Assessment of Nursing Educators' Opinions, Knowledge and Teaching Methods regarding Encouragement Student's Critical Thinking

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Abstract

Background: Critical thinking has long been considered an important part of nursing education. Nursing graduates must have critical thinking skills in addition to a basic knowledge of nursing and the sciences to make the necessary clinical judgments. The development of these skills requires different teaching and learning strategies. **Aim**: the aim of this study is to assess nursing educators' opinions, knowledge and teaching methods regarding encouragement students' critical thinking. **Research Design:** the study was conducted using descriptive research design. **Setting**: The study was carried out at Faculty of Nursing, Minia University. **Subject:** The study subjects consisted 75% (n= 80) of clinical instructors, assistant lecturers and lectures at the Faculty of Nursing, Minia University. **Tool:** One tool was used in this study the critical thinking tool for nurse educators. **Results:** reveals that, the majority of the sample had moderate score of knowledge about critical thinking ranged from "88.5% to 100%". **Conclusions:** the majority of the sample had moderate score of knowledge about critical thinking, the highest mean scores of nurse educators' regarding use each method in clinical teaching was "written nursing care plan" , also the highest mean scores of nurse educators' regarding use each method in clinical didactic and methods that enhance student ability to think critically was "small group discussions" **Recommendations:** nurse educators must try new teaching approaches that are most effective in promoting critical thinking skills among student, and nursing curriculum should be revised to include critical thinking skills into nursing curriculum.

Keywords: Nursing Educators' Knowledge, Teaching Methods, Critical Thinking.

Introduction

Today, increasingly complex health care demands fast and effective decision making from nurses, which relies on strong critical thinking (CT) skills. The growth in health care complexity is associated with increasingly rapid technological evolution, thus necessitating continuous improvement of nurses' cognitive and metacognitive skills, which are indispensable to CT. Training programs, have invested in CT education for nurses, and through testing, these programs have sought to determine whether new professionals will enter the labor market with well-developed CT skills. Importantly, the acquisition of CT skills requires conscious commitment **(Pitt et al., 2015).**

Also one of the objectives of nursing education is to produce nurses with the ability to think critically and thus be able to provide safe nursing care. Nurses today are expected to use critical thinking skills to make judgments about patient situations and act upon those judgments on a daily basis. Nurses must weight multiple pieces of evidence and make quick decisions. Critical thinking has long been considered an important part of nursing education. Nursing graduates must have critical thinking skills in addition to a basic knowledge of nursing and the sciences to make the necessary clinical judgments. The development of these skills requires different teaching and learning strategies **(Yildrim & Ozkahraman, 2011).**

Moreover nursing education has emphasized CT as an essential nursing skill for more than 50 years. The definitions of critical thinking have evolved over the years. There are several key definitions for critical thinking to consider. The American Philosophical Association (APA) defined critical thinking as purposeful, self-regulatory judgment that uses cognitive tools such as interpretation, analysis, evaluation, inference, and explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations on which judgment is based **(Kriewaldt & Turnidge, 2013).**

Also critical thinking in nursing is particularly essential for correctly assessing, interpreting and analyzing information with discretion and without value judgments, with the goal of determining appropriate diagnostic and decision-making needs. These skills are desirable in all areas of nursing, especially direct patient care (**Carter et al., 2015).**

Competence in critical thinking is one of the expectations of nursing education. It is a part of professionalism and included within undergraduate nursing school curricula and is a part of the criteria for the accreditation and assessment of undergraduate and graduate nursing education programs. Determining the critical thinking levels of students in undergraduate nursing schools is important in terms of planning interventions in this area and establishing the methods of education that should be used. Soon after this, healthcare accreditation agencies around the world moved to include critical thinking as a requirement for nurses when making clinical judgments concerning care provision **(Mahmoud, 2012).**

Nursing is a profession where knowledge and practice do not remain static but are ever changing. It can be argued that nurse education should enable students to become effective lifelong learners equipped with the learning skills required for their profession. This can be achieved in different ways as by nurse educators knowing their students' learning style preferences and applying this knowledge in the selection and utilization of teaching, learning and assessment strategies to enable them to develop beyond their learning style comfort zone and become more flexible in their learning range **(Fleming et al., 2011).**

So the educators have a number of sources and strategies, such as conceptual maps, simulations, problem-based learning (PBL), YouTube videos, video vignettes, and team-based learning (TBL), that can help in developing their CT skills **(Logan,2012; Hooper, 2014; Hung et al., 2015).**

Significance of the Study

The role of the nurse has changed considerably since those early days. The complex legal, educational, and professional problems confronting nurses today emphasize the need for more than rote memory, knowledge of basic skills, and the ability to follow directions. Nurses must be able to make critical clinical judgments and solve life threatening problems without hesitation. Nurse educators' knowledge of critical thinking and their use of methods to encourage student critical thinking warrant further attention. It is, therefore, becoming increasingly important that nursing students learn how to think, and use reasoning skills in order to analyze complex data and make appropriate decisions in the clinical setting. So, studies are needed to determine if educators define critical thinking terms differently, and identify reasons why educators do not use critical thinking methods more often **(Gendrop & Eisenhauer , 2012)**

The challenge of producing capable nursing educators need to acknowledge the need for student critical thinking should be met, and take every opportunity to foster student thinking by planning activities that require active learning. Nurse educator opinions and knowledge of critical thinking and their use of teaching methods were, therefore, the area selected for study.

Aim of the study:

The aim of this study is to assess nursing educators' opinions, knowledge and teaching methods regarding encouragement students' critical thinking.

Research questions:

- What are nursing educator's opinions toward teaching critical thinking?
- What are the nursing educator's knowledge about critical thinking?
- What are teaching methods that promote critical thinking?

