

# Characterization of the labor market of dietitian nutritionists in Valle del Cauca, Colombia

## Caracterización del mercado laboral de los nutricionistas dietistas en el Valle del Cauca, Colombia

## Caracterização do mercado de trabalho dos nutricionistas dietistas no Valle del Cauca, Colombia

### ABSTRACT

**Introduction:** The working conditions and academic training of dietitian-nutritionists have not been extensively studied. Understanding their professional profile and career trajectories is essential to enhance employability and meet current labor market demands. **Objective:** This study aimed to characterize the labor and occupational market of dietitian-nutritionists in Valle del Cauca, Colombia. **Materials and methods:** A descriptive, cross-sectional study was conducted. An online survey was administered to 145 dietitian-nutritionists using non-probability convenience sampling. The instrument included 39 questions covering sociodemographic, academic, and occupational variables. Descriptive analyses were performed, and the Chi-square test was used to explore associations between categorical variables ( $p < 0.05$ ). **Results:** Of those surveyed, 93% were women, with an average age of 32.5 years. Seventy percent had not pursued postgraduate studies, and 41% were working in clinical nutrition. Following the COVID-19 pandemic, 47% adopted a hybrid work model, and 34% reported earnings between 3 and 4 minimum legal monthly wages (MLMW). The highest salaries were reported in public and clinical nutrition. **Conclusion:** A high rate of labor insertion was observed, with a concentration in the urban private sector and low levels of postgraduate education.

**Keywords:** Employment stability; health care professionals; job description. (Source: DeCS, Bireme).

**Sustainable development goals:** Decent work and economic growth. (Source: SDG, WHO).

### RESUMEN

**Introducción:** Las condiciones laborales y la formación académica de los nutricionistas dietistas no han sido ampliamente estudiadas. Comprender el perfil laboral y las trayectorias profesionales es esencial para mejorar la empleabilidad y satisfacer las demandas del entorno actual. **Objetivo:** Caracterizar el mercado laboral y ocupacional de los Nutricionistas Dietistas en el Valle del Cauca, Colombia. **Materiales y métodos:** Estudio descriptivo y transversal. Se aplicó una encuesta en línea a 145 nutricionistas dietistas mediante muestreo no probabilístico por conveniencia. El instrumento incluyó 39 preguntas sobre variables sociodemográficas, académicas y laborales. Se realizaron análisis descriptivos y se utilizó la prueba de Chi-cuadrado para explorar asociaciones entre variables categóricas ( $p < 0,05$ ). **Resultados:** El 93 % de los encuestados fueron mujeres, con una edad promedio de 32,5 años. El 70 % no cuenta con estudios de posgrado y el 41 % trabaja en Nutrición Clínica. Tras la pandemia, el 47 % adoptó un modelo de trabajo mixto, y el 34 % percibe entre 3 y 4 SMMLV. Las mejores remuneraciones se encontraron en nutrición pública y clínica. **Conclusión:** Se observó alta inserción laboral, con predominio en el sector privado urbano y baja formación posgradual.

**Palabras clave:** Estabilidad laboral; profesionales de la salud; perfil laboral (Fuente: DeCS, Bireme).

**Objetivos de desarrollo sostenible:** Trabajo decente y crecimiento económico. (Fuente: ODS, OMS).

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## RESUMO

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**Disclaimer:**  
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**Introdução:** As condições de trabalho e a formação acadêmica dos nutricionistas ainda não foram amplamente estudadas. Compreender o perfil profissional e as trajetórias de carreira é essencial para melhorar a empregabilidade e atender às demandas do mercado atual. **Objetivo:**

Este estudo teve como objetivo caracterizar o mercado de trabalho e ocupacional dos nutricionistas no Valle del Cauca, Colombia. **Materiais e métodos:**

Estudo descritivo e transversal. Foi aplicado um questionário on-line a 145 nutricionistas, selecionados por amostragem não probabilística por conveniência. O instrumento incluiu 39 perguntas sobre variáveis sociodemográficas, acadêmicas e profissionais. Foram realizadas análises descritivas e utilizado o teste do qui-quadrado para explorar associações entre variáveis categóricas ( $p < 0,05$ ).

