Bangladesh Journal of Medical Education Vol.-17, Issue-01, January, 2026
ISSN: 2306-0654(Print), 2313-4224 (Online)
DOI: https://doi.org/10.3329/bjme.v17i1.87082

Original Article

Evaluation of Training on Teaching Methodology and Assessment for Nursing Faculty: A Pilot Study

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Abstract

Background: With continued evolvement of modern healthcare landscape; nursing education demands the necessity of faculty development program and training to prepare students effectively. The best way to evaluate any change in learning is through assessment before and after the training. **Objectives:** The aim of the study was to evaluate the efficacy of a training on teaching methodology for selected teacher nurses in Chittagong division. **Methods:** It was a one-group pre-test post-test quasi-experimental design conducted from May 05 to May 07, 2025 at Chittagong Medical University (CMU); organized by the Faculty of Nursing, CMU in collaboration with Centre for Medical Education (CME), Bangladesh. A total of 22 teachers from 11 nursing colleges were selected for the training. Training included 12 interactive modules and 14 topics with structured content over 18 hours. A semi-structured, validated 'multiple-choice questionnaire' (17-points) and 'training evaluation questionnaire' were used as study instruments to evaluate the training. **Results:** There was a sharp rise in average knowledge assessment score of participants from 59.09% (pre-test) to 90.9% (post-test); which was statistically highly significant (p 0.00). The majority of participants rated all the sessions as either "Very Good" or "Excellent" or "Good" on the Likert scale. The knowledge and cooperation of trainers were mostly high rated aspects, with 81.8% of participants rating both as Excellent. The classroom environment was also rated high, with a score of 76%. **Conclusion:** Overall, the evaluation reflects a high level of satisfaction with the training program. Results of this pilot study might be essential for further improvement of training program, future formulation of evidence-based guidelines as well as large-scale comprehensive study in this field.

Keywords: *Teaching methodology, nursing, training, evaluation*

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Introduction

Nursing is a dynamic field that requires ongoing education and adaptation. With continued evolvement of modern field of healthcare in technological advancements and changing patient needs; nursing education demands the necessity to prepare students effectively [1,2]. One of the key elements in in shaping competent and confident nursing professionals is the application of appropriate and effective teaching methodologies. Modern nursing education means more than just memorization of facts; it

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bridges the gap between theoretical knowledge and real-world clinical practice [3-5]. The transformation of nursing education promises to promote facing the challenges in real world; so the nurse educators must consider strategies aimed to facilitate students throughout their careers. A comprehensive faculty development program must include the following four components to engage the professoriate as they evolve along their career paths [6]: (a) instructional development: offering teaching improvement opportunities, (b) professional development: promoting scholarship and academic success, (c) leadership development: fostering skills for curricular planning and change, and (d) organizational development: enabling faculty to engage in activities that influence policies and procedures (Fig. 1).

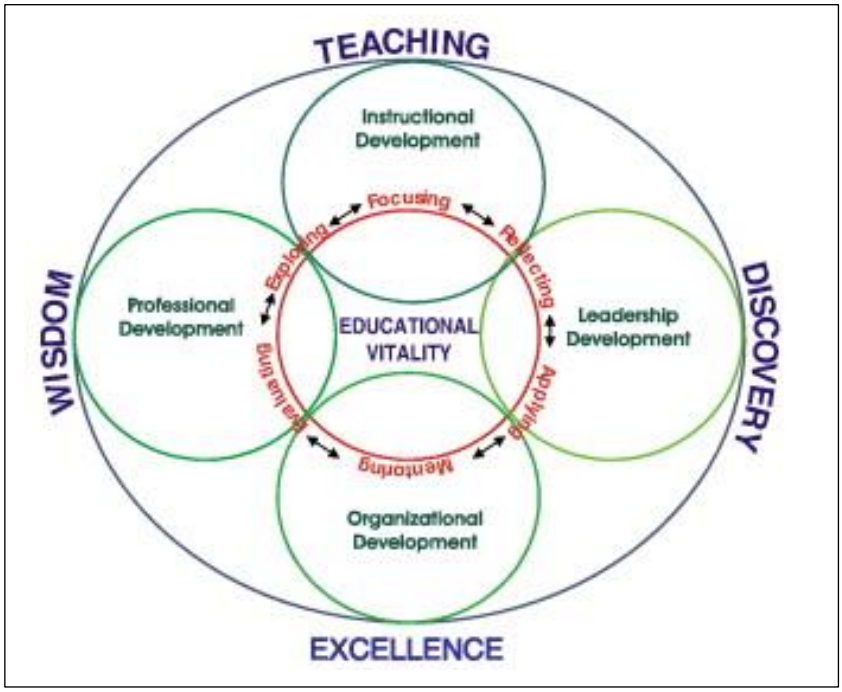

Fig. 1: Model of a comprehensive faculty development program [6]

