

# Development of Core Competency Standards for First-Line Nurse Managers in Intensive Care Units

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**Abstract:** The first line nurse managers (FLNMs) facing multidimensional roles in clinical and management skills. The urgency of adequate first-line nurse manager competencies in changing and improving care is evident. **Aim:** This study aims to development of Core Competency Standards for First-Line Nurse Managers in ICUs at Mansoura University Hospitals. **Research design:** a methodological design was applied. **Method:** the study sample composed of two groups: an expert jury group, and (FLNMs) group. Data were collected by using two tools: an opinionnaire sheet to test face and content validity by jury, and the questionnaire of (FLNMs) core competency standards. **Results:** the study findings revealed that the proposed standards had been agreed upon their content material and face validity through majority of jury experts, and there is statistically significant correlation between importance and application extent of proposed core competency standards according to opinion of the studied (FLNMs) at (ICUs) on the total core competency standards, process & outcome. **Recommendations:** using the core competency standards and criteria developed for first-line nurse managers as strategies for the selection, preparation, and development of hospital-based nurse managers .

**Keywords:** Core competency, Development, First Line Nurse Manager, Standards.

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## 1. INTRODUCTION

Nursing services are undergoing rapid change and development in all health sectors with growing demand, broader contributions to service delivery and increasing levels of specialization (Baxter&Warshawsky, 2014; Fan, Wang, Chao, Jane& Hsu, 2015; and Francis, 2015). In parallel, health and social services are undergoing continuous nonstop change with an increasing concentration on service standards, value for price and consumer satisfaction. First line nurse managers (FLNM) need the competencies not only to deliver today's services but also to guide the evolution of services in these difficult surroundings (Nehrir, Vanaki, Nouri, Khademolhosseini & Ebadi, 2016).

The urgency needs of adequate FLNM competencies in changing and improving care is evident, as FLNM play a vital role within the promotion, protection and recovery of health. There is a need to develop FLNM core competencies, to help them dealing with extended and expanded roles in the delivery of health care (Skytt,2007).

FLNMs are responsible on a 24-hour basis for efficient management of personnel and nursing unit (Miri, Mansor, Alkali and Chikaji,2014). Consequently, educational applications for preparing nurses ought to make sure that nursing college students gather the crucial abilities that enable them to satisfy these roles properly and ethically (Gunawan & Aunguroch, 2017).

FLNMs are to ensure the provision and quality of patient care, quality of working life for personnel, and the working relationships with the unit's support service. They are also responsible for organizational effectiveness and efficiency (Miri, Mansor, Alkali, and Chikaji, 2014). Nowadays, the FLNMs' roles have grown to be multidimensional where they may be expected to manage intensive care unit (ICU) and carry out their overall daily care for their patients (Parvareh, Kazemi, Ehsanpour, and Sajadi, 2016).

FLNM is the highly qualified nurse in intensive care units (ICUs) is responsible for the management of the entire nursing process in a critical area, planning, co-coordinating the development and the implementation of the care training pathway. Furthermore, has to promote the care continuity and integration between different areas, in continuous interaction with the other health care experts (Alfieri, Mori, Barbui, and Sarli,2017).

It is greatly important to set standards of core competency to ensure that FLNMs provide high quality health care. Core competency refers specifically to the ability of a FLNM to perform the required action successfully through using of a group of skills (Axley,2008).

Nursing standards of care are applied by FLNM via using nursing process contain: assessment, planning, implementation and evaluation (Potter & Perry, 2005). Standards are outlines that the profession expects of its personnel, promotes guidance and direction of professional nursing practice. Standards provides FLNM with a framework for developing competencies helps in developing a better understanding and respect for different complementary work that FLNM has (Odom, and Strain,2005).

Core Competencies standards are used to describe essential skills and knowledge that FLNM should gained during their beginning of FLNM role. These competencies reflect ICU practice (McMullen, Banman, Groot, Jacobs, and Srdanovic, 2013). Core competency standards are intended to; encourage the FLNM to accept accountability and guidance in maintaining the expected standards in providing effective and quality care (Nursing board for Brunei,2013).

