

Original Article

Nursing Diagnoses Used in Neonatal and Adult Intensive Care Units: An Evaluation of their Suitability According to the Nanda-I List

Funda Buyukyilmaz, PhD, BSN

Associate Professor Istanbul University-Cerrahpasa Florence Nightingale Faculty of Nursing, Fundamentals of Nursing Department, Istanbul, Turkey

Betul Kus, PhD, BSN

Assistant Professor Yozgat Bozok University Health Sciences Faculty, Fundamentals of Nursing Department, Yozgat, Turkey

Seda Caglar, PhD, BSN

Assistant Professor, Istanbul University-Cerrahpasa Florence Nightingale Faculty of Nursing, Child Health Nursing Department, Istanbul, Turkey

Correspondence: Betul Kus, Assistant Professor Yozgat Bozok University Health Sciences Faculty, Fundamentals of Nursing Department, Yozgat, Turkey e-mail: betul.unsal@windowslive.com

Abstract

Background: Individualized nursing care is provided in intensive care units (ICU) to improve the individual's bio-physiological, psychological and social well-being status by eliminating the problem directly affecting his/her life.

Aim: This study was planned to determine the nursing diagnoses frequently used in neonatal and adult intensive care units and to evaluate their suitability according to the NANDA-I (The North American Nursing Diagnosis Association-International) list.

Materials and Methods: The data of this descriptive study were collected by examining (Level I-III) nursing care plan records (n = 121) in neonatal (n = 35) and adult (n = 86) internal-surgical intensive care units in a training and research hospital between the years of 2008-2018. The data collection tool developed by the researchers considering the relevant literature information consisted of the information form and current NANDA-I list of nursing diagnoses grouped according to Gordon's Functional Health Patterns, where frequently used nursing diagnoses are recorded.

Results: The most frequent problem-focused nursing diagnoses determined by the nurses in the neonatal intensive care unit (NICU) were found to be disturbed sleep pattern (85.7%), ineffective airway clearance (60%), and ineffective breastfeeding (42.7%), while the most frequent risk nursing diagnoses were found to be risk for infection (100%) and risk for falls (62.9%). On the other hand, the most frequent problem-focused nursing diagnoses determined in the adult intensive care unit (ICU) were found to be self-care deficit (79.1%), deficient knowledge (77.9%) and ineffective airway clearance (64.0%), while the most frequent risk nursing diagnoses were found to be risk for infection (87.2%) and risk for falls (79.1%).

Conclusion: As a result of this study, it was concluded that the determined nursing diagnoses did not include the primary responses of the individuals related to all life activities, did not achieve unity of standard nursing terminology, and were insufficient to comply with the NANDA-I terminology.

Keywords: Nursing interventions, Nursing diagnosis, NANDA-I, Neonatal, Intensive care.

Introduction

Intensive care units (ICUs), also called intensive therapy units, intensive treatment units (ICUs) or critical care units, are special units that enable

the application of many complex treatments and care in the critical disease process. The aim in the intensive care is to apply the necessary treatment and care to optimize the bio-physiological, psychological and social balance

of the individual by eliminating the problem that directly affects his/her life (Zengin, 2017). Nursing care practices are of great importance in ICUs where interventional procedures are intensively applied and vital priorities are high (Terzi & Kaya 2011). At this point, it is among the primary responsibilities of nurses to determine the needs of individuals and to decide the correct nursing diagnosis.

Nursing diagnosis is defined as a clinical judgment concerning a human response to health conditions/life processes, or a vulnerability/tendency for that response, by an individual, family, group or community. In addition, nursing diagnosis guides the selection of nursing interventions on what should be done about the individual's health problem (Korhan, Hakverdioglu & Yont, et al. 2015; Sendir & Buyukyilmaz, 2019). The North American Nursing Diagnosis Association-International (NANDA-I) develops, revises and simplifies nursing diagnoses in order to achieve common language unity among nurses. With ongoing research on nursing diagnoses, NANDA-I adds new diagnostic names to its list or continues to revise existing diagnoses. There are 13 domains, 47 classes and 257 nursing diagnoses according to the Revised NANDA-I Taxonomy II 2015-2017 list. A nursing diagnosis consists of a name / label, a definition, defining characteristics (signs and symptoms), risk factors / related factors in NANDA-I Taxonomy (Buyukyilmaz, 2017).