Nursing education has been established in many countries around the world. However, in Bangladesh, it has not yet been fully developed. Until now, there has not been any integrated approach to provide structural training on teaching methodology and assessment for both Government and non-Government nursing colleges. Unfortunately, many nursing faculty who chose academia as a profession get little to no formal orientation on the basic and conceptual steps to be followed for the actual process of teaching and assessment. To address this gap, the Faculty of Nursing, Chittagong Medical University has taken the initiative of training for teacher nurses.

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Training evaluations for nursing faculty should assess both their individual performance and the effectiveness of the training program itself. Robust tools like questionnaires, interviews, observation checklists, systematic follow-up can be used to gather data on reaction, learning, behavior, and results of the training. The best way to evaluate any change in learning is through assessment before and after the training. The current study was intended to evaluate the effectiveness of a training on teaching methodology for teacher nurses; organized by the Faculty of Nursing, Chittagong Medical University in collaboration with the Centre for Medical Education (CME), Bangladesh.

Methods

Study design

A quasi-experimental design was conducted from May 05 to May 07, 2025 at Chittagong Medical University (CMU); organized by the Faculty of Nursing, CMU in collaboration with Centre for Medical Education (CME), Bangladesh, to evaluate the efficacy of an innovative training on teaching methodology and assessment in improving knowledge acquisition among nursing faculty within the Chittagong division.

Study population and sampling:

Participants were selected using purposive sampling technique through principals of respective nursing colleges. Two participants from each of 11 nursing colleges at Chattagram division were selected for the study. Full-time teacher of nursing colleges who have completed the probationary period of teaching, Bangladeshi by nationality and willing to participate were included in the study. Teachers within probationary period, part-time teachers and those on elective leave were excluded.

The sessions were conducted by three qualified instructors identified as individuals with a minimum of 5 years' teaching experience who were actively teaching and had received significant teaching expertise in medical education as recognized by certificate from the Centre for Medical Education, Dhaka.

Training was conducted for three days; using 12 interactive modules and 14 topics with structured content over 18 hours.

Study instruments:

A semi-structured, validated 'multiple-choice questionnaire' (17-points) as pre-test & post-test and 'training evaluation questionnaire' were used as study instruments.

Pre-test & Post-test:

The questionnaire was provided by the Center for Medical Education (CME). For analysis, total score was calculated and categorized into three groups: poor (≤ 5), Average (>5 & ≤ 10) & Good (>10).

Training evaluation

For the evaluation of the teaching methodology session, a separate questionnaire was created, consisting of two distinct tables; one table

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included 14 questions and the other contained 11 questions. To avoid potential bias, the questionnaire excluded all demographic information about the students. Evaluation scores were based on a 5-point Likert scale, with responses categorized as Below Average (1), Average (2), Good (3), Very Good (4), and Excellent (5).

Data collection procedure:

The eligible participants, after signing the consent form appeared at the pre-test, which assessed their baseline knowledge. Then they attended the 3 days' training on "Teaching Methodology and Assessment", organized by Chittagong Medical University in collaboration with Centre for Medical Education. Apart from educational content, the training also included snacks, lunch and prayer breaks After completion of all 12 modules; the participants appeared at post-test after the training, and subsequently they completed the workshop evaluation questionnaire. A photograph of the ongoing pre-test is presented in illustration 1.

