

## THE CRITICAL THINKING DISPOSITIONS AND PROBLEM SOLVING ABILITIES AMONG NURSE MANAGEMENT IN PORT-SAID HOSPITALS

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### ABSTRACT

**Background:** Since the evolution in the scope of nursing practice, there has been greater autonomy for nurses and a growing demand for expanded critical thinking and problem-solving abilities. **Aim:** This study aimed to find out the relationship between the critical thinking disposition of nurse managers and their problem-solving ability in Port - Said hospital **Research design:** A descriptive correlational design. **Setting:** the study conducted in two different sectorial hospitals; ministry of health and health insurance hospitals *in Port -Said*. **Subject:** this study included 103 nursing (63-nurse manager working at the ministry of health hospitals and 40-nurse manager at health insurance hospitals). **Tools:** California Critical Thinking Disposition Inventory and Problem– Solving Questionnaire sheet. **Result:** the relationship between the disposition of the nursing manager toward critical thinking and problem-solving ability was statistically significant (<sup>FE</sup>P= 0.006). **Conclusion:** the majority of nurse managers (95.1%) *had a negative* disposition toward critical thinking also the majority of them (97.1%) *had low problem-solving ability* **Recommendation:** Conducting training programs to enhance nursing manager critical thinking disposition and the ability to solve the problem.

**Key words:** *Critical Thinking disposition, Problem Solving, Nursing manager*

## INTRODUCTION

Today's nursing environment needs nurses to be creative, analytic, critical thinking. In addition, the current health care settings are required that nurses are able to efficiently resolve problems faced with. Therefore, problem solving is important concept in nursing as well as critical thinking (Kim & Choi, 2014). Rubinfeld and Scheffer, (2015) considered critical thinking as the „metaphorical bridge“ between information and action as it is the ability to assess thinking with a vision to improving it, and evaluate that is steeped in questions to allow nurse manager to become aware of the variety of values, assumptions, beliefs, and social configurations of the hospital to make complete decisions through an effective, organized and operative cognitive period. This happens in a productive and positive way with the intent to improve overall thinking (Özsoy-Güneş, Güneş, Derelioğluc, and Kırbaşlar, 2015). According to McCormick, Clark, and Raines (2015) who stated that critical thinking is an educated skill that requires both training and practice. It is not an inherent talent and wants more than just simple nurse's engagement. It requires nursing manager to be actively engaged in the process of conceptualizing, applying, analyzing, synthesizing, evaluating, and communicating information. Critical thinking include making sound judgments through reasoning and careful balancing of evidence while proficiently creating and estimating it to arrive at the optimum solution to a problem using common values, skills, and dispositions as a baseline for critical thinking (Goodloe, 2015). **According to** Hürsena & Kaplanb (2014) there are numerous aspects that can disturb the critical thinking as dealing with the quantity instead of quality in the training programs applied in hospitals, insisting on memorization training styles, socio-economic level of society, the training process entering into low expectations and time wasted and not used effectively by the nursing managers. Critical thinking is eventually an intellectual instrument that motivates problem solving and decision making (Kim and Choi, 2014). As it is the inherent stimulus of thinking critically when someone faces a situation to judge, an idea to analyze or a problem to solve (Ocak and Eğmir , 2016). Sagir (2011) identifies a problem as confusing to a person's mind, exciting it and creating unclear belief; every condition which prevents one from aim achievement; obstacles to be removed or searching for a question answer. And it refers to a goal directed arrangement of intellectual operations and a process by which the solver develops and implements plans

to move from the current state towards the goal state (Kim and Choi, 2014). In addition there are two subtypes to problem-solving, problem orientation and actual problem solving. Problem orientation is the “cognitive processes and emotional impulses that pre dispose the individual to perceive problems in a certain way” whereas actual problem solving is the methods used to solve the problem (Paterson, et al., 2010)

**Significance of the Study:**

Problem-solving guide nursing managers through the critical thinking process and utilize training collaboration (Hou, Chang, and Sung, 2007). As in problem solving, nursing manager employ critical thinking skills in the analyses of problems and the synthesis and applications of previously learned concepts (McCormick, Clark and Raines 2015). Hospitals need to equip themselves by nurses with critical thinking and problem solving abilities. Unfortunately, most nurses are still lacking with this skill, nurses training approach is one of the factors that contributes to generic skills deficiency, particularly towards critical thinking and problem solving skill (Rodzalan and Saat, 2015). Since hospitals are always unpredictable and emergency sites with rapid advances and innovation in medical technology, and nurse managers facing multi problems either managerial or service providing? They must be able to use novel thinking patterns to interpret and judge information, to recognize the importance and meaning of nursing care situations, and to make correct judgments in critical clinical situations (Cui, Li, Geng, Zhang and Jin 2018). So, their critical thinking disposition helps them to deal with these problems and suggest suitable problem solutions. Therefore, it is important to assess critical thinking disposition among nurse managers and their problem solving ability.