#### **Significance of the study:**

The development of core competency standards for FLNMs serves as a unifying framework for nursing education, regulation, and practice in ICU. Core competencies standards have special qualities, they describe excellence, provide a competitive advantage and have the effect of bringing the hospital success better over long-term (Lazarte,2016). The nursing knowledge with expanding health care together with new and evolving health care settings, structures, and technologies all contributed to development of core competency standards for FLNMs.

#### **Aim of the study:**

The study aims at development of Core Competency Standards for First-Line Nurse Managers in Intensive Care Units at Mansoura University Hospitals.

#### **Research hypothesis:**

There is a significant difference among first-line nurse managers on the importance of developing core competency standards.

## **2. METHOD**

#### **Research design:**

The design of this study was a methodological research design .

#### **Setting of the study:**

The study carried out in intensive care units at Mansoura university hospitals, which include 20 ICUs as followed:

Main Mansoura University Hospital includes 5 ICUs, Emergency Hospital includes 4 ICUs, Specialty Medical Hospital includes 3 ICUs, Gastro Intestinal Surgery Center includes 2 ICUs, Oncology Center Mansoura University includes 2 ICUs, and Pediatric Hospital includes 4 ICUs

#### **Subjects**

The subjects of the present study included two groups namely expert (jury) group, and first line nurse managers group.

Group I: a jury of experts group (25): 11 of academic staff and 14 of nursing staff to validate proposed standards.

Group II: all first-line nurse managers working in ICUs at Mansoura university hospitals (n= 20) in the above-mentioned setting.

### Tools of Data collection

The following two tools were used in collection of data:

**Tool I: An opinionnaire sheet:** this tool developed by researchers. Aims at testing face and content validity of the proposed standards by jury group. Development of the tool was guided by a literature review (ICN, 1989; ANCI, 2000; Ilenburg, Klein, Rahman, 2009; Nursing council of Hong Kong, 2012; CCNAPI, 2013; AONE, 2015, and NMBA, 2016). It consists of (12) proposed standards, and (110) related criteria.

The sheet consisted of two main parts:

**The first part** was intended to collect data related to socio-demographic characteristics of the jury group such as age, years of experience and specialty.

**The second part** concerned with the validity of the proposed (12) standards divided into three parts, A (structure standards), B (process standards) and C (outcome standards).

A: Structure standards, this part has (5) proposed standards with (36) related criteria.

B: Process standards: This part has (5) proposed standards with (68) related criteria.

C: Outcome standards: This part has (2) proposed standards with (6) related criteria.

Content validity was tested by indicating the responses of the jury group. 3-point Likert scale was used to obtain the degree of appropriateness ranged from 1 for not appropriate to 3 for appropriate.

- Standards items with 65% and more acceptance, was considered to be appropriate and valid (Jecklin, 2004; and Tongmuangtunyatep, Kunaviktiku, Nantsupawat, & Akkadechanunt, 2015).

- Face validity was tested through eliciting the jury group opinion regarding the general form of the proposed standards. Their responses were (1) for disagree to (2) for agree.

**Tool II: questionnaire of first-line nurse managers core competency standards.** Questionnaire of FLNMs core competency standards was developed based on statistical analysis of jury expert opinion concerning content & face validity and important change were done .

This tool consisted of two main parts:

1- The first part which was intended to collect data related to socio-demographic data about first-line nurse manager such as age, workplace, marital status, educational qualification and years of experience

2- The second part: questionnaire of first-line nurse manager core competency standards; concerned with first-line nurse managers responses upon importance and frequency of application of proposed standards and criteria. Responses for importance were measured on 4 points Likert scale (4 greatly important, 3 important, 2 uncertain important to 1 not important). Responses for the frequency of application were measured on 4 points Likert scale (4 for always, 3 for usually, 2 for sometimes and 1 for seldom).

### Validity and reliability:

It was established for face and content validity by a group of 25 experts of academic staff, and nursing staff experts, who revised the tools for the degree of appropriateness, relevance, and measurability and according to their opinion's modifications were applied. And as a result of opinions of the jury experts, the omission of 9 criteria. Excluded items <65% (Jecklin, 2004).

