

Evaluation of the Psychometric Properties of NOC Outcomes "Anxiety Level" and "Anxiety Self-Control" in a Portuguese Outpatient Sample

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PURPOSE: To adopt the language and to evaluate the psychometric properties of "Anxiety level" and "Anxiety self-control" NOC outcomes in Portuguese adult patients.

METHODS: Methodological design.

FINDINGS: The final European Portuguese version of the NOC outcome "Anxiety level," composed by 16 indicators, proved excellent internal consistency. Exploratory factor analysis (EFA) was forced to three factors. The NOC outcome "Anxiety self-control," composed of nine indicators, demonstrated a questionable internal consistency. EFA was forced to two factors.

CONCLUSIONS: European Portuguese versions of the studied NOC outcomes proved to be tools with acceptable psychometric properties for evaluating anxiety in Portuguese patients.

IMPLICATIONS FOR NURSING PRACTICE: This study contributed to the development of NOC language and to the enrichment of nursing's body of knowledge.

OBJETIVO: Adaptar a linguagem e avaliar as propriedades psicométricas dos resultados NOC "Nível de ansiedade" e "Autocontrolo da ansiedade" em utentes portugueses adultos.

MÉTODOS: Estudo metodológico.

RESULTADOS: A versão portuguesa do resultado NOC "Nível de ansiedade", composta por 16 indicadores, apresentou uma excelente consistência interna. A análise fatorial exploratória (AFE) foi forçada a três dimensões. O resultado NOC "Autocontrolo da ansiedade", composto por nove indicadores, apresentou uma consistência interna questionável. A AFE foi forçada a duas dimensões.

CONCLUSÕES: As versões portuguesas dos resultados NOC estudados são instrumentos com propriedades psicométricas aceitáveis para avaliar a ansiedade em utentes portugueses.

IMPLICAÇÕES PARA A PRÁTICA DE ENFERMAGEM: Este estudo contribuiu para o desenvolvimento da linguagem NOC e para enriquecer o corpo de conhecimento de Enfermagem.

Purpose/Objectives

Anxiety disorders affect 16.5% of the Portuguese population. These are the most prevalent psychiatric disorders in the country. In comparison with other European territories, this value is undeniably superior to the ones reported, for instance, in Northern Ireland, France, the Netherlands, Bulgaria, Belgium, Germany, Spain, Italy, and Romania (Caldas de Almeida & Xavier, 2013). This problem is not exclusive to Europe, as anxiety disorders are also the most common mental health problem in the United States, affecting 18.1% of adults yearly (Kessler, Chiu, Demler, & Walters, 2005) and, in 1990, accounted for an annual expenditure of \$42.3 billion in medical and psychiatric costs, as well as medication costs, high mortality rates and productivity loss (Greenberg et al., 1999).

According to Fansi, Jehanno, Lapalme, Drapeau, and Bouchard (2015), there are no significant differences between psychotherapeutic intervention and pharmacotherapy regarding symptoms reduction in patients with moderate anxiety disorders. However, the benefits of psychotherapeutic intervention last longer after the end of treatment than those of medication. Therefore, psychotherapeutic intervention offers better protection against relapse. Moreover, psychotherapeutic intervention for anxiety disorders has proved to be cost-effective (Dunn et al., 2007) mainly at the long-term follow-up (Freedman & Adessky, 2009), and to enhance the cost-effectiveness of anxiolytics (Jenike, 1993).

Considering these data, as well as the evidence of effectiveness concerning psychotherapeutic interventions performed by nurses—widely demonstrated in a variety of studies (reported in a narrative review by Sampaio, Sequeira, & Lluch Canut, 2015)—we were determined to develop a psychotherapeutic intervention model in nursing in order to systematize the provision of those interventions by mental health nurses. Based on a previous focus group study and on a modified e-Delphi study (Sampaio, Sequeira, & Lluch Canut, 2016), nursing experts considered that the effectiveness of the psychotherapeutic interventions included in the model should be evaluated using NOC outcomes. In fact, although two instruments aiming at the assessment of anxiety level have already been translated and validated for the Portuguese population (the Hospital Anxiety and Depression Scale—HADS (Pais-Ribeiro et al., 2007)—and the State Trait Anxiety Inventory—STAI (Silva, 2003)), both were developed by psychiatrists or by a psychologist. In Portugal, there is hence no nursing instrument (developed by nurses) to assess the anxiety level of the patients. Additionally, no instruments to assess anxiety self-control validated for the Portuguese population were to be found in literature.