Subjects And Methods

Research design:

The study was conducted by using descriptive research design

Setting:

The study was carried out at faculty of nursing, Minia University

Subjects

Sample type:

- A represented sample of nursing educators at the Faculty of Nursing, Minia University.

Sample size:

- The study subjects consisted 75% (n= 80) of clinical instructors, assistant lecturers and lectures at the Faculty of Nursing, Minia University, divided as follows:

Department	lecturer		Assist. lecturer		Clinical instructor		Total	
	Total	75%	Total	75%	Total	75%	Total	75%
Nursing administration department	5	4	9	7	4	3	18	14
Community health nursing department	3	2	7	6	3	2	13	10
Pediatric nursing department	4	3	5	3	4	3	13	9
Woman health and obstetrics nursing department	3	2	8	6	3	2	14	10
Mental health nursing department	4	3	8	6	3	2	15	11
Medical surgical nursing department	8	6	14	11	12	9	34	26
Total	27	20	51	39	39	21	107	80

Distribution of staff members at faculty departments

Tools of data collection:

One tool was used in this study: " the critical thinking survey for nurse educators ".

This tool was used to examine nursing educators' opinions, general knowledge and methods used about CT; it consisted of two parties as follow:

- 1st part was including: Personal data sheet for nursing faculty staff. It was includes; (age, sex, qualifications, years of experience, position and the working department).
- 2nd part: the critical thinking tool for nurse educators, it was developed by Green, (1 9 9 5).

This tool consisted of five parts:

- ***Part I***, it consisted of (18) statement to examine nursing educators' opinions about general knowledge for teaching CT with five likert scale ranged as *(strongly agree=5, agree=4, neural=3, disagree=2, strongly disagree=1)* and score was reversed for negative items. The scoring system of this part was classified into 3 levels as a follows:
  - **Low** 18-41
  - **Moderate** 42-66
  - **High** 67-90
- ***Part II and Part III***, it consisted of (21) statements were designed to identify current teaching methods used by nurse educators in the clinical and dedicate teaching, with four likert scale ranged as (*never*= 1, *occasionally* =2, *frequently* =3 *and* most *of time* =4*)*. The higher scores reflect that the high teaching method was used.
- ***Part IV,*** it consisted of one question to identify two teaching methods that educators felt were the most effective in encouraging student CT. The higher score for two different teaching methods indicated these two methods are more used than others methods.
- ***Part V,*** it consisted of (14) statement to assess nurse educators' specific knowledge about the essential constructs of critical thinking, with three likert scale ranged as (*not a construct* = 1, uncertain =2 *and* definitely a construct =3*)*. The scoring system of this part was classified into 3 levels as a follows:
  - **Low** 14-23
  - **Moderate** 24-33
  - **High** 34-42

Validity of the tool:

The tool was submitted to a jury of three experts in the field of nursing administration from Faculty of Nursing at Minia University. Tool face **content** validity was done to

identify the degree to which tools supposed to be measured. The tools were examined for content coverage, sequence of items, clarity, relevance, applicability, wording, length, format, and overall appearance. No modification was done.

Reliability of the tool:

Reliability of the tool was performed to confirm consistency of tool. The internal consistency measured to identify the extent to which the items of the tool measured what it was intended to measure. Internal consistency of the tool was assessed with the Cronbach's alpha coefficient. Cronbach's alpha coefficient of 0.00 indicates no reliability and a coefficient of 1.00 indicates perfect reliability. However, a reliability coefficient of 0.70 is acceptable. Cronbach's alpha for reliability testing was performed for each part of the tool and the results was as represented in the table.

Tool parts	Cronbach's alpha test
• 1st part (opinions about general knowledge for teaching CT)	0.794
• 2nd and 3rd part (teaching methods used by nurse educators in the clinical and dedicate teaching)	0.855
• 4th Part (two teaching methods that educators felt were the most effective in encouraging student CT)	0.842
• 5th Part (assess nurse educators' specific knowledge about the essential constructs of critical thinking)	0.758

Pilot study:

A pilot study was conducted on (10%) of participants about 10 members of the staff as (clinical instructors = 3) and (assistant lecturers=5) (lecturer = 2) (from the total study subjects) prior to starting the field work in order to obtain information that may improve the research plan and facilitate the execution of the study. They were selected randomly from the different faculty departments in order to check and ensure the clarity and applicability of the tools; as well as to identify obstacles and problems that may be encountered during data collection and estimate the time needed to fill the questionnaires. In the light of the findings of the pilot study, no modifications were done in the tool and the tool was put in their final form; so the pilot study were included in the actual study.

Data collection procedure:

- Permission was obtained to collect the data from Dean of Nursing Faculty and head of all academic departments (Medical Surgical Nursing Department, Woman Health and Obstetrics Nursing Department, Pediatric Nursing Department, Psychiatric and Mental Health Nursing Department, Community Health Nursing Department and Nursing Administration Department), after the researcher explains the importance and purpose of the study .
- The data were collected from the beginning of second semester of the academic year 2018- 2019 (from beginning of February to the end of April).
- The researcher scheduled the visits to each department staff and meets them to collect data.
- The sheets were given individually to all of them and they were given a period of time to respond on it. The data were received according to each individual time, also individual take about 30 minutes (half hour) to fill the questionnaire.
- A review of the related literature which covering various aspects of the problem was done, using different books, journals and web sites, to get acquainted with the research problem and to implement the study.

Administrative Design:

- A written initial approval was obtained from the Research Ethics Committee of the Faculty of Nursing, Minia University. Permission to conduct the study was obtained from the Dean of the Faculty of Nursing, Minia University. Permission to conduct the study was obtained from head of departments at the Faculty of Nursing, Minia University.