This tool was modified from 110 items to 101 items. Also, adding 21 sub-criteria for outcome standards based on statistical analysis of jury expert opinion concerning content and face validity and necessary change were done.

The tools were tested for its reliability via using Cronbach's alpha, which became 0.858, 0.847, and 0.862 respectively for items of structure, process and outcome standards for tool II .

**Pilot study:**

A pilot study was carried out on (2) first-line nurse managers who were selected randomly from different (ICUs) in Mansoura University Hospitals. A pilot study was carried out to test the clarity, feasibility of the questions and whether they were understandable, and to determine the time needed to fill-in questions. Questionnaire format completed within 20 minutes for every FLNM and accordingly necessary modifications were done. Data obtained from the pilot study were analyzed.

**Fieldwork:**

The actual field work was started from December 2017 to May 2018 for collecting data. The fieldwork was achieved through the following three different phases:

**First phase:** development of the core competency standards and an opinionnaire sheet. The tools of data collection were translated into Arabic by the researchers and given to expert jury group in their work setting for testing face validity and content of the proposed standards. Preliminary statistical analysis was done to obtain valid standards items.

**Second phase:** development of a questionnaire sheet based totally on the results of face and content validity of the proposed standards. This sheet was given to first-line nurse managers in intensive care units to determine their opinions regarding importance and frequency of application of the proposed standards and their criteria .

**Third phase,** development of core competency standards based on findings obtained from the opinionnaire sheet and questionnaire sheets.

**Ethical Considerations:**

- Ethical approval was taken from committee of research ethics of the Faculty of Nursing at Mansoura University.
- Permission officially obtained from the study setting hospital authorities after explanation of the aim of the study to conduct study was obtained
- Participation in study is voluntary and contributors able to withdraw from the study at any level without obligation.
- Confidentiality of the collected data was maintained.
- Privacy of the study sample was assured.

**Statistical analysis:**

The collected data were organized, tabulated and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 23, SPSS Inc. Chicago, IL, USA).

For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, which describe a categorical set of data by frequency, percentage or proportion of each category, a comparison between two groups and more was done using Chi-square test ( $\chi^2$ ). For comparison between more than two means of parametric data, F value of ANOVA test was calculated.

Correlation between variables was evaluated using Pearson's correlation coefficient (r). Significance was adopted at  $p < 0.05$  for interpretation of results of tests of significance (Dawson & Trapp, 2001).

### 3. RESULTS

**Table (1)** Illustrates jury group sociodemographic characteristics. This table shows that 48% of jury experts were in the age group (45-61). With 48% were experienced 15-< 25. About more than half of jury experts' group (56%) were nursing service experts.

**Figure (1):** Appropriateness of the proposed core competency standards according to the opinion of the studied jury group of experts. This figure shows that 80% agreed on the appropriateness of the proposed structure and process standards, and 72.0% agree on the appropriateness of proposed outcome standards.

**Figure (2):** Illustrate face validity about the general form of the proposed core competency standards of studied jury group experts. It shows that 100% of studied jury expert group agree about preliminary tool wording. And 92% of studied jury group was agreed about forming of the tool.

**Figure (3)** Illustrate total core competency standards mean score and ranks of appropriateness according to the opinion of the study jury group of experts. This figure shows process standards ranked (1) with the mean (2.78±0.23), while outcome standards ranked (3) with the mean (2.69±0.48)

**Figure (4):** Opinion of the studied first-line nurse managers at Intensive Care Units (ICUs) in Mansoura University hospitals about the importance of core competency standards sub items (n=20). This figure shows, 60% greatly important agree upon the importance of structure standards, while 5% uncertain about the importance of structure standards. Regarding process and outcome standards 55%, &50% respectively were greatly important to agree on the importance of core competency standards, while 10% and 15% respectively were uncertain about the importance of proposed standards.

