# Developing an Instrument to Assess the Perceived Job Competencies of First-Line Nurse Managers Related to Staff Nurses' Performance and Retention

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## *Abstract*

*First-Line Nurse Managers (FLNMs) play a key role in providing high quality and safe healthcare. Managerial competencies of FLNMs are crucial in health care, particularly in hospital settings.* ***Objective:*** *Develop an instrument to assess the perceived job competencies of FLNMs related to Staff Nurses' Performance and Retention.* ***Settings:*** *The study was conducted in the four largest hospitals at El-Behira Governorate.* ***Subjects:*** *The study subjects were composed of two groups: Qualitative sample used to collect the qualitative data which make up the first version of the instrument, and a Quantitative sample composed of 294 FLNMs in the study settings in using the second version of the instrument.* ***Tools:*** *First tool is semi-structured interview developed by the researcher used to collect the qualitative data and second tool developed through three stages.* ***Results:*** *The developed instrument is valid and reliable to measure the perceived job competencies of FLNMs related to staff nurses' performance and retention in the hospital settings.* ***Conclusion:*** *The current study concluded that the FLNMs competencies related to Staff Nurses Performance and Retention can be comprehensively measured, including various domains, dimensions and sub-dimensions.* ***Recommendations:*** *Using the current study's FLNMs' competencies instrument as a valid and reliable assessment tool to determine FLNMs' competencies in order to improve the staff nurses' performance and retention.*

**Keywords:** Develop Instrument; FLNM; Staff Nurses; Performance; Retention.

## *Introduction*

Healthcare management is undergoing many changes and reforms, both internally and externally[1]. This involves the reformation of services structure, business process and management[2]. The success of these reforms requires competent management[3]. Managerial competencies are a set of knowledge, skills, behaviors, and attitudes for a nurse manager to be efficient in various managerial functions and multiple types of organizations[4]. Chase (2010) defined competencies as "the understanding of knowledge, clinical skills, interpersonal skills, problem solving, clinical judgment, and technical skills in different professions"[5]. According to Garman and Johnson (2006), all personal traits, capabilities, intelligence, and human abilities are required for a good nurse manager[6].

Healthcare Organizations need competent FLNMs with knowledge and skills to ensure evidence-based practice[7-9]. The American Organization of Nurse Executives (AONE, 2015) defined FLNM, as "a person who is responsible for the day-to-day operational administration of a defined work unit and its staff nurses and resources"[10].

At present, FLNM is considered as one of the hardest jobs and a pivotal point in

healthcare subsequently; it requires both accountability and responsibility for patient safety and quality[11-12]. Therefore, FLNMs are labeled "fulcrum of managerial influence"[13]. Further, they are responsible for the management of nurses and other staff, to interpret and manage the organizational decisions that come down to the unit[10,14], to act as the direct link between top manager and front-line staff[15-18] . Moreover, they influence everything from multidisciplinary team effective communication, patient length of stay to staff nurse's turnover[11,13] .

Considering the heightened focus on staff nurses' performance and retention; and the role of FLNMs, the importance of identifying the management practices, competencies, and skills of effective FLNMs has been amplified[19-21]. Cziraki (2012) revealed a discrepancy that found between the factors that attract and retain registered nurses for the FLNM role, underscored the importance of the mentor role, and confirmed the practicing challenges encountered by FLNMs in the current healthcare environment[12].

DeOnna (2006) identified competencies required for FLNMs to include promote staff retention, recruit staff, facilitate staff development, perform supervisory responsibilities, and ensure patient safety and quality care[22]. In addition, conduct daily unit operations; manage fiscal planning, facilitate interpersonal and organizational communications, lead of quality improvement initiatives, promote professional practice model and self-development[22]. From another point of view, Chase (2010) has divided FLNMs competencies into technical skills, human resource skills, conceptual skills, leadership skills, and financial management[5]. Krajcovicova et al., (2012) identified the four pillars of managerial competencies, as knowing the organization, leading and managing people, resources management, and effective communication[23]. Furthermore, FLNMs competencies classified into to three domains, namely the Science, the Art, and the Leader Within. Each domain includes several dimensions, which will be utilized in this study[15].

Studies on the "development of valid and reliable research instrument" have emphasized three major stages; the conceptualization, data collection, and statistical evidence of a construct[24,25]. The instrument is deemed valid when it fits with the sample/population, represents the contents, sufficiently inclusive, and measures what is intended to be measured. A reliable instrument is consistent, equivalent, stable, and yield the same results in repeated trials[26,27]. The development of a reliable and valid instrument is complex and time consuming; however, this type of research serves to support the field, as researchers' ability to conduct meaningful research is enhanced by their ability to measure important variables in a reliable and valid way[28].

**Significance of the study:**

A key challenge facing FLNMs in Egypt today is the shortage of nurses, and its impact on the quality of health care and the efficiency of the production of health services[26,27]. Also, FLNMs competencies have a significant impact on staff nurses' performance in terms of creating a positive climate and provide authentic support to followers, allowing them to work with maximum effectiveness and achieve the best work results[29,30]. So, there is a degree of ambiguity regarding FLNMs' job competencies required for staff nurses' performance and retention.

