



Critical Thinking Disposition among Nurses Working in Public Hospitals at Port-Said Governorate



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ABSTRACT

Aim: This study aimed to investigate critical thinking disposition among nurses working in Public Hospitals in Port-Said Governorate.

Methods: A descriptive research design was conducted in this study. Totally 196 respondents were chosen by systemic random sampling, to take part in the study as the sample. Data was collected from April to September in 2015. Tools of data collection: A personal and job characteristics data sheet and California Critical Thinking Disposition Inventory (CCTDI) were used.

Results: The results revealed that the total critical thinking disposition score mean was 257.05 ± 20.16 and the highest score mean was 48.67 ± 6.28 for inquisitiveness subscale, while the lowest score mean was 21.36 ± 7.19 for the truth-seeking subscale. Also, none of the personal & job characteristics showed statistically significant relations with the total critical thinking disposition.

Conclusion: More than three quarters of the nurses had an ambivalent disposition toward critical thinking, and most nurses' scores indicated a negative tendency towards truth-seeking. So the findings pointed for upgrading nurses' critical thinking through educational programs and a need for more problem-based learning with advanced teaching strategies in clinical areas.

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1. Introduction

The complicatedness and dynamic nature of the health care workplace, besides the need for the patient-centered care accompanied with the evidence-based practice, combine to spotlight critical thinking (CT) as a very important proficiency in education and in professional practice [1]. Critical thinking is proved to be a crucial factor to ensure safe, competent patient care and it is also related to the success of graduate nurses in their transition to clinical practice [2].

Nurses work in many different roles and settings either directly or indirectly related to patient care [3]. Critical thinking has drawn special attention within quality improvement. Nurses are expected on a daily basis to provide high-quality care for their patients. Such nurses make use of their critical thinking skills to manage quality improvement initiatives effectively by coaching staff and/or their peers in various ways so as to improve patient care [4].

Nurses must think critically to provide effective care while coping with the expansion in role associated with the complexities of current health care systems. Nurses use critical thinking skills every day to assess, plan for and provide quality of patient care [5]. Critical thinking is a featured procedure of nurses' work as the evolving role of the professional nurse from the traditional function of being task oriented – such as reporting and recording – to the function oriented one – a nurse who solves problems, makes decisions, acts as educator and change agent – requires nurses to be critical thinkers [6].

Critical thinking is generally denoted as a meaningful, self-regulatory assessment, which comes out with analysis, evaluation, interpretation, and inference so as to reach a judgment based on concepts, evidence, criteria, methodologies, and contextual considerations [7]. Critical thinking is an intellectual process that incorporates discerning examination of data to encourage clinical thinking, judgment and basic leadership [8]. It is generally acknowledged that critical thinking is a complicated process whose segments incorporate intellectual abilities and attitudinal dispositions [9,10].

Critical thinking is made up of two main domains: the cognitive

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and disposition skills. Cognitive skills allude to nurses' capability to participate in activities like explanation, inference, analysis, assessment, and self-adjustment to specific issues, decisions or judgments. While, disposition to think critically can be defined as consistent willingness, motivation, inclination and an intention to be engaged in critical thinking while reflecting on significant issues, making decisions and solving problems [11].

In nursing, critical thinking is a vital segment of professional accountability [12]. And is the ability to think in a systematic and logical manner with openness to question and reflect on the reasoning process used to ensure safe nursing practice and quality care [13]. Critical thinking is used when they identify patient problems, plan of care, and administrate the care process. Without the cautious examination of all features of patient care, the result reached may deliver more mischief than good on the patient [14].

Critical thinking is linked to the success of graduate nurses in their transition to clinical practice [2]. So as to achieve success in their workplace, nurses have to practice and share in independent and group work problem-solving activities, acquire and evaluate information, take ownership and responsibility, use resources and use technology [15]. Moreover, the critical thinking process will upgrade the nurses' ability to point out the clinical indicators, evaluate their significance, discuss areas for improvement and work efficiently in complex health care settings [16–18]. Additionally, the critical thinking ability is likewise depicted as minimizing the research–practice gap and confirming the nursing based on evidence [19].