**Table (2):** Opinion of the studied first-line nurse managers at Intensive Care Units (ICUs) in Mansoura University hospitals about the extent of application of core competency standards sub items (n=20). This table shows Regarding the extent of application, 55% always agree upon the applicability of structure standards, while 5% seldom agree about the applicability of structure standards. Regarding process and outcome standards 45% and 50% respectively were always agree on the applicability of core competency standards, while 5% seldom agreed about the applicability of proposed standards.

**Figure (5):** Correlation between importance scores and application extent scores of total core competency standards (n=20). This figure shows, there is statistically significant correlation between importance and application extent of proposed core competency standards according to the opinion of the studied first-line nurse managers at Intensive Care Units (ICUs) on the total core competency standards, process & outcome, with p-value (0.004\*, 0.001\*&0.0001\*) respectively. But no statistically significant in structure standard.

**Table (1): Socio-demographic characteristics of the studied jury group of experts (academic and nursing service experts) (No.=25).**

characteristics	The studied jury group of experts(n=25)	
	No.	%
<b>●Age years:</b>		
28-<35	3	12.0
35-<45	10	40.0
45-61	12	48.0
Range	27-61	
Mean±SD	42.92±8.30	
<b>●Experience years:</b>		
8-<15	7	28.0
15-<25	12	48.0
25-39	6	24.0
Range	8-39	
Mean±SD	19.68±8.02	
<b>●Work position (Specialty):</b>		
<b>Nursing service experts &amp;place of work:</b>	<b>14</b>	<b>56.0</b>
Director	7	28.0
Supervisor	7	28.0
-Emergency hospital	2	8.0
-Gastroenterology surgery center	2	8.0
-General hospital	2	8.0
-Main Mansoura hospital	2	8.0

-Medical specialty hospital	2	8.0
-Oncology center	2	8.0
-Pediatrics hospital	2	8.0
<b>Academic experts&amp; place of work:</b>	<b>11</b>	<b>44.0</b>
-Critical care and emergency nursing department Mansoura University	2	8.0
-Nursing administration dep. Ain Shams University	1	4.0
-Nursing administration dep. Cairo University	3	12.0
-Nursing administration dep. Damanhour	1	4.0
-Nursing administration dep. Mansoura University	1	4.0
-Nursing administration dep. Tanta	3	12.0

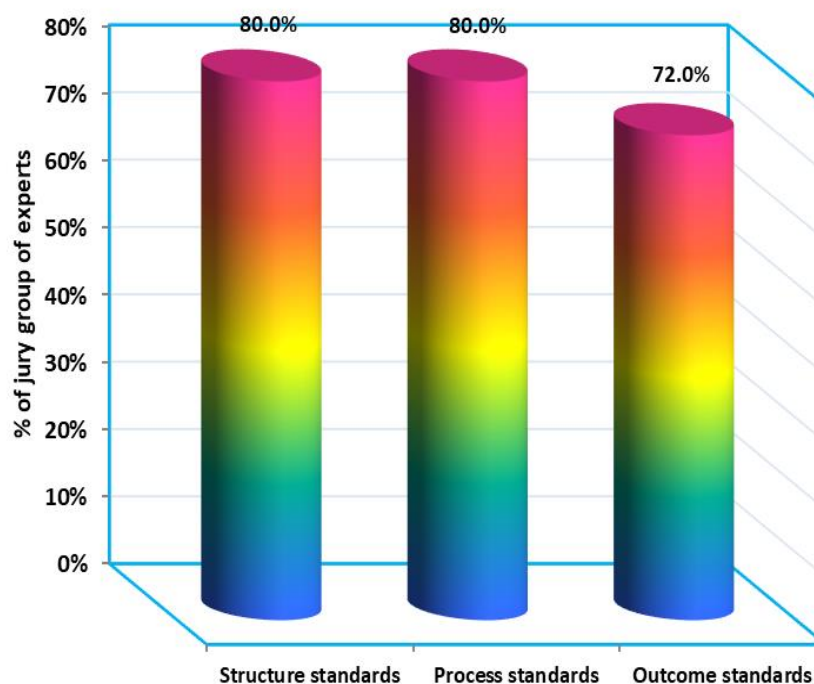


Figure (1): Appropriateness of the proposed core competency standards according to the opinion of the studied jury group of experts (academic and nursing service experts) (n=25).

