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Proposal for the development of nutritional screening for oncology patients in outpatient care

Proposta de desenvolvimento de triagem nutricional para pacientes oncológicos em atendimento ambulatorial

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ABSTRACT

Objective
To develop a nutritional screening questionnaire aimed at outpatient care for adults and elderly individuals with a confirmed diagnosis of cancer.

Methods
The tool was developed based on the NRS-2002, ASG-PPP (short form), and Nutriscore questionnaires, with the latter being specifically directed at this patient group, although not yet validated for use in Brazil. Additionally, questions regarding caregiver presence and income were included. The questionnaire is targeted at adults and elderly individuals with a cancer diagnosis confirmed by histopathological examination, who are either undergoing treatment or about to begin treatment in an outpatient setting.

Results
The questionnaire consists of nine questions, each scored based on the identified nutritional risk. The final scoring was determined using fictitious data, also considering the criterion of age independence.

Conclusion
This tool was designed for outpatient oncology patients, with the aim of providing greater specificity, safety, and optimization in the identification of nutritional risk. It is recommended that the tool be applied in real-world settings so that it can be adjusted to better meet the needs of this patient group.

Keywords: Ambulatory care. Medical oncology. Nutrition. Triage.

RESUMO

Objetivo
Desenvolver um questionário de triagem nutricional voltado para o atendimento ambulatorial de adultos e idosos com diagnóstico de neoplasia.

Métodos
O instrumento foi criado com base nos questionários NRS-2002, ASG-PPP (forma reduzida) e Nutriscore, sendo este último direcionado a pacientes oncológicos, embora ainda não validado para uso no Brasil. Adicionalmente, foram incluídas questões relacionadas à presença de cuidador e à renda do paciente. O questionário é destinado a adultos e idosos com diagnóstico oncológico confirmado por exame anatomopatológico, que estejam em tratamento ou prestes a iniciá-lo em ambiente ambulatorial.

Resultados
O questionário desenvolvido é composto por nove perguntas, cada uma atribuída uma pontuação conforme o risco nutricional identificado. O gabarito final foi estabelecido após avaliação de dados fictícios, considerando ainda a independência em relação à idade dos pacientes.

Conclusão
A ferramenta foi projetada para atender às necessidades de pacientes oncológicos em ambiente ambulatorial, visando proporcionar maior especificidade, segurança e otimização na identificação do risco nutricional. Sugere-se sua aplicação em cenários reais para que sejam realizados ajustes que aprimorem sua adequação às demandas deste grupo de pacientes.

Palavras-chave: *Assistência ambulatorial. Oncologia. Nutrição. Triagem.*

INTRODUCTION

Malignant neoplasms can induce significant changes in the individual's body as well as in their nutritional state, both by the direct action of the cancer and by the treatments used, such as surgery, chemotherapy or radiotherapy, either isolated or combined. As a consequence, malnutrition, often observed in this population, can compromise the expected therapeutic responses, requiring reduction of treatment doses, increasing levels of toxicity, and in some cases making the patient ineligible for surgical procedures. These factors can negatively impact the clinical outcome [1,2].

Malnutrition is predominantly characterized by a negative energy balance and loss of muscle mass, resulting from a complex interaction of factors such as reduced food intake, increased basal metabolic rate, insulin resistance, lipolysis, proteolysis, side effects associated with treatments, systemic inflammation and the presence of catabolic factors, which may be of individual origin or induced by the tumor. Early recognition of this condition is essential for the development of effective therapeutic strategies, with the aim of minimizing the impacts of malnutrition on the patient's clinical state [2,3].

Most nutritional evaluation studies focus on hospitalized patients, which can introduce a bias of selection due to the controlled environment, with constant access to medical care, adequate nutrition and medications. However, in an outpatient context, it is possible to observe the actual conditions of the patient's daily life, including their limitations and challenges. Factors such as the absence of a caregiver, adverse socioeconomic conditions, cognitive impairment, inadequate use of medications to manage side effects and the need to prepare their own diet can significantly influence, both positively and negatively, the patient's response to treatment [4,5].

Several screening protocols are widely used for the early detection of nutritional risk, such as the Nutritional Risk Screening-2002 (NRS-2002), which has proven highly effective in hospitalized patients with various pathologies and is recommended by the European Society for Parenteral and Enteral Nutrition (ESPEN), the Instituto Nacional de Câncer (INCA, National Cancer Institute) and the Brazilian Society of Parenteral and Enteral Nutrition (BRASPEN). In addition, the Patient-Generated Subjective Global Assessment (PG-SGA) is a validated nutritional assessment tool for use in patients with any pathology. Recently, this tool has undergone a global revalidation,

in which it was established that the first part, consisting of four questions and known as Short Form (Short Form), can be used as a nutritional screening tool for cancer patients, as indicated in the Brazilian guidelines mentioned above [3,6-10].

