare setting, despite issues related to inadequate training (Strøm et al., 2023). Clinical teaching is an important part and the lifeblood of nursing education, playing a crucial role in ensuring its quality. It is an even more important component of the educational process than classroom learning (Lal, 2023). The competencies required for clinical teaching are dynamic and develop within various socio-cultural settings (Pedregosa et al., 2020). In this respect, the present study aimed to assess a clinical teaching competencies training program for nurse teachers and its effect on their self-esteem by assessing nurse teachers' knowledge of clinical teaching competencies, determining nurse teachers' performance in clinical teaching, assessing their levels of self-esteem, and evaluating the effect of the training program on their self-esteem.

Regarding professional clinical teaching competence among nurse teachers across the study phases, the current study results illustrated a statistically significant difference in the total adequate clinical teaching competence and its dimensions: clinical support and knowledge between the pre- and post-training program phases. Moreover, there was a statistically significant difference in the total adequate support and knowledge of the studied nurse teachers between the pretest and follow-up phases, while there was no statistically significant difference in the total adequate clinical teaching competence of the studied nurse teachers and its clinical dimension between the pretest and follow-up phases. This suggests that the training program provided relevant skills, strategies, and resources that contributed to their professional growth in key teaching areas, such as clinical support and knowledge application. These results align with the idea that structured clinical teaching programs can significantly enhance the ability of nurse teachers to manage and support students effectively in clinical environments. In addition, there was an increase in their total adequate clinical teaching competence and its dimensions in the posttest phase compared to the pretest phase, followed by a slight decline in the clinical dimension and a severe decline in the total adequate clinical teaching competence, as well as knowledge and support dimensions, during the follow-up phase. The decline in the total adequate clinical teaching competence, particularly in the clinical and knowledge dimensions at the follow-up

TABLE 1 Demographic characteristics of the nurse teachers in the study sample.

Characteristics	Frequency (n)	Percent (%)
Age		
<40	29	58.0
40+	21	42.0
Range	25–60	
Mean $\pm$ SD	39.3 $\pm$ 11.2	
Median	37.5	
Marital status		
Unmarried	9	18.0
Married	41	82.0
Nursing qualification		
Bachelor's degree	21	42.0
Higher degree	29	58.0
Experience years		
<10	19	38.0
10+	31	62.0
Range	<1–39	
Mean $\pm$ SD	15.4 $\pm$ 11.7	
Median	15.0	
Training courses		
No	29	58.0
Yes	21	42.0

Data are expressed as percentages for categorical variables. SD, stander deviation; n, number; (%), percentage.

TABLE 2 Knowledge of clinical teaching competence among the nurse teachers across the study phases.

Satisfactory (60%+) knowledge of clinical teaching competence:	TIME						χ^2 (p) Pre-post	χ^2 (P) Pre-FU
	Pretest		Posttest		FU			
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)		
Professional	1	2.0	50	100.0	50	100.0	96.07 (<0.001*)	96.08 (<0.001*)
Interpersonal	6	12.0	46	92.0	46	92.0	64.10 (<0.001*)	64.10 (<0.001*)
Personal	14	28.0	47	94.0	49	98.0	45.78 (<0.001*)	52.55 (<0.001*)
Teaching	1	2.0	50	100.0	50	100.0	96.08 (<0.001*)	96.08 (<0.001*)
Evaluation	1	2.0	50	100.0	49	98.0	96.08 (<0.001*)	92.16 (<0.001*)
Total:								
Satisfactory	1	2.0	50	100.0	50	100.0	96.08	96.08
Unsatisfactory	49	98.0	0	0.0	0	0.0	(<0.001*)	(<0.001*)

The differences between means were tested using an independent samples *t*-test. A *p*-value less than 0.05 was considered (*) statistically significant. FU, follow up; *n*, number; (%), percentage.

TABLE 3 Total clinical teaching competence among the nurse teachers across the study phases.

Total clinical teaching competence	TIME						χ^2 (p) Pre-post	χ^2 (P) Pre-FU
	Pretest		Posttest		FU			
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)		
Adequate	20	40.0	48	96.0	30	60.0	36.03	4.00
Inadequate	30	60.0	2	4.0	20	40.0	(<0.001*)	(0.046*)

The differences between means were tested using an independent samples *t*-test. A *p*-value less than 0.05 was considered (*) statistically significant. FU, follow up; *n*, number; (%), percentage.

TABLE 4 Self-esteem among the nurse teachers across the study phases.

