

Designing and validating nursing care standards at National Liver Institute Hospital

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Abstract: Background: Nursing care standards can be regarded as a key variable in successful organizations. **Purpose of the study:** Was to design and validate nursing care standards at National Liver Institute Hospital through, assessing the structure and process nursing care standards in surgical care units (critical and intermediate), designing standards of nursing care rendered in surgical care units and testing the validity of a designed nursing care standards. **Design:** Analytical research design was used: the study was conducted at National Liver Institute Hospital. **Sample:** All staff nurses (65) working in surgical care units (critical and intermediate) were involved in the study and the snowball sampling technique was employed to select the panel subjects for Delphi technique. **Instruments:** Data were collected using two data collection instruments, Observational checklist for assessing the structure and the process standard and Delphi panel's consensus opinionaire sheet for assessing the experts' opinions about validity of the designed nursing care standards that developed by the researcher. **Results:** The study revealed that there was no statistically significant difference in both structure and process standards in critical and intermediate care unit pre designing nursing care standards. The designed standards were considered valid by the Delphi Panel by (86.7%) for structure standard and (93.3%) for process standard. **Conclusion:** The designed nursing care standards were considered valid by Delphi Panel. **Recommendation:** The designed standards and the study results should be disseminated to the important key persons and healthcare agencies to be considered.

Key Words: Designing, Nursing care standards, Validating.

Introduction

Nurses constitute the largest human resources element in health care organization and therefore have a great impact on level of care provided and patient outcomes. So, nurses should provide care based on nursing standards. Nursing care standards are helping to plan, implement and assess the care services and to show that nursing is accountable to society, to consumers of nursing services and to governments, as well as to the profession of nursing itself. A standard is an agreed way of doing something. It could be about making a product, managing a process, delivering a service or supplying materials.

Standards can cover a huge range of activities undertaken by organizations and used by their customers (Thabet et al., 2019).

Standard of care defined as authoritative statement that describes the level of care or performance, values and priorities that are common to the profession of nursing by which the quality of nursing practice can be judged, Also, it is predetermined level of excellence that serves as a guide for practice. A standard is a formal statement that shows how well patient should be managed, with understanding that this level of nursing

care should be as high as resources allow (Selekman, 2017).

Standard of care in nursing is general guidelines that provide a foundation as to how a nurse should act and what she should or should not do in her professional capacity. Deviating from this standard can result in certain legal implications (Mahmoud, 2019). Standard describes the required behavior of every nurse and is used to evaluate individual performance. Without specified standard, judgments made in the evaluation process may be variable, subjective and biases of the evaluators (Huber, 2017).

Nursing standard promotes responsibility and accountability for the quality and safety of services provided. Also, it provides a basis for planning and managing services and measuring improvements as well as identifying and addressing gaps and deterioration in services. It offers a common language to describe what high quality, safe and reliable healthcare services look like. It can be used by service users to understand what healthcare should be and what they should expect from a well-run service. It creates a basis for improving the quality and safety of healthcare services by identifying strengths and highlighting areas for improvement (Morsy, 2018). It is imperative that quality assessment and improvement standard is the way of the future in the health services in general and ICU patients in particular (Selekman, 2017).

Criteria of standard include that the statement must be broad enough to apply a wide variety of settings, must be realistic, acceptable and attainable, nursing care must be developed by members of the nursing profession, must be understandable and stated in unambiguous term, must be based on current knowledge and scientific

practice, must be reviewed and revised periodically, must be directed towards an optimal standard (Bashir, 2019).

Donabedian (1988), describe three components of quality for the purpose of measurement which termed structure, process and outcome. Structure standard includes all the factors that affect the context in which care is delivered. This includes the physical facility, equipment and human resources, as well as organizational characteristics such as staff training. Structure is often easy to observe and measure (Hayajneh et al., 2020).

Process standard is the sum of all actions that make up healthcare. These commonly include diagnosis, treatment, preventive care and patient education. Outcome standard contains all healthcare effects of patients, including changes to health status, behavior or knowledge about disease and diet as well as patient satisfaction and health-related quality of life. The combination of these dimensions provides a total picture of the quality of care. Therefore, nursing care provided unit should be guided by clearly defined standards and guidelines to decrease variations in performance and to ensure a high quality of care (Hole, 2020).