## *Aim of the Study*

This study aims to developing and validating an instrument to assess FLNMs' job competencies related to staff nurses' performance and retention.

## *Research Questions*

1. What are the perceived competencies of FLNMs needed for effective staff nurses' performance and retention in the hospital settings?
2. Are FLNM competencies related to staff nurses' performance and retention can be measured by valid and reliable tool?

### *Operational definitions:*

- FLNMs defined as a nurse administratively responsible for management hospital unit on a 24 hours basis and responsible for overseeing first level nursing services.
- Perceived competencies defined as the application of knowledge, attitudes, and skills of FLNMs in specific management functions which is observed and measured as a behavior.
- Effective staff nurses' Performance defined as the formal exhibition of skill, ability, or aptitude to achieve a job's objectives (acceptable level of work).
- Effective staff nurses' Retention: defined as facilitating the professional growth, responsibilities, and rewards of staff nurses to attain organizational success and satisfaction in their jobs.

## *Materials and Method*

### *Materials*

***Design:*** This study was conducted by using methodological research design including both qualitative and quantitative methods.

***Settings:*** The study was conducted in the four largest hospitals at El-Behira Governorate based on bed capacity; the National Medical Institute at Damanhour (860 beds), Kafr El-Dawar General Hospital (300 beds), Itay Al-Barud General Hospital (252 beds), and Abo-Homs General Hospital (155 beds).

***Subjects:*** The sample of the study subjects composed of two groups:

**First group (qualitative sample):** It was used to collect the qualitative data which make up the instrument.

1. **Included the leadership field Experts: Academic Experts** (17 members) from the Faculty of Nursing Alexandria University, Ain-Shams University and Cairo University, **Nursing Power Experts** (6); the Director of Nursing Administration (n= 1) and their assistants (n= 3) at El-Beheira Health Affairs Directorate, and Nursing Syndicate Branch managers (n= 2) at El Beheira and Alexandria Governorates, the **Professional experts;** the Directors of Nursing Service (n= 4), their assistants (n= 4) and Nursing Supervisors (n= 10) who were available at the time of data collection in each hospital previously mentioned. (Table 1,2)
2. **Nursing staff:** the sample size was determined according to the data saturation; **FLNMs** (20) who were available at the time of data collection in each hospital previously mentioned; **Staff Nurses** (50) who were available at the time of data collection in each hospital previously mentioned. (Table 2)

**Second group (quantitative sample):** It was used to collect the quantitative data from the FLNMs, who were available at the time of data collection, in the previously mentioned settings, total number 294 FLNMs. (Table 3)

**Inclusion criteria:**

FLNMs had at least one year of experience in the position.

***Tools:***

**Tool I: Semi-structured interview for FLNMs' Competencies related to Staff**

**Nurses' Performance and Retention Instrument**

It was developed by the researcher using the framework of AONE (2015)[10] nurse manager competencies framework and current literature review[10-12,31-33] which contains three domains, namely: the Science competencies; the Art competencies and the Leader Within competencies, conducted with experts in the leadership field to determine the components of the instrument to assess the FLNMs' competencies related to staff nurses' performance and retention in the hospital settings. It consists of one main open-ended question: What are the perceived competencies of FLNMs needed for effective staff nurses' performance and retention in the hospital settings? The questionnaires translated into Arabic when used by technical staff nurses.

**Tool II:**

In order to develop an instrument through three stages: (Table 4, 5, 6, 7)

**1st stage (First draft): FLNMs' Competencies related to Staff Nurses' Performance and Retention Instrument (Version I):** developed through compiled data from semi-structured interview and current related literature which yielded 198 items/questions based on twenty-one dimensions under three major domains.

**2nd stage (Second draft): FLNMs' Competencies related to Staff Nurses' Performance and Retention Instrument (Version II):** developed after face and content validity which had 143 items/questions based on twenty-one dimensions under three major domains.

3rd stage (Last draft): FLNMs' Competencies related to Staff Nurses' Performance and Retention Instrument (Final Version): **developed after internal consistency reliability and construct validity which had 120 items/questions based on twenty-one dimensions under three major domains**.

***Method***

- An approval was obtained from the Dean of Faculty of Nursing, Alexandria University and the Ethical committee to pursue the research.
- An approval was obtained to conduct the study from the responsible authorities of the study hospital settings after explaining the purpose of the study.

