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Clinical Validation of the Portuguese Version of “Substance Addiction Consequences” Derived from the Nursing Outcomes Classification

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ABSTRACT

Our aim was to contribute to the clinical validation of “Substance Addiction Consequences” (SAC) derived from the nursing outcomes classification (NOC), and to analyse psychometric properties. To that purpose, we applied a methodological design. The study’s outcome comprises 16 nursing-sensitive indicators, within four different consequence factors: psychological and family; physical and cognitive ability; self-care; economic and work. The psychometric properties were considered good. We concluded that the scale can be used as a valid tool to measure the consequences of substance addiction and to assess the health status as a nursing sensitive outcome. The scale is considered valid to monitor nursing interventions in the clinical setting; being a comprehensive tool it allows the nurse to understand better this complex health problem.

Introduction

Substance use disorders can be defined as a set of cognitive, behavioural, and physiological symptoms, which indicate that the individual with substance addiction continues to use the substance, despite the existence of significant substance-related problems (APA, 2013; Mounteney, Griffiths, Sedefov, Andre Vicente, & Simon, 2015). It is a health problem which affects millions of people worldwide, causing suffering and requiring changes in family and social structures, as a whole (EMCDDA, 2017). Disorders related to substance use are, clearly, a focus of interest in health, and may result in physical, psychosocial, cultural, and spiritual consequences, like other chronic diseases (Zubaran, Emerson, Sud, Zolfaghari, & Foresti, 2012).

The consequences of substance addiction have a direct impact on the way addicts live their lives and how they manage their illness. Substance addicts become progressively older and sicker, often consuming more than one substance (EMCDDA, 2017; Mounteney et al., 2015; Nyamathi et al., 2010). Some intend to maintain consumption, although requiring healthcare support (Seabra, Negrão, Barbosa, & Massano, 2010) – in methadone programmes, for instance, in the case of heroin addicts. The nurses who work on methadone programmes need to understand the patient’s needs, behaviours, and attitudes, regarding treatment or follow-up (Go, Dykeman, Santos, & Muxlow, 2011). Some substance addicts, with a more severe dependence on opiates, might require complex responses, such as medical prescription of heroin, supervision, and nursing follow-up (Demaret, Lemaitre, & Ansseau, 2012). All these health needs and

problems call for a correct assessment and monitoring by nurses. Long-term follow-up demands a multidimensional evaluation of substance addiction, and its consequences, as a health outcome based on clinical indicators.

In multi-professional assessment, the “Addiction Severity Index (ASI)” – the most used instrument – provides a multi-dimensional analysis of the drug addiction’s complexity (McLellan et al., 1992). ASI is considered an intricate tool and requires some transcultural adaptations, particularly in Europe (Velez-Moreno et al., 2013). Curiously, no instrument has been found in general nursing literature, nor in mental health nursing literature, regarding the assessment of the consequences of drug addiction and the outcome of nursing interventions in substance users. “Nursing Outcomes Classification” (NOC) is a taxonomy focused on the ability to assess nursing outcomes. A nursing outcome consists of “an individual, family, or community status, behaviour or perception, that is measured along a continuum in response to nursing interventions” (Moorhead, Johnson, & Maas, 2008). However, despite being useful instruments for the nursing practice, taxonomies, and classifications require a research-based approach to increase the evidence level. NOC includes an outcome entitled “Substance Addiction Consequences (1047)” (SAC), defined as the “severity of change in health status and social functions due to substance dependence” (Moorhead et al., 2008, p. 302). As such, it seems to be an adequate tool to measure the health status and the impact of nursing interventions, but no validation studies have been found in literature. The only validation research, dating back to 2004, is reported in the publication’s

original version (Moorhead et al., 2008). In that study, 16 substance users were evaluated, presenting a reliability interval between 0.89 and 0.91, an *alpha* coefficient for the individual items comprised between 0.43 and 0.71 and an approximate agreement of 87% between examiners (the only data found in literature, concerning the reliability of this outcome).

