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Validation of an instrument to evaluate the satisfaction of the professional practice in pertaining students to the program of Nutrition and Dietary

Claudia Machuca Barria[1], *Mauricio Cresp Barria*[2], *Valentina Espinoza Zambrano*[3], *Pedro Delgado Floody*[4], *Luis García-Rico*[5].

Abstract: Validation of an instrument to evaluate the satisfaction of the professional practice in pertaining students to the program of Nutrition and Dietary. Introduction. Professional practice is a relevant process for the personal and academic development of students. It uses learning contexts located in real scenarios and enables the acquisition of knowledge, skills, and competencies necessary for professional practice. **Objective.** To design and validate an instrument designed to evaluate students' satisfaction with theirprofessional practice process. **Materials and methods**. Mixed-method study, non-probabilistic sample by convenience of 196 participants. The sample is formed by 20 Nutritionists and 176 students belonging to the Nutrition and Dietetics undergraduate program. The statistical software SPSS version 22 was used to analyze reliability by Cronbach's alpha and the Delphi method for content validity. An instrument with 32 items grouped in 4 dimensions was elaborated and applied to 116 students to analyze reliability. The instrument was adjusted to 25 items, and content validity was analyzed by a panel of experts. The judge'sconsensus was the foundation for developing a 29-item version grouped into 4 dimensions. This version was applied to 60 students to obtainCronbach's alpha validation. **Results.** The instrument presents an excellent level of reliability, with a Cronbach's Alpha coefficient of 0.927. **Conclusions.** The instrument designed to measure satisfaction with professional practices is a reliable and valid measure, since it allows knowing the students 'evaluation at the end of their professional practice process. **Arch Latinoam Nutr 2023; 73(2): 135-143.**

Keywords: Instrument, validity, reliability, undergraduate students..

Resumen: Validación de un instrumento para evaluar la satisfacción de la práctica profesional en estudiantes pertenecientes a la carrera de Nutrición y Dietética Introducción. La práctica profesional es un proceso relevante para el desarrollo personal y académico de los estudiantes, utiliza contextos de aprendizaje situados en escenarios reales, posibilita la adquisición de conocimientos, habilidades y competencias necesarias para el ejercicio profesional. **Objetivo.** Diseñar y validar un instrumento, que permita evaluar la satisfacción de los estudiantes sobre su proceso de práctica profesional. **Materiales y métodos.** Estudio de tipo mixto, muestra no probabilística por conveniencia de 196 participantes, distribuidos en 20 Nutricionistas y 176 estudiantes pertenecientes a la carrera de Nutrición y Dietética. Sé utilizó el software estadístico SPSS versión 22, para analizar la confiabilidad por Alfa de Cronbach y el método Delphi para la validez del contenido. Se elaboró un instrumento con 32 ítems agrupados en 4 dimensiones, se aplicó a 116 estudiantes para analizar la confiabilidad. Se ajustó el instrumento a 25 ítems, se analizó la validez del contenido por panel de expertos. El consenso de los jueces dio origen a una versión, con 29 ítems agrupados en 4 dimensiones, se aplicó finalmente a 60 estudiantes para obtener el Alfa de Cronbach. **Resultados.** El instrumento presenta un nivel excelente de confiabilidad, con un coeficiente de Alfa de Cronbach de 0.927. **Conclusiones.** El instrumento diseñado para medir la satisfacción de las prácticas profesionales, es una medida confiable y válida, ya que permite conocer la valoración de los estudiantes al finalizar su proceso de práctica profesional. **Arch Latinoam Nutr 2023; 73(2): 135-143.**

Palabras clave: instrumento, validez, confiabilidad, estudiantes universitarios.

Introduction

Professional internships at the university are today a personal and professional learning experience for students. For this reason, professional practices represent an adequate source of income to evaluate and know the relevance of university education (1). The relationship with the practice

[1]Faculty of Health Science, Universidad Católica de Temuco, Temuco 4780000, Chile. [2]Faculty of Education, Universidad Católica de Temuco, Temuco 4780000, Chile. [3]Faculty of Health Science, Universidad Católica de Temuco, Temuco 4780000, Chile. [4]Department of Physical Education, Sport and Recreation, Universidad de La Frontera, Temuco 4780000, Chile. [5]Isabel I University (Burgos, España). Antonio de Nebrija University (Madrid, España).
Autor para la correspondencia: Mauricio Cresp-Barría, e-mail: mcresp@uct.cl / mauriciocrespbarria@gmail.com

center is the optimal scenario where the skills acquired in professional training are articulated with the tasks, responsibilities and roles required during professional practice (2), promoting significant and lasting learning over time, where the future professionals must incorporate theoretical knowledge, and procedural and attitudinal skills that allow them to successfully meet the needs of society (3).