**Resultados:** Das pessoas participantes, 93 % eram mulheres, com idade média de 32,5 anos. Setenta por cento não possuíam formação de pós-graduação e 41 % atuavam em Nutrição Clínica. Após a pandemia, 47 % adotaram um modelo de trabalho híbrido e 34 % relataram rendimentos entre 3 e 4 salários mínimos legais mensais (SMLM). As melhores remunerações foram observadas nas áreas de Nutrição Pública e Clínica. **Conclusão:** Observou-se alta inserção no mercado de trabalho, com predominância no setor privado urbano e baixa qualificação em nível de pós-graduação.

**Palavras-chave:** Estabilidade do emprego; profissionais da saúde; perfil profissional. (Fonte: DeCS, Bireme).

**Metas de desenvolvimento sustentável:** Trabalho decente e crescimento econômico. (Fonte: MDS, ONU).

## INTRODUCTION

Professional competencies are a cornerstone for the integration and advancement of Nutrition and Dietetics professionals in the labor market, within a context characterized by the evolving needs in health and nutrition. These competencies encompass knowledge, technical expertise, soft skills, and professional attitudes that are necessary for responding adequately to the challenges of the health system, food and nutrition security, and contemporary social transformations<sup>(1,2)</sup>.

A dietitian nutritionist is a health professional with a university education, qualified to intervene in the psychological, social, cultural, and industrial processes that affect human food and nutrition across all stages of life. According to the *European Federation of the Associations of Dietitians* (EFAD), this professional is legally qualified to provide nutritional counselling to both healthy individuals and those requiring specific therapeutic diets<sup>(3)</sup>. Furthermore, organizations such as the *Dietitians of Canada*<sup>(4)</sup> and the *Academy of Nutrition and Dietetics in the United States*<sup>(5)</sup> have established comprehensive frameworks for professional competencies that encompass not only scientific knowledge but also professional ethics, effective communication, and critical thinking.

In Colombia, the training of dietitian nutritionists has evolved since the creation of the first program at the Pontificia Universidad Javeriana in the 1950s, following international standards while adapting to the country's specific dietary and social contexts. The Ministry of Health and Social Protection, in collaboration with associations such as the Colombian Association of Faculties of Nutrition and Dietetics (ACOFANUD) and the Colombian Association of Dietitians and Nutritionists (ACODIN), has promoted the review of these competencies. In 2013, the professional competencies for nutritionists were updated through a participatory process that involved institutional, academic, and professional stakeholders<sup>(6)</sup>. However, the country still lacks a unified regulatory document that officially delineates professional competencies, as is the case in Spain with the Libro Blanco or in Canada with its professional standards<sup>(7,8)</sup>, which reveals the absence of national standardization.

The scope of practice of dietitian nutritionists is expansive and crucial within the field of public health, encompassing the assessment and diagnosis of the nutritional status of individuals and population

groups, the design of dietary plans, and interventions in the field of sports, food security, research, and food and nutrition education<sup>(6,9)</sup>. However, this landscape requires the continuous updating of job profiles to respond to issues such as the double burden of malnutrition (undernutrition and obesity), food insecurity, and dietary transition in the Colombian population. The National Survey of Nutritional Status (ENSIN 2015) indicates a prevalence of 17.7% of chronic malnutrition among children under 5 years of age, and a rate of excess weight of 56.5% among adults<sup>(10)</sup>.

Therefore, it is essential to examine how dietitian nutritionists integrate into the labor market, within a context shaped by technological, social, and epidemiological transformations. Law 1164 of 2007 establishes the necessity of monitoring professional practice to ensure the quality of care, oversight, and performance control<sup>(11)</sup>. The Labor Observatory for Education indicates that the field of Nutrition and Dietetics is not among the professions with the highest employment demand<sup>(12)</sup>. Nevertheless, a local study reports a low unemployment rate (5%) among graduates, indicating a favorable level of workforce integration<sup>(13)</sup>.

