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Professional practice in emerging areas: diversifying the labor field of nutritionists in Chile

Práctica profesional en áreas emergentes: diversificando el campo laboral del nutricionista en Chile

Práctica laboral en áreas emergentes de la profesión Nutricionista en Chile

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HIGHLIGHTS

- In Chile, as of 2022, there were 59 nutritionist training programs offered by 35 state public, non-state public and private institutions, which generates an excessive supply of professionals for the existing labor market.
- The labor field of nutritionists has been changing in response to the needs of the environment, incorporating emerging areas of development, however, there is no documented incorporation of these fields in the professional practices of the career.
- The students mentioned that this new practice contributed to the development of generic competencies, better time management and organization, greater self-confidence, approaching another reality and the promotion of creativity.
- Students are prepared for positions in emerging areas of the profession, contributing their expertise in different sectors such as the food industry, education, research and management in contexts other than the traditional ones.

ABSTRACT

Introduction: In Chile, the employment situation of the nutritionist has been affected by the numerous competition and limited vacancies in traditional work areas. Consequently, the career of Nutrition and Dietetics at the University of Chile decided to open a new professional practice in emerging fields of performance from the year 2021. The objective of this study was to evaluate its implementation and assessment, considering the opinion of all those involved.

Methods: Mixed cross-sectional descriptive study with non-probabilistic sampling. To obtain the opinion of the participants, online surveys were designed and carried out with students in the last level and their supervisors, semi-structured interviews with tutors of practice centers and discussion groups with undergraduate professors. Descriptive statistics were used for quantitative results and thematic analysis for qualitative questions.

Results: The opinions of 27 students, 8 supervisors, 10 tutors and 13 undergraduate professors were obtained. Regarding the implementation, both the structure and the centers and their modality of practice were adequate. The assessment was high by those involved, highlighting the development and management of generic competencies among students, and their contribution to expanding the labor field, as well as the role of the nutritionist in emerging areas. As an aspect to be improved, the activities to be carried out in each center need to be more detailed.

Conclusions: The implementation of this practice was successful, with a high level of assessment. Its inclusion in the curriculum responds adequately to the profile of the graduate and the development objectives of the unit, responding to needs previously detected in the curriculum and in the environment,

thus contributing to the labor insertion of the graduates and to the diversification of the current field of the discipline.

Keywords: Nutritionists; Work; Professional Practice; Learning; Curriculum.

RESUMEN

Introducción: En Chile, la situación laboral del nutricionista se ha visto afectada por la numerosa competencia y limitados cupos en las áreas laborales tradicionales. En consecuencia, la carrera de Nutrición y Dietética de la Universidad de Chile decide abrir una nueva práctica profesional en áreas de desempeño emergentes a partir del año 2021. El objetivo de este estudio fue evaluar su implementación y valoración, considerando la opinión de todos los involucrados.

Metodología: Estudio descriptivo transversal mixto con muestreo no probabilístico. Para recoger la opinión de los/as participantes se diseñaron y realizaron encuestas online a alumnos/as del último nivel y a sus supervisores, entrevistas semiestructuradas a tutores de centros de prácticas y grupos de discusión a profesores de grado. Se utilizó estadística descriptiva para los resultados cuantitativos y análisis temático para las cuestiones cualitativas.

Resultados: Se obtuvo la opinión de 27 estudiantes, 8 supervisores, 10 tutores y 13 profesores de pregrado. En cuanto a la implementación, tanto la estructura como los centros y su modalidad de práctica fueron adecuados. La valoración fue alta por parte de los implicados, destacando el desarrollo y gestión de competencias genéricas entre los/as alumnos/as, y su contribución a ampliar el campo laboral, así como el papel del nutricionista en áreas emergentes. Como aspecto a mejorar, es necesario detallar más las actividades a realizar en cada centro.

Conclusiones: La implementación de esta práctica fue exitosa, con un alto nivel de valoración. Su inclusión en el plan de estudios responde adecuadamente al perfil del egresado y a los objetivos de desarrollo de la unidad, respondiendo a necesidades previamente detectadas en el plan de estudios y en el entorno, contribuyendo así a la inserción laboral de los/as egresados/as y a la diversificación del campo actual de la disciplina.

