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# Perception of undergraduate Nutrition students of the application of standardized nutrition diagnosis proposed by the Brazilian Nutrition Association during Clinical Nutrition internship

*Percepção de acadêmicos do curso de graduação em Nutrição na aplicação do diagnóstico de nutrição padronizado proposto pela Associação Brasileira de Nutrição durante o estágio supervisionado em Nutrição Clínica*

## Abstract

The Associação Brasileira de Nutrição (Brazilian Nutrition Association) in its Manual Orientativo de Sistematização do Cuidado de Nutrição (Guidelines for Systematization of Nutrition Care) recommends the use of the standardized nutrition diagnosis proposed by the Academy of Nutrition and Dietetics. In this proposal, the nutrition diagnosis should be composed of the standardized writing of the so-called "PEI", "Problem, Etiology and Indicators", where a Problem is "related to" an Etiology and is "evidenced by" Nutrition Indicators and represents a new and different form of the diagnosis made by nutritionists. The goal of this study was to analyze the perception

of undergraduate students in Nutrition of the application of standardization of nutrition diagnosis in the supervised internship in clinical nutrition of a higher education institution. For this purpose, 30 students with a semi-structured script were interviewed and the data was analyzed using the Discourse of Collective Subject technique. The analysis of the transcription of the interviews allowed the identification of four central ideas, two representing barriers: Difficulty in writing the PEI with standardized terminology and Lack of knowledge of the preceptor on the standardized nutrition diagnosis. The two advantages identified were: It helps in the planning of nutritional assistance and Supports communication between nutritionists and other professionals. Thus, in the perception of the interviewed students, the application of the standardized nutrition diagnosis suggested by the Associação Brasileira de Nutrição (Brazilian Nutrition Association) can improve nutrition care and interprofessional communication, although the writing and operationalization are complex. It is expected the dissemination of this concept among Brazilian nutritionists so that the subject can be discussed for future implementation.

**Keywords:** Diagnosis. Nutrition. Qualitative Research. Nutritional Sciences.

### Resumo

A Associação Brasileira de Nutrição, em seu *Manual Orientativo de Sistematização do Cuidado de Nutrição*, recomenda o uso do diagnóstico de nutrição padronizado proposto pela Academy of Nutrition and Dietetics. Nessa proposta, o diagnóstico de nutrição deve ser composto pela redação padronizada do denominado "PEI", "*Problema, Etiologia e Indicadores*", em que um Problema está "relacionado a" uma *Etiologia* e é "evidenciado por" *Indicadores* nutricionais e representa uma forma nova e diferente de registro do diagnóstico realizado por nutricionistas. O objetivo deste estudo foi analisar a percepção de acadêmicos do curso de graduação em Nutrição sobre a aplicação da padronização do diagnóstico de nutrição no estágio supervisionado em Nutrição Clínica de uma instituição de ensino superior. Foram entrevistados 30 estudantes com base em um roteiro semiestruturado e os dados analisados por meio da técnica do Discurso do Sujeito Coletivo. A análise da transcrição das entrevistas permitiu identificar quatro ideias centrais, das quais duas representavam barreiras: dificuldade na redação do PEI com terminologia



padronizada e desconhecimento do diagnóstico de nutrição padronizado pelos preceptores de estágio. As duas vantagens identificadas foram: auxilia no planejamento da assistência nutricional e favorece a comunicação entre nutricionistas e demais profissionais. Assim, na percepção dos estudantes entrevistados, a aplicação do diagnóstico de nutrição padronizado sugerido pela Associação Brasileira de Nutrição pode melhorar a assistência nutricional e a comunicação interprofissional, embora a redação e a operacionalização sejam complexas. Espera-se sua disseminação entre os nutricionistas brasileiros, para que se possa discutir o assunto para futura implantação.

**Palavras-chave:** Diagnóstico. Nutrição. Pesquisa qualitativa. Ciências da Nutrição.

## INTRODUCTION

In 2003, the Academy of Nutrition and Dietetics adopted the Nutrition Care Process (NCP), translated into Portuguese as *Modelo e Processo de Cuidados Nutricionais*, and, in 2014, the *Associação Brasileira de Nutrição* (Brazilian Nutrition Association) published the *Manual Orientativo de Sistematização do Cuidado de Nutrição* - SICNUT (Guidelines for Systematization of Nutrition Care), proposals that aim to systematize and promote quality in nutrition care.