On an international level, studies have demonstrated the necessity of updating nutrition curricula to align them with key competencies that strengthen employability. Similarly, the incorporation of diverse practical experiences and the sustained faculty mentorship have been recognized as fundamental factors in facilitating the workforce integration of graduates<sup>(14,15)</sup>.

In Latin America, research conducted in Chile<sup>(16)</sup> and México<sup>(17)</sup> has identified comparable challenges in aligning job profiles with labor market needs, underscoring the importance of adopting a competency-based approach that effectively responds to the demands of the professional environment.

In Colombia, no studies have been identified that characterize the specific labor market of dietitian nutritionists at either the regional or national levels, which represents a significant knowledge gap. This absence limits the capacity of higher education institutions to adjust their academic programs and compromises the future employability of professionals.

In this regard, analyzing the integration of professionals into the labor market enables the orientation of curricular planning in academic programs, aiming to enhance their relevance and expand opportunities for workforce integration. This study is intended to contribute to closing that empirical gap.

The purpose of this work is to characterize the labor and occupational market of dietitian nutritionists in Valle del Cauca, Colombia, making it the first regional study of its kind that will serve as a reference for further research in the field.

## MATERIALS AND METHODS

This research adopted a quantitative, analytical, and cross-sectional approach. Data collection was conducted from November 2020 to January 2021 using a structured questionnaire in *Google Forms*, distributed digitally by email and instant messaging. A total of 145 dietitian nutritionists residing in the department of Valle del Cauca participated in the survey.

The questionnaire was constructed by adapting and combining two previous surveys, supplemented by the guidelines established in the Profile of the Dietitian Nutritionist in Colombia<sup>(6,18,19)</sup>. This integration allowed alignment of the instrument with the study's objectives and ensured the relevance of its analytical dimensions. The survey included questions related to employability, areas of professional practice, job satisfaction, income, academic training, and career trajectory.

The questionnaire was self-administered and consisted of 39 questions, organized into four sections: personal information, academic training, job profile, and professional trajectory. The collected variables included sociodemographic data (age, sex, socioeconomic status, place of residence), academic background (institution of graduation, postgraduate studies, proficiency in a second language), employment-related factors (type of contract, work modality, number of jobs, employment sector, participation in research), and salary information.

The variables were grouped into analytical categories for descriptive and inferential purposes. Socioeconomic status was classified as low (strata

1 and 2), middle (strata 3 and 4), and high (strata 5 and 6). Age was organized into decade-based ranges ( $\leq 30$ , 31-40,  $> 40$  years), and years since graduation were grouped into  $\leq 5$ , 6-10, and  $> 10$  years. Postgraduate education was categorized into levels (specialization, master's, doctorate, and none), and areas of professional practice were classified according to the most common fields of action for dietitian nutritionists in the Colombian context<sup>(6)</sup>. The following categories were included: clinical nutrition, public nutrition, nutrition and sports, teaching and research, marketing or medical representative, and food technology or food services. An open category labeled "other" was also considered to capture professional activities not covered by the previous classifications. Working hours were grouped into  $\leq 36$ , 37-48, and  $> 48$  hours per week. For geographic analysis, the subregions of Valle del Cauca were grouped by location: Cali, north, south, central, west, and east<sup>(20)</sup>. Specific questions were also incorporated to assess the impact of the COVID-19 pandemic on the working conditions of the participants.

Prior to its final implementation, the questionnaire was reviewed by three faculty members with research experience, and an informal pilot test was conducted with five undergraduates, which allowed for the evaluation of its clarity, relevance, and sequence. The insights gained from this pilot test were incorporated to optimize the final version of the instrument.

The participant selection procedure was carried out through non-probabilistic convenience sampling, supplemented by the snowball technique. This strategy was appropriate given the absence of an official registry of all active dietitian nutritionists in Valle del Cauca. The study aimed to generate an initial characterization of the labor market for dietitian nutritionists in Valle del Cauca.

For the construction of the sample, a universe of 132 contact records was used, provided by three institutional sources: the Colombian College of Dietitian Nutritionists (COLNUD), the Colombian Association of Dietitians and Nutritionists (ACODIN), and the Alumni Office of the Institución Universitaria Escuela Nacional del Deporte (END). These entities facilitated the initial access to a professional network of contacts located in the department of Valle del Cauca.

