Artículo

Adaptation and Validation of the Tuberculosis Related Stigma Scale in Portuguese

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Theme: Evidence-based practice.

Contribution to the subject: This article presents a tuberculosis-related stigma scale for people with pulmonary tuberculosis undergoing treatment, with two dimensions and psychometric characteristics that ensure its reliability and validity in assessing the presence of stigma. It constitutes an instrument to support nurses' decision-making for an early intervention in people with pulmonary tuberculosis, so as to minimize the adverse effects of the social stigma associated with the disease.

Abstract

Objective: To adapt and validate the Tuberculosis Related Stigma Scale (TRSS) in European Portuguese. **Materials and method**: A methodological study in a sample of 204 individuals being treated for pulmonary tuberculosis in Portuguese Pulmonary Diagnostic Centers, with at least one month of treatment or in follow-up. The evaluation process of linguistic and conceptual equivalence involved translation, the consensus among judges, back-translation, semantic validation, and pre-testing of the TRSS. The scale's psychometric properties were assessed by verifying the reliability and validity of the results and calculating Cronbach's alpha coefficient and the exploratory factor analysis of principal components, with Varimax rotation of the scale items. **Results:** The Portuguese version of the TRSS has a Cronbach's alpha coefficient of 0.94 and has 23 items distributed in two dimensions: "Community's perspectives on tuberculosis" (11 items) and "Person's perspectives on tuberculosis" (12 items). Its psychometric characteristics ensure adequate reliability and validity for the Portuguese population. **Conclusions**: The TRSS is a valid and reliable instrument to assess stigma in people with pulmonary tuberculosis and, to date, the only scale validated in this domain for the Portuguese population, which allows nurses to make an integrated intervention.

Keywords (Source: DeCS)
Nursing; social stigma; tuberculosis; validation study; surveys and questionnaires.

Adaptación y validación de la *Tuberculosis Related Stigma Scale* en portugués

Resumen

Objetivo: adaptar y validar la *Tuberculosis Related Stigma Scale* (*TRSS*) en el portugués de Portugal. **Materiales y método**: estudio metodológico, en una muestra de 204 personas en tratamiento de tuberculosis pulmonar, en Centros de Diagnóstico Neumológico portugueses, con por lo menos un mes de tratamiento o en seguimiento. El proceso de evaluación de la equivalencia lingüística y conceptual implicó traducción, consenso entre expertos, retrotraducción, validación semántica y preprueba de la *TRSS*. Las propiedades psicométricas de la escala se evaluaron a partir de la verificación de la fiabilidad y validez de los resultados, mediante el cálculo del coeficiente alfa de Cronbach y el análisis factorial exploratorio de componentes principales, con rotación Varimax de los ítems de la escala. **Resultados:** la versión portuguesa de la *TRSS* tiene un coeficiente alfa de Cronbach de 0,94 y quedó con 23 ítems distribuidos en dos dimensiones: "Perspectivas de la comunidad en relación con la tuberculosis" (11 ítems) y "Perspectivas de la persona en relación con la tuberculosis" (12 ítems). Las características psicométricas le garantizan confiabilidad y validez adecuadas para la población portuguesa. **Conclusiones**: la *TRSS* constituye un instrumento válido y fiable para medir el estigma en la persona con tuberculosis pulmonar y es, hasta ahora, la única escala validada en este dominio para la población portuguesa, lo que le permite al profesional de enfermería una intervención integrada.

Palabras clave (Fuente: DeCS)
Enfermería; estigma social; tuberculosis; estudio de validación; encuestas y cuestionarios.

