

# Validation of a tool for nursing appointment to the person with diabetes *mellitus* and/or systemic hypertension

Validação de um instrumento para consulta de enfermagem à pessoa com diabetes *mellitus* e/ou hipertensão arterial

Validación de un instrumento para la consulta de enfermería a la persona con diabetes *mellitus* y/o hipertensión arterial

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## Abstract

**Background:** The construction of data collection tools for the nursing appointment should be based on the characteristics and specificities of the population and place of employment.

**Objective:** To validate the appearance and content of the data collection tool for the nursing appointment of the person with diabetes *mellitus* and/or systemic hypertension within the context of primary health care (PHC).

**Methodology:** A methodological study was developed by means of the Delphi method from April to September of 2016, with 30 nurses from the PHC practice and teaching. The tool was based on the conceptual model by Wanda Horta and the Theory of Self-Care by Dorothea Orem, composed of 6 dimensions: Identification, Psychosocial, Psychospiritual, Psychobiological needs, and Disease perception and Self-care, subdivided into 25 categories. For analysis purposes, the Content Validity Index (CVI)  $\geq 0.80$  was used.

**Results:** All categories of the instrument's dimensions obtained a CVI  $\geq 0.80$ , with emphasis on the dimensions of Psychosocial and Psychospiritual needs.

**Conclusion:** The tool was confirmed valid in appearance and content for data collection in the nursing appointment.

**Keywords:** validation studies; delphi technique; nursing theory; data collection

## Resumo

**Enquadramento:** A construção de instrumentos de colheita de dados para a consulta de enfermagem deve basear-se nas características e especificidades da população e local de aplicação.

**Objetivo:** Realizar validação de aparência e conteúdo de um instrumento de colheita de dados para a consulta de enfermagem à pessoa com diabetes *mellitus* e/ou hipertensão arterial sistêmica no contexto dos cuidados de saúde primários (CSP).

**Metodologia:** Estudo metodológico desenvolvido a partir da técnica Delphi de abril-setembro de 2016, com 30 enfermeiros da prática clínica dos CSP e docência. O instrumento foi fundamentado pelo modelo conceptual de Wanda Horta e da Teoria do Autocuidado de Dorothea Orem, construído em 6 dimensões, sendo elas: Identificação, Necessidades psicossociais, Psicoespirituais, Psicobiológicas e Percepção da doença e Autocuidado, subdivididas em 25 categorias. Para análise, utilizou-se o Índice de Validade de Conteúdo (IVC)  $\geq 0,80$ .

**Resultados:** Todas as categorias das dimensões do instrumento obtiveram IVC  $\geq 0,80$ , destacando-se as dimensões Necessidades psicossociais e Psicoespirituais.

**Conclusão:** O instrumento revelou-se válido em aparência e conteúdo para colheita de dados na consulta de enfermagem.

**Palavras-chave:** estudos de validação; técnica delfos; teoria de enfermagem; coleta de dados

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## Resumen

**Marco contextual:** La construcción de instrumentos de recogida de datos para la consulta de enfermería debe basarse en las características y especificidades de la población y el lugar de aplicación.

**Objetivo:** Realizar la validación de la apariencia y el contenido de un instrumento de recogida de datos para la consulta de enfermería a la persona con diabetes *mellitus* y/o hipertensión arterial sistémica en el contexto de la atención primaria de la salud (CSP).

**Metodología:** Estudio metodológico desarrollado a partir de la técnica Delphi de abril a septiembre de 2016, con 30 enfermeros de la práctica clínica de los CSP y la docencia. El instrumento se basó en el modelo conceptual de Wanda Horta y de la Teoría del Autocuidado de Dorothea Orem, construido en las siguientes 6 dimensiones: Identificación, Necesidades psicosociales, Psicoespirituales, Psicobiológicas, y Percepción de la enfermedad y el Autocuidado, subdivididas en 25 categorías. Para el análisis, se utilizó el Índice de Validez de Contenido (IVC)  $\geq 0,80$ .

**Resultados:** Todas las categorías de las dimensiones del instrumento obtuvieron IVC  $\geq 0,80$ , y destacaron las dimensiones Necesidades psicosociales y Psicoespirituales.

**Conclusión:** Se mostró que el instrumento es válido en apariencia y contenido para la recogida de datos en la consulta de enfermería.

