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Intelligence Care: A Nursing Care Strategy in Respiratory Intensive Care Unit

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Abstract

Background: Working in respiratory intensive care unit (RICU) is multidimensional that requires nurses with special attributes to involve with the accountability of the critically ill patients.

Objectives: The aim of this study was to explore the appropriate nursing care strategy in the RICU in order to unify and coordinate the nursing care in special atmosphere of the RICU.

Materials and Methods: This conventional content analysis study was conducted on 23 health care providers working in the RICU of Sina and Shariati hospitals affiliated to Tehran university of medical sciences and the RICU of Baqiyatallah university of medical sciences from August 2012 to the end of July 2013. In addition to in-depth semistructured interviews, uninterrupted observations, field notes, logs, patient's reports and documents were used. Information saturation was determined as an interview termination criterion.

Results: Intelligence care emerged as a main theme, has a broad spectrum of categories and subcategories with bridges and barriers, including equality of bridges and barriers (contingency care, forced oriented task); bridges are more than barriers (human-center care, innovative care, cultural care, participatory care, feedback of nursing services, therapeutic-professional communication, specialized and independent care, and independent nurse practice), and barriers are higher than bridges (personalized care, neglecting to provide proper care, ineffectiveness of supportive caring wards, futility care, nurse burnout, and nonethical-nonprofessional communications).

Conclusions: Intelligence care is a comprehensive strategy that in addition to recognizing barriers and bridges of nursing care, with predisposing and precipitating forces it can convert barriers to bridges.

Keywords: Intelligence Care, Graneheim and Lundman's Method, Nursing Care, Respiratory Intensive Care Unit, Iran

1. Background

Working in respiratory intensive care unit (RICU) is multidimensional, complex, and demanding that requires nurses with special attributes to involve with the accountability of the critically ill patients, and it also requires the use of highly advanced technology to make rapid and accurate decisions (1).

The first dimension is special atmosphere of nursing and nurses in the RICU, which may include in high workload, job dissatisfaction and burnout. The dimension is so common issue that was experienced by the RICU nurses. Respiratory intensive care unit nurses should ordinarily interact with the most intense emotional aspects of life, and ceaselessly reply to the needs of patients and families, interruptions, lack of information about the patient, low autonomy, illegible physician writing, lack of necessary equipment, communication problems with coworkers, fatigue, high patient mortality and morbidity, ineffective interprovider communication (2), and high uncertainty and debate about the levels of him/herself knowledge and skills (3-5). Inadequate staffing is another

facet of the dimension. Nurses have reported spending remarkable time for performing nonclinical caring activities including housekeeping duties or delivering and retrieving food trays (6-10).

The second dimension is special RICU patients. Regarding to the unstable health and critical conditions of patients, they need to perform continuous monitoring, the use of high medical technologies at the bedside, and cooperating with a diversity of health care disciplines (11).

The third dimension is high advanced technology. This dimension is accentuated by life-sustaining devices including aortic balloon pumps, pacemakers, ventilators, and dialysis machines that all of which demand monitoring, precision, and expert judgments on the part of operators (12). It should be noted that problems with these equipments were reported to increase the noise level, medication administration errors by nurses, and poorly designed information technology (2).

The center of these dimensions is nurses, who are trained to use the technology as well as providing care

for the patient. Respiratory intensive care unit nurses are anticipated to do many things simultaneously including monitoring the patients' conditions and dealing with emotions that arise in connection with end-of-life decisions (12).

However, most of the clinicians' efforts are concentrated on the problems that are seen as immediately life-threatening and this fact may lead to lack of attention to other serious issues (1, 13).

The researchers think that a comprehensive nursing care strategy can play a cohesive role in caring in the RICU atmosphere; because a result of implementing nursing care according to a comprehensive strategy is empowering in internal and external levels for nurses. Feelings of increased self-esteem, increased knowledge and skills, doing good in the internal level and nourishing meetings, well-functioning teamwork and a good atmosphere in the external level are the effects of nurses' empowerment (14, 15). The final result of implementing the nursing care strategy is to empower the nurses in different dimensions including personal, practice, and theoretical qualities (16, 17), and reduce hospital length of stay, cost of care, mortality, and the RICU length of stay (18).