Adaptação e validação da *Tuberculosis Related Stigma Scale* para português

Resumo

Objetivo: adaptar e validar a *Tuberculosis Related Stigma Scale* (*TRSS*) para o português de Portugal. **Materiais e método**: estudo metodológico, numa amostra de 204 pessoas em tratamento de tuberculose pulmonar, em Centros de Diagnóstico Pneumológico portugueses, com pelo menos um mês de tratamento, ou em *follow-up*. O processo de avaliação da equivalência linguística e conceptual envolveu tradução, consenso entre juízes, retrotradução, validação semântica e pré-teste da *TRSS*. As propriedades psicométricas da escala foram avaliadas através da verificação da confiabilidade e validade dos resultados, recorrendo ao cálculo do coeficiente alfa de Cronbach e da análise fatorial exploratória de componentes principais, com rotação Varimax dos itens da escala. **Resultados:** a versão portuguesa da *TRSS* tem um coeficiente alfa de Cronbach de 0,94 e ficou com 23 itens distribuídos por duas dimensões: "Perspetivas da comunidade em relação à tuberculose" (11 itens) e "Perspetivas da pessoa em relação à tuberculose" (12 itens). As características psicométricas garantem-lhe confiabilidade e validade adequadas para a população portuguesa. **Conclusões**: a *TRSS* constitui um instrumento válido e confiável para avaliar o estigma na pessoa com tuberculose pulmonar sendo, até ao momento, a única escala validada nesse domínio para a população portuguesa, o que permite ao enfermeiro uma intervenção integrada.

Palavras-chave (Fonte: DeCS)
Enfermagem; estigma social; tuberculose; estudo de validação; inquéritos e questionários.

Introduction

Pulmonary tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* complex, with the potential to affect any organ, being the most frequent the pulmonary form with the most public health implications. Sick people expell the bacilli, mainly through coughing and speech, and can later be inhaled by others (1).

In this context, one of the challenges of the World Health Organization (WHO) is to eliminate TB. Therefore, to eradicate the disease by 2050, they have planned and implemented strategies to reduce mortality rates by 90 % and incidence rates by 80 % by 2030 (2-3). Already in 2015, the WHO proposed, in The End TB Strategy, additional targets so that no person with TB needs to bear the catastrophic costs or social repercussions caused by the disease (4). Although there has been a decrease in its incidence rate in recent years, this reduction is considered insufficient in view of the desired goals. It is estimated that in 2019, worldwide, about ten million people will have contracted the disease. It remains a serious global public health problem (3).

In Portugal, the National Program for the Fight against Tuberculosis foresees that the planning and provision of care related to TB tend to be centered on primary health care, whose pillars are the Centers for Pneumological Diagnosis (CPD). In the last ten years, Portugal has been showing a decrease in its incidence rate, with an annual reduction of about 5 % of new cases (5). However, this figure is clearly insufficient, and needs to be doubled in order to meet the targets proposed by WHO (3). In 2017, about 1,244 new cases were diagnosed, and in 2018, 1,703 new cases were reported. This figure refers to an incidence rate of approximately 15.6/100,000 inhabitants (6).

It is also known, through data from May 2020, that in Portugal and in the North region, the percentage of completed treatments was 82.4 % (7). Despite the positive evolution, Portugal still does not meet the targets set by the WHO for 2030 (3).

The type of treatment to be instituted and the measures recommended for its follow-up are essential for therapeutic success. This is intrinsically related to the measures adopted, which contribute to reducing exposure to cases of drug resistance and relapse, motivated by interruption or abandonment of treatment. In public health terms, treatment failure can lead to relapses, failure to interrupt the chain of transmission of the disease, and even to multidrug-resistant TB, which are very important problems in terms of public health (2, 8, 9).

Related to the commitment and coordination between the various structures and intervention programs in the fight against pulmonary TB, priorities for action on social risk factors, such as stigma, are also included (3).

In recent years, there has been a growing concern with understanding the stigma associated with TB, with the aim of identifying and implementing interventions that can minimize its impact on people with this disease (10-13). Within the healthcare system, stigma in a person living with a specific disease leads to delayed diagnosis, treatment, and successful health outcomes (14). However, stigma reduction has not been a priority in health policies, nor is it widely stated in how health services are delivered or evaluated, nor is it a standard part of the initial and continuing training of all health professionals (12).

