Validity of the Supportive Care Needs Survey Short Form 34 in the Amazon population

Validade do *Supportive Care Needs Survey Short Form 34* na população amazônica

Validez del *Supportive Care Needs Survey Short Form 34* en la población amazónica

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Abstract

Objective: To analyze the construct validity of the Supportive Care Needs Survey Short Form 34 (SCNS SF-34) in the population with cancer treated in Manaus, in the Brazilian Amazon region.

Methods: Psychometric study carried out in an institution specialized in oncology, from April to June 2016. The data sources included a form with socio-demographic and clinical data, and the Brazilian version of the referred instrument. The sample was composed by 691 participants, considering a sample calculation of 20 patients per item. Exploratory and confirmatory factor analysis, verification of internal consistency and evaluation of the invariance of the factor model according to gender, age and time of treatment were carried out.

Results: Of the 691 patients, 92.6% were from the state of Amazonas, 72.6% were female (72.6%), 64.4% were under 60 years old, 54.4% were on treatment for more than six months, 55.6% had a tumor in the female reproductive system and 56.1% underwent surgery. There was a factorial solution of four domains and good adjustment indexes obtained by confirmatory factor analysis ($\chi^2 = 1.828.981$; $df = 520$; $\chi^2/df = 3.51$; $p<0.001$; $CFI = 0.926$; $TLI = 0.918$; $RMSEA = 0.084$ (90% CI= 0.082-0.090), with an invariant pattern across the different groups (gender, age group and duration of treatment).

Conclusion: The Brazilian version of the Supportive Care Needs Survey Short Form 34, composed by 34 items distributed in four domains (Physical and Daily Living, Psychological, Sexuality and Care and Support) was valid and accurate to measure the care needs for individuals diagnosed with cancer in the Amazon region.

Resumo

Objetivo: Analisar as evidências de validade de constructo do *Supportive Care Needs Survey Short Form 34* (SCNS SF-34) na população com câncer atendida em Manaus, região amazônica brasileira.

Métodos: Estudo psicométrico, realizado em uma instituição de referência em oncologia, de abril a junho de 2016. As fontes de dados incluíram formulário com dados sociodemográficos e clínicos, e a versão brasileira do referido instrumento. A amostra foi composta por 691 participantes, considerando-se cálculo amostral de 20 pacientes por item. Foram realizadas análises fatoriais exploratória e confirmatória, verificação da consistência interna e avaliação da invariância do modelo fatorial quanto a sexo, idade e tempo de tratamento.

Resultados: Dos 691 pacientes, 92,6% eram do estado do Amazonas, 72,6% do sexo feminino (72,6%), 64,4% com idade menor que 60 anos, 54,4% em tratamento há mais de seis meses, 55,6% com tumor do sistema reprodutor feminino e 56,1% submetidos à cirurgia. Verificou-se solução fatorial de quatro domínios e

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bons índices de ajustamento obtidos por análise fatorial confirmatória (χ^2 = 1.828,981; *df* = 520; χ^2/df = 3,*51*; *p<0,001; CFI* = 0,*926; TLI= 0,918; RMSEA* = 0,084 (I.C. 90% = 0,082-0,090), com padrão invariante para os diferentes grupos (sexo, grupo etário e tempo de tratamento).

Conclusão: A versão brasileira do *Supportive Care Needs Survey Short Form 34*, composta por 34 itens distribuídos em quatro domínios (Físico e Vida diária, Psicológico, Sexualidade e Cuidado e Suporte), mostrou-se válida e precisa para mensurar as necessidades de cuidados de indivíduos com diagnóstico de câncer da região amazônica.

Resumen

Objetivo: Analizar las evidencias de validez del constructo del *Supportive Care Needs Survey Short Form 34* (SCNS SF-34) en la población con cáncer atendida en Manaus, región amazónica brasileña.

Métodos: Estudio piscométrico, realizado en una institución de referencia en oncología, de abril a junio de 2016. Las fuentes de datos incluyeron un formulario con datos sociodemográficos y clínicos y la versión brasileña de dicho instrumento. La muestra estuvo compuesta por 691 participantes y se consideró el cálculo de tamaño de muestra de 20 pacientes por ítem. Se realizaron análisis factoriales exploratorios y confirmatorios, verificación de la consistencia interna y evaluación de la invarianza del modelo factorial por sexo, edad y tiempo de tratamiento.