1.1. Significance of the study

Critical thinking is very crucial in the nursing profession given its utmost consideration upon the care that patients get. The limit of the nursing proficient to accomplish upgrades in the quality of care depends, substantially, upon developing critical thinking skills in order to improve diagnostic decisions [20].

2. Aim of the study

The aim of this study is to investigate critical thinking disposition among nurses working in Public Hospitals in Port-Said Governorate.

2.1. Research questions

1. What is the critical thinking level among staff nurses?
2. What is the highest and lowest critical thinking subscale among staff nurses?
3. Is there a relationship between nurses' critical thinking disposition and their personal and job characteristics?

3. Subjects and methods

3.1. Subjects

3.1.1. Study design

A descriptive research design was utilized in this study.

3.1.2. Study setting

This study was carried out in three public hospitals in Port Said Governorate, affiliated to the Ministry of Health; namely: El-Zouhour Hospital with the total capacity 71 beds, Port Said Public Hospital with the total capacity 189 beds and Port-Fouad Hospital with the total capacity 129 beds.

3.1.3. Study subject

A sample with total number (196) nurses was selected by systemic random sampling, recruited from the three public hospitals mentioned before - 53 from El-Zouhour Hospital, 98 from Port Said Public Hospital and 45 from Port-Fouad Hospital. The participants were chosen with no age limit, all available educational levels and their approval to share in the study.

3.1.4. Sample

The sample size was determined to measure critical thinking with a 95% confidence level, and 0.05 error tolerance according Slovin's formula [21].

$$n = N / \left(1 + Ne^2 \right)$$

where:

n = Number of samples

N = Total population

e = Error tolerance

1 = A constant value

$$n = 388 / \left(1 + 388 * 0.05^2 \right)$$

Accordingly, the required sample size is 196 nurses.

3.1.5. Tools of data collection

The tool consists of following sections

Section 1: Personal and job characteristics of the study subjects.

It comprises: nurses age, gender, years of experience, marital status, educational qualification, and work place.

Section 2: California Critical Thinking Disposition Inventory (CCTDI).

The California Critical Thinking Disposition Inventory (CCTDI). It was developed by Ref. [22]. In which critical thinking and disposition toward critical thinking were conceptualized by a panel of the critical thinking experts. The aim of this tool was to assess the disposition of staff nurses toward critical thinking at the study setting. This tool was translated into Arabic and some modifications were done. It consists of 75 items divided into seven dispositional characteristics, namely: truth seeking (12 items), open mindedness (12 items), analyticity(11 items), systematicity (11 items), self-confidence (9 items), inquisitiveness(10 items), and maturity(10 items). Briefly, the truth seeking subscale measures the disposition of being eager to seek the best knowledge in a given context, courageous about asking questions, and honest and objective about following inquiry. The open-mindedness subscale measures being tolerant of divergent views and sensitive to the possibility of one's own bias. The analyticity subscale addresses the application of reasoning and the use of evidence to resolve problems. The systematicity subscale measures how a person is organized, orderly, focused, and diligent in inquiry. The self-confidence subscale measures the trust the soundness of one's own reasoning processes. The inquisitiveness subscale measures one's intellectual curiosity and one's desire for learning without considering any profit. Finally, the maturity subscale measures cognitive maturity and the disposition to be judicious in one's decision-making.

3.1.5.1. Scoring system. Subjects responses for CCTDI (75 items) were measured on a 6-point Likert Scale in which 6 = strongly agree and 1 = strongly disagree. For the negative items the score reversed. Total subscale scores range from 10 to 60. Scores from 41 to 60 indicate a strong a positive inclination toward critical thinking. Scores between 30 and 40 indicate an ambivalent

inclination, whereas scores <30 indicate a negative tendency. While total CCTDI scores range from 70 to 420. Overall scores from 280 to 420 indicate positive disposition, while scores from 210 to 279 indicate ambivalence toward disposition, and scores below 210 indicate a negative disposition regarding critical thinking [22].