**AIM OF STUDY:**

Aim: This study aimed to find out the relationship between critical thinking disposition of nurse managers and their problem solving ability in Port -Said hospital

**Research question:**

Is there a relation between critical thinking disposition of nurse managers and their problem solving ability?

## **SUBJECTS AND METHODS:**

**Research design:** A descriptive, correlational design was used in carrying out this study.

**Setting:** This study was conducted at two sectors of hospitals ministry of health hospitals and health insurance hospitals at Port-Said city. Firstly hospital affiliated to ministry of health, Port said public hospital: the total hospital force is 136 beds and 246 nursing staff, it consisted of two buildings; port-fouad public hospital: the total hospital force is 168 beds and 120 nursing staff, it consisted of two buildings and El-Zhour central hospital: the total hospital force is 69 beds and 117 nursing staff, it consisted of one buildings. Secondly, hospital affiliated to health insurance Al-Mabrah public hospital: the total hospital force is beds and nursing staff, it consisted of one buildings, and Al-Tadamon hospital: the total hospital force is beds and nursing staff, it consisted of one building.

**Study subject:** The subjects of this study included all nurse managers: nurse executives, vice nurse executives, nurse supervisor, and chief nurses in the following hospital committees: infection control, quality assurance, training, and patient safety: who were working and responsible for manage and observe nursing process in the study settings during the time of data collection with a total number of (115). One out of (115) nursing managers refused to participate. Where, "31" in Port-Said public hospital, "20" Port -Fouad public hospital, "19" El-Zhour central hospital, "23" Al- Mabrah public hospital and "22" Al-Tadamon hospital; 11 of nursing manager were excluded to carry pilot study and only 103 nursing manager` .

**Data collection tools:** Data for this study was collected by using two questionnaire sheets namely: California critical thinking disposition inventory sheet (CCTDI) and problem solving inventory (PSI).

**California Critical Thinking Disposition Inventory (CCTDI):** *it consisted of two parts:*

**First Part:** It was intended to collect data about the study subjects' demographic characteristics as: age, gender, residence place and academic year.

Second Part: This part aims to assess critical thinking disposition among the study subjects. It was developed by Facione, Facione, and Giancarlo (2001), and adopted from Ragab (2016). It consists of 75 items grouped under seven dimensions.

### Scoring system:

Subjects' responses measured on a 5- point Likert scale ranged from (strongly agree) to (strongly disagree). These are scored respectively from 1 to 5 higher score reflects a stronger disposition towards critical thinking. A total score less than 210 reflects a negative disposition, the score between 210-280 considered ambivalent disposition and score more than 280 regards positive critical thinking disposition Ragab (2016)

The Problem-Solving Questionnaire sheet: It developed by Fayed, (1999) based on Heppner & Petersen, (1982). It was aimed to assess nursing manager ability to solve problems. It consists of 27 items divided into three domains as follow:

Items of critical thinking disposition	Example
Truth-seeking	Even if the evidence is against me, I will hold firm to my beliefs.
Analyticity	Frequently I find myself evaluating other people's arguments.
Systematically	It is important to me to carefully keep careful records of my personal finances
Self-confidence	Others admire my intellectual curiosity and inquisitiveness.
Inquisitiveness	Studying new things all my life would be wonderful.
Open-mindedness	Flexible in considering alternatives and opinions.
Cognitive maturity	Advice has all to pay for it

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**2- The Problem-Solving Questionnaire sheet: It developed by Fayed, (1999) based**

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<b>Problem-solving</b>	<b>No. of items</b>	<b>Example</b>
<b>Problem-solving</b>	<b>9</b>	I have the ability to solve most of the problems even if it does not appear initially.
<b>Approach and avoidance style</b>	<b>14</b>	When I face a problem, I stop and think about it before I decide the next step.
<b>Personal control</b>	<b>4</b>	When my first effort to solve the problem failed, I feel worried about my ability to handle this

#### **Scoring system:**

Responses were measured on a (5) point Likert scale ranging from **strongly agree (5) to strongly disagree (1)**. The scores of items were summed – up and the total score was divided by the number of the items, giving the mean score for the part. The scores were converted into percent score. The subjects were considered high problem-solving abilities levels if the total percent score was above 75% and moderate level if the study subject total score ranged from 60 to 75% and low if the score less than 60% **Fayed, (1999)**.