Stigma is described as a powerful social process characterized by labeling and stereotyping an individual, relating him/her to a deeply undesirable or derogatory attribute in the eyes of society, and can lead to marginalization, isolation, and exclusion from social relationships. Stigma presents itself as a sign of shame or disapproval, resulting in an individual being rejected, the object of discrimination, and even excluded from participation in various areas of society (15).

If related to health care facilities, stigma negatively affects people who seek health care services when they are in a situation of greater vulnerability. In this context, some of the manifestations of stigma include: the denial of care, the provision of care with a lower standard of quality than desirable, physical and verbal abuse, even more bizarre forms, such as purposely increasing waiting times for care. It thus emerges as a barrier to care for people seeking health services for disease prevention, treatment of acute or chronic conditions, or support to maintain a healthy lifestyle (12). Therefore, the social stigma of TB poses a challenge to the management of care for people with pulmonary TB.

The literature review allowed us to identify the Tuberculosis Related Stigma Scale (TRSS) administered specifically to people with TB and seems to be a scale capable of assessing and measuring stigma in people with pulmonary TB. It is a scale that quantifies the stigma associated with this disease and was developed in southern Thailand, with internal consistency considered adequate by the author (Cronbach's alpha greater than 0.70) (16).

The scale consists of 23 items divided into two dimensions: the first dimension is related to the "Community's views on tuberculosis" and consists of 11 items, which assess the individual's perception of the community's behavior towards people with TB (negative feelings, isolation, discrimination and disclosure, among others); the second dimension is related to the "Person's views on tuberculosis". Consisting of 12 items, it assesses the individual's perception of the disease and includes feelings related to fear of disease transmission, guilt, shame, and grief when confronted with the disease (16).

Each item is answered on a Likert-type scale, with four response options: 1 - strongly disagree; 2 - disagree; 3 - agree; and 4 - strongly agree. In the dimension "Community perspectives on tuberculosis",

the calculation of final scores may vary between 11 and 44. On the other hand, in the dimension "Person's perspectives on tuberculosis", scores may vary between 12 and 48. In both dimensions, the higher the score, the greater the stigma related to the disease.

Therefore, the application of this scale in the Portuguese cultural context is justified by the potential to obtain knowledge about the patient's perception of the stigma associated with the disease. As a contribution to nursing care, the added value through the knowledge obtained may have a broad impact on improving the quality of nursing practice, as well as on the potential for a person-centered approach to nursing care.

Thus, this study aims to adapt and validate the TRSS for European Portuguese.

Materials and methods

For the process of adaptation and analysis of the psychometric properties of the TRSS, a methodological study of cross-sectional nature was carried out using a qualitative and quantitative analysis of the items (17-21).

Procedures

This study was conducted in two stages: evaluation of linguistic and conceptual equivalence, which included translation, the consensus among judges, back-translation, semantic validation, and pre-test of the TRSS, and evaluation of the psychometric properties of the scale (17).

After the authors' authorization, the linguistic and conceptual equivalence was assessed, starting with the translation of the TRSS from English into Portuguese. The translation was carried out independently and autonomously by two bilingual translators: one, whose native language was English and who was familiar with the cultural and linguistic singularities of the Portuguese language; and another, whose native language was Portuguese and who was familiar with the construct to be evaluated. The two translations were synthesized, reducing the differences found in the translations and choosing the best expressions and words for each item. The text was adapted to the Portuguese cultural knowledge through a consensus process, harmonizing and producing a common translation, and a written report was prepared documenting the synthesis process, with a record of the proposed changes. Next, a copy of the Portuguese version of the TRSS was sent to two other English translators, who did not know the original text in order to avoid any influence on the translation of the words and did the scale's back-translation. The researchers and the translators performed a new evaluation of the two versions and produced a single consensus document. This step verified the validity of the translation in its semantic equiva-

lence, providing assurance that the translation process of the first consensus version reflects the items of the original version. This document, as well as the specified report of the results associated with the translations and back-translations, was sent to the first author of the original TRSS, who accepted the proposed suggestions. This process minimized the possibility of conceptual errors in the translation (17-20).