**Palabras clave:** estudios de validación; técnica delfos; teoría de enfermería; recolección de datos

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## Introduction

The nursing appointment appears as one of the independent nursing interventions, duly regulated by the Federal Nursing Board (COFEN). Composed of systemized and inter-related actions that seek to provide care to the individual and the community, at all levels of assistance, it presents to nurses conditions of direct and independent action (Scain, Franzen, Santos, & Heldt, 2013).

Its operationalization is based on the Nursing Process (NP), which is considered the main theoretical-methodological model that guides the actions of nurses in their professional practice, contributing to the identification of conditions of health and disease, prescription and implementation of nursing care that seek the promotion, prevention, and protection of health, in all public or private environments, where the professional nursing care occurs (Souza, Batista, Lisboa, Costa, & Moreira, 2013).

The NP is organized into five inter-related, interdependent, and recurrent steps which are: data collection or nursing history; nursing diagnoses; planning; implementation and evaluation of nursing. The data collection is a deliberate, systematic, and continuous process which should be carried out through various methods and techniques, including the use of a recording tool, aiming to understand the individual, family, or community, as well as their responses to the process of health and disease (Santos, 2014).

Therefore, and while understanding the importance of nursing care for the health of the individual and community, the objective of this study was to perform the validation of the appearance and content of a data collection tool for the nursing appointment to the person with diabetes *mellitus* (DM) and/or systemic hypertension (SHT), within the context of primary health care (PHC).

This tool contributes to nursing care from the NP perspective, guided by theoretical principles.

## Background

The construction of data collection tools for the nursing appointment should be based on the characteristics and peculiarities of the ap-

plication site and the individuals who will be assisted, in order to help the decision-making process of the professional and optimize the implementation of the NP. Surveys in the area of nursing have developed increasingly more studies of construction and validation of tools for its practice, as they reaffirm and collaborate with the evolution of the profession as a science (Ribeiro, Vedovato, Lopes, Monteiro, & Guirardello, 2013).

The validation of a tool aims to confirm if it assesses exactly what it proposes to do, that is, if it is able to accurately determine the phenomenon to be studied. It is a valid tool when its construction and employment enable the actual verification of something. Different techniques can be used for this process, including content validity and appearance validity (Alexandre & Coluci, 2011).

An integrative review showed that the majority of the validation studies of tools in the nursing field related to the phenomena of clinical practice especially in the area of adult health focused on the hospital environment, instead of the field of community health (Ribeiro et al., 2013).

Specifically regarding diseases like DM and SHT, the studies that deal with the validation of tools guided by theoretical nursing referential models are still incipient. It is known that the DM and SHT are considered an epidemic nowadays, thus being an important public health problem in Brazil and the world (Silva et al., 2014; Sousa et al., 2015).

The NP, based on a theory, enables guiding and operationalizing the nursing practice, as well as rendering it viable and achieving the results of the assistance provided to individuals, thus contributing to the scientification of the profession (Silva, 2014).

Although several conceptual models and nursing theories have been developed in recent decades, this study used, with the purpose of supporting the tool, the theoretical constructions of the conceptual model by Wanda de Aguiar Horta and the self-care theory by Dorothea Elizabeth Orem, because they guide the practice of care to people with chronic diseases, given their commitment potential in the ability of self-care practices and the basic human needs (Both et al., 2014; Monteiro et al., 2014).

## Research Question

Is the data collection tool for the nursing appointment to the person with DM and/or SHT, developed in this study, valid for use in the nursing appointment?

## Methodology

This is a methodological study with the purpose of validating a data collection tool for the nursing appointment to the person with DM and/or SHT in the context of PHC, conducted in a municipality in the Central West region of Minas Gerais, in the period from April to September of 2016.

The appearance and content validation was carried out using the Delphi method, which allows the nursing professionals, using their experiences on a given topic, to dialog and build a consensus of consistent opinions related to a particular subject to be studied (Souza, Andrade, Napoleão, Garcia, & Chianca, 2015).

The participants in this study were a group of 30 expert judges, directly involved in teaching and/or clinical nursing care to people with DM and/or SHT. The group included 12 nurses, teachers of a program of Nursing Residency in Primary Care and Family Health, and 18 nurse professors of three higher education institutions (HEIs) with undergraduate nursing courses of the municipality, in a total of 30 professionals. The inclusion criteria were: being a bond nurse of the municipality of the study and being a teacher of the residency program; being a nurse professor in HEIs with undergraduate nursing courses and teaching contents concerning the nursing process, systematization of nursing care, and/or adult health (DM and/or SHT).

