

Training Program for Improving Clinical Teaching Knowledge as a Competence of Clinical Instructors

Sally Shaapan Mallek*, Wafaa Abd El-Azeem El-Hosany

Nursing Administration, Faculty of Nursing, Suez Canal University, Egypt

*Corresponding author: sally.shabban@nursing.suez.edu.eg

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Abstract Background: The clinical teaching is a complex interaction between students and teachers. The quality of the student- teacher interaction in the clinical field can either facilitate or hinder the students' integration of theory to practice. The study aimed to assess the effect of training program on clinical teaching knowledge of the clinical instructors at faculty of nursing, Suez Canal University. **Design:** A quasi-experimental study design. **Setting:** The study was conducted in Faculty of Nursing, Suez Canal University. **Sample:** Convenient sample were included all clinical instructors (43) who participate in students' clinical teaching during the academic years 2016/2017 and 2017/2018. **Tools: Tool (1):** Self-Need Assessment Sheet which included two parts. **Part I:** personnel data of clinical instructors, Part II: it contains question about the needs related to clinical teaching knowledge. **Tool (2):** Self-administered clinical teaching knowledge questionnaire. **The results:** There was statistical significant difference ($p \leq 0.01$) between mean scores of the clinical instructors in relation to their total clinical teaching knowledge throughout the three phases of the program (pre, post & follow up). Also, there were statistically significant relations between clinical instructors' characteristics of specialty and their knowledge level. **Conclusion:** the clinical teaching knowledge of clinical instructors was improved post and follow- up implementation of the program compared to pre implementation of the program. **Recommendation:** Continuous assessment of clinical instructors' learning needs and monitoring their performance and develop a clinical teaching efficacy scale to evaluate clinical nursing instructors based on the attributes of rules and their capabilities.

Keywords: training program, clinical teaching, clinical instructors

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1. Introduction

Clinical teaching is an important part and the lifeblood of nursing education [1]. It is a more important component of the educational process than classroom learning [2]. The educational process is unique in the practice professions because being able to perform the activities of the profession in life situations as opposed to simply being able to express understanding of principles is a requisite competency of graduation [3].

Training program is an organized procedure for increasing the knowledge and skills for clinical instructors for a definite purpose. Furthermore, training can be defined as an organized method of ensuring that clinical instructors have knowledge, skills for specific purpose, that they acquired the necessary knowledge and competencies to perform the duties of the job [4]. Training is the acquisition of knowledge, skills, and competencies as a result of the teaching of vocational or practical skills and knowledge that relate to specific useful competencies, which has specific goals of improving one's capability, capacity, productivity and performance [5]

Clinical teaching competencies are a dynamic process that occurs in a variety of socio-cultural contexts. The quality of the student- teacher interaction in the clinical field can either facilitate or hinder the students' integration of theory to practice. It has been postulated that clinical instructors must possess effective clinical teacher characteristics if they want to facilitate students' entry and learning in a multifaceted world of clinical practice [6]

There is a paucity of literature that addresses how clinical teaching behaviors of nursing faculty, influence student teaching [7]. In order to help students, learn the behaviors and skills that are necessary in the increasingly complex and multifaceted nursing roles to meet the health care needs of a diverse multicultural society. Well-educated and well-trained nursing instructors are needed [8].

Clinical instructors motivate the nursing students to systematically participate in learning activities or experience. For active participation and practice, nursing students must interact with the learning environment where nursing is actually practice. They are going to develop positive, health attitude, they must think about what is to be done and actually perform the appropriate skills. The nursing student should be given an opportunity

to evaluate her performance and to present the evaluation to the clinical instructors for suggestions; the nursing student should give the opportunity to use the newly acquired knowledge and skills in clinical situations [9].

Clinical instructor's personality and manner of dealing with nursing students have potential upon student performance. The authoritarian, caustic, or impatient instructors may seriously inhibit or otherwise adversely affect the quality of student contribution in her or his class, cause student to avoid needed interviews, or build lasting negative attitude towards the course, the permissive, relatively undemanding, understanding instructors may encourage high level performance and good attitude learning [10,11].

2. Significance

After observing the performance of clinical instructors at faculty of nursing-Suez Canal University, we discovered that clinical teaching knowledge need improvement, because the knowledge of clinical instructors about clinical teaching in clinical setting plays an important role on the performance of nursing students. In order to get a better preparation of the students for clinical experience, the clinical instructors should be well-prepared for their roles in clinical setting especially the newly employed members. For these reasons this study will be done.

Moreover, Molodysky et al., 2006, and Mahfouz (2007) in their studies recommended that, training programs should be conducted for the clinical instructors to improve their abilities and skills for clinical teaching. Aziz (2005) in his study done at the faculty of nursing, Ain Shams University recommended that the educational program is needed periodically on how demonstrators and assistant lecturers are practicing in clinical. Badran (2014) also recommended that an orientation program for newly appointed clinical instructors about clinical teaching skills is highly needed, for these reasons, this study was carried out to conduct a program in clinical teaching competencies for clinical instructors.

3. Aim of the Study

This study aimed to assess the effect of training program on clinical teaching knowledge of the clinical instructors at faculty of nursing, Suez Canal University through:

1. Assessing knowledge of clinical instructors related to clinical teaching knowledge.
2. Designing training program based on their need assessment.
3. Implementing the training program.
4. Evaluating the effect of the program on the clinical practice of clinical instructors.

3.1. Research Hypotheses

An educational program will cause an improvement in knowledge of clinical instructors through:

Increasing total scores of knowledge after conducting an educational program than before it.

4. Subject and Methods

4.1. Research Design

A quasi-experimental study design was used to conduct the present study.

4.2. Research Setting

The study was conducted in Faculty of Nursing, Suez Canal University where the program was implemented to the clinical instructors which include five scientific departments, which are: Medical Surgical Nursing, Nursing Administration, Pediatric Nursing, Maternity and Newborn Health Nursing and Psychiatric and Mental Health Nursing. Except Family and Community Health Nursing department, because they don't work with students in clinical setting, their work involves field work and community visits.

