DOI: 10.1590/S0080-623420130000500010

ORIGINAL ARTICLE

Content validation of the dimensions constituting non-adherence to treatment of arterial hypertension*

VALIDAÇÃO DE CONTEÚDO DAS DIMENSÕES CONSTITUTIVAS DA NÃO ADESÃO AO TRATAMENTO DA HIPERTENSÃO ARTERIAL

VALIDACIÓN DEL CONTENIDO DE LAS DIMENSIONES QUE CONSTITUYEN LA FALTA DE ADHERENCIA AL TRATAMIENTO DE LA HIPERTENSIÓN ARTERIAL

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ABSTRACT

The objective of the study was to validate the content of the dimensions that constituted nonadherence to treatment of arterial systemic hypertension. It was a methodological study of content validation. Initially an integrative review was conducted that demonstrated four dimensions of nonadherence: person, disease/treatment, health service, and environment. Definitions of these dimensions were evaluated by 17 professionals, who were specialists in the area, including: nurses, pharmacists and physicians. The Content Validity Index was calculated for each dimension (IVCi) and the set of the dimensions (IVCt), and the binomial test was conducted. The results permitted the validation of the dimensions with an IVCt of 0.88, demonstrating reasonable systematic comprehension of the phenomena of nonadherence.

DESCRIPTORS

Hypertension
Medication adherence
Patient compliance
Validation studies

RESUMO

O objetivo do estudo foi realizar a validação de conteúdo das dimensões constitutivas da não adesão ao tratamento da Hipertensão Arterial Sistêmica. Estudo metodológico de validação de conteúdo. Inicialmente foi realizada uma revisão integrativa que demonstrou quatro dimensões da não adesão: pessoa, doença/tratamento, serviço de saúde e ambiente. As definições dessas dimensões foram avaliadas por 17 profissionais especialistas na temática, entre enfermeiros, farmacêuticos e médicos. Foi calculado o Índice de Validade de Conteúdo de cada dimensão (IVCi) e do conjunto das dimensões (IVCt) e realizado o teste binomial. Os resultados permitiram a validação das dimensões com um IVCt de 0,88, demonstrando razoável compreensão sistêmica do fenômeno da não adesão.

DESCRITORES

Hipertensão
Adesão à medicação
Cooperação do paciente
Estudos de validação

RESUMEN

El objetivo del estudio fue realizar la validación del contenido de las dimensiones que constituyen la falta de adherencia al tratamiento de la hipertensión arterial sistémica. Estudio metodológico de validación del contenido. Inicialmente se realizó una revisión integradora que demostró cuatro dimensiones de la falta de adherencia: persona, enfermedad/tratamiento, servicio de salud y ambiente. Las definiciones de estas dimensiones fueron evaluadas por 17 profesionales expertos en el tema, entre ellos enfermeras, farmacéuticos y médicos. Se calculó el Índice de Validez del Contenido de cada dimensión (IVCi) y del conjunto de las dimensiones (IVCt), y se realizó la prueba binomial. Los resultados permitieron la validación de las dimensiones con un IVCt de 0.88, demostrando razonable comprensión sistémica del fenómeno de la falta de adherencia.

DESCRIPTORES

Hipertensión
Complimiento de la medicación
Cooperación del paciente
Estudios de validación

* Extracted from the master's thesis, "Instrumento de Avaliação da não Adesão ao Tratamento da Hipertensão Arterial: desenvolvimento e validação de conteúdo", Graduate Nursing Program, Universidade Estadual do Ceará, Brazil, 2012.

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Recebido: 09/18/2012
Aprovado: 04/01/2013

INTRODUCTION

Nonadherence to the treatment of systematic arterial hypertension (SAH) is defined as intentional or nonintentional behavior of the individual that does not partially or totally coincide with the health promotional or therapeutic plan, or with the recommendations and decisions made by means of shared agreement between the health professional/multidisciplinary team and the individual, family and community. It includes difficulty with pharmacological and nonpharmacological treatment, and the failure to attend activities in the health services (consultations, group activities), which may lead to results that are clinically ineffective or partially effective[1].

