

## Effect of Implementing Evidence-Based Nursing Practice Program on Critical Thinking Disposition among Internship Students

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### Abstract

**Background:** As the principles of evidence-based beliefs in nursing take an increasingly greater hold on nursing education, it is important to consider the range of other critical thinking dispositions which is subordinated by this approach. Dispositions of critical thinking based on beliefs of evidence-based data leads to optimal nursing care for patients, based on patient-centered nursing actions. **The aim** of the study was to evaluate the effect of implementing evidence-based nursing practice program on critical thinking disposition among nursing internship students. **Research design:** A quasi-experimental intervention design was used in the present study. **Subjects and Setting:** the sample consisted of 125 internship nursing students were invited to participate in the study. The study was conducted at Fayoum University Hospitals (Medical & Surgical hospitals). **Tools of data collection:** Data were collected by two tools: Evidence based practice beliefs scale and critical thinking dispositions inventory questionnaire. **Results:** of the study indicated that, post implementation total mean scores were significantly higher than pre implementation total mean scores of variable measuring evidence based practice beliefs and critical thinking dispositions. In addition, the correlation between both evidence based practice beliefs and critical thinking dispositions, there were statistically significant positive correlation between evidence based practice beliefs and critical thinking dispositions among the studied nursing internship students after implementation of the program. **Conclusion:** The evidence based practice education training was effective in improving the critical thinking dispositions of the studied nursing internship. **Recommendation:** based on study findings, the researchers suggested that the evidence based practice education program as a general education course for undergraduate nursing students to support necessary critical thinking dispositions.

**Keywords:** Evidence-based nursing, Critical thinking disposition, and Nursing internship students

### Introduction

Evidence-based practice (EBP) is the application of research findings and other types of evidence in nursing practice. Choices to use evidence-based practices contain a concern of the asset

of the evidence, clinical considerations and patient/family preferences. EBP events include, but are not limited to, a literature search; reading, critiquing and creating the evidence; development of evidence-based guidelines according to an evidence-based nursing policy and

use it in daily practice and evaluating influence on patient outcomes (Melnyk., & Fineout-Overholt., 2011).

EBP is an important component and the pinnacle of nursing practice to deliver high quality and safe patient-centered care that optimizes patients' health outcomes, EBP enables nursing care guide to be more effective and efficient, more individualized, and to increase effects of the clinical judgment. (Shokry., & Saleh., 2017), it allows nurses as clinicians to dynamically donate and in some states principal clinical-decision making conversation as part of the inter-professional staff (Hoffman., et al., 2017 & Tauringana., 2020).

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 (Jones., 2016). 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 intern 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, and learn to know the importance for using evidence to nurses and patient, thus critical thinking of them be in the better state and make their valuable skill which includes several constituents, such as attitude, knowledge,

and skills are attainable (Perez., et al., 2019).

The implementation of EBP remains a challenge for the nursing profession (Häggman-Laitila., et al., 2016 & Ruzafa-Martinez., et al., 2016) as nurses often feel that they lack sufficient knowledge and skills to implement it, even though its use is positively perceived (Stichler., et al., 2011). In order to promote EBP implementation, it is proposed to improve attitudes, knowledge and skills correlated to it in technical nurses so that they can participate and hold these skills (Melnyk., et al., 2008, 2011 2014; Hickman et al., 2018).

The nature of EBP, its consequence to nursing, and the skills needed to sustainance it should be essential constituents of baccalaureate education graduation and must be presented early in students' advance as self-directed, self-regulating, learners and as qualified nurses. Amongst the knowledge, skills, and practices needed to support EBP, CT is supreme. Future nurses as internship students need to be prepared to develop their evidence based nursing practice and utilization of critical thinking skills due to the diversity and complexity in clinical practice (Malik., et al., 2016)

Nursing interns are baccalaureate nursing students who start the role to transition from senior student to professional nurse through an internship training program. One of the mechanisms considered and implemented to support new graduate nurses in the work place is internship program which is accessible by most hospitals in various format. Transition

from student to skilled nurse is a stressful experience due to the increase in the newly graduated nurse responsibility and accountability. Conversion is a period of learning, correction and socialization, when the nurse internship applies, associates and increases their existing awareness, gaining proficiency (knowledge, skills and attitude) that is significant to the nursing practice of the scientific state or patient populace in which they are predictable to achieve (Aldeeb., et al., 2016).