The use of common nursing terminology is very important in care. For this situation, NANDA-I guides nurses in determining nursing diagnoses and maintaining continuity of care in the daily work (Sendir & Buyukyilmaz, 2019). When the studies conducted on the subject were examined, it was reported that nurses made diagnoses related to the domains of "health perception and management function (98.8%), sleep-rest (88.8%) and nutrition (86.3%)" at the highest rates and the nursing diagnoses that they determined at the highest rate related to these domains were "ineffective health management, disturbed sleep pattern and less nutrition than body requirements" (Sabancıogulları, Elvan & Kelleci, et al. 2011). Another study showed that "constipation, nausea, insufficient fluid volume, and acute pain" are the highest rate of nursing diagnosis in care (İlçe, Totur & Ozbayır, 2010). It was emphasized that the nurses determined 26

different nursing diagnoses but some of the diagnoses had errors in terms of standard terminology in another study conducted on patients receiving treatment and care in the ICU (Korhan et al. 2015). In this context, the study was planned to determine the frequently used nursing diagnoses in neonatal and adult ICUs and to evaluate their suitability according to the NANDA-I list.

Accordingly, the questions that directed the study were as follows:

- What are the frequently determined nursing diagnoses in neonatal and adult ICUs?
- Do the determined nursing diagnoses comply with the NANDA-I terminology?

Methodology

Design and Participants: This retrospective-descriptive study was composed of patient records in neonatal and adult internal-surgical ICUs in a training and research hospital. In the study, all patient records in the date range determined for the universe were examined in accordance with the data evaluation form developed by the researchers before selection of the sample.

Collection and Analysis of Data: The data of the study were collected between July-September 2018 by examining a total of 121 patient records / diagnoses in neonatal (n=35) and adult (n=86) internal-surgery ICUs in the last decade (2008-2018). The ICUs where carried out the research, are consist of 4 beds for neonatal, and 12 beds for adult patients. Information about the patients' individual characteristics, medical diagnoses and focused diagnostic tools and nursing diagnoses in the care plans were recorded and analyzed by the researchers. The data collection tool developed by the researchers considering the relevant literature information consisted of information about the patients' individual characteristics, medical diagnoses and focused diagnostic tools (The Neonatal Infant Pain Scale, Visual Analog Scale, Pressure Ulcer Risk, Fall Risk, Oral Mucositis Risk, Glasgow Coma Scale, APGAR) and the NANDA-I list of nursing diagnoses grouped according to Gordon's Functional Health Patterns, where determined nursing diagnoses are recorded. In this study, the data on the risk assessment scores and nursing diagnoses evaluated at the admitted to ICUs. The data

obtained as a result of the study were analyzed by SPSS 21.0 package program (Statistical Package for Social Science for Windows) using numerical (mean, standard deviation, minimum, maximum) and percentage distribution tests.

Ethical considerations: In order to carry out the study, written permission was obtained from Yozgat Bozok University Clinical Research Ethics Committee and the hospital where the study was conducted (2017-KAEK-189-2017.06.21_05).

Results

Findings related to the patients' individual characteristics, medical diagnoses and focused diagnostic tools: It was determined that the postnatal age of the infants receiving treatment and care for 14.11 ± 3.11 days in the neonatal intensive care unit (NICU) was 3.88 ± 3.58 days, most of them were male (51.4%), their pain scores (The Neonatal Infant Pain Scale) were 1.34 ± 1.86 , and their mean APGAR scores were 6.51 ± 1.94 at the first minute and 7.64 ± 2.34 at the 5th minute.

Of the infants with low level of pressure ulcer risk, 62.9% were found to have low risk for falls and 94.3% had low risk for impaired oral mucous membrane integrity. It was determined that all newborn infants did not have any chronic diseases, they did not undergo any surgeries and they were decided to be hospitalized in the NICU because of postnatal oxygen requirement (Table 1). It was determined that the majority of the patients were male (58.1%), their mean age was 61.6 ± 12.22 years, 23.3% of them received treatment and care in the AICU due to open heart surgery, 18.6% due to respiratory failure, 12.8% due to CVD and 11.6% due to terminal period cancer.

Of the patients with low level of pain severity (2.06 ± 2.69) (Visual Analog Scale), 52.3% were found to be unconscious, 67.2% were found to have low risk for impaired oral mucous membrane integrity, all of them were found to have a high risk for falls, 60.5% were found to have a high risk for pressure ulcer and 44.2% were found to have a Glasgow Coma Scale score in the range of 13-15 points (Table 2).