Palabras clave: Nutricionistas; Trabajo; Práctica Profesional; Aprendizaje; Currículo

INTRODUCTION

In Chile by the year 2022, there was an offer of 59 nutritionist training programs taught by 35 institutions¹. In the last decade, there has been a sustained increase in the number of enrollments¹, which has generated an explosive increase in professionals for a finite job market. This is evidenced by the total registered nutritionists in the Superintendency of Health, which rose from 5,633 in the 2009-2012 period to 17,302 in the 2009-2019 period^{2,3}. This has had a negative impact on the employment situation, with a decrease in employability and remuneration⁴.

The work field of the nutritionist has changed in response to the needs of the environment, the epidemiological situation, the climatic, social and health crises, technological progress and the forms of organization of institutions⁵. One example is their gradual incorporation into the food industry, as well as into management and/or managerial positions, strategic planning and programs and/or projects development^{6,7}. According to employability data from Latin America, most of the nutritionist work in traditional areas, that is, in the clinical field (hospitals, clinics, health centers), public health (primary care) and in collective food services⁸. Nevertheless, there is an increase in labor sources in emerging areas such as research centers, design and promotion of food and nutraceutical products, beauty and sports centers, nursing homes and provision of services. Independent consultancies in educational establishments, the preparation and implementation of manuals of good manufacturing practices and current regulations, training and rapporteur ships, among others, are increasingly common⁹.

During the last year of the study plan, professional practices are contemplated, whose purpose is to mobilize and consolidate knowledge, abilities, and skills, in a real work setting under supervision^{10,11,12,13}. This stage is essential in training because, in addition to mobilizing technical skills, it allows the development of generic skills related to the requirements of labor insertion¹¹. In fact, in countries of the European Union and Canada, a minimum time of professional practice is required, in addition to practice, to register and work as a dietitian¹⁴. The professional practice is the last step where compliance with the graduate profile and the declared competencies are ensured, which, for the University of Chile, constitute a commitment and at the same time a promise to society¹².

The School of Nutrition and Dietetics, University of Chile, began the training of Dietitians in 1939, being the oldest in the country¹⁵. In 2013, a change in the educational paradigm was implemented, adopting a competency-based approach¹⁶, characterized by adapting the graduate profile to labour needs, defining competencies that must be acquired in order to be successfully inserted in the labor environment¹⁷. This meant an update of the curriculum, however, the cycle of professional practices was not modified until 2021, when, in the context of the COVID 19 pandemic¹⁸, it was decided including a new professional practice that contemplates emerging areas, such as food (companies, industries, entrepreneurship), education and in governmental and non-governmental organizations. This new

practice, in turn, responds to the need to expand and diversify the current labor field, considering the hostile scenario faced by graduates, as a result of limited quotas in traditional areas.

To date, there are no published Chilean studies that make explicit such a curricular update for the nutrition and dietetics program, or that show results on the implementation of curricular changes of this magnitude, or their assessment by those involved. The latter is essential to provide feedback to the process, and to achieve its pertinence with the graduate profile and the institutional educational model. The objective of this study was to evaluate the implementation and assessment of this new professional practice with the purpose of consolidating the process, thus contributing to the continuous improvement of training and the labor insertion of the nutritionist of the University of Chile.

METHODS

Descriptive cross-sectional study, using mixed qualitative and quantitative methodologies.

Population, sampling, and selection of Participants

A non-probabilistic sampling was carried out, inviting voluntary participation from the universe of all participants; students, supervisors (from Nutrition School), tutors (in charge of practice in the labor field) and undergraduate teachers. The inclusion criteria were: for students they must be in fifth level and should have completed this new practice; for supervisors and tutors, they must have supervised or received at least one student in this practice and for undergraduate teachers, they must have participated in the team in charge of disciplinary courses from 1st to 4th level of the career, between the years 2019-2020.

