Original Article

Effectiveness of the Clinical Teaching Associate Model in Clinical Nursing Education

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Abstract

Background: Nurses need to have high levels of clinical competence for the provision of quality care to patients. The use of modern teaching methods can help nursing students develop their clinical competence. **Objectives:** This study aimed to evaluate the effects of the Clinical Teaching Associate (CTA) model on clinical skills and satisfaction with clinical education among nursing students. **Methods:** This two-group posttest-only trial was conducted on 120 nursing students recruited through the census method from Tabriz Faculty of Nursing and Midwifery, Tabriz, Iran. They had just taken the oncology nursing clinical education course. Participants were randomly allocated to a control group to receive clinical education through routine teaching method and an intervention group to receive clinical education through the CTA model. At the end of the course, participants' clinical skills and satisfaction were assessed using a checklist and a questionnaire, respectively. The study data were analyzed using the measures of descriptive statistics and independent-samples *t*-tests. **Results:** The mean score of overall clinical skills in the intervention group was significantly greater than that of the control group (75.54 ± 4.24 vs. 65.46 ± 5.32; $P = 0.003$). Moreover, the mean score of overall satisfaction with clinical education in the intervention group was significantly greater than that of the control group (98.16 ± 1.23 vs. 84.41 ± 1.52; $P < 0.001$). **Conclusion:** This study shows the positive effects of the CTA model on nursing students' clinical skills and satisfaction. Therefore, it can be used to improve learning outcomes among nursing students.

Keywords: *Clinical Teaching Associate model, Education, Nursing, Students*

Introduction

Clinical education is an essential component of nursing education,[1] which significantly improves nursing students' personal, professional, and clinical skills.[2] Therefore, nursing students spend around half of their education time in clinical environments.[3]

Despite its importance, clinical nursing education suffers from a variety of problems.[4] In clinical education, students frequently face conditions that may cause them suffering and reduce their care delivery ability.[5] Moreover, they suffer problems such as lack of qualified clinical instructors; practicing nurses' limited cooperation; lack of well-developed approaches to clinical practice; lack of clear educational goals; poor motivation for learning; limited knowledge about nursing; inability to use research findings in clinical practice; instructors' unfamiliarity with student evaluation;[6,7] and ineffective communication among instructors, health-care providers, and students.[8] A study reported that factors related to instructors, clinical environment, educational system, patients, nurses, and nursing characteristics can also affect nursing students during their clinical learning.[9] In Iran, some hospital nurses not only do not consider education to nursing students as part of their responsibilities, but also do not cooperate with clinical nursing instructors and

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do not share their clinical experience with nursing students.[10]

The wide variety of problems in clinical nursing education not only necessitates employing qualified clinical instructors, but also needs revising clinical nursing education programs, using new teaching methods for clinical education, and improving clinical learning environment.[10-12] A study in Iran reported that clinical education can be improved through the employment of experienced clinical instructors, improvement of educational environment, development of cooperation among clinical instructors and clinical staff, and reduction of theory–practice gap.[13]

The Clinical Teaching Associate (CTA) model is one of the methods for improving the outcomes of clinical nursing education.[14] In this model, a hospital nurse who is responsible for care delivery to patients assists clinical instructors in providing clinical education to students. The associate nurse trains students and provides them with feedbacks under the close supervision of students' instructor[14] and also supervises them in the absence of their instructor.[15] The CTA model combines the profound theoretical knowledge of clinical instructors and the first-hand clinical experience of practicing nurses. Thereby, it can narrow theory–practice gap and improve the outcomes of clinical nursing education. Moreover, the CTA model increases practicing nurses' motivation for cooperation in nursing education and nursing students' motivation for learning.[15]

Previous studies reported the significant effects of the CTA model on nursing students' clinical skills.[16,17] A study also showed that peer-assisted associate model for clinical education was effective in improving learning outcomes among operating room students.[18] However, another study reported that the CTA model was as effective as the conventional clinical education method in improving nursing students' clinical skills.[19] These contradictory results provide no conclusive evidence regarding the effects of the CTA model and hence, it is still unknown whether this model is effective in improving the outcomes of clinical nursing education.

Objectives

This study aimed to evaluate the effects of the CTA model on clinical skills and satisfaction with clinical education among nursing students.

Methods

Design and participants

This clinical trial was conducted in 2015 in Shahid Ghazi Hospital, Tabriz, Iran. All the 120 nursing students who had just taken the oncology nursing clinical education course in Tabriz Faculty of Nursing and Midwifery, Tabriz, Iran, were recruited to the study through the census method. Students who refused to participate in the study, withdrew from the study, or had more than two absences from the clinical education sessions were excluded. Using a table of random numbers, the participants were randomly allocated to either a sixty-person intervention group or a sixty-person control group. To prevent allocation bias, we concealed allocation sequence from the research assistants who performed allocation until the point of allocation. This strategy prevented their influence on allocation [Figure1].

