

Critical Thinking Dispositions and Problem Solving Abilities among Nursing Students

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Abstract

Background: Critical thinking has now been accepted as the fundamental component of every education system. **Aim:** This study aimed to assess the relationship between critical thinking dispositions and Problem solving abilities among Nursing students. **Design:** A descriptive cross sectional correlational research design was used. **Setting:** The study was conducted at faculty of nursing El-fayoum University. **Subjects:** Included 434 nursing students. **Tool of data collection:** Data were collected by using two tools : A california critical thinking disposition inventory scale and problem solving questionnaire. **Results:** Highly mean score of the undergraduate nursing students (45.86) regarding truth seeking and low mean score regarding cognitive maturity (32.72). Highly mean score (49.25) regarding approach avoidance style and low mean score regarding personal control (12.98). **Conclusion:** There were statistically significant positive correlation between total critical thinking dispositions and total problem solving abilities among faculty nursing students. **Recommendations:** Faculties should provide student with orientation about importance of critical thinking and problem solving to meet the nursing challenges and future demands.

Keywords: Critical Thinking Dispositions- Problem Solving Abilities- Nursing Students.

Introduction:

Our ever-changing and challenging world requires students, our future citizens, to go beyond the building of their knowledge capacity; they need to develop their higher order thinking skills, such as critical thinking, decision making, and problem-solving. The rapid change and transformation in the nature of information requires changes in the workforce profile. To equip individuals with skills to conduct research, use and transform information, think critically and reflectively, and make higher order decisions is needed to survive in this competitive world for societies (Sendag & Odaba'y, 2014).

Accordingly, qualities such as being able to think critically and to express one's thoughts, communicate effectively, make conscious choices, have the power of judgments and ability to make comparisons are among the qualities that individuals should have in today's information society (Ozden, 2014).

Thinking is the process by which individuals find meaning in the world that they inhabit. Thinking defined as "obtaining a different thing from current knowledge and going beyond the current knowledge.." "Thinking skills, however, constitute critical thinking, problem-solving, reading comprehension, writing, scientific thinking, creative thinking, and creative problem solving (Özden, 2014).

Critical thinking, one of the skills associated with thinking, is the evaluation of our own and others' ideas with no prejudices. It is concerned with how we think rather than what we think (Mulnix, 2012). It is a higher order thinking skill and it has properties such as analyzing, evaluating, being reasonable and thinking deeply, which all enable the individual to make judgments about the world. Critical thinking is thinking which helps in solving problems and making judgments, thus, an important dimension of critical thinking is problem solving (Tapper, 2014).

Critical thinking in nursing is skill and ability to use, use of risk taking creativity to make a decision and knowledge as a result, analysis and synthesis that, evaluation, to acquire, information search, to develop thinking, as an individual aware of his own thinking. Nursing students are visual barriers critical thinking, often react without thinking, cause and effect relationship does not install, perception difficulties, not being flexible, as a waste of time to think. Critical thinking is to be important educational programs important prepared of the implementation and evaluation. Critical thinking and learning are interrelated; one must think to gain knowledge. To be able to add to the depth and breadth of an individual's knowledge, the individual must become more aware of the cognitive processes (Özkahraman and Yildirim, 2011).

A more comprehensive view of critical thinking refers to as a disposition, to describe an individual's inclination to use critical thinking when faced with problems to solve, ideas to evaluate, or decisions to make (Jeevanantham, 2012). Dispositions identified in the critical thinking literature include "tolerating ambiguity, willing to suspend judgment, being open-minded, inquisitive, and sensitive to other ideas; in short, a willingness to engage in sustained

critical thinking" (McBride, Xiang, Wittenburg, 2014).

Problem-solving is the process by which an individual overcomes the hurdles encountered in attaining the target. It is what you do when you don't know what to do". Problem-solving skills, however, are shaped in accordance with the beliefs and expectations about one's problem-solving skills because coping with environment and problems occur through one's problem-solving capacity. The individual's self-evaluation of the ability to cope with problems effectively is extremely important in this respect (Temel & Morgil, 2012).