Ethical Considerations:

- The faculty nursing staff members were informed that their participation in the study was completely voluntary and there was no harm if they not participated in the study.
- Explanation about the study was done to the faculty nursing staff members included the aim of the study and the potential benefits,
- The faculty nursing staff members were informed about the withdrawal procedures if they decided to leave the study at any time before, during, and or after the completion of data collection,
- Confidentiality of data, privacy, identity, voluntary participation and right to refuse to participate in the study was emphasized to subjects

Statistical Analysis

Data were analyzed using the statistical package for social science (SPSS) version 20. Numerical data were expressed as mean and SD. Quantitative data were expressed as frequency and percentage. for quantitative data, comparison between two variables was done using t-test, and comparison between more than two variables used ANOVA test. Relations between different numerical variables were tested using Pearson correlation. Probability (p-value) less than 0.05 was considered significant and less than 0.001 was considered highly significant

Results

Table (1) Distribution of the personal data regarding to nurse educators (n=80).

Characteristics	(N=80)	%
Sex		
• Male	10	12.5
• Female	70	87.5
Age		
• 20-29yrs	20	25
• 30-39yrs	53	66.2
• 40-49yrs	7	8.8

Characteristics	(N=80)	%
Mean±SD = 32,7±4,87		
Qualification		
• BSc	21	26.2
• MsD	39	48.8
• PhD	20	25
Years of experience		
• 1-5	20	25
• 6-10	28	35
• 11-15	20	25
• 16 >20	12	15
Mean±SD = 9,60±4,87		

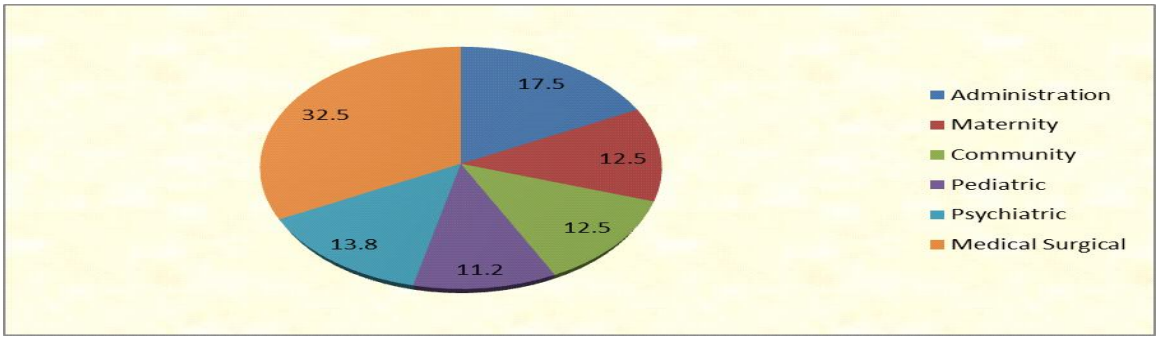

Figure (1) Distribution of study subjects according to faculty departments

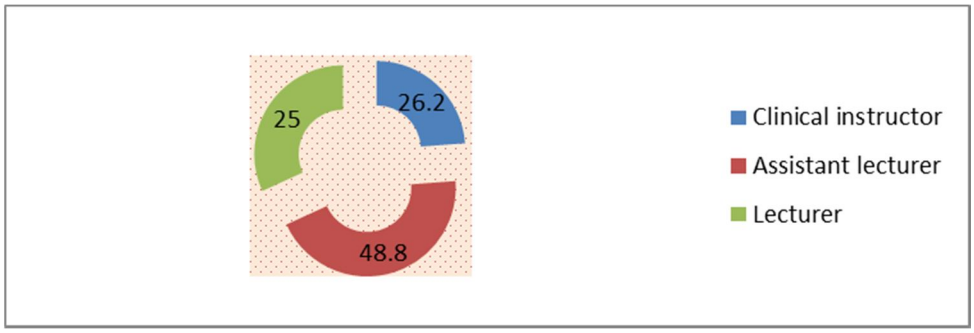

Figure (2) Distribution of study subjects according to position

Table (1) and figures (1, 2) show that the majority of the participants from nursing educator's (87.5%) of are female. In relation to age, about two thirds (66.2%) of nursing educators were ranged from (30-39) years old. About the qualification, it found nearly to half of the sample (48.8%) has master degree. And about one third (35%) of nursing educators are located in (6-10) years of experience. As regards to their department, one third of nursing educators (32.5%) are at Medical surgical department. Concerning the position, it notes that nearly half of nursing educators (48.8%) are Assistant lecturer.

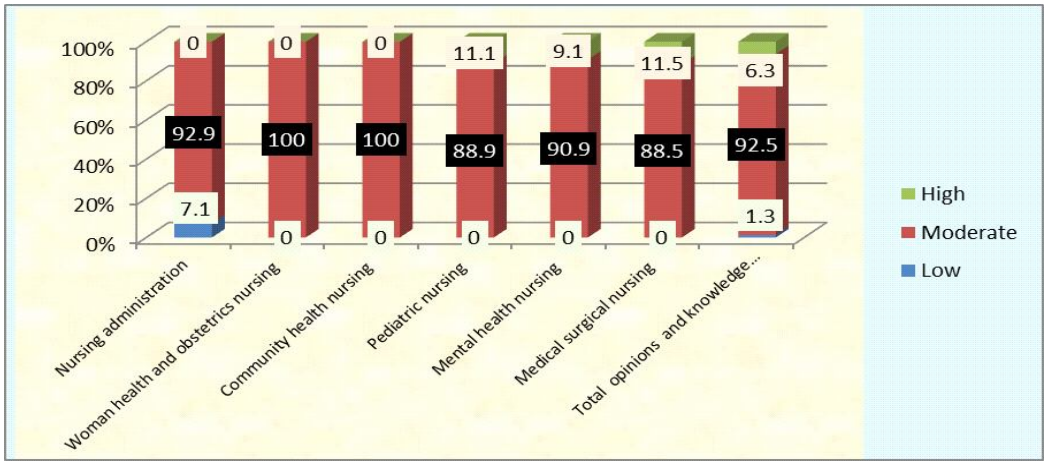

Figure (3) frequency distribution by percentage of nurse educators' opinions and general knowledge about CT according to each department (n=80)