The selection of these databases was based on their availability, validity, and relevance, considering that, during the study period, the END was the only institution in Valle del Cauca awarding degrees in Nutrition and Dietetics.

As a result of this process, an effective sample of 145 participants was obtained, which represents a participation rate that exceeded 100% of the initial number of contacts due to the expansion achieved through the snowball technique.

This study was approved by the Ethics Committee of the Institución Universitaria Escuela Nacional del Deporte. Anonymity and confidentiality of the information were ensured through the assignment of unique codes and the omission of personal identifiers. Participation was voluntary, and each respondent signed an informed consent form, prepared in accordance with the principles of the Declaration of Helsinki on medical research involving human subjects<sup>(21)</sup>.

The data were organized in *Microsoft Excel* and subsequently analyzed using *IBM SPSS Statistics* software, version 15. Descriptive statistics (frequencies, percentages, means, and standard deviations) were utilized to characterize the variables. Furthermore, the Chi-square test<sup>(22)</sup> was applied with a 5% significance level to explore the associations among sociodemographic, academic, and employment variables and salary, which enabled the identification of statistically significant relationships between income level and variables such as type of contract, field of practice, participation in research, working hours, type of institution, and sex.

For this inferential analysis, a dichotomous dependent variable related to salary was generated:  $\leq 3$  statutory minimum monthly wages (SMMLV), including unemployed persons, and  $> 3$  SMMLV. This categorization allowed for the evaluation of significant associations with other variables from the questionnaire.

## RESULTS

145 nutritionists from Valle del Cauca participated in the survey. The mean age was  $32.5 \pm 10.02$  years, with a median of 30 years and a range of 21 to 61 years. Female respondents comprised 93% of the participants.

In terms of socioeconomic status, 66% of the participants belong to strata 5 and 6, while 12% belong to strata 1 and 2; the majority reside and work in Cali (78% and 74%, respectively), and the remainder were distributed across other subregions of Valle del Cauca. Regarding the year of graduation, 64% graduated between 2011 and 2020, with the IU Escuela Nacional del Deporte accounting for the most significant proportion of graduates (49%). Seventy percent of respondents had not pursued postgraduate studies (Table 1).

**Table I.**  
Sociodemographic aspects and academic information of dietitian nutritionists in Valle del Cauca, Colombia – 2021

	Variable	n = 145	%
Sex	Male	10	7
	Female	135	93
Socioeconomic status	Strata 1-2	18	12
	Strata 3-4	32	22
	Strata 5-6	95	66
Place of residence by subregions of Valle del Cauca	Cali	114	78
	North: Bolívar, la Unión, Cartago, Sevilla	6	4.5
	South: Yumbo, Palmira, Candelaria, Jamundí	12	8
	Central: Buga, Cerrito, Tuluá, Guacarí	9	6.5
	West: Buenaventura	3	2
	East: Sevilla	1	1
Place of employment by subregions of Valle del Cauca	Cali	109	74
	North: Bolívar, la Unión, Cartago, Roldanillo, Zarzal	7	5
	South: Yumbo, Palmira, Candelaria, Jamundí, Florida	17	12
	Central: Buga, Cerrito, Tuluá, Guacarí	7	5
	West: Buenaventura	4	3
	East: Sevilla, Caicedonia	1	1
Year of graduation in Nutrition and Dietetics	1970 to 1980	1	1
	1981 to 1990	7	4
	1991 to 2000	17	12
	2001 to 2010	27	19
	2011 to 2020	93	64
Institution awarding the degree in Nutrition and Dietetics	IU Escuela Nacional del Deporte	71	49
	University of Atlántico	22	15
	University of Atlántico	13	9
	National University of Colombia	11	8
	University of Antioquia	10	7
	Catholic University of Manizales	6	4
	Institution awarding Metropolitan University of Barranquilla	5	3
	UIS University	4	3
	University of Los Andes, Venezuela	1	0.6
	University of Pamplona	1	0.6
	University of Sinú	1	0.6
	Specialization	23	16
	Master's	18	12
	Doctorate	3	2
	None	101	70
Postgraduate field	Public nutrition	19	13
	Nutrition and sports	15	10
	Clinical health and nutrition	7	5
	Marketing/Communication	2	1
	Education	1	1
	None	101	70
Proficiency in a second language	English	50	34
	Other langauge	1	1
	None	94	65