Thus, individuals with positive perceptions of their problem-solving ability might also be much better at problem-solving than those with negative perceptions of their problem solving ability identified that perception of problem-solving ability plays a central role in the way an individual perceives and experiences different aspects of dealing with problem (Sulaiman, 2013).

Problem solving and critical thinking refers to the ability to use knowledge, facts, and data to effectively solve problems. This doesn't mean you need to have an immediate answer, it means you have to be able to think on your feet, assess problems and find solutions. The ability to develop a well thought out solution within a reasonable time frame (Hill-Briggs et al., 2006).

Significance of the study:

Previous studies demonstrated the fundamental importance of critical thinking disposition to improve problem solving ability for nursing students. And it is a significant predictor for problem solving ability for nursing student. The study determined the relationship between student's problem solving ability was significantly correlated

with their critical thinking disposition. That is, student's higher critical thinking disposition promoted positive problem solving ability (Kyung et al., 2014).

Nursing students need to be educated to have effective problem-solving and management skills to decrease the cost of the health care and to increase the quality of care in future. Major goal of baccalaureate nursing education is the development and promotion of students' ability to think critically. Accordingly this study will assess the relationship between critical thinking dispositions and problem solving abilities among nursing students.

Aim of the Study:

The study is aimed to assess the relationship between Critical thinking dispositions and problem solving abilities among nursing student through:

- 1- Assessing Critical thinking dispositions among nursing students.
- 2- Assessing problem solving abilities among nursing students
- 3- Finding out the relationship between Critical thinking dispositions and problem solving abilities among nursing students.

Research question:

Is there a relationship between Critical thinking disposition and problem solving abilities among nursing students?

Subjects and Methods:

Technical design:

The technical design of this study includes the research design, setting of the study, subjects, and tools of data collection.

Research design:

Descriptive cross sectional correlational design was used in carrying out this study.

Setting of the study:

The study was conducted at faculty of nursing Elfayoum University. The faculty has six different scientific departments, namely: medical surgical nursing, pediatric nursing, maternity and gynecological nursing, community health nursing, psychiatric and mental health and nursing administration. In addition to the skill labs include the following: medical surgical labs, obstetric lab, and pediatric lab.

Subjects of the study:

The subjects for the study included nursing students enrolled in faculty of nursing Elfayoum University. Those students selected from different academic years, from second to fourth year, with no inclusion or exclusion criteria were set. The total number of students was (730) in second, third and fourth academic year 2016-2017.

Sample size:

The total number of students included in the study was 434 from out (730), The sample size was calculated according to the following equation:

$$n = \frac{N}{1 + *N(e)^2}$$

(Yamane, 1979)

Where N is the total population size, n is the sample size, e is the acceptable sampling error and *95% confidence level.

Sampling technique:

Simple random sampling technique was used from second to fourth academic year.

Tools of data collection:

Two tools were used in collecting data in this study namely: California critical thinking disposition inventory scale (CCTDI) and problem solving questionnaire.

1-california critical thinking disposition inventory scale (CCTDI) It developed by (Facione, 2000) ,This tool is an international standardized tool ,adopted by the researcher and aimed at assessing critical thinking dispositions among nursing students at faculty of nursing, Elfayoum University , included two parts.

Part 1: socio-demographic data about the study subject such as age, academic year, previous education, previous training in critical thinkingetc.

Part 2: this part will include the California critical thinking disposition inventory questionnaire. It consists of 75 item grouped into seven dispositional characteristics as follows: truth seeking, analyticity, systematicity, self-confidence, inquisitiveness, open-mindedness and cognitive maturity

➤ Scoring system:

Responses were measured on a 5-point likert scale ranged from 1="strongly disagree" to 5="strongly agree". The Scores of items were summed up and total divided by number of the items, giving a mean score of the part. The score was converted into a percent score the critical thinking dispositions considered high if the percent score is more than 75%,while it considered average if the

percent score ranged from 60% to 75% and low if the percent score is less than 60%.

