

ORIGINAL ARTICLE

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Translation and cross-cultural adaptation of the Royal Free Hospital-Nutritional Prioritizing tool (RFH-NPT)

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HIGHLIGHTS

- The cross-cultural adaptation of a tool goes far beyond literal translation.
- The methodology involves several steps in order to effectively evaluate what the original tool proposes.
- The TriN-RFH is a nutritional risk screening tool for Brazilian patients with liver disease.
- It is a tool that takes into account the fluid overload of patient.

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ABSTRACT – Background – Nutritional screening is defined by American Society for Parenteral and Enteral Nutrition (ASPEN) as a process to identify individuals at risk of malnutrition. Malnutrition is a prevalent condition in cirrhotic patients, and it results in important prognostic implications. Most of the commonly used instruments fail in considering the particularities of cirrhotic patients. The Royal Free Hospital-Nutritional Prioritizing Tool (RFH-NPT) is a nutritional screening tool developed and validated to identify malnutrition risk in patients with liver disease. **Objective** – The study's aim was to conduct the transcultural adaptation (translation and adaptation) of RFH-NPT tool to Portuguese (Brazil). **Methods** – The process of cultural translation and adaptation followed the Beaton et al. methodology. The process involved the steps of initial translation, synthesis translation, back translation pretest of the final version with 40 nutritionists and a specialists committee. The internal consistency was calculated with the Cronbach coefficient and the content validation was verified with the content validation index. **Results** – Forty clinical nutritionists with experience in treatment of adult patients participated in the step of cross-cultural adaptation. The alpha Cronbach coefficient was 0.84, which means high reliability. In the specialists analyzes all the tool's questions achieved a validation content index higher than 0.8, showing high agreement. **Conclusion** – The NFH-NPT tool was translated and adapted to Portuguese (Brazil) and showed high reliability.

Keywords – Transcultural adaptation; liver cirrhosis; nutritional screening; malnutrition.

INTRODUCTION

Cirrhosis is a chronic hepatic disease that alters liver's natural architecture through advanced fibrosis⁽¹⁾. It is a severe disease due to the hepatic damage caused by many forms of liver conditions⁽²⁾. It is characterized by an initial asymptomatic stage, known as compensated cirrhosis, followed by clinical complications, such as ascites, digestive bleeding and hepatic encephalopathy (HE), known as decompensated cirrhosis⁽³⁾.

Malnutrition is a prevalent condition present in cirrhotic patients that leads to negative prognostic outcomes. The etiology of malnutrition in this population is multifactorial and it is related mainly to the hepatic function change, reduced food intake and complications associated to the decompensated stage, such as ascites and HE⁽⁴⁻⁷⁾. However, despite highly prevalent in this population, malnutrition is still frequently under-recognized and undertreated⁽⁸⁾.

The maintenance of nutritional status is essential to health status management and recovery. The early identification of the nutritional risk is important to offer proper intervention and better nutritional care⁽⁹⁾. A tailored nutritional intervention based on previous evaluation of the nutritional risk can prevent complications in cirrhotic patients, improve quality of life and survival rate⁽⁸⁾.

Several different nutritional screening tools have been used to detect nutritional risk in the general population. However, the majority of the instruments was not validated for use in cirrhotic patients and do not consider the fluid overload, very common in these patients⁽¹⁰⁾. Thus, Arora et al. (2012) developed and validated a specific nutritional screening tool for cirrhotic patients, the Royal Free Hospital-Nutritional Prioritizing Tool (RFH-NPT)⁽¹¹⁾.

Nevertheless, for this tool to be viable in a country different from where it was created, is necessary a strict process of transcultural adaptation (cultural translation and adaptation)⁽¹²⁾. Therefore, the objective of this study was to perform a transcultural adaptation of the RFH-NPT to Brazilian Portuguese.

METHODS

It is a methodologic study of transcultural adap-

tation of the RFH-NPT original English version to Brazilian Portuguese. The research protocol was approved by Ethical Research Committee (ERC) of *Hospital de Clínicas de Porto Alegre* (under n. 45132621.7.0000.5327). After the formal authorization of the RFH-NPT's main author we performed tool's cultural translation and adaptation process according to the Beaton et al. (2000) guidelines⁽¹²⁾.