In both the NCP and the SICNUT, the stage relating to the diagnosis of nutrition differs from what many nutritionists usually adopt when they make diagnoses based on the nutritional status, i.e., normal, malnourished or obese individuals. This diagnosis should be broader, also considering nutrients intake, clinical, behavioral or environmental aspects, not just body reserves; it should mainly be standardized, since the lack of standardization may jeopardize the quality of nutritional care.<sup>1,2</sup>

According to the proposal of the Academy of Nutrition and Dietetics, as suggested by the Brazilian Nutrition Association, the nutrition diagnosis should include a standardized statement of the so-called PEI, "*Problem, Etiology and Indicators*", in which a *Problem* "is related to" an *Etiology* and "evidenced by" *Nutritional Indicators*. The terms "related to" and "evidenced by" are key points of the standardized diagnosis concept. The *Problem* should describe changes detected in the patient's nutritional assessment; *Etiology* must describe

the cause of the problem; and the *Indicators* are considered the evidence that the problem exists and must be resolved. Thus, the statement must also include the solution of the problem by intervention and nutrition monitoring.

The *Problems* or changes identified maybe related to food or nutrients intake; clinical and/or physical, social, behavioral or environmental aspects, and receive a nomenclature, a standardized "label", which cannot be modified by the nutritionist, i.e., all nutritionists must write them exactly as written in the standards,<sup>3-6</sup> much the same way other professionals must follow their diagnosis standards.

It is worth noting that the relevance of this subject is evidenced by the existence of an international work group, including Brazilian participants, who discuss the development of an international terminology standard.<sup>7</sup>

Accordingly, the undergraduate course of nutrition at the *Centro Universitário São Camilo-SP* introduced the standardized concept of nutrition diagnosis in the training program, seeking to develop the competencies and professional skills of their students for application when monitoring hospitalized patients and providing outpatient care, according to the Brazilian Nutrition Association.

Based on this experience, a study was conducted aiming to investigate the perception of application of the standardized nutrition diagnosis by undergraduates of the Nutrition course during their supervised internship in clinical nutrition.

## METHODOLOGY

It is a qualitative study conducted at the *Centro Universitário São Camilo-SP*, a private higher education institution that offers courses in the health area, among them, the Nutrition course. Thirty students enrolled in the Nutrition course and who had completed the compulsory internship in clinical nutrition, where the standardized nutrition diagnosis is a regular academic activity, were randomly selected. During the period of study, most of the selected students were interns in private hospitals, a public hospital and in the clinical school of the *Centro Universitário*.

These students were invited to participate in the research by sending a message to their personal electronic address. If they agreed to participate, the candidates scheduled a date and time for the interview, which was conducted individually in a reserved room at the institution. Students of both sexes were eligible, without limitation of age. As data collection was made by voice recording, the students who had hearing deficiency and/or speech disorder were not eligible.



On the day scheduled for the interview, the researchers first gave a brief explanation of the goals of the research, and, then the participants were asked to read and sign the Free Informed Consent Form. The project was submitted to and approved by the Ethics Committee with number 1.563.705/2016.

The interviews were conducted using a semi-structured script with questions on positive and negative aspects experienced during the application of the standardized nutrition diagnosis. At the beginning of the interview, the participants also informed their name, age and sex. The interviews lasted nearly 15 minutes, and data was collected from August 2016 to August 2017.

The descriptive variables for the respondents' characterization were presented in simple frequency, and the results were expressed in absolute numbers and percentages, except for age, which was presented in mean and standard deviation.

The audio-recorded responses were transcribed in full and then analyzed by the researchers. To organize and present the data, the Discourse of the Collective Subject was used, a method based on the theory of social representation, which uses individual reports in the construction of one or more words or phrases that represent the collective.<sup>8</sup>

Of each report, key expressions were identified, which enabled to build the central ideas. When they had an equivalent or complementary meaning, they were grouped and categorized in a way to express the Discourse of the Collective Subject, which was written in the first person singular and in italics.

## RESULTS

The majority of the participants (93.3%) were females (n=28), and the mean age was 22.8 years (2.3 years standard deviation).

From the key expressions found in the interviews, central ideas were identified with regard to the negative and positive points observed by the students during the application of the standardized nutrition diagnosis. The central ideas related to negative points were referred to as "barriers", and the positive points as "advantages", as shown in Table 1.

**Table 1.** Central ideas on the application of standardized nutrition diagnosis during the supervised internship in Clinical Nutrition, according to the perception of students of the course of nutrition of the Centro Universitário São Camilo-SP, 2018.

Barriers	Difficulty in writing the PEI with standardized terminology.
	Lack of knowledge of the internship preceptors on standardized nutrition diagnosis.
Advantages	Helps in the planning of nutrition care.
	Supports communication between nutritionists and other professionals.

The two central ideas identified as barriers, namely, "Difficulty in writing the PEI statement with standardized terminology" (*Problem* related to *Etiology* evidenced by *Indicator*) and "Lack of knowledge of internship preceptors on the standardized nutrition diagnosis and their respective Discourse of Collective Subject are described on Table 2.