The data collection tool for the nursing appointment to the person with DM and/or SHT was developed during the activities of the discipline of Systematization of Nursing Assistance (SAE) of a program of nursing residency in primary care and family health. Based on the process of the tool collective construction, the students of the discipline above mentioned, when bringing elements of their clinical practice as residents in PHC services, in agreement with their teachers in the

practice, regarding the nursing care to people with DM and/or SHT, compared these elements with the scientific evidence, national policies for the prevention and treatment of DM and SHT, and also with the conceptual model of Wanda de Aguiar Horta and the self-care theory of Dorothea Elizabeth Orem. Thus, this tool was composed of six dimensions from everyday practice: identification; psychosocial needs; psychospiritual needs; psychobiological needs; disease perception; and self-care. The dimensions were subdivided into 25 categories and assembled according to their theoretical conceptual proximity, in order to ease the validation process by the judges. The tool allows, therefore, based on its dimensions which are items the nurses must fill in, the data collection for the nursing appointment to the person with DM and/or SHT, according to the previously established theoretical basis.

To carry out the data collection, the judges received electronically a synthesis of the study including the objective and the employed methodology, and the free and informed consent form for reading and signing. After this term was accepted and resent to researchers, a file in Word format containing the tool was sent again to be assessed/validated.

This process occurred with the use of a Likert-type scale, with a 1 to 4 score, being: 1 = *not relevant/representative*; 2 = *needs major revision to be relevant/representative*; 3 = *requires minor revision to be relevant/representative*; and 4 = *relevant/representative item*. In addition to this score, there was also a free space for the judge to express possible suggestions to the tool.

In each round, the data obtained from the judges were quantitatively analyzed and organized in a simple statistical representation, in order to be resent to them (for feedback) in the form of a report, until a final consensus was reached.

This study was approved by the Research and Ethics Committee of the Federal University of São João del-Rei with the opinion No. 1,333,777. The judges were informed of the objectives of the study and the confidentiality of the informed data, read and signed the free and informed consent form, according to the ethical principles established by the Resolution of the National Board of Health/

National Committee for Ethics in Research No. 466/2012.

The data treatment was based on a quantitative analysis by means of the calculation of the content validity index (CVI). This method allows calculating the ratio or percentage of judges that agree with the tool developed in this study, with the evaluation of its categories and dimensions. Thus, one calculates the sum of the responses with a score of 3 or 4 of each judge in each category/item of the questionnaire, and then this number is divided by the total of responses. To validate the content of new tools, a minimum concordance of  $\geq 0.80$  (Coluci, Alexandre, & Milani, 2015) is recommended.

Therefore, a decision was made in this study that, at each round held for those categories of the tool, if they did not reach the minimum CVI ( $CVI \geq 0.80$ ) from the calculation of the responses with a score of 4 (relevant/representative item), these should be reformulated and submitted to a new evaluation. The evaluation of the tool regarding the validation of its appearance allowed a free space for suggestions, taking into account the following premises: a general presentation of the items and the tool; clarity of the included statements; understandability; interpretation and representativeness (Martins, 2006).

It must be noted that the external validation of the tool has not been carried out, since this is the elaboration of a tool that should be reassessed only after its implementation and then apply the necessary adjustments, thus providing greater consistency and representativeness to it. Its implementation requires the training of the professionals who will implement it and the posterior periodic assessments on its use.

## Results

The data collection tool for the nursing appointment to the person with DM and/or SHT was validated by the Delphi method after three rounds.

In the first phase, the tool was sent to a group of 30 judges, 21 of whom (70%) responded, including two nurse professors (9.52%) of the HEI-A, four nurse professors (19.04%)

of the HEI-B, six nurse professors (28.6%) of the HEI-C and nine nurse teachers (42.84%) involved in PHC.

The 21 judges who evaluated the tool were in its majority female (80.96%), their training time ranged between 6 and 22 years, with an average of 11.6 years; 47.6% were postgraduate *latu sensu*, 28.6% postgraduate *strictu sensu*, and 23.8% doctorate.

In the first round, of the 25 tool categories proposed nine were validated based on  $CVI \geq 0.80$ .

The suggestions of the judges for the not validated categories related to its form of presentation, inclusion, exclusion, relocation, or condensation. In the dimension of identification it was suggested that information should be condensed, as it brings together all the information already existing by means of the system of local health information and also adds other diseases to the health/family history; in the category of religious practice and attendance, changes were suggested regarding its presentation; for the categories related to the physical exam the specific prioritization of aspects related to the DM/SHT was recommended.

In the second round, after submission of a report on the validation (feedback), the tool, already altered based on the suggestions of the 21 judges, was resubmitted, and 19 evaluations were returned (90.47%), which validated 14 other categories of the 25 proposed categories.

