Cultural Adaptation and Psychometric Properties Assessment of the NOC Outcome "Cognition" in a Sample of Portuguese Adults With Mental Illness

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PURPOSE: Cultural adaptation and psychometric properties assessment of the Nursing Outcomes Classification (NOC) outcome "Cognition" in a sample of Portuguese adults with mental illness.

METHODS: Methodological study.

FINDINGS: The final European Portuguese version of the NOC outcome "Cognition", consisting of 13 items, showed good psychometric properties. An exploratory factor analysis was performed from which only one factor was established.

CONCLUSIONS: The European Portuguese version of the NOC outcome "Cognition" seems to gather very satisfactory psychometric properties for assessing cognition in the Portuguese population.

IMPLICATIONS FOR NURSING PRACTICE: This study contributed to advance the nursing body of knowledge and to better assess cognition in a clinical context.

Purpose/Objectives

The International Council of Nurses (ICN) (2017) defines "Cognition" as an intellectual process that involves all aspects of perception, thinking, reasoning, and memory. Cognition can also be defined as a mental capacity that allows a person to understand and solve everyday problems, so that their interpretation and resolution is not left to the sense organs alone. Hence, cognition consists of a set of cortical functions involving memory, the executive function, praxia, language, gnosis, and the visuospatial function (Moraes, 2008). In the NANDA International Nursing Diagnoses, cognition corresponds to class 4 of domain 5 (perception/cognition), to which the following nursing diagnoses are associated: acute confusion (00128), risk for acute confusion (00173), chronic confusion (00129), deficient knowledge (00126), readiness for enhanced knowledge (00161), ineffective impulse control (00222), labile emotional control (00251), and impaired memory (00131) (Herdman & Kamitsuru, 2017).

Some of the most important cognitive deficits result in the inability to pay attention, to process information, to remember and recall information, to initiate speech, to think critically, and to be able to plan, organize, and solve problems (Trivedi, 2006). Changes in the cognitive domain are present in various pathologies, particularly mental pathologies. Bipolar affective disorder, schizophrenia, depressive syndromes, obsessive-compulsive disorder, and dementia syndromes may be related to cognitive impairment, but the manifestation of such impairment is different for each pathology (Trivedi, 2006). Individuals with obsessive-compulsive disorder present significant impairment in attention and

concentration, as well as visuospatial and visuoconstructive deficits (Deckersbach et al., 2002). Cognitive deficits are also important features in schizophrenia, as perception, attention, memory, and problem solving are often affected areas (Green, 2001). On the other hand, within this pathological framework, information processing and thinking, in their different dimensions, are also often affected (Braff, 1993). Finally, the major neurocognitive disorder is a syndrome, usually chronic and progressive in nature, characterized by cognitive deterioration; for this reason, it is one of the leading causes of dependency worldwide. Alzheimer's disease is the most common form of major neurocognitive disorder, accounting for about 60–70% of cases. It is expected that by 2030 about 65.7 million people will live with a major neurocognitive disorder, rising to 115.4 million by 2050 (Prince & Jackson, 2009).

Cognitive assessment is the basis for a better characterization of the cognitive domains that are affected. Detection and characterization of an existing cognitive impairment should be performed as early as possible, thus providing better guidance in defining the intervention to be performed and in monitoring the person and the family (Apóstolo, Paiva, Silva, Santos, & Schultz, 2017). In this process, the use of cognitive assessment tools is extremely important, not only for the identification of cognitive changes, but also for the assessment of the effectiveness of intervention strategies (Morgado, Rocha, Maruta, Guerreiro, & Martins, 2009).