Subsequently, and for the purpose of cultural validation, we submitted the last translated version to a panel of five experts, two of whom were nurses with experience in caring for TB patients in a CPD, a physician with experience in the treatment and follow-up of TB patients, a methodologist, a professor of sociology with expertise in the cultures and behaviors of Asian populations, and a professor of Portuguese and English (native speaker of an English-speaking country), who analyzed the TRSS and suggested minor adjustments regarding clarity and comprehension. After revision, the final version of the TRSS was produced and administered to a group of 30 people already undergoing TB treatment, followed by spoken reflection, with the suggestion of changing some words to others more commonly used in the Portuguese language and culture and replacing the word "nojo" (present in item #5) by "fear".

In the second stage, we assessed the psychometric characteristics of the final version of the TRSS in a sample of 204 patients with pulmonary TB being treated at a CPD in the Northern region of Portugal. When calculating the sample, we considered that the number of five to eight respondents per item would be sufficient for exploratory factor analysis (21). The inclusion criteria were age of majority, pulmonary TB, and at least one month of treatment or follow-up.

Data was collected after the favorable opinion of the Ethics Committee for Health of the Regional Health Administration of the North, I. P., Porto, under number 021/2019. All participants, of legal age, who agreed to participate in the study, signed the informed consent form, ensuring data anonymity and confidentiality. Psychometric properties were assessed by determining the accuracy or reliability and validity of the results. To test reliability, we used the sense of internal consistency given by Cronbach's alpha coefficient of the scale. For construct validation, we performed an exploratory factor analysis of principal components with Varimax rotation of the scale items, to identify the underlying factors. For factor retention, we took into consideration eigenvalues greater than one. We performed the Kaiser-Meyer-Olkin test (KMO) and Bartlett's Test of Sphericity (BTS) to assess the adequacy of the sample for factor analysis. For the factor analysis to be smooth and reliable, we assumed not to accept saturations below 40 % (21-23).

Data was analyzed using the Statistical Package for Social Sciences (SPSS) for Windows, version 26.0. A confidence interval of 95 % was set, with a margin of error of 0.05.

Results

In this study, 204 patients treated for pulmonary TB in Portuguese CPDs participated, mostly males (61.7 %), aged between 18 and 68 years (M = 42.7 years; SD = 11.8 years). The average age of males was 45.5 years and of females 38.6 years. Most participants in the sample were married (n = 99 [48.5 %]), the professional status of employed prevails (n = 148 [72.5 %]), followed by unemployed status (n =30 [14.7 %]). As for education, about 45.1 % (n = 92) of the participants had completed the 1st, 2nd, and 3rd cycles of basic education, 26.5 % (n = 54) had completed secondary education, and 26.9 % (n = 55) had completed high school or college. The entire sample had started treatment at least one month ago or was in follow-up.

To assess the scale's reliability or internal consistency, Cronbach's alpha coefficient was calculated both for each item and for the totality of items. Table 1 presents the results of the internal consistency and homogeneity analysis for the 23 items of the TRSS. Along with the mean and standard deviation, we describe the respective correlation of the item with the total of its belonging scale (corrected coefficient) and the alpha value if this same item was deleted, considering the total sample (n = 204).

Table 1. Internal consistency analysis and homogeneity of the TRSS items

Items	Mean	Standard deviation	r ITC (corrected)	Cronbach's alpha if eliminated item
Some people may not want to eat or drink with friends who have TB.	3.05	0.65	0.63	0.94
Some people feel uncomfortable being around someone with TB.	3.26	0.67	0.67	0.94
If a person has tuberculosis, other people behave differently towards him.	3.21	0.65	0.64	0.94
Some people don't want their children to play with someone who has tuberculosis.	2.98	0.54	0.44	0.94
Some people stay away from people with TB.	3.48	0.71	0.81	0.94
Some people think that they should not go near people who have tuberculosis.	3.48	0.69	0.78	0.94
Some people don't want to talk to someone who has TB.	3.35	0.70	0.74	0.94
Some people are afraid of those who have tuberculosis.	3.55	0.60	0.80	0.94
Some people avoid touching someone with TB.	3.46	0.73	0.78	0.94
Some people may not want to eat or drink with relatives who have tuberculosis.	3.07	0.63	0.67	0.94
Some people prefer that someone with TB not live near them.	2.98	0.69	0.65	0.94