Since there is no validated questionnaire in Brazil for conducting nutritional screening in adult and elderly individuals, carrying solid tumors or hematological neoplasms, in outpatient care, it becomes necessary to develop an instrument that portrays the reality of the Brazilian population. This questionnaire should help to properly identify the patient, directing him to appropriate nutritional care and counseling.

The aim of this study is to propose a nutritional screening tool for patients with cancer in outpatient care, taking as a basis existing tools: *Avaliação Subjetiva Global Produzida Pelo Paciente – versão reduzida* (ASG-PPP, Global Subjective Assessment by the Patient - short form), Nutritional Risk Screening- 2002 (NRS-2002) and Nutritional Screening Tool for Oncological Outpatients (NUTRISCORE) and incorporating the specificities of this group of individuals. To minimize failures and resolve possible problems before their clinical implementation, potentially real situations will be simulated, allowing adjustments and adjustments in the tool before its definitive application to patients.

The tool will undergo semantic and technical validation by other professionals to ensure its practical applicability.

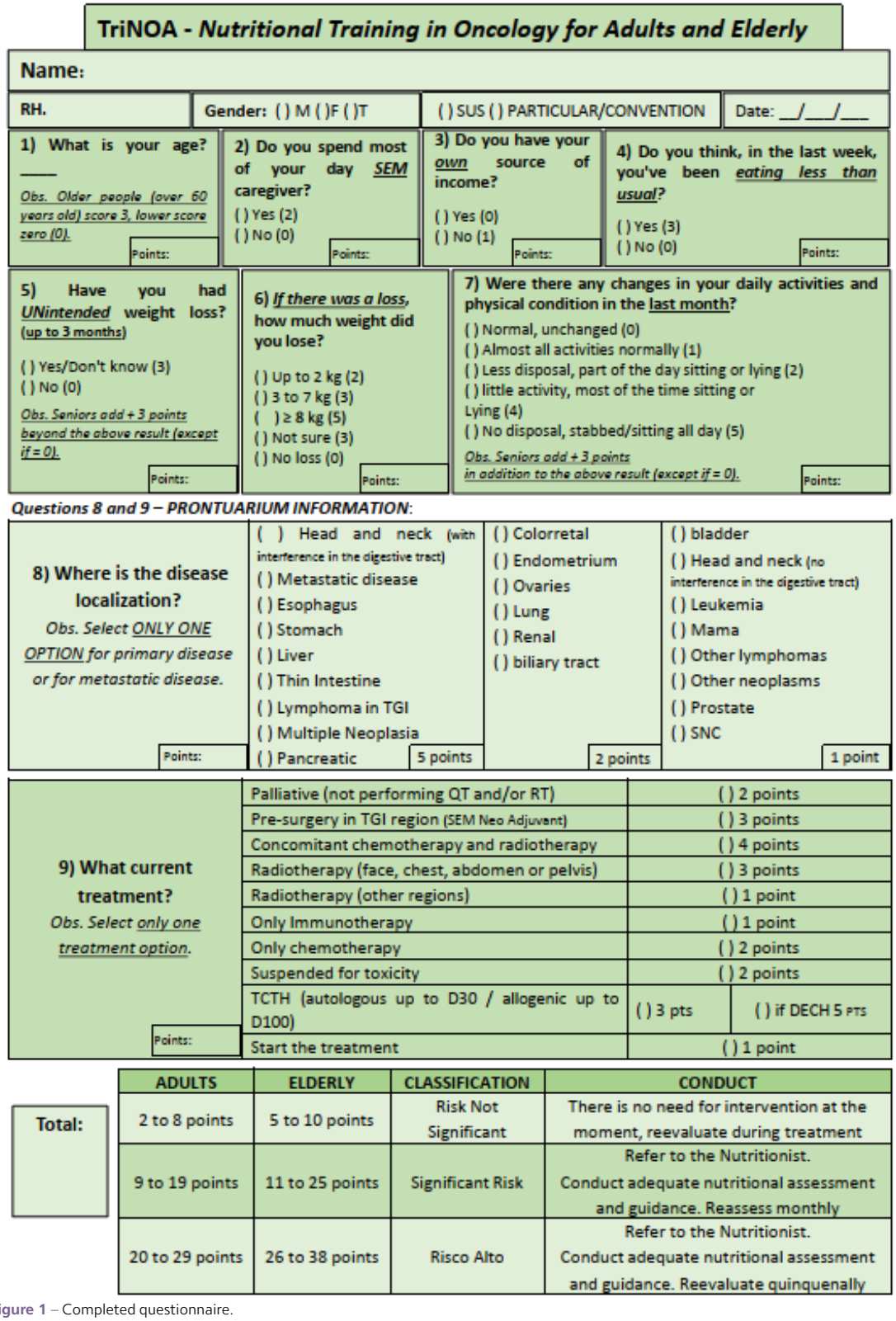
METHODS

The purpose of this study is applied research, with observational nature, the form of the approach is quantitative, the objectives are of the explanatory type. The main technical procedure was the survey technique with transversal and prospective development.

A multicenter study was designed to validate the *Triagem Nutricional em Oncologia para Adultos e Idosos* (TriNOA, Nutritional Screening in Oncology for Adults and Elderly) questionnaire (Figure 1), which aims to measure the nutritional risk of oncological patients (adults and elderly) in outpatient care. The research was conducted in the Department of Clinical and Experimental Oncology of the Federal University of São Paulo with the collaboration of another seven specialized centers in oncology that also focus on the nutritional care of these patients.

Some of the study participants are located in different geographical regions of the country and with different forms of care (public or private). The sample of the research, prioritizes what can well represent the Brazilian oncological patient, which needs nutritional monitoring, regardless of ethnic variety, race, and economic condition.