### **Significance of the Study:**

Nursing intern students, when encounter patients' problems and critical situations, are merely the obedient followers of the physicians' instructions and this can lead to offering undesirable care to the patients and can cause emotional, and psychological threats and trouble at work. Evidence-based practice is one of the most important issues discussed recently and has had a distinct place in health care system and the individuals, in all relevant professions. Closing the gap between evidence based nursing practice that have arisen due to a lack of confidence in internship nurses about their ability to critically evaluate the clinical evidence is great phenomena, in order to make intern nurses can learn how to think critically. Therefore, it is required that the best nursing practice should be defined in order that intern nurses can learn how to think critically and curriculum content doesn't concern with the coverage of critical thinking education to interns students.

### **Aim of the Study:**

The aim of the present study was to evaluate the effect of implementing of evidence-based practice program on critical thinking disposition among nursing internship students through the following:

- 1- Assess nurses' intern beliefs related to evidence based practice.
- 2- Evaluate nurses' intern dispositions for critical thinking.
- 3- Introduce an intervention program related to evidence-based practice beliefs based on assessment needs.
- 4- Appraise the impact of evidence-based nursing practice beliefs program on critical thinking disposition among nursing internship students.

### **Research questions were:**

1. What are the nurses' intern beliefs toward EBP and dispositions for critical thinking before implementing of the program?
2. What are the nursing student's beliefs toward EBP and CT after the implementing of the program?
4. What is the impact of evidence-based nursing practice beliefs program on critical thinking disposition among nursing internship students in the study?

### **Subjects and Methods**

Used in carrying out the study are presented under the following four main designs;

**Research Design:** A Quasi-Experimental study design was used to conduct the present study, with two times of data collection pre-program implementation (pre-test) and immediately after program implementation (post-test)

**Setting:** The study was conducted at Fayoum University Hospitals (Medical and Surgical Hospitals).

**Subjects:** All available number of nursing internship students at Faculty of Nursing Fayoum University Hospitals (Medical and Surgical hospitals) was 125 internship students, chosen to be a sample because they are in training period and nearly start their professional career. The subjects' number was 125 students plus 13 intern students were randomly selected for study.

#### **Tool of Data Collection:**

Two tools were used to collect data for this study.

**Tool I:** Evidence based practice beliefs scale by (Melnyk., & Fineout-Overholt., 2003) and developed by researchers based on literatures reviews (Upton, P., 2015). It is composed of two parts:

**Part I:** Personal data e.g., age, Sex, Marital status, educational qualification, department and previous attendance of work shop in evidence based practice.

**Part II:** EBP beliefs questionnaire to measure nurse internship students beliefs about the value of EBP consists of 18 items grouped into four subscales which are: 1-

Beliefs related to knowledge (5 items). 2- Beliefs related to the value of EBP (5 items). 3- Beliefs related to resources (4 items). 4- Beliefs to difficulty and time (4 items). This scale was used for data collection before and immediately after program implementation.

**Tool II:** The California Critical Thinking Disposition Inventory questionnaire (CCTDI) which used as the theoretical basis definition of critical thinking to measure the extent to which an Interns student possesses the attitudes as a critical thinker, it was developed by (Facione., & Facione., 1998, Facione, 2011 in Ali, 2017): It is a self-report instrument to assess various critical thinking dispositions of nursing internship students. It consists of 75 items grouped into seven dispositional characteristics as follows: 1- Truth seeking (12 items). 2- Analyticity (11 items). 3- Systematicity (11 items). 4- Self-Confidence (9 items). 5- Inquisitiveness (10 items). 6- Open-Mindedness (12 items). 7- Maturity (10 items).

#### **Scoring system:**

Scoring system for two tools:-

The responses were scored on a five-point Likert scale rating from 1 (Strongly disagree) to 5 (Strongly agree). The score of each participant was categorized into "unsatisfactory" that had score less than 60% and "satisfactory" that had score 60% or more

#### **Validity and reliability:**

The tools utilized as a part of the study were checked for its content validity by a jury of 5 experts in the field. These experts were from Zagazig, Cairo and Ain shams Universities, recommended modifications and reconstructions of the tool were done. The tools have high reliability with Cronbach alpha coefficient 0.762 for the total scale of Evidence based practice (EBP) beliefs, and 0.846 for the total scale of critical thinking dispositions tool.