The study revealed that 82% of the dietitian nutritionists surveyed in Valle del Cauca were employed, 14% were self-employed, and only 4% were unemployed. The primary areas of practice were clinical nutrition (41%) and public nutrition (34%). Regarding the type of contract, service provider contracts were the most prevalent (42%), followed by indefinite-term contracts (32%) and fixed-term contracts (17%), as shown in Table 2.

Variable		n = 145	%
Employment status	Employed	119	82
	Self-employed	21	14
	Unemployed	5	4
Areas of practice	Clinical and/or care nutrition	60	41
	Public nutrition	50	34
	Nutrition and sports	9	6
	Food technology/Food services	7	5
	Teaching	8	6
	Marketing/medical representative	6	4
	Not applicable	5	3
Type of contract	Service provider contract	61	42
	Indefinite-term contract	47	32
	Fixed-term contract	25	17
	Self-employed	7	5
Institution	Not applicable	5	3
	Private	87	60
	Public	45	31
	Self-employed	7	5
	Not applicable	5	3
Work modality	Hybrid (in-person and remote)	68	47
	In-person	42	29
	Remote, telework	30	21
	Not applicable	5	3
Weekly working hours	15-24 hours per week	29	20
	25-36 hours per week	10	7
	37-48 hours per week	73	50
	+ 48 hours per week	28	19
Number of jobs	Not applicable	5	3
	One job only	53	37
	More than one job	87	60
	Not applicable	5	3
Monthly income	Less than or equal to 1 SMMLV*	5	3
	Between 1 and 2 SMMLV	11	8
	Between 2 and 3 SMMLV	36	25
	Between 3 and 4 SMMLV	50	34
	Between 4 and 5 SMMLV	22	15
	More than 5 SMMLV	16	11
Participation in research	Not applicable	5	3
	Yes	20	14
Membership in professional associations	No	125	86
	Yes	125	21
	No	115	79

**Table 2.**  
Job profile of dietitian nutritionists in Valle del Cauca, Colombia – 2021

\***SMMLV:** The statutory minimum monthly wage established by Colombian law

On the other hand, professionals in the areas of Public Nutrition and Medical Representative or Marketing tend to earn the highest salaries, while those working in Food Services receive the lowest remuneration. The areas of Clinical Nutrition, Outpatient Care, and Nutrition and Sports are in the middle range, offering competitive salaries, although not reaching the highest levels observed in other specialties.

median age appeared to fall in the middle range, suggesting that those earning higher salaries tend to be of intermediate age, although there are some younger and older outliers. The relationship between age and salary does not appear to be particularly strong, as there is diversity in age across all salary levels, which may reflect variations in experience, seniority, or specialization within the field of nutrition and dietetics.

When comparing the age and salary earned by dietitian nutritionists, greater variability is observed in age, with most professionals concentrated in the 25 to 45 age group. In the "More than 5 SMMLV" range, which represents the highest salaries, the

Concerning the impact of the COVID-19 pandemic, 47% adopted a hybrid work modality, reflecting an adaptation to the health context. A total of 53.1% reported an increase in workload, 20.7% indicated a decrease in their income, and 26.2% experienced no changes.

Regarding the perception of job loss, 59.3% were not concerned about losing their employment; meanwhile, 26.2% reported being somewhat concerned, and 14.5% indicated being concerned or very concerned, especially among those who reported a decrease in income.

Based on the defined salary categorization ( $\leq 3$  SMMLV vs.  $> 3$  SMMLV), statistically significant associations were identified between income level and variables such as sex, area of practice, type of contract, type of institution, participation in research, and working hours.