**Instrument Development:**

- This study applies the Input-Process-Output (IPO) framework based on Donabedian's Model 1988[34]. See figure (1).
- Input conducted through review of published literature, using the AONE (2015) Nurse Manager Competencies framework as guide for semi-structured interviews with experts and staff nurses served as the input to yield FLNMs competencies instrument version (I)[10]. Then the process conducted in several steps through content and face validity for version (I) of an instrument to develop version (II). Pilot study was conducted to determine the feasibility in using version (II) of an instrument then data collection was collected to test internal consistency reliability by Cronbach's alpha coefficient and construct validity through principal component analysis for version (II). The output of the process was yield the final version of the instrument for FLNMs Competencies related to staff nurses' performance and retention.
- The process of develop instrument was carried out through three phases[33,35].
- **Phase I: Theoretical importance and existence of the construct** consists of four steps, as follows:
- **Step 1:** Content domains specification: to clarify the intended instrument and determine the main

components in order to develop the first draft of the FLNMs competencies instrument based on the current related literatures review and semi-structured interview with the experts in the leadership field and nursing staff. The time of the interview with each participant took about 30 minutes. The Interview was conducted in a six-month period (from November, 2018 to April, 2019).

- The analysis of the qualitative data yielded four dimensions under ***domain of Science***; thirteen dimensions under ***domain of Art*** and four dimensions under ***domain of Leader Within***.
- **Step 2:** Generating a pool of items/ questions to generate dimensions and items of the instrument based on extensive review of relevant literature and the results of qualitative data. The resulting product of this step was the first version of FLNMs' competencies instrument related to staff nurses' performance and retention (**version I**).
- **Step 3:** Content validity evaluation: to determine the content and face validity of the proposed instrument (version I), the researcher has tested the first version of the instrument (198 items) through an evaluation conducted by the Faculty experts in the field of the study from Faculty of Nursing of Alexandria University, Ain-Shams University and Cairo University. Each expert individually asked to read and evaluate each item based on relevance, clarity, simplicity and ambiguity on a four-point scale.
- Depending on the result of the instrument content validity, 55 items out of 198 were discarded as they had validity result < 75%. This resulted in the emerge of the version (II) of FLNMs competencies related to staff nurses' performance and retention which composed of 143 items based on the abovementioned twenty-one dimensions under three domains. The researcher then has tested all items included in the second version of the instrument (143 items) through experts' evaluation.
- **Step 4:** Instrument development: to develop the second version of the instrument after content and face validity which composed of 143 items based on the aforementioned twenty-one dimensions under three domains.
- **<u>Phase II: Representativeness and appropriateness of the data collection</u>**
- This phase tested the instrument version II applicability through three steps:
- **Step 5:** An Arabic version of the Instrument is ready to use.
- **Step 6:** Pilot test was conducted on (10%) of the non-included FLNMs of the study subjects: to determine the feasibility and the difficulties in using the instrument. Based on the findings of the pilot study, no modification was made.
- **Step 7:** Data collection by using the second version of the FLNMs' Competency Instrument for an item reduction process: to test the reliability and construct validity for the instrument version (II). Data were collected from all FLNMs who were available at the time of data collection and had at least one year of experience in the position in the previously mentioned settings, from November, 2019 to February, 2020 (about four months). Each FLNM was asked to fill in the instrument independently, which took around 15-20 minutes.
- **<u>Phase III: Statistical analysis and statistical evidence of the construct</u>**
- **Step 8: Reliability assessment:** to determine the internal consistency of the newly developed instrument. The

Reliability assessed by Cronbach's alpha coefficient test for overall items of instrument was 0.95 and for each domain of FLNM competencies instrument was (0.82) for ***domain of Science***, (0.96) for ***domain of Art*** and (0.78) for ***domain of Leader Within***. All items were included in the second version of instrument. The results indicated a high level of internal consistency. So, all items of the version (II) of the instrument were included. (Table 4)

- **Step 9: Sampling adequacy test to run principal component analysis:** to measure KMO and Bartlett's Test for FLNMs' competencies instrument. The KMO measure for sampling adequacy was 0.84. This result according to Kaiser was meritorious (very good) indicating the sample size was large enough to assess the factor structure. The procedures generated Kaiser–Meyer–Olkin value for each construct which was above 0.6 with a highly significant 0.000 Bartlett's test of sphericity value that measures the relationship among variables of the instrument, indicating that the data were sufficient to run principal component analysis for estimating the factor loadings and communalities (Chan and Idris, 2017). (Table 5)
- **Step 10: Construct validity:** This step aims to measure Principal component analysis for estimating the factor loadings and communalities of FLNM competencies instrument. The items initial commonalties were 1.00 for all instrument items and commonalties after extraction was 120 items which included in the final instrument (15 items more than 0.9, 49 items more than 0.8 and 56 items more than 0.7). The end result was the final version of an instrument for FLNMs' competencies related to staff nurses' performance and retention which had 120 items based on twenty-one dimensions under three major domains. (Table 6).

**Ethical considerations:**

- A written informed consent from the study subjects was obtained after explanation of the study's aim.
- Participation in the study was on voluntary base.
- Anonymity and privacy of subjects was ensured.
- Confidentiality of the data was maintained.
- The right to withdraw from the study at any time was explained and assured.

## *Results*

**Table (1)** illustrates numbers of study participants from three Faculty of Nursing members (17) and The Director of Nursing Administration and their assistants at El-Beheira Health Affairs Directorate (4) and Heads of Subsidiary of Nursing Syndicate (2) (n= 23) who were available and accepted to participate in the study to obtain qualitative data for developing FLNMs competencies instrument.