Nonadherence is a public health problem and has been called the *invisible epidemic*, varying between 15 to 93%, with the mean estimated at 50%, depending on the method used for measurement(2). Its prevalence in relationship to pharmacological regiment is 47% in Spain, 58.3% in the United Kingdom, 11% in Switzerland, 10.6% in Holand, 74% in the Seychelles, 78.5% in Mexico, 40.4% in Colombia and 77.3% in Chile.

In Brazil, the rates of nonadherence have reached 49% in Rio de Janeiro, 43.4% in Porto Alegre, 83.3% in São Paulo, and 25% in São Luiz. In Fortaleza, this rate varies between 36 and 42%[3]. For the World Health Organization (WHO)[4], the magnitude and the impact of low adherence in developing countries is even higher, given the scarcity of resources for health and the inequalities of access to health care.

... it clear that the usual belief that the patients are the ones responsible for the treatment is misleading.

Various factors interfere in the therapeutic process, contributing to nonadherence, such as socioeconomic level, beliefs, complexity of treatment, values, aspects related to health services and the professional-patient relationship.

The WHO defines adherence to treatment of chronic conditions as a multidimensional phenomena determined by the conjuction of five factors, called *dimensions*: health system, illness, treatment, patient, and factors related to the caregiver. This classification makes it clear that the usual belief that the patients are the ones responsible for the treatment is misleading. Most of the time, this belief reflects a lack of understanding about how various factors affect peoples' behavior and their ability to adhere to treatment[4].

Faced with the above, the aim of this study was to validate the content of the dimensions constituting nonadherence to hypertensive treatment.

METHOD

This was a methodological, quantitative study. The research methodology was one that investigated, organized and analyzed data to construct, validate and evaluate instruments and techniques of research focused on the development of specific tools for collecting data, in order to improve the reliability and validity of these instruments. It referred to the development of instruments to capture or manipulate reality and it was associated with pathways, forms, manners and procedures to achieve a particular purpose[5].

The elucidation of the constitutive definitions of nonadherence to hypertension treatment constitutes a source of knowledge and guidance for actions of health professionals. We sought to understand the dimensionality of this construct, namely, the internal structure and semantics that compose *non-adherence to hypertensive treatment*. The theory about the construct and the empirical data available about it should be carefully analyzed to decide whether it is a single or multifactorial construct[6].

An extensive literature review was performed that examined 48 studies within 16 countries, making it possible to develop this construct as a multidimensional phenomenon involving four dimensions, which were named: person, disease/treatment, health services and the environment.

As the next step, the constitutive definitions were developed and were exposed to content analysis by a panel of experts in hypertensive treatment adherence, who decided on the pertinence of these dimensions to the construct they represented. It was necessary that the judges were experts in the area of the construct, because their task consisted of deciding whether items referred to, or did not refer to, the latent trait in question.

For the definition of the sample, we conducted a search in the databases of the Coordination of Improvement of Higher Education Personnel (CAPES) in order to find potential specialists in adherence/nonadherence to the treatment of arterial hypertension to compose the sample. An electronic search with the terms *hypertension* and *cooperation of the patient* resulted in 123 specialists in adherence/nonadherence to hypertensive treatment. For the establishment of the size of the sample, a formula was used that took into account the final proportion of specialists in relationship to a particular dichotomous variable, and the maximum acceptable difference of this ratio was adopted[1]. Thus, the study sample was 17 specialists.

As a criterion for the selection of the specialists, an adaptation was made of the scoring system of Fehring[7], or *the Fehring model*, designed for the selection of expert nurses to validate nursing taxonomies. According to the scoring system presented, the experts must obtain a minimum score of five points for inclusion in the panel of specialists. An adaptation was achieved for the appropriateness to the object of this study.