Statistically significant associations were identified between salary and the following variables: sex ( $p = 0.049$ ), area of practice ( $p = 0.000$ ), type of contract ( $p = 0.044$ ), type of institution ( $p = 0.000$ ), participation in research ( $p = 0.004$ ), and number of weekly working hours ( $p = 0.000$ ). In contrast, no significant associations were found between salary and other variables such as socioeconomic status, university of graduation, level of postgraduate education, proficiency in a second language, or work modality (Table 3).

- Figure 1 shows that dietitian nutritionists working in areas such as clinical nutrition and public nutrition tend to report income levels above 3 SMMLV, compared to those working in food services or in other emerging areas, such as marketing or sports, where income levels are lower.
- Likewise, service provider contracts were associated with the highest income levels, in contrast to fixed-term contracts or self-employment, which showed greater variability in salary ranges.
- The institutional sector also has a significant influence, highlighting differences among professionals working in private, public, or independent practice institutions. Professionals linked to the private sector reported higher incomes in proportional terms, although internal variability was also high.
- In addition, the data suggest that an increased weekly workload correlates with higher remuneration, thereby confirming a direct relationship between the time allocated to work and the level of monthly income.

## DISCUSSION

The labor market for health professionals has evolved, generating new areas of practice and redefining traditional roles<sup>(23)</sup>. In this context, dietitian nutritionists face challenges and opportunities linked to the increasing diversification of their professional field<sup>(24)</sup>.

In line with this transformation, the integration of dietitian nutritionists into the labor market provides relevant insights into current employability conditions. The observed employment rate is favorable when compared to the national unemployment average (8.8%)<sup>(25)</sup>. This result suggests sustained demand in the health sector, in contrast to contexts such as Australia and New Zealand, where the integration is slower and more fragmented<sup>(26)</sup>. Nevertheless, the profession does not rank among those with the highest employability at the national level, according to reports from the Colombian Ministry of Education<sup>(27)</sup>.

Regarding the geographic distribution, a marked concentration was observed in urban areas, a phenomenon also documented in contexts such as Brazil, where the supply of professionals is concentrated in more developed regions, generating a care deficit in rural areas<sup>(24)</sup>. The trend toward the urbanization of health services has been described as a barrier to equitable access, particularly affecting rural zones<sup>(28)</sup>. In Colombia, while there are no targeted policies for decentralizing the employment of dietitians toward rural areas, strategies such as the Mandatory Social Service (SSO) and the National Rural Health Plan have enabled the placement of recent graduates in remote territories and expanded the use of telehealth, which may strengthen the sustainability and equity of the healthcare system<sup>(29,30)</sup>.

With respect to employment linkage, a predominance of the private sector was identified, a pattern that is characteristic of the Colombian context<sup>(13,31)</sup>. This reality differs from what has been reported in countries like Ecuador<sup>(32)</sup>, where employment in the public system is more prevalent.

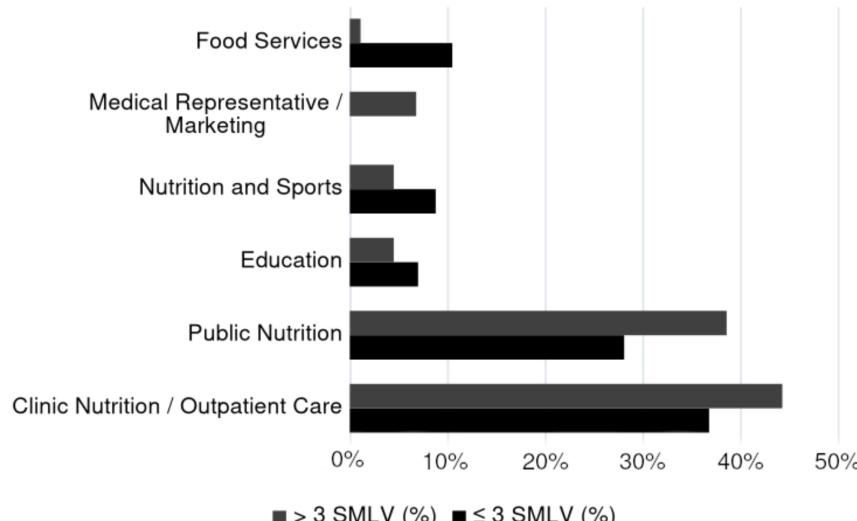
Moreover, clinical nutrition remains the cornerstone of professional integration<sup>(31,33,34)</sup>. However, there is evidence of an expansion into areas such as