Intervention

The study intervention for students in the intervention group was clinical nursing education through the CTA model. Accordingly, a female nurse was invited to the study as an associate or assistant to assist students' instructor in clinical nursing education. Her competence and experience were approved by nursing managers in the study setting. She was informed about the learning objectives of the course, teaching methods, and student evaluation strategies. During students' clinical course, the nurse was appointed to share her clinical experience with students, train them clinical procedures, supervise their practice, and report their progress to their instructor on a weekly basis. She was also responsible for making necessary arrangements among nursing instructor, hospital staff, and students. All her training-related activities were supervised by students' instructor. On the other hand, students in the control group were taught using usual teaching method which included teaching by a single clinical instructor without any associate nurse. In order to prevent between-group information leakage, we initially offered the course to students in the control group through the usual teaching method and then to their counterparts in the intervention group using the CTA model.

Data collection

At the end of the course, an instructor who was external to the study assessed students' clinical skills using an observational checklist. The checklist comprised of thirty items in six 5-item areas, namely communication with patients, drug administration, blood transfusion, pain relief, bleeding management, and infection control. Responses to each item ranged from 1 ("weakly performed") to 3 ("completely performed"). Thus, the possible total score of the checklist was in the range of 30–90, with higher scores showing greater clinical skills. Inter-rater correlation coefficient of the checklist was 0.83, confirming its reliability. Moreover, students' satisfaction with clinical education was assessed using a researcher-made satisfaction questionnaire

with 35 items in seven 5-item domains. The domains were satisfaction with job orientation, clinical skills, instructor's performance, using theory in practice, self-confidence and socialization, nursing staff's cooperation, and communication with patients. Items were scored through a Likert-type scale with the three points of 1 ("rarely"), 2 ("partly"), and 3 ("often"). The total score of the questionnaire could range from 35 to 105 – the higher the score, the higher the satisfaction. The content validity of the questionnaire was confirmed by 11 nursing experts. For reliability assessment, we administered the questionnaire twice to ten students with a 10-day interval. The correlation coefficient between test and retest readings was 0.86.

Ethical considerations

This study was approved by the Institutional Review Board and the Ethics Committee of Tabriz University of Medical Sciences, Tabriz, Iran (ethical approval code: 100196). In addition, it was registered in the Iranian Registry of Clinical Trials (registration code: IRCT20180731040649N1). At the beginning of the study, the participants were provided with information about the study aims, were assured of confidential data management, were provided with the opportunity to voluntarily withdraw from the study, and finally were asked to sign the written informed consent of the study.

Statistical analysis

Data were analyzed using the SPSS software version 13.0 (SPSS Inc., Chicago, IL, USA). Initially, the Kolmogorov–Smirnov test was conducted for normality testing. Its results showed the normal distribution of the study variables ($P = 0.06$). The data were presented using the measures of descriptive statistics such as mean, and standard deviation. Furthermore, between-group comparisons were made through the independent-samples *t*-test. The level of statistical significance was set at <0.05.

Results

Most participants in the intervention and control groups were female (47% vs. 73%). The mean ages in the intervention and the control groups were not significantly different (19.54 ± 1.24 and 19.46 ± 1.32, respectively, $P = 0.01$). Furthermore, no significant difference was found between the grade point average of the intervention and the control groups (15.50 ± 1.26 and 15.49 ± 1.21, respectively, $P = 0.150$).

The independent-samples *t*-test illustrated that the total mean score of clinical skills in the intervention group was significantly greater than that of the control group [74.54 ± 4.24 vs. 65.46 ± 5.32; $P < 0.001$; Table 1]. Moreover, participants in the intervention group obtained significantly higher scores in four areas of clinical skills, namely drug administration, communication with patients, bleeding management, and pain relief [$P < 0.05$; Table 1].

The independent-samples *t*-test also indicated that the total mean score of satisfaction in the intervention group was significantly greater than that of the control group ($P < 0.001$). In addition, participants in the intervention group obtained significantly higher scores than their counterparts in the control group in the five domains of satisfaction, that is, job orientation, clinical skills, self-confidence and socialization, nursing staff's cooperation, and communication with patients [$P < 0.05$; Table 2].