All centers applied the questionnaire for a period of six months or until guaranteeing the repetition of at least two consultations per patient, the first consultation being called phase 1 and the second consultation being called phase 2. Eventually some patients could have more than two visits, but it was necessary that at least 10% of patients were treated in each of the centers. Ambulatory patients, aged 18 years or older, who were diagnosed with malignant neoplasms, including solid and hematological tumors, who were treated for oncological evaluation or treatment and who were able to answer the questionnaire were included. The exclusion criteria are patients in the terminal phase, unconscious, those who present difficulty orientation in time, space and memory failures. The questionnaire contains nine questions, the first seven are completed by the nutritionist in an interview with the patient and the final two are consulted in each individual's record, which includes information on the location of the disease and active treatment. The protocol for this research was approved by the Ethics and Research Committee of the Federal University of São Paulo under the number 0574/2019.



TriNOA - *Nutritional Training in Oncology for Adults and Elderly*

Name:

RH.	Gender: ( ) M ( )F ( )T	( ) SUS ( ) PARTICULAR/CONVENTION	Date: __/___/___

1) What is your age? ____

Obs. Older people (over 60 years old) score 3, lower score zero (0).

Points:

2) Do you spend most of your day *SEM* caregiver?

( ) Yes (2)
( ) No (0)

Points:

3) Do you have your *own* source of income?

( ) Yes (0)
( ) No (1)

Points:

4) Do you think, in the last week, you've been *eating less than usual*?

( ) Yes (3)
( ) No (0)

Points:

5) Have you had *UNintended* weight loss? (up to 3 months)

( ) Yes/Don't know (3)
( ) No (0)

Obs. Seniors add + 3 points beyond the above result (except if = 0).

Points:

6) *If there was a loss*, how much weight did you lose?

( ) Up to 2 kg (2)
( ) 3 to 7 kg (3)
( ) ≥ 8 kg (5)
( ) Not sure (3)
( ) No loss (0)

Points:

7) Were there any changes in your daily activities and physical condition in the last month?

( ) Normal, unchanged (0)
( ) Almost all activities normally (1)
( ) Less disposal, part of the day sitting or lying (2)
( ) little activity, most of the time sitting or Lying (4)
( ) No disposal, stabbed/sitting all day (5)

Obs. Seniors add + 3 points in addition to the above result (except if = 0).

Points:

***Questions 8 and 9 – PRONTUARIUM INFORMATION*:**

8) Where is the disease localization?

Obs. Select ONLY ONE OPTION for primary disease or for metastatic disease.