2-Problem solving questionnaire:

This tool aimed at assessing problem solving abilities among nursing students; the tool developed by (Heppner, 1988) and modified by the researcher, it included 27 items grouped into three domains (a) self-confidence (b) avoiding problems (c) personal control.

➤ Scoring system:

Responses were measured on a 5-point Likert scale from "strongly agree" to "strongly disagree". The scores of items were summed up and the total score was divided by items, giving the mean score for the part. The sub scores were converted into percentage score. The subjects were considered high problem solving abilities level if the total percent was above 75% and moderate level if the study subject total score ranged from 60to75%and low if the score less than 60% (Fayed, 1999).

Operational design:

The operational designs for this study included three phases namely, preparatory phase, pilot study and fieldwork.

Preparatory phase:

It included reviewing current and past, local and international related literatures and theoretical knowledge of various aspects of the study using books, articles, scientific journals and internet for acquisition of knowledge about the study subjects.

Validity: By using face and content validity after translation into Arabic to determine appropriateness of each item included in the questionnaire, California critical thinking disposition inventory scale (CCTDI), it developed by (Facione, 2000) , this tool is an international standardized tool.

Regarding to Problem solving questionnaire, was judged and validated by jury members. The jury member consists of five professors and assistant professors expert in nursing administration, three professors and assistant professors expert in nursing administration at faculty of nursing Cairo University and two from Ain Shams University. Their opinions were elicited regarding face and content of the students' tools to assess the tools format, layouts, parts and the clarity of words of the statements. The necessary modifications were done.

Reliability: Testing reliability of proposed tools was done through examining their internal consistency. They proved to have high reliability coefficients as shown with

Pilot study:

A pilot study was conducted on 43 students they represented 10% of total subjects enrolled in second, third fourth academic year selected randomly. The aim of pilot study is to test the clarity and applicability of the study tools and time needed for filling it out, necessary modifications was done according to the results of the pilot study. Data obtained from pilot study were analyzed and minor modifications were done. The time for filling questionnaire was found to range between 30-45 minutes, this 43 student were excluded from main study sample.

Fieldwork:

An official approval was obtained from the dean of the faculty of nursing to conduct the study and to determine the suitable time to meet the students. Then the researcher met the selected students though groups or individually and explained the aim of the study. Then distribute the study tool and the tools were collected at the same time after

collection. The actual Fieldwork of data collection has consumed 2 months, started at beginning of March 2017 to the end of April 2017. Data were collected in class rooms before and after lectures, after clinical areas time and after lab time after oral permission obtained from each nursing department staff the time consumed in answering the questionnaire ranged between 30 and45 minutes two times aweek. This was done in presence of researcher to avoid communication among students and to clarify any ambiguities.

Administrative design:

A letter requesting permission was submitted from the dean of faculty of nursing for the head of the departments for each academic year(second, third and fourth year) .This letter included the aim of the study and photocopy from data collection tools in order to get the permission and help for collection of data. An oral consent was obtained from each participant.

Ethical considerations:

Prior to the actual work of research study, ethical approval was obtained from the Scientific Research Ethical Committee of the Faculty of Nursing at Ain Shams University. Permission to conduct the study was secured from pertinent authorities and an informed consent obtained from each participant before collecting data. This was done after explaining the study aim and demonstration of data collection form. No harmful maneuvers were performed or used .the participant will be assured that anonymity and confidentiality would be guaranteed, used only for scientific research and will be informed about their right to refuse or withdraw from the study at any time. The study procedures didn't entail any harmful effects on participants.

Statistical design:

Data were analyzed using statistical package for social sciences (SPSS) version 20. Data were presented using descriptive statistics in the form of frequencies, percentages for qualitative variables, means, standard deviation and medians for quantitative variables. Cronbach's alpha coefficient was calculated to assess the reliability of the developed tools for their

internal consistency. The 5 point likert scales were compressed into three points for purpose of presentation of each item: "strongly agree\agree" "uncertain" and "strongly disagree\disagree". Quantitative continuous data were compared using the non-parametric Mann-Whitney or Kruskal-Wallis tests were used. Spearman rank correlation was used for assessment of the interrelationships among quantitative variables and ranked one. Statistical significance was considered at p -value<0.05.

