Synergy model in clinical teaching of critical care among MSc students of nursing and patients with cardiovascular diseases

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Abstract

BACKGROUND: One of the ways to modify education is to design clinical education courses based on advanced learning models and systematic collaboration between variables of different fields of clinical practice. Nurses and academic members in nursing and medical schools play a key role in professional and personal promotion of nursing students. This study adopted the synergy model to determine and assess the characteristics of patients and nurses.

METHODS: In an action research, the synergy model was performed among 12 MSc students of nursing who were selected by convenient sampling. The study was carried out during the second semesters of two academic years (2008-9 and 2009-10) in the coronary care unit (CCU) of Nour Hospital and cardiac surgery intensive care unit (ICU) and cardiac surgery ward of Chamran Hospital, both affiliated to Isfahan University of Medical Sciences, Isfahan, Iran. After collecting the characteristics of patients and nurses by a questionnaire, a valid and reliable standardized questionnaire was used to classify the characteristics based on the synergy model. The mean scores were then judged.

RESULTS: Classification of characteristics of nursing students made by instructors and nurses showed the mean scores of the students' function in clinical judgment, caring practices, interdisciplinary collaboration, systematic thinking, and facilitation of learning to be 3. The students scored 1 (minimum) in advocacy and moral agency response to diversity, and clinical inquiry.

CONCLUSION: The findings of this study showed the need to promote mutual cooperation between nursing and medical schools and hospitals in education of nursing students. It also highlighted the necessity of developing care for clients and their families in a systematic planning framework. The synergy model is a functional approach to planned education. It can be used to help students acquire the ability to respond to the needs of patients and their families in the form of a learning system.

Keywords: Clinical Education, Nursing Students, Synergy Model, Characteristics, Practice Learning Team (PLT).

Introduction

Nursing is a practical profession. Therefore, clinical education is a fundamental part of nursing training course.[1] Clinical education is a complex process affected by many factors and variables. Clinical environment is of high importance in teaching medical sciences.[2] It encompasses all the clinical conditions and stimuli affecting on learning, provides the background for learning, and simultaneously acts as a factor involved in learning and teaching. It can thus play a role in supporting, preventing, or limiting the learning situations of students.[3] The role of nurses and faculty members of schools of medicine and nursing cannot be ignored in professional promotion and individual development of students. In clinical education, appropriate experiences must be selected

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to enable collaboration and collaborative participation by involving influential variables within the clinical territory. Therefore, students will need to achieve the required goals and would thus affect patient care.[4] Designing clinical education courses based on advanced learning models and using the planned participation within the realm of clinical variables would guarantee such experiences. Since nursing is a science, nursing education has to make students to apply nursing theories in practice.[5]

Synergy model was introduced in 1993 by the American Association of Critical Care Nurses. Using different methods, this model causes progression of nursing competencies and ensures maximum coordination of the nurse with individual needs of patients. As a main concept, this model indicates that the needs and characteristics of patients and their families might confront and influence the characteristics of nurses.[6] Synergy is a situation in which the needs and characteristics of the patients and the clinical ward are coherent with the capabilities of the system and its nurses. Providing maximum care depends on harmonization between characteristics of patients and abilities of nursing. Synergy is a professional model which evaluates special characteristics of critical care nurses in various functional domains along with care needs of patients in different aspects. It tries to maximize the commitment of nurses to the needs of patients and thus achieve the best possible results. In this model, 8 characteristics of critical care nurses include clinical judgment, spiritual and ethical support and advocate, care activities and practices, coordination and cooperation, systematic thought, response to diversities, clinical research or inquiry, and facilitation of learning (Figure 1). Likewise, the 8 characteristics of patients include resiliency (return to previous situation), vulnerability, stability, complexity, availability of resources, participation in care giving, participation in decision-making, and predictability (Figure 1). Each characteristic is scored as 1, 3, or 5 according to its situation.[7] By the application of synergy model, nurses are able to prepare the environment for effective care provision. Performance of nurses can result in maximum rates of satisfaction among patients, families, health care providers, and the health care system.[8]

In this model, the goal is to pay attention to and coordinate with the characteristics of patient, nurses, ward, and organization. The capabilities of MSc students are thus promoted from merely using their performance abilities toward being an expert through implementation of logical, systematic, planned, and coordinated activities and practices. This can establish

more sense of support and safety, increase professional capabilities, and facilitate interaction between professional and standard care providing. Hence, implementation of this program among faculty members of schools of medicine and nursing might help to improve the learning process and care promotion among the nurses and students at a ward.[3]

By passing this clinical course and applying the synergy model, students would learn to enjoy the ability of evaluation and recognition, identification of needs and characteristics of patients and nurses, subjective and objective data extraction. They would ultimately be able to provide care measures and programs based on evidences and documents. The course would thus promote the capabilities of nursing students in motivating the patients and their families toward the expected results.