Cognition assessment can be performed using a variety of instruments. The *Mini Mental State Examination* (MMSE) is the most widely used instrument for screening of cognitive decline (Crum, Anthony, Bassett, & Folstein, 1993; Folstein, Folstein, & McHugh, 1975). The translation and adaptation study of MMSE for the Portuguese population was published in 1994 (Guerreiro, Silva, Botelho, Leitão, Castro Caldas, & Garcia, 1994). The study defined the cutoff points for the detection of cognitive impairment, which were eventually reviewed by Freitas, Simões, Alves, and Santana (2014). The *Montreal Cognitive Assessment* (MoCA) allows detection of milder forms of cognitive impairment (Nasreddine et al., 2005) and has greater sensitivity in assessing executive function, memory, language, and visuospatial ability (Freitas, Simões, Marôco, Alves, & Santana, 2012). Likewise, there is the *Six Item Cognitive Impairment Test* (6CIT), also validated for the Portuguese population. This is a short and simple cognitive screening tool with good psychometric properties (e.g., Cronbach's alpha = .88) (Abdel-Aziz & Larner, 2015; Davous, Lamour, Debrand, & Rondot, 1987; Hessler et al., 2016; Tuijl, Scholte, De Craen, & Van Der Mast, 2012), which is particularly appropriate for identifying milder forms of cognitive impairment (Brooke & Bullock, 1999). The translation, adaptation, and evaluation of this instrument's reliability and validity in Portugal were performed by Apóstolo et al. (2017).

These instruments, however, present some known limitations. For MMSE, it is described as a reduced complexity associated with tasks related to memory and language, as well as the need to frequently review cutoffs, mainly due to sociodemographic changes related to schooling (Santana et al., 2016). Regarding MoCA, Roalf et al. (2013) report that this assessment instrument is superior to the MMSE, especially in the screening of early stages of cognitive decline; however, illiterate individuals have difficulty performing the tasks of the instrument, which can bias their results (Sarmento, 2009). Finally, the sample used in the 6CIT validation process in Portugal only included elderly people in homes and community contexts, which reflects a limitation in the use of this instrument in hospital contexts (Apóstolo et al., 2017).

The selection of any cognitive intervention should be preceded by a detailed assessment, namely by employing instruments, as cognition is a complex process and its impairment interferes with various areas of the individual (going from social, leisure, or everyday activities to functionality at work) (Abreu & Tamai, 2002). If the intervention in cognition fits the psychotherapeutic context, the Psychotherapeutic Intervention Model in Nursing developed by Sampaio, Sequeira, and Lluch Canut (2017) recommends the use of the outcomes contained in the Nursing Outcomes Classification (NOC) to evaluate the patient. As such, the assessment of the psychometric properties of these outcomes is fundamental.

Consequently, the NOC outcome "Cognition" (0900) (Moorhead, Swanson, Johnson, & Mass, 2018) may be a relevant clinical instrument for the assessment of cognition, but it lacks a process of cultural adaptation and validation for the Portuguese population. Despite the use in clinical context of the previously mentioned assessment instruments, none of them were developed by nurses, which means that in Portugal there is no cognition assessment tool developed on the basis of the nursing body of knowledge. For these reasons, this study aims to culturally adapt and assess the psychometric properties of the NOC outcome "Cognition" (0900) in a sample of adults with mental illness.

Design

A cross-sectional methodological study was conducted in two phases: phase 1 concerned the cultural adaptation of the NOC outcome "Cognition" (0900) to European Portuguese; and phase 2 consisted of the evaluation of the psychometric properties of the instrument.

The NOC outcome "Cognition" (0900) has already been translated into Brazilian Portuguese (Moorhead, Johnson, Maas, & Swanson, 2016). However, taking into consideration the cultural differences between Brazil and Portugal, even in terms of language usage, we think that it is important to carry out its cultural adaptation to Portugal. Cultural, idiomatic, linguistic, and contextual particularities (Hambleton, 2005) should be taken into account when preparing instruments for use in different cultural contexts (Beaton, Bombardier, Guillemin, & Ferraz, 2000; Sireci, Yang, Harter, & Ehrlich, 2006) in order to reduce the risk of carrying out biased validation studies (Herdman, Fox-Rushby, & Badia, 1998).

Setting

Data were collected at the Psychiatry Service of a hospital in northern Portugal. Considering that the Service has inpatient and outpatient services, data collection was performed in both contexts.