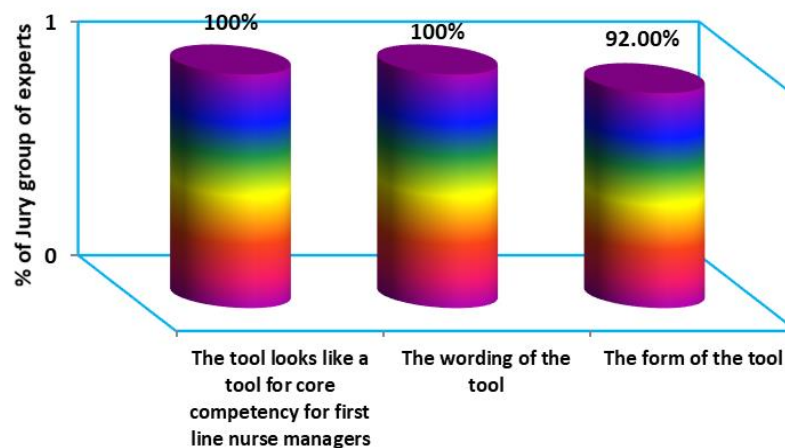


Figure (2): Face validity about the general form of the proposed core competency standards of the studied jury group of experts for first-line nurse managers at ICU (n=25).

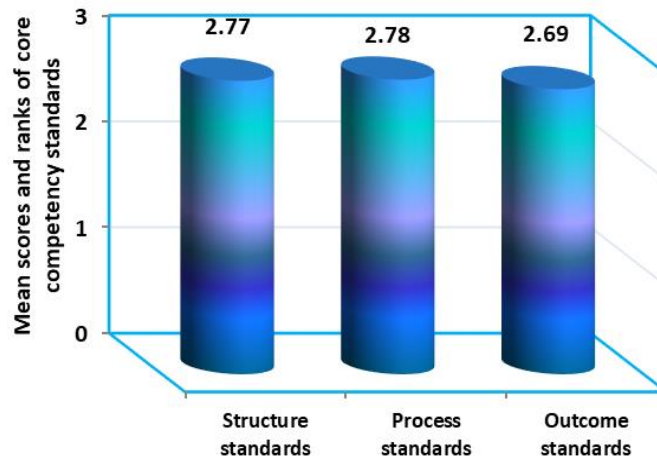


Figure (3): Total core competency standards mean score and ranks of appropriateness according to the opinion of the study jury group of experts. (No=25).

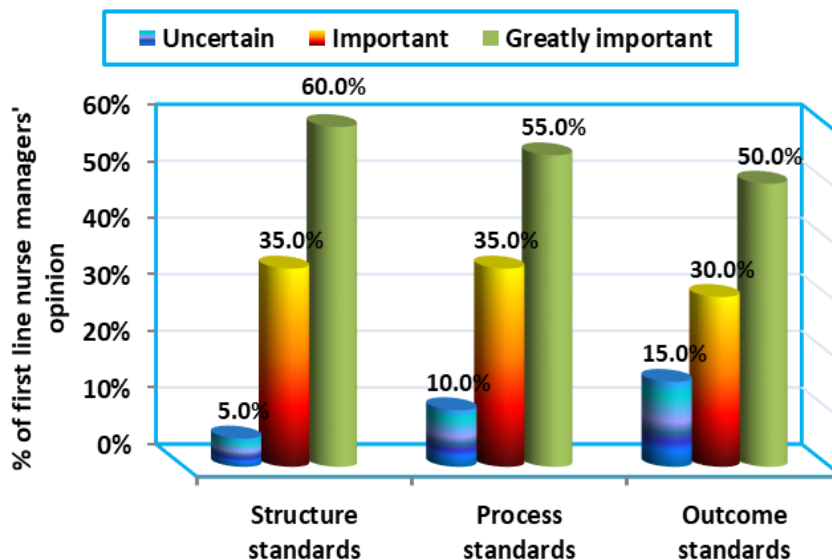


Figure (4): Opinion of the studied first-line nurse managers at Intensive Care Units (ICUs) in Mansoura University hospitals about the importance of core competency standards sub items (n=20).