Points:

( ) Head and neck (with interference in the digestive tract)	( ) Colorretal	( ) bladder
( ) Metastatic disease	( ) Endometrium	( ) Head and neck (no interference in the digestive tract)
( ) Esophagus	( ) Ovaries	( ) Leukemia
( ) Stomach	( ) Lung	( ) Mama
( ) Liver	( ) Renal	( ) Other lymphomas
( ) Thin Intestine	( ) biliary tract	( ) Other neoplasms
( ) Lymphoma in TGI		( ) Prostate
( ) Multiple Neoplasia		( ) SNC
( ) Pancreatic — 5 points	2 points	1 point

9) What current treatment?

Obs. Select only one treatment option.

Points:

Palliative (not performing QT and/or RT)	( ) 2 points	
Pre-surgery in TGI region (SEM Neo Adjuvant)	( ) 3 points	
Concomitant chemotherapy and radiotherapy	( ) 4 points	
Radiotherapy (face, chest, abdomen or pelvis)	( ) 3 points	
Radiotherapy (other regions)	( ) 1 point	
Only Immunotherapy	( ) 1 point	
Only chemotherapy	( ) 2 points	
Suspended for toxicity	( ) 2 points	
TCTH (autologous up to D30 / allogenic up to D100)	( ) 3 pts	( ) if DECH 5 PTS
Start the treatment	( ) 1 point	

Total:

ADULTS	ELDERLY	CLASSIFICATION	CONDUCT
2 to 8 points	5 to 10 points	Risk Not Significant	There is no need for intervention at the moment, reevaluate during treatment
9 to 19 points	11 to 25 points	Significant Risk	Refer to the Nutritionist. Conduct adequate nutritional assessment and guidance. Reassess monthly
20 to 29 points	26 to 38 points	Risco Alto	Refer to the Nutritionist. Conduct adequate nutritional assessment and guidance. Reevaluate quinquenally

Figure 1 – Completed questionnaire.

Each of the questions contains a numerical value conditioned on the answer, and the sum represents the patient's nutritional risk at three different levels, such as: non-significant risk, moderate risk and high risk, for each nutritional risk, there is a conduct to be carried out by the nutritionist.

The total time to complete the questionnaire should not exceed two minutes for each patient under normal conditions.

This new tool measures diagnostic indicators such as: sensitivity, specificity, positive, negative predictive values using the tools: ASG-PPP short form and NRS-2002 as analysis reference. Although the Nutriscore tool is not validated in Brazil (as of the study date), it has also been used for comparison purposes.

The tool ASG-PPP is a good nutritional screening test but is applied to patients with any pathologies, however its summary form ASG-PPP short form is indicated for oncological patients, however, by our experience its implementation in outpatients dedicated to oncological patients does not present the benefits we need, due to a high rate of false positives, reducing the ability of better nutritional evaluation to patients due to the limitations of resources for care. Simply changing the criteria of the ASG-PPP short form also did not meet our needs and due to the limited questions addressed, so we decided to create a questionnaire that could give us a better understanding of the actual nutritional state of each patient. The same line of reasoning was applied to the questionnaires of the NRS-2002 and Nutriscore, the latter being not yet validated in Brazil.

Both the elaboration of the nine questions and the weight of each answer to each question was elaborated after consensus meetings of specialists who collaborated on the main aspects of the condition of these oncological patients which contributes to better meeting the need during screening of these individuals, depending on the socioeconomic, tumor location and treatment conduct.

Similar to the method adopted by: ASG-PPP short form, NRS-2002, and Nutriscore, were used as nutritional screening reference, patients who presented no significant nutritional risk with patients who presented some significant risk. A different point of our method is for the group that presents significant risk, which was subdivided into two groups, being moderate risk and high risk, based on the patient's age, social conditions, feeding frequency, variation of body mass depending on the time, actual conditions of physical activities, being the most important, the location of the primary disease and the status of the current treatment.

Patients receive up to 8 points (adults) or 10 points (elderly), are those who present a non-significant risk and have as conduct the absence of need for intervention at that time and a new assessment required at each return. Patients who receive above these limits are considered individuals with significant risk, those who reach up to 19 points for adults or 25 points for the elderly, have a moderate risk and have as conduct the referral to the nutritionist for evaluation and nutritional guidance with monthly reassessment. Patients with a score equal to or greater than 20 points for adults or 26 points for the elderly, are classified with high risk, have the same behavior, but with a frequency of five-year re-evaluation. This reference was obtained in pilot studies with real data from patients treated in six oncology clinics of the Universidade Federal de São Paulo – Hospital São Paulo: neuro-oncology, gastro-oncology, lymphomas, multiple myeloma and two general oncology clinics, where the Receiver Operating Characteristic (ROC) curve was used as a reference to find the best cutting points that separate each of the groups.