Resultados: De los 691 pacientes, el 92,6 % eran del estado de Amazonas, el 72,6 % de sexo femenino, el 64,4 % de menos de 60 años, el 54,4 % en tratamiento hace más de seis meses, el 55,6 % con tumor en el sistema reproductor femenino y el 56,1 % pasaron por cirugía. Se verificó una solución factorial de cuatro dominios y buenos índices de ajuste obtenidos por análisis factorial confirmatorio (χ^2 = 1.828,981; *df* = 520; χ^2/df = 3,*51*; *p<0,001; CFI* = 0,*926; TLI= 0,918; RMSEA* = 0,084 (I.C. 90 % = 0,082-0,090), con patrón invariable en los diferentes grupos (sexo, grupo de edad y tiempo de tratamiento).

Conclusión: La versión brasileña del *Supportive Care Needs Survey Short Form 34*, compuesta por 34 ítems distribuidos en cuatro dominios (Físico y vida diaria, Psicológico, Sexualidad y Cuidado y apoyo), demostró ser válida y precisa para medir las necesidades de cuidados de individuos con diagnóstico de cáncer en la región amazónica.

Introduction

The demographic and epidemiological transition observed in recent decades has brought significant changes to morbidity and mortality rates, such as a reduction of infectious diseases and an increase of chronic-degenerative diseases, reconfiguring the focus of public health.[1]

In this scenario, cancer has an increasing incidence and represents the most important barrier to increasing life expectancy in the world. According to the World Health Organization, there were an estimated 18 million cases and 9.6 million cancer deaths in 2018, and more than 60% of cases occurred in developing countries.[1-3]

In Brazil, it estimated that for each year of the 2020-2022 triennium there will be 625 thousand cases of cancer, and 70% of records will be in the South and Southeast Regions, with significant variations in incidence and type of diagnosis between the different regions of the country.[1] It is undeniably a public health problem, and its control and prevention must be prioritized, taking into account the economic, social and cultural similarities and differences of the population.

Social and cultural aspects are relevant factors in the identification of the individual and an important part of the therapeutic process, treatment adherence and coping with the disease.[3,4] Supportive care needs vary according to the age of the person and the stage of the disease and include information related to prognosis, diagnosis, treatment and side effects, direct support for treatment and psychological support, care and monitoring in the rehabilitation process, and even health care policies, staff training, education and access to supportive palliative care services.[5-7]

Supportive care can involve several factors, which have been discussed in the international literature since the 2000s, and include the physical effects of the disease and its treatment and the psychological and social sequelae, such as anxiety, depression and feelings of isolation. Practical supportive actions, such as transportation assistance, provision of prostheses and adaptations for daily activities, should also be considered.[8,9]

Access to evidence-based information related to the experience of being sick with cancer is also seen as an essential aspect of supportive care. There are no studies in the literature that address supportive care needs of people with cancer in the Brazilian population, considering the different domains of life that may be affected.

In 2000, the New South Wales (NSW) Cancer Council Supportive Care Review Group, from Australia, developed the Supportive Care Needs

Survey – Short Form 34 (SCNS-SF34), with the objective of assessing the supportive care needs of people diagnosed with cancer, through 34 items divided into five domains. This instrument has been translated and validated for use in different linguistic and cultural communities, including China, Mexico, Italy, Germany, France, Japan, Turkey and Brazil.[10-17] It includes recurrent supportive care needs which must be met to ensure an adequate understanding of the disease and provide quality of life for people with melanoma, breast, head, neck or lung cancer, among others cancer.[18-21]

In 2014, the version of the SCNS-SF34 translated into Brazilian Portuguese resulted in an instrument with 34 items and seven domains: Psychological; Health System and Information; Physical and Daily Living; Care and Support; Sexuality; Control and Positive Outlook; and Individual Items. Each item begins with a question, with the answer options: "I don't need it, not applicable" (1); "I don't need it, I'm satisfied" (2); "Low need" (3); "Moderate need" (4) and "High need" (5). The total score is obtained by adding the scores of each item and varies from a minimum of 34 to a maximum of 170 points. The care needs are classified as the following levels: Satisfied> 34 ≤68 points; Low need ≥69 ≤127 points; Moderate need ≥128 ≤169 points and High need = 170 points. The higher the final score, the greater the need for supportive care.[15]

In addition, factor loadings above 0.40 and Cronbach's alpha coefficient values above 0.80 were obtained. The convergent validity between the SCNS-SF34 and the 30-item European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire (EORTC QLQ-C3) demonstrated moderate to strong correlation, and the discriminant validity analysis showed significant differences in characteristics such as age, gender, religion and clinical aspects such as types of surgery. The test-retest reliability was also observed.[15]

Considering that the supportive care needs of people diagnosed with cancer may present differently in different populations or cultures, this study aims to obtain a reliable version of this instrument for a group with needs that are still little studied, considering the possibility of contributing to better health care practices.