Significance of the study

Every profession is required to develop its own values of providing service to justify its existence. Nursing profession must establish, maintain and improve wherever possible the standards of care and these standards must serve as the minimum level of acceptable performance by the professional and/or the organization. As a professional body ,nursing must guarantee the quality of its service to the public and these standards are a concomitant and on assurance that the highest quality of care will be provided

to all patient in all health care setting (Sidhu, 2019).

From the researcher's experience and observation, it was found that there wasn't a nursing care standard in surgical care units (critical and intermediate) in order to follow it. So, the researcher conducts this study to design and validate nursing care standards.

Purpose of the study

The aim of this study was to design and validate nursing care standards at National Liver Institute Hospital through, assessing the structure and process nursing care standards in surgical care units (critical and intermediate), designing standards of nursing care rendered in surgical care units and testing the validity of a designed nursing care standards.

Methods

Research design:

Analytical research design was used to conduct this study.

Research setting:

The study was conducted in surgical care units (Critical and intermediate) at National Liver Institute Hospital which affiliated to Menoufia University Hospitals.

Subjects:

Group 1: Staff nurses

All staff nurses working in surgical care units (critical and intermediate). The total number of staff nurses was 65 (40 staff nurses in critical care unit and 25 staff nurses in intermediate care unit).

Group 2: Panel of Experts in nursing care standards

The snowball sampling technique was employed to select the Panel subjects for Delphi Technique. The number of Panel Experts was fifteen

Data collection instruments:

Two tools were used in this study for data collection:

1. Observational checklist.

Aimed at assessing the structure standards that present and the process standards that actually carried out by nurses in surgical care units (critical and intermediate). Items included in an observational checklist were modified by the researcher through reviewing the national and international standards of care (Joint Commission on Accreditation of Hospital (1996), Abd El-Ghaffar, (1997), Mahrous (2003), El-Gendy (2008), Ahmed (2008) and Shaban (2012)).

The scoring system:

The items rated by using a three point likert Scale for structure standard ranged from "completely present" for score of "2", "incompletely present" for score "1", "not present" for score "0" and also for process standard ranged from "completely done" for score of "2", "incompletely done" for score "1", "not done" for score "0".

2- Delphi panel's consensus opinionnaire sheet:

Aimed to assess the nursing care standards experts' opinions about validity of the designed nursing care standards that developed by the researcher based on literature review.

• Validity of the study instruments:

A bilingual panel of five Experts was recruited to test the content and face validity of the instrument. The panel consisted of Experts from Nursing Administration from the Faculty of Nursing, Cairo and Ain Shams University. The researcher asked the Panel to critique the instrument as a whole, including identifying areas of concern and reviewing the construction, flow and grammar. Necessary modifications and deleting

of some items were done to reach the finalized version of the instrument.

- **Reliability of the study**

- instruments:**

- The instrument was tested for reliability by the Internal Consistency Coefficient Alpha.

- Ethical consideration**

- Before beginning to collect data from the study subjects, the researcher introduced herself to them and explained the aim, nature, time of conducting the study, potential benefits of the study and how data will be collected. The researcher informed them that their information will be treated confidential and will be used only for the purpose of the research. Additionally, each subject was notified about the right to accept or refuse to participate in the study. Furthermore, the subjects' anonymity was maintained as they weren't required to mention their names.

- Pilot study:**

- Pilot study was conducted to test the feasibility, clarity and applicability of the instruments and to estimate the time needed to collect the data. It was carried out on 10% of the total sample (n=7), no modifications were done to the instruments. The piloted subjects were included in the final sample.

- Field work**

- A. Preparatory phase**

- The researcher started to develop observational checklist to assess the actual nursing care standards (structure and process standards) in surgical care units
 - The researcher reviewed the current available literature (e.g., articles, textbook, journals, etc.,) to modify the study instruments of data collection then approved by the study supervisors. The researcher

- selected all staff nurses working in the surgical care units (critical and intermediate).

- The preparation, construction and approval of the data collection instruments from supervisors consumed around three months. It started in September, 2019 and lasted at November, 2019.