High (80 + %) self-esteem	TIME						χ^2 (p) Pre-post	χ^2 (P) Pre-FU
	Pretest		Posttest		FU			
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)		
Positive personality	22	44.0	47	94.0	45	90.0	29.21 (<0.001*)	23.93 (<0.001*)
Negative personality	17	34.0	46	92.0	36	72.0	36.08 (<0.001*)	14.49 (<0.001*)
Social personality	10	20.0	16	32.0	31	62.0	1.87 (0.17)	18.23 (<0.001*)
Total								
High	2	4.0	32	64.0	31	62.0	40.11	38.04
Low	48	96.0	18	36.0	19	38.0	(<0.001*)	(<0.001*)

The differences between means were tested using an independent samples *t*-test. A *p*-value less than 0.05 was considered (*) statistically significant. FU, follow up; *n*, number; (%), percentage.

phase, suggests challenges in maintaining these gains over time. In line with the current study, [Guraya and Chen \(2019\)](#) and [Pardo et al. \(2021\)](#) reported that clinical teaching competence programs significantly improved teachers' professional knowledge and teaching practices, particularly in the clinical and evaluation dimensions. However, there was a decline in some competencies, especially clinical skills and knowledge, at the follow-up phase. They noted that the maintenance of these improvements, particularly in clinical

competence, depended heavily on continuous support and mentorship post-training. Similarly, [Kramer et al. \(2023\)](#) and [Jones et al. \(2018\)](#) conducted longitudinal studies and found that while clinical knowledge and support dimensions were significantly improved post-training, the overall clinical teaching competence, especially in the clinical practice dimension, declined during follow-up. Furthermore, [Mallek and El-Hosany \(2020\)](#), [Hassanein et al. \(2021\)](#), and [Smith \(2022\)](#) reported significant improvements in clinical teaching

TABLE 5 Correlation matrix of the nurse teachers' scores for total knowledge, competence, and self-esteem.

Items	Spearman's rank correlation coefficient		
	Knowledge	Competence	Self-esteem
Knowledge	1.000		
Competence	0.355**	1.000	
Self-esteem	0.526**	0.223**	1.000

**Correlation is highly statistically significant at $p < 0.001$.

competence immediately following training, especially in knowledge and clinical support areas. The observed decline in competencies and self-esteem during the follow-up stage highlights the need for ongoing support to sustain training effectiveness over time. We suggest implementing strategies such as refresher workshops, peer mentoring, and online learning modules to reinforce knowledge retention and skill application. These approaches can facilitate continuous professional development, foster a supportive teaching community, and help maintain the gains achieved through the initial training program.

Concerning the total adequate clinical teaching competence among the nurse teachers across the study phases, the results revealed statistically significant differences between the pre- and post-phases and between the pre- and follow-up phases of the training program. There was an increase in the total adequate clinical teaching competence in the posttest phase compared to the pretest phase, followed by a decline in the follow-up phase. These results may be explained by the fact that the nurse teachers likely experienced a noticeable improvement in their clinical teaching competence immediately after the training program. This improvement could be due to the hands-on nature of the training, exposure to new teaching methods, and the development of skills such as effective communication, clinical supervision, and assessment. Supporting studies by [Bampa et al. \(2024\)](#) and [Tse et al. \(2023\)](#) reported significant improvements in clinical teaching competence immediately after the program, but the competence levels declined at the six-month follow-up. Similarly, [Ye et al. \(2022\)](#) and [Draiko et al. \(2019\)](#) found that while participants demonstrated significantly higher clinical teaching competence post-training, there was a decline at the three-month follow-up. The authors highlighted the need for additional strategies, such as online learning modules or regular teaching workshops, to maintain the skills learned during the training. Furthermore, [Al-Rawajfah et al. \(2022\)](#) also found that training significantly increased competence immediately after the program.

Concerning self-esteem among the nurse teachers across the study phases, the results showed statistically significant differences in the total high self-esteem and its dimensions—positive and negative personality—between the pre- and post-phases and between the pre- and follow-up phases of the training program. There was an increase in the total high self-esteem and its dimensions in the posttest phase compared to the pretest phase, followed by a decline in the follow-up phase. This may be due to the fact that the nurse teachers likely experienced a boost in self-esteem immediately after the training program, resulting from the acquisition of new skills, increased confidence in their teaching abilities, and validation through positive feedback. The decline during the follow-up phase could indicate that,