Results:

Table (1): Socio demographic characteristics of nursing students in study sample (n=434)

Items	(Frequency)	(Percent)
Age		
<21	180	41.5
≥ 21	254	58.5
Mean±SD	20.99±1.24	
Median	21	
Academic year		
(second year)	192	44.2
(third year)	92	21.2
(fourth year)	150	34.6
Qualification		
Secondary school education	317	73.0
Technical institute	117	27.0
Residence		
Urban	170	39.2
Rural	264	60.8
Previous attending training program about critical thinking		
Yes	51	11.8
No	383	88.2

Table (1): Socio demographic characteristics of nursing students in study Table (5) shows that more than half (58.5%) of the study subjects aged 21 years or more with median of 21 years. The majority (73.0 %) had secondary pre university education. Regarding to residence, slightly more than half of them (60.8%) were from rural area, meanwhile, less than half of them reported having previous training in critical thinking (11.8%).

Table (2): Total Score of critical thinking domains among nursing student in study sample (n=434).

Dispositional characteristics	Minimum	Maximum	Mean	Std. Deviation	Median
Truth Seeking	32	63	45.86	5.60	46
Analyticity	24	45	36.31	3.73	36
Systematicity	23	52	38.82	4.56	39
Self- Confidence	23	45	34.20	4.72	34
Inquisitiveness	22	50	39.54	5.08	40
Open mindedness	12	60	44.24	5.76	45
Maturity	10	50	32.72	6.10	32
Total critical thinking characteristics	190	337	271.70	22.77	269

Table (2): Shows that the domains of truth seeking and open mindedness had the highest median scores (45 and 46) on the other hand the domains with the lowest median scores were those of maturity (32) and self-confidence (34).

Table (3): Total problem solving abilities level among nursing student (n=434).

Problem solving domains	Mini mum	Maxi mum	N	Std. Deviation	Median
The problem solving confidence	9	45	32.60	4.74	33
The approach avoidance style	21	66	49.25	6.70	49
Personal control	4	20	12.98	3.58	14
Total problem solving approaches	34	127	94.83	11.94	94

Table (3): Shows that the domain of the approach avoidance style had the highest median scores (49) with mean±SD (49.25±6.70) and the approach personal control style had the lowest median score (14) with mean±SD (12.98±3.58).

Table (4): Relationship between critical thinking dispositions and problem solving abilities among nursing student (n=434).

	The problem solving confidence		The approach avoidance style		Personal control		Total problem solving approaches	
	r	P-value	r	P-value	r	P-value	r	P-value
Truth Seeking	0.168	<0.001**	0.160	<0.001**	0.195	<0.001**	0.215	<0.001**
Analyticity	0.315	<0.001**	0.346	<0.001**	0.156	<0.001**	0.366	<0.001**
Systematicity	0.248	<0.001**	0.225	<0.001**	0.251	<0.001**	0.300	<0.001**
Self- Confidence	0.435	<0.001**	0.273	<0.001**	0.080	0.096	0.350	<0.001**
Inquisitiveness	0.351	<0.001**	0.322	<0.001**	0.164	<0.001**	0.369	<0.001**
Open mindedness	0.472	<0.001**	0.545	<0.001**	0.273	<0.001**	0.574	<0.001**
Maturity	0.508	<0.001**	0.505	<0.001**	0.399	<0.001**	0.604	<0.001**
Total critical thinking characteristics	0.567	<0.001**	0.543	<0.001**	0.353	<0.001**	0.635	<0.001**

Statistically significant at $p < 0.05$ **

Table (4): demonstrates a statistical significance relation between total critical thinking dispositions and problem solving abilities among nursing student with p- value = 0.001).