The original RFH-NPT's version was translated to Portuguese by two translators that were Portuguese natives and had English mastery. The translators were from different profiles. Translator 1 (J.R.T): professor, without knowledge of nutrition and of the study's aim (T1). Translator 2 (P.Z): nutritionist, aware of the study's aim and with previous knowledge of the issue (T2). Both realized two independent translations, which was defined as version T1 and T2.

The second step was the translation synthesis. In a meeting, two translators and two researchers (J.H.G) and (V.D.A) evaluated the translated versions and elaborated the synthesis of the two versions, making a unique translation version (T12). In the third step the consensual version (T12) was translated again to English by two different translators (R.K.S.K) and (R.C.S.G) that had English as maternal language and Portuguese mastery, both without knowledge of nutrition, the original tool or the study's aims.

The fourth step was the final tool's definition to perform the pretest. This step involved all the translators, the two researchers and the tool's main author. The pretest step was the tool's application in a sample of 40 nutritionists to collect information regarding their understanding of each tool item. The sample size was established according to the Beaton et al. (2000) methodology.

The contact with the nutritionists was online. The consent form was sent by e-mail and all those who accepted to participate in the study received the tool in an electronic form. The tool items (total of 12) were individually evaluated by the participants using a Likert scale with the following scoring: 1 for "don't understood", 2 for "understood a little", 3 for "understood" and 4 for "understood completely". There was also a space for suggestions and observations.

To estimate the tool's reliability the internal consistency was calculated using the Cronbach's alpha, with minimum acceptable value of 0.80. All analysis were

performed with SPSS version 22 (Chicago, IL, USA). The items that presented values below 0,80 were reviewed by the researchers and the tool's main author.

The reviewed and modified items were sent, through electronic form to a committee composed of two hepatologist doctors, one nurse, one nutritionist with experience in nutritional screening and one of the translators involved in the process (T2) aiming to verify the content validation index (CVI) of each tool's item.

The CVI is a Likert scale with 1 to 4 scoring, in which 1: item is not equivalent; 2: item needs a large review to evaluate equivalence; 3 "equal item, needs little change" and 4 "absolutely equal item". The validation of the modified items' content was checked through the CVI.

The CVI's calculation was composed by the sum of the answer 3 "equal item, needs little change" and 4 "absolutely equal item" divided by the total number of answers⁽¹³⁾. The minimum acceptable value established to the agreement index between the committee members was of 0.80.

RESULTS

In the first step of the transcultural adaptation process two independent versions of the tool to Portuguese were created, T1 and T2. It had differences in the translations to all tool's questions. To synthesize only one translation version (second step) the two researchers and two translators, in a meeting, analyzed each tool item together and they chose to keep the terms that were more familiar to the nutrition professionals. TABLE 1 shows in detail the differences between the two independent versions (T1 and T2), the changes made, and the final version established (T12).

In the third step, the tool's version T12 was back translated, creating two versions: RT1 and RT2. Both versions were similar, needing few changes. In the meeting (fourth step), researchers and translators analyzed and synthesized the results, making only one back translated version (RT12). This version was sent to the tool's main author for analysis and consent.

During the back translation process were suggested changes in the last tool's item (step 3 - conduct

guidelines, patients classified as high risk) to suit to Brazilian reality. There were changes proposed for the items "*discuta manejo com nutricionista*", "*estimule a alimentação e ofereça lanches*" and "*replata a triagem semanalmente*" to "*realize a avaliação nutricional detalhada*", "*institua medidas de suporte nutricional a fim de recuperar o estado nutricional*" and "*monitore cuidadosamente pelos menos duas vezes por semana*", respectively. The back translated version and the changes mentioned were approved by the tool's main author.

In the fifth step (pretest), the translated tool was applied in a sample of 40 clinic nutritionists with experience in the treatment of adults. The tool showed a Cronbach alpha coefficient of 0.84, which means high reliability. The items were individually evaluated and only one question showed Cronbach alpha coefficient less than 0.80.

The question "*se o paciente apresenta doença aguda e não se alimenta ou é provável que não se alimente por >5 dias*" showed a Cronbach alpha coefficient of 0.79. Many comments were made by the participants related to this item. Based on nutritionists' suggestions we questioned the tool's main author to change this question.

