NURSING MANAGERS' COMPETENCY AND THEIR PROBLEM SOLVING STYLES

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Abstract
Nursing managers should enjoy appropriate competency level and knowledge that enhance their creative problem solving style. **Aim of the study:** The present study aimed to assess perceived nursing manager's competency, determine problem solving styles of nursing managers and detect the relation between nursing managers' competency and their problem solving styles. **Subjects and methods:** a descriptive correlational design was utilized to attain the aim of the present study. The study sample included 97 nurse managers working in Mansoura university hospital data was collected with using tool consisted of three parts: personal characteristics, Nursing Manger Competency Inventory (NMCI), and foursight problem solving style inventory. **Conclusion:** Majority of nursing managers had moderate level of competency. Majority of nursing managers had developer problem solving style and problem solving style level was moderate as perceived by the studied sample. There was significant relation between nursing manger competency level and problem solving style. **Recommendation:** Provide training programs to nursing managers to enhance their competency level. Provide training programs about the importance of creativity for enhancing organization ability and efficiency, and how mangers can use their problem solving styles effectively. Draw up visions of nursing management in the future by health care organizations.

**Key words:** Nursing manger, Competency, Problem solving style

Introduction:
The dramatic reforms and changes in the health service in current years, rising from both strategy and review, have had, and will continue to have, a significant influence on the method in which the health service is managed. These changes brought about a requisite for managers to acquire new roles and develop new skills. The new managerial responsibilities located on organized nursing services request for nurse managers that are skilled, knowledgeable and competent in all aspects of management.

Competence is defined in terms of functional adequacy and the capability to incorporate knowledge, skills, approaches and beliefs in definite contextual situations of practice. Other definitions include essential abilities and capabilities to accomplish the job well, and use descriptive language such as capabilities, traits, intelligence, and human capacities to define competence.

Nurse Manager Competency is not only the performance or behaviors itself. But the repertoire of abilities, actions, procedure, and responses accessible that allows arranging of work requirements to be done successfully. This competency is not the same thing as performances, but it's what empowers the performances to happen and competency then is a concept that represents a constellation of the characteristics and abilities of the manager that leads to effective performance.

Nurse Managers are directly in charge for maintaining standards of care, managing fiscal resources, and developing self. Their responsibilities differ from organization to another, but the most effective nurse managers identify the importance of point care leaders. Key skills and competencies
that assist managers to be effective in their role are critical thinking that requires an active stance manager rather than a passive one, communication skills, networking, managing resources such as budgeting and staffing, enhance nurses performance through monitoring, team building and evaluating effectiveness and efficiency. Another competencies needed are delegating, collaboration, coordination and outcome oriented 7.

Today, all responsible people in all affairs are recalled to high thinking skills and problem-solving whether in public field or in technology environment and whether in normal activities or in those activities which have problem, in most societies, it is supposed that we should more emphasize on increasing problem-solving skills 8. Since nursing managers are responsible for prediction, prevention and solving problems, so the problem-solving which including improving the quality, creating an intimate environment and applying an effective method, in fact it is regarded as one of the major skills of management 9.

Problem solving is defined as continuous thinking and selecting according to the desired goal. Fundamentally, the problem-solving is an attempt to find a solution for a problem 10. It was said that a problem happens when there is a goal to be reached and it is not obvious how to reach it. Some problems are well defined, while others are ill defined 12.

In management, problems rise when changed or new situations happen and they repeatedly requisite novel solutions. Commonly, it is a challenge to understand solutions of problems by thinking in a predictable manner. Logical thinking uses our existing knowledge and takes inference rules to produce new knowledge. Conversely, as logical thinking grows in chains of steps, every one dependent on the previous, this new knowledge is merely an extension of what we already know, rather than being actually new. It would appear; consequently, that logical thinking only has a restricted role to play in assisting managers for being creative. The requisite for creative problem solving has risen as an effect of the lacks of using imagination alongside with methods which use analogies, associations and other tools to support producing insights to problems 12.

Creative problem solving (CPS) is “defined as looking for original ways to achieve goals when the ways to do so are not readily obvious”. A solver’s abilities, styles, knowledge and other assets match to some degree the intellectual demands and complication of given problems. Problems may be solved by various ways, but the more efficient will consume less time, effort, and other resources for doing so 13.