- B. Implementation phase:**

- Data on assessment of structure's items were collected by the researcher through observing the structure standards that actually present in care units
 - Also, data were collected for assessment of actual staff nurses' performance. Each one of the nurse was observed by the researcher.
 - Collection of data was done in different times of work during the three shifts. . This was done six days per week.
 - The duration of the collection of data was lasted five months from February 2020 to June 2020. Three months were in the critical care units and the other two were in intermediate care units.
 - After the assessment of structure and process nursing care standards, the researcher began to design nursing care standards (NCSs) based on reviewing literature of nursing care standards and reviewing the previous standards (national and international). This stage took three months started from July 2020 to September 2020.
 - After designing the nursing care standards (NCSs), the researcher started to test validity of the standards by developing Delphi Panel consensus opinionnaire sheet which consisted of three rounds. This tool was designed to test the face and content validity of the designed nursing care standards (NCSs) by eliciting the opinions of

the jury members on the proposed standards. The jury members were 15 Experts. This was done through three rounds:

● **Frist round:**

The first round consisted of open questions. The questionnaire distributed aimed to elicit the experts' opinions about items to be included in the nursing care standards. This round took one month at October, 2020.

● **Second Round:**

After the first round, the researcher designed guiding standards by extensive reviewing of the literature. These guiding standards consisted of two sections. The first section discussed structure standards that should be present in surgical care units and the second section mentioned process standards that the staff nurse should done. The Delphi panel's consensus opinionaire sheet was given to each Expert and aimed to elicit the experts' opinions and consensus about agreement or disagreement about the details of these sections included in the guiding designed standards. The second round took two months. It was started at November 2020 and lasted at December 2020.

● **Third round:**

After analysis the second round's responses, the sections which the Panel of Experts in nursing care standards identified was not clearly and comprehensively written were reworded after extensive reviewing on literature concerning nursing care standards. All comments and disagreements by the panel of experts were taken into consideration by the researcher. The modified standards were resent to the panel of Experts to see that their feedback had been integrated and they were asked to review the guiding standards and give

any comment. The third round took two months. It was started at January lasted February, 2021.

Statistical analysis:

Data entry and statistical analysis were done using the Microsoft Excel and Statistical Package for Social Sciences (SPSS) program version 22. Data were presented in tables and figures using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. T-test and P-value was used to test correlation between variables. Also, Chi-square for trend was used to assess the statistical significance of trends of scale. Statistical significance was considered at $p\text{-value} \leq 0.05\%$ and non-significant difference was considered at $P > 0.05\%$. Collected data were statistically analyzed, presented and tabulated using appropriate reliable, valid statistical methods & tests.

Results:

Table (1): Clarifies personal characteristic of studied staff nurses. It shows that more than half of staff nurses (61.5%) working in critical surgical ICU, while (38.5%) working in intermediate surgical ICU. the largest proportion of staff nurses were in the age group 20-< 30 years (73.8%). As regards gender, the majority of staff nurses were female (63.1%). As for nursing qualification, more than half of staff nurses (55.4%) had nursing diploma. Regarding marital status, about half of the staff nurses were married (52.3%). Concerning years of experience, more than half of staff nurses (52.3%) had experience 1-<5 years.

Table (2): Reveals frequency distribution of the structure and process standards pre-implementing a designed nursing care standards in

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critical and intermediate care unit. The table discussed that there was no statistically significant differences in both structure and process standards pre implementing nursing care standards in critical and intermediate care unit.

Table (3): Describes the personal characteristic and place of job of jury group in the study sample. The table showed that more than fifty (60.0%) of experts are professor in nursing administrator. As regards the Job place, about three quarter (75.3%) of jury members work in Menoufia University.

Table (4): Illustrates Delphi Panel's agreement about validity of general format of nursing care standards. As noticed from table, there was no statistical significant difference regarding Delphi Panel's agreement about validity of face validity of nursing care standards in the Delphi rounds as p-value (>0.05%).

Table (5): reveals total means practice score of Delphi panel's agreement about designed structure standard components (content validity) in second and third rounds. It was noticed that there was a general improvement in the total mean score of experts in all items in round 3 as compared to round 2 with the mean (43.8±3.7) and (34.27±16.4) respectively. There was statistically significant difference observed between rounds as p-value (<0.05%).