**Table 2.** Central ideas and Discourses of Collective Subject on the barriers for application of the standardized nutrition diagnosis during the internship in Clinical Nutrition, with the perception of the students of the course of nutrition of the Centro Universitário São Camilo-SP, 2018.

Central Ideas	Discourses of Collective Subject
Difficulty in writing the PEI statement with standardized terminology	<i>I had difficulty in identifying the problems. We found a lot of problems, and until you identify the most relevant one, you would go round in circles and have to consult the book because you can't memorize everything. I found that it was confusing to define a problem and the part related to etiology of the diagnosis, there are lots of things to compare. I had trouble understanding what etiology and the indicators would be. What a problem would be, the etiology and the indicator are very confusing; anyway...</i>
Lack of knowledge of the internship preceptors on the standardized nutrition diagnosis	<i>It was somehow confusing to talk with the nutritionist about the subject. Both we and the institution lacked knowledge. They didn't know anything about it, how it worked. Because nobody was doing it, you couldn't discuss it.</i>

Table 3 describes the Discourses of Collective Subject, built with central ideas that represented the students' perception of the advantages of using the standardized nutrition diagnosis, i.e., "It helps in the planning of the nutritional care" and "Supports communication between nutritionists and other professionals."

**Table 3.** Central ideas and Discourses of Collective Subject on the advantages of applying the standardized nutrition diagnosis during the supervised internship in Clinical Nutrition, according to the perception of the students of the nutrition course of the Centro Universitário São Camilo-SP, 2018.

Central Ideas	Discourses of Collective Subject
It helps the planning of nutritional care	<i>It helps planning because it makes clear what you have to do. Reading that list, I could see problems that I had not seen before. It is a method that makes intervention much easier, you can find what the cause, the problem is, and when to interfere. It organizes, provides focus to intervention, facilitates very much. It helped in the attempt to see the best intervention that I could use for my patient at that moment, in addition to the nutrition diagnosis. You see it as a whole. It helped a lot to understand what was going on with the patient.</i>
It improves communication between nutritionists and other professionals	<i>It will work as if it were a CID, so everyone will speak the same language, there will be no misunderstanding or interpretation bias, it will be something standardized. I think it will enhance confidence. It is a way to facilitate professionals' reading and interpretation because standardization is better. Many times, when you will evolve the patient in the system, no matter if the hospital has a method, every nutritionist does it her own way. Such standardization will be much more interesting, for both the nutritionist and other professionals.</i>

## DISCUSSION

The profile of the participants of this study is similar to the one found in other studies conducted with undergraduate students of the Nutrition course, i.e., mean age 24 years at the time of completion of the course<sup>9</sup> and predominance of females.<sup>9,10</sup>

Considering the problems pointed by the students as barriers for application of the standardized nutrition diagnosis, it could be seen that the complexity of the PEI language was among the central ideas of the respondents' reports. This is not surprising, because since the adoption of the NCP in the 2000s, this has already been pointed as something new and different in the practice of North-American registered nutritionists.<sup>11</sup> Nutrition professionals do

not usually make diagnoses in a uniform way and, therefore, need to build abilities, suggesting that the standardization of the terminology of the nutrition diagnosis cannot be learnt quickly and/or easily.<sup>12,13</sup>

Complexity in identifying and building the PEI statement can be seen in studies, although publications on this topic are few in the literature.<sup>13</sup>

The reliability and validity of diagnoses, etiologies and indicators in the practice of registered nutritionists in the United States, with an average clinical experience of approximately nine years, were assessed. It was found that, although these professionals recognized that a nutrition problem was present, there was little agreement with regard to the diagnosis, the most important etiologies and indicators, suggesting, according to the authors, inconsistency in determining a diagnosis.<sup>13</sup>

Similarly, a study conducted with Australian nutritionists and others from more than ten countries with patients with refeeding syndrome showed that there was limited accuracy in the selection and knowledge of nutrition diagnosis, which could interfere with appropriate application of the standardized NCP terminology.<sup>14</sup>

Also in Australia, nutritionists that work in hospitals, even before implementing the NCP in their units, showed concern about the fact that completing the PEI might diminish their productivity and that they would have difficulties in determining the problem etiology statements.<sup>15</sup>

Time spending and need to look over the support material also appeared in the respondents' speech, as demonstrated in the passage *"you would go round in circles and have to consult the book because you can't memorize everything"*, according to the Discourse of the Collective Subject in the central idea that addresses the difficulty in documenting the PEI. Both these variables also appeared in studies with American registered nutritionists, specialists in pediatrics, in which the time for documenting and consulting the manual with the NCP standardized terminology<sup>16</sup> and, specifically for PEI,<sup>17</sup> were identified as a challenge in practice. It is worth mentioning that the book cited in the Discourse of the Collective Subject was published by Martins,<sup>6</sup> who presents the complete concept and standardized terminology translated into Portuguese and which is used by dietetics interns as support material.

