

Operational definitions of outcome indicators related to ineffective breathing patterns in children with congenital heart disease

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ABSTRACT

OBJECTIVE: The development of operational definitions leads to accurate assessments of health conditions. Many health indicators in the Nursing Outcomes Classification require the development of operational definitions. We sought to determine the validity of operational definitions for indicators of nursing outcomes that assess respiratory status in children with congenital heart disease.

PATIENTS AND METHODS: Eight trained nurses evaluated 45 children with congenital heart disease who were aged ≤ 1 year and previously diagnosed with ineffective breathing patterns. The statistical analysis included median differences, intraclass correlations, and cluster analyses.

RESULTS AND CONCLUSIONS: The nonuse of definitions produced inconsistencies in evaluations among evaluators. This inconsistency was not evident in the group using operational definitions. Two indicators were significant in all statistical analyses: asymmetrical chest expansion and percussed sounds.

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Nurses are responsible for the early detection of patients' complications and problems and should work toward initiating actions that produce positive outcomes in patients.¹ In many scenarios, these outcomes are used to evaluate the efficacy of nursing practice. An adequate measurement of nursing

outcomes can be obtained by using nursing classifications and terminologies that have been developed for a specific objective.

The Nursing Outcomes Classification (NOC) is a classification system of patient outcomes, and its structure includes 385 conditions and their definitions,

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indicators, and measurement scales. In this system, an outcome is defined as a state, behavior, or perception that is measured along a continuum. A 5-point Likert-type scale is used to define the level of each indicator that designates a specific outcome.²

Indicators are the major components of the NOC, and they represent a quantitative measure of desirable and undesirable outcomes of a given process or system. They are measured in a continuous or periodic way, so that clinical objectives may be achieved.³ Indicators are variables and attributes that are capable of summarizing, representing, or emphasizing the particular clinical parameters under evaluation. Therefore, indicators are valid in the specific context of what is being appraised, and are used to monitor important processes in clinical care.⁴

However, one limitation of the NOC involves the absence of parameters that make the indicators more operational.² This omission produces a high level of subjectivity in the evaluation of indicators. Therefore, the use of definitions can increase the accuracy of evaluations of nursing effectiveness.

Critically ill patients are more susceptible to changes in health status. Consequently, they may present with important alterations that are identified by specific indicators. For example, cardiac patients present with respiratory problems that can lead to a compromised health status. These respiratory problems were evaluated from the perspective of nursing diagnoses by several authors.^{5–7} Among respiratory diagnoses, 3 were previously highlighted: impaired gas exchange (IGE), ineffective airway clearance (IAC), and ineffective breathing patterns (IBPs).⁵ These 3 are most frequently identified among different nursing diagnoses, and occur in different age ranges and conditions.

In the NOC, these conditions are included in the category of respiratory status, which consists of several parameters: ventilation is the movement of air in and out of the lungs; gas exchange is the alveolar exchange of CO₂ and O₂ to maintain normal arterial blood gas concentrations; and airway patency describes the extent to which the tracheobronchial passages remain open.² Nurse researchers frequently argue over the parameters that best allow for an accurate evaluation of outcome indicators related to respiratory conditions.⁸ The development of operational definitions for the assessment of these indicators can minimize discrepancies in clinical judgment between individual nurses.

Zeitoun et al⁶ performed a study to validate the indicators of nursing respiratory diagnoses, including IGE, IAC, and IBP, and observed that those 3 diagnoses occurred both independently and in combination with each other. According to the authors, the strong relationship between these diagnoses may indicate the presence of a respiratory syndrome. Silva et al⁹ identified IBP early in the hospitalization period, and suggested that the presence of that diagnosis was related to IGE and IAC.

Other studies demonstrated the need to establish guidelines for nursing diagnoses in several populations. In addition, the scientific literature is limited regarding the validation of operational definitions of respiratory indicators that are directed at nursing care. In this study, operational definitions for all 5 levels of the Likert scale were developed for 26 different indicators that are related to the respiratory status markers of the NOC.

Our purpose was to determine the validity of operational definitions used in the assessment of indicators of nursing outcomes, which are specific to the respiratory status of children with congenital heart disease.

PATIENTS AND METHODS

Design

This methodological study verified the validity of operational definitions for indicators of nursing outcomes in children with IBP, to check whether these definitions reduced the discrepancies between the evaluations of nurses in relation to the impairment levels of children with this nursing diagnosis.

Sample

This study included 45 children, aged ≤ 1 year, diagnosed with congenital heart disease and hospitalized at the pediatric clinical unit of a referral center for cardiopulmonary diseases. Children who presented with IBP were consecutively sampled during their admission to that unit.

The parameters for the definition of sample size included a confidence level of 95%, a power of 80%, and an estimated 86.7% occurrence of IBP, as found in a previous study.¹⁰

The exclusion criteria involved comorbidities with other congenital diseases, the use of medications unrelated to the treatment of cardiopulmonary complications, or other problems not associated with the child's clinical status.

Ethics Considerations

Ethics approval was obtained from our institution's Internal Review Board. The parents or guardians of all enrolled children provided written, informed consent before the collection of data. Confidentiality was guaranteed regarding medical information and patient identity.

Development and Content Validation of Operational Definitions

Definitions were created for 26 different indicators. These definitions included a conceptual definition for each indicator, and operational definitions for each

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