Thus, the objective of the present study was to analyze the construct validity of the SCNS-SF34 in the population with cancer treated in Manaus, in the Brazilian Amazon region.

Method

Psychometric instrument validation study carried out from April to June 2016, in an institution that is specialized in the diagnosis and treatment of cancer in the state of Amazonas and provides assistance to the population of that state and others in the North Region of Brazil.

The criterium for sample size calculation was a minimum of 20 participants for each of the items of the SCNS-SF 34 (n=680).[22] The sample was composed of 691 participants diagnosed with cancer who were directly approached by the lead researcher during the period of data collection, before the consultation with the health professional, in the inpatient units, at the bedside, and in the chemotherapy and radiotherapy services, in a reserved space.

People with scheduled appointments, aged 18 or over, with a medical diagnosis of cancer, regardless of the etiology or stage of treatment, in satisfactory physical and emotional conditions for participating in the study and who did not refuse the invitation to participate were included. Thus, the variability of the population within the phenomenon addressed by the instrument was guaranteed.

Forms developed by the research team with socio-demographic (hospital registration number, name, age, gender, origin, marital status, education, need for caregiver support, presence of caregiver and caregiver data) and clinical data (tumor location, surgery, time of diagnosis, time of treatment and type of treatment) were used.

The data were tabulated and checked for further analysis using the Statistical Package for Social Sciences (SPSS), version 22.0, which enabled descriptive and psychometric statistical analysis. In all analyzes, a p-value of 0.05 (5%) was considered statistically significant.

The cross-validation procedure was used to evaluate the construct and assess the internal structure. This method is used to validate the validation procedure within the same study,[22] with exploratory factor analysis and confirmatory factor analysis to evaluate the measurement model of the scale. For this, the total sample was divided into two samples to apply the different procedures. The samples were named as: Sample A, composed by 350 participants, and Sample B, composed by 341 participants. The sample size was calculated to provide at least ten cases per item in each of the validation procedures (ten cases/item for exploratory analysis and another ten cases/item for confirmatory analysis).[22]

EFA was applied to Sample A, with the Unweighted Least Squares (ULS) estimation method and Promax oblique rotation, based on a polychoric correlation matrix. Different criteria were used to select the factors: Guttman-Kaiser criterion, parallel analysis (PA) and interpretability of the factor solution. Finally, the level of precision of the factors and of the total scale were verified using Cronbach's alpha coefficient. The analyzes were performed using the statistical software FACTOR 10.3.[23]

CFA was applied to Sample B, with Likert's method, Weighted Least Squares Mean and Variance Adjusted (WLSMV), more appropriate to the ordinal level of measurement. The following reference values were considered to assess the model's adjustments indexes: Bartlett's $\chi 2$/ degrees of freedom ($\chi 2/df$)<5, Tucker-Lewis index (RMSEA)>0.08; Comparative adjustments index and Root mean square error of approximation (TLI)>0.90. Finally, the total sample was accessed to verify the invariance of the factor model according to gender (male and female), age group (adults vs. older adults) and time of treatment (less than six months and six months or more). The analyzes were performed using the statistical software Mplus 7.3. For keeping an item, factor loading ≥0.30 and reliability ≥0.80 were considered.[22]

The study protocol was approved by the Research Ethics Committee and the Scientific Committee of the institutions involved, under protocol 1.400.151 and CAAE 51243415.0.00005392, according to resolution 466/2012 and complementary resolutions.

Results

A total of 691 people diagnosed with cancer participated and 92.6% were from the State of Amazonas. Among these, 68.2% lived in the city of Manaus and 5.1% lived in the state of Pará. Most participants were female (72.6%), under the age of 60 (64.4%), had a mean age of 53.7 (+13.28) years and had complete elementary education (43.0%).