Variable	Category	Salary				p-value*
		≤ 3 SMLV		> 3 SMLV		
		Count	%	Count	%	
Sex	Female	56	98.2	79	89.8	0.049
	Male	1	1.8	9	10.2	
Stratum	High	11	19.3	21	23.9	0.762
	Middle	38	66.7	57	64.8	
	Low	8	14.0	10	11.4	
University of graduation	IU Escuela Nacional del Deporte	32	56.1	39	44.3	0.071
	Catholic University of Manizales	2	3.5	4	4.5	
	University of Atlántico	8	14.0	14	15.9	
	University of Antioquia	1	1.8	9	10.2	
	University of Los Andes, Venezuela	0	0.0	1	1.1	
	University of Pamplona	0	0.0	1	1.1	
	University of Sinú	1	1.8	0	0.0	
	Javeriana University	3	5.3	10	11.4	
	Metropolitan University	5	8.8	0	0.0	
	National University of Colombia	4	7.0	7	8.0	
Postgraduate education	UIS University	1	1.8	3	3.4	0.172
	Doctorate	0	0.0	1	1.1	
	Doctoral student	0	0.0	2	2.3	
	Specialization student	5	8.8	2	2.3	
	Specialist	3	5.3	7	8.0	
	Master's student	2	3.5	14	15.9	
	Master's	3	5.3	8	6.8	
	None	44	77.2	56	63.6	
Second language	No	40	70.2	53	60.2	0.222
	Yes	17	29.8	35	39.8	
Area of practice	Clinical Nutrition / Outpatient Care	21	36.8	39	44.3	0.000
	Public Nutrition	16	28.1	34	38.6	
	Education	4	7.0	4	4.5	
	Nutrition and sports	5	8.8	4	4.5	
	Medical representative / Marketing	0	0.0	6	6.8	
	Food Services	6	10.5	1	1.1	
Type of contract	Unemployed	5	8.8	0	0.0	0.044
	Fixed-term contract	11	19.3	14	15.9	
	Indefinite-term contract	14	24.6	33	37.5	
	Service provider contract	24	42.1	37	42.0	
	Self-employed	3	5.3	4	4.5	
Type of institution	Unemployed	5	8.8	0	0.0	0.000
	Private	41	71.9	46	52.3	
	Public	8	14.0	39	44.3	
	Self-employed	3	5.3	3	3.4	
Work modality	Unemployed	5	8.8	0	0.0	0.110
	Hybrid	21	36.8	47	53.4	
	In-person	16	28.1	26	29.5	
	Telework	15	26.3	15	17.0	
Weekly working hours	Unemployed	5	8.8	0	0.0	0.000
	Less than 10 hours	5	8.8	1	1.1	
	15 to 24 hours	7	12.3	16	18.2	
	24 to 36 hours	9	15.8	1	1.1	
	40 to 48 hours	18	31.6	53	60.2	
	More than 48 hours	12	21.1	16	18.2	
Participation in research	Unemployed	6	10.5	1	1.1	0.004
	No	55	96.5	70	79.5	
	Yes	2	3.5	18	20.5	

**Table 3.**  
Analysis of the association between sociodemographic, academic, and work-related variables and the salary of nutritionists in Valle del Cauca, Colombia – 2021

\*Chi-square

**SMLV:** The statutory minimum monthly wage established by Colombian law



**Figure I.**  
Analysis of the association between area of practice and salary received by nutritionists in Valle del Cauca, Colombia – 2021

sports nutrition, marketing, and education, which is consistent with other findings<sup>(24)</sup>.

In the contractual sphere, service provider contracts predominate over indefinite-term contracts, a modality that is widely spread across the Colombian health sector<sup>(31)</sup>. This type of contract has been associated with lower satisfaction and greater job insecurity<sup>(35,36)</sup>. Such circumstances reflect a broader context of labor precariousness, characterized by unstable contractual frameworks, high turnover, limited access to social benefits, and increasing uncertainty about long-term employment stability<sup>(31)</sup>.