Figure (3) displays that all the sample (100%) has moderate level of general knowledge about CT at woman health and obstetrics nursing & community health nursing department, in which (92.9%) has moderate level of general knowledge about CT at nursing administration department, (90.9%) of the sample has moderate level of knowledge about CT at mental health nursing department, (88.9%) of them has moderate level of knowledge about CT at Pediatric department, and (88.5%) has moderate level of knowledge about CT at medical surgical nursing department . also (92.5%) of the sample has moderate opinion and knowledge about CT

Tables (2) mean scores of nurse educators' response regarding methods used in clinical teaching at faculty departments

Variables	Nursing administration department (n=14)	Woman health and obstetrics nursing department (n=10)	Community health nursing department (n=10)	Pediatric nursing department (n=9)	Mental health nursing department (n=11)	Medical surgical nursing department (n=26)	Total
	Mean+SD						
Written nursing care plans	2.86±1.35	**4,00±0,0**	**3.40±0.84**	**3.33±0.70**	2.64±1.43	3.04±0.66	**3.15+0.99**
Clinical case simulations	2,29±1,13	3.00±0.63	2,90±0,87	2.78±0.83	1.82±1.07	2.92±0.62	2.75±1.00
Small group discussions	2.57±0,93	3.50±0.85	2.60±0.84	2.78±0.83	2.09±1.04	**3.12±0.58**	2.82±0.89
Computer case simulations	2.07±1.14	1.70±1.16	2.70±1.05	2.11±1.05	2.09±1.22	2.58±1.02	2.27±1.13
Providing facts	2.64±1.08	2.50±0.97	2.60±0.96	2.78±1.09	2.36±1.28	2.92±0.89	2.69±1.01
Clarification of values	2.57± 1.01	2.40±0.84	2.50±1.08	3.00±0.86	2.55±1.21	**3.12±0.76**	2.76±0.95
Pre-clinical written assignments	**3.00±1.24**	3.10±1.19	2.90±1.01	2.89±0.78	**2.73±1.27**	2.96±0.72	2.94±0.99

Table (2) illustrates that the most method used in nursing administration department and mental health nursing department are pre-clinical written assignments as mean scores (3.00±1.24 & 2.73±1.27 respectively), while in woman health and obstetric nursing department, community health nursing and pediatric nursing department in favor to use the method of written nursing care plan as mean scores (4,00±0,0, 3.40±0.84 & 3.33±0.70 respectively), but in the medical surgical nursing department the most methods used small group discussion and clarification of values as mean scores(3.12±0.58 & 3.12±0.76 respectively). The most method used in the faculty is written nursing care plan as mean score (3.15±0.99).

Table (3) mean scores of nurse educators' response regarding methods used in clinical didactic at faculty departments (n=80)

Variables	Nursing administration department (n=14)	Woman health and obstetrics nursing department (n=10)	Community health nursing department (n=10)	Pediatric nursing department (n=9)	Mental health nursing department (n=11)	Medical surgical nursing department (n=26)	Total
	Mean+SD						
Classroom case simulations	2.93±0.99	**4,00±0,0**	2.70±0.83	3.00±0.86	2.91±1.30	3.00±0.74	3.06+0.91
Small group discussions	**3.36±0.84**	3.90±0.31	3.00±0,66	3.33±0.70	**3.36±1.02**	**3.19±0.69**	**3.32±0.75**
Computer tutorials	2.79±1.12	1.60±1.26	2.30±1.05	2.44±1.13	3.00±1.18	2.19±1.02	2.38±1.15
Computer case simulations	1.79±1.05	1.40±0.84	1.90±0.87	1.89±0.78	1.82±1.07	1.88±0.71	1.80±0.86
Debates	1.79±1.12	1.00±0.00	1.80±0.78	1.98±0.92	1.64±1.20	2.00±0.89	1.75±0.97
Providing facts	2.64± 1.00	1.90±0.56	2.30±1.05	3.11±0.86	2.36±1.21	2.65±0.76	2.53±0.95
Clarifying values	2.57±1.24	2.30±1.19	2.40±1.01	2.89±0.78	2.27±1.27	2.58±0.72	2.51±0.99
Lecture	3.21+.97	3.50+.85	2.50+1.08	3.22+0.83	2.91+1.37	3.12+0.76	3.09+0.9
Essay examinations	3.07+0.91	3.90+0.31	2.90+0.87	3.33+0.70	2.82+1.25	3.04+0.72	3.14+0.86
Written assignments	3.00+0.87	3.00+1.4	**3.30+0.67**	**3.44+0.52**	2.73+1.19	3.12+0.76	3.09+0.91
Drills	2.43+1.15	2.60+1.50	2.70+1.16	2.78+0.83	2.00+1.26	2.35+0.79	2.44+1.07
Multiple choice examinations	2.79+1.18	2.70+1.25	3.00+0.816	3.00+1.11	2.73+1.34	2.58+0.90	2.75+1.06
Concept mapping	2.79+1.18	2.30+0.94	2.40+1.07	3.00+0.86	3.27+1.19	2.42+0.90	2.65+1.04
Metaphors	2.64+1.27	1.60+1.26	2.30+1.16	2.67+0.70	2.36+1.28	2.12+0.81	2.26+108