Training within practical disciplinary processes is of great importance for the personal and academic development of students, since it is considered key at the beginning of their training and in professional life (4).The use of authentic and significant practices during the training process are challenges for the development of skills and aptitudes in accordance with the requirements of the world of work (5), those that contributes to the integral training of the students (2). Using learning contexts located in real settings, it enables the acquisition of knowledge, skills and competencies necessary for professional practice (4) and increases deep learning, autonomy and engagement in their learning process (6). You report international in academic programs of nutrition and dietary do reference to the importance of instruments of evaluation for the professional practices that are valid, reliable with properties psychometric that delete the bias and the subjectivity (7).

There are evaluation experiences for professional practices in nutrition and dietetics, through surveys and validation in evidence-based practical activities (EBP), however, refers to validated instruments that assess knowledge perceived as objective (8). Validate instruments to know the satisfaction of the students with the clinical practices is a potential indicator of an educational program of quality and essential to improve the educational experience (9).

The use of reliable and validated instruments is a guarantor of the quality of the data collected, since a rigorous investigation requires to employ instruments validated with good psychometric properties (10). Of contrary way, the results obtained will not be able to be valid neither generalizable and can cancel any conclusion extracted (11). Designand validate reliable instruments, that obtain information of the context during the professional practices of Nutrition and Dietary program the Universidad Católica de Temuco, will allow feedback on the processes of education and learning in the initial training of professional futures (12), those who prepare to attend the needs of prevention, promotion and nutritional attention of people, families and communities. The present study has by aim, design and validate through the method Delphi and the coefficient Alpha of Cronbach an instrument that allow to evaluate the level of satisfaction of the students of ninth and tenth semester of the formative itinerary, pertaining to the program of Nutrition and Dietetic the Universidad Católica de Temuco, on his process of professional practice.

Materials and Methods

Delphi was used as a qualitative research method, and Cronbach's Alpha Coefficient was used for the psychometric analysis of the reliability of the data. The expert assessment was carried out using content validity through the Delphi method, which emphasizes anonymous structured communication between people who have experience in a given subject, with the aim of reaching a consensus (13). Developed in the early 1950s by Helmer and Dalkey and incorporated into the health area in the 1970s, it is based on collective intelligence, where a group of selected experts tries to reach a consensus of opinions expressed individually on the subject based on the analysis and reflection of a defined problem (14, 15). This research have been authorized by the Ethics Committee of the Universidad Católica de Temuco, by means of decree of document 13/20, of the month of June of the year 2020. The experts were selected according to the following criteria: a) Doctor in disciplinary areas related to the formative program or to the topic under investigation, b) Academics of Nutritionist training with teaching practice in Chilean Universities and c) Nutritionists practicing in different areas where professional practices are developed. Collecting the opinions of the experts and the collection of the evaluations were carried out during the periods October 2020 - December 2020, and the instrument was delivered personally or sent through Google Drive.

The experts participating in the construction process

Table 1. Characteristics of the participating sample

Variables	Panel of Experts N	Students 2019 N	Students 2020 N
Women	19 (95%)	98 (84%)	48 (80%)
Men	1 (5%)	18 (16%)	12 (20%)
Total	20 (100%)	116 (100%)	60 (100%)

Source: Own elaboration

of the validation instrument were: 1 Doctor in Education (Universidad Politécnica de Madrid, Spain), 1 Doctor in Human Motor Sciences (Universidad Católica de Temuco Chile), 1 Master in nutrition and Food Biotechnology (Universidad Catholica de Temuco). The panel of experts was made up of nutritionists (Table 1), teachers and academics from the following educational institutions: 1 Master in Nutrition, Universidad de Magallanes (Punta Arenas), 1 Master in Nutrition, Universidad de Los Lagos (Osorno campus), 1 Nutritionist, Universidad de La Frontera (Temuco), 1 Doctor, Biologist-Nutritionist and 5 Master in Nutrition, Universidad Católica de Temuco (Temuco), 6 nutritionists belonging to the public sector and 5 nutritionists belonging to the private sector.