2. Objectives

This study aimed to explore the appropriate nursing care strategy in the RICU in order to unify and coordinate the nursing care in special atmosphere of the RICU.

3. Materials and Methods

3.1. Study Design

A conventional content analysis approach was used for data gathering and analysis. This approach authorized the researchers to explore and describe the data and develop the dominant and major themes of the participant's experiences. The qualitative content analysis used in the present study was based on the method that described by Graneheim and Lundman's, which was described in the following steps (19): 1. Transcription of interviews was done and total transcribed texts were read several times to attain the sense of whole; 2. Important text parts were divided into meaning units, then, these meaning units were categorized into condensed units; 3. Condensed units were categorized into subcategories; 4. According to the similarities and differences, subcategories were divided into categories; 5. Final categories according to the similarities and differences were formulated into theme that was expression of the latent content of the text.

3.2. Ethical Considerations

The current study was a part of the doctoral thesis in PhD degree of nursing education, which was approved by Sina trauma and surgery research center of Tehran university of medical sciences and Baqiyatallah univer-

sity of medical sciences, nursing faculty, Tehran, Iran. The ethical considerations were regarding to the autonomy, confidentiality, and anonymity of the participants during the study period and publication of the study. The aim, design of the study, and voluntary nature of participation were informed to the participants. In addition, an informed consent and permission for tape recording were obtained from each participant who agreed to be involved in the study. The ethical code of the article was 388.

3.3. Participants and Setting

The study was conducted in the RICU of Sina and Shariati hospitals affiliated to Tehran university of medical sciences, and the RICU of Baqiyatallah university of medical sciences, Tehran, Iran, from August 2012 to the end of July 2013. Our RICU wards have 32 active beds with average 14-18 bed turnovers each week.

The participants were 23 nurses. Inclusion criteria were working in trauma intensive care unit and willing to participate in the study. The sampling procedure was based on the purposeful sampling from the maximum variation type. All parts of the study were reviewed according to the consolidated criteria for reporting qualitative research (COREQ) statement (20).

3.4. Data Collection

Participants were interviewed several times according to the interviews and necessities for probing questions. The semi-structured interviews were conducted in a private room and face-to-face to gather in-depth data. Each interview continued between 20 and 90 minutes. Interviews commenced with a general open ended question and then continued with supplementary queries that provide further investigation about the participants and responses regarding to the experiences from caring in the RICU. The participants were given the opportunity, and were motivated to talk about occurrences or what was on their mind about the study-related issues. The data gathering and analysis were carried out simultaneously in order to develop themes related to the actuality of the experiences from caring in the RICU. Furthermore, to improve the data collection process, additional in-depth interviews, uninterrupted observations, field notes, patient's reports and documents were used. Information saturation was determined as the interview termination criterion.

3.5. Data Analysis

The MAX-Q-DATA software was used to assist the storage, searching, initial and final coding of qualitative data. Analyzing each interview was done by researchers independently. In areas where the three did not agree, definitions were explained and discussions lasted until consensus was achieved. Trustworthiness was achieved through several criteria including credibility, transferability, confirm ability, and dependability (21). Credibil-

ity was founded through member checking, prolonged engagement, constant comparative analysis. Prolonged engagement with the participants within the research field helped the first author to gain the participants' trust and a better understanding of the research fields. Member checking was done by asking the participants to ascertain the preliminary findings from the earlier interviews. Constant comparative analysis was done from the first to the twenty-three interview and was resulted differentiation in categorization of data. Transferability was achieved by maximum variance sampling. Recruiting participants from different experiences, genders, location of working, and responsibility were certified this criterion. Confirmability was obtained through asking 4 participants (2-baccalaureate nurse and 2-master nurse) to compare the results of the study with their own experiences. Multiobserver was done for improving the rigor of the study. Final criterion was dependability, which was

obtained by submitting the original data to theme for researcher team members and six reviewers.

4. Results

Participants included 17 baccalaureate nurses and 6 master nurses. Other demographic variables are presented in Table 1. The first interview was commenced in August 2012 and the interviews were terminated in July 2013.

