

Powerlessness assessment tool for adult patients*

INSTRUMENTO DE MEDIDA DO SENTIMENTO DE IMPOTÊNCIA PARA PACIENTES ADULTOS

INSTRUMENTO DE MEDIDA DEL SENTIMIENTO DE IMPOTENCIA PARA PACIENTES ADULTOS

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ABSTRACT

The objective of this article is to report the development of a tool to assess powerlessness in adult patients. Theoretical, empirical and analytical psychometric based procedures were applied to develop the tool. The tool was tested in 210 patients for item selection, reliability and validation estimate and it consisted of 12 items in three domains: Capacity to perform behavior ($\alpha=0.845$); Self-perception of decision making capacity ($\alpha=0.834$); and Emotional responses to perceived control ($\alpha=0.578$). The total alpha was 0.799. Criteria validity was estimated by testing the association between the developed instrument and a general statement on control perception ($p<0.000$). The Powerlessness Assessment Tool will be useful to assess this nursing diagnosis as well as for the selection and evaluation of interventions.

KEY WORDS

Nursing diagnosis.
Psychometrics.
Perception.
Validation studies.

RESUMO

O objetivo deste artigo é relatar a construção de um instrumento para medir o sentimento de impotência em pacientes adultos internados. Para a construção deste instrumento, utilizamos procedimentos teóricos, empíricos e analíticos (estatísticos) com base na psicometria. O instrumento foi testado com 210 pacientes para seleção de itens, confiabilidade e validade e ficou constituído por 12 itens com três domínios: capacidade de realizar comportamento ($\alpha=0,845$), percepção da capacidade de tomar decisões ($\alpha=0,834$); e resposta emocional ao controle das situações ($\alpha=0,578$). O alfa total foi de 0,799. Estimativas de validade de critério foram obtidas por associação entre o instrumento desenvolvido e uma afirmação geral sobre a percepção de controle ($p<0,000$). O instrumento de Medida do Sentimento de Impotência para pacientes adultos servirá de base para avaliar esse diagnóstico de enfermagem, definir e apreciar intervenções clínicas.

DESCRIPTORES

Diagnóstico de enfermagem.
Psicometria.
Percepção.
Estudos de validação.

RESUMEN

El objetivo de este artículo es relatar la construcción de un instrumento para medir el sentimiento de impotencia en pacientes adultos internados. Procedimientos teóricos, empíricos y analíticos, con base en psicometría, fueron aplicados para la construcción de este instrumento. El instrumento fue testado con 210 pacientes para selección de ítems, confiabilidad y validez. El instrumento quedó constituido por 12 ítems con tres dominios: capacidad de realizar comportamiento ($\alpha=0,845$), percepción de la capacidad de tomar decisiones ($\alpha=0,834$); y respuesta emocional al control de las situaciones ($\alpha=0,578$). El alfa total fue de 0,799. Estimación de validez de criterio fueron obtenidas por la asociación entre el instrumento desarrollado y una afirmación general sobre la percepción de control ($p<0,000$). El instrumento de medida de sentimiento de impotencia para pacientes adultos servirá de base para evaluar ese diagnóstico de enfermería, definir y apreciar intervenciones.

DESCRIPTORES

Diagnóstico de enfermería.
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INTRODUCTION

The diagnosis of powerlessness has not gone through any change to its components since its approval by the North American Nursing Diagnosis Association-International (NANDA-I) in 1982. It is mandatory for this diagnosis to be properly identified, since it could be frequent in adult patients and requires nursing interventions. This diagnosis is often difficult to identify because it is a highly subjective and complex human response, and multidimensional interrelated factors are often implied. In addition, it is highly abstract and shares its indicators with other human responses.