The evaluation of the criteria of sufficiency (items belonging to the same dimension), clarity (the item is easily understood, that is, its syntax and semantics are adequate), coherence (the item has a logical relationship with the dimension or indicator it is measuring) and relevance (the item is essential or important, that is, it should be included) was considered using a Likert scale, and the level of compliance of the items was indicated: Does not meet the criterion (1), Low level (2), Moderate level (3) and High level (4). In addition, each dimension had an open field for observations to incorporate comments and suggestions related to the items (Table 2).

The exhaustive reviews of the contributions of the experts, together with the analysis of the structure of the instrument, made it possible to review the adequacy and understanding of the items that comprise it (15). Considering the evaluations, observations, and consensus of the experts, he developed an instrument that includes 29 items. For the date collection period and to analyze the reliability of the results in its final version, it was physically applied to 60 students (48 women and 12 men), during the months of January to March 2021, whose professional practices had completed in the areas of professional training. The

Table 2. Categories and indicators for expert judgment

Category	Rating	Indicator
Sufficiency. The items belonging to the same dimension are sufficient to obtain the measurement of this dimension.	1. Does not meet the criterion 2. Low level 3. Moderate level 4. High level	• The items are not sufficient to measure the dimension. • The items measure some aspect of the dimension, but do not correspond to the total dimension. • Some items should be increased to be able to evaluate the whole dimension. • The items are sufficient
Clarity. The item is easily understood, that is, its syntax and semantics are adequate.	1. Does not meet the criterion 2. Low level 3. Moderate level 4. High level	• The item is not clear. • The item requires a lot of modifications or a very large modification in the use of the words according to their meaning or their arrangement. • A very specific modification of some of the terms of the item is required. • The item is clear and has adequate semantics and syntax.
Consistency. The item has a logical relationship with the dimension or indicator it is measuring.	1. Does not meet the criterion 2. Low level 3. Moderate level 4. High level	• The item has no logical relationship with the dimension. • The item has a tangential relationship with the dimension. • The item has a moderate relationship with the dimension it is measuring. • The item is completely related to the dimension it is measuring.
Relevance. The item is essential or important, that is, it must be included.	1. Does not meet the criterion 2. Low level 3. Moderate level 4. High level	• The item can be deleted without affecting the measurement of the dimension. • The item has some relevance, but another item may be including what this one measures. • The item is relatively important. • The item is very relevant and should be included.

Presents the categories and rating indicators of the scale evaluated by the expert judgment. The application of the Delphi method allowed adjustments to be made to the wording and grammar.

evaluation of the 29 items, grouped into 4 dimensions: practice center (6 items), academic training with application to the labor field (9 items), about the teaching clinic (7 items) and about the clinical supervisor (7 items); It was carried out using the Likert scale assessment: Never (1), Almost never (2), Sometimes (3), Almost always (4), Always (5).

Design of the instrument and procedures

A review of the literature was made to determine the dimensions related to design and construction. In the case of training instances in practice centers or clinical experiences, it is determined that they are of great importance for the care of disciplinary and generic competencies that represent the basis for professional practice (19). In the academic field, in the case of Chile, program accreditation is the main regulatory instrument for the quality of undergraduate education (20, 21). Being the operating conditions one of the most important dimensions to evaluate in the academic units, emphasizing the teaching staff with criteria related to the creation and research of the teaching staff, academic level and experience, for the generation and application of knowledge in the student training (22). Regarding the role of the supervisor, it is worth mentioning that he is the manager to facilitate the teaching-learning process in an environment different from that of the classroom (19), since he not only instructs, but also encourages observation, analysis, investigate and make decisions. In this way, promote the progress of skills and attitudes that lead to the acquisition of technical knowledge, whose ultimate goal is to be able to act for the benefit of society (23). Another important actor is the nutrition teaching clinician, whose role is to ensure the student's exercise. In other words, the tutor has to support and advise students in their adaptation, development and training process, enhancing their abilities and helping to overcome the difficulties that appear throughout the educational process (24,25).

Once the contributions were collected and included, an instrument called "Satisfaction survey of professional practices in the Nutrition and Dietetics program " was designed and validated, whose objective is to analyze the perception of the student, on the assessment that he gives to the process of practical professional of the program of Nutrition and Dietetics. The instrument includes the following structure: title, objective, explanatory table for the qualification of the items and 29 items grouped into 4 dimensions: practice center, academic training with application to the labor field, about the teaching clinic and about the clinical supervisor.