Thus, in order to evaluate the effectiveness of NIC psychotherapeutic interventions to assist in the response to NANDA-I/ICNP nursing diagnosis “Anxiety” (10000477/00146) (Herdman & Kamitsuru, 2014; International Council of Nurses, 2010), we felt the need to adapt the language into European Portuguese and to evaluate the

psychometric properties of the NOC outcomes “Anxiety level” (1211) and “Anxiety self-control” (1402) (Moorhead, Johnson, Maas, & Swanson, 2012). The validation of NOC outcomes seems to be relevant, not only due to the scarcity of studies on the subject (Garbin, Rodrigues, Rossi, & Carvalho, 2009) but also because there are little studies available on the methods to perform its validation.

Design

A methodological and cross-sectional study was carried out. This instrument validation study was divided into two phases: (a) cultural adaptation of the NOC outcomes “Anxiety level” (1211) and “Anxiety self-control” (1402) into European Portuguese and (b) evaluation of the psychometric properties of those NOC outcomes. Although NOC outcomes “Anxiety level” (1211) and “Anxiety self-control” (1402) have already been translated into Brazilian Portuguese, considering that Portuguese and Brazilian cultures are significantly different (even regarding the usage of the language), we find it important to perform their cultural adaptation. Cultural, idiomatic, linguistic, and contextual particularities (Hambleton, 2005) should be taken into account in the preparation of instruments that are to be applied in different cultural contexts (Beaton, Bombardier, Guillemin, & Ferraz, 2000; Hambleton, 2005; Sireci, Yang, Harter, & Ehrlich, 2006) to reduce the risk of biased validation studies (Herdman, Fox-Rushby, & Badia, 1998).

Setting

Data were collected in the Psychiatry Ward of a hospital in the north of Portugal. Although the ward is composed of an Inpatient and an Outpatient Psychiatry Service, data collection took place exclusively at the Outpatient Service.

Sample

A nonprobability accidental sampling was used. The inclusion criterion was age at least 18 and less than 65 years. The exclusion criteria were as follows: (a) psychiatric diagnosis of a psychotic spectrum disorder; (b) diagnosis of dementia; and (c) cognitive impairment according to the application of the Portuguese version of the Mini-Mental State Examination (MMSE) (Guerreiro et al., 1994).

In order to define the sample size, we decided to use the criteria proposed by leading authors in Statistics (Hair, Black, Babin, & Anderson, 2010; Tabachnick & Fidell, 2014), that is, a minimum of five subjects per item for exploratory factor analysis (EFA) (considering the NOC outcome with the largest number of items: “Anxiety level” (1211)—31 items), mainly to ensure stable factor estimates and, consequently, to allow the performance of a factor analysis (Nunally & Bernstein, 1994). The sample was predominantly composed of patients with mental disease, but those without mental disease were also included in the data collection (e.g.,

patients who were being followed in the pain psychology consultation).

Main Research Variables

NOC outcome "Anxiety level" (1211) is an instrument with 31 indicators used to measure anxiety. Each indicator is supposed to be rated by the patient on a five-point (1-5) response category, so the possible scores range from 31 to 155. Having in mind that some indicators are not common sense, these were filled out with the help of the researcher, who can also specify a time frame: "over the last week" was the established time frame in this study. The higher the score, the less the anxiety level.

NOC outcome "Anxiety self-control" (1402) is an instrument with 17 indicators that is used to measure the ability to control anxiety. Each indicator is supposed to be rated by the patient on a five-point (1-5) response category so the possible scores range from 17 to 85. Having in mind that some indicators are not common sense, these were filled out with the help of the researcher, who can also specify a time frame, being "over the last week" the established time frame in this study. The higher the score, the more anxiety self-control.

HADS consists of two subscales, one measuring anxiety, with seven items, and one measuring depression, also with seven items, which are scored separately. Each item is supposed to be answered by the patient on a four-point (0-3) response category, so the possible scores range from 0 to 21 for anxiety and 0 to 21 for depression. It takes 2-5 min to complete the form (Snaith, 2003). Likewise, Snaith (2003) posits a score of 11 or higher indicating probable presence ("caseness") of a mood disorder and a score of 8-10 being just suggestive of the presence of the respective state. Thus, a cut-off threshold of 11 (Pais-Ribeiro et al., 2007) was considered for pathological anxiety and depression in this study.