The disease occurred more frequently in the reproductive system (55.9%), with a predominance of female breast cancer (33.9%), and in the digestive system (17.7%). As for the type of treatment, 56.1% of participants underwent surgery and 60.8% underwent chemotherapy. Most had a time of diagnosis and treatment of six months or more (74.4% and 54.0%, respectively).

Among the participants, 315 (45.6%) were in the chemotherapy service, 181 (26.2%) in the outpatient clinic, 173 (25.0%) in the inpatient unit and 22 (3.2%) in the radiotherapy service. Approximately 18.0% needed some help to answer the questions, such as help reading the items; however, the interviewer did not affect the answers obtained.

Most participants reported living with a partner (54.5%) and not needing caregivers (55.3%). Among these, 56.6% mentioned that they did not have a caregiver. That means that part of those who needed a caregiver did not have access to this care. Among the 42.5% who needed help, a family member was the predominant caregiver (39.6%).

The total mean score of the SCNS-SF-34 was 76.06 (+23.50), varying between 35 and 170. There was a statistically significant difference between adults and older adults regarding the care needs domain (p=0.010). Adults presented a higher care need (77.7 + 23.79), but both had mean scores in the "low need" classification.

The psychometric analysis demonstrated good indicators regarding the factorability of the items: Kaiser-Meyer-Olkin (KMO) = 0.864, Bartlett's $\chi 2$

= (496) 59060.5 and *p-value*<0.001. A five-factor solution was indicated by the Guttman-Kaiser criterion (Table 1), and factors with eigenvalues greater than 1 were kept (9.75; 3.33; 1.56; 1.27 and 1.05).

Two of the four items in Factor 2 had a high factor loading also when in the first factor. Thus, the data were submitted to a new exploratory factor analysis, with a four-factor solution and only one cross-factor loading.

The domains Psychological (Factor 1), Physical and Daily Living (Factor 2) and Sexuality (Factor 4) remained unchanged. Factor 3 was composed of the domains originally called Health System and Information/Care and Support. Item 31, referring to

Table 1. Exploratory factor analysis and factor solution. Five and four-factor compositions

		Factor solution – five factors					Factor solution – four factors				
KMO						0.864					
Bartlett's $x^2_{(DF)}$ (*p-value*)						$59050.5_{(496)}$ (p<0.001)					
Eigenvalue >1				1					1		
Explained variation (%)				57.6%					52.3%		
Items	**Factor 1**	**Factor 2**	**Factor 3**	**Factor 4**	**Factor 5**	**Commun.**	**Factor 1**	**Factor 2**	**Factor 3**	**Factor 4**	**Commun.**
i1				0.540		0.373		0.507			0.377
i2				0.736		0.538		0.725			0.542
i3				0.728		0.527		0.719			0.551
i4				0.338		0.160		0.427			0.171
i5				0.557		0.379		0.612			0.405
i6					0.340	0.359	0.410				0.375
i7					0.654	0.530	0.662				0.557
i8					0.674	0.570	0.636				0.575
i9					0.804	0.546	0.748				0.533
i10					0.777	0.555	0.716				0.539
i11					0.809	0.554	0.742				0.514
i12					0.613	0.388	0.541				0.332
i13					0.550	0.342	0.474				0.301
i14					0.667	0.436	0.655				0.432
i15			0.967			0.941				0.928	0.905
i16			0.924			0.856				0.883	0.810
i17					0.322	0.229	0.417				0.243
i18		0.863				0.632			0.575		0.402
i19		0.854				0.660			0.609		0.421
i20	0.310					0.380			0.513		0.366
i21						0.244			0.492		0.310
i22	0.501					0.427			0.646		0.462
i23	0.844					0.631			0.748		0.544
i24	0.904					0.698			0.803		0.634
i25	0.691					0.469			0.724		0.474
i26	0.783					0.598			0.820		0.608
i27	0.526					0.416			0.709		0.470
i28	0.425					0.372			0.406		0.382
i29	0.675					0.506			0.552		0.484
i30	0.532					0.365			0.557		0.341
i31	0.468		0.314			0.358			0.340	0.387	0.379
i32	0.396	0.362				0.433			0.725		0.501
i33	0.313	0.469				0.454			0.748		0.531
i34	0.512					0.321			0.534		0.315
	F1	**F2**	**F3**	**F4**	**F5**		**F1**	**F2**	**F3**	**F4**	
F1	1.000						1.000				
F2	0.549	1.000					0.499	1.000			
F3	0.339	0.249	1.000				0.337	0.403	1.000		
F4	0.364	0.309	0.267	1.000			0.292	0.252	0.423	1.000	
F5	0.343	0.401	0.368	0.533	1.000						
Cronbach's Alpha							0.888	0.808	0.918	0.931	
Total							0.926				