Items	Mean	Standard deviation	r ITC (corrected)	Cronbach's alpha if eliminated item
People with tuberculosis feel hurt by the way others react when they know they have the disease.	3.25	0.64	0.68	0.94
People with tuberculosis lose friends when they tell them they have the disease.	2.51	0.66	0.47	0.94
People with tuberculosis feel lonely.	2.50	0.71	0.33	0.94
People who have tuberculosis keep away from others to avoid spreading the disease.	3.54	0.71	0.67	0.94
People with tuberculosis are afraid to tell people outside their family that they have the disease.	3.53	0.73	0.79	0.94
People with TB are afraid to go to the TB treatment unit (CPD) because other people might see them there.	3.22	0.90	0.73	0.94
People with tuberculosis are afraid to tell others that they have the disease because they might think they also have AIDS.	2.53	0.78	0.44	0.94
People with TB feel guilty because they feel they are a burden to their family.	2.50	0.71	0.42	0.94
People with tuberculosis choose carefully whom they tell about their disease.	3.47	0.73	0.75	0.94
People with tuberculosis think they may have contracted the disease due to addiction to tobacco, alcohol or other risky behaviors.	2.50	0.73	0.39	0.94
People with tuberculosis fear that they have also contracted HIV.	2.26	0.72	0.43	0.94
People with TB are afraid to tell their families that they have the disease.	3.27	0.93	0.71	0.94
Global Alpha	0.94			

Source: Own elaboration.

From values in Table 1, we found that the Cronbach's alpha coefficients of each item related to the total scale were 0.94, obtaining a "very good" internal consistency (22). These values indicate a very good correlation among all items and a good homogeneity of the items. We tried to evaluate the internal consistency in case any item was removed from the analysis and we verified that all items present correlations higher than 0.20. Analyzing the correlation of each item with the total scale, we verified that the values oscillate between 0.33 and 0.81. It should be noted that, the value found refers to the correlation of the item with the sum of the other items, that is, the item itself was excluded from the sum of the scale. The next step was to analyze the validity of the measurement instrument, more specifically its internal structure. We used factor analysis, which aims to establish correlations between statements and

groups of statements in order to highlight factors that explain these correlations. The factor analysis allows assessing the adjustment of the structure obtained based on the observed data with the dimensional organization rationally derived from the conceptual definition of the variable. The factor loading of an item translates the extent to which this item represents, at the behavioral level, a given latent trait, i.e., the percentage of covariance between this item and the respective factor (21-23).

Table 2 shows the values resulting from the dimensionality analysis of the TRSS. We used the principal components factor analysis with orthogonal rotation by the Varimax method of the 23 scale items the underlying factors. From this analysis, we retained the items with eigenvalues equal to or greater than unity and the factorial saturations of the items greater than 0.40. This index will be lower when the assumption of the 0.40 threshold implies the elimination of the item from any of the isolated factors. The eigenvalues and the percentage of variance are explained by each factor, the communalities (h^2), the total variance explained, the measure of sample adequacy via the KMO test, and the BTS.