### **Evidence based nursing practice program:**

Total duration of the program was 10 Hours, divided into 5 sessions of theory and practice two hours in every session for 2 weeks (3 sessions in a week followed by 2 sessions in the next week), it was difficult to take the whole number of the intern students who participate in the study at the same time, because they are divided according to hospital roster into three shifts (morning 8.5am-2.5pm, evening 2.5pm - 8pm, and night shift from 8pm-8.5am), so the 5 sessions of the program/2 weeks were repeated respectively three times for three shifts, once (2 weeks) for who were in the morning shift, once (2 weeks) for who were in the evening shift, and once (2 weeks) who were in the night shift, in total 6 weeks for implementing the program until 125 nursing internship students completed the entire theory and practice content.

### **Field work:**

The pre-test forms were distributed to the participants to assess the baseline participants' evidence based beliefs practice and critical thinking dispositions.

Based on the result of pre-test, the participants' learning needs were identified. Accordingly, the objectives of the program were stated and the content was designed. ***Preparatory phase:*** It begins with reviewing the theoretical and empirical literature of national and international resources concerning the topic of the study using text books, articles, magazines, research, and internet search (**Fountain, 2011**) in order to get a clear picture of all aspects related to the study.

***Implementation phase:*** The program was implemented through mid of January 2020 to the end of February 2020 (6 weeks for the whole). Educational program designed for this study theory and practice. The 5 program sessions were, **the first** session starting with orientation and introduction about the program purpose, time and content were done using simple words, tone of voice that shows interest, concern and friendliness, the **2<sup>nd</sup>** sessions covers theoretical part of knowledge about definition and importance and, objectives, components, benefits of evidence based nursing practice beliefs to nurse, organization and community, the **3<sup>rd</sup>** session covers research utilization process, steps of EBP process, importance of implementing research utilization in nursing, hierarchy of evidence, source of evidence, barrier of implementing evidence based nursing practice.

**The 4<sup>th</sup>** session covers role of nurse and role of nurse managers in applying EBNP, and total overview of theoretical

content of the sessions, the 5<sup>th</sup> session covers practical part in form of giving activities, exercises, and situations for internship about evidence based nursing practice.

A special class was allocated for teaching the program sessions at Fayoum University Medical Hospital, where the researchers and internship students in both (medical & surgical hospitals) agreed together to attend to medical hospitals where the building contains many equipped and furnished classrooms as it recently enter the service, the researchers used various teaching strategies include lectures, group discussion, brain storming, and role-play. Using media include: Power point, colored pen white and black board, and a program booklet which covered program content.

**Evaluation Phase:** Focused on estimating the impact of program implementation on nursing internship students' EB nursing practice beliefs and its effect on critical thinking dispositions by using the same tools used in pre-program assessment.

### **Operational Design:**

This design included **(a) 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. The pilot study was carried out on 10% of study sample in (13 intern students). A brief explanation of the purpose of the study was provided to every participant in the pilot study, and then they were provided with a copy of each study tools. The time consumed in answering the questions was about 20-30 minutes.

Those internship students in pilot study were excluded from the main study sample. **(b) Methods of data collection:** After official permissions were obtained from the manager of Fayoum University Hospitals (medical and surgical hospitals).

It was necessary for the researchers to introduce her and explain the purpose of the study to subjects included in the study. After an explanation of the study, two questionnaire sheets were answered by internship students. The researchers were present at all the time for any clarification. Pre-program data collection was carried out during the period from the beginning of Jan 2020 to the end of the same month, the first time point was the pre-test time which began, at the end of the preparation period and before the implementation of the program., post-test data collection was carried out immediately after implementation of the program.

### **Administration and Ethical consideration:**

An official permission was obtained from the hospitals' administration to conduct the study. The investigator gave a verbal clarification of nature and the aim of the study to internship students to get their informed consent to contribute.