Flow chart

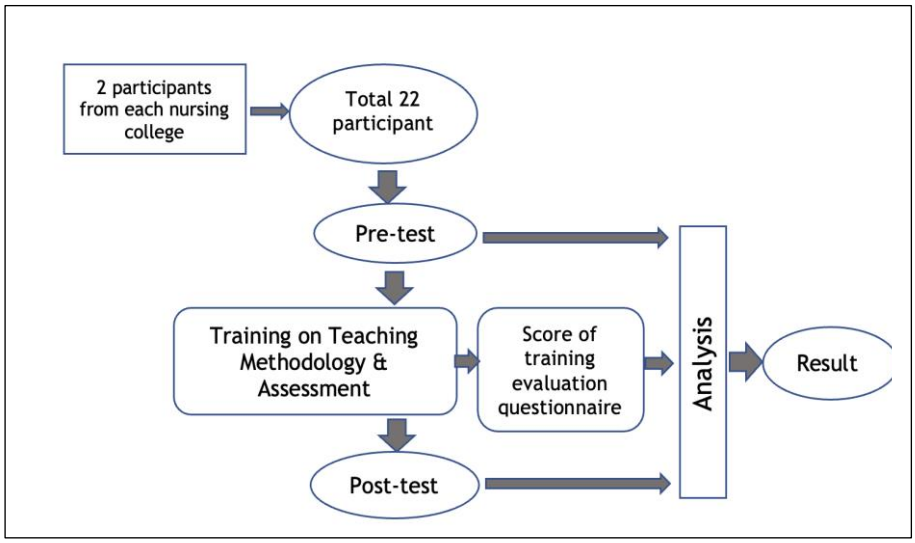

Illustration 1: Pre-test at the beginning of training session

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Data Analysis:
Stata (version 17; StataCorp, College Station, TX, USA) was used for data analysis. A histogram, standard Q-Q plot, and the Shapiro–Wilk test was used to check for normality in continuous data. The arithmetic mean was used for quantitative data as a measure of center, and standard deviation was used as a measure of dispersion. Paired t-test was used to compare the mean of pre-test and post-test score. A p-value of <0.05 was considered statistically significant.

Result:

Twenty-two nursing faculty from eleven different nursing institutions across Chittagong city participated in both pre-tests and post-tests. Among the participants, 72.2% (n=16) were female and 27.3% (n=6) were male. Two participants were enrolled from each institution. Figure 2 illustrates that before course, 59.09% participants had average knowledge of teaching methodology, but this improved significantly after the session, with knowledge among participants rising to 90.9%.

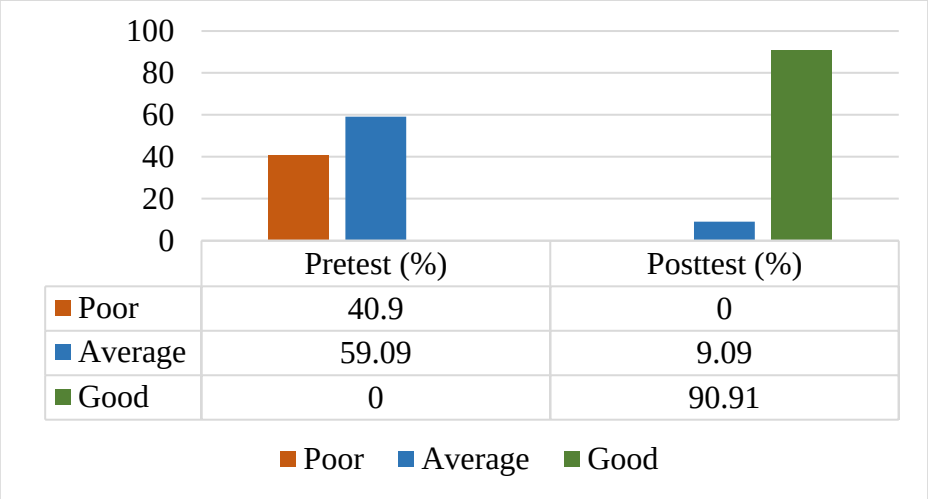

Fig. 2: Clustered bar diagram with table showing knowledge among participants (n=22) in pre-test and post-test

Table 1: Comparison of the mean of pretest and post-test score among the participants

Score of Participant (n=22)	Mean	Standard deviation	95% confidence interval		P value
			Upper limit	Lower limit	
Pre-test score	5.72	1.42	5.09	6.35	0.00*
Post-test score	11.81	1.33	11.2	12.4	

**** Highly significant (Paired T test were performed)***

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Table 1 shows that the mean ± standard deviation of the post-test scores was significantly higher (p = 0.00) than that of the pre-test scores with a mean difference of 6.09. This indicates that the structured session on teaching methodology was effective in enhancing the knowledge of participants.

Table 2 reflects the evaluation of various educational sessions by 22 participants across all sessions. The majority of participants rated the sessions as either “Very Good” or “Excellent” or “Good” on the Likert scale. Notably, there were no responses in the ‘Below Average’ or ‘Average’ categories. The total score was then calculated and categorized into three groups: ‘Excellent’, ‘Very Good’, and ‘Good’. Due to significant variations in the evaluation scores, percentiles (25%, 50%, and 75%) was used for data categorization. For the ‘Excellent’ category, selected scores were from the 50th (p50) to the 75th percentile (p75); for the ‘Very Good’ category, scores ranged from the 25th percentile (p25) to just above the 50th percentile; and for the ‘Good category’, scores fell below the 25th percentile were defined. The session on “Educational Management” received highest “Excellent” rating of 77.3% by participants followed by "Educational Objectives: Principles & Preparation" received the "Excellent" rating, with 72.7% of participants rating it as such. Similarly, sessions on: "Lesson Plan: Concept & Construction" (50% Excellent),"Effective delivery of lecture" (57.1% Excellent), and "OSPE: Principles & Construction" (59% Excellent) were highly rated.