**Table (2)** illustrates number of study participants (n= 328) who were available and accepted to participate in the study to obtain qualitative data for developing FLNMs competencies instrument. It shows that sample saturation achieved from four hospitals settings by interviewing with 4 directors of nursing services, 4 assistants of Directors of Nursing Service, 40 nursing supervisors, 80 FLNMs, and 200 staff nurses.

**Table (3)** shows the mean score of FLNMs' age were (36.5±7.3). More than one-third of them (37.4%) were between 36 to 46 years old. In relation to educational qualification the majority of FLNMs (99.3%) had Bachelor of Science in nursing where, the lowest percentage (0.7%) had

post graduate master in nursing administration.

Concerning FLNMs years of experience in position was 8.25±4.9. In relation to numbers of study participants from four hospitals were National Medical Institute at Damanhour (91); Kafr El-Dawar General Hospital (78); Itay Al-Barud General Hospital (72) and finally, Abo-Homos general hospital (53).

**Table (4)** shows that the internal consistency reliability determined by calculating the Cronbach's alpha for overall instrument is 0.95. In relation to the internal consistency reliability determined by calculating the Cronbach's alpha for each domain of FLNM competencies instrument are (0.822) for domain of science, (0.955) for domain of art and (0.775) for domain of leader within.

**Table (5)** shows that Kaiser-Meyer-Olkin measure of sampling adequacy was adequate. (0.844) according to Kaiser was meritorious (very good) and Bartlett's Test measures the relationship among variables of the instrument was highly significant (0.000) to run principal component analysis for estimating the factor loadings and communalities.

**Table (6)** shows that the items initial commonalties was 1.00 for all instrument items and commonalties after extraction was ≥ 7 for all items except 23 items of instrument were (item No. 3 = 0.65, item No. 5 = 0.66, item No. 7 = 0.54, item No. 14 = 0.57, item No. 18 = 0.62, item No. 33 = 0.57, items No. (34 and 38) = 0.59, item No. 48 = 0.65, item No. 55 = 0.68, item No. 60 = 0.65, item No. 61 = 0.63, item No. 65 = 0.52, item No. 66 = 0.66, item No. 71 = 0.62, item No. 89 = 0.66, item No. 103 = 0.63, item No. 105 = 0.61, item No. 109 = 0.48, item No. 111 = 0.57, item No. 120 = 0.62, item No. 133 = 0.68, and item No. 139 = 0.56), this excluded from the final version of the developed instrument.

On the other hand, 120 items which included in final instrument (15 items more than 0.9), (49 items more than 0.8) and (56 items more than 0.7) which included in the final version of the developed instrument. The average of communalities after extraction for included items of the final version of the developed instrument was (0.87).

**Table (7)** illustrates the three stages of tool development 1st stage (First draft): developed through compiled data from semi-structured interview and current related literature which yielded 198 items/questions based on twenty-one dimensions under three major domains. 2nd stage (Second draft): developed after face and content validity which had 143 items/questions based on twenty-one dimensions under three major domains. 3rd stage (Last draft) Final Version: developed after internal consistency reliability and construct validity which had 120 items/questions based on twenty-one dimensions under three major domains.

## *Discussion*

FLNMs' competencies are one of the most important reasons for staff nurse retention. There is a great deal of evidences from Healthcare facilities and organizations shows that staff nurses satisfied with their FLNMs' management style are likely to stay longer in the organization[36,37]. Results analysis of the semi-structured interview with qualitative participants revealed that the instrument of FLNMs job competencies related to staff nurses' performance and retention consists of three essential domains of competencies for FLNMs, namely the science of managing unit which is composed of four dimensions; the Art of leading staff nurses which is composed of thirteen dimensions; the "Leader Within" for developing self-confident leader who can empower others, is composed of four dimensions.

Also, the study qualitative participants cited the significance of the three domains for FLNMs to improve staff nurses' performance and retention, as it is deemed the cornerstone of FLNM scope. This due to

outstanding and powerful FLNMs should have hard and soft skills, which considered of great importance to staff nurses and quality of care and patient safety.

These results which supported by AONE (2015)[10], suggested that FLNMs must be competent in business management, leading the people land "Leader Within" development[10]. Also, several studies in congruence with Nazari, et al., (2018), Gunawan, et al (2018), Dawson, (2014), Cziraki, et al., (2014), Krajcovicova, et al., (2012), Duffield, et al., (2011)[23,31,38-41] proved that effective FLNMs have a direct and significant relationship to staff nurse's performance and retention.

The majority of the study qualitative participants emphasized that the Art domain is the first important competency for FLNMs. Similarly, the result of the current study revealed that Cronbach's alpha coefficient was 0.96 for Art competencies. This may be due to that the Art competencies of leading staff nurses allow FLNMs to manage staff nurses through effective leadership, inspiration, good communication and staff nurses' motivation to provide the best care for the patients and keep staff nurses engaged and activated during their shifts.