Variables and data collection instruments

The study variables were the implementation and assessment of the new professional practice. Implementation is understood as the logistical and operational aspects, which include the structure, characteristics of the center and modality (face-to-face, distance learning, hybrid). The assessment rescues aspects such as the contribution to the personal and professional development of the student, development and diversification of the labor field and the perception of the role of the nutritionist. For both variables, the possibility of mentioning advantages, aspects for improvement and other comments were considered. The collection of information was done at the end of 2021, by means of:

Online surveys: A self-report instrument was developed for students and supervisors (Google Forms), collecting sociodemographic data and includes questions with a Likert scale (strongly agree to strongly disagree) and open questions. Both instruments (students and supervisors) had a similar number of questions and assessed the following variables: practice structure, practice center characteristics and practice center tutor. The approximate response time was 15 minutes.

Semi-structured interviews: An interview guideline, based on the objectives of the study, was prepared for the tutors. The individual interviews were carried out online (Zoom®) recorded and transcribed.

Discussion groups: They were carried out with undergraduate teachers, online mode (Zoom®), based on a guideline of 6 open questions. These were recorded and transcribed.

Once the first version of the instruments had been designed, a cross-validation by experts was carried out, with the participation of members of the research team, different from those who participated in the design of the surveys. Content validation¹⁹ involved the review of the surveys and of the interview and focus group question guides in terms of relevance and sufficiency with the project objectives, relevance of each question to the defined variables and other structural aspects, such as wording and logical sequence. After validation by the experts, the research team adjusted the questions to obtain the final survey format and question guidelines. In addition, a reliability analysis was performed for the student and supervisor survey. As the Likert-type scale questions were equal in number and in terms of content (the variables measured), only one analysis was performed. The internal consistency of 15 items was evaluated by calculating Cronbach's alpha. A value higher than 0.7 was considered acceptable²⁰.

Statistical analysis

To analyze the quantitative results, a dynamic table of the Excel program of Office version 365® was used. For responses with a Likert-type scale, the sum of frequencies of the items "strongly agree" and "agree" was considered positive perception, and negative, the sum of "disagree" and "strongly disagree". The answers to the open questions were classified into different categories. Descriptive statistics were used for the analysis of these results. For the qualitative analysis of the interviews and discussion groups, thematic analysis was used, using the Atlas.ti version 8.0.43 program. For the reliability analysis, software Stata 13 was used.

Ethical Aspects

This study was approved by the Ethics Committee in human, Faculty of Medicine, University of Chile (No. 070-2021). This committee is organized, acts and renders its opinions in full accordance with the Declaration of Helsinki, the CIOMS 2016 International Ethical Guideline for Biomedical Research Involving Human Subjects, and the ICH 1996 Good Clinical Practice Guidelines^{21,22,23}. Each participant signed an informed consent, and the confidentiality of their data was protected by a coding system.

RESULTS

The new professional practice was implemented from May to December 2021 for a total of 51 last year students. It was executed in 13 centers with a duration of 6 weeks per rotation (Table 1). The modality was chosen jointly between the School of Nutrition and the practice center, which appointed a tutor for the student whose profession could or could not be a nutritionist. The opinion of 52.9% of students, 66.6% of supervisors, 76.9% of tutors and 68.4% of undergraduate teachers was obtained. Its characterization is shown in Table 2.

The confiability of the survey items was calculated using Cronbach's alpha coeficient. High internal consistency was obtained, with a coeficient of 0.8968 (global questionnaire), confirming the high internal consistency of the instrument for students and supervisors.

Table 1. Types of practice centers and associated technical and generic competencies.

Type of Practice Center	Main technical skills developed	Generic skills developed
Foundations and Non-Governmental Organizations (3 centers) Food companies (4 centers) Governmental institutions (2 centers) Education system (1 center) Non-hospital stays residences (2 centers) Academy and research (1 center)	<ul style="list-style-type: none"> ● Apply educational and communication methodologies. ● Analyze scientific information critically and constructively. ● Provide individual dietary therapy. ● Schedule plans, programs and/or projects within the framework of collective food services (SAC). ● Interact with individuals and groups. ● Apply educational and communication methodologies. ● Analyze scientific information critically and constructively. ● Recommend healthy eating to individuals and communities. ● Develop educational material and communication programs. ● Apply educational and communication methodologies. <p>Analyze scientific information critically and constructively.</p>	Ethics Effective communication Critical thinking Act committed and active Multi and interdisciplinary teamwork Multi and interdisciplinary teamwork Leadership Decision making Conflict resolution Social and citizen commitment Sustainability (*)
(*) Seal of the School of Nutrition and Dietetics, University of Chile since 2018		

Table 2. Characterization of the study participants.