Table 2. TRSS factor analysis results

Items	Factors		h^2
	1	2	
Community perspectives on tuberculosis α = 0.94			
Some people may not want to eat or drink with friends who have TB.	0.68		0.45
Some people feel uncomfortable being around someone with TB.	0.81		0.60
If a person has tuberculosis, other people behave differently towards them.	0.78		0.55
Some people don't want their children to play with someone who has tuberculosis.	0.54		0.24
Some people stay away from people with TB.	0.93		0.89
Some people think that they should not go near people who have tuberculosis.	0.90		0.85
Some people don't want to talk to someone who has TB.	0.84		0.74
Some people are afraid of those who have tuberculosis.	0.87		0.81
Some people avoid touching someone with TB.	0.86		0.78
Some people may not want to eat or drink with relatives who have tuberculosis.	0.79		0.52
Some people prefer that someone with TB not live near them.	0.73		0.48
Patient perspectives on tuberculosis α = 0.89			
People with tuberculosis feel hurt by the way others react when they know they have the disease.		0.69	0.52
People with TB lose friends when they tell them they have the disease.		0.62	0.64
People with tuberculosis feel lonely.		0.50	0.60

Items	Factors		h^2
	1	2	
People who have tuberculosis keep away from others to avoid spreading the disease.		0.68	0.54
People with tuberculosis are afraid to tell people outside their family that they have the disease.		0.80	0.70
People with TB are afraid to go to the TB treatment unit (CPD) because other people might see them there.		0.77	0.59
People with tuberculosis are afraid to tell others that they have the disease because they might think they also have AIDS.		0.59	0.41
People with TB feel guilty because they feel they are a burden to their family.		0.61	0.63
People with tuberculosis choose carefully whom they tell about their disease.		0.82	0.61
People with tuberculosis think they may have contracted the disease due to addiction to tobacco, alcohol or other risky behaviors.		0.53	0.44
People with tuberculosis fear that they have also contracted HIV.		0.62	0.51
People with TB are afraid to tell their families that they have the disease.		0.78	0.56
Total variance explained — 59.23 %	46.68 %	12.55 %	
Eigenvalue	10.74	2.89	
KMO measure of sample adequacy — 0.927			
BTS — 3847.599; p = 0.000			

Source: Own elaboration.

From the analysis of the results in Table 2, we found that the Kaiser-Meyer-Olkin (KMO) test value was 0.927, reflecting a good adequacy of the sample for the analysis. In turn, the BTS value was 3847.599; $p < 0.001$, which ensured the adequacy of the factor model to this correlation matrix to perform the factor analysis (21-23).

The analysis of the correlation matrix between the 23 items and the total scale showed significant indices ($p < 0.001$) with significant correlations. The factorial organization of the items in two dimensions ("Community perspectives on tuberculosis" with 11 items and "Patient perspectives on tuberculosis" with 12 items, respectively) together, explain 59.23 % of the total variance of the scale.

The saturation coefficients present values greater than 0.50. The communality values are good for most items, being almost all of them higher than 0.45, except for items 4, 18, and 21.

Table 3 shows responses to the 23 items of the TRSS, grouped into the two dimensions. Along with the means and standard deviations, we described their correlation with the total of their belonging dimension (corrected coefficient) and the alpha value of the dimension if this same item were eliminated.

Table 3. Results of the internal consistency and homogeneity analysis of the items per dimension of the TRSS

Dimensions	No. items	Variation of means	Variation of standard deviations	r itc (corrected)	M scale	SD scale	Alpha value
Community perspectives on tuberculosis	11	2.98 - 3.46	0.54 - 0.73	0.44 - 0.81	35.87	5.80	0.89
People's perspectives on pulmonary tuberculosis	12	2.26 - 3.54	0.64 - 0.93	0.33 - 0.79	35.06	6.024	0.94

Source: Own elaboration.

The two dimensions of the TRSS showed good internal consistency (values equal to or higher than 0.89), with the dimension "Community perspectives on tuberculosis" being more consistent (0.94). Means ranged from 2.26 to 3.54 and standard deviations from 0.54 to 0.93. As for the corrected correlation coefficients of each item with the total dimension of belonging, the values were very satisfactory (between 0.44 and 0.81 for the dimension "Community perspectives on tuberculosis" and between 0.33 and 0.79 for the dimension "Person's perspectives on pulmonary tuberculosis").