Within the European Portuguese context, few studies have been found with respect to the psychometric properties of the NOC's outcomes scales (Sampaio, Araújo, Sequeira, Lluch, & Martins, 2017). Recently, a clinical validation of NOC's outcomes highlighted the need to improve the knowledge about these scales and also the need to perform further studies, in order to reinforce the clinical validation method of NOC's outcomes. The psychometric analysis of NOC's instruments is still scarce (Bellido-Vallejo, Rodríguez-Torres, López-Medina, & Pancorbo-Hidalgo, 2016; Sampaio et al., 2017). Therefore, it is clear that we must improve the effectiveness of these studies, to identify nursing-sensitive outcomes (Seabra, Amendoeira, & Sá, 2017). To this purpose, NOC can be one of the most clinically reliable models, because of its universality, facilitated by being a globally recognised taxonomy (Moorhead, Johnson, Maas, & Swanson, 2013). It can also be strongly associated with specific nursing diagnoses and interventions.

Although no clinical research was found regarding SAC, this may be a good tool to assess the addicts' health status and to measure the patients' evolution during treatment and follow-up. Based on these considerations, this research intends to contribute to the validation (within the European Portuguese context) of the "Substance Addiction Consequences Outcome Scale," and to determine its psychometric properties in a sample of substance addicts, treated as outpatients in specialised units. The purpose of this article is to promote a better assessment of addiction consequences in clinical practice.

In literature, individuals who consume psychoactive substances are indistinctly termed "patient" or "user." Both words are applied in this article as synonyms.

Method

Methodological design

As a first step, we performed a content validation study, based on the initial Brazilian version of the "Substance Addiction Consequences" NOC outcome. To begin with, we used the 16 original indicators (Moorhead et al., 2008), looking for unknown definitions, and we executed a cultural adaptation of the designation and the definition. Subsequently, we incorporated 15 indicators, based on the review of literature, and we performed the cultural adaptation of their designation and definition, in order to include them, according to NOC's recommendation. A total of 31 indicators were submitted to a panel of Portuguese nursing experts, to obtain their approval regarding the content. In the end, the panel selected a total of 21 indicators (Seabra, Sá, & Amendoeira, 2013), which were included in this clinical validation study (Table 1). With the purpose of

achieving a consensus, the panel used as a reference Richard Fehring's Model (Fehring, 1987). The latter has been widely applied in content and clinical validation of NANDA International's nursing diagnoses, as well as NOC's outcomes (Caldeira, Chaves, Campos de Carvalho, & Vieira, 2012; Seganfredo & Almeida, 2011). Initially, the expert panel included 17 experts, but only 12 remained throughout the process. With an average of 37.9-years-old (range: 27–47), 91.6% worked at substance disorders units, 8.4% gave nursing lectures, 66% had a nursing bachelor degree, 25% had a master's degree, 9% had a PhD, 75% were specialists in mental health nursing, 9% were specialists in community nursing, and 16% were general nursing practitioners. Regarding their overall professional experience, the average was 15.2 years (range: 3–20), and with respect to their experience with substance addicts, it was 9.2 years (range: 3–16); 25% had specific training in the classification of nursing taxonomies, interventions, diagnostics, and outcomes; 25% have conducted research in that field, at some point in their professional life.

Setting

The data was collected from three public outpatient units located in Lisbon, Portugal, with an available population of 1183 patients, included in methadone programmes.

Participants

The patients' inclusion criteria were: being over 18-years-old, being heroin addicts and participating in an opiate maintenance programme with methadone for at least one month. The participants were selected through a systematic sampling procedure – for instance, within a given day, the

Table 1. "Substance addiction consequences" indicators for clinical validation.