	Students	Supervisors	Tutors	Undergraduate Teachers
N (% of universe)	27 (52.9%)	8 (66.6%)	10 (76.9%)	13 (68.4%)
Gender (F/M)	22/5	7/1	6/4	9/4
Age in years (mean; min-max)	26.2 (22-33)	36.5 (29-46)	31.8 (27-47)	39.4(31-62)

Implementation

The aspects related to the professional practice implementation; structure, practice centers and modality were consulted with students, supervisors and tutors. The undergraduate teachers did not evaluate it due to the lack of direct participation. The structure considered aspects such as the timely delivery of the regulations, program and rubrics, that the activities allow the development of the expected competencies and that the evaluation methodologies were adequate. The aspects related to this item were positively evaluated by students and supervisors. 70% of the tutors declared to have received complete information at the beginning of the practice. Respect to practice centers, this considered logistical aspects, the work environment and the possibility of fulfilling the competencies of the professional practice. Most of them were evaluated positively. To modality, 22.2% of the students took the professional practice in the face-to-face mode, 44.4% remotely and 33.3% hybrid. Students and supervisors evaluated the modality positively whereas tutors highlighted benefits of the online or blended modality, although 30% of them mentioned difficulty in generating links and interaction.

Appreciation

The new professional practice was assessed by all the actors in general terms and specifically in aspects such as their contribution to the development of the students and diversification of the nutritionist's labor field.

Contribution to the personal and professional training of students

Students mentioned aspects that contributed to personal training, among which: development of generic skills (26.8%), better time organization (19.5%) and greater self-confidence (19.5%). Regarding their professional training, they mention that it contributed to broadening their vision of the labor field (30.4%), applying knowledge and skills (19.6%), developing generic competences (17.4%), integrating knowledge (13%), learning about the management of public policies (6.5%) and valuing the professional role (6.5%).

The supervisors agree that the practice made it possible to strengthen technical skills outside the traditional field (87.5%), develop proactivity (62.5%), work in multidisciplinary teams (62.5%), develop autonomy (37.5%), organize time (37.5%), broaden the vision of the nutritionist's work field (25%), demonstrate values declared by the university (12.5%) and improve communication (12.5%).

All tutors highlighted positive characteristics of the students, such as their good level of preparation, in terms of knowledge and skills (Table 4). Also, all tutors highlighted the student's ability to adapt to the center and work methodology, to the team and to the interaction with other people such companies or users.

Contribution to the labor field and role of the Nutritionist

The students mentioned that the new practice contributed to broadening the vision of the labor field (30.4%) and to the assessment of the professional role (6.5%).

The supervisors declared that the practice allows to expand the labor field and that in the institutions their role is made visible, and their work is valued, as can be seen in the cites. It is also mentioned that professional practice broadens the vision of the professional role beyond the planning of menus and clinical care, being observed as a contribution in education, research, health promotion, execution of protocols and projects (Table 3).

30% of the tutors highlighted how the practice is related to the development of new activities or areas, allowing interaction with other disciplines and expanding the labor field. Even in those centers that currently do not have Nutritionists, they mention how the new practice has led them to consider the need to incorporate this professional into their teams (Table 3).

Undergraduate teachers stated that the professional practice allows visibility of the role of the nutritionist in other areas and that it contributes to expanding non-traditional workspaces (Table 3).

Table 3. Textual cites representative of tutors and supervisors' opinions on the items evaluated for assessment.

Ítem	Date
Contribution to the personal and professional training of students	"There I have nothing to say, I mean, very well, they all handle information very well, they know exactly how to deal with the different tasks we have assigned them, and it shows that they have a super clear handling of information, I mean... They give us classes here on different topics when we talk, so everyone is very well prepared" (tutors).