The tool's main author clarified that the questioned item was from the screening tool Malnutrition Universal Screening Tool (MUST) and it was necessary to keep it. We chose to use the established translation to Portuguese of the MUST, replacing the term "*indivíduos*" for "*pacientes*" and the term "*ingestão nutricional*" for "*ingestão alimentar*".

The modified item was sent to the Committee to verify the content validation by the content validation index. The agreement index between the Committee members for the modified item was 1.0, showing high agreement. All other questions showed a agreement index higher than 0.80. The RFH-NPT tool's final Portuguese version was established, as shown in FIGURE 1.

DISCUSSION

The crosscultural adaptation of the original version in English of the nutritional screening tool RFH-NPT to Portuguese showed high reliability. According to previous studies⁽¹³⁻¹⁵⁾ a questionnaire accuracy evalua-

TABLE 1. Modifications made during the process of initial translation and synthesis of translations (from English to Portuguese) of the RFH-NPT tool.

Items from the original tool	T1 e T2	T12
Does this patient have acute alcoholic hepatitis or are they being tube fed?	T1: <i>O paciente tem hepatite alcoólica aguda ou está sendo alimentado por tubo?</i> T2: <i>Este paciente tem hepatite alcoólica aguda ou está em uso de nutrição enteral?</i>	<i>O paciente apresenta hepatite alcoólica aguda ou está em uso de nutrição enteral?</i>
Does the patient have fluid overload? i.e. peripheral oedema/ascites	T1: <i>O paciente tem sobrecarga de fluidos? Ou seja, edema periférico/ascite</i> T2: <i>O paciente apresenta retenção hídrica? i.e. edema periférico/ascite</i>	<i>O paciente apresenta sobrecarga hídrica? Ou seja, edema periférico/ascite</i>
BMI (kg/m ²) >20 (>30 obese) 18,5–20 <18,5	T1: <i>IMC (kg/m²)</i> <i>>20 (>30 obeso)</i> <i>18,5–20</i> <i><18,5</i> T2: <i>IMC (kg/m²)</i> <i>>20 (>30 obesidade)</i> <i>18,5–20</i> <i><18,5</i>	<i>IMC (kg/m²)</i> <i>>20 (>30 obeso)</i> <i>18,5–20</i> <i><18,5</i>
Unplanned weight loss in past 3–6 months	T1: <i>Perda de peso não programada nos últimos 3–6 meses</i> T2: <i>Perda de peso não intencional nos últimos 3–6 meses</i>	<i>Perda de peso não intencional nos últimos 3–6 meses</i>
If the patient is acutely ill and there has been or there is likely to be no nutritional intake for >5 days	T1: <i>Se o paciente está gravemente doente e não houve ou é provável que não ocorra ingestão nutricional por >5 dias</i> T2: <i>Se o paciente apresentar doença aguda e estiver sem ingestão alimentar (ou em risco de ficar sem ingestão alimentar) por >5 dias</i>	<i>Se o paciente apresenta doença aguda e não se alimenta ou é provável que não se alimente por >5 dias</i>
Does the fluid overload interfere with the patient's ability to eat?	T1: <i>A sobrecarga de fluidos interfere na habilidade do paciente de se alimentar?</i> T2: <i>A retenção hídrica interfere na capacidade do paciente de se alimentar?</i>	<i>A sobrecarga hídrica interfere na capacidade do paciente de se alimentar?</i>