### **Statistical Design:**

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Data entry and statistical analysis were done using Statistical Package for Social Sciences (SPSS). Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, means and standard deviations for quantitative

variables. Chi-square test was used to detect the relation between the variables. Paired t-test was used to compare between mean scores to correlate between studied variables. Pearson correlation analysis was used for assessment of the inter-relationships among quantitative variables. P-values which were less than 0.05, 0.001 were considered as statistically significant and highly significant respectively. The given graphs were constructed using Microsoft Excel software.

## Results:

**Table (1):** Shows distribution of study sample regarding their personal characteristics, it's appearing from the table that 84.0% of nursing internship students at age group 20-25 years. As for their gender 83.2% were female. As for working in private hospital (40%) of them already working in private places, The majority (85.6%) of nursing internship educational qualification was bachelor degree in nursing, and 81.6% aren't attend training work shop related to evidence based practice.

**Table (2):** Shows that evidence based practice beliefs subscales, in post intervention the total means scores ( $63.6720 \pm 8.71111$ ) was significantly higher (paired t test  $-30.911$  & P value  $< 0.001^{**}$ ) than pre intervention total scores ( $36.4640 \pm 3.24421$ ). It is apparent that post intervention mean score of each variable measuring evidence based practice beliefs subscale was significantly higher than pre intervention mean score of each subscale among the studied nursing internship students

Finding also displayed that in pre intervention the highest mean score related to (beliefs related to knowledge) was ( $10.5680 \pm 1.06511$ ), while the lowest mean score related to (beliefs related to the value of EBP) was ( $8.4960 \pm 1.04437$ ). In post intervention the table shows that the highest mean score related to (beliefs related to knowledge) was ( $19.1440 \pm 3.35700$ ), while the lowest mean score related to (beliefs to difficulty and time) was ( $14.4400 \pm 2.93587$ ).

**Table (3):** displays that, there was statistically significant positive relation ( $P1 < 0.05^*$ ) between gender, private working and educational qualification and evidence based beliefs in pre intervention. Also, there was highly significant positive relation ( $P \leq 0.001$ ) between training and work shop attendance and post intervention and evidence based beliefs.

**Table (4):** shows that post intervention total means scores ( $273.2400 \pm 28.81515$ ) was significantly higher (Paired t test  $-35.242$  & P value  $< 0.001^{**}$ ) than pre intervention total scores ( $162.8080 \pm 11.56935$ ) of critical thinking dispositions characteristics. It is apparent that post intervention mean score was significantly higher than pre intervention mean score of each variable measuring critical thinking dispositions characteristics among the studied nursing internship students.

Finding of the table also displayed that in pre intervention the highest mean score of critical thinking dispositions characteristics related to (Open-Mindedness) was ( $26.0960 \pm 2.44099$ ), while the lowest mean score related to

(Self-confidence) was (19.6080±1.81346).

In post intervention the table shows that the highest mean score of critical thinking dispositions characteristics related to (Open- Mindedness) was

dispositions and personnel characteristics of the studied nursing internship students' in pre intervention. The table displays that, there was statistically significant positive relation ( $P1<0.05^*$ ) between age, private

**Table (6):** Shows the correlation matrix between total evidence based beliefs and total critical thinking dispositions characteristics of the studied

(44.5200±6.13372), while the lowest mean score related to (Maturity) was (33.6000±5.80739).

**Table (5):** Shows the relation between mean score of critical thinking

working and educational qualification in pre intervention. Also, there was highly significant positive correlation ( $P\leq 0.001$ ) between training and work shop attendance and post program intervention.

nursing internship, there was statistically significant positive correlation between total evidence based beliefs and total critical thinking dispositions of the studied nursing internship ( $P < 0.01$ ).