#### **Field work:**

Data collection phase was carried out in the period from the beginning of January to first week of April 2017. The researcher met the director of the study setting to explain the aim of the study setting and obtained an official permission and then determined the proper time to collect data. The researcher visited the selected setting two days per week, from 11.00 am to 1.00 pm and distributed the tools to the study subjects and asked them to fill it, the researcher was available all the time of collection for any clarification. The time needed by each nurse manager to complete the sheet ranged from 25-30 minutes. Data collection did not take the same time in all hospital because these hospitals in different areas and sector (Port-Said public hospital took three week, Al - Zohor central hospital took two week, Port -Fouad public hospital took three week, Al-Mabrah public hospital took two week and Al-Tadamon hospital took two week), in each week the researcher collected ten questionnaire sheets from the study subjects. The questionnaire sheets were completed by nursing manager than collected by the

researcher to check each filling questionnaire and ensuring its completeness.

**Ethical consideration:**

The study proposal was approved by directors of each hospital. In addition, oral approval was obtained from each participant. They were informed about the study aim and about their rights to refuse or participate or withdraw from the study at any time without giving reasons. The study maneuvers not entail any harmful effect on participants.

**Administrative Design:**

An official letter requesting permission to conduct the study was submitted from the dean of the faculty of nursing, Port Said University, to directors of hospitals. This letter included the aim of the study and to obtain approval to conduct the study and seek the support. The researcher explained the aim of the study and the implications of the expected results.

**IV- Statistical Design:**

Data entry and statistical analysis were done by using (SPSS) Version 18 statistical software package and Microsoft office excel for data handling and graphical presentation. Data were presented using descriptive statistics in the form of numbers and percentages for qualitative variables. Means and standard deviation and range for quantitative variables. The correlation between critical thinking disposition and problem solving ability variables scores was analyzed by Pearson correlation coefficient (r) test. The relation between level of total score of critical thinking disposition and level of problem solving ability among the studied nursing managers was analyzed by means and standard deviation and the relation between total score of two variables among them and their demographic characteristics was analyzed by student t- test and ANOVA test. Statistical significance was considered at p-value <0.05 and highly significant at p-value <0.01.

**RESULTS:**

**Table (1):** shows that about two thirds (66%) of nurse managers had an age range between 35-45 years, the majority nurse managers were female, and married(93.2%, 94.2% respectively), more than half of nurse managers (56.5%) had a bachelor degree.,

more than three-fifths of them(61.2%) work in hospitals affiliated to the ministry of health, more than one third (34%) of them had 15-20 years of experience. Additionally, the majority of nursing managers had attended previous training. About two-thirds of the nursing managers (68.0%) hadn't attended previous training about critical thinking.

**Table (2):** shows that all of the nurse managers (100%) had a negative disposition toward the open-mindedness, while the majority from inquisitiveness and self-confidence items (97.1%, 95.1% respectively), on the other hand, less than one-quarter of nursing managers had an ambivalent disposition toward the cognitive maturity and truth-seeking (23.3%, 22.3% respectively)

**Table (3):** shows that the majority of nurse managers (98.1%) had a low level of problem-solving ability related to approach-avoidance style item, on the other hand, less than one-quarter of nurse managers (22.3%) had a moderate level of problem-solving ability related to personal control item.

**Table (4):** shows there was the significant positive correlation between cognitive maturity and approach-avoidance style ( $P=0.039$ ) and generally there was the significant positive correlation between the total score of critical thinking disposition and problem- solving ability( $P=0.042$ ).