Findings Related to Nursing Diagnoses of the Patients: NANDA-I Nursing Diagnoses grouped according to Gordon's Functional Health Patterns were seen to be used in the care plans in

the examined patient files. It was found that these nursing diagnoses were frequently related to 7 patterns and no nursing diagnosis was determined to be related to 6 patterns. Accordingly, it was found that the nurses recorded four nursing diagnoses related to "Nutrition" pattern, one nursing diagnosis related to "Impaired elimination and gas exchange" pattern, six nursing diagnoses related to "Activity/Rest" pattern, two nursing diagnoses related to "Perception/Cognition" pattern, one nursing diagnosis related to "Role Relationship" pattern, nine nursing diagnoses related to "Safety/Protection" pattern and one nursing diagnosis related to "Comfort" pattern in the care plans (Table 3).

The most frequent problem-focused nursing diagnoses determined by the nurses in the neonatal intensive care unit (NICU) were found to be "disturbed sleep pattern (85.7%)", "ineffective airway clearance (60%)", and "ineffective breastfeeding (42.7%)", while the most frequent risk nursing diagnoses were found to be "risk for infection (100%)" and "risk for falls (62.9%)".

On the other hand, the most frequent problem-focused nursing diagnoses determined by the nurses in the adult intensive care unit (ICU) were found to be "self-care deficit syndrome (79.1%)", "deficient knowledge (77.9%)", and "ineffective airway clearance (64.0%)", while the most frequent risk nursing diagnoses were found to be "risk for infection (87.2%)", and "risk for falls (79.1%)". It was seen that seven nursing diagnoses were inadequately / insufficiently expressed or recorded by confusing with similar nursing diagnoses in terms of the integrity of the terminology suggested by NANDA-I. In particular, it was observed that the nurses used the expressions of "discharge education (11.1%)" or "drug education (3.2%)" instead of "deficient knowledge", "inadequate activity (20.7%)" instead of "activity intolerance", "inadequate individual care (30.1%)" instead of "self-care deficit syndrome", "inadequate oral hygiene (11.1%)" instead of "impaired oral mucous membrane", "edema (6.4%)" instead of "excess fluid volume", "wound formation (12.7%)" instead of "impaired tissue integrity" and "inability to perform individual care (4.7%)" instead of "self-neglect" diagnoses in the care plans.

Table 1. Characteristics of the Infants Receiving Treatment and Care in the NICU (N = 35)

Gender	n	%
Female	17	48.6
Male	18	51.4
Mean postnatal age	3.88 ± 3.58 Days	
Mean pain score (NIPS)	1.34 ± 1.86	
Mean APGAR score		
Min 1	6.51 ± 1.94	
Min 5	7.64 ± 2.34	
Pressure Ulcer Risk Level (BUCH Pressure Ulcers Risk Scale)		
Low risk	35	100
Fall Risk Score(Harizmi Fall Risk Scale)		
Low risk	22	62.9
High risk	13	37.1
Oral Mucositis Risk Level (WHO Oral Mucositis Grading Scale)		
Stage 0	25	71.4
Stage 1	8	22.9
Stage 2	2	5.7

Table 2. Characteristics of the Adults Receiving Treatment and Care in the Intensive Care Unit

Characteristics (N = 86)	n	%
Gender		
Female	36	41.9
Male	50	58.1
Mean Age	61.6 ± 12.22 years	
Mean pain severity (VAS)	2.06 ± 2.69	
State of consciousness		
Conscious	41	47.7
Unconscious	45	52.3
Glasgow Coma Scale		
< 8	35	41.1
8-12	13	14.7
13 - 15	38	44.2
Medical diagnosis		
Bypass / CAD	20	23.3
Respiratory failure	16	18.6
CVD	11	12.8
Terminal period cancer	10	11.6
Other problems (infection, embolism, etc.)	29	3.7
Pressure Ulcer Risk Level (Braden Scale)		
Low risk	24	27.9
Risky	10	11.6
High risk	52	60.5
Fall risk score (Itaki Fall Risk Assessment Scale)		
High risk	86	100

Oral Mucositis Risk Level (WHO Oral Mucositis Grading Scale)		
Stage 2	12	14.3
Stage 3	16	18.5
Stage 4	58	67.2

Table 3. Frequently Determined Nursing Diagnoses in the Intensive Care Units (N=121)