3.2. Method

- Approval to do the study was obtained from the in-charge of officials of El-Zouhour Hospital, Port Said Public Hospital, and Port-Fouad Hospital.
- Ethical issues are raised by taking verbal consent for participation from every nurse after explaining the aim of the study and confirming confidentiality of their data.
- The CCTDI was translated into Arabic and adapted to fit the Egyptian culture by the researcher and translated back into English.
- Tool was submitted to a panel of five experts from nursing administration, psychiatric nursing and education to be tested for its validity, and the experts agreed on the scale items after translation and they had no negative comments.
- Reliability of the tool was checked by testing for its internal consistency using Cronbach Alpha reliability test. Reliability of the whole scale was found 0.78. Reliability of the subscales as the following; truth seeking 0.70, open mindedness 0.72, analyticity 0.71, systematicity 0.69, self-confidence 0.74, inquisitiveness 0.70, and maturity 0.71.
- The researchers have emphasized that the participation is voluntary and the participants have the right to withdraw at any time. Eligible nurses completed the interview questionnaire.
- Data was collected by the researchers who guided the nurses in understanding the questions. Each sheet took about 30–40 min to be answered. The data collection period extended for 6 months, from 7th of April 2015 to 15th of September 2015.
- The researcher visited the previously mentioned hospitals 2 days a week. The days are Wednesday and Thursday from 9.30 to 1.30 p.m.
- All data will remain confidential and be anonymous using a series of research codes. All recordings or transcripts will contain corresponding codes. Research codes are only known by the researchers.
- A pilot study was carried out on 10% of the studied sample with total number 19 in order to test clarity and applicability of the tool, also to estimate the needed time to fill it. Tools were reformed and presented in the final form. Those who took part in the pilot study were excluded from the main study sample.

3.3. Data analysis

Data was coded, computerized and then analyzed using the Statistical Package for Social Science (SPSS) software package version 20.0. Range, mean and standard deviation were calculated for quantitative data. While using frequency & percentage for qualitative data and χ^2 Test were used, statistical significance was considered at the 0.05 level.

Verified normality distribution of variable degrees of critical thinking using Kolmogorov-Smirnov test per sample value amounted to 0.939 denote the significant level of 0.341 which prove the normality of the variable.

4. Result

Table 1 shows the distribution of the staff nurses according to their personal and job characteristics. The table indicated that the

respondents age ranges between 20 and 57 years old with mean ages 34.9 ± 10.09 years, more than one quarter of nurses were in age group 26–< 31 years old (29.6%), 91.8% of them were females, more than three quarters of nurses were single (77.5%) compared to 22.5% who were married. Concerning qualification, the majority of them had secondary nursing diploma (80.1%), while, the minority (5.6%) of them had technical nursing institute diploma, and half of nurses had experience in nursing more than ten years.

Table 2 describes nurses' distribution of CCTDI scores. It was found that more than three quarters of nurses (85.7%) had an ambivalent disposition toward critical thinking, compared to 10.7% of them who had positive disposition towards critical thinking. Meanwhile, the minority of nurses (3.6%) had negative disposition towards critical thinking. With regard to dispositional characteristics, most nurses (82.6% and 79.6% respectively) had positive inclination toward inquisitiveness and self-confidence subscales. Nevertheless, 80.10% of nurses had negative tendency toward truth-seeking. The table also reveals that the highest mean score 48.67 ± 6.28 for inquisitiveness, while truth-seeking had the lowest mean score 21.36 ± 7.19 .

The relation between critical thinking dispositions among staff nurses and their personal and job characteristics is shown in Table 3. It is noticed that the higher percentage of nurses with a positive disposition level were found among those female, single and in age group 31–< 36 years, comparing those with the secondary nursing diploma and those with experience more than ten years in nursing. No statistically significant difference among the groups was recorded.

5. Discussion

Critical thinking is an essential component of professional accountability, quality care and modern nursing practice. The expanded complicatedness of the scope of practice for nurses demands problem solving and critical thinking skills [14]. In this context the results of the present study revealed that most of staff nurses were ambivalent regarding the total critical thinking dispositions. Meanwhile, the minority of them was positively disposed toward critical thinking, and it is seen that the mean score obtained by the nurses was 257.05 ± 20.16 . This is in agreement with [4] who assess the critical thinking skills among nurses and found that most of the nurses have average critical thinking skills and only few of them have good critical thinking skill capacity. Also descriptive studies conducted by [23,24] using the CCTDI with the nurses in Turkey proved that the highest mean score was 261.10 ± 22.50 at medium level. These results are supported by [22] who clarified that ambivalences identified in subscales will limit development in total disposition, because elements are interrelated and positive disposition requires positive scores in all elements.