During the data analysis, intelligence care was emerged as the main theme. The theme had a broad spectrum of categories and subcategories with bridges and barriers factors. Bridges factors optimize or facilitate effective nursing care and barriers factors optimize nursing care or accelerate ineffective nursing care. According to the ratio of bridges and barriers, three categories were emerged (Table 2).

Table 1. Demographic Variables of the the Participants

Person Number	Age, y	Gender	City	Experience, y	Education	Interview time, min
1	51	Male	Tehran	31	Baccalaureate	63
2	46	Male	Mashhad	26	Master of Science	90 and 85
3	45	Male	Tehran	7	Baccalaureate	40 and 45
4	38	Female	Tehran	17	Baccalaureate	53
5	29	Female	Tehran	13	Master of science	25
6	28	Female	Tehran	4	Baccalaureate	22
7	31	Female	Shiraz	10	Baccalaureate	19
8	30	Female	Tehran	2	Baccalaureate	21
9	29	Female	Tehran	7	Baccalaureate	30
10	35	Male	Tehran	15	Baccalaureate	18
11	42	Female	Tehran	17	Master of science	17
12	30	Female	Tehran	6	Baccalaureate	60
13	39	Female	Esfahan	12	Baccalaureate	47
14	50	Male	Tehran	30	Master of science	90 and 50
15	37	Male	Tehran	15	Baccalaureate	57 and 75
16	28	Female	Tehran	6	Baccalaureate	23
17	37	Male	Tehran	15	Baccalaureate	18
18	34	Male	Tehran	8	Baccalaureate	43
19	36	Female	Tehran	14	Baccalaureate	28
20	48	Male	Tehran	28	Master of science	43 and 40
21	48	Male	Tehran	26	Baccalaureate	15 and 27
22	36	Female	Tehran	15	Master of science	17
23	46	Female	Tehran	15	Baccalaureate	20
Mean ± Standard deviation	37.96 ± 7.6	-	-	14.74 ± 8.4	-	37.09 ± 20.8

Table 2. Categories and Subcategories of Theme of Intelligence Care

Category and Subcategory	Subcategory Frequency
Equality of bridges and barriers	
Contingency care	14
Forced oriented task	21
Bridges are more than barriers	
Human-center care	4
Innovative care	6
Cultural care	11
Participatory care	21
Feedback of nursing services	19
Therapeutic-professional communication	20
Specialized and independent care	36
Independent nurse practice	28
Barriers are higher than bridges	
Personalized care	8
Neglecting to provide proper care	25
Ineffectiveness of supportive caring wards	24
Futility care	11
Nurse burnout	30
Nonethical-nonprofessional communications	17

4.1. Equality Ratio of Bridges and Barriers

Nurses declared that nursing care in the RICU is a routine work influenced by day to day situations. Most of the patient cares including suctioning, physiotherapy, mouth washing depend on the ward situation. If the ward is busy, the possibility of neglecting for doing these cares is so high or in the majority of situations, the equipment for implementing some cares is not enough and then these cares were forgotten. Two subcategories were included in this category.

4.1.1. Contingency Care

All nurses declared that nursing cares for one ward to another may be completely different and all health care providers in the RICU should pay attention to this.

“Suctioning in our ward is not sterile but all nurses doing it very clear without wearing sterile gloves. The remarkable point is the rate of respiratory nosocomial infections from the time that this suctioning guideline was implemented is so reduced (women nurse, 45-year, 21-experience, six-participant)”

4.1.2. Forced Oriented Task

Some of health care providers affirmed that nurses have working guidelines and according to that, they should work in the RICU.

“I have two patients in my morning shift. One of them has no code but another was a 19-year pregnant woman with excessive emphysema. I was obliged to take care of both according to our clinical caring guideline. (Women Nurse, 38-year, 15-experience, Thirteen-participant)”

4.2. The Ratio of Bridges is More Than Barriers

Some nurses declared that if any nurse wants to do evidence-based nursing, it is possible with no extra equipment or educational facilities. The motivation and commitment to perform standardized nursing care can overcome most of the exposed problems in providing systematic, standardized, and evidence-based nursing. Eight subcategories were included in this category.

4.2.1. Human Center Care

Some of health care providers expressed that patients are multidimensional healthy persons with therapeutic needs.