Discussion:

Critical thinking is one of the most important concepts to be taught in the curriculum of a nursing education program. It leads to the formulation and analysis of available information that concludes with an independent judgment and decision appropriate for clinical situations. Critical thinking involves the validation of information for accuracy and factual content. Using critical thinking based on evidence-based data leads to optimal nursing care for patients, based on patient-centered nursing actions. Nursing students must learn how to assume the responsibility for providing safe health care to patients and families in hospitals, clinics, or any other healthcare environment. Critical thinking is a valuable skill for nurses to possess, which includes several constituents, such as attitude, knowledge, and skills (**Davis, 2012**).

Healthcare system is more complex than ever to days before. As a rapidly advancing profession, nursing demands higher-order cognitive skills from nurses, such as critical, creative and reflective thinking, problem solving and decision-making, as well as the skills to create a therapeutic and caring environment for patients. In the clinical setting, nurses learn to apply theory that was learned in the classroom, to real life situations. Clinical settings present problems that are novel, complex, specialized, and unpredictable. Nurses have to learn how to practice safely, within the time-constrained periods that are allocated to the clinical setting (**Potgieter, 2012**).

The need for critical thinking in nursing has been accentuated in response to the rapidly changing health-care environment. Nurses must think critically to

provide effective care while coping with the expansion in role associated with the complexities of current health-care systems (**King Fahed, 2016**).

This study was aimed to assess the relationship between critical thinking dispositions and problem solving abilities among student of nursing faculty through: Assessing critical thinking dispositions among nursing students, assessing problem solving abilities among nursing students and finding out the relationship between critical thinking dispositions and problem solving abilities among nursing students.

The result of the current study showed that the under graduate nursing students mean age 20.99+1.24 years old. This is may be due to student enrolled in the faculty of nursing is between 18 and 24years old. According to **Kim and Chio, (2012)** who studied "the relationship between problem solving ability, professional self-concept and critical thinking disposition of nursing students" stated that the mean age of participant 20.9+1.2. As regard pre university qualifications of the current study the majority of students had secondary school education. This may be due to that the technical school students enrolled in the faculty of nursing in limited number according coordinating admission office rules, so the highest percentage came from secondary schools.

This result is in accordance to **Wafeek, (2014)** who studied "assessment of critical thinking skills among faculty nursing students", and stated that more than half of study sample were secondary education compared to those with technical institute. As regarded to residence, the majority of students were from rural area. This is may be due to that the enrolling of students controlled by geographical distribution, and

the study was carried in faculty of nursing El Fayoum University, so students from rural areas.

Regarding previous attending training programs about critical thinking and problem solving, this study showed that less than half of students having previous training programs about critical thinking and problem solving. This may be due to absence or decrease educational or training programs about critical thinking and problem solving.

Concerning truth seeking domain which is a subscale of critical thinking disposition that mean the student disposition of being eager to seek the best knowledge in a given context, in this study the mean score of truth seeking were highest among students because critical thinking dispositions are essential for the development of higher- order critical thinking and learning, this also due to students willing and interests to know recent information, updating knowledge , compare what given in multimedia based on scientific knowledge they have been tough. IN contrast, deficits in this disposition leads person to incline toward biased thinking and may be seen in person who is dishonest in the use of data.

The finding of this study is consistent with the findings of **Lee et al, (2006)** that conducted to examine "Critical thinking dispositions in baccalaureate nursing students" who stated that the mean score of truth seeking were high among nursing students. Also this findings similar to **Ragab, (2016)** who studied" Assessing critical thinking dispositions among students of nursing faculty" and stated that the mean score of truth seeking were high among nursing students and had positive disposition. These result dissimilarities with **Foluso and Cesarina, (2014)** who studied "assessment of critical thinking disposition of nursing students in southwestern Nigeria" and stated

that students showed weak positive disposition toward truth seeking.