Sample

Convenience nonprobabilistic sampling was used. The following inclusion criteria were cumulatively considered: (a) being at least 18 years old; and (b) explicit expression of interest by the patient to collaborate in the investigation. As for the exclusion criteria, one or more of the following were considered: (a) psychomotor agitation; and (b) alteration of thought and/or perception that would make it impossible to conduct a clinical interview.

To determine the sample size, the criteria recommended by Tabachnick and Fidell (2014) were followed, meaning that for each item at least 10 individuals have to be considered in the exploratory factor analysis (EFA), mostly to guarantee stable factor estimates and, consequently, to ensure that the factorial analysis can be carried out (Nunally & Bernstein, 1994). The sample was entirely composed of patients with mental disorders.

Main Research Variables

The NOC outcome "Cognition" (0900) is an instrument with 13 indicators used to measure the cognitive status. Each indicator is supposed to be rated by a registered nurse on a five-point (1–5) response category. The possible final scores range from 13 to 65. The higher the score, the better the cognitive status.

The MMSE consists of 30 items grouped into 11 categories. However, a comprehensive review of the MMSE by Tombaugh and McIntyre (1992) reported that the MMSE items are typically grouped into seven cognitive domains. The screening usually takes 5–10 min to carry out, and the instrument can be administered by a registered nurse or other health professional. The final scores range from 0 to 30 (Pangman, Sloan, & Guse, 2000). To complete the test successfully, the patient must have good hearing and sight and must demonstrate sufficient musculoskeletal function to be able to hold a pencil or pen and to write (Dellasega & Morris, 1993). In the Portuguese version, scores lower than 15 (in cases of illiterate patients), 22 (in cases of patients with 1–11 years of schooling), or 27 (in cases of patients with more than 11 years of schooling) are indicative of cognitive impairment (Guerreiro et al., 1994).

Method

To define the methods of this review, we decided to follow the general steps pointed out by Sampaio, Araújo, Sequeira, Lluch Canut, and Martins (2018). Hence, first, we adapted the Brazilian Portuguese version of the NOC outcome "Cogni-

tion" (0900) (Moorhead et al., 2016). The cultural adaptation of the NOC outcome into European Portuguese was carried out following the principles of good practice developed by Wild et al. (2005).

The cultural adaptation was carried out by a panel of five nursing experts deliberately selected to this purpose and who were not directly involved in the research process. The criteria cumulatively followed those professionals were: (a) being specialized in mental health nursing; (b) having a PhD degree; and (c) having previously carried out and published, at least, one instrument validation study. Each indicator was discussed in person with the group of experts and only those consensually considered incomprehensible or ambiguous in the Portuguese cultural context were replaced. In such cases, alternative indicators were proposed, discussed, and consensus was achieved by the group of experts as to their use. Therefore, quantitative analysis (content validity index) was not used for the cultural adaptation process. Cognitive debriefing of the NOC outcome was then conducted with a nonprobability convenience sample of five respondents drawn from the target population, aiming at assessing their level of comprehensibility, highlighting any items that may be inappropriate at a conceptual level, and identifying any other issues that could lead to confusion. Finally, the NOC outcome was proofread by two members of the research team (JC and FS) to check for minor errors.

With a view to evaluate the psychometric properties of the NOC outcome "Cognition" (0900), data were collected from March to May 2019. Patients were: (a) approached by the main investigator (JC) at the inpatient setting; or (b) referred to the main investigator (JC) at the moment of the appointment with their psychiatric nurse at the outpatient setting. In case all the eligibility criteria were fulfilled, and if patients consented to participate in the research, they were interviewed by the main investigator. The data collection instrument was composed of a sociodemographic and clinical questionnaire (including age, gender, marital status, years of schooling, professional situation, and psychiatric diagnosis), the NOC outcome "Cognition" (0900), and the Portuguese version of the MMSE (Guerreiro et al., 1994).

