

Types of Validity in the Research of NANDA International Components

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ABSTRACT

The article aims to provide information about the types of validity and validation studies within NANDA International diagnosis system, emphasize their importance to the development of nursing science, and highlight relevant researchers. The authors presume that validity is an essential component of research and has a significant impact on the reliability of research of the diagnostic concepts of NANDA International. The study concludes that it is essential to conduct studies using construct validity in order to enhance the scientific level of validation of the NANDA International diagnosis system.

KEY WORDS

validity, validation, nursing diagnosis, NANDA International

INTRODUCTION

In research it is important to demonstrate the validity of research findings and the methodology used. We can say that validity is one of the criteria of research quality. To explain the concept, Chráska, Kerlinger, Petrusek et al. and Polit and Beck state that **validity** provides the answer to the question: “To what extent do we research what we want to research?”, while **validity index** is understood as a specific degree of validity of the instruments and procedures used, including the extent to which the findings reflect reality (Chráska, 2007, p 37; Kerlinger, 1974, p 435; Petrusek et al., 1996, p 1,363; Polit, Beck, 2008, p 457). The term ‘**validation**’ denotes a process that leads to validity determination (Petrusek et al., 1996, pp. 1,363–1,364).

The validity of nursing diagnoses of NANDA International (NANDA-I) has been under research for four decades. It is evident that thanks to the development of new diagnostic components and the expanding implementation of the NANDA list of diagnoses in countries with varying culture context, validation studies will continue to require attention. Papers on the methodology of the validity of nursing diagnoses and their diagnostic elements in English have primarily been published by Creason (2004, pp. 123–132), Gordon (1994, p 299), Parker and Lunney (1998, pp. 144–150), and Whitley (1999a, p 173–174, 1999b, p 5–14). In Czech and Slovak, one of the first introductions into the subject was a paper by Holmanová, Žiaková, Čáp (2006, pp. 25–30). Authors Gordon (1994, p 299), Scroggins and Harris

(2003, p 8), and Parker with Lunney (1998, p 145) argue that validity of the components of the NANDA-I nursing diagnosis is a prerequisite for the accuracy of the diagnostic conclusion. According to Gordon (1994, p 299), the validity of a diagnosis expresses the extent to which a set of defining characters reflects the observed reality in a client in a particular environment (Gordon, 1994, p 299). Lunney states that a higher validity of the components of NANDA-I classification facilitates a more detailed description of how individuals response to their health problems and life processes. Furthermore, she maintains that the name of a nursing diagnosis and the identification of present NANDA-I diagnostic characteristics are an accurate description of the client’s specific situation (Lunney, 2003, p 96). The author emphasises the importance of the accuracy of concepts within standardized nursing terminology. According to her, only a precisely identified nursing diagnosis (diagnostic inference) allows for a precise and individualized selection of nursing interventions (Lunney, 2008, p 29). Since the validation of NANDA-I diagnoses deals with diagnosis characteristics, i.e. names and diagnostic elements in the sense of the defining characteristics of the related or risk factors, the above statement by Chráska, Kerlinger, Petrusek et al., Polit and Beck, means in other words that the validity of NANDA-I diagnosis answers the question of whether a diagnostic conclusion describes what it should. The more valid the nursing diagnosis is, the more accurately it reflects the situation of a patient, a family or a community.

METHODS

- a) Research of journal articles in the databases Bibliographia Medica Čechoslovaca, Academic Search Complete, PubMed, Scopus, Web of Science, Wiley Interscience, ProQuest; use of the Google search engine, advanced search. The keywords “validity – AND – nursing diagnosis – AND – NANDA” in English, Czech, and Slovak were applied in the search period 1987 to 2010. A total of 182 links were found.
- b) Classification of identified resources in order to eliminate those that did not meet the purpose of this article. Only texts that respected the methodological rules of validation and texts dealing with the validity of NANDA-I phenomena were selected. Twenty sources qualified for further study: fourteen classic reviews and six books.
- c) Analysis of the content of the texts, and selection of applicable information. The information was divided into three areas. The first involved information about the types of validity and validation, the second contained information about the importance of validity and validation in nursing diagnosis, and the third the current trends in the research methodology of validity in nursing.

TYPES OF VALIDITY AND THEIR USE IN NURSING DIAGNOSIS

- A) The first group of journal articles discusses three types of validity:

1 **Content** validity, 2 **Criterion-related** validity, and 3 **Construct** validity (Parker Lunney, 1998, p 146). These were recommended by American Psychological Association, American Educational Research Association, and National Council on Measurement in Education, and are commonly applied in sociology, pedagogy, and psychology (Kerlinger, 1972 p 436, Pelikán, 2011, p 58; Petrusek et al., 1996, p 1,363).