Erozlean (2014) indicated that problem-solving results are mainly determined by orientation of the problem and problem-solving style 14. Treffinger, et al (2008) defined problem-solving styles as constant individual alterations in the means people desire to plan and accomplish generating and concentrating actions, for increasing clarity, produce ideas, and arrange for action. This definition is attached with an individual or intrapersonal level of analysis as it incorporates a person’s constant preference from a psychological point of view. Further, it comprises both divergent (generating) and convergent (focusing) classes of problem solving intended to gain clarity when face vague or ill-structured situational demands, creating unique ideas and alternatives, and building and developing options and plans for implementing original insights 15.

There are four creative problem solving styles identified as clarifiers, ideators, developers and implementer. Clarifiers need a pure understanding of the problem and favor a systematic method for solving problems. Ideators enjoy toying with
notions and potentials. They take an intuitive attitude to origination. Developers like analyzing possible solutions and planning the phases to implement a notion. Implementers like to get things done. They permanently just do it. Each manager can and does utilize each aspect of their personality, but they may have tendency to overuse the problem solving style which is most comfortable, rather than the style which may be more suitable to the problem at hand.  

**Significance of the study:**

Strong managerial competencies have been recognized as key fundamentals to encourage health systems that are approachable to population needs. Given the requisite to implement health policies in reduced resources and challenging circumstances, health managers need to have managerial competencies. These competencies contain the behaviors, knowledge, skills, approaches and beliefs that inspire leadership and management activities. It was said that knowledge can be utilized to produce and facilitate novel problem solving notions and that these notions can be used as the creation blocks from which to develop and offer excellence in service and other effective workplace practices.

**Aim of the study**

This study aims to assess perceived nursing managers' competency and their problem solving styles at Mansoura University Hospital.

**Research questions**

**RQ1:** What is the perceived nursing managers' competency?

**RQ2:** What are the problem solving styles of nursing managers?

**RQ3:** Is there a relation between nursing managers' competency and their problem solving styles?

**Subject and method**

**Research design:**

Descriptive correlational design was used in the present study.

**The study setting:**

The present study was conducted at Mansoura University Hospital (MUH). The hospital provides care at delta region and bed capacity is (1800) beds.

**The study subject:**

The study sample included all nurse managers available at the time of data collection in the previously mentioned settings. Their total numbers were 97 nurse managers classified as the following: (85) head nurses, (11) supervisors and (1) nurse director.

**Tool of data collection:**

Data collection tool was including three parts; personal characteristics, Nurse Managers' Competency Inventory (NMCI) and Four Sight Problem Solving Styles Inventory.

1st part:

Personal characteristics of nursing managers such as age, level of education, position, marital status, and years of experience and span of control.

2nd part: Nurse Managers' Competency Inventory (NMCI):

This inventory was developed by Deonna (2006) which used to assess nursing managers' competency. It included 93 item divided into eleven competency domains: promote staff retention, recruit staff, facilitate staff development, perform supervisory responsibilities, ensure patient safety & quality care, conduct daily unit operations, manage fiscal planning facilitate interpersonal, group organizational communication, lead quality improvement initiatives, promote professional practice model, and develop self. The responses to each item on the (NMCI) according to the following 5-point Likert response scale:-
The total scores of perceived competency questions ranged from 93-465. It was categorized into three levels based on cut point 50% as the following:

- Low competency < 50% (scored from 93-278)
- Moderate competency 50-75% (scored from 279-372)
- High competency > 75% (scored from 373-465)

3rd part:

Four Sight Problem Solving Styles Inventory (version 6.1) developed by Puccio (2002) used to assess creative problem solving styles. It consists of 37 items. The first item not scored and the four styles are clarifier (9 items), implementer (9 items), ideator (9 items) and developer (9 items). The responses ranged from 1 = not like me at all, 2 = like me and 3 = very like me.

The total scores of problem solving styles questions ranged from 36-108. The scores of problem solving styles were categorized into three levels based on cut point 50% as the following:

- Low problem solving styles scores < 50% (scored from 36-71)
- Moderate problem solving styles scores 50-75% (scored from 72-90)
- High problem solving styles scores > 75% (scored from 91-108)

Validity:

It was recognized for face as well as content validity via a panel of five expertises from faculties of nursing.