Once again, after the suggestions of the judges, modifications were made regarding the presentation of the category of nutrition and hydration, so that it is clearer for the professional and the patient during the data collection, in which the latter specifies better their diet habits and the quantity/portions of daily food and water intake; for the category of urinary excretion the increase of the assessment standard to 24 hours was recommended.

Finally, in the third and final round, after submission of the report on the validation (feedback), the tool, already altered based on the suggestions of the judges, was resubmitted to the 21 judges, who returned 19 evaluations (90.47%). In this phase, two categories were validated and, consequently, thus achieving the final consensus, of the 25 categories of the tool.

The content validation of the data collection tool for the nursing appointment to the person with DM and/or SHT was achieved in this study. The existence of concordance among

the judges was confirmed by the value of CVI  $\geq 0.80$  in the individual assessment of the 25 categories of the tool, as well as in its six dimensions and the tool in general (Table 1).

Table 1

*Content Validity Index of the data collection tool for the nursing appointment to the person with DM and/or SHT.*

Dimension	No.	Tool Categories	CVI <sup>1</sup>	CVI <sup>2</sup>	CVI <sup>3</sup>	
Identification	1	Sociodemographic data	0.84			
	2	Clinical diagnosis of systemic hypertension/diabetes <i>mellitus</i>	0.89	0.87		
		Risk classification of HIPERDIA				
		Presence of companion and degree of relationship				
			Date of the first appointment			
	3	Motive of appointment	0.89			
	4	Family history	0.89			
		Antecedent history				
Psychosocial needs	5	Life habits	0.94			
	6	Support networks	0.84	0.90		
		Leisure activities				
	7	Living conditions	0.89			
8	Current expectations regarding treatment	0.94				
Psychospiritual needs	9	Religious Practice and Attendance	0.81	0.81		
Psychobiological needs	10	Sensorial system	0.94			
	11	Nutrition and hydration (feeding habits and water intake)	0.84		0.88	
		Anthropometric data				
	12	Oxygenation – Respiratory System: vital information and physical examination	0.94			
	13	Cardiovascular system: vital information and physical examination	0.89			
	14	Tegumental system: physical examination	0.85			
	15	Neuromotor system: physical examination	0.89			
	16	Body care	0.85	0.88		
		Sleeping habits, rest, and comfort (satisfactory sleep, existence of difficulties, and daily sleep hours)				
	17		0.90			
	18	Urinary excretion	0.85			
19	Bowel excretion	0.90				
20	Performance of physical activity	0.85				
21	Medication intake – frequency, quantity, administration route, knowledge of instructions, history of use	0.95				
	Use of Medicinal Plants – frequency, quantity, administration route, knowledge of instructions, history of use					

	22	Laboratory tests conducted with a schedule - Hemoglobin/Hematocrit, fasting glycemia, glycated hemoglobin, total cholesterol and fractions, triglycerides, creatinine, hepatic enzymes, others	0.84	
	23	Feelings when informed of the diagnosis of systemic hypertension/diabetes <i>mellitus</i> Meaning of being a person with systemic hypertension/diabetes <i>mellitus</i> Knowledge of the risks of systemic hypertension/diabetes <i>mellitus</i> for health and quality of life	0.89	0.88
Disease perception and self-care	24	Ability and means of controlling systemic hypertension/diabetes <i>mellitus</i> Ability of medication use Ability to improve the diet Main difficulties regarding pharmacological and non-pharmacological treatment	0.94	
		Difficulties related to speech, reading, writing, or language comprehension		0.88
	25	Ability of Self-feeding Knowledge of feeding care to control systemic hypertension/diabetes <i>mellitus</i>	0.81	
		Need for help with daily life activities		

*Note.* No. = Number of tool category; CVI1 = Content Validity Index by category; CVI2 = Content Validity Index by size; CVI3 = Total Content Validity Index of the tool; HIPERDIA = System of Recording and Follow-up of Hypertensive and Diabetic Patients.

It occurred, over the course of the validation process, that the judges, in some moments, evaluated the tool only taking into account its environment of professional activity, which meant that, during the subsequent rounds, they changed opinions on the previously validated categories, even though the feedback report clearly stated the consensus had already been reached.