KMO - Kaiser-Meyer-Olkin; Bartlett's x^2 - Bartlett's Test of Sphericity; DF - degrees of freedom; Commun.: communalities; F: Factor

the sexuality domain, presented a factor loading in more than one factor, but had a greater factor loading in the domain of origin. Once again, the content of the item was used to interpret the results obtained.

Even though item 31 had a higher factor loading in the Sexuality domain, it also evaluated the theoretical construct linked to Factor 3. Thus, part of its variance was also explained by the Health System and Information/Care and Support domain. It was decided to keep the item in its original domain (Sexuality) by adapting the content, even if it had a lower factor loading in this domain (0.387) when compared to the Health System and Information/Care and Support domain (0.340).

As presented in Table 1, the synthesis of the results of the exploratory factor analysis with five and four domains is analyzed (52.3% of the explained variation in the last model). The results provided evidence of validity based on the internal structure and accuracy of the Brazilian version of the SCNS-SF34 for the studied population.

The values obtained in the adjustment test of the model with Sample 2, using CFA, are presented in table 2 and were classified as good (χ2=1828.981; df=520; χ2/df=3,51, *p-value*<0.001; CFI=0.926; TLI=0.918; RMSEA=0.084 (90% C.I.=0.082-0.090).

Table 2. Confirmatory Factor Analysis of the Supportive Care Needs Survey Short Form 34

Adjustment coefficients Sample 2 (n=341 patients)	Initial	Adjusted
X^2	2233.660	1828.981
Standard deviation	521	520
X^2/df; *p-value*	4.2; p<0.001	3.5; p<0.001
Comparative adjustment index	0.901	0.926
Tucker-Lewis Index	0.893	0.918
Root mean square error of approximation	0.098	0.084
90%CI	(0.091-0.102)	(0.082-0.090)
Adjustment (control error)		1

CI - 90% Confidence Interval

The invariance test of the model with the complete sample, comparing the different groups (men vs. women), adults vs. older adults (younger than 60 and 60 or older) and duration of treatment (less than 6 months and 6 months or more, demonstrated that the scale is invariant, with no difference in indices at the different levels of invariance (Table 3).

Table 3. Invariance test of the model

	WLSMV X2 (GL)	p-value	CFI	TLI	RMSEA (90%CI)
Gender					
Configural	2855.349 (1.040)	<0.001	0.932	0.927	0.071 (0.068-0.074)
Metric	2880.136 (1.070)	<0.001	0.932	0.929	0.070 (0.067-0.073)
Scalar	2880.754 (1.168)	<0.001	0..36	0.938	0.065 (0.062-0.068)
Age group					
Configural	3014.510 (1.040)	<0.001	0.935	0.929	0.074 (0.071-0.077)
Metric	3062.556 (1.070)	<0.001	0.934	0.931	0.073(0.070-0.077)
Scalar	3099.348 (1.168)	<0.001	0.936	0.938	0.069 (0.066-0.072)
Time of treatment					
Configural	2981.581 (1.040)	<0.001	0.935	0.930	0.074 (0.071-0.077)
Metric	3012.503 (1.070)	<0.001	0.935	0.932	0.073(0.070-0.076)
Scalar	3033.499 (1.168)	<0.001	0.938	0.940	0.069 (0.066-0.072)

WLSMV - Weighted Least Squares Mean and Variance-adjusted; *GL* – degree of freedom; CFI – Comparative adjustment index; TLI - Tucker-Lewis Index; RMSEA - root mean square error of approximation; 90%CI - 90% confidence interval

Discussion

Limitations of this study were the lack of analysis of the concurrent validity criteria, since no instruments were found to assess this phenomenon and verify convergent validity, and of the predictive criterion validity, which can be the focus of future studies aiming to explore the impact of this measurement in the prediction of events of interest in health.