Contribution to the labor field and role of the Nutritionist	"It enables them to work in non-traditional areas and allows them to reduce their fear of different jobs, since it reinforces the fact that they are prepared and can make a contribution. It shows new job opportunities to position them with experience in the case of job applications of this type. In addition, it expands the labor field to other colleagues, since it shows to companies what our contribution can be, generating a need not previously detected" (supervisors).
	"It allows to open new non-traditional performance areas of nutritionists, where perhaps the students hadn't seen within the options of job development" (supervisors).
	"It helps a lot as other professionals complementary to our discipline can value and know us by learning that Nutritionists are not only "diets" but multifaceted professionals who can be useful from different angles beyond just care" (supervisors).
	"Already as from the first practice, I realized that there is indeed much more contribution than we had thought it could be made, and there is always something nutritionists can contribute within the company" (tutors).
	"...at least for the profession itself [the new professional practice] allows to open spaces that could still be closed... in spaces that seemed unsuspected and that were much more limited before and that have effectively been difficult to shake up. We have to be able to generate spaces of innovation and help installing our colleagues in spaces that might not traditionally be understood as their own." (Undergraduate teachers)

Advantages and improvements

The main advantages and aspects to improve identified by the participants can be seen in table 4.

Table 4. Advantages and aspects to improve of the new professional practice according to the different actors involved.

Participant	Advantage	Aspects to improve
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Students	<p>Self-management (20%)</p> <p>Motivation (17.3%)</p> <p>Appropriate working environment (16%)</p> <p>New areas of performance (14.6%)</p> <p>Values consolidation (8%)</p> <p>Interdiscipline (4%)</p> <p>New nutritionist role (2.6%)</p> <p>Good organization and resources (9.3%)</p> <p>Adequate academic load (8%)</p>	<p>Induction and definition of goals (31.9%)</p> <p>Integration in professional practice (19.1%)</p> <p>Role of the supervising teacher (6.4%)</p> <p>Duration of the PPT (6.4%)</p> <p>Work environment (6.4%)</p> <p>Modality (4.3%)</p> <p>Workload (4.3%)</p> <p>Organization and resources (4.3%)</p> <p>Disparity between centers (4.3%)</p> <p>Type of evaluations (2.1%)</p> <p>* It should be noted that 10.6% of the responses correspond to: "Does not suggest improvements"</p>
Supervisors	<p>Expansion of work fields for nutritionists (75%)</p> <p>Greater visibility of the role of nutritionists in different fields (37.5%)</p> <p>Strengthens organization, autonomy, flexibility, development of other skills (25%)</p> <p>It allows the development of creativity, proactivity, use of technology, teamwork, critical thinking, safety, adaptability, innovation, generation of links with other organizations with an academic load similar to the other practices (12.5%)</p>	<p>Assessment systems both rubrics, final report and feedback (50%)</p> <p>Increase attendance (37.5%)</p> <p>Improve communication between supervisors and students and between students and the work team (25%)</p> <p>Consolidate the links between the school and the centers to define the role and the most pertinent activities to carry out (12.5%)</p> <p>Establish some methodology to ensure the continuity of the work of the different rotations, increase the time dedicated by the tutors of the practice centers to the teaching work and review how to link previous courses with the transversal practice</p>

Tutors	They emphasize that it is an integral practice, possible to adapt to the characteristics and objectives of the center, and the positive contribution that the students made when carrying out their interventions, which often exceeded initial expectations.	Clarity of the activities that the students should develop (20%) Increase the duration of the practice at least to 7 or 8 weeks (50%) Get to know the students before starting the internship (20%) It should be noted that 30% indicated that they had not had any difficulties
Undergraduate teachers	Attractive, innovative and provides transversal elements. In addition, they highlighted the contribution of their courses to their development, since they have previously applied theoretical learning in practical workshops an issue that has allowed them to be placed in different contexts, which are applicable to these new areas.	Ensure transversality, so that each student has the option of knowing all areas in greater depth, teaching capacity to supervise, because it is required to have teachers with skills and knowledge in these new areas of performance.

DISCUSSION

The results of this study show that the implementation of this practice was successful, with a very high level of appreciation by students, supervisors, tutors, and undergraduate teachers.