Method

In this study, we adopted the Brazilian Portuguese version of the NOC outcomes "Anxiety level" (1211) and "Anxiety self-control" (1402) (Moorhead, Johnson, Maas, & Swanson, 2016). The cultural adaptation of the NOC outcomes into European Portuguese was carried out following the principles of good practice developed by Wild et al. (2005).

The cultural adaptation was conducted by a panel of five intentionally selected nursing experts who were not directly involved in the research process. The criteria for selecting those professionals were, cumulatively: (a) being specialized in mental health nursing; (b) having a PhD academic degree; (c) having previously carried out and published, at least, one instrument validation study. Each indicator was discussed in person with the experts' group and only the ones consensually considered incomprehensible or ambiguous in the Portuguese cultural context were replaced. In such cases, alternative indicators were generated, discussed, and consensualized by the experts' group. Therefore,

quantitative analysis (content validity index) was not used for the cultural adaptation process. Cognitive debriefing of the NOC outcomes was then conducted with a nonprobability accidental sample of five respondents drawn from the target population, aiming at assessing their level of comprehensibility, at highlighting any items that may be inappropriate at a conceptual level, and at identifying any other issues that could generate confusion. Finally, the NOC outcomes were proofread by two members of the research team (FS and CS) to check for minor errors.

With a view to evaluate the psychometric properties of NOC outcomes "Anxiety level" (1211) and "Anxiety self-control" (1402), data were collected from March to June 2016. Patients were referred to the main investigator (FS) at the moment of the appointment with their psychiatrist or psychologist. In case all the eligibility criteria were fulfilled, and if patients consented to participate in the research, they were then interviewed by the main investigator. The data collection instrument was composed by a sociodemographic and clinical questionnaire (including gender, age, marital status, years of schooling, and psychiatric diagnosis), NOC outcomes "Anxiety level" (1211) and "Anxiety self-control" (1402), and the Portuguese version of the HADS (Pais-Ribeiro et al., 2007). In order to evaluate the interrater reliability of those NOC outcomes, some patients were separately interviewed by two of the members of the research team (FS and OA).

Approval for this study was obtained from the Hospital de Braga 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 24.0 for Macintosh (IBM Corp. Released, 2015). Significance was set at .05. First, an EFA using principal component extraction method with Varimax rotation was carried out. Some criteria were established to eliminate indicators, if needed: (a) relevance and comprehensibility of the indicator (discussed among the members of the research team) (Maroco & Garcia-Marques, 2006); (b) relevant increase in the internal consistency of the outcome in case the indicator is removed (Field, 2013); (c) primary factor loading less than .4 (Stevens, 2009); (d) cross-loadings differing by less than .2 (Ferguson & Cox, 1993); and (e) communalities less than or equal to .4 (Costello & Osborne, 2005). Cronbach's α coefficients were used to evaluate the internal consistency of the NOC outcomes and their dimensions. The concurrent validity between the NOC outcome "Anxiety level" (1211) and the "Anxiety" subscale of HADS was estimated using Pearson's correlation coefficient. The interrater reliability was tested using the intraclass correlation coefficient (ICC). Finally, the cutoff point of the NOC outcome "Anxiety level" (1211) was calculated using Fisher equation $((M_1 - SD_1) + (M_2 + SD_2) / 2)$, as proposed by Vaz Serra (2000), being 1 = patients with pathological anxiety (score

Table 1. Sociodemographic and Clinical Characteristics of the Sample

	%	<i>n</i>	Mean	<i>SD</i>
Sociodemographic characteristics				
Gender				
Female	80.20	130		
Male	19.80	32		
Age			45.67	11.03
Marital status				
Married	51.90	84		
Divorced	20.40	33		
Single	18.50	30		
Years of schooling			8.81	4.28
Clinical characteristics				
Nonpersistent depressive disorder	46.90	76		
Anxiety disorders	25.20	41		
Personality disorders	14.80	24		
Persistent depressive disorder	14.20	23		

of 11 or higher in the "Anxiety" subscale of HADS) and 2 = patients with normal anxiety (score below 11 in the "Anxiety" subscale of HADS) (Pais-Ribeiro et al., 2007).