Table 2: Evaluation of different session by the participants (n=22)

Topic	Likert scale responses		
	Good	Very Good	Excellent
	Number of responses (%)	Number of responses (%)	Number of responses (%)
Effective Teaching Learning: Concepts & Characteristics	1 (4.5)	10 (45.5)	11(50)
Educational Objectives: Principles & Preparation	2 (9.1)	14(63.6)	6(72.7)
Lesson Plan: Concept & Construction	3(13.6)	8(36.4)	11(50)
Effective delivery of lecture	2(9.5)	7(33.3)	12(57.14)
Small Group Teaching: Principles & Conduction	0	9(45)	11(55)

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Assessment: Concept of Principles & Methods	3(15)	10(50)	7(35)
Objective Structured Practical Examination (OSPE/OSPE): Principles & Construction	1(4.5)	8(36.4)	13(59)
Structured Oral Examination (SOE): Concept & Construction	0	10 (47.6)	11(52.4)
Principles & Construction of SAQ	1(4.55)	12(54.55)	9(40.91)
Principles & Construction of MCQ	0	9(40.9)	13(59.1)
Effective use of teaching materials	1(4.76)	6(28.6)	14(66.7)
Integrated Teaching	1(5)	6(30)	13(65)
Integrity In Medical Education: Bangladesh Perspectives	1(4.55)	9(40.91)	12(54.55)
Education management	1(4.55)	4(18.2)	17(77.3)

Table 3: Assessment of training facility by the participants (n=22) on key variable

Training Facility	**Likert scale responses**		
	Good	**Very Good**	**Excellent**
	Number of responses (%)	**Number of responses (%)**	**Number of responses (%)**
Training relevancy: trainee's need	1 (4.55)	10(45.5)	11(50)
Training relevancy: contents/topics	0	8(38.1)	13(61.9)
Training relevancy: handouts/ softcopies etc.	4(18.2)	3(13.6)	15(68.2)
Training relevancy: opportunity for "hands on" practical sessions / group work	5(23.8)	6(28.6)	10(47.6)
Training Institute: classrooms/meeting room environment	0	5(23.8)	16(76.2)
Training Institute : multimedia / OHP/ transparencies/ pen etc.	1(4.5)	9(40.9)	12(54.5)
Training Institute : Toilet/water supply/ cleanliness etc.	5(22.7)	7(31.8)	6(27.3)
Trainers/Supervisors : knowledge	0	4(18.2)	18(81.8)
Trainers/Supervisors: skill	0	7(31.8)	15(68.2)
Trainers/Supervisors: attitude/cooperation	0	4(18.2)	18(81.8)
Evaluations : group presentation / feedback / review/ pre-test / post-test etc.	0	9(40.9)	13(59.1)

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Table 3 illustrates how the participants evaluated several facets of their training facilities on a Likert scale. The overall feedback was largely positive, with the majority of responses falling under the "Very Good" and "Excellent" categories. The knowledge and attitude/ cooperation of trainers/ supervisors were the most highly rated aspects, with 81.8% of participants rating both as Excellent. The classroom environment was also highly rated, with a score of 76%.