It is the first time that emerging labor fields are formally included as practice centers in the training of the University of Chile nutritionist, and their assessment is determined by showing the student their adequate preparation to assume positions in these organizations, as well as what the nutritionist can do in that area. When the career is offered, emerging areas are mentioned within the possible labor fields, however, it is not enough to suggest to the graduate where to work so that the insertion is successful, the institution must ensure that the professional has the necessary skills for those positions¹⁷, therefore, their inclusion as practice centers was necessary, considering the limited labor context.

Professional practice is how educational institutions assure the acquisition of skills, being an instance in which the student, already having the necessary academic training, acquires dominion of the activity in different real work scenarios¹⁸. In this stage, technical aspects are mobilized, and the dynamics of daily life, interaction with work teams and aspects of organizational culture are learned, as well as how to adapt their professional role to the specific needs of the field where they are located^{24,25,26}. This stage is part of their training, and represents a kind of labor induction, accompanied by the university and by the center. It is the materialization of the nexus of the training plan with the environment and must respond to the needs of the environment detected in the validation of the graduate profile in a competency-based design. For this reason, the selection of the practice centers is important since it must represent the possible scenarios where they could work as a professional²⁷. The centers in turn must allow, that the institution provides professionals who anticipate the requirements of the labor market; and from an ethical perspective, it implies positioning oneself before the economic, social and environmental problems of the country, which is hardly possible to demonstrate in traditional fields, where activities are previously established²⁸.

This study shows a high level of appreciation for this new practice due, among other things, to the fact that these allows for greater personal and professional development. At the University of Chile and other universities nationwide, the traditional practices of the nutrition student are focused on areas such as Clinical Nutrition (pediatric and adult) and Community Nutrition, where the skills that the student works on are centered on individual nutritional counseling, dietary prescription and food education. Also, there is the Food Area Practice, where the student develops skills in administration and management of collective food services¹³. However, these practices limit the student's performance in other emerging areas, which is why it has been suggested to broaden competencies to expand labor niches in the current context of deficits of occupational positions²⁹. The new practice comes to meet this demand in new areas of performance, where the student is expected to mobilize generic competencies as a priority, such as leadership, teamwork, innovation, research and problem solving in different contexts. The students who

participated in this study recognize that this practice is "less structured and routine", which allowed them to be more autonomous and flexible in their work and to develop skills such as proactivity, organization, time management and positioning themselves before the work team and the organization. As mentioned for Raposo and Zabalza (2011), professional practice makes it possible to apply what they have learned in solving real problems, giving meaning to their training, as well as contributing to the creation of networks for future jobs³⁰. In this sense, some tutors stated that, when visualizing the work of the students, the need to incorporate them into their teams was generated, moreover, some were hired (data not shown). Thus, this practice contributes to the opening of places in institutions that previously did not even question this need.

UNESCO (1995) suggests that higher education institutions cooperate with the professional world and innovate in educational methods, strengthening the relationship between higher education and the labor market²⁹. This practice represents an innovation of the curriculum aimed at providing students with options consistent with the demands of the country's development. This modernization of professional practices is in line with institutional values such as citizen commitment and social role, and allows mobilizing aspects of the discipline such as sustainability, a particular hallmark of School of Nutrition^{13,18,28-32}. In addition, it promotes the guiding principles of the institutional educational model: comprehensive training of people, relevance, educational quality, equity and inclusion^{12,18,30-34}.

Limitations and strengths

Limitations: The universe of each type of participant could not be accessed, which was desirable given the low number of participants. It is still necessary to further outline the functions expected from the students and their communication with the center, in such a way to mutually take advantage of the benefits of this new experience. On the other hand, future research could focus on analyzing whether there is a significant relationship between the perceptions of the different actors involved. It is suggested to increase the number of participants and standardize the data collection instruments to facilitate the application of statistical tests.

Strengths: The opinion of all actors was considered, including undergraduate teachers who train students prior to internships. Different methodologies were used to be able to rescue as many intervening factors as possible that could affect this process.

CONCLUSIONS

The new professional practice adequately responds both to the graduate profile and development objectives of the school as well as to the institutional requirements declared in its educational model, adapting to the demands of the environment. In addition, it allowed the students to mobilize technical and generic skills, contributing to their comprehensive training.

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There is no conflict of interest in this work study.

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