Participant's tests pilot

The non-probabilistic sample, by convenience, was composed of 176 university students (83% women and 17% men) belonging to the ninth and tenth semesters of the Nutrition and Dietetics program who studied the professional practice in the areas of clinical nutrition, primary care, collective nutrition and health promotion, during the years 2019-2020. In addition, a panel of 20 experts was formed, equally distributed between Nutritionists with teaching experience (minimum 3 years) and Nutritionists with performance in various areas of the professional field. The distribution of the sample is shown in the following table.

Statistical analysis

For the psychometric study of the reliability analysis, the statistical software SPSS version 22 (SPSSTM Inc., Chicago, IL) was used to determine the Cronbach's Alpha coefficient (16). This type of analysis is widely used for the validation of research instruments and allows the internal consistency of an instrument, through the degree of correlation between its items (17). The interpretation of Cronbach's Alpha coefficient establishes the following: Invalid reliability (0.00 to 0.53); Low reliability (0.54 to 0.59); Reliable (0.60 to 0.65); Very reliable (0.66 to 0.71); Excellent Reliability (0.72 to 0.99) and Perfect Source Reliability (1.00) (18).

Resultados

Table n°3 presents the internal consistency (reliability per dimension) of the items of the instrument in its first version (32 items). A high reliability coefficient was obtained for the whole instrument α= 0.949

and the results per item were also satisfactory. Each dimension obtained reliable results: dimension 1 α= 0.891; dimension 2 α= 0.957; dimension 3 α= 0.920and dimension 4 α= 0.925.

Table 3. Reliability index of the different dimensions of the instrument (first version).

Dimension	Elements	Cronbach's alpha
PRACTICE CENTER AND ACADEMIC BACKGROUND	The duration of the internship was adequate for the approach to the professional reality.	.891
	The infrastructure of the practice center allowed me to develop my skills and abilities.	
	The practice center provided physical space to program and execute my work and activities to be developed.	
	At the practice center, I was given the time to have a snack, per the agreements among team members so as not to affect the operation.	
	At the practice center, they respected my arrival and departure times, being a true copy of the physical record in terms of hours worked per day.	
	I recommend this practice center to my fellow students.	
	The internship made it possible to apply the knowledge and skills acquired during the curriculum.	
	The training received at the university allowed me to successfully face the situations experienced during the internship.	
	The internship has allowed me to get closer to the world of work.	
	The internship has allowed me to broaden my practical knowledge acquired throughout the curriculum	
TEACHER CLINIC	The tasks assigned to me during the internship have contributed to strengthening my knowledge of the work performed by the professional nutritionist.	.957
	At the end of my internship, I feel I acquired new knowledge, I feel more confident and enriched by the experience.	
	From the beginning, the clinical instructor showed me how the practice center works and introduced me to the professionals or work team.	
	The clinical faculty member explained to me the functions I was to perform within the practice center.	
	The clinical instructor had an open and participative attitude towards my training as a student in practice.	
	The clinical instructor contributed to fostering relationships with other members of the work team.	
	The clinical instructor delegated responsibilities to me as a future professional in a scaffolding manner.	
	The clinical instructor provided feedback on the actions and activities carried out in a formative manner during the period of my internship.	
	The clinical instructor maintained a respectful and well-mannered attitude when correcting my actions. He/she was demanding but always treated me with dignity.	
	The clinical professor provided me with time during my stay at the practice center to give me guidance on my work.	
	The clinical instructor gave me the security and confidence to ask questions and suggest actions, which were respectfully received.	
SUPERVISOR CLINIC	I recommend my clinical instructor to my colleagues.	.920
	The clinical supervisor complied with the established visits to the practice site.	
	The clinical supervisor was empathetic and maintained effective communication.	
	The clinical supervisor channeled the different appreciations collected during the development of the practice.	
	The supervisor responded to my concerns during my internship process.	
	The supervisor provided feedback on my performance at each of the visits.	
	During my internship, I saw in my supervisor a constant support for the doubts that arose.	
	I recommend my supervising instructor to my colleagues.	
CLINICAL FIELD MANAGER	The Clinical Field Manager was empathetic and maintained effective communication.	.925
	The Clinical Field Manager provided the necessary information for the completion of my internship.	
	The Clinical Field Manager supervised my learning process and was attentive to my needs.	