Regarding analyticity domain which is a subscale of critical thinking disposition that mean the application of reasoning and the use of evidence to resolve problems, current study stated that, the mean score of analyticity domain were low among students, and this may be due to methods of teaching and practice courses such as, the use of case study allow students to critically analyze, interpret, explain, and evaluate and ways of teaching used in different academic years. So Analytical thinking avoids jumping to in appropriate conclusion.

Moreover, the complexity within the health care system demands much more than being able to perform procedure step by step. Decisions made by nurses today must be based on evidence and applied in a competent manner. Furthermore, the critical thinking disposition is necessary for attaining the competency based nursing care is the analytical disposition. This result inconsistent with result of **Salsali et al, (2013)** who studied" Critical Thinking Dispositions of Nursing Students in Asian and Non-Asian Countries: A Literature Review" who stated that, non-Asian countries tend to score highly in critical thinking dispositions in nursing students.

In the same line **Proffeto, (2009)** who studied "the relationship of critical thinking skills and critical thinking dispositions of baccalaureate nursing students" who stated that the participants mean score were high in analyticity. This result consistent with **Foluso and Cesarina, (2014)** who studied "assessment of critical thinking disposition of nursing students in southwestern Nigeria" and stated that students showed weak positive disposition toward analyticity.

Concerning systematicity domain which is a subscale of critical thinking disposition that refer to be organized, orderly, focused, and diligent in inquiry ,in current study the mean score of this dispositional characteristic were low among study sample. This may be due to disorganizing in academic work, academic work overload .The inclination to approach problems in an orderly and focused way is an indispensable part of competent clinical practice and deficits in systematicity might particularly predispose a nurse to the possibility of negligence in practice.

This result inconsistent with **Tiwari et al, (2003)** who studied "critical thinking dispositions of Hong Kong Chinese and Australian nursing students" and stated that Australian nursing students showed positive dispositions toward systematicity, but Hong Kong Chinese failing to show positive dispositions toward systematicity.

As well as **Turabik and Gun ,(2016)** whose studied" the relationship between democratic class room management attitudes and students critical thinking dispositions" reported that critical thinking depositions among nursing students were at high level. This result consistent with **Foluso and Cesarina, (2014)** who studied "assessment of critical thinking disposition of nursing students in southwestern Nigeria" and stated that students showed weak positive disposition toward systematicity.

Regarding self-confidence domain which is a subscale of critical thinking disposition that refers to trust one place in one's own reasoning processes. The current study result revealed that mean score of these dispositional characteristics were low among nursing student. This may be due nursing students feel that they aren't valued members in the community due to negative thoughts attached to the nursing profession, as well as

ineffective communication with their peers teachers and hospital staff. Also background of student about nursing, overload of work, crowded and unequipped hospitals and a lot of procedures student have to be done, this put student in stress and affect student self-confidence.

This result is in accordance with **Naguib, (2009)** who studied "Assessing the disposition of the undergraduate university nursing students toward critical thinking at faculty of nursing, Mina University" and observed that nursing students are less confident. This result also consistent with **Foluso and Cesarina, (2014)** that studied "assessment of critical thinking disposition of nursing students in southwestern Nigeria" and stated that students showed weak positive disposition toward self-confidence.

This result is similar to result of **Salsali et al., (2013)** who studied" Critical Thinking Dispositions of Nursing Students in Asian and Non-Asian Countries: A Literature Review" who stated that Some Asian countries reflect a low critical thinking disposition scores of their students but non-Asian countries tend to score highly in critical thinking dispositions in nursing students.

Concerning Inquisitiveness domain which is a subscale of critical thinking disposition that refers one's intellectual curiosity and one's desire for learning even when the application of the knowledge is not readily apparent. The current study revealed that nursing student had high positive inclination to Inquisitiveness. This may be due to students desire to know a lot of knowledge related to work and values learning, concern to become generally well informed ,student see different diagnosis in hospital, so they always be curious and interests to find new solution for provision of care.

