ORIGINAL ARTICLE

Characteristics of the profile of medical and health sciences researchers belonging to the Carlos Monge Medrano group, qualified by Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica, Peru, 2022

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ABSTRACT

Objective: To determine the profile of medical and health sciences researchers belonging to the Carlos Monge Medrano group, qualified by Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica (CONCYTEC - National Council of Science, Technology and Technological Innovation) and registered in Registro Nacional Científico, Tecnológico y de Innovación Tecnológica (RENACYT - National Scientific, Technological and Technological Innovation Registry) in 2022.
Materials and methods: A quantitative, descriptive and cross-sectional study. The *CTI Vitae - Hojas de vida afines a la Ciencia y Tecnología* (CTI Vitae - Résumés related to Science and Technology) data sheets of 706 researchers registered in Renacyt were reviewed during September 2022. Demographic characteristics, academic background, career and scientific output were collected in a data collection sheet, which was used to create a database.
Results: Out of all researchers, 65.3 % were males, 80.0 % came from Peru, and 66.7 % were fluent in two or three languages, the most frequent being Spanish, English, Portuguese, French, Italian, German and Quechua. As for their academic background, the highest degree was a doctorate (71.2 %), the first reported program was not always strictly a health sciences program, 80.3 % pursued master's studies and 71.2 % pursued doctoral studies. In addition, 75.5 % indicated a university as their primary affiliation. Regarding their career, 38.2 % had more than 20 years of work experience, 84 % served as educator, 51.7 % had experience as research project evaluator or developer and 74.8 % received an award or distinction during their career. Moreover, 133 researchers had an h-index between 4 and 6. Furthermore, 94.5 % (667 researchers) drafted scientific papers, out of whom 41.4 % were the lead author in one to five articles and 65.9 % served as undergraduate and graduate thesis advisor.
Conclusions: Medical and health sciences researchers are mostly males, are fluent in at least two languages including English, have a doctorate degree and have scientific output. Universities are the most frequent institution of affiliation reported by researchers.

Keywords: Health Sciences; Workforce; Scientific Research and Technological Development; Research Promotion (Source: MeSH NLM).

INTRODUCTION

Research is essential for the economic growth and development of countries since it determines their level of competitiveness and enables them to strategically address current problems and anticipate future needs, thereby promoting social integration [1,2]. The creation of knowledge through research should culminate in the dissemination of results, achieved through the publication of scientific articles.

The entity that governs Sistema Nacional de Ciencia, Tecnología e Innovación Tecnológica (SINACYT – National System of Science, Technology and Technological Innovation) in Peru is Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica (CONCYTEC – National Council of Science, Technology and Technological Innovation), which has the responsibility for leading, promoting, coordinating, supervising and evaluating the state's actions in the field of science, technology and technological innovation.

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Concytec contributes to promote and encourage research through various initiatives involving public, academic and entrepreneurial institutions and social organizations, among others [3-7].

The National Policy for the Development of Science, Technology and Technological Innovation addresses Sinacyt problems considering results, incentives, human capital, infrastructure, conditions of the system and institutionality and governance. Based on this analysis, they propose strategic objectives and guidelines such as the promotion of generating and sharing of knowledge (in accordance with the country's needs), inclusion of incentives, promotion of highly qualified human capital with professional training opportunities in science, technology and innovation (CTI - ciencia, tecnología e innovación), improvement of the quality of research centers through infrastructure, equipment, human resources and operational capabilities, among other aspects. These long-term improvements are expected to be reflected on the increase of scientific output in the country [8].

Concytec is the only Peruvian institution that can accredit the quality of research and recognize professionals for their career in the publication of research articles, books, patents, and thesis advising, among others [9]. For this purpose, they have created platforms to register *CTI Vitae – Hojas de vida afines a la Ciencia y Tecnología* (*CTI Vitae* – Résumés related to Science and Technology) data sheets and to search for researchers.

In 2015, Concytec created Registro Nacional de Investigadores en Ciencia y Tecnología (REGINA – National Registry of Science and Technology Researchers), which included professionals who, according to a qualification process, were recognized by their skills to carry out scientific or technological development tasks. In 2019, Regina was replaced by Registro Nacional Científico, Tecnológico y de Innovación Tecnológica (RENACYT – National Scientific, Technological and Technological Innovation Registry), which classified researchers into groups and levels. Thus, they were distributed in the "María Rostworowski" and "Carlos Monge Medrano" groups based on evaluation criteria, including academic degrees, participation in creating scientific or technological knowledge, development of research projects and human resource training [10,11]. Under this classification, the Carlos Monge Medrano group is different from the María Rostworowski group in that it reunites researchers who have a high academic degree (doctorate) with a majority of time spent on research and a minimum of three scientific articles in indexed journals recognized by the Dirección de Evaluación y Gestión del Conocimiento (DEGC – Knowledge Evaluation and Management Bureau) of Concytec in the past seven years, publications of books or a chapter of books of their major recognized by the DEGC and registered in Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (INDECOPI – National Institute for the Defense of Competition and the Protection of Intellectual Property) or Scopus, having participated at least in one research project as a principal investigator (including their doctoral or postdoctoral project), being a research group leader or head of a CTI research laboratory) or having advised defended theses, including graduate theses [12].