Approval for this study was obtained from the ethics committee for health, in accordance with the principles of the Declaration of Helsinki and subsequent revisions (World Medical Association, 2013). At the beginning of the interview, the main investigator explained the broad objectives of the study and all the participants filled in an informed consent form.

Data analysis was carried out using IBM SPSS Statistics 25.0 for Macintosh (IBM Corp., 2016). Significance was set at .05. First, an EFA was carried out using principal component extraction method with oblimin rotation (considering all the interitem correlations are >.3). Some criteria were established to eliminate indicators, if needed: (a) relevance and comprehensibility of the indicator (discussed among the members of the research team) (Marôco & Garcia-Marques, 2006); (b) relevant increase in the internal consistency of the outcome in case the indicator was removed (Field,

2013); (c) primary factor loading <.4 (Stevens, 2009); (d) cross-loadings differing by <.2 (in case the instrument comprised more than one factor) (Ferguson & Cox, 1993); and (e) communalities <.5 (Hair, Jr., Black, Babin, & Anderson, 2010). Cronbach's α coefficients were used to evaluate the internal consistency of the NOC outcome and its potential factors. The concurrent validity between the NOC outcome "Cognition" (0900) and the MMSE was estimated using Pearson's correlation coefficient. In order to evaluate the interrater reliability of the NOC outcome, some patients were separately interviewed by two of the members of the research team (JC and RM). We estimated that it would be necessary to apply the NOC outcome "Cognition" (0900) to a minimum of 46 subjects, by two raters, in order to detect an intraclass correlation coefficient (ICC) equal to or greater than .70 (Streiner & Norman, 2003) between assessments considering a 95% two-sided confidence level and a 50% assurance probability (Zou, 2012). Both evaluators perform functions in the context of inpatient psychiatry. Thus, for both of them to have access to the sample, it was defined that the patients who would be evaluated for the purpose of determining the interrater reliability would be those who were hospitalized.

To evaluate each of the NOC outcome "Cognition" (0900) indicators, some strategies were defined and previously presented to the second evaluator in order to create a minimum guideline for data collection. Nonetheless, no structured guide was prepared to avoid any possibility of bias in assessing the interrater reliability.

The following is an outline of how each of the NOC indicators was evaluated:

- Communication clear for age/Communication appropriate for age: assessed during the interview by discourse analysis.
- Comprehension of the meaning of situations: assessed through the clear assumption of understanding informed consent.
- Attentiveness/Concentration: observation of the behavior of the patient during the interview.
- Cognitive orientation: posing questions about the day, month, year, place, and identification of the patient and the interviewer.
- Immediate memory: analysis of the dialogue with the patient throughout the interview (information retention capacity).
- Recent memory: questions about the day before to the day of the interview.
- Remote memory: questions about childhood.
- Information processing: analysis of the patient's discourse during the interview.
- Alternatives weighed when making decisions/Appropriate decision making: questions concerning examples of everyday situations (e.g.,: if you did not take the injectable medication, what would you do?; If you missed the bus, how would you get home?).

Table 1. Sociodemographic and Clinical Characteristics of the Sample

	%	n	x̄	SD
Sociodemographic characteristics				
Gender				
Female	53.80	70		
Male	46.20	60		
Age			49.44	17.10
Marital status				
Single	53.80	70		
Married	23.10	30		
Divorced	12.30	16		
Years of schooling			7.98	3.76
Professional situation				
Retired due to disability	39.20	51		
Unemployed	31.50	41		
Employed	20.00	26		
Clinical characteristics				
Schizophrenia	37.70	49		
Dementia	14.60	19		
Bipolar disorder	10.00	13		
Schizoaffective disorder	7.70	10		

- Complex calculation skills: adding, subtracting, multiplying, and dividing exercises, with a minimum of three questions of progressive difficulty for each of the calculation types (e.g.,: 12+3, 33+7, 78+11, 11-3, 35-5, 87-6, …).