In a cardiovascular patient, such a program would specifically intend to enable the students to plan for the patient with cardiovascular disorder and cardiovascular surgery based on synergy model and to use it in clinical situation. Therefore, according to the synergy model, the student should be able to identify and classify the 8 characteristics of the patient (e.g. resiliency through compatibility and compensatory mechanisms, vulnerability by determining real and potential stressors, etc.). The student should also be able to identify and classify the 8 characteristics of the nurse based on synergy model such as clinical judgment, interprofessional collaboration, and having systematic thoughts which are required to achieve the desirable patient outcomes. Moreover, having obtained the objective and subjective data by reviewing and recognition based on the synergy model and considering the needs of the clinical domain including patient, family, nurse, ward, and hospital system, the student should be able to determine, plan, implement, and analyze care practices and measures based on evidences and documents. The student should also be able to design and implement a care program based on the synergy model to supply and achieve the expected desirable results (e.g. relaxation, health achievement, satisfaction from care, lack of disease complications, improvement in quality of life, changes in efficiency and functioning, and preventing re-hospitalization to control disease costs). Finally, the students should be able to develop and assess the program to respond to the needs of patients and their families, society, and clinical environment and to involve their clinical coworkers in facilitating the learning process.

Materials and Methods

This action research study was conducted during the

second semester of two academic years (2008-9 and 2009-10) in the intensive care unit (ICU) of Nour Hospital and coronary care unit (CCU) of Chamran Hospital, both affiliated to Isfahan University of Medical Sciences, Isfahan, Iran. The study population included MSc students of critical care nursing. Using convenient sampling method, 12 students in their second semester were selected as study subjects. After determining the characteristics of nurses and patients by a questionnaire, they were classified according to a valid and reliable standardized questionnaire based on the synergy model. Mean scores were used in data analyses.

In order to classify the characteristics, score 1 indicated the minimum score, while 3 and 5 corresponded with average and maximum scores, respectively.

The model was designed based on Banner theory and the stages of competency were arranged from beginner to expert. Therefore, in a course called "*Specific Critical Care Nursing II*", MSc students in the second semester learned about the theoretical concepts of the synergy model and the properties of cardiovascular diseases. They then applied their cognitive, emotional, and psychosomatic capabilities in the field of the synergy model to provide care to the patients in CCUs and cardiac surgery wards under the supervision of their professor.

Before providing a report from the synergy model, the students attended one of the CCU and intensive care cardiac surgery units with the presence of their professor and reviewed and recognized patients based on the synergy model. The professor also provided the necessary guidance and instructions in order to increase the knowledge and performance of the students to use this model. He also helped the students to extract, identify, and classify the characteristics of the patient and the nurse. After this stage, the students independently presented in the wards with the coordination of a supervisor instructor and implemented the model on a number of patients. At each stage, the students were allowed to receive help and guidance from the course professor and other professors of the school of medicine and nurses in practice learning teams (PLTs). The students could also specific faculty members of school of medicine, determined in the clinical program, and receive necessary clinical guidance. They categorized this assistance in the characteristics of nurses and clinical domain of interprofessional collaboration. Minimum and maximum guidance were recorded at levels of 1 and 5, respectively. The professors were provided with the form related to the 8 characteristics of patients and were asked to prepare teaching materials according to the mentioned characteristics. They were also asked to describe and explain compensatory methods and to emphasize on intelligent responses of body systems in critical situations.

In this study, nurses of PLTs were used in education of the students. A PLT is a group of employed nurses in practice along with nursing faculty members. The collaboration between these two groups would support nursing students' learning process and establish a team in clinical environment. The performance of a PLT would strengthen all involved individuals and help them benefit from the results in the development of their capabilities. Our PLT nurses had passed 102 hours of critical care theoretical classes in school of nursing and 120 hours of clinical practical courses in intensive units based on a special program during a semester. They received certificates of passing the courses from the Research Deputy of Isfahan University of Medical Sciences.

Results

The results are summarized in tables 1-3.

Table 1. The ability of students in classifying the characteristics of patients before and at the end of team work

| Patient Characteristics	Before	After
Stability	1	3
Vulnerability	3	3
Resiliency through compatibility and compensatory mechanisms	1	5
Complexity	1	3
Resource availability	1	3
Participation in care	3	5
Participation in decision making	3	3
Predictability	1	5

* Values are presented as mean scores.