4.3. Subjects

Convenient sample included all clinical instructors who participate in student's clinical teaching during the academic years 2016/2017 and 2017/2018 at the following specialties: Medical Surgical Nursing, Nursing Administration, Pediatric Nursing, Maternity and Newborn Health Nursing, and Psychiatric and Mental Health Nursing.

The total number of clinical instructors Was 43, 17 of them were demonstrators and 26 were assistant Lecturers at the Faculty of Nursing, Suez Canal University distributed as shown in Table 1.

Table 1. Distribution of clinical instructors regarding their academic department (n=43)

Variable	No	%
Academic department		
Medical Surgical Nursing	11	25.6
Nursing Administration	7	16.3
Pediatric Nursing	8	18.6
Maternity and Newborn Health Nursing	9	20.9
Psychiatric and Mental Health Nursing	8	18.6
Total	43	100

4.4. Tools for Data Collection

First tool: Self-Need assessment sheet

It was developed and constructed by [6] through review of relevant literature [12,13]. The need assessment sheet was used to assess clinical instructors' educational needs related to clinical teaching competencies. This contains two parts they are:

Part I: Personnel data of clinical instructors: it includes name, age, sex, years of experience, academic position, qualification before enrolment in faculty and department specialty.

Part II: It contains question about the needs related to clinical teaching knowledge it contains the following items: concept of adult learning, concept of clinical teaching, clinical learning cycle, and effective learning environment, writing educational objectives, clinical teaching strategies, effective presentation skills, seminar conduction and leading seminars, problem based learning, role of clinical trainer, effective communication, clinical supervision and evaluation, critical thinking, team building, time management, and documentation.

Scoring system: All items of need assessment which scored 80% or more were included in the study.

Second Tool: Self-administered clinical teaching knowledge questionnaire

It was developed by [6] based on need assessment and through review of relevant literature [12,13,14,15]. The clinical teaching knowledge questionnaire sheet was concerned with assessing the clinical instructors' knowledge related to clinical teaching. It consists of 50 questions, divided in 2 parts: the first contains (33) multiple choice questions and the second contains (17) true or false questions. The questions were categorized into five dimensions as follows:

N.	Dimensions	Questions No.	Parts
1	Clinical teaching and learning (11 questions)	1-3-5-6-7-10-14-24	part 1
		1-3-4	Part 2
2	Clinical teaching cycle (6 questions)	8-11-12-16-18-20	part 1
3	Clinical teaching strategies (9 questions)	2-4-13-15-22	part 1
		6-10-12-13	part 2
4	Role of clinical trainer (10 questions)	21-26-27-28	part 1
		2-5-7-8-9-14	part 2
5	Administrative skills (14 questions)	9-17-19-23-25-29-30-31-32-33	part1
		11-15-16-17	part 2

The Scoring system: Each question was assigned a score of "1" if correct answer and "0" if incorrect answer. The maximum possible total score was fifty. The mean and standard deviation was calculated and then converted into percentage.

Scoring system of questionnaire sheet

Knowledge Level	Scores	Score percent
Excellent	50-43	100%-85%
Very good	42-38	<85%-75%
Good	37-33	<75%-65%
Pass	32-30	<65%-60%
Poor	<29	<60%

Administrative phase

To carry the study in the selected setting, an official permission for collection of data was obtained using proper channel of communication to conduct the study from the dean of faculty of nursing at Suez Canal University.

Pilot Study

A pilot study was carried out to test the questionnaire feasibility, understandability and to estimate the time

consumed for filling in the forms. It was conducted on 10% of clinical instructors (4) who were selected randomly; the pilot study was excluded from the total sample. It was carried before data collection, to evaluate the content and clarity of questionnaire, reconstruct the questionnaire, if necessary, and estimate the time needs to fill questionnaire a brief explanation of the purpose of the study was provided to every participant in the pilot, and then they were provided with a copy of the study tools. The necessary modifications in form of changing few words were done according to comment made by clinical instructors.

The validity of the tools

Tools of data collection were tested for content validity by a panel of five experts from different specialties as Nursing Administration, Pediatric Nursing and Medical and Surgical Nursing from Faculties of Nursing at Cairo University and Suez Canal University. Modifications were done according to the experts' opinions.

Tools Reliability

The reliability of the tools was done by using (test and retest) measurement and applied time to be sure the consistency of answers. The reliability was assured utilizing Cronbach's alpha; it indicated that the tool has a reliability of 0.95.

Ethical considerations:

Informed consent was obtained from a participant after explaining the purposes of the study, no harmful methodology used with the participant; they had the right to withdrawal from the study at any time.

4.5. Fieldwork

Data collection of the study was started at the beginning of October 2017, and was completed by the end of October 2018. The study was conducted through the following phases:

Phase (1): Pre-planning phase:

This phase was concerned with an official permission obtained from the Dean of the Faculty of Nursing at Suez Canal University to conduct the study and to collect the data after the researcher explained the aim of the study.

Before program planning the researcher developed and distributed educational needs assessment sheet to the study subjects at their work department to assess their training needs about clinical teaching knowledge after explaining the aim of the study. Then the knowledge questionnaire was distributed to the faculty assistants in each department to assess their knowledge, based on necessary instructions given verbally by the researcher.

Each participant filled in the questionnaire and backs it to the researcher. This sheet was distributed three times throughout the study pre, post program and after three months of the program implementation. The first distribution was at the beginning of October 2017.

Phase (2): Program planning

Program was constructed by the researcher after review of the related literature and based on the needs of the clinical instructors, according to the result of the assessment of the knowledge questionnaire, designing program about clinical teaching knowledge for clinical instructors. This program aims at improving clinical teaching knowledge of clinical instructors' members. The

time allowed for achieving the program was 32 hr.: 16 theoretical and 16 practical for all clinical instructors at after mentioned departments, the program sessions started from 10 am to 12 pm; two hours in every session, one day per week for three months.

The components of the program include sessions about concept of clinical teaching, concept of adult learning, clinical learning cycle, effective clinical learning environment, role of clinical trainer, how to write educational objectives, teaching strategies, effective presentation skills, how to conduct and lead seminars, problem based learning, effective communication, clinical supervision and evaluation, problem solving and critical thinking, team building, time management and documentation.