Finally, the cutoff points of the NOC outcome "Cognition" (0900) were calculated using the Fisher equation ($\bar{x}1 - SD1$) + ($\bar{x}2 + SD2$) / 2, as proposed by Vaz Serra (2000), being 1 = patients with cognitive impairment (according to the score obtained in the MMSE) and 2 = patients with no cognitive impairment (also according to the score obtained in the MMSE).

Findings

In the cultural adaptation of the NOC outcome "Cognition" (0900), nursing experts did not suggest the replacement of any indicator. In the cognitive debriefing, all the indicators were considered comprehensible by the respondents. So, no language modifications were considered necessary to improve the NOC outcome. Besides, no minor errors were identified during the proofreading.

The research was conducted with a total sample of 130 patients. Forty-six (46) of them were interviewed by two researchers in order to evaluate the interrater reliability of the NOC outcome "Cognition" (0900). The summarized sociodemographic and clinical characteristics of the study sample are presented in Table 1.

No indicators were eliminated due to the absence of relevance (as discussed among the members of the research team).

Before assessing the construct validity of the NOC outcome "Cognition" (0900) using the EFA, we calculated the Kaiser–Meyer–Olkin (KMO) value to assess the adequacy of the sample for factor analysis. The value of the KMO was

Table 2. Factor Analysis of the NOC Outcome "Cognition" (0900)

Indicators	Factor 1
090004 Concentration [Concentração]	.953
090003 Attentiveness [Capacidade para ficar atento]	.949
090010 Alternatives weighed when making decisions [Peso de alternativas a tomar decisões]	.945
090009 Information processing [Processamento de Informações]	.941
090011 Appropriate decision making [Tomada de decisão adequada]	.937
090005 Cognitive orientation [Orientação Cognitiva]	.935
090013 Comprehension of the meaning of situations [Compreensão do significado das situações]	.930
090014 Communication clear for age [Comunicação clara para a idade]	.894
090015 Communication appropriate for age [Comunicação adequada à idade]	.887
090008 Remote memory [Memória Remota]	.880
090007 Recent memory [Memória Recente]	.870
090006 Immediate memory [Memória Imediata]	.821
090016 Complex calculation skills [Habilidades de cálculos complexos]	.764
Eigenvalue	10.579
Cumulative variance	81.37%
$\bar{x} \pm$ SD	49.94 ± 15.60
Cronbach's α	.98

.93, which was deemed acceptable to proceed with the EFA, and the Bartlett's test of sphericity significance level was $\chi^2 = 2{,}967.14$; df $= 78$; $p<.001$. Finally, all anti-image correlation matrix diagonals were $>.5$, which reinforced the assumption of factorability. Table 2 shows the results of the EFA. The EFA presented one factor that fulfilled the Kaiser (1960) criterion (eigenvalue of over 1.0 can be retained), explaining 81.37% of the cumulative variance. In this study, the internal consistency of the NOC outcome "Cognition" (0900) was also evaluated; the results are presented in Table 2.

The correlation between the scores of the NOC outcome "Cognition" (0900) and those of the MMSE was calculated to assess concurrent validity. As expected, the analysis indicated a very high positive statistically significant correlation between the two measures ($r = .94$; $p <.001$), according to the interpretation criteria suggested by Bryman and Cramer (2011).

The interrater reliability was tested using the ICC. A very high degree of reliability was found between two raters. The average measure of ICC was .979 with a 95% confidence interval from .973 to .984 ($F(129{,}129) = 47.07$, $p < .001$).

Finally, the cutoff points were calculated using the Fisher equation ($\bar{x}1 - SD1) + (\bar{x}2 + SD2) / 2$. Thus, for patients with 1–11 years of schooling, $(28.33 - 12.154) + (55.45 + 8.332)/2 = 39.979$, with the cutoff point considered to be equal to 40 by default; for patients with more than 11 years of schooling,

$(53.00 - 5.972) + (62.96 + 3.066)/2 = 56.527$, with the cutoff point considered to be equal to 57 by default. Due to the absence of illiterate patients in the sample, it was not possible to calculate the cutoff point of the NOC outcome "Cognition" (0900) for those cases.