Chart 1 - Adaptation of the scoring system specialists of the model of content validation by Fehring- Fortaleza, 2012

Fehring criteria (1994)	Points	Adapted criteria	Points
Master's degree in nursing	4	Master's degree (Required)	0
Master's degree in nursing thesis with content relevant to the clinical area	1	Master's degree with thesis about hypertensive treatment adherence	2
Researcg (with publication) in the diagnostic area	2	Research in the area of hypertension	3
Article published in the diagnostic area in a reference journal	2	Article published in the area of hypertension treatment adherence in journals ≥B2	2
Doctorate in diagnostics	2	Doctorate with dissertation about hypertension	4
Clinical practice for at least one year in the area of medical-surgical nursing	1	Clinical practice for at least one year in the area of Primary Health Care	2
Certified in the medical-surgical are with proven clinical practice	2	Certified as a specialist in hypertension, cardiology, Family / Public health or related areas	1
Maximum Score	**14**	**Maximum Score**	**14**

In this way, the inclusion criterion for an expert in this study was considered to be a score ≥ 5 , based on the scoring in chart 1. The exclusion criteria were: specialist that changed his line of research 5 years ago, and no longer worked with the theme of arterial hypertension.

The national data from CAPES was used for identification of the specialists, who were located in diverse cities and states. Therefore, for the data collection, contact was made by e-mail soliciting their participation in the study. They were sent an invitational letter explaining the purpose of the study, a synthesis of the methodology, and the role of the specialist in the research. Upon their approval, they were sent via e-mail the data collection instruments and the Terms of Free and Informed Consent.

For data collection, two forms were used: the first was to characterize the specialists, composed of socio-demographic and academic variables, and the second, for the validation of the content of the constitutive definitions of the dimensions of nonadherence to hypertension treatment. For experts to evaluate the relevance of each definition, a categorical ordinal scale of four points was used: 1: not indicative; 2: very little indicative; 3: considerably indicative; and, 4: greatly indicative.

Thirty days were made available for each specialist to return the material to which he responded, however, due to the low return, it was necessary to double this time.

After evaluation of the specialists, to determine their level of agreement, the Content Validation Index (IVC) was calculated for every one of the definitions. This was a widely used method in the health area that measured the proportion or percentage of judges in agreement about certain aspects of concepts about a theme. This initially enabled the analysis of each constitutive dimension individually, and then the set of definitions as a whole. It was also defined as the proportion of items that received a score of 3 or 4 by the specialists[8]. In order to be considered excellent, taking into consideration a panel of specialists with more than 16 members, content validity had to achieve an IVC between the items (IVCi) of 0.75 or higher[8].

The instruments were reviewed and the data were entered into a statistical program in which the indices of all the variables were obtained. The statistical analysis began with a list of absolute and relative frequencies of each variable, mean and standard deviation for the continuous variables. Tables and graphs were then constructed, showing the results of the analysis. For analysis of the constitutive definitions, operational definitions and their items, their respective IVC were calculated. Testing was also performed of the exact binomial distribution, suitable for small samples, with a 5% (p> 0.05) significance level adopted, and a ratio of 0.75 of agreement desired to estimate the statistical reliability of the IVC.

The study was submitted to and approved by the Committee on Ethics in Research of the Universidade Estadual do Ceará (UECE) under process No. 11517971-2. The ethical principles were followed in all phases of the study, in agreement with the directives of Resolution 196/96 of the National Council of Health.

RESULTS

In terms of the characteristics of the specialists, the great majority were female (94.1%). Regarding age, the mean encountered was 39 years, with a range between 27 and 54 years. More than half, 77.3%, had graduated in nursing (70.6%), 23.5% in pharmacy, and 5.9% in medicine. The participation of nutritionists and physical educators that were included in the inclusion criteria was also solicited, but no response was obtained. In relationship to the completion of graduate courses, stricto senso, there was one person with a post-doctorate, 5.9%, seven (52.9%) had a doctorate, and six (41.2%), had a master's degree.

In relationship to the scoring by the specialists, it was observed that there was a variation between 7 and

14 points, with the mean of 10.41, standard deviation of 2.476, and a median of 9. This revealed that people were knowledgeable about the theme of adherence to hypertension treatment. Their average time of education was 16.32 years, with the majority between 11 and 20 years. In relationship to academic production regarding SAH, 58.8% had defended their doctoral dissertation, 88.2% their master's thesis, 47.1% had a specialization course involving the theme, and 64.7% had clinical practice with hypertension.

For the content validation of the constituitive definitions, the literature review revealed a broad construct of the conceptualization of nonadherence to hypertensive treatment, with a systematic comprehension involving four dimensions. The ICV of the definitions constituting the dimensions are presented in Table 1.