Phase 3. Program implementation

The program was implemented at the Faculty of Nursing, Suez Canal University to the clinical instructors who are working at the predetermined departments. The program was implemented throughout three months (January, February & March 2018); one day per week, one session was offered daily, two hours for each session. In (January & February) 2018 the program provided for three departments, Nursing Administration department, Pediatric nursing & Psychiatrist and mental Health Nursing department. At the end of the February 2018, in the last session, a post test was done to assess knowledge of faculty assistants after the program. As well, in March 2018, the program also provided for Medical & Surgical Nursing department, and Maternity and Newborn Health Nursing. One day per week, one session was offered daily, two hours for each session. At the end of March in the last session, a post test was done to assess knowledge of clinical instructors after the program. The program took about three months (Jan, Feb & Mar 2018).

Each session lasted for 2 hours (1hr theory and 1 hr. practice). In the first session the researcher explained the aim of the study, program objectives, plan and content. In the first session a pretest was done to assess knowledge about clinical teaching skills before the program. At the beginning of each session, the objective of the session was explained. Daily feedback was done about the previous session and at the end of each session.

The teaching method used during the implantation of the program were lecture, discussion, role play, group activities, and practice session such as setting objectives individually, small group activities to apply critical thinking and problem solving and role play to apply communication skills, apply different methods of teaching, apply problem based learning session, and role play for effective presentation and team building and giving effective feedback, and group activity for applying time management tools, and role play for different types of records used in nursing units. Teaching aids used were data show, and flip chart. The researcher distributed a booklet about content of the program to all clinical instructors who share on the study.

Phase (4): Follow up (Post- test)

After implementing the program; post-test was done to evaluate clinical teaching knowledge of clinical instructors. The post-test was done immediately at the beginning of April 2018 by end of the educational program sessions implementation using the same tools which were used in

the pretest, and because there is summer holiday, the follow-up test was postponed to October 2018.

4.6. Statistical Analysis

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp).

The following statistical techniques were used:

- Percentage
- Mean score degree X.
- Standard deviation SD.
- Paired T test
- ANOVA test
- Proportion probability of error (p-value) and confidence interval.

A significance level value was considered at $p < 0.05$. Also, Cronbach's alpha was used to test the internal consistency of the performance evaluation tool.

5. Results

Table 2: demonstrates the socio demographic characteristics of the studied clinical instructors (CIs) .as regards age, more than half (58.2%) of the CIs their age ranged from (26-30). majority of CIs (81.4%) were females. in relation to years of experience, more than two fifth (44.2%) of them had (3-<5) years of experiences in clinical teaching. as regard to specialty the lowest percentage (16.3%) was related to nursing administration.

Figure 1: shows that the majority of CIs (76.7%) did not attain any training program related to clinical teaching, while the minority (23.3%) of them attained training program related to clinical teaching.

Table 3: clarifies that the needs of clinical instructors related to clinical teaching knowledge ranged from 81.3% to 95.3%. Also, the table displayed that the highest percentage of needs was related to role of clinical trainer (95.34%) and clinical teaching strategies (93.02%) and the lowest percentage was related to concept of adult learning (81.3%).

Table 4: shows that percentage distribution of the clinical instructors' knowledge acquisition regarding clinical teaching throughout the program. As evident from the table, more than two fifth (41.9%) of study subject had acquisition of knowledge related to characteristic of adult learner ,and(39.5%) of them had acquisition of knowledge related to meaning of clinical teaching ,while the minority (25.6%) had acquisition of knowledge related to clinical objectives and it's relation to classroom objectives at pre program. At post program the majority of CIs (95.3%) had acquisition of knowledge related to factors affecting clinical learning process, also (93%) of them had acquisition of knowledge related to conditions of clinical learning environment and concept of psychomotor. However, at follow up the majority of FAs (95.3%) had acquisition of knowledge related to concept of psychomotor domain, while the lowest percentage (86.0%) was related to meaning of Clinical teaching.

Table 5: indicates percentage distribution of the clinical instructors' knowledge regarding clinical learning cycle

(CLC) throughout the program. The table displays that more than two fifth (41.9%) of CIs had acquisition of knowledge in pre-program related to advantage of clinical conferences. While in post program the majority of CIs (95.3%) had acquisition of knowledge related to aim of pre-clinical session and advantage of clinical conferences, while in follow-up the majority (93.0%) of them had acquisition of knowledge related to aim of pre-clinical session, aim of post clinical session, advantage of clinical conferences.

Table 6: describes the percentage distribution of the clinical instructors' knowledge regarding clinical teaching strategies throughout the program. The table displays that the majority (46%) of CIs had acquisition of knowledge in pre- program related to demonstration as a teaching method and near to one third (32.6%) of CIs had knowledge in pre-program related to importance of problem-based learning. While in post program the highest percentage (95.3%) had knowledge related to importance of problem-based learning, work experience may influence adult learner, case study includes as a method of teaching. However, at follow-up the majority (93.0%) of them had acquisition of knowledge related to case study as a teaching method and work experience may influence adult learner.

Table 7 shows percentage distribution of the clinical instructors' acquisition of knowledge regarding role of clinical trainer throughout the program. As noted from the table , less than half (44.2%) of CIs had acquisition of knowledge related to effect of personality on role of clinical trainer in preprogram, Also (41.9%) of them had acquisition of knowledge related to importance of professional technical skills at pre-program ,While in post program the highest percentage (95.3%) of CIs had acquisition of knowledge related to importance of Professional technical skills ,which slightly declined to be (90.7%) in follow up phase .However at follow-up the most (93.0%) of CIs had acquisition of knowledge related to clinical trainer role in student evaluation.

Table 8 shows percentage distribution of the clinical instructors' acquisition of knowledge regarding administrative skills throughout the program. The table reveals that more than one third (37.2%) of CIs had acquisition of knowledge related to upward communication at pre-program, while at post program the majority (97.7%) of them had acquisition of knowledge related to definition of problem solving and rules of documentation. However, at follow-up the highest percentage (95.3%) of CIs had acquisition of knowledge related to concept of communication, rules of documentation and component critical thinking.

Table 9 shows the mean scores of the clinical instructors' total knowledge at pre, post and follow-up phases. As observed from the table, there were statistically significant differences between mean scores of the faculty assistants in relation to their total clinical teaching skills knowledge throughout the three phases of the program (pre, post & follow up).