although the training had a short-term impact on self-esteem, its effects were not sustained over time. This could be due to several factors, including a lack of continued support, the pressures of teaching, or external influences such as workload and institutional constraints, which may diminish the sense of accomplishment and competence over time. Nurse teachers may face challenges such as high workload, lack of administrative support, and burnout, along with a lack of ongoing reinforcement of the competencies learned during the training, which can negatively affect their self-esteem. These factors could lead to a decline in both positive personality traits and the overall perception of their teaching competencies over time. Consistent with the findings of the current study, [Mbuva \(2017\)](#) and [Yeşilyurt and Kendirikiran \(2025\)](#) found that the training program significantly improved nurse teachers' self-esteem, especially in terms of their professional identity and confidence. However, they reported a decline during the follow-up phase. Similarly, [İlhan et al. \(2016\)](#) observed significant improvements in self-esteem post-training, but a decline during the three-month follow-up. Furthermore, [Fawzi et al. \(2024\)](#) and [Collier \(2018\)](#) found that the clinical teaching training program had a significant impact on nurse teachers' self-esteem, with improvements in both positive and negative personality traits.

Regarding the correlation between nurse teachers' scores for total knowledge, competence, and self-esteem, the current results revealed that there was a statistically significant correlation between total knowledge and total competence, as well as between total knowledge and total self-esteem. Moreover, there was a statistically significant correlation between total competence and total self-esteem. This may be explained by the fact that a high level of knowledge is generally a precursor to competence in any field, especially in nursing education. Nurse teachers with a deeper understanding of the subject matter are better equipped to teach and effectively guide their students. This direct relationship between knowledge and competence is not surprising, as teaching ability depends on both the breadth and depth of the educator's knowledge. Moreover, self-esteem plays a crucial role in teaching effectiveness. These findings are supported by the findings of [Çevik \(2017\)](#), who identified a significant relationship between knowledge and competence among nurse teachers. The study indicated that teachers with greater clinical and theoretical knowledge were more likely to demonstrate higher levels of teaching competence. In addition, studies by [Hassanein et al. \(2021\)](#) and [Serafin et al. \(2022\)](#) highlighted a positive correlation between self-esteem and teaching competence, suggesting that teachers who believe in their abilities are more confident and capable in delivering clinical teaching. Moreover, [Mbuva \(2017\)](#) found that teachers with higher self-esteem were more confident and thus demonstrated higher competence in their teaching practices. Their findings revealed that higher knowledge levels lead to improved competence in clinical teaching, which aligns with our findings showing a significant correlation between knowledge and competence.

The current study's multivariate analysis results indicated that the only statistically significant independent positive predictor of the self-esteem score was the intervention. This finding can be explained by the notion that increased competence likely translates into higher self-esteem, as teachers recognize their ability to positively influence student learning and the quality of care delivered in clinical settings. Interventions specifically designed to improve self-awareness, emotional intelligence, and confidence can lead to significant improvements in self-esteem, which explains why the intervention

TABLE 6 Best-fitting multiple linear regression model for the competence score.

Predictor	Unstandardized coefficients		Standardized coefficients	t-test	p-value	95% confidence interval for B	
	B	Std. error				Lower	Upper
Constant	116.50	28.54		4.083	<0.001	59.85	173.16
Intervention	5.30	1.61	0.28	3.282	0.001	2.09	8.50
Age	−2.67	1.11	−1.57	−2.409	0.018	−4.87	−0.47
Higher qualification	6.18	3.44	0.16	1.798	0.075	−0.65	13.02
Experience years	2.47	1.06	1.52	2.326	0.022	0.36	4.57
Previous training	14.68	3.35	0.38	4.387	<0.001	8.04	21.33

The differences between means were tested using an independent samples *t*-test. A *p*-value less than 0.05 was considered statistically significant. Unstandardized beta B: This value represents the slope of the line between the predictor variable and the dependent variable. *R*-squared = 0.31, ANOVA: *F* = 8.49, *p* < 0.001. Variables entered and excluded: marital status, knowledge score.

emerged as the only significant predictor. Supporting this perspective, El-Daw and Hammoud (2015) found that specific training and intervention programs designed to enhance teaching skills and personal development significantly increased self-esteem. Furthermore, Rubeli et al. (2020) highlighted that training interventions had a positive influence on teachers' self-esteem, confirming that structured interventions can be a key factor in boosting confidence and self-worth. This aligns with findings from other studies (Arian et al., 2018; Kausar Bibi et al., 2025), which reported that continuous education programs had a significant positive effect on nurse teachers' self-esteem, primarily because these programs increased both professional competence and personal growth, which, in turn, boosted self-confidence. This study suggests that targeted interventions that build competence can simultaneously enhance self-esteem.