**Table (1):** Demographic characteristics of nurse managers (n=103)

<b>Demographic characteristics</b>	<b>No.</b>	<b>%</b>
<b>Age (years)</b>		
<35	9	8.7
35-45	68	66.0
>45-	26	25.3
Range	25.0-55.0	
Mean±SD	39.8±5.3	
<b>Gender</b>		
Male	7	6.8
Female	96	93.2
<b>Marital status</b>		
Single	6	5.8
Married	97	94.2
<b>Residence</b>		
Urban	47	45.6
Rural	56	54.4
<b>Educational level</b>		
Diploma degree	35	34.0
Technical degree	10	9.7
Bachelor degree	58	56.3
<b>Workplace</b>		
Insurance hospital	40	38.8
General hospital	63	61.2
<b>Duration of experience (years)</b>		
<15	47	45.7
15-<25	35	34.0
>25	21	20.3
Range	5.0-25.0	
Mean±SD	17.1±7.4	
<b>Attend previous training</b>		
No	7	6.8
Yes	96	93.2
<b>Previous attended critical thinking training</b>		
Yes	33	32.0
No	70	68.0

**Table (2):** the level of critical thinking disposition items among nurse managers (n=103).

Critical thinking disposition items	Negative <60%		Ambivalent 60-75%		Positive >75%	
	No.	%	No.	%	No.	%
Truth-seeking	80	77.7	23	22.3	0	0.0
Analyticity	68	66.0	34	33.0	1	1.0
Systematicity	92	89.3	11	10.7	0	0.0
Self-confidence	98	95.1	5	4.9	0	0.0
Inquisitiveness	100	97.1	3	2.9	0	0.0
Open-mindedness	103	100.0	0	0.0	0	0.0
Cognitive maturity	77	74.8	24	23.3	2	1.9

**Table (3):** level of problem solving items among the studied nursing managers (n=103)

Scale	Low abilities <60%		Moderate abilities 60-75%		High abilities >75%	
	No.	%	No.	%	No.	%
Problem solving confidence	87	84.5	15	14.6	1	0.9
Approach avoidance style	101	98.1	2	1.9	0	0.0
Personal control	74	71.8	23	22.3	6	5.8
Total	97	94.2	6	5.8	0	0.0

**Table (4):** Correlation between scores of critical thinking and problem solving among the nurse managers.

Critical thinking scores	Problem-solving abilities							
	Problem solving confidence		Approach-avoidance style		Personal control		Total score	
	r	P	r	P	r	P	R	P
Truth seeking	<b>0.345</b>	<b>0.046*</b>	-0.010	0.922	-0.077	0.438	-0.064	0.521
Analyticity	-0.016	0.871	-0.068	0.497	-0.037	0.708	-0.057	0.570
Systematically	-0.054	0.585	-0.108	0.276	-0.092	0.353	-0.114	0.252
Self-confidence	0.037	0.708	-0.034	0.734	-0.057	0.567	-0.019	0.846
<i>Inquisitiveness</i>	-0.036	0.718	-0.068	0.492	<b>0.392</b>	<b>0.025*</b>	-0.075	0.452
Open mindedness	-0.055	0.579	0.077	0.437	0.091	0.359	0.046	0.647
Cognitive maturity	-0.117	0.239	<b>0.378</b>	<b>0.039*</b>	0.142	0.152	0.008	0.940
<b>Total score</b>	-0.078	0.436	-0.040	0.690	-0.015	0.879	<b>0.352</b>	<b>0.042*</b>

**r: Pearson correlation coefficient**

## DISCUSSION:

Critical thinking is purposeful, self-regulatory judgment that uses cognitive tools such as interpretation, analysis, evaluation, inference, and explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which judgment is based and it refers to the careful and precise thinking used to resolve a problem (Ludin, 2017). Regarding critical thinking disposition of the nursing manager, the present study revealed that the majority of nursing managers had a negative critical thinking dispositions, that may inter related to that the work settings of all nurses were hospitals, not community health care. Nursing managers 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. In this respect Leppa (2004), 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 is in agreement with Mahmoud & Mohamed (2017) who studied critical thinking disposition among nurses working in public hospitals at Port-Said Governorate 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. These in contrary with, Elsayed, Sleem, Elsayed and Ramada (2011)

study conducted to examine the relationship between the disposition of staff nurses toward critical thinking and quality of their performance at Mansoura University Hospital, showed that the majority of staff nurses at Mansoura University Hospital were positively disposed toward critical thinking. Concerning problem solving ability among nursing managers, the present study revealed that the majority of nursing managers had low problem solving ability, which may inter related to nursing manager had negative disposition toward critical thinking, The similar study agreed with this result Kocoglu , Duygulu, Abaan, & Akin (2016) were stated that although the score for problem solving abilities increased after implementation of the problem solving training program, first line nurse manager still have only a moderate level of problem solving skill. Other study results have also reported nurses' perceptions of their problem solving skills to be at a moderate level (Erenler 2007; Terzioglu 2006; Abaan and Altintoprak, 2005).