Source: Own elaboration.

Table 4 presents the internal consistency of the instrument, by dimension and item in its final version (29 items). Each dimension obtained reliable results: dimension 1 α= 0.854; dimension 2 α= 0.889; dimension 3 α= 0.957 and dimension 4 α= 0.947. The reliability analysis of the instrument yielded a Cronbach's alpha coefficient of 0.927, which meant that the instrument is reliable.

Table 4. Reliability index of the different dimensions of the instrument (final version).

Dimension	Elements	Cronbach's alpha if the item has been deleted	Cronbach's alpha Dimension
DIMENSION PRACTICE CENTER	There is public and/or private transportation to get to the practice center where I did my internship, which allowed me to comply with the established entry schedules.	.875	.854
	The infrastructure of the practice center allowed me to satisfactorily develop the competencies (knowledge, skills, and abilities) required in my academic training.	.842	
	The practice center had physical spaces that allowed me to program my work and were available to carry out my work and develop my activities.	.830	
	The safety of the practice center gave me the opportunity to develop my activities in a safe environment, under established quality standards.	.809	
	The practice center allowed me to experience real learning situations and in context that I will encounter in my future work as a professional nutritionist.	.810	
	From my perspective, the practice center meets the conditions to achieve learning and to be recommended to my fellow students.	.810	
DIMENSION ACADEMIC TRAINING WITH	The duration of the internship (number of hours) was adequate to achieve a closer approach to the professional reality.	.919	.889
	The development of my internship allowed me to expand my knowledge acquired during the curricular plan (program).	.868	
	The development of my internship allowed me to apply the competencies (skills and abilities) acquired during the curricular plan (program).	.859	
	The tasks entrusted to me during the development of my internship have contributed to consolidating my knowledge and providing security for the work I will do as a nutritionist.	.862	
	The academic training received at the university allowed me to successfully face the situations experienced during the period of my professional practice.	.873	
	At the end of my internship, I can assure to have acquired new professional knowledge under the family and community approach in several areas of disciplinary performance.	.863	
	At the end of my internship, I am sure that I have developed disciplinary competencies such as implementation of diet therapy, food and nutrition intervention plans and/or team management and food safety.	.869	
	At the end of my internship, I have developed the competence of teamwork, ensuring my integration with the rest of the professionals.	.890	
	At the end of my internship, I am sure to have developed the ethical performance competence, putting into practice values and demonstrating a spirit of service in my professional performance.	.886	
DIMENSION ABOUT THE CLINICAL TEACHER	The clinical instructor made an initial induction, explaining the operation of the practice center, introduced me to the professionals and/or work team and the facilities or areas that would allow me to develop my professional practice.	.951	.957
	The clinical instructor explained to me the roles, responsibilities and activities that I was to perform during my stay at the practice center.	.951	
	The clinical instructor maintained a receptive and participative attitude towards the training process during the development of my professional practice.	.943	
	The clinical instructor was concerned with conducting formative evaluations of the actions and activities performed during the internship period.	.952	
	The clinical instructor had the time to provide timely feedback on my actions and provided me with guidance on my work.	.951	
	The communication with the clinical instructor was effective during my professional practice, which allowed me to have security and confidence to make consultations and suggest actions.	.947	
	The clinical instructor allowed me to apply my knowledge during the development of my internship and provided spaces to develop the activities described in the university's evaluation guidelines.	.957	
DIMENSION ABOUT THE SUPERVISING TEACHER	The supervising instructor respected the number of supervisions (visits) established for the development of the professional practice.	.963	.947
	The supervising instructor explained to me the functions, activities and products to be performed during the period of my internship.	.941	
	The supervising instructor maintained a receptive and participative attitude towards the training process during the period of my internship.	.926	
	The supervising instructor provided feedback based on the actions and activities developed in each supervision during my internship period.	.934	
	Communication with the supervising faculty member was effective during my internship, he/she responded to my concerns and rovided safe spaces to ask questions and request feedback.	.931	
	The supervising instructor made known in a timely manner (beginning) the evaluation instruments with which my performance in the professional practice would be evaluated.	.932	
	The supervising instructor efficiently channelled the concerns generated in the development of the internship, being a link between the clinical professor and the university.	.934	

Source: Own elaboration.