In addition the lower score of critical thinking in the present study could be attributed to that the work settings of all nurses were hospitals, not community health care. This may explained by, nurses in their shifts at hospitals act effectively without using critical thinking as many decisions are mainly based on habit and have a minimum reflection. Thus, higher critical thinking skills are put into operation, when some new ideas or needs are displayed to take a decision beyond routine. And the cases of unclear answers, nonspecific procedures and when needed to decision making in a complex process, this forces nurses to think critically. In this respect [25], mentioned that a bigger percentage of nurses working in hospitals recorded low scores on the total disposition critical thinking compared with the nurses working in community health care. This could be related to that community health care is a place in which the number of patients who need high professional care level is increasing. This result goes in the same line with [26–28]

Table 1

Personal and job characteristics of staff nurses in study (N = 196).

Personal and job characteristics of staff nurses	Port said general hospital (n = 98)		Elzhour hospital (n = 53)		Port-fouad hospital (n = 45)		Total	
	n	%	n	%	n	%	n	%
Age								
20–	19	19.5	9	17.0	8	17.8	36	18.4
26–	26	26.5	16	30.2	16	35.5	58	29.6
31–	25	25.5	13	24.5	9	20.0	47	23.9
36+	28	28.5	15	28.3	12	26.7	55	28.1
Range							20.0–57.0	
Mean ± SD							34.9 ± 10.1	
Gender								
Male	13	13.3	3	5.6	0	0	16	8.2
Female	85	86.7	50	94.4	45	100	180	91.8
Educational qualification								
Secondary Nursing Diploma	82	83.6	48	90.6	27	60.0	157	80.1
Technical Nursing Institute Diploma	8	8.2	1	1.8	2	4.4	11	5.6
B.S.c of Nursing	8	8.2	4	7.6	16	35.6	28	14.3
Years of experience								
–5	13	13.3	3	5.6	7	15.5	23	11.7
5–	37	37.7	20	37.7	17	37.8	74	37.7
10+	48	49.0	30	56.7	21	46.7	99	50.6
Marital status								
Single	70	71.4	47	88.7	35	77.7	152	77.5
Married	28	28.6	6	11.3	10	22.3	44	22.5

Table 2

Critical thinking disposition among nurses (N = 196).

Dispositional characteristics	Negative critical thinking		Ambivalent critical thinking		Positive critical thinking		Critical thinking scores			
	n	%	n	%	n	%	Min	Max	M	SD
Truth-seeking	158	80.10	18	9.18	2	1.02	10	40	21.36	7.19
Analyticity	18	9.18	53	27.04	107	54.59	28	53	40.26	5.49
Systematicity	15	7.65	109	55.61	61	31.12	25	52	37.96	5.98
Self-confidence	1	0.51	17	8.67	156	79.59	30	60	45.83	5.81
Inquisitiveness	2	1.02	20	10.20	162	82.65	29	58	48.67	6.28
Open mindedness	37	18.37	135	68.88	14	7.14	22	42	33.47	3.57
Maturity	96	48.98	74	37.76	9	4.59	10	48	29.10	7.42
Total Score level	7	3.6	168	85.72	21	10.71	196	328	257.05	20.16

Table 3

Relation between critical thinking dispositions levels among staff nurses and their personal & job characteristics (N = 196).

Variable	Negative (n = 7)		Ambivalent (n = 168)		Positive (n = 21)		χ^2	P
	n	%	n	%	n	%		
Age								
20–	2	28.6	34	20.3	0	00.0	10.7	0.098
26–	4	57.2	50	29.7	4	19.1		
31–	0	00.0	38	22.6	9	42.8		
36+	1	14.2	46	27.4	8	38.1		
Gender								
Male	2	28.6	10	5.9	4	19.1	2.66	0.264
Female	5	71.4	158	94.1	17	80.9		
Educational qualification								
Secondary Nursing Diploma	5	71.4	138	82.2	14	66.6	4.109	0.391
Technical Nursing Institute Diploma	0	00.0	10	5.9	1	4.8		
B.S.c of Nursing	2	28.6	20	11.9	6	28.6		
Years of experience								
–5	1	14.2	21	12.5	1	4.8	5.43	0.245
5–	4	57.2	64	38.1	6	28.6		
10+	2	28.6	83	49.4	14	66.6		
Marital status								
Single	1	14.2	136	80.9	15	71.4	0.153	0.927
Married	6	85.8	32	19.1	6	28.6		

who found low scores on the total disposition critical thinking among nurses.