Table 10 reveals the association between total clinical instructors' knowledge (pre and post) intervention. As observed from the table, there were statistically significant differences between mean scores of the clinical instructor in relation to their total clinical teaching skills knowledge in pre and post intervention program.

Table 11 describes the association between total clinical instructors' knowledge (pre and follow-up) intervention. As observed from the table, there were significant differences between mean scores of the faculty assistants in relation to their total clinical teaching skills knowledge in pre and follow-up intervention program.

Figure 2: shows that (100%) of clinical instructors' response level of knowledge in pre intervention was poor, while (95.3%) of clinical instructors' response level of knowledge in post and follow-up intervention were excellent.

Figure 3: shows that the distribution of total knowledge scores represented by 25th, 50th (median), 75th percentiles, minimum, maximum among the studied clinical instructors was significantly higher in post and follow-up post guidelines phases in comparison to pre-guidelines phases.

Table 12 shows the relation between clinical instructors' characteristics and their knowledge level. As noted from the table, there were statistically significant relations between clinical instructors' characteristics of specialty and their knowledge level.

Table 13 reveals positive correlation between total post knowledge and total follow up knowledge.

Table 2. Socio –demographic characteristics

Variable	N	%
Age		
<26	17	39.5
26- 30	25	58.2
> 30	1	2.3
Sex		
Female	35	81.4
Male	8	18.6
Years of experience		
<1	5	11.6
1:<3	10	23.3
3:<5	19	44.2
5:<=7	9	20.9
Academic position		
Demonstrator	17	39.5
Assistant lecturer	26	60.5
Qualification before enrolment in faculty		
Secondary education	35	81.4
Nursing education	8	18.6
Specialty		
Medical Surgical Nursing	11	25.6
Pediatric Nursing	8	18.6
Obstetric and Gynecological Nursing	9	20.9
Psychiatric and Mental Health Nursing	8	18.6
Nursing Administration	7	16.3

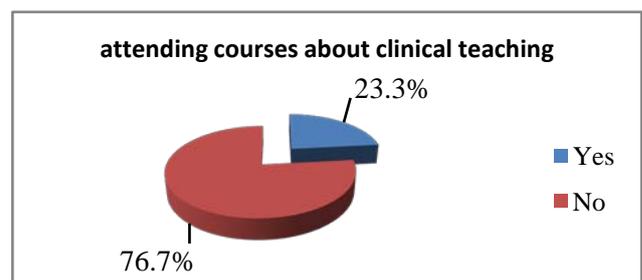


Figure 1. Clinical teaching course attendance

Table 3. Percentage distribution of training needs as reported by clinical instructors regarding clinical teaching skills.

Clinical teaching needs #		N	%
1.	Concept of adult learning	35	81.3
2.	Concept of clinical teaching	38	88.37
3.	Clinical learning cycle	39	90.69
4.	Effective learning environment	38	88.37
5.	How to formulate educational objectives	36	83.72
6.	Clinical teaching strategies	40	93.02
7.	Effective presentation skills	38	88.37
8.	Seminar conduction & leading seminars	39	90.69
9.	Problem based learning in clinical teaching	38	88.37
10.	Role of clinical trainer	41	95.34
11.	Effective communication	38	88.37
12.	Clinical supervision and evaluation	39	90.69
13.	Critical thinking	40	93.02
14.	Team building	40	93.02
15.	Time management	39	90.69
16.	Documentation	40	93.02

#NB: total not equal 100% because more than one of the study subjects chooses more than lecture.

Table 4. Percentage distribution of the clinical instructors' knowledge regarding clinical teaching throughout the program

Clinical Teaching		Pre		Post		Follow-up	
		Correct		Correct		Correct	
		N	%	N	%	N	%
1.	Meaning of Clinical teaching	17	39.5	39	90.7	37	86.0
2.	Educational objectives domains	14	32.6	40	93.0	39	90.7
3.	Factors affecting clinical learning process	14	32.6	41	95.3	40	93.0
4.	Characteristic of adult learner	18	41.9	40	93.0	39	89.7
5.	Conditions of clinical learning environment	16	37.2	40	93.0	38	88.0
6.	Clinical teaching needs	12	27.9	40	93.0	38	87.3
7.	The importance of clinical practice	15	34.9	39	90.7	38	88.4
8.	Clinical teaching goals	12	27.9	40	93.0	39	90.7
9.	Concept of Affective domains	12	27.9	39	90.7	40	93.0
10.	Clinical objectives and it's relation to classroom objectives	11	25.6	40	93.0	39	90.7
11.	Concept of Psychomotor domain	16	37.2	40	93.0	41	95.3

Table 5. Percentage distribution of the clinical instructors' knowledge regarding Clinical Learning Cycle throughout the program

Clinical Learning Cycle		Pre		Post		Follow-up	
		Correct		Correct		Correct	
		N	%	N	%	N	%
1	Elements in clinical learning cycle	16	37.2	39	90.7	39	90.7
2	Aim of pre-clinical session	16	37.2	41	95.3	40	93.0
3	Aim of post clinical session	13	30.2	40	93.0	40	93.0
4	Advantage of clinical conferences	18	41.9	41	95.3	40	93.0
5	The clinical teaching cycle component	13	30.2	40	93.0	39	90.7
6	The preparatory phase of clinical learning cycle	13	30.2	39	90.7	38	89.0

Table 6. Percentage distribution of the clinical instructors' knowledge regarding Clinical Teaching Strategies throughout the program

Clinical Teaching Strategies		Pre		Post		Follow-up	
		Correct		Correct		Correct	
		N	%	N	%	N	%
1.	Demonstration as a teaching method	20	46.5	39	90.7	38	88.4
2.	Clinical teaching strategies based on	10	23.3	41	95.3	39	90.7
3.	Method of clinical teaching strategies	10	23.3	40	93.0	38	89.3
4.	Case study include as a method of teaching	11	25.6	41	95.3	40	93.0
5.	Purpose of nursing round	13	30.2	40	93.0	39	90.7
6.	Work experience may influence adult learner	13	30.2	41	95.3	40	93.0
7.	Method for evaluating a seminar	13	30.2	40	93.0	38	88.3
8.	Importance of problem based learning	14	32.6	41	95.3	39	90.7
9.	Bedside teaching	12	27.9	40	93.0	39	91.0