NURSING DIAGNOSES	Neonatal Intensive Care		Adult Intensive Care	
	n	%	n	%
Health promotion	-	-	-	-
Nutrition				
Insufficient breast milk	15	42.9	-	-
Ineffective breastfeeding	16	45.7	-	-
Imbalanced nutrition: less than body requirements	-	-	19	22.1
Excess fluid volume	-	-	15	17.5
Impaired elimination and gas exchange				
Constipation	-	-	22	25.6
Activity /Rest				
Disturbed sleep pattern	30	85.7	42	48.8
Impaired physical mobility	-	-	20	23.3
Activity intolerance	-	-	48	55.8
Decreased cardiac output	-	-	53	61.6
Ineffective peripheral tissue perfusion	-	-	21	24.4
Bathing self-care deficit	-	-	68	79.1
Deficient perceptual/				
Deficient knowledge	-	-	67	77.9
Impaired verbal communication	-	-	12	14.0
Self-perception	-	-	-	-
Role relations				
Risk for caregiver role strain	19	54.3	9	10.5
Sexuality	-	-	-	-
Coping / stress tolerance	-	-	-	-
Life principles	-	-	-	-
Safety / protection				
Ineffective airway clearance	21	60.0	55	64.0
Risk for aspiration	9	25.7	32	37.2
Risk for Infection	35	100	75	87.2
Risk for bleeding	-	-	33	38.4
Risk for falls	22	62.9	68	79.1
Risk for impaired oral mucous membrane	2	5.7	35	40.7
Impaired tissue integrity	-	-	21	24.4
Hypothermia	14	40	18	20.9
Hyperthermia	4	11.4	6	7.0
Comfort	-	-	-	-
Pain	8	22.9	26	30.2
Growth and development	-	-	-	-

Discussion

Nursing diagnoses should be correctly determined first, and the interventions should be prioritized in order to provide holistic and quality care to the patients receiving treatment and care in intensive care units. For this reason, nursing diagnosis and diagnostic stages of the nursing process are of great importance (Sendir & Buyukyilmaz, 2019). As a result of the evaluation carried out within the scope of this study, it has been observed that the determined nursing diagnoses do not include the primary responses of the individuals related to all life activities, do not achieve unity of common language and are insufficient to comply with the NANDA-I terminology. This situation may cause insufficiencies / deficiencies in other stages of the nursing process and may lead to the emergence of erroneous conditions in the records. Therefore, it may make it difficult to achieve the desired level of nursing care quality and may leave nurses in a difficult situation in legal terms.

In our study, the nurses were found to use nursing diagnoses related to seven patterns more frequently according to the NANDA-I list of nursing diagnoses grouped according to Gordon's Functional Health Patterns in the care plans (Table 3). It was found that the nurses did not determine nursing diagnoses related to these domains although they made evaluations related to the domains such as health promotion, self-perception, life principles, sexuality, coping / stress tolerance, life principles, growth and development. It is seen that nurses are insufficient in determining diagnoses related to self-perception, life principles, sexuality pattern, values and beliefs and comfort patterns in the studies conducted on this subject (Sabancıoğlu et al. 2011; Serbest, Onturk, Karabacak, et al. 2013; Ferreira, Rocha & Lopes, et al. 2016).

In this study, the most frequent nursing diagnoses determined in the NICU were seen to be related to the domains of vital priority (disturbed sleep pattern, ineffective airway clearance, ineffective breastfeeding, risk for infection, risk for falls). This situation can be considered as a right decision for the maintenance of care by considering the nursing diagnoses of vital priority. However, it can be stated that nurses are insufficient to give place to nursing diagnoses including the health care

needs of the family, which allow the family to be involved in the care to support developmental care and that they need training. Similarly, it was seen that nurses frequently included risk nursing diagnoses of vital priority (risk for imbalanced fluid volume and risk for shock) in a study evaluating the care plans of the patients receiving treatment and care due to sepsis in the NICU (Santos, et al. 2014).

The nurses in the adult ICU was found to determine diagnoses of top priority related to safety (risk for infection, risk for falls), elimination and gas exchange, comfort, activity / rest domains. It is a right approach to include nursing diagnoses related to these domains first in the ICU, where situations requiring vital priority are important. However, it is clear that detailed diagnoses should be made related to all domains in order to realize the individual and holistic approach, which is stated in the contemporary nursing philosophy and which places the individual in the center of care together with its immediate environment. Similarly, Chianca, Lima and Salgado (2012) determined that 28 different nursing diagnoses were frequently used related to these domains in the ICU and especially nursing diagnoses of "self-neglect, risk for infection and risk for constipation" were used in all patients. Korhan et al. (2015) found that the diagnoses determined at the highest rates were deficient knowledge (89.5%), risk for infection (85.9%) and self-neglect (34.7%) in the patients receiving treatment and care in the ICU, although there were some terminological deficiencies. It was shown in another study that 19 nursing diagnoses were frequently determined in the ICU and these nursing diagnoses were often diagnoses related to the physiological domain due to high mortality risk and prolonged hospitalization (Castellan, et al.2016).