Several NANDA-I⁽¹⁾ diagnoses can be confused with the diagnosis of powerlessness, such as: grieving, disturbed body image, ineffective coping, hopelessness, low self-esteem, and ineffective therapeutic regimen management. The literature also states how the powerlessness concept overlaps the concept of Learned Helplessness⁽²⁾, and relates powerlessness with the concept of Locus of Control, developed within the context of the social learning theory⁽³⁻⁴⁾.

As a psychosocial phenomenon, powerlessness presents specific indicators and dimensions. Since it cannot be assessed directly, it calls for the construction of a psychometry-based tool.

OBJECTIVE

The objective of this article is to report the construction of a tool to assess powerlessness in hospitalized adult patients.

METHOD

Theoretical, empirical, and analytical (statistical) psychometry procedures were used to construct the powerlessness assessment tool⁽⁵⁾.

The theoretical procedures were: choosing a theoretical model and a constitutive definition of powerlessness, breaking the concept into items, and, finally, submitting item content to validation by judges (theoretical analysis), who also performed their semantic and intelligibility analysis.

The purpose of the empirical procedures was to obtain answers from a patient sample to base item selection and obtain reliability (internal consistency) and validity (factorial analysis, convergent validity) estimates for the tool.

The sample consisted of 210 patients, with ages over 18 years, hospitalized in a medical or surgical ward of three medium and large scale philanthropic hospitals in the state of Minas Gerais, Brazil. Participants who agreed to take part in the study signed the Free and Informed Consent Term (FICT), as per Resolution 196/96 of the National Health Council.

The tool was composed by the powerlessness items maintained after the judges' evaluation and the spaces for recording demographic, social, and clinical data, in addition to the instructions to answering the items. The tool was self-administered and was done by interview only in cases when the patient was unable to read or write. The following question was included with the patient characterization data: How much control do you feel you have over your situation? The answers could be one of the alternatives: 1=a lot, 2=some, 3=little, 4=almost none, 5=none. The mean score to this question was compared to the mean scores of the items created to assess powerlessness to test the hypothesis that there was a positive correlation between them. Since there is no other tool with reliable and valid psychometric properties to assess this concept, the answers to the general question were analyzed as an estimate of the convergent validation of the tool.

In 20% of the sample (42 patients), the tool was administered twice, with a one-week interval. The answers were analyzed as test-retest in terms of the correlation between the two collections. These scores were used to estimate stability. The hypothesis was that there was no difference in the scores regarding the two answer phases.

Several NANDA-I diagnoses can be confused with the diagnosis of powerlessness

Analytical procedures were applied to select the items for the powerlessness scale. The power of discrimination of the items was analyzed, the item-total correlation (considering the total items of the preliminary instrument), the factorial analysis, and, once again, the item-total correlation, according to the components produced by the factorial analysis. The power of discrimination was estimated by analyzing the patients' answers that obtained the highest total scores with the answers of those who obtained the lowest total scores. All items statistically different by the t Test were considered as having a high discrimination power.

Items with item-total correlation coefficients below 0.20 or above 0.80 were excluded. This criterion was established based on the presupposition that good items should have moderate item-total correlation coefficients. The items that remained after the item-total correlation analysis were submitted to factorial analysis by the principal component method. For this analysis, the exclusion criteria for the items were: no components with a factorial load greater than 0.30⁽⁶⁾ or the isolation of one item in one factor. The items of the components produced by the factorial analysis were submitted to item-total correlation and Cronbach's alpha estimate. In this phase, the exclusion criterion was the improvement of alpha by excluding the item.

After completing these procedures, the items with the best performance were obtained from the preliminary tool so as to compose a tool that would be analyzed regarding its psychometric features.

To analyze the reliability of the tool, its internal consistency and stability (test-retest) were estimated. Internal consistency was estimated by the Chronbach's alpha coefficient, according to the components produced with the factorial analysis over the items maintained after the selection stage. Items were accepted if they kept an item-total correlation above 0.20, and factors with alpha more than 0.50. The stability was analyzed according to the Kappa coefficient, applied to the items individually.