The TriNOA questionnaire was applied by nutritionists during the outpatient care in the form of a face-to-face interview, in a first phase, the ASG-PPP short form questionnaires, NRS-2002 and Nutriscore were also applied for comparison purposes and in a second phase, only the TriNOAI questionnaire. In each evaluation the weight and height of each patient is measured, with clothes and barefoot and subtracted by an estimate of the weight of the clothes. The recorded values were compared with the previous data to evaluate whether there was weight variation depending on the

time between each visit, where a critical rate of weight variation was considered, which comprised different weights in nutritional evaluation.

The sample size was based on the pilot study which presented a standard deviation of 8.30, we assumed an error between the true mean value (unknown) and the obtained in the pilot study of up to 15% and considered as a general error of the research, the standard adopted by the scientific community, in 5%, which resulted in a sample of approximately 330 patients (or 42 patients per center participating). Qualitative variables were used for the qui-square test, quantitative variables were used for measurements of descriptive statistics. The data showed adhesion to normal, so central trend (average) and variance (standard deviation) measurements were used. The inferential evaluation took place in the diagnostic indicators with the obtaining of sensitivity, specificity, positive and negative predictive values, ROC curve, ROC curve area. The general agreement was obtained by the kappa coefficient and all data was calculated in Excel using the Real Statistics plugin.

RESULTS

Questionnaire structure

The name of the tool is an acronym, "TriNOAI – Nutritional Screening in Oncology for Adults and Elderly" in English, which translates to "Nutritional Screening in Oncology for Adults and Elderly" in English.

The questionnaire is started with the collection of basic patient identifications, with data such as full name, hospital registration number, gender selection among three alternatives: male, female and transgender. And it aims to promote the inclusion of patients who use hormones to modify their sexual characteristics. For any other situation, it will be considered the biological gender. In addition, the questionnaire requests information about the patient's origin, indicating whether he is being treated through the *Sistema Único de Saúde* (SUS, Unified Health System) or by supplementary health services (particular or conventions), and includes the date of completion of the form.

Initially, there were about 10 attempts to format and elaborate the texts of the questions seeking terms and expressions of broad knowledge, in addition to adjusting the visual configuration of the same.

Semantic evaluation

The semantic evaluation was carried out by 2 professors, with expertise in research in the production of questionnaires, being a nutritionist and the other nurse, and both were favorable to the work, however suggestions for modification were made in the text, without changing the meaning of what was proposed initially, according to Chart 1.

After this step and the implementation of the corrections, it becomes necessary to establish a scale of score in order for the instrument to be subjected to clinical application, aiming at its validation for use.

Assignment of scale and cutoff point

The scale of points should express the complexity of each situation, as shown in Chart 2 the award of the score was given following this assumption, however, the evaluation of these numbers would be necessary to verify their applicability.

Chart 1 – Proposed adjustments to the text.

Question	Proposed amendment
1	18 to 59 years = 0 points 60 years or older = 3 points
5	In the last 3 months, did you lose unintended weight? Note: patients 60 years old or older, who have indicated yes/no know, add 3 points to the result of the question
6	up to 2,999 kg 3.0 to 7,999 kg
7	In the last month, have there been changes in the activities performed in your day, as well as the willingness to do them? Patients 60 years of age or older, add 3 points to the result of the question, except in cases where the activities are normal
9	Order of responses starting from situations where treatment has not yet started to more complex situations. You have not started treatment yet Include patients in palliative care

Chart 2 – Initial Scale of Points.

Question	Point
1	3
2	2
3	1
4	3
5	3
6	- Up to 2 kg (2) - 3 to 7 kg (3) - ≥ 8 kg (5) - Not sure (3) - No loss (0)
7	( ) Normal, unchanged (0) ( ) Almost all activities normally (1) ( ) Less disposal, part of the day sitting or lying (2) ( ) little activity, most of the time sitting or lying (4) ( ) No disposal, stabbed/sitting all day (5)
8	Diseases classified by nutritional risk: Highest risk = 5 (Head and neck (with interference in the digestive pathway), Metastatic disease, esophagus, stomach, liver, small intestine, TGI lymphoma, multiple neoplasms, pancreas) Intermediate risk = 2 (Colorectal, Endometrial, Ovarian, Lung, Renal, Galloway) Low Risk = 1 (Barr, Head and Neck (no interference in the digestive tract), Leukemia, Breast, Other Lymphomas, Other Neoplasia, Prostate, CNS)
9	Treatments classified by nutritional risk: Other treatments (brachytherapy, hormones, others) = 1 Palliative (not performing QT and/or RT) = 2 Pre-surgical in the TGI region (WITHOUT Neo Adjuvant) = 3 Concomitant chemotherapy and radiotherapy = 4 Radiotherapy (face, chest, abdomen or pelvis) = 3 Radiotherapy (other regions) = 1 Only Immunotherapy = 1 Chemotherapy only = 2 Suspended by toxicity = 2 TCTH (autologous up to D30 / allogenic up to D100) = 3 If DECH = 5 Will start treatment = 1