Pilot study:

A pilot study was carried out on 9 nurse managers as 10% of the study sample to test the clarity, feasibility of the questions and to determine the time needed to fill-in questions. Nurse managers who shared in the pilot study were excluded in the main study sample. Based on the pilot study, necessary modification includes clarification, rewording. Reliability test of the study tools, nurse managers’ competency inventory and four sight problem solving styles inventory, were tested by Cronbach’s Alpha reliability was computed and found (0.901), (0.887) respectively.

Field work description:

Collecting data from nurse managers by explaining to each participant the aim of the study and take her acceptance. Filling the questionnaire sheet acquired from 20–30 minutes; this time was dependent on the work conditions. Data collection for some participants was carried out through distribution of the questionnaire sheet to the subjects and handed back to the researcher upon completion. Field work of the present study was carried out in three months from end of February to the end of May, 2016.

Administrative Design

An official permission was attained from Mansoura University Hospital administrator for conducting the study.

Ethical considerations:

Prior to the initial interview, explanation of the nature and the aim of the study were done by the researcher to entirely nurse managers included in the study. Furthermore, a verbal consent was attained from each participating prior to inclusion into the study. The researcher highlighted that the contribution is unconditionally confidential and voluntary as of the subjects’ anonymity is assured absolutely through the entire study.

Statistical Design:

The collected data were ordered, tabularized and analyzed statistically via SPSS software (Statistical Package for the Social Sciences, version 21, SPSS Inc. Chicago, IL, USA). For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, comparisons between two groups and more were done using Chi-square test ($\chi^2$). For comparisons between means of two groups of parametric data of
independent samples, student t-test was used. For comparisons between more than two means of parametric data, F value of ANOVA test was calculated. Relationship between variables was evaluated using Pearson’s correlation coefficient (r). Significance was assumed at p<0.05 for interpretation of results of tests of significance.

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Results:

Figure (1): Mean scores and ranking of perceived competency sub items by the studied nursing managers at Main Mansoura University Hospital (n=88).

Figure (1) demonstrated mean scores of perceived competency sub items by the studied nursing managers at Main Mansoura University Hospital. The figure showed that competency sub items were compared and significantly different to mean scores. As ensure patient safety and quality care was found the highest and ranked first. Whereas manage fiscal planning as sub item of nursing manager was significantly the lowest and ranked last one.

Figure (2): Levels of perceived total competency by the studied nursing managers at Main Mansoura University Hospital (n=88).

Figure (2) revealed that 12.5% of nursing managers were in low level and 75.0% of the studied sample in moderate level, while 12.5% of them were in high level.

Figure (3): Mean scores of problem solving styles of the studied nursing managers at Main Mansoura University Hospital (n=88).

Figure (3) illustrated mean scores of problem solving styles of the studied nursing managers at Main Mansoura University Hospital. According to the figure developer problem solving style had significant high mean scores and ranked
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first. Whereas ideator style had the lowest mean score and ranked the last one.

**Table (1):** Mean scores and levels of total problem solving styles of the studied nursing managers at Main Mansoura University Hospital (n=88).

<table>
<thead>
<tr>
<th>Total nursing managers’ problem solving styles</th>
<th>The studied nursing managers (n=88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of total problem solving styles scores:</td>
<td>n</td>
</tr>
<tr>
<td>Low</td>
<td>26</td>
</tr>
<tr>
<td>Moderate</td>
<td>56</td>
</tr>
<tr>
<td>High</td>
<td>6</td>
</tr>
<tr>
<td>Mean scores of total problem solving styles:</td>
<td>77.23±9.44</td>
</tr>
<tr>
<td>Range (36-108)</td>
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</tbody>
</table>

Table (1) illustrated Mean scores and levels of total problem solving styles scores of the studied nursing managers at Main Mansoura University Hospital. This table indicated more than half of the studied sample of nursing managers (63.3%) had moderate level.

**Figure (4):** Correlation between Levels of perceived total competency by the studied nursing managers at Main Mansoura University Hospital and their levels of total problem solving styles scores (n=88).

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**Figure (4):** Correlation between Levels of perceived total competency by the studied nursing managers at Main Mansoura University Hospital and their levels of total problem solving styles scores (n=88).