The principal component method was performed to identify the factors that would explain the greater proportion of variance in the obtained answers. The items of each produced factor were analyzed qualitatively so as to check if they were capable of representing the dimensions proposed in the chosen powerlessness model.

For the converging validation, a comparison was done between the score to the question included in the identification form: *How much control do you feel you have over your situation?* with the mean scores of the scale items to test the hypothesis that there was a significant association between them.

RESULTS AND DISCUSSION

The theoretical procedures culminated with the option for a model⁽⁷⁾ to guide the subsequent procedures. In this model, powerlessness comprises four areas regarding the loss of personal control: physiological, cognitive, environmental, and decision-related. These areas were considered the theoretical dimensions of powerlessness, which, on the other hand, could manifest through behavior. This study adopted, as a constitutive definition, the NANDA-I⁽¹⁾ definition of powerlessness:

perception that one's own action will not significantly affect an outcome; a perceived lack of control over a current situation or an immediate happening.

A total 129 items were constructed, which were statements that the authors considered pertinent to the chosen powerlessness model. The items were constructed based

on several sources. Other items were considered in addition to the NANDA-I defining characteristics and the chosen powerlessness model, such as patients' descriptions, the nursing history records by nursing undergraduates and nurses, the defining characteristics of powerlessness according to the NANDA-I taxonomy, and other bibliographic sources stated in a previous study⁽⁸⁾.

The 129 statements (items) were submitted to six judges, researcher nurses with knowledge on nursing diagnosis and elaboration of research tools, so they could judge the items face validity (theoretical analysis of the items). After this stage, 54 items were left, which were once again submitted to the analysis by the six judges, so as to estimate if the formulation of each met the following adequacy criteria⁽⁵⁾: behavioral, simplicity, clearness, relevance, credibility. The 23 items left after this analysis achieved a content validity index (CVI) of at least 0.80⁽⁹⁾. The 23 items were submitted to semantic analysis, and were examined in terms of their intelligibility in a pretest with hospitalized adult patients. Two items were eliminated.

The 21 items that remained after completing the theoretical procedures were organized in a tool to be answered in a five-point Likert frequency scale, ranging from never to always. In this scale, the items that had a meaning of powerlessness received the following scores: 1=never; 2=rarely; 3=sometimes; 4=often; 5=always. For the items with a meaning of lack of powerlessness, the values were inverted: never=5; rarely=4; sometimes=3; often=2; always=1.

The 21 items were applied to 210 hospitalized adult patients (women = 114 / 54.3%; average age 53.8 ±17.7 years; and average education of 7.1±4.1 years).

Item selection

The test for the item's power of discrimination and the item-total correlation founded the exclusion of 4 of 21 items. After these analyses, the 16 remaining items were submitted to factorial analysis by the principal component method.

The variance explained by the solution presented in Table 1 was 59.9%. The Kaiser-Meyer-Olkin Assess of Sampling Adequacy (KMO) test resulted in 0.832, which shows that the data were adequate for the factorial analysis. This result supported the decision to eliminate item 19, since it

became isolated. The 15 remaining items, distributed into three factors, were submitted to new reliability analyses, now according to the defined factors. The internal reliability coefficients were obtained for the three factors achieved in the principal component analysis (Table 1).