According to Kerlinger (1972 p 436–437), Pelikán (2011, p 61), and Polit and Beck (2008, p 458), **CONTENT** validity specifies the extent to which an instrument is representative or adequate and grounded on the judgment of competent experts. It is an analysis of the items/components of a test or an instrument, which serves to determine the extent to which the item/component measures what it should. The result of the judgment of experts/assessors depends on the accuracy of the description of the validated element and its components. Content validation of nursing diagnoses determines the extent to which diagnostic categories of NANDA-I taxonomy are representative or adequate. It verifies

whether the name, definition and diagnostic elements of a diagnosis describe as closely as possible what they are supposed to. The content validation principle is used in the following Fehring's models: a) Diagnostic content validity model, b) Clinical diagnostic validity model, c) Etiological correlation evaluation model, d) Patient-centred model of clinical diagnostic validity, and e) Differential diagnostic validation model (Fehring, 1987, 3–6). This form of validation is studied by Creason, Lunney with Parker, and Whitley. The authors of the studies assign the role of assessors to expert nurses and clinical specialists, sometimes recommending cooperation with clients/patients with experience in a validated nursing diagnosis (Creason, 2004, p 126; Parker, Lunney, 1998, p 145; Whitley, 1999b, p 9–10). The texts also describe the shortcomings of content validation. The authors draw attention to the unstable conceptual frameworks in nursing and the risk of inconsistency when experts work with the concepts of diagnostic categories. A solution has been proposed by Whitley (1995, p 91; 1999b, p 10). The first step of nursing diagnosis validation, she recommends, should involve the method of conceptual analysis. The output of conceptual analysis is the determination of relevant and irrelevant diagnostic elements of the validated diagnosis, and their operationalization. Whitley recommends using the resulting operational definitions that include groups of observable and measurable characteristics of the validated diagnosis for the development of a measurement tool. The tool is to be then incorporated in a clinical validation study (Whitley 1995, p 91; Whitley 1999b, p 10). Her article dedicated to conceptual analysis of the nursing diagnosis of fear models the procedure (Whitley, 1992, p 155–161). Another problematic aspect of content validation is the variability of the characteristics of nurse experts, clinical specialists, and patients. These include age, gender, education, social background, health, and the environment in which the validation takes place. The variability of experts and clinical specialists can be reduced through selection criteria (Creason, 2004, p 127; Parker, Lunney, 1998, p 145; Whitley, 1999b, pp. 10–11). Fehring was the first to provide the professional public with such criteria (1994, p 59): 1 Master's degree in nursing with a thesis or dissertation on nursing diagnosis, 2 Publication on research in nursing diagnosis, and 3 Certified clinical work experience related to the validated nursing diagnosis (Fehring, 1994, p 59). In terms of the concept of the criteria, Levin argued that they specified when and for what types of validated diagnoses it

is advisable to assign general nurses as experts and when nurse specialists. Furthermore, she noted that the NANDA-I community as the guarantor of the creation, classification, and development of nursing diagnoses, fails to have the rules defined in detail (Levin, 2001, pp. 29–31). Modification of the criteria for selecting experts in the Czech and Slovak Republics is mentioned by Zeleníková, Žiaková et al. (2010, p 407–413). The team divided the criteria into two categories: a) Basic = formal training and current clinical practice, b) Complementary = specialization, certification in clinical practice related to the nursing diagnosis, a published article, and a thesis or dissertation on nursing diagnoses (Zeleníková, Žiaková et al., 2010, p 410). According to Creason (2004, p 127) and other authors (Parker, Lunney, 1998, p 145; Whitley, 1999b, pp. 10–11) the above problems could be solved with the help of replication and comparative validation studies. CRITERION-RELATED validity is divided into two sub-types of validity: 1 **predictive** and 2 **concurrent**. Their common feature is the inclusion of an external criterion, which is compared with the measurement results; the compliance degree then determines the degree of the criterion validity (Kerlinger, 1972, p 438; Pelikán, 2011, p 58; Polit, Beck, 2008, p 459). According to the authors, the difference between the types of criterion validity is that predictive validity focuses on prediction – on the assumption of the existence or non-existence of a relationship in the past or future. Concurrent validity focuses on the assumption of the existence or non-existence of a relationship in the present. Both authors agree that criterion validity may struggle in the event of a low validity of the criterion or its absence. (Kerlinger, 1972, p 438; Pelikán, 2011, p 58; Polit, Beck, 2008, p 460). In connection with research in nursing diagnosis, validity criterion was mentioned in the texts by Gordon (1994, p 300), Parker and Lunney (1998, p 146), and Whitley (1999b, p 9). Gordon (1994, p 300) described the predictive validity of diagnostic categories as a measure that expresses the relationship of a group of defining characters of a nursing diagnosis derived from descriptive studies that describe the incidence of defining characteristics in clinical practice and from conceptual analysis studies to hypothetically derived defining characters (Gordon, 1994, p 300). Parker and Lunney (1998, p 146) draw attention to the limits of criterion validation of nursing diagnoses, which they believe lie in the fact that criterion validation only aims at predictive relationships, and therefore cannot be used for the development of