A fictional spreadsheet, filled with simulated information for statistical purposes, was developed from the patient database of the six oncology outpatients of the Federal University of São Paulo – Hospital São Paulo covering the specialties of neuro-oncology, gastro-oncology, lymphomas, multiple myeloma and two general oncology outpatients.

As of March 2019, this database contained 1,465 patients, including 805 elderly individuals, with a total of 4,398 nutritional consultations and screening conducted by the Department of Oncological Nutrition. Based on this information, a statistical analysis was conducted to determine the most appropriate score range, taking into account both mathematical accuracy and applicability in clinical practice.

Twelve patients were simulated, with the completion of a total of 47 screening questionnaires regarding returns, presenting symptoms of weight loss or gain, reduced dietary intake, change in daily activities, suspension of treatment for toxicity, among others, based on real situations found in our outpatients, according to the records in our patient database.

Independence of age samplings

By performing the Chi-square test of independence, it was realized that the elderly (age equal to or above 60 years old) would have a different behavior than the adults, which would justify the different classification of individuals aged between 18 and 59 years old (adults).

With the calculation with 2 degrees of freedom (number of categories), a α (level of significance desired for the test), of 0.05, a Z_{α} (critical value) of 1.96 finding a tabulated value of 5.99, the qui-square was calculated and the value of 2.88 and a p=0.237 was obtained; as a rule of the test, if the Calculated Value is greater than the Tabulated Value, the null hypothesis is rejected, in the case, it would be that adults and the elderly are independent; in our case, the lower value was therefore accepted as the null hypothesis.

Faced with this finding, the score assignment was not changed, but a weight was included in 3 questions, which asks what age the individual was, when he was equal to or above 60 years, he scored 3 points, if he had unintentional weight loss or if there was a change in his physical function, in these 2 cases, to the value of the selected question, 3 points are added.

Final classification

Based on the information previously described, a table with the respective score ranges was drawn up, separated by the age independence criterion. The first scale of scores refers to individuals who do not need nutritional intervention at that time, the second scale of points already indicates an individual with nutritional risk, however not serious, it is suggested that he be referred for evaluation and complete nutritional guidance and monitored every 30 days. Finally, the last range covers individuals with severe nutritional risk, who require immediate care and returns at shorter intervals.

Final appraisal of the TriNOAI

After the proposed adjustments and the calculation of the cutting points, the instrument was finalized as shown in Figure 1.

Comparison of the instrument to recommendations

After the survey of the fictitious data, a comparison of diagnoses obtained by the proposed questionnaire was carried out with respect to the Nutriscore, NRS-2002, and what was quickly noticed was that the performance of the proposed instrument was superior to the others, as demonstrated in the ROC Curve of Figure 2, using as a reference the gold standard, which is the ASG-PPP short-form, and the respective area calculation in Figure 3.