Table 7. Percentage distribution of the clinical instructors' knowledge regarding role of clinical trainer throughout the program

Role of Clinical Trainer		Pre		Post		Follow-up	
		Correct		Correct		Correct	
		N	%	N	%	N	%
1.	Concept of Clinical trainer	12	27.9	40	93.0	39	90.7
2.	Formal evaluation of student	11	25.6	39	90.7	38	88.3
3.	Effectiveness of Feedback	12	27.9	40	93.0	39	90.7
4.	Method of student evaluation	12	27.9	40	93.0	38	88.3
5.	Professional technical skills have an effect on the clinical trainer	18	41.9	41	95.3	39	90.7
6.	Step for effective presentation	12	27.9	35	81.4	37	86.0
7.	Effect of personality on role of clinical trainer	19	44.2	39	90.7	38	88.4
8.	Definition of Formative evaluation	12	27.9	38	88.4	39	90.7
9.	Clinical trainer role in student evaluation	8	18.6	40	93.0	40	93.0
10.	Concept of Summative evaluation	15	34.9	39	90.7	38	88.3

Table 8. Percentage distribution of the clinical instructors' knowledge regarding administrative skills throughout the program

Administrative Skills		Pre		Post		Follow-up	
		Correct		Correct		Correct	
		N	%	N	%	N	%
1.	Concept of communication	9	20.9	40	93.0	41	95.3
2.	Element of communication process	11	25.6	39	90.7	38	88.4
3.	Upward communication	16	37.2	40	93.0	39	90.7
4.	Definition of problem solving	13	30.2	42	97.7	39	90.7
5.	Characteristics of good critical thinker	6	14.0	40	93.0	37	86.0
6.	Meaning of team	5	11.6	40	93.0	39	90.7
7.	Stage of team building	9	20.9	38	88.4	38	88.4
8.	Steps of problem solving	8	18.6	40	93.0	39	90.7
9.	Rules of documentation	8	18.6	42	97.7	41	95.3
10.	Communication barrier	12	27.9	38	88.4	38	88.4
11.	Concept of documentation	8	18.6	41	95.3	41	95.3
12.	Component of critical thinking	6	14.0	41	95.3	41	95.3
13.	Definition of time management	12	27.9	39	90.7	40	93.0
14.	Important of documentation	8	18.6	40	93.0	39	90.7

Table 9. Total means scores of clinical instructors' knowledge (pre, post- follow up) intervention program

Knowledge item	Pre program implementation		Post program implementation		Follow up program		F test
	Mean	SD	Mean	SD	Mean	SD	P value
Clinical teaching and learning (11 questions)	3.697	1.389	10.186	.982	10.116	.980	744.77 <.001***
Clinical teaching cycle (6 questions)	2.069	1.142	5.581	.663	5.558	.547	355.50 <.001***
Clinical teaching strategies (9 questions)	2.697	1.423	8.441	.628	8.465	.630	551.86 <.001***
Role of clinical trainer (10 questions)	2.697	1.640	8.186	.879	8.186	.852	322.38 <.001***
Administrative skills (14 questions)	3.395	1.663	13.930	1.099	13.883	1.073	1104.50 <.001***
Total Score (50 Questions)	14.558	3.775	46.325	2.275	46.209	2.294	2022 <.001***

Table 10. Association between total clinical instructors' knowledge (pre and post) intervention

Item	Pre- knowledge Mean	Post- knowledge Mean	Confidence interval(CI)		t test	P value
			lower	Upper		
Value	14.558± 3.775	46.325±2.275	30.370	33.164	45.884	<.001***
Effectivness (Mean difference)	4.539±31.767					

t test is paired sample t test , P value is significant <.05.

Table 11. Association between clinical instructors' knowledge (pre and follow up intervention)

Item	pre- knowledge mean	Follow up- knowledge Mean	Confidence interval(CI)		t test	P value
			lower	Upper		
Value	14.558± 3.775	46.209± 2.294	30.223	33.078	44.742	<.001***
Effectiveness (Mean difference)	31.651±4.638					

t test is paired sample t test , P value is significant <.05.