Still about the barriers cited in the participants' reports, knowledge, training and support of peers and managers have been discussed as factors that may affect application of the standardized nutrition diagnosis. To the Australian nutritionists, who had not yet implemented the NCP in their units, lack of knowledge, support, training and resources were barriers for them to feel assured. According to these professionals, among the factors that could facilitate implementation, were time allocated for this practice, regular tutorials, discussion

of cases, support and leadership of the department manager.<sup>15</sup> Also in Australia, a research showed that the participation in tutorials affected positively the inclusion of statements of nutrition diagnosis.<sup>18</sup>

These data confirm the perception of the participants of this study that discussing the subject in the curricular components of college education and training, having knowledge on the theme by the dietetics internship preceptors might have helped the students in this experience, because it would allow discussion, as demonstrated in this Discourse of Collective Subject: *"They did know anything about it, how it worked. Because nobody was doing it, you couldn't discuss it."* In fact, the role of dietetics preceptors has been studied and pointed as a major factor for the success of professional training.<sup>19,20-22</sup>

Among the advantages of application of standardized nutrition diagnosis, according to the interns' perception, is that the intervention planning would benefit from it, associated with the objectives of systematization, which aims to improve the consistency and quality of individualized nutrition care, improve predictability of outcomes of patients' and the healthcare system, optimizing and reducing costs in healthcare, as standardization may improve the patients' overall health condition.<sup>1,2,5,23</sup> This interviewees' perception reiterates that standardized nutrition diagnosis may help the nutritionist's activities in clinical practice. However, as mentioned earlier, there is a need for studies that are capable of assessing such outcomes.<sup>13</sup>

A positive experience in this regard was described in a study conducted in a hemodialysis center, which compared documentation written traditionally on paper with the electronic one, and demonstrated that the electronic system improved the efficiency of the total length of time spent by the nutritionist in 13 minutes per appointment. Mainly, it improved the resolution of nutrition-related diagnosis,<sup>24</sup> but it should be noted that the computer-aided method was crucial and contributed to the results obtained, since the difficulties in completing the PEI using the traditional method (handwriting) were quite clear.

It has been investigated that the use of apps and software programs would increase the efficiency and quality of nutrition care and counseling.<sup>25</sup> Experiences like the pilot project carried out in Australia also showed that computerized systems facilitate standardized documenting.<sup>26</sup> Specific systems for standardized nutrition diagnosis have been developed, such as, for instance, a study that validated a decision-making support system which indicated possible nutrition diagnoses of bariatric surgery patients.<sup>27</sup>

With regard to the central idea identified about the standardized nutrition diagnosis and the optimized communication between the nutritionist and other team members, the purpose of the Academy of Nutrition and Dietetics, when it instituted standardization of the technical terminology that should be adopted by nutritionists in the execution of the NCP,

was to ensure appropriate communication between the professionals involved.<sup>5</sup> In addition, a standardized process may reduce variation and enhance outcomes predictability,<sup>23</sup> a perception that the participants of this research also had. Studies have identified that the communication with patients, their families and the healthcare team is a priority in all stages of the NCP between the nutritionists,<sup>28,29</sup> which shows the importance of the students' perception that the use of standardization can meet this demand.

Considering the scarcity of publications on this topic, one can see the relevance of this work to broaden the discussion about the possibilities of use of a standardized nutrition diagnosis suggested by a dietetics entity. However, a possible limitation of the study refers to the characteristic of the qualitative research, i.e., the subjectivity of the information provided by the respondents, who may not feel at ease and respond in a way that would please the researchers.

Thus, it is important to emphasize the need for educational institutions to be attentive to new recommendations and directives that guide the nutritionists' professional activity, with integrated actions between education and healthcare practices, fostering the continuous and permanent education of healthcare providers with projects that encourage gradual implementation of new methodologies in the professional practice by integrating educational institutions and management of health services.

## CONCLUSION

In the perception of the interviewed students, application of the standardized nutrition diagnosis as suggested by the Brazilian Association of Nutrition can improve the nutrition care and interprofessional communication, despite the complexity of documenting and operationalizing it. It is expected its dissemination among the Brazilian nutritionists so that the subject can be discussed for further implementation.

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### Contributors

Guimaraes AF and Castro AGP worked in all stages, from the study conception to the final revision of the manuscript.

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