Concerning Art domain, the results of this study shows that thirteen dimensions were extracted from the analysis of semi-structured interview which can be listed as follows: leadership skills, human resources management, problem solving & decision making skills, power & empowerment skills, delegation skills, change management skills, conflict resolution skills, work stress management skills, motivational strategies, time management skills, emotional intelligence skills, team building strategies and effective communication skills. All of these dimensions increasing the meaningfulness of work, strengthening group cohesiveness and increasing the understanding between staff nurses and FLNMs. This result was supported by statistical findings of Cronbach's alpha coefficient of (0.96) for all dimensions of Art domain.

This result is congruent with Pihlainen et al. (2016), who have cited the characteristics of FLNMs and leadership competencies in healthcare field as time management, interpersonal skills, strategic mindset, thinking and application skills, and human resource management[42]. Furthermore, in the same respect, AONA, (2015) revealed that the art competencies enable the FLNMs lead the staff nurses by managing relationships, influencing others toward achieving common goals by fostering teamwork and developing trust and managing conflict[10]. By the same token, Tongmuangtunyatep, (2017) has conducted a content analysis that supported the five domains of the Thailand Nursing and Midwifery Council: leadership, management, communication, professional ethics, and policy and healthcare environment[43].

The majority of the study qualitative participants emphasized that the Science domain is the second important competency for FLNMs. This is likely due to the Science competencies for managing work units enable FLNMs to manage staff nurses through administrative confidence, appropriate educational preparation, business management skills, broad clinical expertise and a thorough understanding of leadership principles. Also, the statistical result of study revealed that Cronbach's alpha coefficient was 0.82 for Science domain. The results of this domain have shown the four dimensions extracted from the analysis of semi-structured interview, are knowledge and technical skills, appropriate clinical practice, patient safety and infection control, and patient satisfaction. All of such dimensions growth the significance of work, support evidence base practice and improve the accepting between staff nurses and FLNMs to improve staff nurse's performance and retention.

This result is supported by the study of Gunawan & Aungsuroch, (2017) which

revealed that the managerial competence along with different attributes of the FLNMs, such as planning, organizing and leading skills, have a direct impact on nurses' performance and their retention and patient care outcomes[31]. Also, this result goes in line with Siqueira et al., (2019); Goktepe et al., (2018); Ghanbari et al., (2017) and Cathcart et al., (2010), which demonstrated that augmenting the knowledge, skills, and managerial competencies of FLNMs can contribute to the improvement of both patient care and nursing outcomes and lead the healthcare organization to achieve positive results[1,44-46]. Furthermore, AL-Dossary, (2016) stated that FLNMs play a crucial role in developing and implementing a system that encourages patient engagement with the clinical team. So, patient satisfaction can be used as indicator for the staff nurses' performance and health care quality[47].

The majority of the study qualitative participants emphasized that the "Leader Within" of developing sufficient self-confidence to empower others is the third important domain for FLNMs, which composed of four dimensions. They view it as a master competency of FLNMs competencies. This is due to the FLNMs should focus on self-improvement to perform duties more effectively and, in turn, promote a more positive Nursing image.

Also, according to the study participants, they stated that the personal leadership effectiveness demonstrated that the desired competencies are leading to the success within an organizational culture and improve staff nurses' performance and retention. The statistical results of the study revealed that Cronbach's alpha coefficient was 0.76 for the "leader Within".

Regarding this domain, the results showed that the four dimensions extracted from the semi-structured interview are Self-Development, Personal & Professional Accountability, Career Planning, and Personal Journey Disciplines. All of these dimensions increasing the significance of self-development, professional development and increasing the mutual respect between staff nurses and FLNMs to improve staff nurses' performance and retention.

This result has matched with Sharifabad et al., (2018), Mallari and Joseph, (2016), Miltner et al., (2015) and Gould et al., (2011), who showed that personal and professional accountability, focusing on high standard leadership competencies could assist FLNMs to be more successful[48-51]. The findings are consistent with Chisengantambu-Winters et al., (2020) and Goldsby et al., (2020), demonstrated that FLNMs need to be self-aware to understand the personal characteristics affecting their own decision making which can enhance their ability to take decisive and beneficial decisions. Moreover, self-development could help FLNMs better manage their thoughts, behaviors, and environment to create a better workplace for improving staff nurses' performance and retention[52,53].

***Conclusion***

Based upon the findings of the current study, it could be concluded that development of a valid and reliable instrument with 120 items/questions based on twenty-one dimensions under three major domains can be used as a measurement tool for FLNMs competencies related to staff Nurses' performance and retention in healthcare settings.

***Recommendations***

*In line with the findings of the study, the following recommendations are made:*

- **A- For educational settings:** Conduct a variety of leadership and management training programs to equip FLNMs with appropriate and relevant knowledge, skills, and attitudes to develop their competencies.
- **B- For hospitals administrators:** Use the current study's instrument as a valid and reliable assessment tool to determine FLNMs competencies to improve staff Nurses' performance and retention.
- **C- For FLNMs:** Develop guidelines containing main competencies for FLNMs to be published in hospitals units.
- **D- For further studies:** A study to determine the validity and reliability of the developed instrument for FLNMs competencies to be applied with different FLNMs in other hospitals and at different times.