**Table (1):** Distribution of personnel characteristics of the studied nursing internship (n=125)

Variable	Frequency	%
<b>Age</b>		
-20-25	105	84.0
-25-30	20	16.0
	Mean ±SD 21.98±2.05	
<b>Gender</b>		
-Male	21	16.8
-Female	104	83.2
<b>Private working</b>		
-No	75	60.0
-Yes	50	40.0
<b>Educational qualification</b>		
-Bachelor	107	85.6
-Associate diploma	18	14.4
<b>-Department</b>		
-Surgical ICU	21	16.8
- Adult ICU	18	14.4
- CCU	18	14.4
- OR	20	16.0
- Dialysis	20	16.0
- Neonate	12	9.6
- Pediatric	16	12.8
<b>-Training and work shop attendance</b>		
-No	102	81.6
-Yes	23	18.4

**Table (2):** Mean score of evidence based beliefs among the studied nursing internship (n=125)

Evidence based practice variables	Item No.	Pre-intervention	Post-intervention	Paired t test	P value
		Mean ±SD	Mean±SD		
Beliefs related to knowledge	5	10.5680±1.06511	19.1440±3.35700	-25.403	.000
Beliefs related to value of EBP	5	8.4960±1.04437	15.5280±3.06798	-23.551	.000
Beliefs related to resources	4	8.7840±1.21539	14.5600±2.96594	-18.719	.000
Beliefs to difficulty and time	4	8.6160±1.21007	14.4400±2.93587	-20.266	.000
<b>Total believes score</b>	<b>18</b>	<b>36.4640±3.24421</b>	<b>63.6720±8.71111</b>	<b>-30.911</b>	<b>.000</b>

Paired t-test: Difference between pre-intervention and post intervention

P: Probability of difference between pre-intervention and post intervention.

\*\*Highly significant at  $P \leq 0.001$

**Table (3):** Relation between mean score of evidence based beliefs and personnel characteristics of the studied nursing internship(n=125)

Personnel characteristics	Pre-intervention			Post intervention		
	Mean ±SD	Statistical test		Mean ±SD	Statistical test	
		Independent /F test	P 1 value		Independent /F test	P2 value
Age		1.48	>0.05		1.46	>0.05
-20-25	36.2667±3.18430			64.0762±9.01889	(t test)	
- 25-30	37.5000±3.44124			61.5500±6.66076		
Gender		3.10	<0.05*		1.30	>0.05
-Male	34.3333±3.52609			63.1923±8.55715	(t test)	
- Female	36.8942±3.02391			66.0476±9.28696		
Private working		2.84	<0.05*		0.066	>0.05
-No	35.8800±3.80242			63.7059±9.02750	(t test)	
-Yes	37.3400±1.86930			63.6000±8.10761		
Educational qualification		2.86	<0.05*		0.371	>0.05
-Bachelor	36.8505±2.99624			63.7944±8.69150	(t test)	
-Associate diploma	34.1667±3.77686			62.9444±9.04546		
Department		1.13	>0.05		1.22	>0.05
-Surgical ICU	36.5238±3.07602			60.3810±12.06846	(F test)	
- Adult ICU	35.6111±4.72962			63.5000±6.90482		
- CCU	37.3333±3.30774			62.6667±8.73128		
- OR	37.2500±3.27470			65.2000±8.17956		
- Dialysis	36.6000±2.13739			67.2000±7.01577		
- Neonate	36.6667±2.74138			63.7500±9.26504		
- Pediatric	35.0625±2.64496			62.9375±6.77711		
Training and work shop attendance		1.55	>0.05		7.90	<0.001**
-No	36.6078±3.48450			61.6373±7.98611		
-Yes	35.8261±1.74908			72.6957±5.53037		

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

P1: Probability of difference between personal characteristics and pre intervention.

P2: Probability of difference between personal characteristics and post intervention.

\*\*Highly significant at  $P \leq 0.001$

**Table (4):** Mean score of critical thinking dispositions among the studied nursing internship (n=125)

Critical thinking skills variables	Pre-intervention	Post-intervention	Paired t test	P value
	Mean±SD	Mean±SD		
-Truth Seeking	25.4800±2.33349	41.9120±6.79423	-25.647	.000
-Analyticity	24.0480±2.29606	39.6640±5.42239	-27.035	.000
-Systematicity	23.9360±2.49109	38.5440±5.11245	-27.735	.000
-Self confidence	19.6080±1.81346	35.0960±4.75602	-28.980	.000
-Inquisitiveness	21.7040±3.35536	39.9040±6.06075	-30.437	.000
-Open- Mindedness	26.0960±2.44099	44.5200±6.13372	-28.436	.000
-Maturity	21.9360±1.97052	33.6000±5.80739	-20.050	.000
Total critical thinking	162.8080±11.56935	273.2400±28.81515	-35.242	.000

Paired t-test: Difference between pre-intervention and post intervention

P: Probability of difference between pre-intervention and post intervention.