Discussion

The objective of the present investigation was to design and validate an instrument, which allows to evaluate the satisfaction of the students about their professional practice process. The foregoing considering that higher education institutions should be guarantors of the quality of professional training and of health in the face of society (26). In this way, have a valid and reliable instrument that evaluates the dimensions of the practice centers, the academic professional role and the clinical supervisor in the areas of professional training; primary care, clinical nutrition, collective feeding and health promotion, taking into account the perspective of teachers and students, which is endorsed by the support of the triad of clinical learning (27). The validation of the content by the experts, who through an evaluative test (Delphi method) that considered the sufficiency, clarity, coherence and importance of the elements in the four dimensions, allowed adjustments to be made in the number of items, vocabulary, grammar and editorial, thus obtaining the final version of the instrument. Regarding the implications for health professionals, it is worth noting the unavoidable need to disseminate guidelines for the preparation of questionnaires, their consolidation and adaptation through content validation through expert judgment (28), not being exempt from this situation academic programs of nutrition and dietary in Chile. International studies recommend incorporating in the validation both experts linked to the field of research by subjects of the methodological aspects of the instrument, as well as comprehensive potentialities of the target population (29), a situation that for the present investigation is protected with N = 20. experts and N = 166 members of the target population.

In this sense, national studies of design and validation in health areas referring to the performance of the teaching clinic, have reported a high value of Alpha of 0.970 of its four factors of the scale (personal qualities, skills in education, skills under evaluation, favorable clinical environment) (26). Similar results to the present study, which presents consistency values for the educational clinical item with an Alpha of 0.957. Focused national investigations studied the psychometric properties to assess perception, satisfaction, and learning results in graduate students in Health Sciences, which presented internal consistency levels of 0.963 (30). In turn, for the present study, the reliability through Cronbach's Alpha coefficient, showed an internal consistency of the instrument for each one of the dimensions, granting an excellent reliability (0.927), which allows verifying that the designed instrument is valid of content that is, the instrument measures what it intends to measure (31).

Considering the slight increase in Cronbach's Alpha coefficient (0.931) when removing the first item of the second dimension, which is related to the duration of professional practice (number of hours), the researchers decide to keep the item, since it assesses the number of hours that the student remains in the institution and/or company where they carry out their professional practice, so that the instrument is not modified in its final version. This instrument, designed and validated by expert judgment and psychometric analysis, aims to be a contribution in any of the stages of the training itinerary in which the students are. In this way, demonstrating and systematizing the teaching and learning processes in various contexts is of the utmost importance. Especially from the discipline of nutrition and dietetics, as in the development of professional practices.

Limitations and fortresses

The use of validated and reliable instruments for the collection of information in the practice area of professional training of the Nutrition and Dietetics program at the Universidad Católica de Temuco is considered strength by the researchers. One limitation to consider is the n= 60 of the sample of the last application, projecting for future research n= 80 or higher for each academic year. Within the strength, it is considered an advance to know the satisfaction of the students regarding the infrastructure of the practice center or clinical field where they carry out their professional practice and the perceptions in the relationship established with the teaching supervisor and teaching clinician, who finally evaluate and describe the students' exercise.

Conclusions

Content validity can often be subjective, but in the case of this study, objectivity could be added through the use of statistical processes, which provide validity and reliability, so that the rigor in the construction of the instrument as well as the agreement between experts is the best. way to correctly validate an instrument.The various stages of content and reliability validation, added to the results, show that the instrument has an excellent level of reliability, with a Cronbach's Alpha coefficient of 0.927. Therefore, the instrument designed in its final version with 29 items grouped into 4 dimensions, is valid and reliable, it is also simple and allows to assess the practice center, the academic training linked to the practice and the role of those who accompany the practice student process. The instrument, consequently, allows to know the assessment given by the ninth and tenth semester students at the end of their professional practice and allows having an instrument that can be used in the Nutrition and Dietetics program and others related to Health Sciences. It should be noted that the instrument present in the academic field can be used and modified in areas for Health purposes, such as the Social Sciences and the careers of the Faculties of Education that also have professional practices in their training itineraries. It is recommended that in order to replicate the instrument in other areas, it will always be necessary to use expert judgment, being optimal to articulate it with statistical treatments so as not to lose the objectivity of the study area.

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Conflict of interest:

The authors declared no conflicts of interest.

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