Has the patient's dietary intake reduced by ½ or more over the last 5 days?	T1: <i>A ingestão dietética do paciente foi reduzida pela metade ou mais nos últimos cinco dias?</i> T2: <i>A ingestão alimentar do paciente está reduzida pela metade (ou menos) nos últimos 5 dias?</i>	<i>O paciente está ingerindo a metade ou menos da metade da dieta oferecida nos últimos 5 dias?</i>
Has the patient lost weight in the past 3–6 months	T1: <i>O paciente perdeu peso nos últimos 3–6 meses?</i> T2: <i>O paciente perdeu peso nos últimos 3–6 meses?</i>	<i>O paciente perdeu peso nos últimos 3–6 meses?</i>
Add the scores together to calculate the overall risk of malnutrition - Management guidelines	T1: <i>Some os scores para calcular o risco geral de desnutrição - Diretrizes de gestão</i> T2: <i>Some todas as pontuações para obter o risco global de desnutrição - Diretrizes de manejo nutricional</i>	<i>Some todos os pontos para obter o risco geral de desnutrição - Diretrizes de conduta</i>
Score 0 - low risk - Routine clinical care - Repeat screening weekly	T1: <i>Score 0 - risco baixo</i> <i>- Cuidados clínicos de rotina;</i> <i>- Repita a triagem semanalmente</i> T2: <i>Escore 0 - baixo risco</i> <i>- Atendimento clínico de rotina</i> <i>- Repetir a triagem semanalmente</i>	<i>Pontuação 0 - Baixo risco</i> <i>- Cuidados clínicos de rotina</i> <i>- Repita a triagem semanalmente</i>
Score 1 - moderate risk - Routine clinical care - Monitor food charts - Encourage eating and offer snacks - Repeat screening weekly	T1: <i>Score 1 - risco moderado</i> <i>- Cuidado clínicos de rotina</i> <i>- Monitore tabelas alimentares</i> <i>- Incentive alimentar- se e ofereça lanches</i> <i>- Repita a triagem semanalmente</i> T2: <i>Escore 1 - risco moderado</i> <i>- Atendimento clínico de rotina</i> <i>- Monitorar ingestão alimentar</i> <i>- Estimular ingestão alimentar e oferecer lanches extras</i> <i>- Repetir a triagem semanalmente</i>	<i>Pontuação 1 - Moderado risco</i> <i>- Cuidados clínicos de rotina</i> <i>- Monitore a ingestão alimentar</i> <i>- Estimule a alimentação e ofereça lanches</i> <i>- Repita a triagem semanalmente</i>
Score 2 - 7 - high risk - Discuss referral with dietitian - Monitor food charts - Encourage eating and offer snacks - Repeat screening weekly	T1: <i>Score 2 a 7 - risco elevado</i> <i>- Discuta encaminhamento à nutricionista</i> <i>- Monitore tabelas alimentares</i> <i>- Incentive alimentar- se e ofereça lanches</i> <i>- Repita a triagem semanalmente</i> T2: <i>Escore 2–7 - alto risco</i> <i>- Discutir com nutricionista</i> <i>- Monitorar ingestão alimentar</i> <i>- Estimular ingestão alimentar e oferecer lanches extras</i> <i>- Repetir a triagem semanalmente</i>	<i>Pontuação 2 a 7 - alto risco</i> <i>- Discuta manejo com nutricionista</i> <i>- Monitore a ingestão alimentar</i> <i>- Estimule a alimentação e ofereça lanches</i> <i>- Repita a triagem semanalmente</i>