In addition, this study is underpinned by established theories of self-esteem and professional development, particularly Rosenberg's self-esteem theory, which emphasizes the role of self-worth and self-acceptance in individuals' motivation and behavior, and Bandura's social cognitive theory, which highlights self-efficacy as a key determinant of confidence in one's abilities. The clinical teaching competencies training program was designed not only to enhance nurse teachers' knowledge and skills but also to foster positive self-perception by increasing their confidence and sense of professional efficacy. By improving competence, the intervention aims to strengthen self-esteem, reflecting the reciprocal relationship between knowledge, skill mastery, and personal valuation. Although this study focused primarily on quantitative outcomes, future research incorporating qualitative methods, such as narrative reflections or interviews, could provide a deeper understanding of participants' subjective experiences and the complex processes through which self-esteem is developed and sustained in professional educators.

5 Strengths and limitations

The findings of this study, which assessed the effects of a clinical teaching competencies training program on the self-esteem levels of nurse teachers, showed improvements in both teaching competencies and self-esteem. The results reinforce the value of training and institutional support in empowering efficacy within nursing education. Nevertheless, the research is limited by a small sample size

from a single institution, which raises generalizability concerns. Furthermore, the short follow-up period limits the understanding of the long-term impacts of the intervention. Subsequent studies should focus on employing broader multi-center samples and longitudinal approaches to strengthen these conclusions. To strengthen the generalizability and methodological rigor of findings in this area, future research should involve multiple nursing institutions and employ randomized controlled trial designs across diverse educational and cultural settings to enhance external validity. A longer-term longitudinal follow-up of 6–12 months or more is recommended to better assess the sustained impacts on clinical teaching competencies and self-esteem. Incorporating mixed-methods approaches, including qualitative data, could further enrich the understanding of how such interventions influence nurse teachers' experiences and professional development. Despite this study's valuable contributions, its one-group pretest–posttest design without a control group limits the ability to attribute improvements solely to the intervention, as alternative factors such as maturation or external influences cannot be ruled out. In addition, while validated instruments were used, the potential for response bias due to participants' awareness of evaluation timing exists, possibly inflating results. Future studies should include more objective assessments, such as direct observations or external evaluations, alongside self-reports to provide a more comprehensive evaluation of clinical teaching competencies.

Recommendations: From an institutional perspective, developing orientation sessions, creating and issuing guides, and enhancing the psychosocial and physical learning environments are key priorities. The collaborative clinical learning environment provided by hospitals should be resourceful. Nurse educators are expected to utilize student-led formative feedback and adopt participatory evaluation approaches. More focus should be placed on the relationship between clinical teaching competence, professional development, and the perceived self-esteem of nurse educators in technical nursing colleges. This study should be conducted with a much larger sample size. Future research should incorporate longer follow-up intervals to more effectively evaluate the enduring impact of clinical teaching competency training on nurse teachers' skills and self-esteem, as well as to identify factors that support sustained competence. In addition, employing mixed-methods approaches would enrich the understanding of how such training influences nurse teachers both quantitatively and qualitatively. Future studies should also aim to account for and control potential confounding variables, such as work environment stressors,

administrative support, and prior teaching experience, to better isolate the effects of the training and provide a more comprehensive insight into the factors affecting nurse teachers' professional development.

6 Conclusion

There was a highly statistically significant improvement in the nurse teachers' knowledge and performance regarding clinical teaching competencies between the pre-training and immediate post-training program phases, as well as between the pre-program and follow-up phases. In addition, there was a highly statistically significant improvement in the nurse teachers' self-esteem between the pre-training and immediate post-training program phases, as well as between the pre-program and follow-up phases. There was a highly statistically significant positive correlation between total knowledge, performance in clinical teaching competencies, and nurse teachers' self-esteem at the immediate post-training program phase. Furthermore, there was a statistically significant positive correlation between total knowledge, performance in clinical teaching competencies, and nurse teachers' self-esteem at the follow-up phase.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found in the article/supplementary material.

Ethics statement

The studies involving humans were approved by Ethical approval for this study was obtained from the Research Ethic Committee of Faculty of Nursing, Ain Shams University, Cairo, Egypt, Registered number 25.04.629, to carry out the study. In addition, written informed consent was obtained from all participants. Participants have the right to withdraw from the study without any rationale at any time. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

AM: Conceptualization, Methodology, Project administration, Supervision, Validation, Visualization, Writing – review & editing.

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