**Table (1): Distribution of expert's study participants for qualitative data**

| Study participants | | Numbers |
|---|---|---|
| Faculty of Nursing Members | Alexandria University | 5 |
| | Ain-Shams University | 5 |
| | Cairo University | 7 |
| The Director of Nursing Administration and their assistants at El-Beheira Health Affairs Directorate | | 4 |
| Head of Subsidiary of Nursing Syndicate at El Beheira and Alexandria Governorate | | 2 |
| Total | | 23 |

**Table (2): Distribution of qualitative study participants at hospitals settings**

| Study participants | National Medical Institute at Damanhour | Kafr El-Dawar General Hospital | Itay Al-Barud General Hospital | Abo-Homs general hospital | Total |
|---|---|---|---|---|---|
| **The Directors of Nursing Service** | 1 | 1 | 1 | 1 | 4 |
| **Assistants of Directors of Nursing Service** | 1 | 1 | 1 | 1 | 4 |
| **Nursing Supervisors** | 10 | 10 | 10 | 10 | 40 |
| **FLNMs** | 20 | 20 | 20 | 20 | 80 |
| **Staff nurses** | 50 | 50 | 50 | 50 | 200 |
| **Total** | | | | | 328 |

**Table (3): Distribution of studied subjects of FLNMs regarding demographic data**

| Items | Total N=294 | |
|---|---|---|
| | No. | % |
| **Age** | | |
| - 26- <36 | 95 | 32.3 |
| - 36- <46 | 110 | 37.4 |
| - 46- more than | 89 | 30.3 |
| **Mean ± SD 36.5±7.3** | | |
| **Qualification** | | |
| - Bachelor | 292 | 99.3 |
| - Master | 2 | 0.7 |
| **Hospital name** | | |
| - National Medical Institute Hospital at Damanhour | 91 | 31 |
| - Kafr El-Dawar General Hospital | 78 | 26.5 |
| - Itay Al-Barud General Hospital | 72 | 24.5 |
| - Abo-Homos General Hospital | 53 | 18 |
| **Experience in position** | | |
| - 1-< 10 | 204 | 69.4 |
| - 10-< 19 | 76 | 25.8 |
| - More than | 14 | 10.3 |
| **Mean ± SD 8.25±4.9** | | |

**Table (4): Internal consistency reliability Statistics overall for FLNM competencies instrument and three domains (version II)**

| Instrument Domain | No. of items | Cronbach's alpha calculation |
|---|---|---|
| Science | 30 | 0.822 |
| Art | 99 | 0.955 |
| Leader within | 14 | 0.775 |
| **All items of instrument** | **143** | **0.95** |

**Table (5): KMO and Bartlett's Test for FLNM competencies instrument**

| KMO and Bartlett's Test[a] | | |
|---|---|---|
| **Kaiser-Meyer-Olkin Measure of Sampling Adequacy.** | | 0.844 |
| **Bartlett's Test of Sphericity** | **Approx. Chi-Square** | 76885.921 |
| | **df** | 10153 |
| | **Sig.** | 0.000 |

**Table (6): Communalities before and after extraction for FLNM competencies instrument**

| Items | Initial | Extraction |
|---|---|---|
| **First domain Science** | | |
| **1) Knowledge and Technical skills** | | |
| 1. | 1.00 | 0.847 |
| 2. | 1.00 | 0.737 |
| 3. | 1.00 | 0.647 |
| 4. | 1.00 | 0.765 |
| 5. | 1.00 | 0.657 |
| 6. | 1.00 | 0.748 |
| 7. | 1.00 | 0.540 |
| 8. | 1.00 | 0.729 |
| 9. | 1.00 | 0.750 |
| 10. | 1.00 | 0.803 |
| 11. | 1.00 | 0.706 |
| 12. | 1.00 | 0.852 |
| 13. | 1.00 | 0.806 |
| **2) Appropriate clinical practice competencies** | | |
| 14. | 1.00 | 0.568 |
| 15. | 1.00 | 0.757 |
| 16. | 1.00 | 0.911 |
| 17. | 1.00 | 0.931 |
| **3) Patient safety and infection control to maintain Quality of patient care** | | |
| 18. | 1.00 | 0.624 |
| 19. | 1.00 | 0.946 |
| 20. | 1.00 | 0.804 |
| 21. | 1.00 | 0.824 |
| 22. | 1.00 | 0.796 |
| 23. | 1.00 | 0.937 |
| 24. | 1.00 | 0.792 |
| 25. | 1.00 | 0.779 |
| 26. | 1.00 | 0.727 |