“Nurse was very careful about patient privacy. This matter was so important that nurse in the patients’ file wrote please be careful for preserving the patient privacy (woman nurse, 43-year, 20-experience, twelve-participant)”

4.2.2. Cultural Care

Some nurses proclaimed that in most of the cases, cultural dimension of nursing care, especially in the RICU does not observe.

“Patient was very agitated and a nurse repeatedly injected to him sedation drugs. His daughter tells to his nurse that in healthy situation, her father used to read pray and Quran several times in day. During reading Quran, the hemodynamic of the patient was so stable and the dose of sedation drugs was so reduced (Man Nurse, 49-year, 28-experience, two-participant)”

4.2.3. Innovative Care

Some of the health care providers used to utilize from routine equipments and applying normal procedures for creating new facilities.

“Nurse attend aligned and continuously with Tri Nitro Glycerin (TNG), ordered to commence dopamine for multiple trauma patients. The reason is combination of TNG and dopamine can produce nitrous oxide. This gas is not available in hospital ... (man Physician, 46-year, 12-experience, three-participant)”

4.2.4. Participatory Care

Participation in providing the patient cares is one of the essential factors in the RICU. Taking part in patient care and helping colleagues are the backbones of nursing care in the RICU.

“My patient had lots of working. Two large dressings, a lot of infusion drugs, sepsis work up. Really, I didn’t know

what I should do first. If my colleague didn't help me, I wanted to cry loud out. (woman nurse, 38-year, 12-experience, eight-participant)"...

4.2.5. Nursing Services Feedback

Some nurses suggested that patients, even unconsciousness patients, are able to perceive the nursing care and they respond to good and bad nursing care.

"After I did exact assessment of a patient, I understood the patient wanted a rosary for mention of God and she didn't want to pull her lines. I opened her hands and foets and giving her a rosary for mention of God. To the end of my shift, she didn't perform any extra works (Male Nurse, 42-year, 20-experience, Fifteen-participant)".

4.2.6. Specialized and Independent Care

Some nurses expressed that the pulse of nursing is specialized and independent nursing care; although nurses are not independent in nursing in the RICU, they can do most of the nursing works independently and of course they were specialist and professional.

"Nurses are independent in determining of glasgow coma scale (GCS) level but in some matters, this action requires knowledge and experience (male nurse, 51-year, 30-experience, fourteen-participant)".

4.2.7. Independent Nurse Practice

Nurses declared that informing and observing the working domain is very vital for nurses, because nurses between health care providers in the RICU for their positions have very important and delicate role and for that, knowing and observing the divided lines with others is so pivotal.

"In night shift, the clinical parameters of a patient were so unstable. The nurse intubated the patient and was placed him/her on a mechanical ventilator. In the morning, the nurse expelled. The only reason was, the nurse had worn the physician's cloth although his performance in those situations was excellent (female nurse, 35-year, 14-experience, seventeen-participant)".

4.2.8. Therapeutic- Professional Communication

Communication in nursing care in the closed atmosphere of the RICU is very crucial and all nurses must be able to learn its principles and tenets, because caring in the RICU is a multidisciplinary and in most cases nurses are coordinators of this multidisciplinary scenario.

"The physician communication was very respectful and dignified to me and for this, called out me to participate in patient's visit. The only thing was my communication and observing the higher position of physician in ward, otherwise, regarding knowledge and experience, some colleagues were very higher than me but their communication was not Okay with the physician (male nurse, 34-year, 11-experience, Nineteen-participant)".

4.3. The Ratio of Barriers Is More Than Bridges

Some health care providers in the RICU believed that nursing and nurses do not need special and extra academic educational and clinical teaching and practices. Therefore, nursing care is technical helping to physicians and others to coordinate the procedures and doing routine and daily care from patients. Six subcategories were loaded in this category.

4.3.1. Personalized Care

Nurses declared caring in the RICU needs experience and sometimes these experiences do not found in the latest textbook. These experiences are important more than scientific methods presented in the up to date textbook.

"Patient had special irrigation solution for his wound. Each nurse dressed him with different methods and all of nurses declared their methods are scientific without presenting their documents (Male Nurse, 51-year, 31-experience, First-participant)".