Table 1 - Matrix of the principal component analysis - São Paulo - 2004

	Items	Factors			
		1	2	3	4
11	I feel I have the disposition to participate in my care.	0.802	0.177	0.095	0.104
19	My body still obeys my command.	0.796	-0.017	0.065	0.020
16	I feel capable of looking after myself.	0.755	-0.035	0.169	-0.082
6	The things I do can help in my recovery.	0.753	0.133	-0.166	0.171
7	I feel I am capable of achieving my goal.	0.707	0.176	-0.203	0.243
15	I feel my opinions can contribute in the decisions about my health.	0.625	0.211	0.075	-0.379
4	I feel capable of giving opinions about my treatment.	0.459	0.438	-0.072	-0.316
14	I feel I am not capable of making any decisions.	0.183	0.825	0.160	0.018
13	Nothing I do can change the situation I am in.	0.134	0.811	0.280	-0.067
12	My health conditions avoid me from making decisions about my treatment.	0,204	0.658	0.307	0.078
21	I feel that my opinions have no value for the medical team.	-0.138	0.575	-0.142	0.326
5	I don't know how to deal with the difficulties brought by my health condition.	0.164	0.467	0.218	0.316
8	I feel sad that I can't control my body functioning as I did before.	0.118	0.080	0.817	-0.027
17	I feel sad when I think I need someone to help me.	-0.085	0.303	0.634	0.084
18	I feel there is nothing I can to make the place I am in more pleasant.	-0.144	0.310	0.458	0.412
10	I feel that nobody cares about what I would like to do.	0.197	0.111	0.089	0.763

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

The Cronbach's alpha for the 7 items was 0.838. Item 4 was excluded, because this way the alpha would increase from 0.838 to 0.845.

Table 2 - Reliability coefficients of the 7 items of the first factor - São Paulo - 2004

	Items	Correlations			
		7 items		Without item 4	
		Item-total	Alfa if item is excluded	Item-total	Alfa if item is excluded
11	I feel I have the disposition to participate in my care.	0.733	0.796	0.732	0.800
19	My body still obeys my command.	0.638	0.810	0.672	0.812
16	I feel capable of looking after myself.	0.615	0.812	0.625	0.819
6	The things I do can help in my recovery.	0.617	0.813	0.649	0.816
7	I feel I am capable of achieving my goal.	0.604	0.814	0.579	0.829
15	I feel my opinions can contribute in the decisions about my health.	0.554	0.823	0.527	0.842
4	I feel capable of giving opinions about my treatment.	0.441	0.845	-	-

The Cronbach's alpha for the 5 items was 0.763. Excluding item 21 would increase alpha from 0.763 to 0.799. Item 21 was excluded. This caused the correlation indexes to remain satisfactory and the exclusion of item 5 would cause further improvement to the alpha value. Item 5 was also excluded, hence the second factor stayed with 3 items and alpha of 0.834.

The estimated Cronbach alpha for the 3 items was 0.578. Not excluding any items would increase the total

alpha. In summary, in this item selection stage, items 4, 5, and 21 were excluded, leaving 12 remaining items (6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, and 19), with a total alpha of 0.799, showing the tool has appropriate consistency.

The 12 item group was submitted to factorial analysis again, which resulted in a solution with 3 components (eigenvalues >1) and explained variance of 61.51%.

Table 3 - Reliability coefficient of the 5 items of the second factor - São Paulo - 2004

Items	Correlations						
	5 items		Without item 21		Without item 21 and 5		
	Item-total	Alfa if the item is excluded	Item-total	Alfa if the item is excluded	Item-total	Alfa if the item is excluded	
14	I feel I am not capable of making any decisions.	0.415	0.661	0.710	0.694	0.689	0.775
13	Nothing I do can change the situation I am in.	0.295	0.657	0.718	0.689	0.741	0.723
12	My health conditions avoid me from making decisions about my treatment.	0.594	0.697	0.612	0.745	0.656	0.808
21	I feel that my opinions have no value for the medical team.	0.697	0.799	-	-	-	-
5	I don't know how to deal with the difficulties brought by my health condition.	0.688	0.411	0.834	-	-	-

Table 4 - Reliability coefficients for the 3 items of the third factor - São Paulo - 2004

Items	Correlation		
	Item-total	Alpha if the item is excluded	
8	I feel sad that I can't control my body functioning as I did before.	0.353	0.527
17	I feel sad when I think I need someone to help me.	0.485	0.332
18	I feel there is nothing I can to make the place I am in more pleasant.	0.341	0.568