Table (3) illustrates that the most method used in nursing administration department, mental health nursing department and medical – surgical department is small group discussion as mean scores (3.36±0.84, 3.36±1.02 &3.19±0.69respectively), while in woman health and obstetric nursing department in favor to use the method of classroom case simulation as mean score (4,00+0,0), but in community health nursing department and pediatric nursing department the most methods used (written assignments) as mean scores (3.30±0.67 &3.44±0.52 respectively). The most method used in the faculty is Small group discussions as mean score (3.32±0.75).

Table (4) Percentage distribution of nurse educators' opinion, regarding the two methods that enhance student ability to think critically a faculty departments (n=80)

Variables	Nursing administration department(n=14)				Woman health and obstetrics nursing department(n=10)				Community health nursing department(n=10)				Pediatric nursing department(n=9)				Mental health nursing department(n=11)				Medical surgical nursing department(n=26)			
	No		Yes		No		Yes		No		Yes		No		Yes		No		Yes		No		Yes	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Classroom case simulations	14	100	0	0	9	90	1	10	9	90	1	10	7	77.8	2	**22.2**	11	100	0	0	20	76.9	6	23.1
Small group discussions	2	14.3	12	**85.7**	5	50	5	**50**	3	30	7	**70**	5	55.6	4	**44.4**	3	27.3	8	**72.7**	19	73.1	7	**26.9**
Computer	14	100	0	0	6	60	4	**40**	10	100	0	0	8	88.9	1	11.1	8	72.7	3	**27.3**	26	100	0	0

Variables	Nursing administration department(n=14)				Woman health and obstetrics nursing department(n=10)				Community health nursing department(n=10)				Pediatric nursing department(n=9)				Mental health nursing department(n=11)				Medical surgical nursing department(n=26)			
	No		Yes		No		Yes		No		Yes		No		Yes		No		Yes		No		Yes	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
tutorials																								
Computer case simulations	12	85.7	2	14.3	10	100	0	0	7	70	3	30	7	77.8	2	22.2	11	100	0	0	17	65.4	9	34.6
Debates	13	92.9	1	7.1	7	70	3	30	9	90	1	10	9	100	0	0	10	90.9	1	9.1	26	100	0	0
Providing facts	10	71,4	4	28.6	8	80	2	20	9	90	1	10	7	77.8	2	22.2	9	81.8	2	18.2	21	80.8	5	19.2
Clarifying values	12	85.7	2	14.3	8	80	2	20	9	90	1	10	9	100	0	0	10	90.9	1	9.1	25	96.2	1	3.8
Lecture	13	92.9	1	7.1	8	80	2	20	10	100	0	0	8	88.9	1	11.1	10	90.9	1	9.1	19	73.1	7	26.9
Essay examinations	12	85.7	2	14.3	8	80	2	20	9	90	1	10	8	88.9	1	11.1	9	81.8	2	18.2	24	92.3	2	7.7
Written assignments	14	100	0	0	10	100	0	0	10	100	0	0	8	88.9	1	11.1	11	100	0	0	23	88.5	3	11.5
Drills	13	92.9	1	7.1	9	90	1	10	10	100	0	0	9	100	0	0	10	90.9	1	9.1	22	84.6	4	15.4
Multiple choice examinations	11	78.6	3	21.4	10	100	0	0	9	90	1	10	7	77.8	2	22.2	8	72.7	3	27.3	22	84.6	4	15.4
Concept mapping	14	100	0	0	10	100	0	0	*7*	*70*	*3*	*30*	7	77.8	2	22.2	10	90.9	1	9.1	24	92.3	2	7.7
Metaphors	14	100	0	0	10	100	0	0	*10*	*100*	*0*	*0*	9	100	0	0	11	100	0	0	24	92.3	2	7.7

This **table (4)** shows that the nurse educators' opinion, regarding the methods that enhance student ability to think critically, in the nursing administration department enhance use of small group discussion and providing facts as (85.7% &28.6%respectively), while in woman health and obstetrics nursing department enhance use of small group discussion and computer tutorials as (50% &40%respectively). Also in community health nursing department enhance use of small group discussion, computer case simulations and concept mapping as (70% &30%respectively) regarding, pediatric nursing department enhance use of small group discussion, classroom case stimulations, computer case simulations, providing facts, multiple choice examinations and concept mapping as (44.4%&22.2% respectively). And in mental health nursing department enhance use of small group discussion, computer tutorials and multiple choice examinations as (72.7% &27.3%respectively), while medical and surgical nursing department enhance use of computer case simulations, small group discussion and lecture as (34.6% &26.9%respectively).