Discussion

Nursing manager's competency is vital to promoting healthy work environments, staff performance, staff retention and positive patient outcomes as patient satisfaction and patient safety. Nursing manager competency represented in mastering communication skills, conflict resolution skills and developing self, affects problem solving ability of nursing manager and approaches they adopt solving problems and thereby has a lot to do with their ultimate success in solving the problems.31.

The present study revealed that competency sub items related to ensure patient safety and quality of care is ranked (rated) highest followed by the sub item conduct daily unit operation. This may be due to the pressingly need for delivering high quality, efficient care and ensuring patient safety. As MUH, serves the whole delta region and this means increased numbers of patient's admissions. These increase its quest for high quality and better patient safety. So, it seeks to increase awareness between nursing managers, especially head nurses that represent a great portion, about importance of being competent and congruent with updating issues of patient safety and quality of care. This is achieved through 24-hours responsibility for operation of a patient care unit and ensuring efficient application of nursing care.

These results agreed with Fennimore & Wolf (2011) who indicated that management competency in ensuring safety and quality care is as vital to patient care as the care that is provided.22. These results congruent by Covey (2004) who revealed that high quality health service do not happen without competent and skillful nursing manager.23. In the same line Chase (2010) reported that efficiently perform
quality care and improvement process have the highest rating 24.