scientific theories. They observe that the conclusions of criterion-related validation may be used as evidence for construct validation (Parker, Lunney, 1998, p 146). Whitley published an inspiring view in her summary of validation methodology concerning nursing diagnoses (Whitley 1999b, p 9). She recommended using sophisticated quantitative multidimensional statistical methods to express criterion-based validity (Whitley 1999b, p 9). In the methodology of science, CONSTRUCT validity ranks among the most important components of scientific measurements. This is because it connects multiple validation operations and describes many research components. Construct validity relates to two areas: a) it expresses the extent to which research findings are valid in relation to the construct that describes the expected outcome and b) it expresses the extent to which a research instrument actually measures a real characteristic (Kerlinger, p 439, Pelikán, 2011, p 62, Polit, Beck, 2008, p 461). Pelikán argues that construct validity is expressed by calculating intercorrelations, and based on the result, we distinguish two subtypes: a) Convergent and b) Discriminant construct validity (Pelikán, 2011, p 62). Construct validation in the research of nursing diagnosis is discussed by Lunney and Parker (1998, pp. 144–149). The starting point for them was the idea that construct validation is based on a systematic process of scientific research. They emphasized that construct validation links the verification of theory, theoretical constructs and derived hypotheses, including their empirical testing. Parker and Lunney identified construct validation as an essential component of scientific validation studies of nursing diagnoses (Parker, Lunney, 1998, pp. 144–149) and emphasized the need for the implementation of the following:

- 1 **reliability studies**, which are used to express stability and coherence = connection, consistency of diagnoses;
- 2 **epidemiological studies of the incidence and prevalence of specific diagnoses** in a population, which highlight the importance and prevalence of various NANDA-I diagnoses in different populations;
- 3 **studies of the effectiveness of nursing diagnoses**, the value of which lies in: a) organizing a body of knowledge on nursing phenomena, b) differentiating diagnostic categories, c) selecting interventions appropriate for specific nursing diagnoses;
- 4 **causal analyses** that focus on identifying the significance of constructs generated through

an analysis of a large number of theories and research results that are relevant to NANDA-I diagnostic categories;

- 5 **generalization studies**, which address the potential of generalization – the external validity of research findings in nursing diagnosis for different populations, different environments, and different clinical situations.

B) Literature contains still other types of validity, including **internal** and **external** validities. Both concern the validity of conclusions of namely quantitative research.

According to Pelikán (2011, p 63), INTERNAL VALIDITY expresses the degree to which research findings may be clearly interpreted. In clinical nursing research, internal validity of nursing diagnoses is studied by Creason (2004, p 123) and Gordon (1994, p 299), who argue that internal validity determines the credibility with which specific diagnostic categories (defining characteristics, related factors or risk factors, and the name of the diagnosis) represent the patient's situation. In this context, Creason (2004, pp. 126–127) draws attention to the fact that internal validity of nursing diagnoses is limited by the difficult management/control of variables, experts, objects under assessment, and the environment.

EXTERNAL VALIDITY refers to the representativeness and generalization potential of research findings (Pelikán, 2011, p 64). Any implementation of the validation studies of nursing diagnosis should consider that external validity is influenced by two factors: 1 Representativeness, i.e. the size and selection of the research sample of the target population, and 2 The environment in which the research is conducted (Creason, 2004, p 123). Support of the importance of the external validity of evidence in the application of EBN (evidence-based nursing practice) is mentioned by e.g. Polit and Beck (2008, p 287). Their approach is worthy of consideration for all professionals dealing with EBP.

CONCLUSION – FURTHER RESEARCH INTO THE VALIDITY OF NURSING DIAGNOSES

Current research into the validation of NANDA-I nursing diagnosis system needs to **focus on improving the methodological concept**. According to Parker and Lunney (1998, pp. 144–150), Scroggins with Harris (2003, p 8), and Whitley (1999b, p 9–11), it is necessary to conduct **studies of construct validity** to reinforce the scientific aspect of the validation of nursing diagnoses. Parker and Lunney (1998, p 144) recommend a departure from content validation toward criterion

and construct validations. This view is supported by e.g. Scroggins and Harris (2003, p 8), who also highlight the lack of research findings on the construct and criterion validities of nursing diagnoses. All these authors emphasize the need for compliance with all the components of construct validation, which include:

- a) Formulation of the construct using the conceptual analysis method,
- b) Operationalization of diagnostic categories;
- c) Formulation of hypotheses,
- d) Generation of empirical data from various departments and locations;
- e) Examination of the reliability and incidence of diagnostic categories and outputs
- f) Summary and comparison of research conclusions;
- g) Reformulation of hypotheses for further testing and reformulation of the diagnostic categories of nursing diagnoses (Parker and Lunney, 1998, pp. 146–147; Scroggins and Harris, 2003, p 8; Whitley, 1999, pp. 9–11).

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