\*\*Highly significant at  $P \leq 0.001$

**Table(5):**Relation between mean score of critical thinking dispositions and personnel characteristics of the studied nursing internship(n=125)

Personnel characteristics	Pre-intervention			Post intervention		
	Mean ±SD	Statistical test		Mean ±SD	Statistical test	
		Independent t /F test	P1 value		Independent /F test	P2 value
Age						
-20-25	163.7905±11.82703	2.73	<0.05*	273.33±29.077	0.85 (t test)	>0.05
- 25-30	157.6500±8.63454			272.75±28.116		
Gender						
-Male	160.2381±11.22900	1.14	>0.05	293.1905±23.88016	2.30 (t test)	>0.05
- Female	163.3269±11.62057			260.4327±29.48284		
Private working						
-No	160.2800±13.62486	3.55	<0.05*	272.8471±26.67329	0.066 (t test)	>0.05
-Yes	166.6000±5.82395			274.0750±33.26459		
Educational qualification						
-Bachelor	163.7103±12.02435	3.33	<0.05*	273.2804±28.41764	0.205 (t test)	>0.05
-Associate diploma	157.4444±6.26120			273.0000±31.95217		
Department						
-Surgical ICU	165.5714±12.86690	0.602	>0.05	265.7619±22.77478	1.33 (F test)	>0.05
- Adult ICU	160.2222±8.71480			271.9444±29.79039		
- CCU	163.1667±14.87695			265.1667±27.58570		
- OR	162.7500±10.90087			283.7000±32.46391		
- Dialysis	164.6000±10.60486			282.6500±26.99371		
- Neonate	162.4167±10.37881			269.5833±25.08335		
- Pediatric	159.8125±12.00122			271.5000±33.88805		
Training and work shop attendance						
-No	162.8922±12.07149	0.202	>0.05	269.0294±26.91293	3.35 (t test)	<0.001* *
-Yes	162.4348±9.23347			291.9130±30.13291		

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

P1: Probability of difference between personal characteristics and pre intervention.

P2: Probability of difference between personal characteristics and post intervention.

\*\*Highly significant at  $P \leq 0.001$

**Table(6):**Matrix correlation between critical thinking dispositions and evidence based beliefs of the studied nursing internship( n=125)

Critical thinking skills variables	Statistical Test	Evidence based practice				Total beliefs score
		Beliefs related to knowledge	Beliefs related to value	Beliefs related to resources	Beliefs to difficulty and time	
Truth Seeking	r	.057	.138	.167	.215*	.200*
	p-value	.529	.124	.063	.016	.025
Analyticity	r	.067	.062	.049	.175	.123
	p-value	.458	.495	.588	.051	.171
Systematicity	r	.167	.239**	.218*	.235**	.302**
	p-value	.063	.007	.015	.008	.001
Self confidence	r	.211*	.115	-.023	.066	.136
	p-value	.018	.202	.802	.463	.130
Inquisitiveness	r	.201*	.028	.103	.064	.144
	p-value	.025	.757	.253	.475	.109
Open-Mindedness	r	.202*	.105	.151	.154	.218*
	p-value	.024	.245	.093	.086	.014
Maturity	r	.171	.136	.204*	.123	.225*
	p-value	.057	.132	.022	.170	.012
Total critical thinking	r	.210*	.161	.178*	.208*	.268**
	p-value	.019	.073	.047	.020	.002

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

## Discussion

Evidence-based practice (EBP) is the integration of valid, nurse-observed, patient-reported and research-derived information into the health setting. An EBP can make the alteration between good care and excellence in care in today's rapidly changing healthcare organization (Dawes., et al., 2005&Cosme., et al., 2018). In dealing with a variety of health problems, nurse's interns need to make clinical decisions promptly while accurately utilizing good judgment and analytical skills.