Findings

In the cultural adaptation of the NOC outcome "Anxiety level" (1211), nursing experts suggested the replacement of the indicator "Repentes de raiva" [Outbursts of anger] (121110) with "Repentes de fúria". Also, the replacement of the indicator "Preocupação exagerada sobre eventos de vida" [Exaggerated concern about life events] (121118) with "Preocupação exagerada sobre acontecimentos de vida" was suggested by the experts' panel. Finally, the indicator "Sudorese" [Sweating] (121123) was replaced with "Transpiração." In the cultural adaptation of the NOC outcome "Anxiety self-control" (1402), nursing experts suggested the replacement of the indicator "Planejamento de estratégias de enfrentamento de situações estressantes" [Plans coping strategies for stressful situations] with "Planeamento de estratégias de enfrentamento de situações stressantes." In all the indicators in which the word "Monitoração" [Monitors] is used, this was replaced with "Monitorização." In the cognitive debriefing, all the indicators were considered comprehensible by the respondents, so no language modifications were considered necessary for improvement of the NOC outcomes. In the proofreading, no minor errors were identified as well.

The research was to be conducted with a total sample of 167 patients, 5 of whom were excluded due to cognitive impairment. From the 162 patients remaining, 30 were interviewed by two researchers in order to evaluate the interrater reliability of the NOC outcome "Anxiety level" (1211). The summarized sociodemographic and clinical characteristics of the study sample are presented in Table 1.

NOC Outcome "Anxiety Level" (1211)

The indicators "Decreased productivity" [Produtividade diminuída] (121126) and "Decreased school achievement" [Desempenho escolar diminuído] (121127) were eliminated even prior to the EFA, considering the following: the first one was answered by only 46.70% of the patients, as the majority of them were unemployed; the second one was answered by only 6.00% of the patients, as the majority of them were not studying anymore. The indicators "Dilated pupils" [Pupilas dilatadas] (121122) and "Problem behavior" [Comportamento problemático] (121111) were eliminated, as they were considered "not relevant" by the research team (more than 70% of the patients answered "Mild" or "None" to those indicators). The indicators "Increased blood pressure" [Pressão arterial aumentada] (121119), "Change in eating pattern" [Mudanças no padrão alimentar] (121131), "Change in bowel pattern" [Mudanças no padrão intestinal] (121130), and "Panic attack" [Ataques de pânico] (121115) were eliminated due to primary factor loading less than .4. The indicators "Fatigue" [Fadiga] (121125), "Sleep disturbance" [Distúrbios do padrão sono] (121129), "Increased pulse rate" [Frequência de pulsações aumentada] (121120), "Increased respiratory rate" [Frequência respiratória aumentada] (121121), and "Verbalized apprehension" [Apreensão verbalizada] (121116) were eliminated due to cross-loadings differing by less than .2. The indicators "Sweating" [Transpiração] (121123) and "Hand wringing" [Torcer as mãos] (121103) were eliminated due to communalities less than or equal to .4. The version of the instrument whose psychometric properties were evaluated was thus composed of 16 indicators (so the possible scores range from 16 to 80).

Before assessing the construct validity of the NOC outcome "Anxiety level" (1211) 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 .91, which was deemed acceptable for proceeding with the EFA, and the Bartlett's test of sphericity significance level was χ^2 1130.83; *df* 120; *p* less than .001. Table 2 shows the results of the EFA. The EFA was forced to three factors, as it was the factor structure that, according to the researchers' point of view, presented the most theoretically acceptable relationship between the indicators and the factors in which they were included: (1) "Psychomotor anxiety" [Ansiedade psicomotora] (eigenvalue: 6.67); (2) "Problem solving" [Resolução de problemas] (eigenvalue: 1.43); and (3) "Somatic anxiety" [Ansiedade somática] (eigenvalue: 1.34). Thus, EFA presented three factors that fulfill the Kaiser (1960) criterion (eigenvalue of over 1.0 can be retained), explaining 59.00% of the cumulative variance. In this study, the internal consistency of the NOC outcome "Anxiety level" (1211) and its dimensions were also evaluated; the results are presented in Table 2.