**Table (6): Continued**

| Items | Initial | Extraction |
|---|---|---|
| **First domain Science** | | |
| **4) Patient satisfaction** | | |
| 27. | 1.00 | 0.751 |
| 28. | 1.00 | 0.749 |
| 29. | 1.00 | 0.732 |
| 30. | 1.00 | 0.793 |
| **Second domain Art** | | |
| **5) Leadership skills** | | |
| 31. | 1.00 | 0.716 |
| 32. | 1.00 | 0.709 |
| 33. | 1.00 | 0.569 |
| 34. | 1.00 | 0.595 |
| 35. | 1.00 | 0.769 |
| 36. | 1.00 | 0.762 |
| 37. | 1.00 | 0.714 |
| 38. | 1.00 | 0.599 |
| **6) Human resources management skills** | | |
| **A. Nursing staff utilization** | | |
| 39. | 1.00 | 0.726 |
| 40. | 1.00 | 0.718 |
| 41. | 1.00 | 0.904 |
| 42. | 1.00 | 0.933 |
| **B. Staff nurses supervision** | | |
| 43. | 1.00 | 0.826 |
| 44. | 1.00 | 0.721 |
| 45. | 1.00 | 0.781 |
| 46. | 1.00 | 0.756 |
| 47. | 1.00 | 0.951 |
| **C. Staff nurses development** | | |
| 48. | 1.00 | 0.653 |
| 49. | 1.00 | 0.768 |
| 50. | 1.00 | 0.802 |
| 51. | 1.00 | 0.841 |
| 52. | 1.00 | 0.825 |
| 53. | 1.00 | 0.863 |
| 54. | 1.00 | 0.845 |
| 55. | 1.00 | 0.683 |
| **D. Staff performance appraisal** | | |
| 56. | 1.00 | 0.799 |
| 57. | 1.00 | 0.861 |
| 58. | 1.00 | 0.872 |
| 59. | 1.00 | 0.827 |
| 60. | 1.00 | 0.655 |
| 61. | 1.00 | 0.628 |
| 62. | 1.00 | 0.794 |
| 63. | 1.00 | 0.724 |
| 64. | 1.00 | 0.870 |

**Table (6): Continued**

| Items | Initial | Extraction |
|---|---|---|
| **7) Problem solving and Decision making** | | |
| 65. | 1.00 | 0.523 |
| 66. | 1.00 | 0.656 |
| 67. | 1.00 | 0.725 |
| 68. | 1.00 | 0.723 |
| 69. | 1.00 | 0.738 |
| 70. | 1.00 | 0.852 |
| 71. | 1.00 | 0.620 |
| 72. | 1.00 | 0.764 |
| 73. | 1.00 | 0.765 |
| 74. | 1.00 | 0.883 |
| **8) Power and empowerment** | | |
| 75. | 1.00 | 0.824 |
| 76. | 1.00 | 0.859 |
| 77. | 1.00 | 0.821 |
| 78. | 1.00 | 0.755 |
| 79. | 1.00 | 0.784 |
| 80. | 1.00 | 0.716 |
| 81. | 1.00 | 0.770 |
| 82. | 1.00 | 0.852 |
| **9) Delegation** | | |
| 83. | 1.00 | 0.879 |
| 84. | 1.00 | 0.852 |
| 85. | 1.00 | 0.884 |
| 86. | 1.00 | 0.857 |
| **10) Change management** | | |
| 87. | 1.00 | 0.802 |
| 88. | 1.00 | 0.939 |
| 89. | 1.00 | 0.661 |
| 90. | 1.00 | 0.761 |
| 91. | 1.00 | 0.846 |
| 92. | 1.00 | 0.799 |
| **11) Conflict resolution** | | |
| 93. | 1.00 | 0.802 |
| 94. | 1.00 | 0.914 |
| 95. | 1.00 | 0.807 |
| 96. | 1.00 | 0.729 |
| 97. | 1.00 | 0.751 |
| 98. | 1.00 | 0.818 |
| **12) Work stress management** | | |
| 99. | 1.00 | 0.941 |
| 100. | 1.00 | 0.774 |
| 101. | 1.00 | 0.775 |
| 102. | 1.00 | 0.714 |
| 103. | 1.00 | 0.633 |