Table (2): Opinion of the studied first-line nurse managers at Intensive Care Units (ICUs) in Mansoura University hospitals about the extent of application of core competency standards sub items (n=20).

Core competency standards	Opinion of the studied first line nurse managers at ICUs about application extent of standards (No=20)							
	Seldom		Sometimes		Usually		Always	
	No	%	No	%	No	%	No	%
<b>A-Structure standards:</b>								
Standard 1: Assessment skills	2	10.0	5	25.0	5	25.0	8	40.0
Standard 2: Education and research	1	5.0	5	25.0	7	35.0	7	35.0
Standard 3: Legal and ethical clinical policies	0	0	3	15.0	5	25.0	12	60.0
Standard 4: Safety environment	0	0	2	10.0	5	25.0	13	65.0
Standard 5: Usage of supplies and equipment	0	0	2	10.0	5	25.0	13	65.0

Total (Mean frequency)	1	5.0	3	15.0	5	25.0	11	55.0
<b><u>B-Process standards:</u></b>								
Standard 6: Communication and humanistic relationship skills.	1	5.0	2	10.0	7	35.0	10	50.0
Standard 7: critical thinking	2	10.0	3	15.0	8	40.0	7	35.0
Standard 8: Management and leadership skills	1	5.0	3	15.0	8	40.0	8	40.0
Standard 9: Continuous professional development	1	5.0	3	15.0	8	40.0	8	40.0
Standard 10: Intervention skills and professional practice	0	0	2	10.0	6	30.0	12	60.0
<b>Total (Mean frequency)</b>	<b>1</b>	<b>5.0</b>	<b>3</b>	<b>15.0</b>	<b>7</b>	<b>35.0</b>	<b>9</b>	<b>45.0</b>
<b><u>C-Outcome standards:</u></b>								
Standard 11: measuring patients' satisfaction	1	5.0	1	5.0	8	40.0	10	50.0
Standard 12: Ongoing feedback	0	0	4	20.0	6	30.0	10	50.0
<b>Total (Mean frequency)</b>	<b>1</b>	<b>5.0</b>	<b>2</b>	<b>10.0</b>	<b>7</b>	<b>35.0</b>	<b>10</b>	<b>50.0</b>

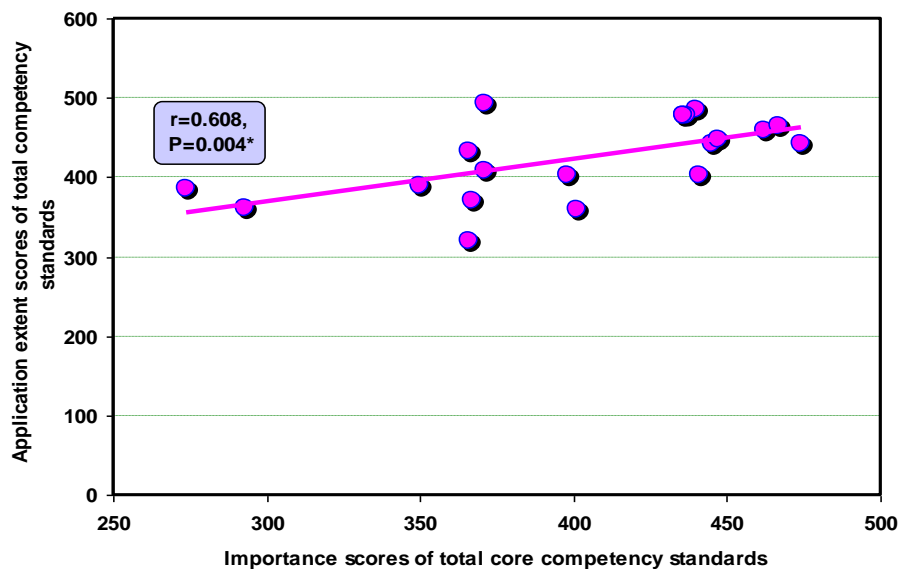


Figure (5): Correlation between importance scores and application extent scores of total core competency standards (n=20).