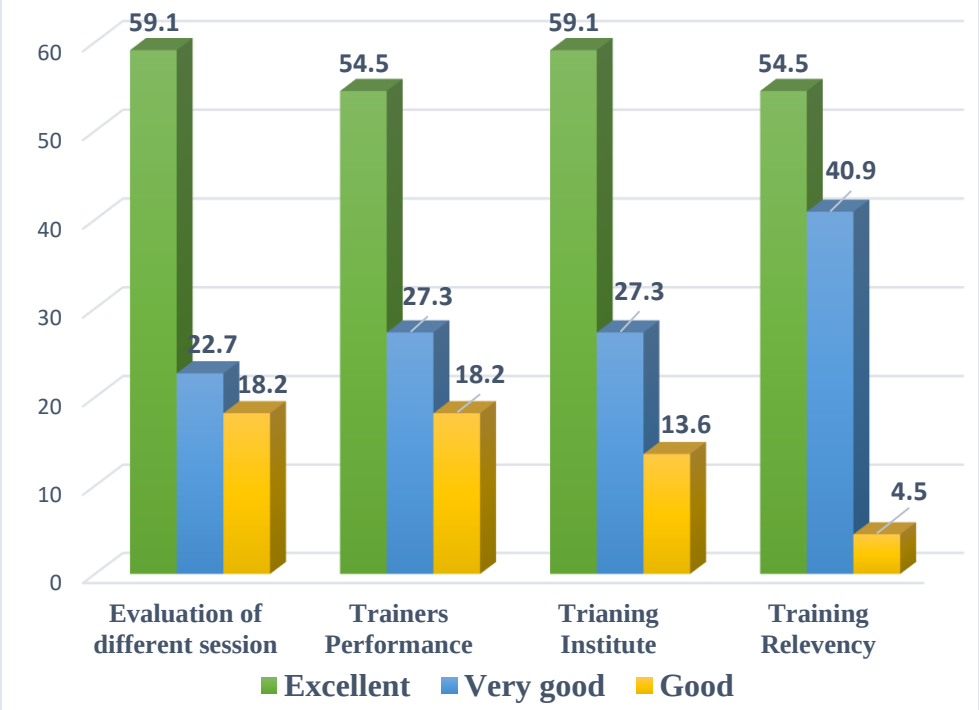

Fig. 3: Clustered bar diagram showing participants' (n=22) feedback on training

The clustered bar diagram (Figure 3) illustrates participant's feedback (n=22) on teaching methodology training. The majority rated all four components—session evaluation, trainer performance, training institute, and training relevancy—as either excellent or very good. Different session and training institute received the highest excellent response (59.1%) form participants, followed by trainer's performance and training relevancy receiving an excellent score (54.5%). Overall, the feedback reflects a high level of satisfaction with the training program.

Discussion

The evaluation of professional training is a study field that has been challenging researchers to identify changes that must be taken to improve the training process. A 2024 scoping-review titled "A Critical Review on Training Evaluation Models" compares major frameworks—Kirkpatrick, Kaufman & Keller,

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Phillips ROI, Warr's CIPP, Brinkerhoff, and more. It highlights strengths and weaknesses, and advocate hybrid, flexible models enriched with both quantitative and qualitative methods—especially sequential explanatory mixed-methods—for more robust evaluation[7]. A 8-step systematic process for evaluating teaching methods in nursing education revealed that respondents (n = 462) strongly agreed upon a positive learning experience (93.43%) and that they were able to apply the content learned in the course during the activity (95.55%).[8] A post-course evaluation was done by Bangladesh Public Administration Training Centre (BPATC) focused on 42 senior staff courses (ssc) with respondents from 2015 to 2018; to identify the effectiveness of the existing curriculum of the policy level courses for senior civil servants. Group work scored the highest value (96%), followed by workshop (91%), presentation (88%), discussion and exercise (92%), panel discussion (87%), and case study method (77%). The Course Management Team (CMT) was identified as the most effective one, which was scored 98% by the participants. However, course content, laptop, lab facility, and medical facility were marked poorly and scored 86%, 83%, and 86%. [9]

In the present article, there is a meaningful evaluation of training on teaching methodology and assessment by quantitative metrics and qualitative insights. The most remarkable findings was a sharp rise in average knowledge assessment score of participants from 59.09% (pre-test) to 90.9% (post-test); which was statistically highly significant (p 0.00). These findings might be related to the fact that it was first ever structured certified training on teaching methodology for nurses under Chittagong Medical University. Evaluation of individual session by participants revealed a true picture of one-to-one feedback, which ranged from excellent score of 35% to 77.3%. These findings would be highly effective in future designing of sessions. Rating by participants on parameters of session evaluation, trainer performance, training institute, and training relevancy unveiled the essential 'within' and 'beyond' academic issues that truly reflect the whole program. Close observation of these findings portrays the high satisfaction of participants on knowledge and attitude of trainers as well as classroom environment; on the other hand, it contemplates the necessity of more "hands on" practical sessions and group work.

Acknowledgement

This study was funded by Chittagong Medical University.

Conflict of interest

The authors declare no conflict of interest.

Conclusion

This article mirrors the evaluation of training on teaching methodology and assessment by quasi-experimental study design. There was a sharp rise in average knowledge assessment score of participants from 59.09% (pre-test) to 90.9% (post-test); which was statistically highly significant (p 0.00). The majority of

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participants rated all the sessions as either "Very Good" or "Excellent" or "Good" on the Likert scale. The knowledge and cooperation of trainers were the mostly high rated aspects, with 81.8% of participants rating both as Excellent. The classroom environment was also rated high, with a score of 76%. Results of this pilot study might be essential for further improvement of training program, future formulation of evidence-based guidelines as well as large-scale comprehensive study in these field. The participants under this study may be followed up for delayed evaluation of core competency development at workplace.

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