Proposed indicators based on literature review, included after expert panel (Seabra et al., 2013)	Original NOC indicators code	Indicators
x		Isolation/loneliness
x		Problems in family relationships
x		Multiple drug use maintenance
x		Inability to make daily decisions
x		Lack of motivation for abstinence
	140718	Absenteeism from work or school
x		Anxiety
x		Sadness
x		Lack of interest in daily activities
	140711	Problems in self-supporting
	140709	Problems in maintaining employment
x		Concern about own health problems
	140705	Cognitive impairment
x		Concern about the future
x		Participation in illegal activities
	140715	Repeated hospitalisations in the previous year
	140714	Repeated visits to the emergency unit the previous year
	140713	Repeated arrests the previous year
x		Difficulty to memorise daily routine
	140701	Reduced physical activity
	140710	Difficulty in doing housekeeping

first patient with a nursing appointment was asked to participate. After this patient, one in each three was selected, sequentially, until a total of 60 participants was achieved in each healthcare unit, for a total sample of 180 participants. This number was determined according to the thumb rule (Hill & Hill, 2002 p. 54–58), which states that the minimum number to carry out a factor analysis with adequate power and size effect is five participants per item (we decided to increase this by almost 40%, in order to prevent the effects of non-response). We also applied a social-demographic questionnaire.

Ethical procedures

The study's purpose was explained to all participants and they signed an informed consent. The study was approved by the Ethics Committee for Health Sciences of Universidade Católica Portuguesa.

Variables

The dependent variables were "Substance Addiction Consequences", "Quality of Life" (QoL) and "Mental Health" (MH). The self-perception of both QoL and MH was used for the concurrent validation, because we did not possess any instrument to conduct a convergent/discriminant validation. In a scenario of general practice, in the absence of these specific tools, the scales mentioned above are used instead of the ones we propose in this study.

Instruments

The instruments we used to measure variables were the following:

"Substance Addiction Consequences" – this tool presented 21 indicators that could be evaluated in a 5-item Likert scale, ranging from severe to none, considering the patient's self-assessment. Initially, according to the proposed Likert scale, the quotation ranged from 21 to 105 (1–5), with the higher values corresponding to fewer consequences (better well-being).

"Quality of Life" – the "Drug Addicts in a Methadone Substitution Program Quality of Life Scale" is composed of 20 items, divided into three subscales: "Personal satisfaction and self-care" (eight items); "social-family situation" (eight items); and "social-professional and economic situation" (four items) (Murcho & Pereira, 2011). The participants indicated their perception using a 4-point Likert scale (1–4), where high values corresponded to a better perception of QoL (20–80). A good internal consistency ($\alpha = 0.895$) was achieved in this research.

"Mental Health" – the Portuguese version of the "Mental Health Inventory 5" (MHI5) (Ribeiro, 2011) was used in this study. It provides five items divided into two subscales ("distress" and "positive well-being"), on a 6-point Likert scale. The final score was obtained through the sum of all the items (two with inverted quotation). High levels corresponded to a better MH (5–30). A good internal consistency value ($\alpha = 0.880$) was obtained in this research.

Data analysis

The data was processed and analysed applying both descriptive and analytical statistics, which included psychometric analysis. For calculations and analysis, we used SPSS version 22 for Windows (IBM®, Armonk, NY). A statistical significance was assumed when $p < 0.05$. The presence of the researcher during the data collection process reduced the possibility of losing data. The reliability was determined by internal consistency, based on Cronbach's *alpha*, ensuring that the correlation of each item with all others (item-total) was, at least, 0.200 (homogeneity and scale stability). The variance of each item was determined with the inclusion of a 0.30 minimum commonality value. An exploratory factorial analysis, based on the "Principal Components Method" (PCM), was employed to validate the construct, and the orthogonal rotation of Varimax factors was applied when analysing the solutions which emerged in each analysis. We intended to achieve a factorial structure in which only one of the original variables was strongly associated with a single factor and poorly associated with the remaining (thus preventing it from being part of more than one factor). The decision regarding the number of factors to be retained was based on their initial values (eigenvalues) being equal or greater than one (≥ 1), and on each factor explaining at least 5% of the variance. The analysis was accompanied by a screen plot graphical verification. The construct validity study was completed to guarantee that the data would fit in a factorial analysis through Kaiser-Meyer-Olkin (KMO) and Bartlett sphericity tests ($p < 0.001$). All the procedures and the final factorial decisions were based on Marôco (2011). Finally, the solution had to be sustainable, from a theoretical point of view, with the possibility to rename the dimensions defined by the original authors, without divergence from the theoretical model underlying the instrument's construction. To evaluate the difference between averages, among the various units, we used the ANOVA test.