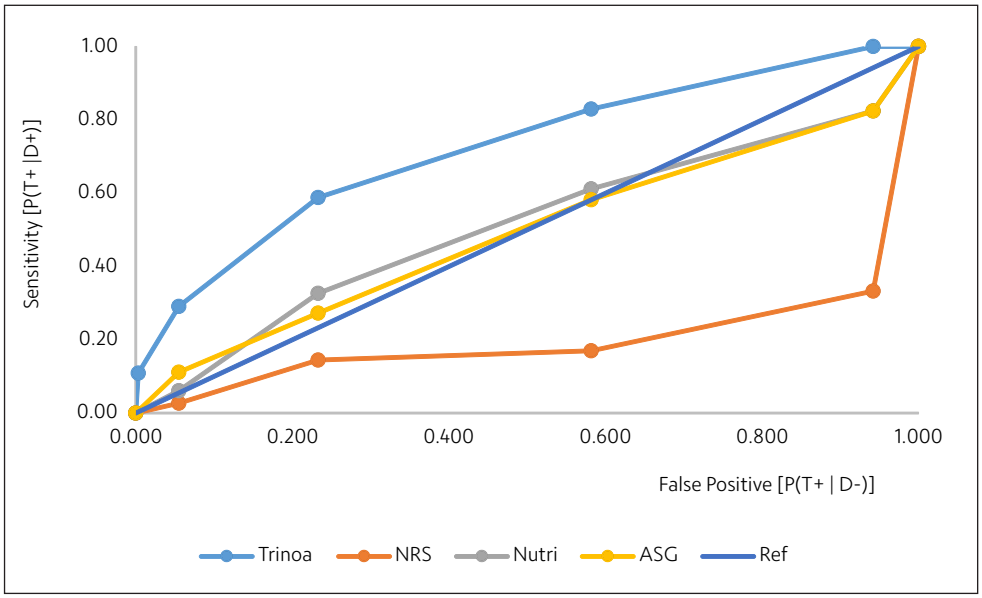


Figure 2 – ROC Curve comparison between recommended questionnaires and the proposed instrument.

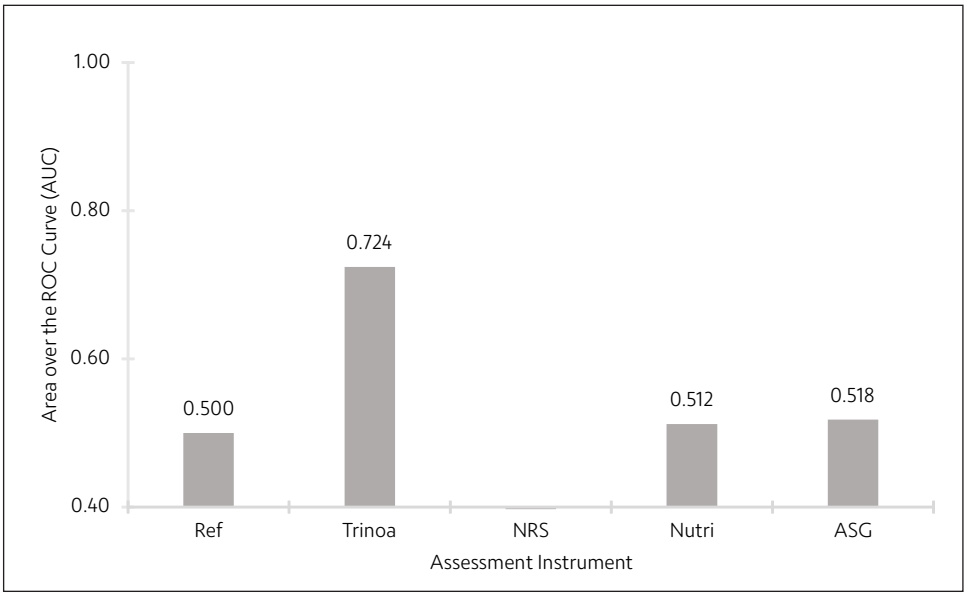


Figure 3 – Area under the ROC Curve (AUC) of each instrument.

DISCUSSION

Nutritional screening protocols are the beginning of the patient's risk detection process, and when properly conducted, they can and should identify situations in which the nutritionist can act promptly with the intention of minimizing the impacts on prognosis [12].

The questionnaires currently used to measure the nutritional risk of sick individuals, present characteristics that differ from the profile of the population of Brazil. These instruments are based predominantly on hospitalized populations, while the situation of outpatient care is distinct. Such disparity can compromise the accuracy of the results obtained, not adequately reflecting the reality of the population treated in outpatient contexts.

Mayo and Gomes [13], suggest in their study that health services should implement a nutritional assistance protocol for patients in chemotherapy treatment taking into account the type of tumor and the antineoplastic therapy; in this context, one can extrapolate to the need for an instrument that can perform the correct nutritional diagnosis considering the suggested aspects.

Questionnaire structure

The NRS-2002 questionnaire considers that older individuals, over 70 years of age, should have one more point in the total summary of the questionnaire, considering that these individuals have apparently increased nutritional risk, due to susceptibility to malnutrition due to the physiological decrease of lean mass due to aging, a fact that can reflect in fragility and weight loss, especially in individuals who have some associated pathology [6].

Thinking about the characteristics of our population, we determined that patients over 60 should have a higher weight in the final score, so we consider 3 points in question 1, if the individual shows age equal to or above 60 years, and if it is lower, no point is counted, since the Status of the elderly person in Brazil, establishes this age, and knowing the physiological differences of this group and the confirmation of the independence of the samples through the Chi-square test, we use this paradigm [14-16].