Also in a practice discipline, such as nursing, it is important that students maintain a curious nature and continue the pursuit of knowledge. Since the knowledge base for competent nursing practice continues to expand, a deficit in inquisitiveness would signal a fundamental limitation of one's own potential to develop expert knowledge and professional practice.

This result is in similarity with **Turabik and, Gun, (2016)** whose studied "the relationship between democratic class room management attitudes and students critical thinking dispositions" reported that nursing students had high level toward inquisitiveness. As well as **El Demerdash, (2011)** who studied "the preferred educational strategies and critical thinking dispositions among nursing students" that stated that mean score of students toward inquisitiveness was high.

Also this findings is similar to **Ragab, (2016)**, who studied "Assessing critical thinking dispositions among students of nursing faculty" and stated that the mean score of inquisitiveness were high among nursing students This result different with **Foluso and Cesarina, (2014)** who studied "assessment of critical thinking disposition of nursing students in southwestern Nigeria" and stated that students showed weak positive disposition toward inquisitiveness.

Regarding open mindedness domain which is a subscale of critical thinking disposition that refers to be tolerant of divergent views and sensitive to the possibility of one's own bias. The result of current study denoted that the mean score of students in truth seeking and inquisitiveness were high, which push students to have a positive inclination toward open mindedness and this may be due to students desire to know different world views, to understand how other people think, different teaching

strategies used in teaching and interaction of students during lectures and practice.

This result is consistent with **Turabik and, Gun, (2016)** who stated that critical thinking dispositions (open mindedness) among nursing students were at high level. On other hand this result different with the result of **Naguib ,(2009)** who stated that nursing student failed to demonstrate positive attitude toward open mindedness.

Concerning cognitive maturity domain which is a subscale of critical thinking disposition that refers to be judicious in one's decision-making and makes reflective judgments. The current study showed that the mean score of student toward cognitive maturity were low. This may be due to lake of cognitive maturity of students, values, thoughts, believes of students, lack of training programs that provide students with information and teaching methods that not allowed discussion and feedback.

This result is similar to findings of **Naguib, (2009)** who stated that the mean score of student toward cognitive maturity were low. Also this findings similar to **Ragab, (2016)** who studied "Assessing critical thinking dispositions among students of nursing faculty" and stated that the mean score of cognitive maturity were low among nursing students .On the other hand the finding of current study is dissimilarity with study performed by **Abdel Salam, (2009)** who studied "the relationship between critical thinking dispositions and preferred educational strategies among nursing students" who stated that nursing students had positive dispositions toward cognitive maturity.

This result didn't consistent with **Proffeto, (2003)** who studied "The relationship of critical thinking skills and critical thinking dispositions of baccalaureate

nursing students" who stated that nursing students had high level toward cognitive maturity. Also this result didn't consistent with **Turabik and Gun, (2016)** who stated that cognitive maturity among nursing students were at high level.

According to the current study findings, nursing students regardless their academic year showed high mean score toward truth seeking, open mindedness, and inquisitiveness. On the other hand the result showed low mean score toward self-confidence followed by cognitive maturity. This positive disposition may be due to students willing to lean new objects, open to new ideas, to update knowledge, to be organized and act positively toward opinions of others. On the other hand there were negative disposition toward self-confidence and cognitive maturity due to nursing students feel they aren't valued persons due to negative view toward nursing profession and lack cognitive maturity of students.

Regarding problem solving ability, the result of current study showed that the majority of nursing student had high mean score toward problem solving confidence style as a subscale of problem solving abilities. This may be due to nursing students with high satisfaction in nursing or with good interpersonal relationship would be more interested in nursing problems and seek the methods of problem solving in using various resources and students in baccalaureate course were higher in clinical performance competency, develop discussion, team project and also were good at self-managing ability in solving problems in addition they willing to seek information, gather data, work in order way, so they gain experience and able to deal with these problems .

This result is consistent with **Kim and Chio, (2014)** who studied "the relationship between problem solving ability,

professional self-concept and critical thinking disposition of nursing students" whose stated that problem solving confidence of nursing students were high among nursing students. Also this finding similar to **Ali, (2016)**, who studied" the relationship between emotional intelligence and problem solving abilities among nurse teachers" who stated nurse teachers had high problem solving confidence level.