The clinical validation of an instrument presupposes a similarity between the scales used by different researchers. This is called "agreement degree between evaluators/users," and reinforces the instrument's fidelity (Adistya, Nurjannah, & Subekti, 2016). The inter-examiner agreement was obtained through Cohen's Kappa, determined on a case-by-case basis and using the average per sample.

Results

Social-demographic data

The study included 180 substance users, with an average age of 41 years ($SD = 7.58$; range: 24–69), mostly men (73.3%), single (55.6%), and with children (52.8%).

Concerning other questions, the most common answers were: six completed years in official education (35%), unemployed (48.3%), no professional qualifications (33.9%), and social and family financial support as main income (36.1%) (Table 2).

Drug use

At the time of the study, the majority of the participants (71.2%) was consuming substances. Those who reported not consuming any substance referred to having better QoL, better MH, and less SAC, at that time (Table 2).

Factorial analysis

First, we found a good internal consistency with the 21-item scale ($\alpha=0.867$). Second, a KMO of 0.800 revealed data adequacy, while the Bartlett test ($X^2[210]=1391.740$; $p<0.001$) confirmed stability. The six factors which were obtained explained 63.88% of the total variance. The commonalities were above 0.4 in all items. Following the exploratory factorial analyses (EFA), three items were removed (“Repeated hospitalisations in the previous year”; “Repeated visits to the emergency unit in the previous year”; “Repeated arrests in the previous year”), because they had an item-scale correlation inferior to 0.2. After the removal, all remaining items possessed an item-total correlation superior to 0.200. Additionally, the commonalities stayed above 0.3, and the values of α and KMO changed to 0.876 and 0.841, respectively. The stability remained unchanged, as the Bartlett test showed ($X^2[153]=1223.962$; $p<0.001$). Without those three items, the EFA resulted in four factors, but the explained percentage of the total variance decreased to 57.97%.

After the Varimax rotation, two other items were removed (“Lack of interest in daily activities”; “Concern about the future”), due to the weighing of more than one factor, with differences lower than 0.10. That led to a decrease of the KMO to 0.817, with adequate stability confirmed by the Bartlett test ($X^2[120]=1004.721$; $p<0.01$). The commonalities stayed above 0.3 and the explained percentage of the total variance decreased to 59.37%, while the four factors remained with a 16-item scale internal consistency of 0.854. One other item weighed more than one

Table 2. Distribution of the sociodemographic characteristics and drug use in the sample.

Gender	%	<i>n</i>	Mean	SD
Male	73.3	132	–	–
Female	26.4	48	–	–
Age (24–69)	–	–	41.05	7.58
Education	–	–	–	–
Sixth grade	35	63	–	–
Ninth grade	32.2	58	–	–
Marital status	–	–	–	–
Single	55.6	100	–	–
Married	30	54	–	–
Having children	52.8	95	–	–
Professional situation	–	–	–	–
Unemployed	48.3	87	–	–
Employed	30.5	55	–	–
Professional qualifications	–	–	–	–
No qualifications	33.9	61	–	–
Professional training	31.3	56	–	–
Income	–	–	–	–
Social and family support	36.1	65	–	–
Salary	31.1	56	–	–
Drug use	–	–	–	–
Current substance use	71.2	128	–	–
No use actually	28.8	52	–	–

factor, with differences inferior to 0.1 (“Problems in family relationships”), but we decided to keep it, because of its theoretical importance, with respect to the conceptual definition of this outcome (Table 3).