This result was inconsistent with [29] who found that most of the newly graduated nurses in Norway reported a positive disposition towards critical thinking, and development of critical thinking dispositions is a prerequisite to enable recently graduated nurses to work as professional nurses, and an ideal critical thinker. Also [30], found higher scores on the total disposition critical thinking among US nurses. Additionally [31,32], reported that nursing students had positive disposition to the total score of critical thinking.

The results of the present study also indicated that regarding truth-seeking and maturity subscales, the nurses were determined low level scores, in the analyticity, systematicity and open-minded subscales, the nurses were determined medium level scores, while, the self-confidence and inquisitiveness subscales, the nurses were determined high level scores. It was observed that nurses had scores at low levels, medium levels and high levels. This result was in agreement by [23,24,27] who investigated a critical thinking subscale among nurses and found that nurses had scores at low levels, medium levels and high levels.

The most noteworthy mean score among the seven CTDTI was for inquisitiveness subscale, most nurses were positively disposed, which refers to interest and willingness to acquire knowledge notwithstanding it may not have immediate use; this result is both empowering and desirable. In nursing as a practice discipline, it is essential that nurses keep up an inquisitive nature and proceed with the quest for knowledge. Therefore [30], concluded that, seeking out new information have obvious links to the behaviors required maintaining evidence-based practice standards, and a deficit in inquisitiveness would indicate a fundamental limitation of one's potential to develop expert knowledge and clinical practice ability [17].

These findings are consistent with [29,33] who found that the most noteworthy mean score was for the inquisitiveness subscale and most of the nurses were positively disposed. This was due that nurses were motivated to expand their knowledge bases including newly graduated nurses who reported that they looked upon challenges as opportunities for learning. This is supported by [34] who reported that individuals who have a solid confidence in their capabilities like to take up difficult tasks as challenges to be excelled. Besides, nurses who are curious, open-minded and precise will probably – more than the others – utilize research findings in their work, which may add to the high-quality nursing care [35]. Moreover [36], agrees with the present study regarding inquisitiveness as a highest score.

On contrary with [28] who investigated critical thinking disposition among nurses working in Public hospitals in Turkey and found that in inquisitiveness subscale, the nurses were determined low level scores. Also [37], conducted a study on the nurses working at University hospital in Turkey and found that nurses had low score mean of inquisitiveness subscale and the highest mean score for analyticity subscale.

On the other hand, the lowest mean score was found on the truth-seeking subscale, most participants' scores mirrored a negative inclination towards truth-seeking. This could be attributed to those nurses are unwilling to seek truth, to ask questions and to re-evaluate new information and evidence, additionally; the nursing programs still have traditional teaching strategies. This interpretation is supported by [30] who reported that truth-seeking subscale may be noticed in nurses who are not willing to re-assess new data, and who construct their nursing on 'how things are usually done' [38], assumed that not being harmonized to a proof different from one's perspective maintains professional practice that does not react to changes in its hypothesis base. Lack of truth-seeking

practices may expose patients to danger if nurses do not consider evidence. This leads to missing diagnoses or signs showing changes in status. Moreover, the low mean score for this subscale has been explained in several studies by questioning whether nursing programs still have traditional and strictly didactic teaching strategies [39]. This finding goes in the same line with [33,37,40] who asserted that, truth seeking scoring was the least of critical thinking dispositions among nurses because they were not capable of re-evaluating new information and they usually based practice on how procedures have always been done.

In this regard [41] clarified that weakness in disposition of truth seeking may be explained by the nursing curricula and the education system, which is authoritarian and does not efficiently foster the development of this disposition. There may be a requirement for another new educational program in nursing which is based on the learners' active participation and the use of the critical thinking skills as a critical component [42]. On the contrary, study results conducted by [32,43] found the highest percentage of nursing students had a positive disposition level toward truth seeking. Meanwhile [33,44], found the majority of participants had ambivalent disposition toward truth seeking.