#### 4. DISCUSSION

Healthcare environment and nursing services are changing rapidly and FLNMs play an important role in providing high quality care to patients in this continuously changing environment (Huston, 2013 & American Organization of Nurse Executives (AONE), 2015). For FLNMs to successfully fulfill these roles, their management and leadership skills need to be increased (The International Council of Nurses (ICN), 2015). As they work in close contact with patients and play a key role in the day-to-day activities of ICU, and influence the success of the organization, it is of great importance for FLNMs to be competent (ACN, 2015; Marquis & Huston, 2015).

Regarding agreement of jury expert about face validity and content of proposed core competency standards; findings of the current study indicated that most of jury experts agreed upon content and face validity of proposed core competency standards. In agreement with this result study done by (Cowana, Barnettb, Normanb, & Murrells, 2008) to develop a self-assessment tool for competency, the results revealed that competency standards have an acceptable degree of reliability, construct and content validity. In the same direction, a study was done by (Fan, Gui, Xi, and Qiao, 2016); consistent with the present study finding revealed that core competency standards demonstrated sound inner consistency reliability, content material validity, and construct validity. The proposed standard provides a guide for assessing, training and evaluating FLNMs core competencies.



Also (**Tuong and Thanh,2017**) support the present study finding, revealed that all participants agreed on the identified competencies. A valid and accurate core competency standard can help to enhance FLNMs holistic competence and facilitate development in intensive care nursing; it can also serve to guide nursing education and training, provide references for staff deployment and post assignment among FLNMs and assist FLNMs in developing self-awareness of their professional competency through feedback and promote their professional development (**Yan&shen,2004**, and **You,2007**)

While (**Slåtten, Hatlevik, and Fagerström,2014**) inconsistent with this study who found that validity testing showed promising results about what constitutes core competencies in nursing and construct validity seems good.

Regarding ranking of appropriateness according to the opinion of the study jury group of experts. This study finding revealed that regarding total core competency standards appropriateness; process standards ranked No. (1), followed by structure standards ranked No. (2), and outcome standards ranked No (3). Frequent making of workshops related to field of nursing, continuous round from nursing supervisors and directors' attention to the work of FLNMs and presence of enough ICU supplies and equipment and in addition to, FLNMs sense of responsibility, all can be the reasons for this result.

**Elhami, Ban, Mousaviasl& Zahedi, (2018)**, opposite to the present study, revealed that total clinical competency outcome of nurses was ranked No (1), followed by process standards ranked (2), and the least total average belonged structure standards ranked (3).

Regarding importance of proposed core competency standards from FLNMs point of view, the present study revealed that more than two-thirds of FLNMs rated core competency standards as greatly important were in assessment skills, education and research, legal and ethical clinical policies, safety environment, usage of supplies and equipment, communication and humanistic relationship, critical thinking, interventional skills, and professional practice. Also, current study finding revealed that more than half of FLNMs rated structure, process, and outcome core competency standards as great importance. FLNMs' sense of responsibility may be the cause of increased competency in above-stated standards.

The present findings consistent with the result of the study done by (**Elhami, Ban, Mousaviasl& Zahedi, 2018**), the managerial competency was the best overall all competency reported by FLNMs, and preserving facilities & equipment of nursing care, and ethical decision making had the highest competency rated by FLNMs. In addition to (**Bahreini, Moattari, Akaberian, & Mirzaie,2008**; and **Bahreini, Moattari, Kave, &Ahmadi, 2010**), founded the highest nurses' competency has been mentioned in the area of management that is in the direction of the findings of the present study. On the other hand (**Slåtten, Hatlevik, and Fagerström,2014**), inconsistent with present study finding, indicated that FLNMs with post bachelor's studies expressed the importance of collaborating and teamwork as important core competency skills.

Furthermore, the study done by (**Bahreini, Moattari, Kave, &Ahmadi, 2010**), stated that the skill of critical thinking and ethically based decision making were the highest competency rated by FLNMs. Also added that critical thinking and decision making based on moral values considered one of the most important and excellent competencies needed in evaluating nursing staff and managers from novice nurses.