Table 2. Mean classification scores of characteristics of the nurses in the ward provided by the students

Characteristics of Nurses	Mean Score
Clinical Judgment	5
Advocate/moral agency	1
Caring practices	3
Collaboration	3
Systematic thinking	3
Response to diversity	3
Learning facilitator	3
Clinical inquiry	1

Table 3. Mean classification scores of characteristics of the students by the instructor and nurses after internship

Characteristics of Nurses	Mean Score
Clinical Judgment	3
Advocate/moral agency	1
Caring practices	3
Collaboration	3
Systematic thinking	3
Response to diversity	1
Learning facilitator	3
Clinical inquiry	3
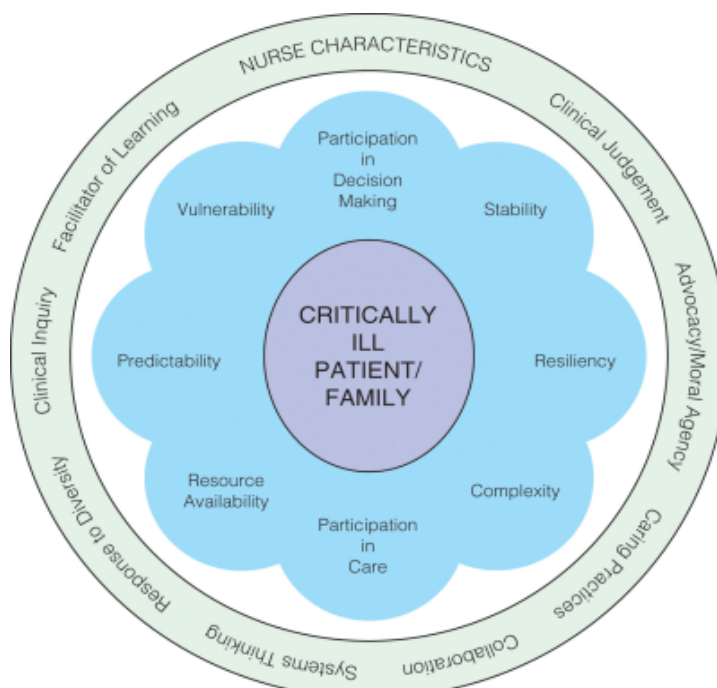
Figure 1. Characteristics of patient and nurse based on synergy model

Discussion

This patient-centered model focuses on description of patient needs. Moreover, particular attention is paid to the learner's status along with the needs of the student, patients and their families, and the nurse. Using this model, the student would notice the diversity, differences, and variety of care provision to individuals, families, and societies. This model can classify not only learning facilitators for patients, families, nurses, and students, but also the collaboration between the health care team. It can

thus develop and promote the interdisciplinary relationship. For the first time, physician participants in this study considered the synergy model and held educational sessions or clinical rounds based on the characteristics of patients. As a result, a systematic attitude based on patient needs in the synergy model was employed by this study for the first time.

In implementation of this model, nurses had a more effective interaction with the students. Their capabilities were hence used by the students. On the other hand, the capabilities of the students were also used in order to provide teaching aids in facilitating patients' learning. Such capabilities were promoted through the classification of the characteristics of nurses. Assigning the students to perform tasks based on characteristics made the tasks applicable. This model provides an accessible practical way for establishment and development of planned education. Applying the model would enable the student to respond to the needs of patients and their families in the form of a learning organization[9] whose responsibilities are 1) strengthening the participation and collaboration between practice and teaching; 2) establishing, facilitating, and supporting clinical learning for good practice and information exchange between the team members; 3) enhancing clinical capability based on learning and updated practice; 4) establishing a supportive source for professional development of clinical staff; 5) providing feedback from the obtained learning experiences of the students and forming practical programs to emphasize on points of view and appropriate things to do; and 6) reducing the gap between theory and practice.

In addition to teaching about vulnerability, the physiology and natural tasks of systems and also compensatory methods and intelligent systems in response to a critical situation were emphasized. However, conventional or traditional education emphasizes on pathology, i.e. what happens next after structures and systems of body are damaged. On the contrary, we believe that life has been designed intelligently and it is necessary to consider factors such as hope, faith, religion and morality, and social support which are effective on recoverability but had not been considered in developing our clinical courses.

Since this was an action research with a very limited number of participants, further studies on bigger populations are required to generalize our results. The problem is that only 6 students pass this course annually and two more periods would be necessary to provide an adequate number of subjects (such a process is currently in progress). In addition, the lack of experience in applying educational models among the students makes the participants to hesitate in the beginning due to ambiguity and uncertainty.

This feeling would soon be replaced by trust when they realize the educational outcomes of the model.

Finally, it is necessary for the students to develop, implement, assess, and present their assignments based on the educational program in order to cover the educational needs of the ward and its nurses. Therefore, for greater participation of the team and nurses, assigning tasks as a part of retraining programs of nursing staff and issuing certificates for participated subjects should be planned.

Acknowledgments

Conflict of Interests

Authors have no conflict of interests.

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