With regard to the relation between nurses' total critical thinking disposition and their demographic characteristics, no statistically significant relations were found between staff nurses' critical thinking disposition and age, gender, marital status, educational qualification and their years of experience. This result goes in the same line with [4] who reported that there is no association between critical thinking skill and socio demographic variables. This result was parallel to [12,33] who concluded that nurses' experience did not seem to contribute to their critical thinking. This is the same viewpoint of [45] who affirmed that nurses' critical thinking is a process developed on the long run. It must be practiced, reinforced, and nurtured over time. Furthermore, even the nurses with experience need help to develop their critical thinking skills. Additionally this finding agreed with [46], who confirmed that critical thinking is not associated with educational qualification or other demographics, instead critical thinking is associated with standard measures of academic achievement.

In comparison with [47,48] their result demonstrated a positive relationship between nurses' age besides clinical experience and scores of critical thinking as nurses learn from errors and get adapted to changing circumstances through varied encounters. This finding goes relatively with [32,49] who found that older subjects showed distinctive overall dispositions toward critical thinking. Also [50,51] stated that critical thinking is not effortlessly learned in the classroom but critical thinking is developed through experience at the bedside, thus there was an increase in the critical thinking when the level of experience increased. Additionally [2], reported that nurses with baccalaureate degree were statistically significant and higher in critical thinking scores than nurses with an associate degree [12]. claimed the existence of a relationship between the critical thinking skills of evaluation and induction and the level of educational qualification.

Finally, nurses need critical thinking to continue searching for clarity and striving for answers. Moreover, critical thinking enjoins us to search for answers and beckons us to examine ideas that confront us. Critical thinking is central to excellence in nursing education, practice, and research.

There are some limitations that should be considered. The sample was obtained only from nurses working in the three public hospitals at Port-Said Governorate. And the results only can be generalized to the similar hospitals. Also, none of the personal & job characteristics showed a statistically significant relations with the total critical thinking disposition. So, further studies involving large

sample sizes from a wide geographic area should be conducted to confirm these results.

6. Conclusion and recommendations

Based on the results of this study we can conclude that, more than three quarters of nurses had an ambivalent disposition toward critical thinking, and the majority of participants' scores mirrored a negative inclination towards truth-seeking. So the findings pointed for upgrading nurses' critical thinking through using specific strategies with nurses in clinical areas.

6.1. In accordance with the foregoing research, the points that follow are recommended and suggested

- 1 In-service training and educational opportunities about critical thinking should be conducted.
- 2 Problem-based learning should be brought as a main component of nurse training to promote the development of critical thinking, knowledge acquisition and developing the ability to make decisions and resolve problems.
- 3 Orientation programs should be applied – they have proved satisfactory impact on developing the critical thinking skills among nurses starting out the career.
- 4 Utilizing the ICT skills – information and communication technology skills – in enhancing the critical thinking skills.
- 5 Activating clinical scenarios questioning staff, conducting conferences, and context-dependent activities that use open-ended, short answer and essay questions. Using such techniques and methods has been effective in promoting of the CT skills among experienced nurses.
- 6 Holding staff meetings to discuss precisely patients circumstances, guarantee that nurses take part in interdisciplinary rounds, and help nurses figure out how to think better by being role models.
- 7 Nurses should have easy access to the learning resources that promote their CT skills.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.ijnss.2017.02.006>.