Regarding the approach avoidance style as a subscale of problem solving abilities, the current study showed that nursing student had high mean score toward this style. This may be due to some of students face many problems during theoretical and practical training; they reflect a style of avoiding rather than approaching problems. This result consistent with **Kim and Chio, (2014)** who studied "the relationship between problem solving ability, professional self-concept and critical thinking disposition of nursing students" whose stated that approach avoidance style were high among nursing students. Also this findings similar to **Ali, (2016)** who studied" the relationship between emotional intelligence and problem solving abilities among nurse teachers" who stated nurse teachers had high approach avoidance style level.

Regarding personal control style as a subscale of problem solving abilities. the current study showed that nursing student had low mean score toward this styles .This may be due to nursing students fear of failure, some of them had no experience, some o students ignore problem and refused to deal, feel worried about their abilities to handle these problems, tendency of students to avoid the problem solving activities and reflect a more negative perception of personal control on ones problems and weak control over emotions during problem solving process. This result didn't consistent

with **Kim and Chio, (2014)** who studied "the relationship between problem solving ability, professional self-concept and critical thinking disposition of nursing students" whose stated that personal control style were high in students who were satisfied or agreed in nursing.

Result of current the study demonstrated that nursing students regardless their academic year showed high mean score toward problem solving confidence style and approach avoidance style, on the other hand the result showed low mean score toward personal control style. In analyzing the problem solving domain among nursing students in second, third and fourth academic years, it was found that the mean score of fourth year were the highest in problem solving domain, it may be due to students of fourth year more interested to know the new nursing subjects and need variety action, exposed to more experiences, hospital staff, patients and visitors.

Concerning the correlation between student's critical thinking dispositions and problem solving abilities the study result identified that there were statistical

Conclusion:

In the light of the study findings, it was concluded that, the undergraduate nursing students had achieved the highest mean score in dispositional characteristics of "truth seeking, open-mindedness, systematicity, analyticity and inquisitiveness". On the other hand they achieved the lowest mean score in dispositional characteristics of self-confidence followed by cognitive maturity. Also the majority of nursing student had high mean score toward problem solving confidence style approach avoidance style", meanwhile nursing student had low mean score toward personal control style. There was a statistically significant positive

significance relation between total critical thinking dispositions and problem solving abilities. Finally the present study examined the relationship between student's critical thinking dispositions and problem solving abilities among nursing students. The study revealed that there was apposite significance correlation between students CT dispositions and Ps abilities which mean that CT dispositions enhanced Ps abilities and vice versa.

This findings was supported by the result of **Kim and Chio, (2014)** who studied "the relationship between problem solving ability, professional self-concept and critical thinking disposition of nursing students" they also found students CT dispositions was significantly correlated with their problem solving abilities, that students higher CT dispositions promoted positive problem solving abilities. This findings also supported by the result of **Faux, (1992)** who studied "An analysis of the interaction between creative thinking, critical thinking, intelligence and problem-solving skills" and stated that there were a positive and strong relationship between critical thinking and problem-solving skills.

correlation between total critical thinking dispositions and total problem solving abilities among faculty nursing students

Recommendations:

In the light of the findings of the current study the following recommendations are suggested:

Educational:

- Pre selection assessment of students' critical thinking and problem solving needed prior to enrollment into the faculty of nursing during interview.

- Nursing students need to be given concepts of critical thinking dispositions and problem solving abilities in educational curriculum and clinical practice.

- Developing questionnaire for assessing students' critical thinking and problem solving abilities should be established periodically to fill by students.

Suggested researches:

1. Conducting a study on relationship between critical thinking dispositions and critical thinking skills among nursing students.

2. Problem solving abilities and its relation to professional development among nursing students.

3. Studying effect of training program in enhancing critical thinking dispositions and problem solving abilities among nursing students.

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