4.3.2. Neglecting to Provide Proper Care

Some nurses pointed out there are lots of nursing works in the RICU that some of them are not essential and emergency in process of meeting these patients' needs, some of them are neglected or time and workload pressure are obliged nurses to do nursing cares without observing standard procedures.

"I wanted to get a new IV line, but another patient was so agitated and he was a very secretory patient. I took a pink angiocath and a cotton alcohol and then went over the head of patient; without any education and informing patient, I took him IV and then I went on the head of next patient (Male Nurse, 50-year, 29-experience, Twenty-participant)".

4.3.3. Futility Care

Some patients were expired and therapeutic processes continuity conducted only for removing legal responsibilities of physician. In these situations, nurses are perform their nursing cares without seeing even a very small positive feedback from the patient and the physician ordered repeatedly day-to-day without considering the patient's situations.

"Patient was very heavy, had three big bed sores with copious secretions. This so high nursing care patient has no positive feedback. (female nurse, 34-year, 9-experience, five-participant)".

4.3.4. Ineffectiveness of Supportive Caring Wards

For saving the discharge process of hospitalized patients in the RICU, intensive care nursing should be continued after patient discharge from the RICU; because the time after discharge is a crucial moment to prevent from readmission to the RICU.

"Patient was very bad in weaning. The way it was, physi-

cian together nurses could extubated patient after 56-day hospitalization in the RICU. My next shift was tomorrow morning and surprisingly, I saw the patient in his previous bed. All the efforts of health care providers were wasted (Male Nurse, 42-year, 21-experience, Twenty two-participant)".

4.3.5. Nurse Burnout

Several factors were declared by nurses that facilitate the nurse burnout including nonnursing works, extra time working with centrality of nonnursing works.

"I had a very heavy patient and my colleagues in my shift were women. I was persuaded by headnurse to participate to change the position of the patient. This patient had three para-clinical procedures that my presence was necessary. (Male Nurse, 39-year, 16-experience, Eleven-participant)".

4.3.6. Nonethical-Nonprofessional Communications

Some locations were excellent for earning higher money for ordinary nursing works; however, these locations had special and sometimes odd and exotic laws and regulations for working as a nurse. Nurses should signature a formal contract for observing that.

"Matron told me the important item of nursing work here, is adornment and facial appearance. Here, physicians have higher positions and nurses must not speak against them even the nurses are right; because some conflicts between nurses and physicians are acceptable and all the times, nurses need to be silent. (Female Nurse, 38-year, 15-experience, Twelve-participant)".

5. Discussion

The current study declared that nursing care in the RICU needs a strategy to manage and handle the factors that surround nursing care. Intelligence care is a suitable strategy to overcome the nursing care problems in the RICU and has a broad spectrum of bridges and barriers. The ratio of these factors determines the effectiveness or ineffectiveness of nursing care. Intelligence care is a strategy to convert the barriers to bridges and can facilitate and accelerate the bridges factors. Intelligence care is a predisposing and precipitating factor that by describing barriers, can convert them to bridges. Two roles of intelligence care are important to know the barriers and bridges and then minimize the effect of barriers and maximize the effect of bridges. In the following the different effective ratios of bridges and barriers are discussed.

When the ratio of bridges and barriers are equal, implementing nursing cares depends on the situation. Variability of this kind of caring is so high, because the atmosphere of the RICU is so changeable and for this reason, nursing cares were influenced by that. Working in this emergency and changeable situation needs to proper knowing the predisposing and precipitating of bridges and barriers (22, 23) (Figure 1).

When the ratio of bridges is more than barriers, accomplishing of nursing cares depends on the evidence-based practice or nursing. In this situation, knowledge and skills of nurses are in the acceptable level and this matter can regulate communications of nurses with each other and other health care providers. The feedback of this approach for nursing care is enhancement of nurses and nursing position in the RICU to optimize patient care. Therefore, authenticity of nursing performances confirms and then, independent and specialized nursing care is improved and recognized by other significant health care providers in the RICU (24-27) (Figure 2).

When the ratio of barriers is more than bridges, carrying out nursing cares depends on the personal idea and there is no systematic or acceptable method for nursing care. In this situation, patient care is not standard and is so different, because each nurse has special and sometimes unique caring experience (28, 29) (Figure 3).