Table 1 – Content Validation Index (IVC) of the definitions constituting the latent trait, "nonadherence to hypertensive treatment" - Fortaleza, CE, Brasil, 2012.

Dimensions and subdimensions	Item IVC	Binominal Test
Person Dimension		
Denotes the human being in his biological, social and spiritual aspects. Encompasses the interdependent variables related to biological, psychological / cognitive, behavioral, and socioeconomic status.	1.0	0.000
Biological Subdimension		
Variables closely related to the organism which are not subject to modifications associated with changes in blood pressure.	0.76	0.353
Psychological/Cognitive Subdimension		
Variables related to the psyche, to the emotional, and the capacity for comprehension of the individuals that make it difficult to take medication and to make changes in lifestyle	1.0	0.000
Behavioral Subdimension		
Actions of human beings/actors harmful to adherence to hypertensive treatment.	0.88	0.05
Family Subdimension		
Variables related to living in the micropolitics of the family group that hinder modifications in lifestyle for the subject with hypertension.	1.0	0.000
Socioeconomic Subdimension		
Variables related to social position, socioeconomic level of the person and its influence on nonadherence (salary, education) to hypertensive treatment	0.88	0.05
Disease/Treatment Dimension		
Presence or absence of symptoms of hypertension and other comorbidities that alter the treatment regimen and consequently the daily routine throughout the years. Organic alterations and modifications in daily living provoked by consumption of antihypertensive medications that lead to nonadherence.	0.94	0.007
Health Service Dimension		
Location where continuity of care is established by health professionals, which is under the direct influence of human relationships between professionals and the individuals for whom they provide care, of the infrastructure and operationalization of the services dispensed.	0.94	0.007
Environment Dimension		
The location where the health facility is encountered, housing of the subject and his work and the interfaces with the treatment of hypertension that hamper good continuity of care.	0.76	0.353
Total IVC	**0.88**	

DISCUSSION

In this research a great majority of the specialists were female, corroborating data of translation and validation studies of the instrument in the evaluation of triage in emergency[9]; validation of the instrument of systematization of nursing care in children with hydrocephaly[10]; and validation of the noncompliance nursing diagnosis in people with hypertension, in which more than 95% of the specialists were female[1].

The mean age was 39.14 years, with a range similar to other studies[10-11]. Different findings were encountered in the study of diagnostic validation, with a mean of 28 years, indicating the early reflection of recent graduates in graduate courses, showing the constitution of experts in certain subjects during very early professional life[1].

In relationship to academic education, some studies demonstrated that the specialist should posses a body of specialized knowledge. The major time of education provides indices of professional maturity, becoming an indicator of experience and consequent skill in professional actions[1,11-12].

About the validation of content constituting the dimensions, it can be emphasized that the systematic comprehension of nonadherence to hypertensive treatment allows the reflective exercise of this phenomenon that is difficult for health professionals to approach, once it

reaches complex dimensions of the everyday lives of the subjects. From this understanding, it is possible to think of each dimension and its interrelated constituents, pursuing convergence for knowledge construction of approaches centered in the reality of the life of each person.

It was possible to validate the set of dimensions with a total IVC of 0.88. This result leads to the reflection that new paradigmatic horizons in the science field emerged for the understanding that transformed the care of people with hypertension, meeting the assumptions of Public Health. Searching for an understanding goes beyond the biomedical view of nonadherence to hypertension treatment as a factor essentially linked to the person's behavior and use of medications. Searching is also reflective, as an exercise of contemporaneous times, about more human responses to organic, psychological, emotional, cognitive and social disorders awakened by the presence of this disease.

The interference of disease in the lives of the patients with hypertension began at the moment in which the individual perceived the illness. A difficulty existed in convincing the subject, who was very often asymptomatic, that he had hypertension, especially when this label implied changing pleasurable habits or also the obligation to use medications permanently[13]. The individual needed to present permanent changes in behavior, since that was what determined his ability to live amicably with the disease[14].

The person dimension obtained an excellent IVC (1.0; p>0.001) and this result can be analyzed from the viewpoint of patient responsibility when facing nonadherence to hypertensive treatment. This comprehension was very strong in health professionals, an ideological reflection on the hegemonic discourse that still imposed care on the hypertensive patient. On the other hand, this dimension was analyzed from the standpoint of its biological, psychological/cognitive, behavioral, family and socioeconomic subdimensions, in an attempt to deconstruct some of this traditional paradigm, towards an interrelational understanding of the phenomenon.