Decisions regarding factors

Four factors determined the most stable structure and the items that weighed more in each factor were easily identified. The authors attributed names to the factors, because no designations were known in the initial instrument. Factor 1 – psychological and family (four items/ $\alpha=0.804$; explained percentage of total variance: 32.4%); Factor 2 – physical and cognitive ability (five items/ $\alpha=0.715$; explained percentage of total variance: 11.2%); Factor 3 – self-care (four items/ $\alpha=0.691$; explained percentage of total variance: 8.8%); Factor 4 – economic and work (three items/ $\alpha=0.730$; explained percentage of total variance: 6.8%). The model suggested a final 16-item scale (Table 3).

Validity and reliability

The internal consistency of SAC was acceptable ($\alpha=0.854$), as well as the subscales’ coefficients: psychological and family ($\alpha=0.804$; $p<0.001$), physical and cognitive ability ($\alpha=0.708$; $p<0.001$), self-care ($\alpha=0.691$; $p<0.001$), and economic and work ($\alpha=0.730$; $p<0.001$).

To evaluate the scales’ validity and reliability, we analysed the relation between the different subscales, and between them and the total scale. The largest correlation found was between the total scale and the “Physical and cognitive” SAC subscale ($r=0.811$; $p<0.001$). The greatest correlation within subscales occurred between “Economic and work” and “Physical and cognitive ability” ($r=0.538$; $p<0.001$) (Table 4).

Inter-examiner agreement

To achieve the desired agreement degree between evaluators, in two of the units – and after the users answered all questions – two nurses were asked to fill the scale, in order to facilitate the *inter-rater* statistical tests. The participants were selected through convenience sampling (taking advantage of the detailed knowledge that nurses had about their patients). We asked each nurse to include 10 different substance users ($n=20$). Regarding the first sample, the analysis showed a $K=0.36$ and $r=0.491$ ($p<0.05$). Concerning the second sample, it showed a $K=0.31$ and $r=0.480$ ($p<0.05$). The inter-examiner agreement was calculated taking into account all the items, before the exclusion of the five mentioned above, during the psychometric analysis of the instrument.

Concurrent validation

The score of the “Quality of Life” perceived by the 180 participants presented an average of 63 (range: 23–80; SD=11.38). “Mental Health” (MH) revealed an average of 18.5 (range: 5–29; SD=5.66). Significant correlations

Table 3. SAC rotated component matrix.

	Factors/consequences			
	Psychological and family	Physical and cognitive ability	Self-care	Economic and labour
SAC sadness	0.818	–	–	–
SAC isolation/loneliness	0.805	–	–	–
SAC anxiety	0.768	–	–	–
SAC problems in family relationships	0.519	0.487	–	–
SAC cognitive impairment	–	0.778	–	–
SAC difficulty to memorise daily routine	–	0.629	–	–
SAC inability to make daily decisions	–	0.613	–	0.389
SAC difficulty doing housekeeping	–	0.607	–	–
SAC reduced physical activity	–	0.468	–	0.309
SAC multiple drug use maintenance	–	–	0.861	–
SAC lack of motivation for abstinence	–	–	0.829	–
SAC participation in illegal activities	–	–	0.567	–
SAC concern about own health problems	–	–	0.476	–
SAC problems for maintaining employment	–	–	–	0.828
SAC problems with self-supporting	–	–	–	0.751
SAC absenteeism from work or school	–	0.314	–	0.563
Explained variance %	32.43	11.20	8.83	6.89

Table 4. Correlation matrix between scales.