References

- [1] Pérez E, Lluch M, Pegueroles A, Llobet M, Arroyo C, Merino J. Critical thinking in nursing: scoping review of the literature. *Int J Nurs Pract* 2014;1–11.
- [2] Karen L. An investigation into the relationship between critical thinking skills and clinical judgment in the nursing practitioner studentvol. 36. Colorado, United States: University of Northern Colorado; 2010. p. 8 [Dissertation] Retrieved at March 23, 2011, from: Pro Quest Dissertation & Thesis.
- [3] Simpson E, Courtney M. Critical thinking in nursing education: literature review. *Int J Nurs Pract* 2003;8(2):89–98.
- [4] Niranjana P, Hebsiba P. Critical thinking skills among nurses of a selected hospital a cross-sectional survey. *GJRA* 2015;4(12):154–5. retrieved at, <http://www.worldwidejournals.com/grj/articles.php?val=NDExMQ==&b1=425&k=107#sthash.Bb0noCIQ.dpuf>.
- [5] Bambini D, Washburn J, Perkins R. Outcomes of clinical simulation for novice nursing students: communication, confidence, clinical judgment. *Nurs Educ Perspect* 2009;30(2):79–82.
- [6] Harrington N, Terry C. LPN to RN Transitions. Achieving success in your new role. New York: Lodon. fourth ed. 2013. p. 208–27.
- [7] Facione N, Facione P. Externalizing the critical thinking in knowledge development and clinical judgment. *Nurs Outlook* 1996;44:129–36.
- [8] Alfaro-LeFevre R. Critical thinking, clinical reasoning, and clinical judgment: a practical approach. USA. fifth ed. 2013.
- [9] Simpson E, Courtney M. Framework guiding critical thinking through reflective journal documentation: a Middle Eastern experience. *Int J Nurs Pract* 2007;13:203–8.
- [10] Ozkahrman S, Yildirim B. An overview of critical thinking in nursing and education. *AJCR* 2011;1:190–6.
- [11] Giancarlo C, Facione P. A look across four years at the disposition toward critical thinking among undergraduate students. *JGE* 2007;91(5):29–55.
- [12] Ingram M. Critical thinking in nursing: experience vs. Education [Dissertation]. Phoenix, United States: University of Phoenix; 2008.
- [13] Paul S. Assessment of critical thinking in nursing: how should critical thinking be assessed in the clinical setting? Minnesotavol. 17. United States: Capella University; 2010. p. 20 [Dissertation] Retrieved at March, 23, 2011, from: ProQuest Dissertation & Thesis.
- [14] Fesler-Birch D. Critical thinking and patient outcomes: a review. *Nurs Outlook* 2005;53:59–65.
- [15] Alfaro-LeFevre R. Critical thinking and clinical judgment. A practical approach. third ed. Mo. Saunders: Great Britain; 2004.
- [16] Bandman E, Bandman B. Critical thinking in nursing. second ed. New York: Appleton and Lange; 1995. p. 20–8.
- [17] Facione N, Facione P, Sanchez C. Critical thinking dispositions as a measure of competent clinical judgment: the development of the California Critical Thinking Inventory (CCTDI). *J Nurs Educ* 1994;33(8):345–50.
- [18] Samir G, Harmina M, Mohamed N, Mansi M, Bassiouni N. The Disposition of the undergraduate university nursing students toward critical thinking. *ASNJ* 2007;6(2):77–93.
- [19] Profetto-McGrath J. Critical thinking and evidence-based practice. *J Prof Nurs* 2005;21(6):364–71.
- [20] Lunney M. Critical Thinking and accuracy of nurses' diagnoses. *Int J Nurs Terminol Classif* 2003;14(3):96–107.
- [21] Tejada J, Punzalan J. On the misuse of Slovin's formula. *Philipp Statistician* 2012;61(1):129–36.
- [22] Facione P, Facione N, Giancarlo C. California critical thinking disposition inventory test manual. Retrieved at Marchvol. 23. Press: Millbrae, California Academic; 2001. 2011, from, info@insightassessment.com.
- [23] Dirimeşe E. Investigation of nurses and nursing students' critical thinking dispositions [Dissertation]. Izmir: Dokuz Eylül University; 2006.
- [24] Eser I, Khorshid L, Demir Y. Examination of trends and factors critical thinking in intensive care nursevol. 11. Cumhuriyet University. *J Sch Nurs*; 2007. p. 13–22.
- [25] Leppa C. Assessing student critical thinking through online discussions. *Nurse Educ* 2004;29(4):156–60.