The finding of this study in contrast with Deona (2006) who reported that performing supervisory responsibilities is rated highest competency domain by nursing managers19. As well, Haurani et al. (2007) found that communication and professionalism were rated to higher scores on the other competencies 25. Additionally, Higa and Terviza (2005), who revealed that leadership is considered the most imperative competence and the efforts of nursing managers to cultivate such competence, strengthens the opinion that the job market is essentially demanding nurses have knowledge of leadership and apply such knowledge 26. As well as, Mathena (2002) conceptualize that staff development as a skill set needed by nurse managers to effectively support and lead nursing staff 27. And with Rao (2007) who found that job knowledge is the most vital competency requested to be successful on the job. He also indicated that effective communication skills, hard work, calmness, team skills are frequently used competencies of managers28. The finding of the present study indicated that competency sub item, mange fiscal planning is rated lowest by the studied nursing managers followed by recruit staff. This was unfortunately because of nurse manager in MUH has neither received training in the nursing program to successfully manage the budget nor been provided the opportunity to manage a budget under the guidance of a mentor. The hospital has not developed a succession or training program that would allow nursing managers to practice budget management skills. The policies applied in the hospital do not give the nursing managers the access to deal with budgeting and other fiscal issues as managing the pay roll, and monitoring the budget. These results agreed with Baxter (2013) who found that financial management is the lowest rated perceived competency of the studied sample of nursing managers 29. As well, Karathanasi, et al., (2014) reported that financial management competencies were identified as the least necessary as perceived by nursing managers30. And theses finding was in the same line with Kondrat's (2001) who indicated low rating of financial management category 31. In contrast, MacLeod (2012) revealed that financial management is noted to be one of the crucial categories of competence for success of nurse manager 32. As well, Clark (2015) indicated that financial management and budgetary skills is a prerequisite necessity for competent nurse manger. As nurse manger have effect on the bottom line of health care organizations via controlling expenses of patient care on daily base33. The finding of the present study indicated that nursing managers had moderate level of competency. This may be due to the frequency of performing competency sub item, mange fiscal planning is low because majority of nursing mangers don't participate in developing or monitoring the budget, or have the access to manage the pay roll. As well, the frequency of performing activities related to recruiting staff was low expect for encouraging potential job candidate's to have shadow experience and learn from experienced nurses. The hospital also promotes internship programs. Additionally small numbers of nursing mangers showed high frequency of performing activities related to developing self as having membership of professional organization, delivering presentations to professional groups and play a leadership role in these organizations. This was agreed with yang et al., (2014) who reported that competency of nurse mangers were in moderate range 34. As well, khodgaria, et
Heba Rabie Hagras et al., (2011) who reported that majority of the study sample was moderate competency level and they were proficient grounded on benner's skill acquisition model and after training interventions it was improved to high level. These result in contrast with Pillay (2009) who reported that there is a deficiency of management competency and capacity inside the South Africa public health sector. The fact that nurse managers in this sector appraised themselves as at least 'reasonably competent but not good' in all but one of the competencies submits that they lack confidence in their capacity either since they don’t have the required management skills or as they lack self-confidence. Anyway, this has the prospective to hinder service provision and the revolution of public sector into a more effective and efficient service. As well, Meretoja (2004) self-assessed overall scores indicated a high level of competence across categories. The Nurse Competence Scale data were normally distributed. The higher the frequency of using competencies, the higher was the self-assessed level of competence. In this respect, Stobinski (2011) indicated that significantly higher mean scores on the overall competency level in the studied group. Analysis of data of this study revealed that developer creative problem solving style achieving the highest mean scores and ranked first followed by clarifiers, implementers and then ideators. This is due to nursing managers not only stops on generating ideas that are useful to solve ill-defined problem that arise from their complex working environment, but also are concerned with practical applications and the reality of the task. They strive for more revising and break the board problem into steps to examine it clearly from all angles. Also, they need to explore the strengths and weakness of the potential solutions and take time to develop a workable solution for such complex problem. And this is agreed with Treffiner, et al., (2008) who reported that higher scores are achieved by developer problem solving styles than other styles. As well, Fitzjarrell (2011) who indicated the highest percentage of participants reported a preference for the developer problem-solving style. And in contrast with Puccio, et al., (2004) who found that the implementer creative problem solving style having the highest mean scores followed by ideators, clarifier and the least mean scores is for developers. In this respect, Mann (2003) reported that clarifiers creative problem solving style was the most common among managers and was the dominant style preference for nine of eleven of the subject area groups identified. In the same line, Ding (2013) reported that a relatively larger percentage of the studied sample with high preference of clarifier, followed by ideator, implementer and developer. Additionally, Wellman (2014) indicated that the dominant creative problem solving style was implementers of the study sample. The finding of the study revealed that levels of the total problem solving scores as perceived by the studied sample nursing managers are moderate. This may be due to the creative problem solving styles is a new concept to deal with in such working environment that carried many factors that hinder creativity in problem solving. Insufficient access to information decreases manager knowledge that in turn affecting their creative problem solving capacity. They receive little direction, and guidance that allowing for more Successful creative problem solving. Hence, all of this affecting their perception to their problem solving style in creative problem solving process. And these results consistent with Terzioglu (2006) who reported that the total average score of the nurse managers' problem-solving was
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moderate. The manner nurse managers participating in this study perceived
themselves in problem-solving that they have problem-solving skills at a desired level
The finding of the study also revealed that perceived level of competency of the
studied sample nurse manger was significantly related to levels of total
problem solving styles. This is due to increased level of competency means
increased knowledge and management skills as leadership, teambuilding,
motivation and conflict management for
effective performing the job. In such
complex working environment in MUH,
that characterized with poor resources of
materials and manpower's and acuity of
care. These engaging managers in creative
activities to deal with complex and ill-
defined problems that arise and making
them seeking to more information that in
turn enhance their problem solving styles.
And this is agreed with Buonconunto and
Ghosh (2014) who reported that the
greater employee’s competency and
creative self-efficacy. The further they
expected creative behaviors of him or her
and of the creative work environment
As well, Mumford, et al, (2002) discussed
creative work as being contextualized and
indicated that the success of creativity rest
on the competencies, capabilities, forces,
capitals, and sociotechnical system in
which employees find themselves.

Conclusion
Nursing managers at MUH had moderate
competency level. On the other hand,
the level of total problem solving styles as
perceived by nursing mangers was
moderate. Furthermore, a developer
problem solving style was the dominant.
There was significant relation between
nursing manger competency level and
problem solving style.

Recommendation
- Establish systems, protocols,
policies and strategy to enhance
nursing manger competency level
related to managing financial
planning and recruitment
activities.
- Provide training programs to
nursing mangers to enhance their
competency level.
- Provide training programs about
the importance of creativity for
enhancing organization ability
and efficiency, and how mangers
can use their problem solving
styles effectively.
- Use the finding of the study as a
blue print to improve working
environment that foster
competency and creative ability
of the nursing mangers.
- Seek continuous learning
opportunities for nursing mangers
and membership in professional
nurse organizations that
facilitating their professional
development.
- Incorporate a competency-based
assessment format in future
selection of nursing managers’ at
all three levels. A broader and
more structured approach may be
needed.
- Develop and communicate a
managerial competency model
formally to employers and staff
representatives, personnel
managers, and others involved in
nursing manager selection.

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