Opposite to the results of this study (**Sani, Etemadi, Boustani, Bahreini, & Hakim,2015**), found that the highest importance rated core competency was training and guidance, and this could indicate the role of FLNMs in training nurses and making effective retraining courses.

Regarding studied FLNMs opinion about the extent of application of proposed core competency standards by FLNMs in ICU. This study results revealed that education and research core competency standard show low rate and seldom used regarding continuing education program and keeping up-to-date to apply evidence-based practice research on instructional practice, management, and leadership. This may be because of unavailability of research facilities in ICU in shape of education booklets, pamphlet, and, lack of conserving retraining training in this discipline. In addition to doing extraordinary scientific responsibilities, every FLNM must update her scientific knowledge which will enhance nursing care given to patients and their families. However, most FLNMs have much less time for such things because of workload and high work hours.

**Rodgers, (2000)** consistent with the study result, who found that nurses' competency in using research reported low. Another study supported with this finding study done by (**Elhami, et al, 2018**), revealed a low usage level of core competency related to education and research standard.

Moreover, current study finding reported that more than half of FLNMs always identifying priorities for action to achieve the planned goal (standard1: Assessment skills). It is inconsistent with study done by (Meretoja, Leino-Kilpi, & Kaira,2004) stated that the minimum rate of competency was reported in making decision, guidance, identifying priorities, and coordination of nursing care & therapeutic regimen

Also, study finding regarding management and leadership core competency domain was always used by FLNMs in ICU, these variations can be made for numerous motives which includes individual and environmental factors like knowledge, abilities, activity sense of right and wrong, obligation, training, and managerial factors. This finding consistent with a study done by (Elhami et al, 2018). revealed that most skills occasionally and frequently used by FLNMs related to management competency.

Regarding total opinions of studied FLNMs about importance and extent of application of proposed core competency standards: current study finding found that more than half of FLNMs reported that structure, process, and outcome core competency standards as greatly important for them. And more than half of them always used structure standards. This may be due to the availability of enough supplies and equipment in the ICU, expertise and knowledge of FLNMs. Isoaho et al, (2014) support this finding, as they found that competency of FLNMs was totally good.

In a survey by (Soroush, Zargham-Boroujeni, & Namnabati,2016), not favorable with the present findings, whereas FLNMs' competency level has been reported average. On the other hand, the present study inconsistent with a study done by (Bahreini, Moattary, Akaberian, & Mirzaie,2008; and Bahreini, Moattari, Kave, & Ahmadi, 2010), & study by (Zadeh et al ,2012), where FLNMs' competency was at good.

Regarding the correlation between importance and extent of application of proposed core competency standards according to FLNMs opinions. The finding of present study found that there was a statically significant relation between importance & extent of application of proposed core competency standards. Bahreini, Moattari, Kave, & Ahmadi, (2010), reported that when the competency of FLNMs increases, the usage will increase. Also, the present finding is along with (Meretoja, Leino-Kilpi, & Kaira,2004) and (Jinks, & Hope2000).

## 5. CONCLUSIONS

In the current study, the findings indicated that the proposed core competency standards are agreed upon their content and face validity by majority of jury experts. Also, this study revealed that there is a statically significant relation between importance & proposed core competency standards extent of application from FLNMs point of views.

## 6. RECOMMENDATIONS

Primarily based on the results of this study it is recommended that, core competency standards and criteria developed for FLNMs should be used as strategies for the selection, preparation, and development of hospital-based nurse managers. The administration of the hospitals should carry out the requirements of the department of health and other accrediting bodies to ensure the ongoing competencies of FLNMs. And future researchers will conduct similar studies in alternative non-public and government hospitals with the inclusion of patients/clients to draw analysis supported the core competencies really rendered to them by FLNMs.

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**International Journal of Novel Research in Healthcare and Nursing**

 Vol. 6, Issue 1, pp: (601-612), Month: January - April 2019, Available at: [www.noveltyjournals.com](http://www.noveltyjournals.com)

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