Conclusions

The main objective of the study was to carry out the cultural adaptation to European Portuguese of the NOC outcome "Cognition" (0900) and to assess its psychometric properties in a sample of adults with mental illness. The results support the reliability and validity of the instrument. Accordingly, very positive results were found in the assessment of the concurrent validity between the NOC outcome "Cognition" (0900) and the MMSE, as well as in the interrater reliability, which allowed to assume that the instrument consists of only one factor.

It was not possible to compare the results obtained with those of other studies assessing the psychometric properties in the NOC outcome "Cognition" (0900) as studies of this kind were not found in the literature.

In this study, the average number of schooling years found was 7.98 years. As mentioned before, schooling is an important factor that should always be taken into account when assessing cognition (Coelho et al., 2012), as schooling is known to significantly influence cognitive performance (Jones, Manly, Rentz, Jefferson, & Stern, 2011). Thus, cognitively healthy individuals with higher education level can effectively present a better cognitive performance; however, they develop cognitive decline at the same rate as individuals with lower educational level (Zahodne et al., 2011).

The EFA performed showed that the NOC outcome "Cognition" (0900) (Moorhead et al., 2018) has only one factor, which contrasts with the six constants in the MMSE (orientation, registration, attention and calculation, recall, language, and praxis) and the eight constants of the MoCA (visuospatial/executive, naming, memory, attention, language, abstraction, delayed recall, and orientation). Nonetheless, this matches the 6CIT, which also has only one factor. The analysis of the two assessment instruments clearly shows that both are made up of few items (six in the case of the 6CIT and 13 in the case of the NOC outcome "Cognition" [0900]). This characteristic may contribute to the fact that these instruments cannot be subdivided into different factors. Additionally, a content analysis of the NOC outcome "Cognition" (0900) shows that, for example, the items "Concentration" (090004) and "Attentiveness" (090003) could be a factor. This is also what occurs with the items "Immediate Memory" (090006), "Recent Memory" (090007), and "Remote Memory" (090008); the factors, however, would have a very small number of items, and this could make it difficult to obtain a good internal consistency. Similarly, from the analysis of the constructs of other items, it does not seem to be possible to associate them with other items in order to constitute factors. Although this is not a

self-administered instrument, it was decided to evaluate the construct validity of the NOC outcome "Cognition" (0900) in an attempt to understand if its construct can be reduced to factors from a theoretical viewpoint.

Regarding the cumulative variance for the NOC outcome "Cognition" (0900), a value of 81.37% was found, which exceeds by far the minimum recommended value of 60% proposed by Hair, Jr. et al. (2010) for social sciences research.

The internal consistency of the instrument, translated by Cronbach's alpha (.98), is higher than the minimum value (.70) recommended by Nunally and Bernstein (1994), and equally higher than the value proposed by Pestana and Gageiro (2000) as an indicator of good internal consistency (>.80). On the other hand, the MoCA presents a Cronbach's alpha of .94 (Freitas, Simões, Martins, Vilar, & Santana, 2010) and the 6CIT of .82 (Paiva, 2013), which are lower values than those found in this study. The fact that the internal consistency is greater than .90 can be understood as there are redundant items in the instrument; however, from the content point of view, and based on an item-by-item analysis, it seems that each item assesses different aspects in the domain of cognition. Likewise, according to Kottner et al. (2011), whenever an assessment tool competes for clinical decision making, a Cronbach's alpha of .90 should be considered as the minimum acceptable value. So, the option was made not to eliminate any item to reduce internal consistency.

Considering the unifactorial structure of the instrument, no items were eliminated due to the criterion "cross-loadings differing by less than .2." The item with the lower factor loading was "Complex calculation skills" (90016) (.76), so no items were eliminated due to the criterion "primary factor loading <.4." Finally, the item with the lower communality was "Complex calculation skills" (90016) (.58), so no items were eliminated due to the criterion "communalities <.5."