Question 2 does not appear in any other questionnaire, however, in our clinical practice, we realize that individuals who live or stay alone during the day and who do not have assistance for the execution of routine activities from home, such as buying and preparing their own food, as well as the use of symptomatic or prophylactic drugs, especially after the beginning of treatment, can incur a greater nutritional risk due to the presence of side effects such as nausea, vomiting, anorexia, dysgeusia, xerostomia, diarrhea, constipation, asthenia, among others, which can result in reduced food intake. This often leads patients to choose simple prepared or ready-made foods, such as bread and biscuits, which generally have low nutritional value. Therefore, we decided to include this questioning, to verify, after the analysis of the data, whether this actually reflects a nutritional risk.

Question 3 also does not appear in any other kind of questionnaire, however, we assume that individuals who do not have a source of own income, or rely on donations from third parties to survive, are likely to have limited access to varied foods. However, this assumption may not be an absolute truth, because there are couples, for example, that one spouse does not work and the other keeps it, this does not mean nutritional impairment. However, considering that this is a sorting questionnaire, which should have a short fill-out, we do not consider including income ranges or any other more detailed questions. Thus, we have given this question a lower score than the previous one.

Question 4 presents a classic questioning, existing in other questionnaires, referring to the reduction in food intake, this aspect, which can reflect weight loss and possible malnutrition of the patient.

Question 5, related to weight loss, includes the expression "unintentional" to differentiate those who eventually wish to lose weight during this period. The period considered "up to 3 months" includes any period within this time. Older individuals are more susceptible to weight loss, and in the presence of the oncological disease, present more risk reflecting worse consequences for their prognosis; therefore, we insert the phrase "Obs. Older adults add +3 points beyond the above result (except if = 0)".

Question 6 is related to the previous one and is contained in other questionnaires, however, in a different way, and is also an important factor for nutritional risk.

Question 7 concerns activity and physical function, which may reflect the change in muscle function; it derives from ASG-PPP short form, where there is a similar question; in NRS-2002, the question is whether there has been a decline in general state, without more detailed specifications, and in Nutriscore, this criterion is not included.

The patient questions end at this point. The last two should be obtained from the curriculum, in order not to have doubts about the correct selection of the alternatives, avoiding the underestimation or overestimation of the answer, which could lead to an incorrect classification at the end of the questionnaire. In order not to forget this information, we put the phrase "Questions 8 and 9 – prontuarium information:" in black and large letters.

In question 8, as well as in the following, we note the specificity of the questionnaire, i.e., that in fact it should be applied to individuals with neoplasms, we consider "more serious" individuals with neoplasms in regions that can affect the ingestion or digestive process of food, as well as individuals with metastatic disease or multiple neoplasms active at the same time, due to the increased metabolic rate associated with these conditions.

The diseases considered as intermediate in our questionnaire are the same as those found in Nutriscore, with the exception of colorectal disease, which for us is not considered low-risk, as the other questionnaire suggests.

In the last score range are the individuals with the lowest nutritional risk.

The last question 9 refers to the treatment of the individual, considering also situations of higher nutritional risk scoring more than those of lower risk.

At the end, we present the scoring scale with its respective classification, which was divided into three categories, named: "non-significant risk", "significant risk" and "high risk". We also assign different scores to adult and elderly individuals. Regarding risk, somehow, all individuals have, however, not all present the need for immediate intervention, so instead of putting "risk-free", which would be incorrect, we put as non-significant, which means that at that moment of the interview, the individual does not need specialized nutritional care, but should continue to be evaluated in all follow-up consultations.

For the patient who needs a complete nutritional assessment, we have included him in the risk range. However, on the basis of evidence-based clinical practice, we know that there are individuals with different levels of severity, which is why this category was subdivided into "significant risk" and "high risk". Both require care; however, the most serious cases require a reduced return interval for their follow-up and necessary adjustments.

CONCLUSION

A nutritional screening tool was developed specifically for individuals undergoing oncological treatment in outpatient settings, with the goal of providing greater specificity, time efficiency, and safety in its application. The tool aims to support accurate diagnosis and enhance the assertiveness of nutritional assessments.

This instrument should be applied to real patients, randomly, respecting the inclusion criteria, and should present a representative sample of the Brazilian population. In addition, the instrument must be continuously evaluated and adjusted to meet the requirements necessary for the care of this group of individuals.

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