The correlation between the scores of the NOC outcome "Anxiety level" (1211) and those of the "Anxiety" subscale of HADS was calculated to assess concurrent validity. The

Table 2. Factor Analysis of the NOC Outcome “Anxiety Level” (1211)

Indicators	Factors		
	1	2	3
121104 Distress [Nervosismo]	.769		
121108 Irritability [Irritabilidade]	.766		
121101 Restlessness [Agitação]	.732		
121117 Verbalized anxiety [Ansiedade verbalizada]	.703		
121128 Withdrawal [Introspecção]	.683		
121118 Exaggerated concerns about life events [Preocupação exagerada sobre acontecimentos de vida]	.678		
121109 Indecisiveness [Indecisão]	.636		
121105 Uneasiness [Desconforto]	.627		
121110 Outbursts of anger [Repentes de fúria]	.617		
121102 Pacing [Andar de um lado a outro]	.545		
121113 Difficulty learning [Dificuldades de aprendizagem]		.816	
121112 Difficulty concentrating [Dificuldades de concentração]		.776	
121114 Difficulty problem solving [Dificuldades para resolver problemas]		.655	
121124 Dizziness [Tontura]			.781
121107 Facial tension [Tensão facial]			.721
121106 Muscle tension [Tensão muscular]			.669
Eigenvalue	6.668	1.431	1.340
Proportion of variance: total	41.678	8.946	8.378
59.001% of variance			
Mean \pm SD (total 44.34 \pm 14.40)	25.71 \pm 10.11	9.24 \pm 3.47	9.39 \pm 3.47
Cronbach's $\alpha = .901$.899	.742	.672

Factor 1, Psychomotor anxiety [Ansiedade psicomotora]; Factor 2, Problem solving [Resolução de problemas]; Factor 3, Somatic anxiety [Ansiedade somática].

analysis indicated, as expected, a high negative statistically significant correlation between the two measures ($r = -.74$; $p > .001$), 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 ICC was .997 with a 95% confidence interval from .993 to .998 ($F(29,29) = 329.48$, $p < .001$).

Finally, the cutoff point was calculated using Fisher equation $((M_1 - SD_1) + (M_2 + SD_2))/2$. Thus, $(37.21 - 10.649) + (56.47 + 11.579)/2 = 47.305$, having the cutoff point being considered, by default, equal to 47.

NOC Outcome “Anxiety Self-Control” (1402)

The indicators “Decreases environmental stimuli when anxious” [Redução de estímulos ambientais quando ansioso] (140203), “Monitors sensory perceptual distortions” [Monitorização de distorções da percepção sensorial] (140213), “Maintains adequate sleep” [Manutenção de sono adequado] (140214), “Maintains role performance” [Manutenção do desempenho do papel] (140210), and “Maintains concentration” [Manutenção da concentração] (140212) were eliminated due to a relevant increase in the internal consistency of the outcome if the indicator is removed. The indicators “Seeks information to reduce anxiety” [Busca de informações para reduzir a ansiedade] (140204), “Uses relaxation techniques to reduce anxiety” [Uso de técnicas de relaxamento para reduzir a ansiedade] (140207), and “Plans coping strategies for stressful situations” [Planeamento de estratégias de enfrentamento de situações stressantes] (140205) were eliminated due to primary factor loading less than .4. The version of the instrument whose psychometric properties were evaluated was hence composed by nine indicators (so the possible scores range from 9 to 45).

The KMO was .72, which was deemed acceptable for proceeding with the EFA, and the Bartlett's test of sphericity significance level was $\chi^2 247.10$; $df 36$; p less than .001. Table 3 shows the results of EFA. EFA was forced to two factors, as that was the factor structure that, according to the researchers' point of view, presented the most theoretically acceptable relationship between the indicators and the factors in which they were included: (1) “Anxiety self-monitoring” [Automonitorização da ansiedade] (eigenvalue: 2.57) and (2) “Anxiety management” [Gestão da ansiedade] (eigenvalue: 1.75). Thus, EFA presented two factors that explain 48.04% of the cumulative variance. In this study, the internal consistency of the NOC outcome “Anxiety self-control” (1402) and its dimensions was also evaluated; the results are presented in Table 3.

The interrater reliability was tested using the ICC. A very high degree of reliability was found between two raters. The average measure ICC was .961 with a 95% confidence interval from .918 to .982 ($F(29,29) = 27.38$, $p < .001$).

