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A Validity Study on the Application of the Nursing Intervention Classification to Perioperative Nursing Activities in Korea

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Abstract

This study examines perioperative nursing activities based on Nursing Interventions Classification (NIC) in order to explore the application of to such activities in Korea. The instrument in this study is based on the fourth edition of NIC & perioperative nursing activity factors identified by precedent studies in Korea. Data was collected from 39 operating room nurses who had worked in the operating room for over 10 years and analyzed using validity. Korea's perioperative nursing activities were classified into 5 domains, 14 classes, 36 interventions, and 46 perioperative nursing activity factors.

Keywords: *Nursing, Intervention, Classification, Perioperative, Activity, Factors, Precedent*

1. Introduction

1.1. Research background

Medical advancements have led to a diversification of surgery types, methods, procedures, and equipment. Perioperative nurses play an increasingly important role in the care of patients before, during, and after operations [1]. They are assigned to a wide range of tasks, ranging from simple errands to complex procedures. To provide patients with quality medical services and enhance professionalism in nursing, the role of nurses must be clearly specified. It follows that utmost priority should be given to the standardization and systematization of nursing terminology [2].

Developed by McCloskey and Bulecheck, the Nursing Interventions Classification (NIC) is a comprehensive list of nursing interventions performed by nurses. It contains core nursing interventions identified by the Association of Perioperative Registered Nurses in 45 operating rooms, and is considered highly valid in the description of perioperative nursing interventions [3][4][5].

Studies by local researchers on NIC-based nursing activities were mostly focused on hospital wards [6][7][8][9][10][11][12]. Similarly, research related to NIC interventions has not examined how they can be applied to perioperative nursing activity factors [13][14][15].

For NIC to be efficiently applied to the field of nursing in Korea, the local context of nursing intervention activities must be considered [16]. To facilitate the standardization of

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perioperative nursing activities, it is essential to first determine the scope of such activities and then explore possible ways of integrating NIC.

Against this backdrop, this study seeks to apply NIC interventions to the classification of perioperative nursing activities that are being conducted in operating rooms in Korea.

1.2. Research goals

This study examines perioperative nursing activities based on NIC in order to explore the application of NIC to such activities in Korea. The specific goals are as follows.

1) Perioperative nursing activity factors conducted in operating rooms in Korea are examined through a literature review.

2) Perioperative nursing activity factors are classified using interventions in the fourth edition of NIC, and a validity questionnaire is developed.

3) Perioperative nursing activities in Korea are classified based on NIC.

1.3. Definition of terms

1.3.1. Perioperative nursing activity factors

Perioperative nursing activity includes those activities performed by nurses in the preoperative, intraoperative and postoperative phases of surgery. Perioperative nursing activities are all nursing actions that have been provided to a surgical patient with a nursing plan to collect and assess the surgical patient's health data to make a nursing diagnosis and achieve the expected outcome [17]. Perioperative nursing activity factors in this study are the 46 perioperative nursing activities identified by the prior study of the care provided in the operating room.

1.3.2. Nursing Intervention Classification (NIC)

The Nursing Interventions Classification (NIC) is a care classification system which describes the activities that nurses perform as a part of the planning phase of the nursing process associated with the creation of a nursing care plan [18]. In this study the Nursing Intervention Classification is 4th edition consisting 6 domains, 30 classes, 514 nursing interventions.

2. Research methods

2.1. Research design

The present research, which classifies perioperative nursing activity factors conducted in operating rooms in Korea using NIC interventions, is a descriptive survey study that investigates NIC-based perioperative nursing activities.

2.2 Research subjects

The research subjects used to assess the validity of NIC-based classification of perioperative nursing activities were 39 clinical nurses with at least 10 years of experience in operating rooms of tertiary care hospitals in Seoul.

2.3. Research tools

For the investigation of perioperative nursing activity factors, this study developed preliminary items composed of 50 perioperative nursing activity factors based on the classification adopted by the Association of Perioperative Registered Nurses, "operating room nursing activities" as used by Gye-suk Yun, "operating room nursing activities" as used by Jung-ho Park et al., "perioperative nursing activity factors" as defined by Sun-ok Yun, and "perioperative nursing activity factors" as proposed by Kyung-hwa Kim [19][20][21][22].

Content validity was assessed by an expert group, comprising one professor of nursing and five nurses with a master's degree and at least 10 years of experience in operating rooms. A total of 46 perioperating nursing activity factors was derived. The 46 factors were classified according to the 36 NIC interventions, and the final classification list was reviewed by the expert group.

To determine the validity of classifying the 46 perioperative nursing activity factors under the 36 NIC interventions, this study established the following evaluation criteria: clarity, homogeneity, inclusiveness, and mutual exclusiveness. Each item was rated on a 5-point Likert scale, with a higher score indicating greater validity. The Cronbach's Alpha of items in the classification validity questionnaire fell in the range of .71 to .99, and the explanatory power obtained from an exploratory factor analysis was 61-89%.

2.4. Method of data collection

After sending a request for cooperation to the tertiary hospital, the researchers explained the purpose of the study in person to the research subjects. The subjects were asked to respond to the questionnaire by self-marking, and the responses were collected by the researchers themselves. All 39 copies of the questionnaire were completed. None of the questionnaire items was omitted.