Discussion

Findings showed the effectiveness of the model in improving nursing students' clinical skills. Several earlier studies also reported the same finding. For instance, a study reported that the CTA model significantly improved the mean score of behavioral skills among nursing students.[16] However, another study found that the use of the CTA model did not significantly improve nursing students' clinical skills.[19] These contradictory

Table 1: Between-group comparisons concerning the mean scores of clinical skills and its domains

Domains	Group[a]		*P*
	Intervention	Control	
Communication with patient	12.76 ± 1.58	11.53 ± 1.68	<0.001
Drug administration	13.57 ± 2.10	12.03 ± 1.72	0.009
Blood transfusion	12.11 ± 1.36	11.82 ± 1.11	0.203
Pain relief	12.16 ± 1.72	11.23 ± 1.77	0.004
Bleeding management	12.24 ± 1.42	11.19 ± 1.12	0.008
Infection control	11.90 ± 1.50	11.84 ± 1.61	0.833
Total	74.54 ± 4.24	65.46 ± 5.32	<0.001

[a]Data presented as mean ± SD. SD: Standard deviation

Table 2: Between-group comparisons concerning the mean scores of satisfaction with clinical education and its domains

Domains	Group[a]		*P*
	Intervention	Control	
Job orientation	10.25 ± 1.13	9.51 ± 1.36	0.002
Clinical skills	11.26 ± 1.42	10.23 ± 1.11	0.031
Instructors' performance	10.03 ± 1.52	10.25 ± 1.34	0.490
Using theory in practice	12.23 ± 1.77	11.03 ± 1.72	0.081
Self-confidence and socialization	12.84 ± 1.61	11.90 ± 1.57	0.003
Nursing staff's cooperation	13.57 ± 2.01	12.65 ± 1.09	0.002
Communication with patients	12.76 ± 1.68	11.53 ± 1.58	<0.001
Total	98.16 ± 1.23	84.41 ± 1.52	<0.001

[a]Data presented as mean ± SD. SD: Standard deviation

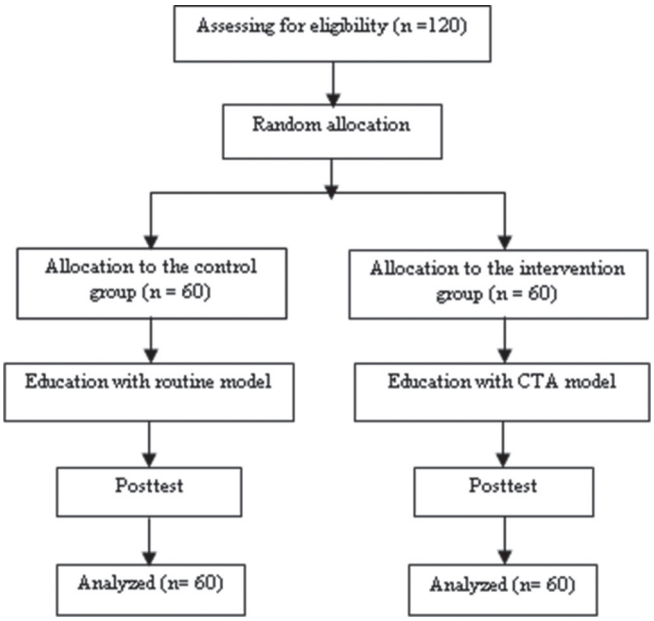

Figure 1: The study's flow diagram

results are attributable to associate nurses' clinical and teaching competence, degree of familiarity with different teaching methods, workload, and ability to share personal experiences with students. Similarly, the most important problem of the CTA model relates to associate nurses' knowledge and competence.[14] Therefore, a key step to the use of the CTA model is to expand eligible associate nurses' clinical and teaching knowledge and skills.

We also found that participants in the intervention group had better clinical skills in the areas of drug administration, communication with patients, bleeding management, and pain relief. Similarly, a former study reported better clinical performance among students supervised by associate nurses.[20] These findings are due to the fact that associate nurses are more competent in clinical nursing and hence, can help nursing students develop their self-confidence and clinical skills. Therefore, the CTA model can be used to improve nursing students' clinical and professional skills.

Our findings also revealed that the use of the CTA model was associated with higher levels of students' satisfaction with clinical education and its five domains, namely job orientation, clinical skills, self-confidence and socialization, nursing staff's cooperation, and communication with patients. These findings are consistent with the findings of two earlier studies.[21,22] Another study also reported that the CTA model was effective in significantly improving students' and instructors' satisfaction with the achievement of the goals of clinical education.[20] Satisfaction is a key factor behind the superiority and success of an organization because it significantly affects organizational profitability and customer loyalty. Similarly, enhancing students' satisfaction with clinical education can enhance their clinical performance, the quality of nursing services, and patient satisfaction with nursing services.

One of the study limitations was that participants were selected from only one nursing faculty and hence, findings may have limited generalizability. Moreover, although we included almost all eligible students in the study, the sample of the study was rather small. Therefore, studies with larger samples and random sampling strategies are needed to produce firmer evidence.

Conclusion

This study concludes that the CTA model enhances nursing students' clinical skills, satisfaction with clinical education, self-confidence, and interpersonal relationships. It may also be potentially effective in improving their professional competence, reducing the challenges and problems of clinical nursing education, and enhancing care quality. Therefore, this model can be used to improve learning outcomes among nursing students. The findings of the present study highlight the importance of close cooperation between educational and medical centers in order to improve student and patient outcomes.

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Conflicts of interest

There are no conflicts of interest.

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