Table (6): shows total means practice score of Delphi panel's agreement about designed process standard components (content validity) in second and third rounds. It was noticed that a general improvement in the total mean practice score of experts in all items in round 3 as compared to round 2 with the mean (24.8±3.68) and (17.93±10.9) respectively. There was statistically significant difference observed between rounds as p-value (<0.05%).

Table (1): Distribution of the studied nurses according to their personal characteristic

Personal characteristic items	No	%
Work unit:		
Critical surgical ICU	40	61.5
Intermediate surgical ICU	25	38.5
Age:		
<20 years	14	21.5
20-<30 years	48	73.8
30-<40 years	3	4.6
Mean± SD	22.14±4.3	
Gender:		
Male	24	36.9
Female	41	63.1
Nursing qualification:		
Nursing diploma	36	55.4
Diploma with specialty	0	0
Associated degree in nursing	19	29.2

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Bachelor's degree in nursing	10	15.4
Marital status:		
Married	34	52.3
Not married	31	47.7
Years of experience:		
1-<5 years	34	52.3
5-<10 years	28	43.1
10-<15 year	3	4.6
Mean± SD	5.45±3.13	

Table (2): Frequency distribution of the structure and process standards pre implementing a designed nursing care standards in critical and intermediate care units.

	Maximum score	Critical	Intermediate	t-test	p-value
Structure	142	116±12.54	120±15.4	1.22	0.096
Process	66	39.18±10.35	40.00±10.35	0.043	0.966

Table (3): Distribution of Jury (Expert members) according to their personal characteristic and place of job. (No=15)

Personal characteristic		No	%
specialty	Professor in Nursing Administrator	9	60.0
	Professor in Medical Surgical	4	26.6
	Professor in Pediatric	1	6.7
	Professor in Medicine	1	6.7
Job place	Menoufia University	11	73.3
	Cairo University	3	20.0
	Ain Shams University	1	6.7
Years of experience	Mean±SD	25.8±4.58	
	Median	26	
	Range	15-30	

Table (4): Delphi Panel's agreement about validity of general format of nursing care standards (NCSs) (No=15)

	Maximum score	Round 2	Round 3	T.test	p.value
Face validity	9	5.4±2.1	6.33±0.62	1.63	0.115

Table (5): Total means score of Delphi panel agreement about designed structure standard components (content validity) in second and third rounds (No=15).

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Designed structure standard components	Maximum score	Round 2	Round 3	T.test	P.value
Vision/mission	5	3.40±2.35	4.87±0.35	2.386	0.024*
Objectives	5	3.13±2.42	4.60±1.12	2.133	0.042*
Policies and procedures	5	3.73±2.19	4.87±0.52	1.954	0.061
Rules and regulations	5	3.60±2.13	4.53±2.67	2.192	0.037*
Appropriate environment	5	4.40±1.06	4.93±0.26	1.901	0.068
Nurse's performance appraisal	5	3.87±1.88	5.00±0.00	2.329	0.027*
Mix staff	5	3.87±2.07	4.93±0.26	1.985	0.057
Documentation system	5	3.67±2.06	4.80±0.77	1.996	0.056
Infection control measures	5	3.67±2.06	4.80±0.77	1.996	0.056
Staff development programs	5	3.87±1.60	4.93±0.26	2.553	0.016*
Material resources (supplies, machiens and equipments)	5	3.73±3.10	4.40±1.59	1.849	0.075
Whole structure standards	2	1.20±1.01	1.73±0.70	1.673	0.105
Total score	57	34.27±16.4	43.8±3.7	2.19	0.037*

Table (6): Total means practice score of Delphi panel agreement about designed process standard components (content validity) in second and third rounds (No=15).

Designed process standard components	Maximum score	Round 2	Round 3	T.test	P.value
Assessment	5	3.47±2.29	4.87±0.52	-2.305	0.029*
Nursing diagnosis	5	4.07±1.94	4.73±0.80	-1.228	0.230
Nursing planning	5	2.93±2.40	4.73±1.03	-2.664	0.013*
Implementation	5	3.13±2.29	4.93±0.26	-3.019	0.005*
Evaluation	5	3.73±2.09	4.87±0.52	-2.042	0.051
Plan for discharge	5	3.07±2.37	4.53±1.25	-2.118	0.043*
Whole process standard	2	1.33±0.98	1.87±0.52	-1.871	0.072
Total score	32	17.93±10.9	24.8±3.68	2.3	0.029*

Discussion

Nurses working in these units require highly technical preparations in order to enable them to meet the patients' needs and life threatening situations (Thabet, 2019). A standard of nursing care is especially needed in these units in order to guarantee a high level of

quality care and also is essential for quality evaluation and quality improvement. High quality care cannot be achieved in the absence of well-designed nursing care standards. Additionally, the hospital will not be accredited without having clear

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standards. Basic requirement for accreditation is a development of appropriate structure components (Basiony, 2018).