	QV total	CDS total	MHI5 total
QV total	1	–	–
CDS total	485**	1	–
MHI5 total	382**	553**	1

** $p < 0.001$.

between SAC, MH, and QoL were found ($p < 0.001$) – the higher the value of SAC (fewer consequences), the higher the value of QoL, and the better the MH (Table 4). After these correlational analyses, the concurrent validation process confirmed the adequacy of the SAC instrument, in terms of theoretical content and psychometric properties (Marôco, 2011).

Samples' SAC outcome

After adjusting the scale to contemplate 16 items (indicated values between 16 and 80), the clinical application outcome in the 180 participants presented an average of 59.65 (range: 25–79; SD = 10.71), which corresponds to a percentage of 74.5%. The ANOVA test found significant differences between the units ($F[2] = 6.333$; $p = 0.002$). The average values of SAC were positive, because they were above the scale's middle point (48).

Discussion

A multidimensional problem such as substance addiction, in which the affected individuals present several health demands and issues, requires a correct assessment, and monitoring by nurses. In this sense, NOC outcomes can be powerful instruments to support the nurse's assessment, clinical decisions, and follow-up.

The clinical validation performed in this study, subsequent to a previous content validation (Seabra et al., 2013), used a sample of 180 substance addicts, which allowed the analysis of psychometric scale properties. It was necessary to determine its factorial structure and reliability measures (internal consistency). The instrument, in its final 16-item version, presented a Cronbach α value of 0.854, which is considered acceptable on a scale with this number of items per

factor (Grove, Burns, & Gray, 2013). It should be noted that very little information is available about the reliability and construct validity of many of the NOC scales, including the NOC outcome used in this study (Moorhead et al., 2008).

The scale revealed good psychometric properties and its final four factors – “Psychological and family,” “Physical and cognitive ability,” “Self-care,” and “Economic and work,” – as consequences, reinforce the multidimensional perspective of the phenomenon (Hartz et al., 2014). Some selections had to be made. In that sense, we must refer that withdrawal symptoms, mentioned together with other symptoms as criteria in the “Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition),” were not considered an indicator regarding this outcome, simply because they were not viewed as a primary indicator to be monitored in users on a methadone programme, since they usually do not suffer from withdrawal symptoms (APA, 2013).

It is important to stress the absence, in literature, of clinical validation studies concerning this outcome, although some new indicators appear in NOC's most recent version. However, the studies that led to their inclusion are not presented (Moorhead et al., 2013), limiting their discussion in this article.

The four dimensions that emerged from the factorial analysis match the domain and the class that list this outcome within the current NOC, i.e., domain 5 (“Perceived Health” – individual impressions about health and healthcare) and class 5 (“State of Symptoms” – individual indications of an illness, injury, or loss) (Moorhead et al., 2013).

The four dimensions' labels are justified by the main consequences related to substance addiction. The importance of continuously monitoring the psychological and social-family consequences (Hartz et al., 2014; Ontário, 2009), the physical and cognitive ability status (Demaret et al., 2012; Parolin et al., 2017), the patient self-care (Nyamathi et al., 2010; Velez-Moreno et al., 2013), and the economic and work consequences (Mounteney et al., 2015), is highlighted in literature. This is facilitated through objective and empirical indicators (Table 3), especially regarding the factors related with family problems and psychological distress (Hartz et al., 2014).

It is important to reflect the connection between the created outcome indicators and the designations which were assigned to the different scale factors. We verified that comorbidities were determinant to minimise the perception of QoL (Go et al., 2011), and that the absence of consumption was related to greater MH and better QoL (Murcho & Pereira, 2011), to more self-care (Seabra et al., 2010), and to less dependence consequences (Chahua et al., 2015). The user's family stability and his/her professional context are determining factors for therapeutic success, resulting in better MH and QoL (Cruz & Machado, 2013; Zubaran et al., 2012). Managing this chronic disease, while improving the QoL and well-being, requires an assessment of the outcome's consequences, based on indicators which enable a detailed analysis (Murcho & Pereira, 2011). This was performed before the current clinical validation study (Seabra et al., 2013).