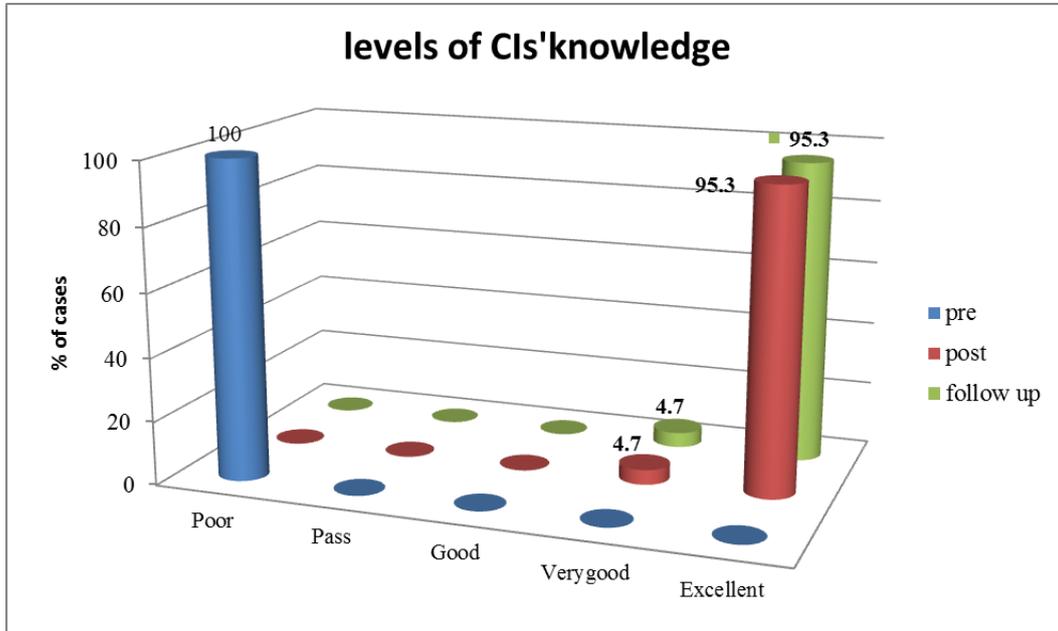


Figure 2. Response level of knowledge (pre-post-follow) intervention

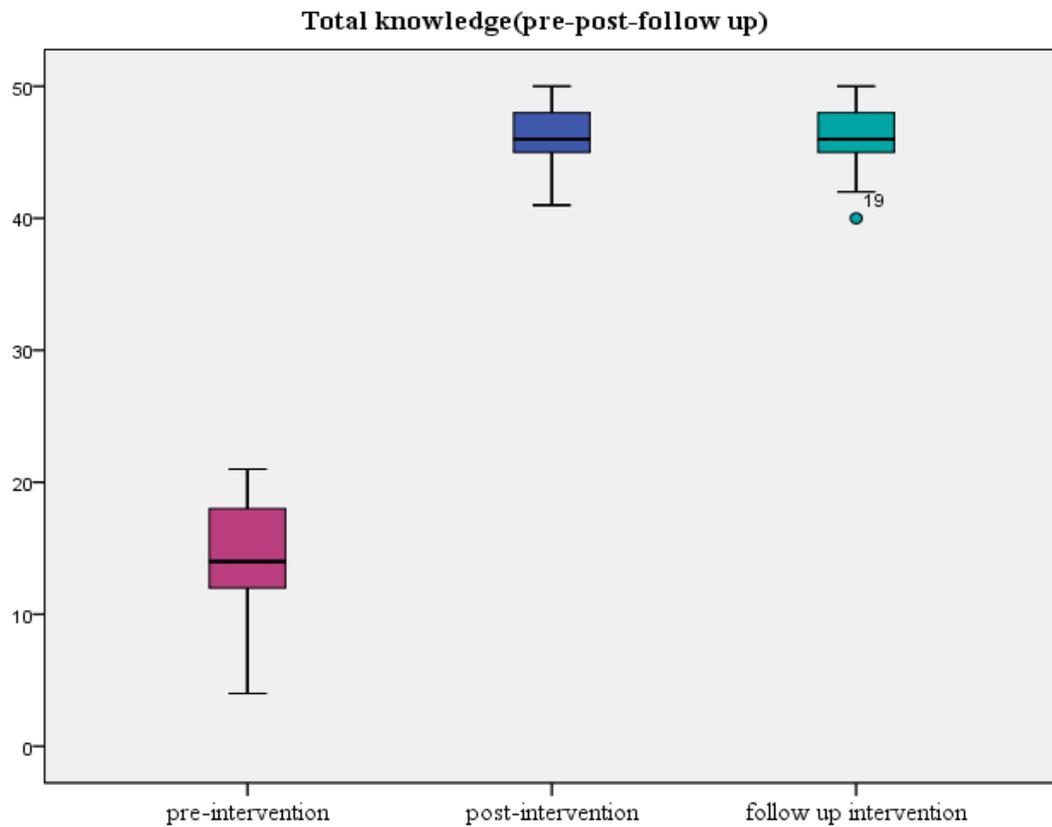


Figure 3. Distribution of total knowledge scores (pre-post-follow up) among the studied clinical instructors represented by 25th, 50th (median), 75th percentiles, minimum, maximum and outlier values (n=50)

Table 12. Association between clinical instructors' characteristics and their knowledge level

Clinical instructors' characteristics	Total knowledge	
	test	P value
Age		
<26	F (.378)	.687
26- 30		
> 30		
Years of experience		
<1	F (1.151)	.341
1:<3		
3:<5		
5:<=7		
Academic position		
Demonstrator	t (.744)	.461
Assistant lecturer		
Specialty		
Medical Surgical Nursing	F (2.655)	.048*
Pediatric Nursing		
Obstetric and Gynecological Nursing		
Psychiatric and Mental Health Nursing		
Nursing Administration		

Table 13. Correlation between total level of clinical instructors' knowledge pre, post and follow-up interventions

Correlations (person) r test				
		Total .pre. knowledge	Total .post. knowledge	Total .Follow. knowledge
Total .pre. Knowledge	Pearson Correlation	-----	-.069-	-.116-
	Sig. (1-tailed)	-----	.331	.230
	N	-----	43	43
Total .post. Knowledge	Pearson Correlation	-.069-	-----	.940**
	Sig. (1-tailed)	.331	-----	.000
	N	43	-----	43
Total .Follow Knowledge	Pearson Correlation	-.116-	.940**	-----
	Sig. (1-tailed)	.230	.000	-----
	N	43	43	-----

6. Discussion

Regarding the training needs of clinical instructors related to clinical teaching skills, the findings of the present study displayed that, the majority of clinical instructors mentioned that they need most of training topics. The highest percentage of needs was related to role of clinical trainer and clinical teaching strategies and the lowest percentage was related to concept of adult. All items of need assessment scored 80.0% or more included in the study. This result may be due to the CIs are primarily concerned with learning and improving their performance.

Regarding knowledge related to clinical teaching, the present study revealed that more than two fifth of study subject had acquisition of knowledge related to characteristic of adult learner, and more than one third of them had acquisition of knowledge related to meaning of clinical teaching at pre-program. The majority of CIs had acquisition of knowledge related to factors affecting clinical learning process, conditions of clinical learning environment and concept of psychomotor domain at post program. However, at follow up the majority of CIs had acquisition of knowledge related to concept of psychomotor domain.

The previous findings are consistent with [6] who reported that more than two thirds of faculty assistants (FAs) had acquisition of knowledge related to meaning of

affective domain at pre- program. All of them had acquisition of knowledge related to meaning of affective and psychomotor domains at post program. However, at follow up, the majority of FAs had acquisition of knowledge related to conditions of clinical learning environment and meaning of affective domain

Also, the findings are consistent with [15] who reported that the majority of assisting teaching staff (ATS) at faculty of nursing, Benha University, had acquisition of knowledge related to domains of clinical teaching at pre and immediate post program. However, at follow up, most of them had acquisition of knowledge related to importance of psychomotor domain of teaching.