Table (5) mean scores of nurse educators' believe responses regarding constructs of the concept CT at faculty departments(n=80)

Variables	Nursing administration department	Woman health and obstetrics nursing department	Community health nursing department	Pediatric nursing department	Mental health nursing department	Medical surgical nursing department	Total
	Mean+SD						
Analyzing arguments	2.43±0.64	2.40±0,51	**2.80±0.42**	2.67±0.50	2.36±0.50	**2.54±0.64**	2.52+0.57
Judging values	2.57±0.51	2.50±0.52	2.50±0,87	2.67±0.50	2.45±0.50	2.46±0.52	2.51±0.59
Making inferences	2.64±0,93	2.70±0.48	2.60±0.84	2.67±0.50	2.82±0.40	2.31±0.73	2.56±0.59
Identifying assumptions	2.64±0.49	**2.90±1.16**	2.40±0.69	2.44±0.52	**2.91±0.30**	2.08±0.62	2.48±0.61
Decision making	2.50±0.51	**2.90±0.31**	2.50±0.52	2.44±0.52	2.64±0.50	2.15±0.67	2.45±0.53
Productive thinking	2.64± 1.01	2.60±0.84	2.20±1.08	**2.89±0.86**	2.73±1.21	2.50±0.76	**2.58±0.95**
Deductive reasoning	**2.79±0.42**	2.70±0.48	2.00±1.01	2.44±0.78	2.64±1.27	2.00±0.72	2.36±0.99
Reciting facts	2.36±0.64	2.60±0,51	2.20±0.42	2.78±0.50	2.18±0.50	2.38±0.64	2.40+0.57
Separating relevant from irrelevant data	2.71±0.51	2.10±0.52	2.40±0,87	2.33±0.50	2.45±0.50	2.27±0.52	2.38±0.59
Reflecting	2.14±0,93	2.60±0.48	2.20±0.84	2.67±0.50	2.09±0.40	2.50±0.73	2.38±0.59
Creative thinking	2.36±0.49	2.10±1.16	2.30±0.69	2.00±0.52	2.55±0.30	2.08±0.62	2.21±0.61
Following logic	2.00±0.51	2.50±0.31	2.30±0.52	2.56±0.52	2.36±0.50	2.38±0.67	2.34±0.53
Inductive reasoning	2.29±0.51	2.40±0.31	2.30±0.52	2.33±0.52	2.55±0.50	2.35±0.67	2.36±0.53
Divergent thinking	2.43± 1.01	2.60±0.84	2.20±1.08	2.33±0.86	2.45±1.21	2.38±0.76	2.40±0.95

Table (5) illustrates that the nurse educators' believe responses regarding constructs of the concept CT in nursing administration department is deductive reasoning as mean scores (2.79±0.42), and in woman health and obstetrics nursing department are identify assumptions and decision making as mean scores (2.90±1.16&2.90±0.31). While community health nursing and medical - surgical nursing department in favor to believe analyzing arguments as mean scores (2.80±0.42&2.54±0.64 respectively), but pediatric nursing department believe the productive thinking as mean scores (2.89±0.86). Also mental health nursing department believe the identify assumptions as mean score (92.54±0.64). The nurse educators' believe responses regarding construct of the concept CT at the faculty is productive thinking as mean score (2.58±0.95).

Table (6): Correlations between parts of the tool

Variables	Opinion & Knowledge about CT		Teaching methods used by nurse educators		Two teaching methods		Nurse educators' knowledge about constructs of CT	
	r	p	r	p	r	p	r	p
Opinion & Knowledge about CT								
Teaching methods used by nurse educators	0.049	0.665						
Two teaching methods	0.056	0.623	0.078	0.490				
Nurse educators' knowledge about	0.024	0.829	0.201	0.074	0.051	0.653		

Variables	Opinion & Knowledge about CT		Teaching methods used by nurse educators		Two teaching methods		Nurse educators' knowledge about constructs of CT	
	r	p	r	p	r	p	r	p
constructs of CT								

N.B *Significant is considered highly significant at (p-value <0.01)

Table (6) displays that; there were positive correlation between tool parts.

Discussion

Ongoing changes in science and technology have contributed to revolutionary changes in every sector of the health care system. In nursing, critical thinking has been identified as a valuable educational goal in meeting the challenges of science and technology in the twenty-first century and beyond. Learning and thinking are interrelated lifelong processes **(Chaffee, 2011**). To add depth and substance to knowledge, one must learn to refine and adjust one's thinking. With practice and time, one can get better at making more thoughtful observations and judgments and can recognize how values are reflected in thinking and behaving **(Yıldırım, & Özkahraman 2011).**

The current study showed, regarding the personal data of nurse educators, about two thirds were aged from (30-39 years old); and for the gender the majority of nursing educators were females; concerning to years of experience about one third of nursing educators had (6-10) experience years. As regard to position and qualification, nearly half of the sample were assistant lecturers and with master degree. About department, the highest percent as one third (32.5%) of them were in Medical Surgical Nursing Department.

The study findings revealed that there were no statistically significant difference between nurse educators' opinions and general knowledge about CT at different departments. That may be regarded as all nursing educators of any specialty value critical thinking in nursing because they believe it can improve professional standards of practice, stimulate inquiry, encourage sound reasoning in practice, and contribute to personal and professional development.

Also, educator's knowledge of critical thinking and use of critical thinking methods for didactic nursing courses help students to face and deal with issues facing them in clinical practice. Another possibility is that nurse educators' opinions are more positive today than in years past due to new trends applied in medical and nursing education fields.

This was supported by **Van-Graan & Williams, (2017)** who revealed in their study that there were no statistically significant differences in the opinion and knowledge mean scores of nurse educators of critical thinking based on specialty or educational setting.

The study findings illustrated that the most method used to promote critical thinking in clinical teaching at nursing administration and mental health nursing departments is **"Pre-clinical written assignments"** as mean scores (3.00+1.24&2.73+1.27) respectively.

As in these departments a part of student clinical activity depend on student preparation of assignment which give students the opportunity to thoroughly explore a particular topic, and to develop and stimulate critical thinking skills independently. These written assignments also give educator the opportunity to evaluate each student's critical thinking ability, independent of the group. Written assignment involves highly complex cognitive processes and can be used not only to communicate with others. It also, engages students in generating and converting knowledge. In addition to facilitating essential inquiry, writing situates individuals in roles of "self-active" learners who are motivated to assume responsibility for their own learning.