To assist people diagnosed with cancer, actions that meet their needs are essential, and include planning care and dealing with the effects of treatment, which have physical, emotional, economic, and social implications for patients and their families. Instruments that help identify and assess real daily needs contribute to better service and support, meeting the demands of this population. Obtaining a systematic report of an individual's own perception of their health status is recommended as an approach to improve access to symptoms, focusing on patient needs and enabling them to take measures to protect their health and well-being.[24-29]

In a practical care setting for this population, the SCNS-SF34 instrument stands out and is used with individuals with different types of cancer.[7,16,21,24-30] The assessment of construct validity contributes to accessing that data.

As for the characteristics of the participants, the predominance of women in the sample corroborates the estimates for each year of the 2018-2019 biennium in Brazil, which indicate 290.38 new cases per 100 thousand women and 252.49/100 thousand men, with a higher incidence among women in the North region of the country.[1]

Exploratory and confirmatory factor analysis were carried out using different statistical procedures to ensure the adequacy of the estimates on the internal structure. Polychoric correlation matrices were used, as this procedure is adequate for the evaluation of latent variables derived from ordinal variables, which are represented in this study by the items answered using a Likert-type scale.[22,31]

The same reasoning was applied when using different criteria for choosing the number of factors, considering that specialized literature describes the strengths and weaknesses of each of these criteria. Thus, by using different criteria associated with the theoretical interpretation of the factors, it is possible to eliminate the risks of underestimating or overestimating the numbers, getting an appropriate factor solution, consistent with the original proposal of the instrument and equivalent to different studies that address this adaptation in different countries.[24-26]

From a theoretical perspective, the domains Physical and Daily Living, Psychological and Sexuality were fully maintained. However, the items in the Health System and Information and Care and Support domains were mixed, as only two items with factor loadings in their origin factor (Care and Support) were kept, which would not support keeping a domain, since one should be estimated by the correlation of at least three items.[31] Factor solutions similar to the one estimated in the present study were observed by researchers in validity studies of versions of the same instrument in other countries.[25,26,30]

The adequacy of the factor solution with four domains, obtained through confirmatory factor analysis, was achieved with the inclusion of a new parameter in the measurement model: a correlation between items 18 and 19, which were part of the domains Health System and Information/Care and Support. Thus, the results obtained provide new evidence on the internal structure of the SCNS-SF34 for the studied population, since the estimated factor solution fits the data observed in Sample 2, confirming the measurement model observed internationally.[22,31]

Although knowledge of the internal structure is one of the main psychometric properties of an instrument, it is necessary to evaluate its accuracy, as the dimensions of a test must provide an accurate measurement of the construct.[22,31] The Cronbach's alpha coefficient values demonstrated good accuracy of the SCNS-SF34, with values ranging from 0.808 to 0.931 among the factors, and a value of 0.926 for the full scale. Values greater than 0.7 are indicators of high accuracy.[31,32] Studies that analyzed the same instrument keeping the four domains showed internal consistency values varying between relatively high and strong (Cronbach's alpha =0.70-0.92).[11,27,32]

The SCNS-SF34 also presented evidence of invariance in the parameters of the measurement model when comparing the groups, according to the gender of the participants (men vs. women). Good adjustments indexes were obtained comparing to the different models (configural, metric and scalar), and CFI statistics were maintained in the different models, that is, decreases were below 0.01, which provides evidence of total invariance to the instrument.[22,31,32]

Despite of the good adjustments indexes achieved, the instrument can still be improved with the review of items with low communalities and factor loadings below 0.50, as well as the item with cross-validation. Testing a new model excluding one or more of these items could be an alternative, but it should be complemented with revisiting the validity of the instrument's content and the response process in the target population in future studies. Thus, testing the model in different scenarios and populations can be done in other protocols.

Still, this study provides a significant contribution to the investigation of the supportive care needs of people diagnosed with cancer treated in Manaus, since it provides an instrument with valid and reliable evidence regarding this phenomenon, which can be used in clinical practice.

Conclusion

According to the performed psychometric tests, the Brazilian version of the Supportive Care Needs Survey Short Form 34 is a multidimensional scale with four domains and 34 items, with good evidence of validity and accuracy to assess the supportive care needs of cancer patients in the Amazon region, regardless of gender, age group and duration of treatment.

Collaborations

Vieira HW, Gallasch CH, Rebustini F, Balbinotti MA, Padilha KG and Ferretti-Rebustini declare that they contributed to the project design, analysis and interpretation of data, writing of the article, relevant critical review of the intellectual content and approval of the final version to be published.

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