Among the six validated dimensions, the consensus of the Psychosocial dimension needs stands out, which reached a CVI = 0.90, revealing even higher CVI values in their categories of Life habits and Current expectations regarding treatment, both with a CVI = 0.94. The tool also achieved appearance validity, because when the proposals of the judges were observed, as alterations of the content of some categories or their relocation within another dimension in accordance with their theoretical proximity, as well as the synthesis of information to reduce the extent of the tool, consensus was reached over the presentation format,

clarity, understanding, and readability, giving appearance validity to the tool.

## Discussion

It is known that the use of measuring tools in health practices grows progressively. In the field of nursing, validating tools that guide the practice means developing health technologies for the profession, once it becomes possible to guide nursing care and improve the quality of assistance (Vieira et al., 2016). Therefore, tools based on theoretical nursing referential models regarding the appointment with the person with DM and/or SHT, duly validated as in this study, contribute to nursing care, ensuring a safe and legally legitimate practice.

During the validation process of appearance and content of the tool, the diversity of professional experiences of the judges proved to be convenient, because it assembled different the-

oretical and practical fields of knowledge on the addressed topic, and studies similar to this also emphasize the importance in the validation of tools (Coluci et al., 2015). Another contribution related to the possibility of validating a tool which complies with the local and regional demand, as it fulfills the health needs of the population and is significant for nursing care.

The consensus of the judges was reached with a CVI  $\geq 0.80$  for the dimensions and categories of the tool, proving that the latter was considered valid regarding its ability to achieve its proposed purpose. In order to confirm the validity of new tools, the authors suggest and often use a CVI value of  $> 0.78$  for individual items and a CVI  $\geq 0.80$  for the tool in general (Coluci et al., 2015; Cucolo & Perroca, 2015).

It is worth mentioning the CVI values related to the consensus for the categories of Life habits and Current expectations regarding treatment (CVI = 0.94), belonging to the dimension of Psychosocial needs, which also stood out among the other dimensions. It is important to note that, within the context of PHC that dimension is one of the priorities in health care actions, in particular, those of the responsibility of the professional nurse. During the care in this field of action it is possible to circulate in different areas of knowledge and realities of the population, and thereby understand the individuals in their uniqueness and complexity, while identifying and accepting their needs and social differences, in order to boost the care interventions (Backes, Backes, Erdmann, & Büscher, 2012).

Nevertheless, in the dimension of Psychospiritual needs, as regards its single category of Religious practice and attendance, the lowest CVI value (0.81) occurred. Among the suggestions made by the judges, it was considered that this category has a low power of intervention within the scope of PHC.

In everyday health practices, integral care requires that the health professionals establish a greater commitment with the reception and humanization. Thus, assistance care must be based on a wider assessment, which includes the religious and spiritual aspects. Thus, it becomes possible to offer a space for the subjectivity of individuals, as that the religiosity and spirituality are elements which integrate this subjectivity, and, therefore, it is necessary that

the professionals, in their practice, learn to deal properly with these phenomena (Melo, Sampaio, Souza, & Pinto, 2015).

When achieving appearance validity through consensus of the judges after their proposals were observed, the tool showed clarity and understanding regarding the items which it is composed of, and adequate presentation format to the target public.

Validating an tool based on a nursing theory promotes improvements of the practice of nursing care and, furthermore, consolidates and expands the profession as a science, with a body of its own knowledge, which allows the guidance and operationalization of assistance and the planning of interventions according to the needs of each person, while confirming their results with positive impacts on their health condition (Queirós, Vidinha, & Filho, 2014).

The limitations of this study were the incongruity between the qualification of judges and their limited experiences within the context of nursing care based on theoretical principles. As regards the external validation of the tool, another limitation is due to the fact that, only after the implementation of the tool and its respective revaluations, it will be possible to achieve greater consistency and representativeness of the tool in nursing care practice.

## Conclusion

The data collection tool for the nursing appointment to the person with DM and/or SHT was validated in appearance and content with the use of the Delphi method, which allowed the employment of this method in the nursing field.

The consensus of the judges was reached with a CVI  $\geq 0.80$  for the dimensions and categories of the tool, with a great emphasis on higher values related to the consensus for the categories of Life habits and Current expectations regarding treatment, belonging to the dimension of Psychosocial needs. On the other hand, the lowest CVI value occurred in the dimension of Psychospiritual needs.

During the validation of the tool, it was evident that the contribution and the experiences of judges based on their respective field of ac-

tivity, teaching and care, have made this process even more complete and assertive since it obtained a theoretical-practical consensus in relation to the nursing appointment.

Therefore, the validated tool will enable conducting the nursing appointment while taking into account the characteristics required for the care of basic human needs and self-care of people with DM and/or SHT.

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