Therefore critical thinking ability is essential to provide nursing care that meets the needs of patients with consideration for their context and

preferences (Facione., 2006). Using critical thinking, nurse's interns will be able to seek solutions for issues and dilemma facing them in their hectic and challenging working environments (Lunney.,2008).The aims of this study was to evaluate the effect of implementing of evidence-based practice program on critical thinking disposition among nursing internship students.

## Evidence Based Practice

Findings of the present study displayed that nursing student internship evidence based practice beliefs in preprogram were unsatisfactory (less than 60%). This may be due to that, excessively heavy workload and lack of interns time to search and apply

evidence-based nursing in clinical setting which subsequently result in lack of their critical thinking abilities and dispositions, furthermore, poor feedback and insignificant background related to evidence-based practice beliefs in nursing education as it considering a novel topic and nursing curriculum doesn't cover this topic in nursing curriculum. These results agreed with those of a study conducted in Colombia by (Garcia., et al., 2019), who reported that participants were not familiar with the evidence-based approach to nursing before participating in the study. There was a significant difference in their level of beliefs related to the value of EBP with respect to the principles of evidence based nursing before and after the study. Furthermore, interns involved in the study required initial training on the fundamentals of evidence-based nursing. Also, this in confirmed with study of (Khajeali., & Mohammadpour., 2014) results who indicated that participants were not familiar with the evidence-based approach to nursing before participating in the evidence based practice program.

After implementation of the program the results of the present study revealed that there were increasing in evidence based practice beliefs of nursing internship students to satisfactory level (more than 60%). There were highly statistically significant differences in total mean scores of all subscales measuring evidence based practice beliefs between pre and post program intervention. This proved that the program had a positive impact on improving evidence based

practice beliefs among nurse internship students.

This might be related to the desire of a participant to maximize the usefulness from program training to be ready to overcome any situation needed to increase their ability to critically solve a problem in a base of evidence, especially in internship year which fill off many obstacles and blocks as it consider the first contact of interns with real professional life.

This finding was in agreement with a study done by Kim., Gu, & Chang., (2019). Those reported that evidence-based training leads to improved knowledge levels in the intervention group compared with the control group.

Furthermore, (Moch., Cronje., & Branson., 2010) also support the results of the current study and have shown that adopting an evidence-based approach to training can lead to an improved attitude to the training. (Chang., & Crowe., 2011) emphasized on the features such as positive attitude, expertise, information, and self-confidence are measured the principal factors manipulating the achievement of evidence-based nursing practice.

### **Critical thinking dispositions of nursing student's internship**

The findings of this study revealed that critical thinking dispositions of nursing internship student were unsatisfactory (less than 60%) before implementation of the program. This may be due to that the interns' student were merely having to follow traditional protocol-driven guidelines for nursing practice which in common hind them to

engaging into creativity think critically and solve related problem, the dependence consider the greatest problems which intern nurses face in hospitals. Clinical practice offered in nursing courses is sometimes not effective in increasing the critical thinking ability of nursing students.

These results agreed with **(DeWaelche., 2015)**, who founded in study done in Boston University that there was lower critical thinking scores found in this study can be explained by

that there were highly statistically significant differences in relation to preprogram in all of critical thinking dispositions characteristics among the studied nursing internship.

Typically, this finding was in agreement with two studies done by **(McSherry., R., 2012)**, who founded that there was a difference in students' critical thinking abilities measured by The Watson-Glaser Critical Thinking Appraisal (WGCTA) at entry and at graduation. In their study, students critically thinking ability significantly increased during attendance of training program pre graduation, whereas those who didn't attend the education program did not show significant improvement in their critical thinking ability.

As regarded to 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 this dispositional characteristics were high, and this may be due to students desire to

factors to the Korean education system. First, the educational objectives of nursing programs in Korea do not fully focus on improving the students' critical thinking. There is no standard for the level of critical thinking to be achieved among graduating students, the second to educational objectives for improving the students' thinking ability are not clearly reflected in the overall nursing education system, including course objectives, curricula and teaching methods. After implementation of the program findings of the study revealed 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 consistent with **(Turabik., and, Gun., 2016)**, who stated that, a critical thinking disposition (open mindedness) among nursing students was at high level. While, this results different with the result of **(Lean Keng., & AlQudah., 2017)**, who stated that a 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 lack of cognitive maturity of students, values, thoughts, beliefs of students, lack of training programs that provide students with information and teaching methods that not allowed discussion and feedback. This result similar to findings

of El Sayed Ibrahim (2020) who stated that, the mean score of student toward cognitive maturity were low. Also, these findings similar to Ragab (2016), who studied " assessing critical thinking dispositions among nursing student's internship and stated that the mean score of cognitive maturity were low among nursing student's internship.