This supported by **Ferreria & Schulze, (2014)** who asserted that writing assignment is an important strategy to develop critical thinking because it inspires students to think in the abstract domain, to conceptualize, to interpret and to reason. Writing and rewriting with thoughtful and ongoing feedback allows for student and educator to become active participants in the practice of dialogue and thus learning effectively.

This also, supported by **Chan, (2017)** who believed that by having students "write assignment continuously, we can help create the quality of mind needed for professional and critical thinking expertise in nursing.

The study findings illustrated that the most method used in clinical teaching to promote critical thinking in woman health and obstetric nursing department, community health nursing and pediatric nursing department in favor to use the method of **"Written Nursing Care Plan"** as mean scores (4,00+0,0, 3.40+0.84&3.33+0.70) respectively. This regarded as the clinical activity in these departments involve hospital rotations which involve dealing with patients of various health status and diagnoses in a real life situation.

Student in these departments deal with patients with complex nursing problems through which they coming up with nursing diagnosis, nursing intervention, and using clinical judgment to decide upon the best way to approach how to direct care for patient. Written nursing care plan also is a systematic approach that used by students to gather data, critically examine and analyze this data, identify patient response, design outcomes, take appropriate action, then evaluate the effectiveness of action and each of the previous steps require that the student use his critical thinking skills.

This supported by **Papathanasiou, et. al, (2015)** who encouraged using written nursing care plan in clinical teaching. This method help students see complex nursing problems from multiple perspectives. Students may be tempted to base their actions on logic using his critical thinking abilities. They also, stressed that using nursing care plan steps help student to use critical thinking abilities to prioritize patients' daily needs.

The study findings illustrated that the most method used in clinical teaching to promote critical thinking at medical surgical nursing department is **"Small Group Discussion and Clarification of Values"** as mean scores (3.12+0.58&3.12+0.76) respectively. As when practicing clinical skills in medical surgical department labs, educators use small group activities which used to get all students involved and give each one of them the opportunity to practice skills taught, and to offer and receive feedback, which help to improve their self -awareness about their thinking.

Educators in these departments also, socialize students through using group discussion into the values, standards, and methods of discipline. This also contribute to students' personal growth, self -confidence, improve their listening, self- control, and collaborative skills and broaden their perspectives on interpreting and applying the skills

taught. This method help to wake students out of their passivity. When using small group discussion it help educators to determine if students understand the material taught.

Also, when students are engaged in participating through meaningful contributions to a small-group discussion, they are more actively involved in thinking and learning. Small-group discussions promote inquiry, higher-order thinking, cooperation, and student responsibility, all of which have been shown to increase student achievement. The small-group setting and structured discussion format calls on students to think deeply, contribute their thinking to the conversation, listen attentively, and respond thoughtfully to one another.

These findings supported by **Vander and Schneider, (2014)**, who mentioned that the use of small-group discussion is a collaborative and constructivist teaching method widely recognized as a high-yield, best-practice instructional strategy. Small-group discussions engage students in critical thinking, working collaboratively, and communicating effectively, all of which are hallmarks of deeper learning. The small-group discussion protocols are designed to engage students in critical thinking by applying, analyzing, synthesizing, and/or evaluating information and ideas.

The study findings revealed that the most method used in clinical didactic teaching at nursing administration department, mental health nursing department and medical – surgical department is small group discussion as mean scores(3.36+0.84,3.36+1.02&3.19+0.69) respectively. This may be related to these departments use different small group discussion activities according to content of each to improve quality of teaching process. During data collection the researcher asked each of these department educators about group discussion activities that are appropriate to their contents material.

At administration and mental health nursing department they were in favor to use it during **"Seminar overview"** as this activity type is suitable to larger classes, during which the educator have outer circle students who stay silent, observe and take notes and inner circle students those who participate in the discussion and view their subject matter. During this activity the educator evaluate the critical thinking ability for all student group, by observing the manner of showing and explaining information by inner student circle and asking questions for outer circle students.

For medical- surgical nursing department, in which they use **"Video tutorials"** which created by educator or students for content related clinical practice. In which the educator present a video for content matter or procedure explained, ask students to take notes for what they see and then ask questions which promote critical thinking abilities for students.

This come in the same line with **(Morrall and Goodman, 2013)** who reported that proper preparation of group discussion activities by educators increases the student ability to think effectively and critically.

The study findings revealed that the most method used in clinical didactic teaching at **woman health and obstetric nursing department** in favor to use the method of **classroom case simulation** as mean score (4,00+0,0). As the educators at this department create a real clinical area through practice laboratories and computer aided nursing situations may be one way to teach critical thinking in a simulated, safe, clinical environment. Nursing students can take the time they need for reflection and practicing without endangering patients in the clinical labs.

This supported by **(Gambrill, 2012)** who indicated that classroom case simulation is attractive for students and help promoting critical thinking abilities.

The study findings revealed that the most method used in clinical didactic teaching at **community health nursing department and pediatric nursing department** the most methods used **(written assignments)** as mean scores (3.30+0.67&3.44+0.52respectively). As in these departments educators choose some elements or subjects of course to be prepared by students through writing assignment. Students use their critical thinking abilities to design a unique and relevant assignment. Then those educators carefully analyze students work, grading it and may sometimes discuss and ask for rewriting some parts of it using constructive and critical thinking.

This supported by **(Macpherson and Owen, 2017)** Who found in results of his study that about 75% of educators have demonstrated that they favor focused written assignments and readings for improving the concept of critical thinking.