Similarly, the findings demonstrate that those working in public nutrition and medical representative roles receive higher salaries<sup>(13)</sup>. In addition, a positive relationship was identified between academic training and income levels. Although service provider contracts may offer better remuneration, this advantage does not offset the absence of stability or social protection<sup>(37)</sup>. In contrast, reports such as that of the U.S. Bureau of Labor Statistics show that professionals with postgraduate education have greater access to higher-paying positions that offer enhanced job stability<sup>(38)</sup>. Notably, no initiatives related to entrepreneurship or business creation were reported, indicating that professional integration mainly occurs through public or private institutions<sup>(39)</sup>.

The finding that 12% of nutritionists hold more than one job could be a factor to explore in further research, potentially related to the reported salary levels, since 76% indicated earning between 2 and 3 SMMLV. This suggests that economic factors may be driving the trend of moonlighting, a phenomenon also observed in other professional contexts within the health sector<sup>(40)</sup>.

Regarding continuing education, a low level was identified in comparison to specialized areas such as clinical nutrition. This may be due to variations in the demands of different areas of practice. Ongoing updating has been recognized as essential in health professions<sup>(41)</sup>. En este sentido, la revisión curricular en Colombia recomienda integrar las percepciones de egresados y empleadores, así como fortalecer la formación investigativa desde el pregrado<sup>(42)</sup>. De manera concordante, una encuesta aplicada a egresados nutricionistas reveló que estos perciben la necesidad de continuar su formación a nivel de maestría o doctorado para acceder a mejores oportunidades profesionales, ya que el pregrado no siempre proporciona las competencias requeridas<sup>(43)</sup>.

Concerning work modality, no significant association with salary was found. However, international evidence suggests that telework may have a negative impact on physical and mental health, as well as on work engagement, with in-person work reporting better outcomes<sup>(44)</sup>.

The COVID-19 pandemic accelerated the adoption of Information and Communication Technologies (ICTs), although in many cases

their implementation was improvised and without adequate pedagogical training<sup>(45)</sup>. Despite their potential benefits, the effective use of ICTs requires digital competencies that are still being solidified within the health sciences<sup>(46)</sup>.

Finally, the professional identity of dietitian nutritionists is shaped by their working conditions, areas of practice, and academic socialization processes. The predominance of positions in the private sector, along with a strong emphasis on clinical practice, contributes to shaping this professional identity<sup>(31,33)</sup>. Nevertheless, professional intrusion remains a challenge that affects the quality of service and the societal recognition of the profession, as revealed by the studies of Torrellas *et al*<sup>(47)</sup> and Rodríguez<sup>(48)</sup>.

### **Recommendations and limitations of the study**

The results should be interpreted considering the context of the COVID-19 pandemic, as its exceptional conditions may have influenced labor dynamics, hiring mechanisms, and participants' perceptions. Likewise, the use of non-probabilistic convenience sampling, based on institutional databases, primarily from the Escuela Nacional del Deporte, limited the diversity of the sample. This limitation manifested in the high participation of recent graduates and residents of Cali, affecting representativeness and restricting the generalization of the findings, which should be regarded as exploratory in nature.

It is recommended to strengthen inter-institutional agreements that enable access to more extensive and diverse databases, facilitating greater regional coverage and more balanced participation in further research. It is also suggested to include the analysis of variables such as entrepreneurship generation and the level of professional satisfaction to allow for a more in-depth characterization of career trajectories and the factors associated with the quality of professional practice in nutrition and dietetics.

## **CONCLUSIONS**

A high rate of labor integration was identified, with evidence suggesting concentration in the private sector, urban areas, and clinical practice. However, there is also evidence of a progressive diversification of professional practice, extending into emerging areas such as sports nutrition, marketing, and education. Conversely, the prevalence of service provider contracts may indicate unstable employment conditions. Similarly, the low proportion of postgraduate education may reflect limited opportunities for professional development.

The context generated by the COVID-19 pandemic may have influenced work modalities, thereby introducing new labor dynamics that should be considered in future studies.

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