In this regard, [16] asserted that Clinical teaching is demanding work requiring clinical instructors to be competent educators and clinical nursing experts capable of assuming legal and ethical responsibility for student learning as well as patient care. While most new clinical instructors enter the teaching field with clinical experience, they may not be prepared for, or confident in, clinical teaching.

In this context, [17] mentioned that clinical practice requires students to adapt to a complex and changing environment in which they must interact with multiple professionals. During this process, professional clinical instructors are essential for the appropriate training and adaptation of the students. They teach, guide and monitor,

as well as facilitate integration of trainees into the clinical setting.

The result finding contradicted with [18], who reported that the highest mean score of the preceptor at clinical teaching knowledge was related to effective skill lab practicing, relationship between clinical objectives and classroom objectives at pre-program. However, at immediate post program, was related to the following: nature of teaching in nursing and clinical training objectives. At follow up, the highest mean score was related to psychomotor skills and clinical training objectives.

From the researcher point of view, the clinical instructors should be having enough knowledge about concept of clinical teaching, learning styles, characteristic of adult learner, conductive learning environment and domains of learning which provides a basis for students learning.

Concerning knowledge related to clinical learning cycle (CLC) more than two fifth of CIs had acquisition of knowledge in pre-program related to advantage of clinical conferences. While in post program the majority of CIs had acquisition of knowledge related to aim of pre-clinical session and advantage of clinical conferences. While in follow-up the highest percentage of them had acquisition of knowledge related to aim of pre-clinical session, aim of post clinical session, advantage of clinical conferences.

On the same respect, [6] revealed that more than one third of FAs had acquisition of knowledge in pre-program related to aim of post conference. As well, at post program all of them had acquisition of the knowledge related to the same item. However, at follow up, the majority of FAs had acquisition of knowledge related to preparatory phase of CLC.

Similarly, [19] revealed that the post clinical conference is regarded as a way to link theory with practice, enabling a small group of students to discuss and reflect on what transpired throughout the day in the clinical setting.

On the same line, the result by [15] who reported that during pre-program almost one third of assistant teaching staff had acquisition of knowledge related to objectives of conferences.

At this context, [20] revealed that the pre-conferences tend to be brief and focus on what students will be doing. Post-conferences focus on what has been done in the clinical setting and frequently includes activities to enhance student learning and linking theory to practice. During both types of conferences, students have the opportunity to develop collegial relationships and bond as a clinical group. As instructors, we can evaluate where students are in curriculum and help to build on what they have. Conference time can be used to draw out their reading and correlate with what may occur or has occurred on the unit that day

From the researcher point of view, CLC providing a structured frame for clinical learning. So, it should be known to the faculty assistants and identify their roles in each stage in order to be able to plan effective clinical teaching that allows students to apply what they are learning in theory courses.

Regarding clinical teaching strategies, the majority of CIs had acquisition of knowledge in pre-program related to demonstration as a teaching method and near to one third of them had acquisition of knowledge related to

importance of problem-based learning. While in post program the highest percentage had knowledge related to importance of problem-based learning, work experience may influence adult learner and case study as a teaching method. However, at follow-up the majority of them had acquisition of knowledge related to case study as a teaching method and work experience may influence adult learner.

This result supported by [21] who mentioned that nursing education focuses on teaching strategies which promote nurses' critical thinking, autonomy, open-mindedness, and attentiveness. Similarly, nursing students are expected to focus not only on learning technical clinical skills, but also on learning critical thinking, knowledge seeking, and self-awareness [22]. The previous findings are consistent with [6] who reported that the majority of FAs had knowledge in pre-program related to case study as a teaching method. At post program, all of them had knowledge related to purpose of nursing round, case study as a teaching method of seminar evaluation. However, at follow up, the majority of them had related to case study as a teaching method, and bedside teaching.

On this regard [23] demonstrated the effectiveness of problem-based learning (PBL) in an undergraduate nursing program on student test performance. This indicated that PBL fosters more in-depth learning; this in-depth learning may come at a cost to the breadth of learning also suggested that PBL especially improved students' performance on knowledge application.

PBL promotes "deep understanding" where students study more for meaning and less for reproduction those students who are using PBL tend to access resources more frequently with a more intentional style of learning because PBL reshapes the learning style and developing patterns that define the proactive lifelong learning .PBL also provides a more challenging, motivating, and enjoyable approach to enhance education.

From the researcher point of view, the clinical instructors should be aware of different teaching strategies to utilize it and to ensure direct attention, promote a response, stimulate thinking of the students.

Regarding knowledge of CIs about role of clinical trainer, less than half of CIs had acquisition of knowledge related to effect of personality on role of clinical trainer, Also more than two fifth of them had acquisition of knowledge related to importance of professional technical skills at pre-program ,While in post program the highest percentage of CIs had acquisition of knowledge related to importance of professional technical skills, which slightly declined in follow up phase .However at follow-up the most of CIs had acquisition of knowledge related to clinical trainer role in student evaluation.

On the same line, the result by [6] who reported that less than three quarter of them had knowledge related to importance of professional technical skills at pre-program, while at post program all of FAs had knowledge related to definition of clinical trainer and importance of professional technical skills. However, at follow up, most of them had knowledge related to formal evaluation.

The result supported by [24] identified 'professional competence' as the most desirable characteristic for nursing faculty. Being professionally competent requires faculty members to be proficient in theoretical knowledge

and clinical skills. This involves attributes such as demonstrating clinical skills and judgment as well as effective communication skills, having exceptional knowledge in nursing, and being a positive role model.

Similarly, [25] explored student nurses' views of their nursing instructors' teaching characteristics in Oman and the Philippines. Nursing students rated the 'professional competence' of nursing faculty as the most essential teaching characteristic, followed by 'fair and objective evaluation' and 'relationship with students'.

In the same respect, the quality of the clinical experience is often directly related to the quality of the clinical instructor. Clinical instructor spends many hours in clinical settings with students to ensure that they are getting the experiences they need [26].

In this regard, [27] mentioned that the clinical instructors were considered as a source of support when they used interpersonal and professional interpersonal skills and when they developed relationships with students and staff members in the clinical setting. They play a major role in the development of graduates who are prepared to deliver safe, effective nursing care.