Regarding the ICC, the value found in this study was .979 indicating excellent interrater reliability (Koo & Li, 2016), even though this number is slightly lower than that found in one of the studies that assessed the MoCA psychometric properties (.988) (Freitas et al., 2014). The difference may be justified by a higher number of individuals who made up the sample when compared to the sample used in this study, which is significantly lower, and this is a factor that should be taken into account in the ICC analysis (Koo & Li, 2016). With regard to the MMSE, in the study carried out in Spain by Blesa et al. (2001), the ICC obtained was again lower than the one found in the study (.87), and again, one possible explanation for this may be the sample size ($n = 54$) being greater than that used in this study ($n = 46$).

Regarding the determination of cutoff points of the NOC outcome "Cognition" (0900), it must also be pointed out that when using the instrument, the health professional may choose to evaluate only some of the indicators that are part of it. However, the determination of cutoff points seems to add usefulness to the instrument, allowing a clear definition of whether there is a global change in cognition.

In order to determine the cutoff points of the NOC outcome "Cognition" (0900), a comparison was carried out using as a reference the MMSE cutoffs. Thus, although there are studies that propose new cutoffs for MMSE (Freitas et al., 2014; Morgado et al., 2009; Santana et al., 2016), none include in their samples individuals with nonorganic mental disorders. Therefore, we chose not to take into consideration these more "current" cutoff points since they do not seem appropriate for the sample used in this study (composed entirely of individuals with mental illness).

Finally, the results must be analyzed taking into account the following limitations: the sample consisted only of individuals from the same service and from the same hospital, all of them with mental illness, and in future studies it would be relevant to also include mentally healthy individuals. Additionally, it would be important to enlarge the sample to be more representative. It should also be added that the sample did not include illiterate individuals, which did not allow to establish a cutoff for these individuals in the context of this instrument. In future studies, it would be important to apply the NOC outcome "Cognition" (0900) to a sample of these individuals. Finally, and contrary to what took place in previous studies carried out to evaluate the psychometric properties of cognitive assessment instruments, the sample was not mainly composed of individuals with major neurocognitive disorder, which may have also contributed to the high internal consistency obtained. As such, it would be important to replicate the study with a sample composed entirely of people with major neurocognitive disorder as a way to further explore issues related to the internal consistency of the instrument.

Implications for Nursing Knowledge and/or Language Development

The present study shows relevant results that contribute to the nursing body of knowledge, as the psychometric properties of the NOC outcome "Cognition" (0900) seem to support its use in the clinical context, allowing the assessment of cognition in the population aged 18 and older with mental illness. This is an instrument developed by nurses, easy to use, and applicable in clinical context by nursing professionals given its close relationship and regular contact with patients. On the other hand, this study also seems to enrich the language used by nurses, since the NOC outcome "Cognition" (0900) stems from an international classification of nursing outcomes (NOC), so its cultural adaptation and evaluation of psychometric properties promote clinical practice through the use of instruments that originated from the nursing body of knowledge. Therefore, the continuity and replication of this type of study is important for other NOC outcomes, both in Portugal and in the world.

Knowledge Translation

For the practice of nursing to have greater autonomy and responsibility, it is decisive to use a body of knowledge exclusive to nursing, which is created and duly

substantiated through research. The different NOC outcomes are part of the nursing body of knowledge, as they were created by nurses and, consequently, result from research in the nursing area. As such, the assessment of the psychometric properties of the different NOC outcomes is key to the use in clinical practice of instruments that stem from knowledge on nursing. With this study, Portuguese nurses are now able to assess their patients' cognition using tools based essentially on nursing knowledge.

Author's Contribution

Joana Coelho was responsible for data collection and the manuscript's preparation (writing). Ana Rita Martins was responsible for the data collection. Francisco Sampaio was responsible for the statistical analysis, manuscript's preparation (writing), and manuscript's critical review. Carlos Sequeira, Juan Roldán Merino, and Mar Lleixà Fortuño were responsible for the scientific supervision of the research and the manuscript's critical review. All the authors read and approved the final manuscript.

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