Table 3. Factor Analysis of the NOC Outcome “Anxiety Self-Control” (1402)

Indicators	Factors	
	1	2
140208 Monitors duration of episodes [Monitorização da duração dos episódios]	.728	
140209 Monitors length of time between episodes [Monitorização da duração do tempo entre os episódios]	.698	
140216 Monitors behavioral manifestations of anxiety [Monitorização das manifestações comportamentais de ansiedade]	.637	
140215 Monitors physical manifestations of anxiety [Monitorização das manifestações físicas de ansiedade]	.637	
140201 Monitors intensity of anxiety [Monitorização da intensidade da ansiedade]	.602	
140211 Maintains social relationships [Manutenção das relações sociais]		.737
140217 Controls anxiety response [Controlo da reação à ansiedade]		.696
140202 Eliminates precursors of anxiety [Eliminação de precursores de ansiedade]		.660
140206 Uses effective coping skills [Uso de estratégias eficientes de enfrentamento]		.644
Eigenvalue	2.573	1.751
Proportion of variance: total	28.593	19.451
48.044% of variance		
Mean \pm SD (total 26.51 \pm 6.31)	15.86 \pm 4.62	10.65 \pm 3.58
Cronbach's α = .664	.688	.637

Factor 1, Anxiety self-monitoring [Automonitorização da ansiedade]; Factor 2, Anxiety management [Gestão da ansiedade].

Conclusions

The aim of this study was to adapt the language into European Portuguese and to evaluate the psychometric properties of NOC outcomes “Anxiety level” (1211) and “Anxiety self-control” (1402) in a sample of adults, mainly with mental disease. Results obtained support the reliability and validity of these outcomes. The European Portuguese version of the NOC outcome “Anxiety level” (1211), with 16 indicators, has shown a very high interrater agreement, excellent internal consistency, high correlation with the “Anxiety” subscale of HADS, a three-component structure, and a cut-off threshold of 47. On the other hand, the

European Portuguese version of the NOC outcome “Anxiety self-control” (1402), with nine indicators, has shown a very high interrater agreement, questionable internal consistency, and a two-component structure.

It is not possible to compare these findings with other evaluations of NOC outcomes “Anxiety level” (1211) and “Anxiety self-control” (1402) psychometric properties, as none were to be found in literature. However, it is possible to state the NOC outcome “Anxiety level” (1211) presents excellent psychometric properties, with a similar internal consistency (Cronbach's α = .90) to the other anxiety instruments whose psychometric properties have been evaluated in Portuguese samples. Therefore, the internal consistency of State-Trait Anxiety Inventory Form Y (STAI-Y) A-State in male adults is equal to .91 and the internal consistency of STAI-Y A-State in female adults is equal to .93 (Silva & Campos, 1998); on the other hand, the internal consistency of the “Anxiety” subscale of HADS is equal to .76 (Pais-Ribeiro *et al.*, 2007). Notwithstanding, this kind of analysis must be tentative, as the psychometric properties of STAI-Y were evaluated in a sample of mentally healthy people, and those of HADS were evaluated in a mixed sample, made up of both healthy people and people with pathologies of various types. Analyzing the factor structure of the NOC outcome “Anxiety level” (1211), two of its dimensions (psychomotor and somatic anxiety) have already been widely associated with symptoms of anxiety, even in other anxiety measurement tools (Hamilton, 1959). Although less reported in literature, the other dimension that emerged in this study (problem solving) has also been associated with anxiety (Bedel, 2015; Davey, Jubb, & Cameron, 1996), even though the studies that have addressed the subject focused especially on children.

When analyzing the psychometric properties of the NOC outcome “Anxiety self-control” (1402), the discussion of results is even more difficult, considering that no instrument that aims at assessing the anxiety self-control was to be found in the literature. Although some authors (Nunally & Bernstein, 1994) tend to consider .70 as the minimum internal consistency standard, the analysis of the NOC outcome “Anxiety self-control” (1402) internal consistency (Cronbach's α = .66) should be tentative, as this is the first study that aims at evaluating its psychometric properties. It would thereafter be of importance to confirm these findings resorting to larger samples with different characteristics (for instance, adolescents or people without mental disease). The cumulative variance of the NOC outcome “Anxiety self-control” (1402), considering its low value (48.04%), is also an important issue to discuss. Hence, although its value is lower than 60% (minimum value recommended by Hair *et al.* (2010) for social sciences research), if three factors were extracted, the cumulative variance would be 59.30%. However, as the research team considered the factor structure would not be theoretically acceptable, in this case, we decided to privilege the content consistency instead of the statistical properties. The first factor that was identified (anxiety self-monitoring) has been consistently presented by Kanfer (1980) as a stage of the self-control process. The