Concerning relation between total score of critical thinking disposition and total score of problem solving ability, study revealed that were statistical significance and positive relation between total score of critical thinking disposition and total score of problem solving ability in nursing managers, may be due to nursing managers need to incorporate several dispositions of critical thinking to become a problem solver. They should be open-minded and inquisitive regarding the range of solutions available to their problems. They also need to be willing to seek the truth about the evidence supporting the solutions they are providing, which involves being able to critically analyze and synthesize information. They also develop the self-confidence to trust their professional decisions and solving problems. Beach (2009) Critical thinking presupposes assent to rigorous standards of excellence and entails effective communication and problem- solving abilities, as well as a commitment to overcome our native egocentrism and sociocentrism. Feng, Chen, Chen & Pai (2010) stated that promoting critical thinking in manager nurses is an important way to improve problem-solving and decision making competence.moderate level (Erenler 2007; Terzioglu 2006; Abaan and Altintoprak, 2005).

**CONCLUSION:**

In the light of the study findings, it can be concluded that, majority of the nursing managers at the Port Said city, regardless of hospital affiliation had a negative disposition towards critical thinking, and the majority of them had the low problem-solving ability, there was a statistically significant positive correlation between the total score of critical thinking disposition and problem-solving ability. Finally, there was a statistically significant and positive relationship among nurse managers level of critical thinking disposition and problem-solving ability.

**RECOMMENDATIONS:**

1. Critical thinking skills should be a part of educated curricula different nursing level.
2. The hospital director should permit extra participation for nurse manager in solve hospital problem and encourage them to be open minded within the alternative system of thought, recognizing and assessing their assumptions, implications and practical consequences.
3. Conducting training programs to enhance nursing manager critical thinking disposition and the ability to solve the problem.
4. Nurse Managers need to be equipped with skills to help them to tackle new and complex problems.
5. Activate the communication system between all nurse managers and work team to complete the work effectively.
6. Establishing a system of incentives and rewards based on nurse managers performance. Regular evaluation of staff nurses' performance, rewarding good performance and giving them feedback describing the desirable behaviors and their impact on the outcome of patient care for effective performance.

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## الاستعداد للتفكير النقدي والقدرة على حل المشاكل لدى مشرفات التمريض بمستشفيات بورسعيد

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### الخلاصة

لمواكبه التطور في نطاق ممارسة التمريض، كان لابد من زياده الاستقلال الذاتي للمرضيين والممرضات، من خلال توسيع نطاق التفكير النقدي والقدرة على حل المشكلة. الهدف: هدفت هذه الدراسة إلى معرفة العلاقة بين الاستعداد للتفكير النقدي لدى مشرفات التمريض وقدراتهم على حل المشكلات في مستشفيات بورسعيد من خلال تقييم الاستعداد للتفكير النقدي بين مشرفات التمريض، تقييم مستوى القدرة على حل المشاكل بين مشرفات التمريض ومعرفة العلاقة بين الاستعداد للتفكير النقدي والقدرة على حل المشاكل بين مشرفات التمريض. نوع الدراسة: تصميم وصفي ذو ارتباط. مكان الدراسة: تمت الدراسة بقطاعين مختلفين من المستشفيات العينه: 103 ممرضة 63 مشرفه تمريض تابعين لمستشفيات وزاره الصحه و 40 مشرفه تمريض تابعين للتأمين الصحى.) أدوات جمع البيانات: استبيان كاليفورنيا للاستعداد للتفكير النقدي واستبيان لحل المشكلة. النتيجة: هناك علاقة ايجابية ذات دلالة إحصائية بين إجمالي التفكير النقدي و إجمالي قدرات حل المشكلة لدى مشرفات التمريض. الملخص: أغلبية مشرفات التمريض لديهم مستوى منخفض من اجمالى الاستعداد للتفكير النقدي والقدرة على المشكلات. التوصيات: تنفيذ برامج تدريبية لتحسين الاستعداد للتفكير النقدي والقدرة على حل المشكلة لدى مشرفات التمريض