- [26] Glendon M. The relationship of critical thinking disposition and self-efficacy to work excitement among registered nurses in the practice setting [Dissertation]. Mansfield, Connecticut: University of Connecticut; 2002. p. 3050190.
- [27] Yildirim B, Ozkahrman S. Critical thinking in nursing process and education. *IJHSS* 2011;1:257–62.
- [28] Yildirim B, Ozkahrman S, Ersoy S. Investigation of critical thinking disposition in nurses working in public hospitals. *IJBHT* 2012;2(3):61–7.
- [29] Wangenstein S, Johansson I, Nordström G. The first year as a nurse – an experience of growth and development. *J Clin Nurs* 2008;17(14):1877–85.
- [30] Smith-Blair N, Neighbors M. Use of the critical thinking disposition inventory in critical care orientation. *J Contin Educ Nurs* 2000;31(6):251–6.
- [31] Yeh ML, Chen HH. Effect of an educational program with interactive videodisc in improving critical thinking dispositions for RN-BSN students in Taiwan. *Int J Nurs Stud* 2005;42(3):333–40.
- [32] Mackenburger- Mohn D. Enhancing critical thinking in baccalaureate nursing students through the use of computer assisted learning activities [Dissertation] Retrieved from. Minneapolis, Minnesota: Capella University; 2006. <http://%20Proquest.%20umi.com>.
- [33] Wangenstein S, Johansson I, Björkström M, Nordström G. Critical thinking dispositions among newly graduated nurses. *J Adv Nurs* 2010;66(10):2170–81.
- [34] Bandura A. Self-Efficacy. The exercise of control. New York: W.H. Freeman and Company; 1997.
- [35] Profetto-McGrath J, Hesketh K, Lang S, Estabrooks C. A study of critical thinking and research utilization among nurses. *West J Nurs Res* 2003;25(3):322–37.
- [36] Nielsen A, Stragnell S, Jester P. Guide for reflection using the clinical judgment model. *J Nurs Educ* 2007;46(11):513–6.
- [37] Ozkahrman S, Yildirim B. Investigation of critical thinking disposition in a university hospital of nurses working in Turkey. *IJAST* 2012;2(3):143–9.
- [38] Facione P, Giancarlo C, Facione N, Gainen J. The disposition toward critical thinking. *JGE* 1995;44(1):1–25.
- [39] Walsh C, Hardy R. Dispositional differences in critical thinking related to gender and academic major. *JNE* 1999;38(4):149–55.
- [40] Wilson B. Disposition toward critical thinking related to analytic writing. *J Bus Train Educ* 2000;9:71–84.
- [41] Sripusanapan A. Translation, validation, and application of the California critical thinking instruments to assess factors related to critical thinking dispositions and skills of baccalaureate nursing students in Thailand [Dissertation] Retrieved From. Maryland, United States: Maryland University; 2001. <http://%20www.Proquest.%20Com>.
- [42] Bevis E, Watson J. Toward a caring curriculum. A new pedagogy for nursing. Sudbury, MA: Jones and Bartlett Publishers Inc; 2000.
- [43] Crwford A. An investigation of the critical thinking abilities of nursing students in a selected baccalaureate school [Dissertation]. Texas, United States: Texas A & M University; 2002.
- [44] Ojewole O. Critical thinking dispositions of undergraduate nursing students and nursing faculty in southwestern [Dissertation] Retrieved From. Minnesota, United States: Capella University; 2013. <http://%20Proquest.umi.%20Com>.

- [45] Ignatavicius D. Critical thinking skills for at the bedside success. *J Nurs Manag* 2001;32(1):37–9.
- [46] Lynch M, Waite R. A measurement of critical thinking in senior. Baccalaureate nursing students [Dissertation]. Wisconsin, United States: Marquette University; 1989. p. 53–62.
- [47] Khosravani S, Manoochehri H, Memarian R. Developing critical thinking skills in nursing students by group dynamics. *Internet J Adv Nurs Prac* 2004;7(2): 1–9.
- [48] Kelly P. Nursing leadership and management. 2nd. USA: Thomson Delmar Learning; 2008. p. 483–5.
- [49] Feng RC, Chen MJ, Chen MC, Pai YC. Critical thinking competence and disposition of clinical nurses in a medical center. *J Nurs Res JNR* 2010;18(2): 77–87. <http://dx.doi.org/10.1097/JNR.0b013e3181dda6f6>.
- [50] Martin C. The theory of critical thinking of nursing. *Nurs Educ Perspect* 2002;23(5):243–7.
- [51] Mee C. Developing expert nurses. *Nursing* 2007;37(7):6.