Observational checklist was designed for assessing structure standards and the process standard in surgical care units. The structure standards involve vision/mission, objectives, policies and procedures, documentation system, infection control measures, performance appraisal, qualified staffing in care units and staff development programs.

Process standard is the nursing process (NP) that helps nurses making a clinical decision. The nursing process is a scientific method that uses scientific reasoning, problem-solving and critical thinking for delivering holistic and quality nursing care. Implementation of the nursing process in the clinical settings improves the quality of nursing care, enhances the level of nurses' knowledge, improves the quality and quantity of nurses' documentation and increases their job satisfaction and self-efficacy (Semachew, 2017). In this process, the nurse needs to assess and identify the problem, review the existing solutions, select and implement the best option and ultimately evaluate them (Potter & Perry, 2017). Process standards involve assessment, diagnosis, planning, implementation, evaluation and patient discharge.

The present study revealed that nurses had poor performance. It was congruent with (Hanafy, 2020) who studied (Impact of implementing a designed specialized nursing care guidelines on patient's outcomes and nursing staff empowerment in pediatric cancer hospital), (Abd El-Mawgood, 2020) who studied (Impact of nursing guidelines on nurses' performance related to care of patient with chest tube) and also with (Atya, 2020) who

studied (Effect of an educational program on the nurses' performance regarding vascular access infection prevention) and documented in their thesis that nurses had poor levels of skills before the exposure to a training sessions.

After assessing the actual staff nursing performance in surgical care units, the nursing care standards was designed for surgical care units (critical and intermediate). The results of the study showed that the majority of the jury was satisfied with the designed nursing care standards (NCSs) and they are comprehensive and covering a wide range of nursing care provided at surgical care units after the third round. Therefore, the designed standards have acceptable content validity. The jury agreement was (86.7%) for structure standard and (93.3%) for process standard.

This finding was supported (Sabra et al., 2014) who studied (Developing and validating nursing care standards for patients with cancer receiving chemotherapy at South Egypt Cancer Institute at Assiut University), and (Elhanahy & Mohamed, 2019) who studied (Developing Nursing Care Standards for Postoperative Gastrointestinal Patients) and found in their studies that the majority of the jury members agreed with validity of designed nursing care standards.

Also, this result was consistent with (Mohamed, 2017) who studied (Effect of nursing care standards on nurses' performance in caring for patients with cardiac arrhythmias) and stated that the jury was agreed on nursing care standard and the agreement ranged between 85.7 and 100% and with (Fahmy, 2019) who studied (Designing and validating standards of nursing care for trauma patient) and found in their thesis a great agreement of jury

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members with designed nursing care standards.

Conclusion

- There was no statistically significant differences in both structure and process standards in surgical care units pre designing nursing care standards..
- The designed standards were considered valid by the Delphi Panel by (86.7%) for structure standard and (93.3%) for process standard.

Recommendation:

- Orientation programs should be provided for all newly nurses about the developed NCSs,
- The proposed standards should be reviewed and updated, if needed, yearly,
- Nurse managers must establish a research disseminating center in the hospital to collect and disseminate the best research findings,
- Nurse managers must initiate a link (partnership) between health institutions and academic institutions for adoption of research findings,
- Hospital administrators should give nurses sufficient time to learn skills of NCS,
- A reward system for nurses interested in NCS may be needed to help profile innovative practice,
- Health education booklet for NCS should be available and distributed for all nurses,
- Periodic in-service training program as an essential part of continuous upgrading of nurses' performance regarding patient care,
- Encourage nurses to attend nursing conferences, scientific meetings, and involve them in the developmental activities,
- Further research is needed to test the following:

- -Relation between proposed nursing care standards and organizational development.
- Influence of proposed nursing care standards on nursing job involvement.

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