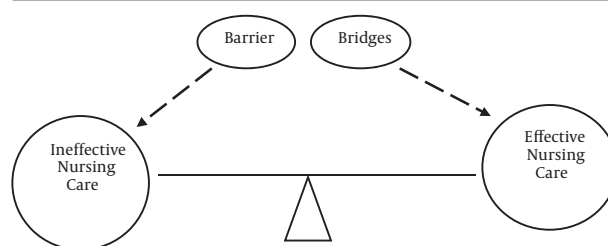


Figure 1. Equality of Bridges and Barriers

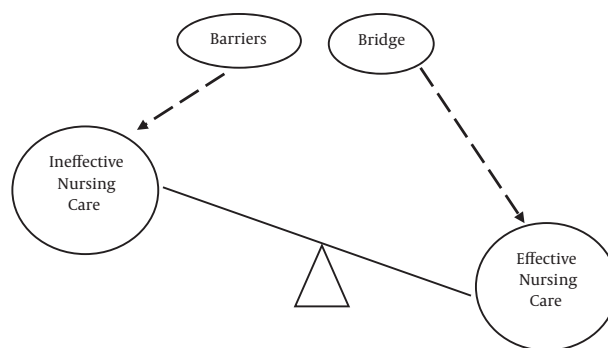


Figure 2. Bridges Are More Than Barriers

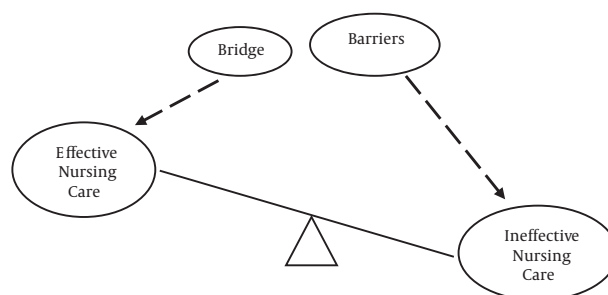


Figure 3. Barriers Are Higher Than Bridges

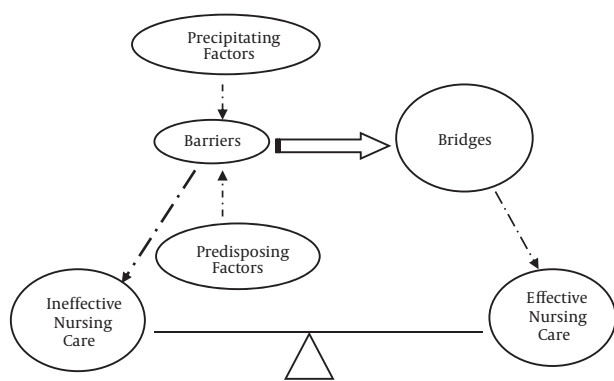


Figure 4. Intelligence Care With Describing Precipitating and Predisposing Forces Can convert Barriers to Bridges

Intelligence care is recognition and knowing bridges and barriers of nursing care and deriving predisposing and precipitating forces from the heart of the RICU; because this is very important to obtain these forces from the RICU in order to plan and rearrange program according to the real situations and conditions (Figure 4).

The study had some strength and weak points. The main limitation of the study was related to sampling strategy and its inability to generalize the findings to target population. The main strength of the study was in-depth participants investigation and capturing the hidden meaning of the phenomenon.

Nursing care in the RICU is a multilayer concept, aligned with special atmosphere of the RICU needs a strategy to optimize nursing care. Intelligence care is a comprehensive strategy in addition to recognizing barriers and bridges of nursing care, with predisposing and precipitating forces can convert barriers to bridges. Furthermore, nurses can utilize this strategy to ameliorate nursing care in the RICU and subsequently, nurses and nursing care position enhance and can play an important role in multidisciplinary multilayer health care providers' team.

The results of the present research can be useful for nurse managers in hospital in a general level and for head nurses and nurses of the RICU in a specific level to redesign and reorganize the nursing care process of hospitalized patients.

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Footnotes

Authors' Contributions: Amir Vahedian-Azimi, Abbas Ebadi, Soheil Saadat, and Fazlollah Ahmadi were responsible for the study concept and design, data collection

and analysis, preparing the final draft of the manuscript and English editing and made critical revisions to the paper for important intellectual content.

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