Table 5 - Matrix obtained by the principal component analysis of the 12 items - São Paulo - 2004

Items	Factor			
	1	2	3	
11	I feel I have the disposition to participate in my care.	0.823	0.116	0.160
19	My body still obeys my command.	0.805	0.014	0.042
6	The things I do can help in my recovery.	0.757	0.173	-0.132
16	I feel capable of looking after myself.	0.751	0.011	0.077
7	I feel I am capable of achieving my goal.	0.701	0.142	-0.071
15	I feel my opinions can contribute in the decisions about my health.	0.627	0.210	-0.037
14	I feel I am not capable of making any decisions.	0.166	0.843	0.149
13	Nothing I do can change the situation I am in.	0.150	0.840	0.228
12	My health conditions avoid me from making decisions about my treatment.	0.156	0.783	0.203
8	I feel sad that I can't control my body functioning as I did before.	0.140	0.069	0.762
17	I feel sad when I think I need someone to help me.	-0.022	0.197	0.760
18	I feel there is nothing I can to make the place I am in more pleasant.	-0.127	0.251	0.592

Table 6 presents the consistencies of the new factors.

Table 6 - Correlation coefficients between the items of the 3 factors (12 items) - São Paulo - 2004

	Item/Factor	Item-total correlation	Alpha if the item is excluded
Factor 1(Alpha=0.845)			
6	The things I do can help in my recovery.	0.650	0.816
7	I feel I am capable of achieving my goal.	0.579	0.829
11	I feel I have the disposition to participative in my care.	0.732	0.800
15	I feel my opinions can contribute in the decisions about my health.	0.527	0.842
16	I feel capable of looking after myself.	0.625	0.820
19	My body still obeys my command.	0.672	0.812
Factor 2(Alpha=0.834)			
12	My health conditions avoid me from making decisions about my treatment.	0.656	0.808
13	Nothing I do can change the situation I am in.	0.741	0.724
14	I feel I am not capable of making any decisions.	0.690	0.775
Factor 3(Alpha=0.578)			
8	I feel sad that I can't control my body functioning as I did before.	0.353	0.527
17	I feel sad when I think I need someone to help me.	0.485	0.332
18	I feel there is nothing I can to make the place I am in more pleasant.	0.341	0.568

The Cronbach's alpha values obtained for the first and second factors were moderated and low for the third. They were, however, acceptable for a tool under development.

To check the stability of the answers, 20% of the patients answered the same tool twice, with a one-week interval. There was high agreement between the answers given in the first and second evaluation. The Kappa coefficients for the 12 items ranged from 0.73 to 0.92 (all with $p < 0.001$).

As to the convergent validity, the analysis of variance tests showed that higher scores in powerlessness were significantly ($p=0.000$) associated with lower degrees of control over the situation, seen in the answers to the question: *How much control do you feel you have over your situation?*

The factorial analysis of the 12 items did not confirm the dimensions of the selected powerlessness model, since the answers obtained in the empirical procedures generated a different association of items than that supposed by the theoretical model. The factors (dimensions) created did not agree with the pre-defined dimensions. The items of the first factor concerned the capacity of performing behaviors, and the second factor consisted of items that addressed the perception of losing control regarding the aspects of deciding about and interpreting events. This dimension could be referred to as the perception of the capacity of making decisions. These items apparently formulate the *mental image* of the (in)capacity of acting or giving opinions, as well as to contribute or make choices throughout a situation. The contents of the third factor items portray an affective dimension of powerlessness that could be due to the emotional response to the control of the situations.

In the third factor, alpha was 0.578. This value should be improved by introducing other items. This factor possibly indicates a variable that is a consequence of powerlessness. Yet, to distinguish if a factor indicates a variable related to the concept or if it indicates the dimension of the concept itself is not an easy task, but this aspect should be taken into consideration in further studies.