The study findings illustrated that the most method constructs of the concept CT used in **nursing administration department** is **deductive reasoning** as mean scores (2.79+0.42), this as deductive reasoning is considered a mental process of making inferences that are logical. Deductive reasoning move from general premise to specific conclusion. So, when teaching a theoretical content as which related to nursing administration as applying change process, leadership style, resolving a conflict and achieving quality and so on. When educators discuss these topics with their students they explain the desired outcome they want to reach in each subject matter then explain steps to reach this conclusion, in each step of this process the educator and student use critical thinking skills.

This supported by **(Jenkins, 2011 and Kaya, et. al. 2011)** who indicated in their studies that deductive reasoning and critical thinking are working in the same line with each other.

The study findings illustrated that the most method constructs of the concept CT used in **woman health and obstetrics nursing and mental health nursing departments** are **Identify Assumptions** for both as mean scores (2.90+1.16& 92.54+0.64), and **Decision Making** in woman health and obstetrics nursing department (2.90+0.31). As educators in this departments consider that analyzing assumption is considered a main characteristic of critical thinking. As analysis of assumption means for them reflecting the nature and origin and consequences of what being taught.

Thus, for them analysis of assumption includes where they come from, what they mean and where they lead. They consider that helping students to analysis of assumptions lead students to critically think about exploring new ideas to revise or change the old assumption.

This supported by **(Yancher, et. Al, 2008)** who reported that analyzing and identifying assumption is considered as a main direction for critical thinking.

Regarding **decision making**, at woman health and obstetrics nursing department they teach their students when become a nurse or have hospital rotations they should use decision making process to reach appropriate action to fulfill the desired objectives through critical thinking. This requires

that the student should be both decision maker and critical thinker. As when facing patient with multiple needs, they should set priorities and decide the order in which they help the patient. They teach their students to examine the advantages and disadvantages of options, prioritize needs, assess priority actions and implement it and finally reach evaluation of results. Each of above mentioned steps need to apply critical thinking.

These findings came in the same line with **(Chan, 2017)** who reported that determining if critical thinking has occurred came after a decision has been made and the consequences of that decision are known. Learning to become a critical thinker requires being a decision maker.

The study findings illustrated that the most method constructs of the concept CT used in **community health nursing and medical surgical nursing** in favor to believe **analyzing arguments** as mean scores(2.80+0.42&2.54+0.64 respectively), as educators in these departments deal with health problems, each of these problems always have more than possible solutions. Through their explanation of details of these problems and its possible, feasible and multiple solutions. During this discussion they use analyzing arguments, claims, point of views and opinions with students and the reasons for this opinions through analytical critical thinking skills.

This supported by **(Mathews& Lowe, 2011)** who mentioned that argument analysis and critical thinking are closely linked skills and concepts. Argument analysis allows one to utilize and apply critical thinking.

The study findings illustrated that the most method constructs of the concept CT used in **pediatric nursing department** is the **productive thinking** as mean scores (2.89+0.86). As educators in this department may encourage and motivate student to use mental operation regarding information taught in their classroom content to reach creative and critical thinking. When educating student specific theory, experimental technique or known observation, they encourage combining this known knowledge to critical thinking reaching logical and productive results in any situation.

Also, students in this department are taught specific diseases, deal with patients with various and complicated health status. Through their hospital rotations the educators encourage students to use their cognitive abilities to reach etiology of this health status, determining the etiology of it and complications may occur to produce an action using productive and critical thinking. Educators also, encourage and prepare students through reading and research preparation from wide variety of resources which in return enhance the ability of productive thinking of students.

This supported by **(Krupat, et, al. 2011)** who reported that the process of thinking using motivation and memorization is skillfully combine creative and critical thinking is called productive thinking.

Conclusions *It can be concluded from the current study that:*

- The majority of the sample had moderate level of knowledge about CT at faculty departments. The highest mean scores of nurse educators' regarding use each method in clinical teaching at faculty departments was "written nursing care plans".
- The highest mean scores of nurse educators' regarding use each method in clinical didactic and methods that enhance student ability to think critically at faculty departments was "small group discussions" , and the highest mean scores of nurse educators' believe regarding constructs of the concept CT at faculty departments was "productive thinking"

Recommendations

On the light of the results of this study the following recommendations will be suggested:

Recommendations for Nurse Educators

- Nurse educators need to scrutinize curriculum plans, course structures, course assignments, and teaching strategies to ascertain how critical thinking is defined, how it is operationalized, and how its progression as part of these structures is nourished or obstructed.
- Nurse educators need to identify, measure, and motivate thoughtful, fair-minded engagement in problem-solving, decision-making, and professional judgment. There is a need to prepare graduates who are able and willing to think.
- Nurse educators need to create assessment portfolios which comprise a collection of multiple (reliable and valid) measures of thinking that may be used to observe the progress, strengths and areas of weakness of nursing students.
- Number of clinical instructors and nursing educators should be increased to meet needs of student nurse to improve CT.
- Study the personal and environmental factors that impact nurse educators' decisions to participate or decline participation in nursing education research.

Recommendations for Practice

- Develop and implement workshops and learning activities to support faculty development focused on critical thinking, role modeling, and questioning specific for nurse educators who are working with students in clinical settings.
- Enhance nurse educators' practice through the use of reflection and engagement in ways that support their own critical thinking skills and dispositions and how these can be role modeled in the clinical setting.

Recommendations for future research studies

- A similar study should be replicated in others universities (nursing faculties) in Egypt to validate these findings.
- Longitudinal studies including the same cohort of baccalaureate students from Year 1 through Year 4 should be carried out to ascertain whether there is a change in the students' CTS and CTD upon completion o f a baccalaureate nursing program.

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