Conclusion and Recommendations: According to the results of this study, it was seen that nursing diagnoses did not cover all domains, but also had some insufficiencies / deficiencies in terms of nursing terminology integrity. In this sense, it is thought that in-service training programs should be conducted, and nurses should follow symposia / congresses or printed materials for the use of nursing process.

Acknowledgments: The authors have no substantial direct or indirect commercial

financial incentive associated with publishing the article, and the manuscript or portions thereof are not under consideration by another journal and have not been previously published. The authors are deeply grateful to the participants for their cooperation. We confirm that all the listed authors meet the authorship criteria and that all the authors are in agreement concerning the content of the manuscript.

References

- Acaroglu, R., Sendir, M., & Kaya, H. (2012). Nursing Process. Babadag, K., Asti, T. A. (Ed.). Fundamentals of Nursing Practice Guide. Revised, 2nd Edition. İstanbul: İstanbul Medical Press: 8-20. (In Turkish)
- Buyukyilmaz, F. (2017). Main Domain 3, Domain 12. Acaroglu, R., Kaya H. (Ed.) NANDA Nursing Diagnoses: Definitions & Classification 2015-2017. First Edition. İstanbul: Nobel Medical Book Store: 435-447. (In Turkish)
- Castellan, C., Sluga, S., Spina, E., & Sanson, G. (2016). Nursing diagnoses, outcomes and interventions as measures of patient complexity and nursing care requirement in intensive care unit. *Journal Of Advanced Nursing*, 72(6), 1273-1286.
- Chianca, T. C. M., Lima, A. P. S., & Salgado, P. D. O. (2012). Nursing diagnoses identified in inpatients of an adult intensive care unit. *Revista da Escola de Enfermagem da USP*, 46(5), 1102-1108.
- Ferreira, A. M. et al. (2016). Diagnósticos de enfermagem em terapia intensiva: mapeamento cruzado e Taxonomia da NANDA-I. *Revista Brasileira de Enfermagem*, 69(2), 307-315
- Ilce, A., Totur, B., Ozbayır, T. (2010). Evaluation of Patients With Brain Tumors According to International NANDA Nursing Diagnoses: Care Suggestions. *Journal Neurol Science*, 27(2), 178-184. (In Turkish)
- Korhan, E. A. et al. (2015). Determination of Nursing Diagnoses in The Intensive Care Unit and Evaluation According to Nanda Diagnose. *Journal of Duzce University Health Sciences Institute*, 5(1), 16-21. (In Turkish)
- Sabancıogulları, S., Elvan, E., Kelleci, M., & Dogan, S. (2011). Evaluation of patient care plans made by nurses in a psychiatric clinic according to Functional Health Pattern Model and NANDA diagnoses. *Journal of Psychiatric Nursing*, 2(3), 117-122. (In Turkish)
- Santos, A. P. D. S., Silva, M. D. L. C. D., Souza, N. L. D., Mota, G. M., & Franca, D. F. D. (2014). Nursing diagnoses of newborns with sepsis in a Neonatal Intensive Care Unit. *Revista Latino-Americana De Enfermagem*, 22(2), 255-261.
- Serbest, S., Onturk, Z. A., Karabacak, U., Koc, S., & Aslan, F. E. (2013). Use of Nursing Diagnoses in Turkey where we make mistakes. *Acıbadem Nursing Journal*, 59, 1-2. (In Turkish)
- Sendir, M., Buyukyilmaz, F. (2019). Nursing Diagnosis. Atabek Astı, A Karadag. (Ed.). Fundamentals of Nursing. Knowledge to Implementation: Concepts-Principles-Skills. İstanbul: Akademi Press, 139-153. (In Turkish)
- Zengin, N. (2017). Intensive Care Nursing Applications. Akyol, A. (Ed.). Intensive care Nursing, İstanbul: İstanbul Medikals Aglık ve Press: 431-437. (In Turkish)