2.5. Method of data analysis

The collected data were analyzed in Window SPSS 15.0 as described below.

1) The general characteristics of subjects were expressed in real numbers and percentages.

2) The reliability of the questionnaire was assessed using Cronbach's Alpha.

3) The construct validity of the questionnaire was assessed using an exploratory factor analysis.

4) The validity of NIC-based classification of perioperative nursing activity factors was assessed using the average value of each evaluation item: clarity, inclusiveness, mutual exclusiveness, and homogeneity.

3. Results

3.1. General characteristics of research subjects

The subjects were 39 nurses with at least 10 years of working experience in operating rooms. Their general characteristics were as follows. By age, 33 fell in the 30-39 age group (84.6%) and 6 were age 40 or older (15.4%). By years of experience, 31 had worked for 10-14 years (79.5%) and 8 for 15 years or more (20.5%). By level of education, 30 had a university degree (76.9%), and 9 had at least a master's degree (23.1%). By rank, 7 of the subjects were head nurses (17.9%), 20 were charge nurses (51.3%), and 12 were general nurses (30.8%).

3.2. Validity of classification of perioperative nursing activity factors based on NIC interventions

3.2.1. Clarity of classification of perioperative nursing activity factors based on NIC interventions

The distribution for clarity was 4.08-4.95. The highest clarity of 4.95 was attained by intervention “Surgical Assistance” and nursing activity factor “Arrangement of instruments and supplies on the instrument table,” as well as intervention “Surgical Precaution” and nursing activity factor “Checking and management of instruments and equipment.” Intervention “Patient Rights Protection” and nursing activity factor “Ethical activities (patient’s supporter)” had the lowest clarity at 4.08.

3.2.2. Inclusiveness of classification of perioperative nursing activity factors based on NIC interventions

The distribution for inclusiveness was 3.67-4.92. The inclusiveness towards nursing activity factor “Documentation of nursing record related procedure” of intervention “Documentation” was the highest at 4.92, while the inclusiveness towards nursing activity factor “Room temperature and environment control” of intervention “Environmental Management: Comfort” was the lowest at 3.67.

3.2.3. Mutual exclusiveness of classification of perioperative nursing activity factors based on NIC interventions

The distribution for mutual exclusiveness was 4.01-4.85. The highest mutual exclusive of 4.85 was achieved by intervention “Quality Monitoring” and nursing activity factor “Quality improvement activity,” as well as intervention “Vital Signs Monitoring” and nursing activity factor “Patient monitoring.” Interventions “Emotional support” through “Anxiety Reduction” (i.e. “Emotional support,” “Presence,” “Touch,” “Active Listening,” “Anxiety Reduction”) and nursing activity factor “Emotional Support” showed the lowest mutual exclusiveness of 4.01.

3.2.4. Homogeneity of classification of perioperative nursing activity factors based on NIC interventions

The distribution for homogeneity was 3.92-4.79. Interventions “Environment Management: safety,” “Fire Setting Precautions,” “Pressure Ulcer Prevention,” and “Pressure Management” classified under nursing activity factor “Environmental safety verification” had the highest homogeneity at 4.79, while nursing activity factors “Verification of patient and patient’s nursing & medical history,” “Verification of patient’s preparation before surgery,” and “Preparation of foley catheterization” classified under intervention “Surgical Preparation” had the lowest homogeneity at 3.92.

4. Discussion

This study attempted to investigate perioperative nursing activities in Korea based on NIC. The 46 perioperative nursing activity factors were categorized into 36 NIC interventions, which include the 16 interventions used by Yoon Young Lee and Kwang Ok Park in the classification of core nursing interventions in operating rooms based on NIC [23]. The results

coincide with 23 out of 45 interventions from the study of core nursing interventions using the NIC domain, class, and intervention with members of the Association of Perioperative Registered Nurses as subjects [5]. The difference in results can be explained by the present study's focus on perioperative nursing activities.

Perioperative nursing activity factors as identified in Korea-based studies are different from NIC in the definition of scope and level of nursing activity. The circumstances faced by local nurses must be considered when applying NIC, and NIC interventions should be developed specifically for Korea by conducting further research to provide clear definitions for interventions and nursing activity factors.

5. Conclusion

This study explored the possible application of NIC to the classification of perioperative nursing activities in Korea. A questionnaire on NIC-based classification of perioperative nursing activity factors was distributed to 39 clinical nurses with at least 10 years of experience in operating rooms. The collected data were analyzed in SPSS 15.0, and the validity index was calculated using the average values of classification validity. As a result, Korea's perioperative nursing activities were classified into 5 domains, 14 classes, 36 interventions, and 46 perioperative nursing activity factors.

The recommendations below have been derived from the results. First, there is a need to conduct research to develop NIC interventions and perioperative nursing activity names that reflect Korea's perioperative nursing activities and its environmental characteristics. Second, based on the proposed perioperative nursing activities, future research should focus on the computerization of perioperative nursing records and nursing cost development.

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