CONCLUSION

The tool consisted of 12 items with three domains: *Capacity to perform behavior* (alpha=0.845); *perception of decision making capacity* (alpha=0.834); and *emotional response to the control of situations* (alpha =0.578). The total alpha value was 0.799 (Appendix).

The administration of the powerless tool, constructed and validated in the present study, is important in order to provide a better concept as well as to improve its features. There is no normalization of the scores of the constructed tool, which should also be addressed in further studies. Hence, this tool produces scores that can be added to domains and, in the total, taking the necessary care regarding the different number of items in each domain; there is no cut point and the results only permit the interpretation that higher score meant more intense powerlessness.

It is also important to consider the complexity and subjectivity of this diagnosis, which involves similarities with other nursing concepts and diagnoses, as well as dimensions that are meant to be assessed. It is expected that the

tool will contribute to deepen the understanding about powerlessness and to make a more appropriate evaluation of this response in hospitalized patients. Identifying and

testing interventions that reduce powerlessness in hospitalization settings remains a challenge to be faced.

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APPENDIX

Instrumento de Medida do Sentimento de Impotência^(a)

Nome: _____ Sexo: ___ Idade: ___ Data: _____

Instruções: A seguir encontra-se uma série de afirmativas referentes ao modo como uma pessoa pode se sentir quando está internada. Leia cada afirmativa atentamente e responda com que frequência você também se sente assim. Marque com um X um dos espaços que corresponde à frequência do sentimento, que pode ser: nunca, raramente, às vezes, frequentemente, sempre. Por favor, assinale todas as afirmativas, pois sua opinião é muito importante.

	AFIRMATIVA	Nunca	Raramente	Às vezes	Frequentemente	Sempre
1	As coisas que eu faço podem ajudar na minha recuperação.					
2	Sinto-me em condições de alcançar o meu objetivo.					
3	Fico triste por não controlar mais o funcionamento do meu corpo como controlava antes.					
4	Sinto que tenho disposição para participar do meu cuidado.					
5	Minhas condições de saúde me impedem de tomar decisões sobre o meu tratamento.					
6	Nada que eu fizer pode mudar a situação em que me encontro.					
7	Sinto que não tenho condições de decidir sobre nada.					
8	Sinto que as minhas opiniões podem contribuir nas decisões sobre minha saúde.					
9	Sinto-me capaz de cuidar de mim.					
10	Fico triste ao pensar que preciso de alguém para me ajudar.					
11	Sinto que nada posso fazer para tornar mais agradável o lugar em que estou.					
12	Meu corpo ainda obedece ao meu comando.					

Chave de pontuação

De acordo com as respostas obtidas pontue conforme indicado:

	AFIRMATIVA	Nunca	Raramente	Às vezes	Frequentemente	Sempre
1	As coisas que eu faço podem ajudar na minha recuperação.	5	4	3	2	1
2	Sinto-me em condições de alcançar o meu objetivo.	5	4	3	2	1
3	Fico triste por não controlar mais o funcionamento do meu corpo como controlava antes.	1	2	3	4	5
4	Sinto que tenho disposição para participar do meu cuidado.	5	4	3	2	1
5	Minhas condições de saúde me impedem de tomar decisões sobre o meu tratamento.	1	2	3	4	5
6	Nada que eu fizer pode mudar a situação em que me encontro.	1	2	3	4	5
7	Sinto que não tenho condições de decidir sobre nada.	1	2	3	4	5
8	Sinto que as minhas opiniões podem contribuir nas decisões sobre minha saúde.	5	4	3	2	1
9	Sinto-me capaz de cuidar de mim.	5	4	3	2	1
10	Fico triste ao pensar que preciso de alguém para me ajudar.	1	2	3	4	5
11	Sinto que nada posso fazer para tornar mais agradável o lugar em que estou.	1	2	3	4	5
12	Meu corpo ainda obedece ao meu comando.	5	4	3	2	1

(a) The tool can only be used if expressly authorized by the authors.