second factor was named "Anxiety self-management" and, considering the fact that the terms "self-management" and "self-control" are frequently used in an interchangeable way, it is important to state that self-management is the personal application of behavior change tactics that produce a desired change in behavior, while self-control implies several additional constructs beyond the reference of a person acting in some way in order to change subsequent behavior (Cooper, Heron, & Heward, 2014). Thus, anxiety self-management can be considered as a part of a larger construct: anxiety self-control. It would be hereinafter relevant to carry out confirmatory factor analyses in order to verify the proposed factor structure of both NOC outcomes.

Considering these data, it seems that NOC outcomes "Anxiety level" (1211) and "Anxiety self-control" (1402) can be used to evaluate the effectiveness of NIC psychotherapeutic interventions to assist in the response to NANDA-I/ICNP nursing diagnosis "Anxiety" (10000477 / 00146) (Herdman & Kamitsuru, 2014; International Council of Nurses, 2010). These NOC outcomes can therefore be included in the psychotherapeutic intervention model in nursing which was previously developed, although they may also be used in regular clinical practice.

Nevertheless, our results should be considered in the context of the following limitations: first, our use of nonprobability accidental sampling of patients in one single hospital limits generalization of the findings. Second, the sample of patients was relatively small and there are concerns related to its representativeness, given that the selection was based on inclusion and exclusion criteria, and especially on their willingness to participate. For that reason, larger studies are required to verify the usefulness of the NOC outcomes "Anxiety level" (1211) and "Anxiety self-control" (1402) for routine anxiety assessment in the clinical setting. Furthermore, we find a different number of patients suffering from the diverse diseases included in the sample, which make the computation slightly more difficult. Finally, the sample is mainly composed by patients with mental disease. Consequently, it would be important to also evaluate the psychometric properties of these NOC outcomes in mentally healthy people.

Implications for Nursing Knowledge and/or Language Development

The results of this study present positive implications for nursing knowledge, as NOC outcomes "Anxiety level" (1211) and "Anxiety self-control" (1402) seem to be reliable and valid measures related to anxiety in a sample of European Portuguese-speaking patients (mainly with mental disease), and they allow a brief and complete assessment both in practice and research. It is easy for both patients and investigators to use and appropriately compare data related to anxiety across cultures. Nurses, who have close and regular contact with patients, can help patients control anxiety.

This study also seems to present a positive impact on the language development, as this is the first one that aims at

evaluating the psychometric properties of NOC outcomes "Anxiety level" (1211) and "Anxiety self-control" (1402). From now on, this research can be used as a model to other studies that also intend to evaluate the psychometric properties of these NOC outcomes, both in Portugal and abroad. Moreover, since some indicators were eliminated in this study and a factor structure for NOC outcomes "Anxiety level" (1211) and "Anxiety self-control" (1402) was proposed, it can be set up as a comparison resource to the different structures that might eventually be found in future research.

Knowledge Translation

It is crucial for nurses to use nursing's body of knowledge in order to reach greater accountability and greater professional autonomy, as we believe that nursing practice can only be considered autonomous if based on nursing research. NOC outcomes are part of nursing's body of knowledge as they were developed by nurses and are a result of nursing research. Therefore, the evaluation of the psychometric properties of NOC outcomes seems to be fundamental, as it gives nurses the possibility of using instruments that are part of nursing's body of knowledge to assess patients in their daily clinical practice, as well as in nursing research. From now on, Portuguese nurses have the possibility to assess patients' anxiety level and anxiety self-control (mainly those with mental disease) based on nursing assessment tools.

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Author's Contribution

Francisco Sampaio was responsible for data collection, statistical analysis, and the manuscript's preparation (writing). Odete Araújo was responsible for the data collection. Carlos Sequeira and Teresa Lluch Canut were responsible for the scientific supervision of the research, and the manuscript's critical review. Teresa Martins was responsible for the statistical analysis. All the authors read and approved the final manuscript.

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