From the researcher point of view, the CIs are aware of their roles because it is the core function of them, so they are knowledgeable about importance of professional technical skills to be prepared for their professional role and promote helpful behaviors that enhance the learning process.

Concerning knowledge related to administrative skills, more than one third of clinical instructors had acquisition of knowledge related to upward communication at pre-program, while at post program the majority of them had acquisition of knowledge related to definition of problem solving and rules of documentation. However, at follow-up the highest percentage of CIs had acquisition of knowledge related to concept of communication, rules of documentation and component of critical thinking.

The result was in congruent with [6], who reported that more than two thirds of FAs at pre-program had acquisition of knowledge related to concept of communication. As well, all of them at post program, and follow up had acquisition of knowledge related to concept of communication.

On the same line, [28], reported that less than one quarter of staff nurses working at intensive care units at Ain Shams University hospitals, had acquisition of knowledge related to meaning of communication at pre program, while increased at post and follow up program.

The result supported by [29], who indicates that the overall mean score percentages of the nursing educators' report of their critical thinking skills were relatively high. The result finding contradicted with [30], who suggested that the studied faculties were not equally skilled at critical thinking because they may not have developed intellectually to the point of thinking critically. These results demonstrate that the faculty appreciate the need for critical thinking in the discipline but are not positioned to teach it well in their theoretical approach to knowledge. In other words, nursing faculties understand critical thinking but continue to have difficulty in presenting this to the students.

From the researcher point of view, the CIs had acquisition of knowledge about concept of communication

and because the communication is studied in nursing curriculum and they are also may attend workshop about communication so that they had knowledge about concept of communication. Communication is the basic element of human interaction that allows people to establish, maintain and improve contact with others. So, it is essential for clinical instructor to have excellent communication and associated interpersonal skills.

Also, CIs should have acquisition of knowledge about component of critical thinking, because the ability to think critically is an essential element of higher education and more specifically, nursing education. Nursing educators are crucial to the educational interaction, thereby having the potential to facilitate positive critical thinking abilities and dispositions of students.

Regarding total mean scores of clinical instructors' knowledge related to clinical teaching, the result of the present study showed that there was statistically significant improvement in the level of clinical instructors' clinical teaching skills knowledge after program and in the follow up. The forgoing findings of the present study was consistent with [15] who reported that there was high statistically significant improvement in the level of assistant teaching staff (ATS) clinical teaching skills knowledge after program and on follow up. Most of ATS was categorized having very poor scores in their clinical teaching skills knowledge before intervention, while immediately post program slightly less than two thirds of them become excellent. After three months, the ATS who recorded excellent scores declined.

From the researcher point of view, the improvement of FAs knowledge related to clinical teaching skills may be due to the importance of clinical teaching skills in close the gap between theory and practice when dealing with their students during clinical teaching in clinical setting. So, they are motivated to learn about this subject.

Concerning the association between total clinical instructors' knowledge (pre and post) intervention, the result of the present study showed that there was statistically significant improvement between mean scores of the faculty assistants in relation to their total clinical teaching skills knowledge in pre and post intervention program. The forgoing findings of the present study was consistent with the results of [31], conducted a study about promoting clinical teaching skills among nursing instructor at Faculty of Nursing, Cairo University, found that there was a marked improvement in the knowledge level attainment from pre - test, immediate, and two months tests. During the pre- program, more than two thirds of the participants (Clinical instructors & Assistant lecturers) had poor knowledge level in their clinical teaching skills knowledge in the pre- test, while the majority of them had excellent level in the immediate post- test and two months later.

Regarding the association between total clinical instructors' knowledge (pre and follow-up) intervention, the result of the present study showed that there was statistically significant improvement between mean scores of the clinical instructors in relation to their total clinical teaching skills knowledge in pre and follow-up intervention program.

Similarly, the result of the study done by [18] who design and implement a clinical teaching program for

preparing hospital preceptors in Cairo University, reported that all the participants had poor knowledge level in the clinical teaching skills in pre-program period, while most of the participants had excellent level in their clinical teaching knowledge test s and at after three months.

The results of the current study showed that there were statistically significant relations between clinical instructors' characteristics of specialty and their knowledge level. While there were statistically significant relations between clinical instructors' characteristics (age, academic position & specialty) and their performance level.

On the other hand, [6] mentioned that there were statistically significant relations between faculty assistants' characteristics (age, academic position & years of experience in clinical teaching) and their knowledge level.

The previous results are going with [6] who revealed that there were statistically significant relations between faculty assistants' characteristics (age, academic position & years of experience in clinical teaching) and their performance level.

7. Conclusion

On the light of the main study results and answers on the research hypothesis, the study was concluded that:

The finding of the present study demonstrated that he there are improvement of mean score of the clinical instructors in relation to their total knowledge related to clinical teaching skills throughout the program. As well, there are improvement of mean score of clinical instructors in relation to their performance at pre, post and follow up program. Also, there was no correlation between clinical instructors' knowledge and their performance in pre- post and follow-up program, where p-value was >0.05 , while there was positive correlation between total post performance and total follow up performance. Also positive correlation between total post knowledge and total follow up knowledge. This confirm the research hypothesis which stated that after implementation of the training program there will be improvement in knowledge, skills and attitude of clinical instructors in clinical teaching skills at clinical setting.

8. Recommendations

In the view of the study findings the followings are recommended:

- Orientation program for newly appointed clinical instructors about clinical teaching competencies is highly recommended.
- Provide an opportunity for newly appointed clinical instructors to discuss their clinical work, validate their decision-making, and discuss clinical issues with faculty members, who may create stimulating clinical experiences and foster the development of self-confidence.
- Continuous assessment of clinical instructors' learning needs and monitoring their performance.
- Ongoing professional education for clinical instructors about clinical teaching knowledge.

- Develop a clinical teaching efficacy scale to evaluate clinical nursing instructors based on the attributes of rules and their capabilities.
- Continuous support and guidance from teaching faculty members for clinical instructors in the clinical setting in order to ensure quality of clinical teaching.

Future researchers: -

- Future studies exploring individual and academic factors that contribute to nursing students' positive perceptions of faculty teaching characteristics are warranted in the midst of the increasing diversity of students being admitted to nursing programs.
- Further researches are recommended to study other factors that affecting quality of clinical teaching.

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