**Table (6): Continued**

| Items | Initial | Extraction |
|---|---|---|
| **13) Motivational strategies** | | |
| 104. | 1.00 | 0.773 |
| 105. | 1.00 | 0.610 |
| 106. | 1.00 | 0.958 |
| 107. | 1.00 | 0.801 |
| 108. | 1.00 | 0.814 |
| 109. | 1.00 | 0.477 |
| 110. | 1.00 | 0.752 |
| 111. | 1.00 | 0.569 |
| **14) Time management** | | |
| 112. | 1.00 | 0.921 |
| 113. | 1.00 | 0.941 |
| 114. | 1.00 | 0.836 |
| 115. | 1.00 | 0.854 |
| **15) Emotional intelligence** | | |
| 116. | 1.00 | 0.837 |
| 117. | 1.00 | 0.854 |
| 118. | 1.00 | 0.797 |
| 119. | 1.00 | 0.864 |
| **16) Team building strategies** | | |
| 120. | 1.00 | 0.618 |
| 121. | 1.00 | 0.816 |
| 122. | 1.00 | 0.813 |
| 123. | 1.00 | 0.739 |
| **17) Effective communication skills** | | |
| 124. | 1.00 | 0.789 |
| 125. | 1.00 | 0.784 |
| 126. | 1.00 | 0.823 |
| 127. | 1.00 | 0.868 |
| 128. | 1.00 | 0.823 |
| 129. | 1.00 | 0.768 |
| **Third domain Leader within** | | |
| **18) Self-development** | | |
| 130. | 1.00 | 0.887 |
| 131. | 1.00 | 0.802 |
| 132. | 1.00 | 0.851 |
| 133. | 1.00 | 0.679 |
| 134. | 1.00 | 0.787 |
| **19) Personal and professional accountability** | | |
| 135. | 1.00 | 0.826 |
| 136. | 1.00 | 0.707 |
| 137. | 1.00 | 0.827 |
| **20) Career planning** | | |
| 138. | 1.00 | 0.999 |
| 139. | 1.00 | 0.560 |
| 140. | 1.00 | 0.752 |
| **21) Personal journey disciplines** | | |
| 141. | 1.00 | 0.827 |
| 142. | 1.00 | 0.906 |
| 143. | 1.00 | 0.790 |

**Table (7): Three stages of tool development**

| Domains | Dimensions | Before Content Validity Version I | | After Content Validity Version II | | After Statistical Evidence Final Version | |
|---|---|---|---|---|---|---|---|
| Science | 1. Knowledge & Technical Skills | 20 items | 42 items | 13 items | 30 items | 10 items | 25 items |
| | 2. Appropriate clinical Practice | 7 items | | 4 items | | 3 items | |
| | 3. Patient Safety & Infection Control | 11 items | | 9 items | | 8 items | |
| | 4. Patient Satisfaction | 4 items | | 4 items | | 4 items | |
| Art | 5. Leadership Skills | 9 items | 141 items | 8 items | 99 items | 5 items | 83 items |
| | 6. Human Resources Management | 37 items | | 26 items | | 22 items | |
| | 7. Nursing Staff Utilization | 6 items | | 4 items | | 4 items | |
| | 8. Staff Nurses Supervision | 8 items | | 5 items | | 5 items | |
| | 9. Staff Nurses Development | 12 items | | 8 items | | 6 items | |
| | 10. Nursing Staff Performance Appraisal | 11 items | | 9 items | | 7 items | |
| | 11. Problem Solving & Decision Making Skills | 12 items | | 10 items | | 7 items | |
| | 12. Power & Empowerment Skills | 11 items | | 8 items | | 8 items | |
| | 13. Delegation Skills | 4 items | | 4 items | | 4 items | |
| | 14. Change Management Skills | 8 items | | 6 items | | 5 items | |
| | 15. Conflict Resolution Skills | 10 items | | 6 items | | 6 items | |
| | 16. Work Stress Management Skills | 7 Items | | 5 items | | 4 items | |
| | 17. Motivational Strategies | 13 items | | 8 items | | 5 items | |
| | 18. Time Management Skills | 5 items | | 4 items | | 4 items | |
| | 19. Emotional Intelligence Skills | 4 items | | 4 items | | 4 items | |
| | 20. Team building Strategies | 13 items | | 4 items | | 3 items | |
| | 21. Effective Communication Skills | 8 items | | 6 items | | 6 items | |
| Leader Within | 22. Self-Development | 5 items | 15 items | 5 items | 14 items | 4 items | 12 items |
| | 23. Personal & Professional Accountability | 3 items | | 3 items | | 3 items | |
| | 24. Career Planning | 4 items | | 3 items | | 2 items | |
| | 25. Personal Journey Disciplines | 3 items | | 3 items | | 3 items | |
| **Total items** | | **198 items** | | **143 items** | | **120 items** | |

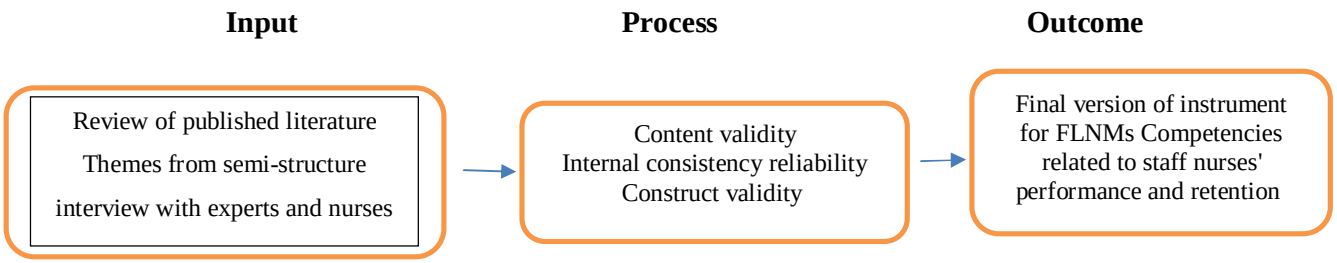


**Figure (1):** Input-Process-Output (IPO) framework based on Donabedian's Model 1988

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