The validation and adaptation to European Portuguese context offer a valid instrument to measure SAC on outpatient users, particularly to mental health nurses. Additionally, it can provide an adequate instrument to evaluate what some authors describe as the main nursing intervention with respect to substance addicts – empowering and preventing relapses (Go et al., 2011). This outcome can be used to monitor the disease management process, using case management or motivational interview strategies (Stewart, 2012). The tools applied to support this population should: facilitate a deepened perspective of the complex individual needs, support the patient's decisions in a clear manner and contextualise all the interventions (Webb, 2012).

Concerning the inter-examiner agreement, we obtained a reasonable agreement degree (Adistya et al., 2016). The values can be justified by the small number of inter-examiner observations (Warrens, 2010).

This clinical validation study was based on previously used procedures, namely in a "Pain level outcome scale" validation study (Bellido-Vallejo et al., 2016), in a "Anxiety Level" validation study (Solgajová, Sollár, & Vörösová, 2014) and in a "Caregiver Performance: Direct Care" validation study (Adistya et al., 2016).

Regarding the confirmation of the scale validation, the small number of inter-examiner observations represents a limitation of this study.

Conclusion

This study encompasses the clinical validation and psychometric analysis of the Portuguese version of NOC's "Substance Addiction Consequences" outcome. The results support the reliability and validity of this outcome. The Portuguese version comprises 16 indicators and presents good internal consistency, good correlation with QoL and MH, and an acceptable *inter-rater* agreement. It also appears to be sensitive to changes in the user's health status.

After a previous content and cultural adaptation, the clinical validation of NOC's "Substance Addiction Consequences" outcome showed that this scale can be considered a valid tool to measure the consequences of drug

addiction and to monitor the health status as a nursing interventions' outcome (taking into account the nurses' performance and the patients' outcome). "Substance Addiction Consequences" can be employed as a reliable instrument in a hospital setting, in units specialised in substance dependence, in primary healthcare centres, and even in harm reduction units. The clinical application revealed a good *inter-rater* reliability that should be confirmed through future research, in different cultural backgrounds.

Implications for nursing research and taxonomy development

Very little literature can be found concerning the psychometric properties and clinical validation of NOC's scales. This clinical validation study provides elements that may increase the evidence level of the outcome, as listed in NOC, aiming at contributing to NOC's development. Taxonomies require clinical studies, to reinforce their role in nursing care standardisation and to obtain a better-supported research comparability. Nurses may use this outcome scale, when providing care to outpatients with substance addiction, in particular to those in methadone programmes. It can also be applied to achieve a continuous assessment during longitudinal, cross-sectional and experimental design research. Comparative research can benefit from the use of universally accepted instruments, adapted to each context. Additionally, this study intends to contribute to the discussion about the best adaptation and validation method of NOC's outcomes scales.

Relevance for nursing practice

The Portuguese adaptation of NOC's "Substance Addiction Consequences" outcome scale may be considered a valid tool to assess SAC and to monitor health status, as a nursing outcome, on outpatients in methadone programmes. The factorial analysis confirmed that the substance addiction phenomenon is multidimensional, and that it requires a multidimensional approach from healthcare professionals.

The optimisation of the abovementioned outcome in this group of outpatients allows mental health nurses – particularly those who take care of drug addicts – to have an available monitoring instrument, while assessing the way patients live and manage the consequences of their addiction. Although this instrument measures a health outcome, it is composed of objective outcome indicators that may aid nurses in the selection of the most adequate interventions. The score can be assessed and compared over time, designing an individual profile for each user. This can be particularly important when managing addiction, which is considered a chronic health condition. Additionally, on clinical practice, it can be used for routine assessment.

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Disclosure statement


The authors report having no conflicts of interest. All authors are responsible for, and contributed to, the content and writing of the article.

Data availability statement

The data that support the findings of this study are available from the corresponding author, [PS], upon reasonable request.

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