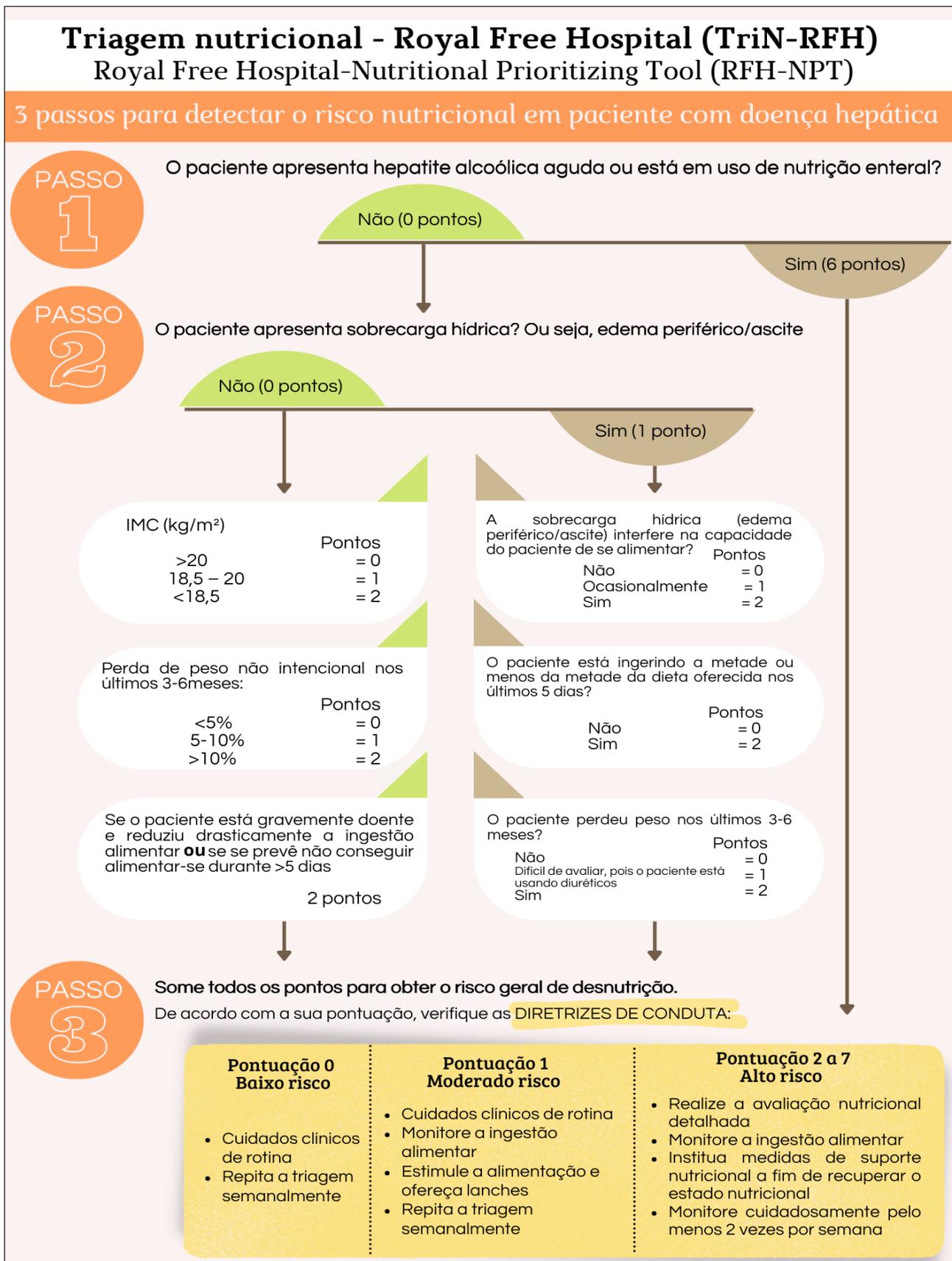


FIGURE 1. Final Portuguese version of the RFH-NPT tool (TriN-RFH).

ted through Cronbach alpha coefficient must present values over 0.70 and usually values between 0.80 and 0.90 are preferred to ensure good internal consistency. Thus the RFH-NPT's Brazilian version reached satisfactory results, demonstrating its reliability.

Nutritional screening is fundamental to identify correctly individuals at risk of malnutrition. In cirrhotic patients, despite of prevalent, malnutrition is usually underdiagnosed due to hepatic disease complications, such as fluid overload. Nutritional risk must be verified using a quick and efficient screening tool, applicable to the target population, to implement an appropriate intervention⁽¹⁶⁾.

Thus Traub et al. (2020) made in their study a comparison between screening tools NRS-2002 (Nutritional Risk Screening), MNA-SF (Mini Nutritional Assessment Short Form), widely used in clinical practice, and RFH-NPT in cirrhotic patients and concluded that NRS-2002 do not reach satisfactory results to malnutrition screening in cirrhosis and that MNA-SF showed narrow correlation compared to RFH-NPT. The authors reforced that RFH-NPT should be used to identify the malnutrition risk in cirrhotic patients⁽¹⁷⁾.

The RFH-NPT considers the fluid overload and is considered a simple method, validated to identify cirrhotic patients at risk of malnutrition⁽¹¹⁾. To the best of our knowledge, there is not a screening tool with these characteristics available in Brazilian Portuguese. The transcultural adaptation process seeks to make the use of a tool viable in a country different from where it was created through a combination of literal translation's words from a language to another and the appropriate adaptation to the cultural context and the lifestyle of the target culture⁽¹⁸⁾. Therefore, searching to adapt to Brazilian culture, one item of the original text was changed with the original author's consent.