Of the five subdimensions of the person dimension, the biological was the one that obtained the lowest IVC (0.76 and p=0.353). This result may be related to the fact that this subdimension was restricted entirely to nonmodifiable variables and, in this way, it represented a difficult field for the design of interventions by health professionals to improve therapeutic adherence. However a reflection about the biological factors as tools for the delineation of actions in health services is important, whether they be group, educational or individual[13,15].

The Psychological/Cognitive and Family subdimensions also obtained excellent content validity (IVC=1.0; p>0.001). Psychological well-being and good cognition were essential for continuity of care, the recovery of these conditions should always be part of the planning for the care of individuals with hypertension. Harmony in the family micropolitics was also an important factor to be considered in monitoring these patients. It was important for the individual to be able to count on the cooperation of everyone, especially the family[14]. The dialogical relationship of the members of this group had repercussions on self-care practices and care that was consistent with the health situation experienced.

The Behavioral and Socioeconomic subdimensions obtained the same IVC (0.88; p=0.05). Behavior was one of the principle factors observed in the therapeutic processes, that suffered the direct influence of the socioeconomic factors and transited between two poles, positive and negative, adherence and nonadherence. One study[1] conceptualized *lack of adherence* behavior as the lack of adequate engagement of the hypertensive patient with recommended behaviors, engaging in unhealthy behaviors, or also the lack of interest in following the professional recommendations or acquiring knowledge.

The disease/treatment and health service dimensions were validated with an IVC of 0.94 (p=0.007). Living with a disease, its treatment and the way in which the health service interacted with the patient all composed objective and subjective demands on the process of therapeutic adherence. It is in this space that dialogues were necessary in care for living with hypertension, in the search for a new harmony of blood pressure levels and, in changed social processes.

The health service was the complex locus of care, imbued with ideological representations that shaped the practices of health professionals from the articulation of different knowledge and elements, be they social, scientific, cultural, anthropological or symbolic. In this space, there was also the symbolic power present in the environment of health facilities as a facet of the structure of domination of the biomedical discourse that transited transdisciplinarily in all social practices[16].

The Environment domain obtained the lowest IVC among all the dimensions, with an index of 0.76 (p=0.353). Its formulation was consolidated from international studies[17-21] and only one Brazilian study[22] that indicated variables that fit into this dimension. Therefore, the IVC may be a reflection of this characteristic and indicative of a gap in Brazilian literature, leaving the discussions that involve environmental aspects of adherence to hypertensive treatment with low visibility in relation to others. The awakening of Brazilian researchers to investigate environmental variables that are associated with non-adherence is necessary.

It must be assumed that in the experience of the individuals with hypertension, and their relationship with health professionals, there exists a connection between

knowledge and behavior, considering that both are constructed in the social universe through interaction, appropriation and social determination[13].

Departing from the interdimensional dynamic that involved nonadherence to hypertensive treatment, the lack of systemic understanding was a challenge that must be overcome, which may be useful for the individual suffering the condition, his family, his community, the health professionals and administrators in developing strategies for improving adherence.

CONCLUSION

It is necessary that health professionals understand that adherence to hypertensive treatment is a complex issue which rests upon four interdependent dimensions that require systematic understanding: person, disease/treatment, health service, and environment.

In this study, the dimensions of person (with its psychological/cognitive, behavioral, family and economic subdimensions), illness/treatment and health service had its content validated by specialists in nonadherence to hypertensive treatment. The environment dimension and the biological subdimension were critical for engendering new research.

A new proposal for the understanding of the construct *nonadherence to hypertension treatment* was validated by a group of specialists, in an attempt to contribute to the deepening of this compelling theme that challenges the health system. It is hoped that this provided an opening in the comprehensiveness of the construction and generation of indicators, actions and strategies to improve therapeutic adherence. It is expected, above all, that these results warn of a paradigm shift in the understanding of hypertension and how it affects the daily lives of these patients, passing beyond the human being and his relationship with the disease, to include the health services and the social environment in which he lives.

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