Next, Table 4 presents the results of the correlation between the dimensions and the global scale.

Table 4. Results of the correlation between the dimensions and the global scale

Dimensions/Scale	Community perspectives on tuberculosis	People's perspectives on pulmonary tuberculosis
Community perspectives on tuberculosis		0.67**
People's perspectives on pulmonary tuberculosis	0.67**	
Global scale	0.91**	0.92**

** The correlation is significant at the 0.01 level.

Source: Own elaboration.

Analyzing globally the values in Table 4, there was a moderate relationship between the two dimensions, and they are strongly correlated with the global scale in a statistically significant way.

Discussion

In the initial phase, after translation, semantic, idiomatic, conceptual and cultural equivalence, and the consensus among judges were obtained through the methodological process. Considering the specificity of some of the terms applied and their cultural and linguistic meaning, the initial translation procedure, the synthesis of the two translations, the back-translation, the panel of experts, and the pretest were crucial to ensure the equivalence of the TRSS.

The TRSS is a short and reliable scale that quantitatively measures stigma associated with TB. It has an "excellent" internal consisten-

cy with an overall Cronbach's alpha of 0.94 (21). The 23-item scale is structured in two dimensions: "Community perspectives on tuberculosis" (with 11 items), which identifies negative feelings and emotional reactions toward affected individuals, isolation, discrimination, and disclosure, and "Patient perspectives on tuberculosis" (with 12 items), which identifies feelings such as fear of casual transmission, moral values of guilt, responsibility, shame, and grief in coping with TB (16). The first dimension obtained a Cronbach's alpha of 0.94 and the second, 0.89. When we compared the reliability or internal consistency indices obtained in our study with those obtained by the authors of the original scale, we found higher values both in the global scale (α = 0.91) and in the two dimensions (α = 0.88 and α = 0.82, respectively), demonstrating its robustness (16). This scale assesses stigma from two perspectives: the community's response to those who have TB and how stigma is experienced by people with pulmonary TB. Thus, it is an instrument of great interest (11) and has contributions to the area of care planning for patients, enhancing adherence and completion of the treatment instituted (10-13).

Conclusions

The adaptation of the TRSS into the Portuguese language and culture of Portugal showed an excellent internal consistency, with a Cronbach's alpha of 0.94, reproducibility and overlapping with the results of other studies carried out by the author of the original scale. It is a short (23-item) and reliable scale that quantitatively measures the stigma associated with TB.

In addition, stigma was assessed from the community's and the patient's perspectives of pulmonary TB. Thus, it is an instrument of great interest, with contributions to the area of care planning for patients, enhancing adherence and completion of the treatment instituted.

The entire adaptation and validation process was conducted according to international guidelines, as was the analysis of the psychometric properties of construct validity and internal consistency.

This study translated, adapted and validated the TRSS into the Portuguese language and culture of Portugal, as an instrument to assess stigma in patients with pulmonary TB from the patient's own perspective. Its psychometric characteristics ensure adequate reliability and validity for the Portuguese population.

Since it is a short and easy-to-understand instrument, its application to patients with TB will allow us to identify the main causes and consequences of the stigma that may lead to non-adherence to and completion of treatment in patients with pulmonary TB. Thus, the TRSS is a valid and reliable instrument for nurses to use in the diag-

nosis of stigma in people undergoing treatment for pulmonary TB, being, so far, the only scale validated in this field for the Portuguese population, which allows nurses to make their intervention comprehensive. Thus, we believe that it will add scientific knowledge to nursing, and may provide greater accuracy to clinical practice.

Study limitations

One of the limitations of this study refers to the perceptions of people with pulmonary TB undergoing treatment in the Northern region of Portugal. Further research should be conducted with people with other types of TB, at different stages of the disease and from other regions of the country. However, the results of this study show that the TRSS is an instrument with adequate reliability and validity, available for nurses to diagnose stigma in people with pulmonary TB.

Conflicts of interest: None declared.

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