In the original tool (step 3 – conduct guidelines) one of the established conducts to patients classified as high nutritional risk (score 2 to 7) is “*discuta manejo com nutricionista*”, because in United Kingdom and other countries is common that nutritional screening is made by other professionals, such as nursing technicians and nurses. However, searching to adapt to the Brazilian reality, in which the nutritional screening is performed by nutritionists mostly, it was

chosen to change the term to “*realize a avaliação nutricional detalhada*”.

Therefore the next items, “*estimule a alimentação e ofereça lanches*” and “*repita triagem semanalmente*”, were changed to “*institua medidas de suporte nutricional a fim de recuperar o estado nutricional*” and “*monitore cuidadosamente pelo menos duas vezes por semana*” respectively.

In the pretest phase, most of the tool's items (total of 12 items) were easily understood by nutritionists. In individual analysis, only one item has presented Cronbach alpha value under than 0.80. Because it was only one item with low value considering the others and yet above the acceptable cut-off point, after a discussion between the researchers, we chose to modify the question's description without taking it to another evaluation round by nutritionists.

This study presents a limitation related to items' cultural adaptation. Considering the heterogenic aspect of the Brazilian population, ideally the tool should have been applied in all five Brazilian regions. This study involved nutritionists from the states of Rio Grande do Sul, Bahia and Minas Gerais.

It could be concluded that the nutritional screening tool RFH-NPT is translated and culturally adapted to Portuguese, showing high reliability. It can be included and used in future studies to identify nutritional risk of cirrhotic Brazilian patients. As the next step of this study, it is fundamental to validate the Brazilian RFH-NPT version to use in the Brazilian context of clinical practice, in different country regions.

CONCLUSION

The translation and transcultural adaptation of the screening tool RFH-NPT were realized following internationally accepted methodology. In pretest, the tool's Portuguese version showed high reliability, and was easily understood by nutritionists. In the specialists' analysis the tool showed high agreement between the members in all the evaluated items (total of 12 items).

Then the Portuguese version of the screening tool RFH-NPT could be useful to detect nutritional risk of Brazilian cirrhotic patients. However, additional validation studies are necessary.

Authors' contribution

Glaserapp JH wrote the manuscript, participated in all meetings with the translators, selected the nutritionists and interpreted the results; Dall' Alba V participated in all meetings with the translators, assisted in the selection of nutritionists and critically reviewed the manuscript; Zuchinali P participated as

a translator with experience in the field of nutrition and critically reviewed the manuscript.

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RESUMO – Contexto – A triagem nutricional é definida pela Sociedade Americana de Nutrição Parenteral e Enteral (ASPEN) como um processo para identificar indivíduos em risco de desnutrição. A desnutrição é uma condição prevalente em pacientes cirróticos e resulta em importantes implicações prognósticas. A maioria dos instrumentos comumente utilizados falha em considerar as particularidades dos pacientes com cirrose. A Royal Free Hospital-Nutritional Prioritizing Tool (RFH NPT) é uma ferramenta de triagem nutricional desenvolvida e validada para identificar o risco de desnutrição em pacientes com doença hepática. **Objetivo** – O objetivo do estudo foi realizar a adaptação transcultural (tradução e adaptação cultural) da ferramenta RFH-NPT para o português (Brasil). **Métodos** – O processo de tradução e adaptação cultural seguiu a metodologia de Beaton et al. O processo envolveu as etapas de tradução inicial, síntese das traduções, retrotradução, pré-teste da versão final em uma amostra de 40 nutricionistas e comitê de especialistas. A consistência interna foi calculada pelo coeficiente de Cronbach e a validação de conteúdo foi verificada por meio do índice de validação de conteúdo. **Resultados** – Quarenta nutricionistas clínicos com experiência no tratamento de pacientes adultos participaram da etapa de adaptação cultural. O coeficiente alfa de Cronbach foi de 0,84, que expressa alta confiabilidade. Na análise dos especialistas, todas as questões da ferramenta obtiveram índice de validação de conteúdo superior a 0,8, apresentando alta concordância. **Conclusão** – A ferramenta RFH-NPT foi traduzida e adaptada para a língua portuguesa do Brasil apresentando alta confiabilidade.

Palavras-chave – Adaptação transcultural; cirrose hepática; triagem nutricional; desnutrição.

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