On the other hand, the finding of current study did not similar to study performed by (Andreou, et al., 2014), 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 (Moattari, M., et al., 2014), 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., &, Gun., 2016), who stated that cognitive maturity among nursing students was at high level.

#### **Correlation between evidence based beliefs and critical thinking dispositions among the studied nursing internship**

Findings of the study indicated that there were statistically significant a positive correlation between total evidence based beliefs and total critical thinking dispositions of the studied nursing internship. This in congruence with the result of study done by (Moattari, M., et al.,2014), who found that, the relationship between the

research utilization (RU) and the CT of 141 nurses across four hospitals was investigated, found that evidence based practice was significantly correlated with overall, critical thinking dispositions, overall RU referred to the use of any kind of research findings in any kind of way and in any aspect of the nurse's work which make them to think critically. In addition, (Joanne., 2005) who concluded that critical thinking encompasses skills and dispositions are needed regarding of the nature of the evidence used by educators and nurses, and pointed out one starting place for the pattern shift from evidence generators to evidence users is for educators and nurses to consider how they think about research findings and how can think critically in light of these research findings. Also, (Lusardi et al. 2018) believes that there were striking similarities between the goals and processes of those EBP. These similarities readily facilitate the transition from the classroom to the practice setting relatively easily, and outlined on how EBP can serve to develop critical reflection for professional practice that is congruent with CT skills and dispositions.

**Regarding to relationship between personal characteristics and evidence based beliefs and critical thinking dispositions among the studied nursing internship**, the results of this study revealed that there were statistically significant relationships found between significant positive correlation between gender, private working and educational qualification in preprogram Also there was highly significant positive correlation between

training and work shop attendance and post program intervention evidence based beliefs.

Thus may be due to that, after students attending of training program about Evidence based practice dispositions and know the importance of this phenomena in repaid change health field they start to search about it as in websites, attending workshops or read related reviews, this in **(Forneris., &McAlpine.,2007)**, who said that, nurse internship have more hours of training in research methods and reading nursing journals articles in the last month were the factors associated with higher scores in evidence-based practice competency

Also, table displays that, there was statistically significant positive correlation between age, private working and educational qualification of critical thinking dispositions in pre intervention. Additionally, there was highly significant positive correlation between training and work shop attendance in post program intervention. On the same line this result supported by **(Duncan., 2017)**, in this study, the highest critical thinking ability scores were found in younger students. However, reported that critical thinking ability is positively correlated to age. That is, people become mature and confident as they age and better-equipped to think critically as they gain more experience under various circumstances. In addition, older students tend to have higher motivation to study hard, and they also have more experience.

Conversely, this result is not consistent with a study done by **(Abrami., et al.,2015)**, who reported the

association between age and critical thinking ability in his study was not clear, also, mentioned that the contrasting results with other studies underline the need for further research with larger sample sizes across cultures. The inverse correlation between age and critical thinking ability might be attributed to the belated emphasis on the concept of critical thinking in nursing education,

## **Conclusion**

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The study findings revealed that the majority of nursing internship aren't attend training work shop related to evidence based practice. Show, that post intervention total means scores was significantly higher than pre intervention total scores. It is apparent that post intervention mean scores were significantly higher than pre intervention mean scores of variable measuring evidence based practice among the studied nursing internship. In addition, it can be seen that the application of an educational program for internship student's nurses on EBP and its application benefits showed an observable increase and improvement of the internship students nurse's critical thinking disposition.

## **Recommendation**

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Critical thinking is a vital process for the safe, competent and skilled nursing practice. The education programs of nursing should accept attitudes that stimulate critical thinking and activate the skills of critical intellectual. Therefore, we recommend EBP of nursing program interventions as a regular course in the undergraduate

nursing curriculum. Also, there are obvious needs for routinely refreshment program on EBP to internship student nurses to improve the CT disposition.

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