This qualification as a researcher registered in Renacyt confers rights and duties. Researchers have the right to participate in calls for state subsidies, to have access to own programs supporting research, development and innovation (R+D+i), to have specific resources available for research from competitive government funding, to have time to spend on research, to lead research lines or groups, laboratories, research centers or the like, to cooperate with other researchers or research groups and to be considered as an educator-researcher at a university. They have the duty to adopt good practices and comply with the provisions set forth by Concytec, to inform about research activities to maintain their active status and to improve and update their knowledge and skills for intellectual creative work, to maintain scientific and technological output, to contribute to the formation or training of Sinacyt human resources, to participate in scientific events, to update databases, to undergo periodic verifications and to comply with the submittal of economic reports concerning the subsidies obtained from any national entity for the promotion of R+D+i [12].

On the other hand, the Directorio Nacional de Investigadores e Innovadores (DINA – National Directory of Researchers and Innovators) platform, which was a directory of people related to science and technology, was also replaced by *CTI Vitae*, which enhances the initial concept since, in some cases, it has verification mechanisms [13].

Despite various efforts, there are limitations to consolidate research promotion and, even more so, to reach the required quota of high-quality researchers with high scientific output. In fact, *Plan Bicentenario: el Perú hacia el 2021* (Bicentennial Plan: Peru towards 2021) had already stated that it was important to reduce the gap in the number of health science researchers having a doctorate degree required by 2021, according to Centro Nacional de Planeamiento Estratégico (National Center for Strategic Planning) [14,15].

Based on the foregoing, it is pertinent to analyze Sinacyt human resources and to know the current status of health sciences researchers in the country. This will allow closing gaps in care and meet the needs in the sector. Due to the constant amendments to Renacyt regulations, it was decided to define the characteristics of the Carlos Monge

Medrano group—which focuses on research in medical and health sciences—as it represents the highest classification in science and technology.

The objective of this study is to determine the profile of medical science and health sciences researchers belonging to the Monge Medrano group, qualified by Concytec and registered in Renacyt in 2022.

MATERIALS AND METHODS

Study design and population

It is a quantitative, descriptive and cross-sectional study. It comprised the review of self-referenced résumés. The analysis unit was made up of medical and health sciences researchers qualified by Concytec as members of the Carlos Monge Medrano group and registered in Renacyt.

The study population consisted of the 706 medical and health sciences researchers belonging to the Monge Medrano group, registered in Renacyt in September 2022. The available information on all the researchers was analyzed; therefore, a sample was not required.

Variables and measurements

A search through Renacyt website was conducted to get a list of qualified researchers belonging to the Carlos Monge Medrano group in the medical and health science field. Subsequently, the review of the 706 *CTI Vitae* data sheets was performed.

The *CTI Vitae* data sheet is a self-report including data such as a brief personal description, personal data, academic data, mastery of languages and scientific output, among others [16].

The profile of the researchers included demographic characteristics, academic background, career and scientific output. Demographic variables included sex, country of origin and mastery of languages. The academic background variables were related to undergraduate and graduate studies, the highest academic degree obtained and educational institution where the studies were completed. The career variables included institutional affiliation, work experience as an educator and as a project developer/evaluator, and awards. The scientific output variables included the level granted by Concytec, h-index (taken from Scopus platform) [17], scientific output in terms of articles, thesis advising and participation in research projects.

A data collection instrument was used to collect résumés.

Data review and collection took nine weeks, followed by another three weeks to perform data quality control.

Statistical analysis

The collected data were used to create a Microsoft Office Excel 2019 database. Descriptive statistics were applied for processing and interpreting the data.

Ethical considerations

The study protocol was approved by the Institutional Research Ethics Committee of Instituto de Medicina Tropical "Daniel A. Carrión" ("Daniel A. Carrión" Institute of Tropical Medicine) of the School of Medicine at Universidad Nacional Mayor de San Marcos (UNMSM).

It should be emphasized that the information collected by this study was taken from the self-referenced résumés of the medical and health sciences researchers whose publications are on the *CTI Vitae* platform.

Since a secondary source of information was used and the data are publicly available, informed consents forms were not used.

RESULTS

The *CTI Vitae* data sheets of 706 medical and health sciences researchers belonging to the Carlos Monge Medrano group were reviewed.

Concerning demographic characteristics, males accounted for 65.3 % and females for 34.7 % of the researchers. As for the country of origin, 80.0 % were Peruvian, and other countries identified—to a lesser extent—were Spain, the United States, Cuba, the United Kingdom, Brazil, Korea, New Zealand, Colombia, Venezuela, Rumania, India and France (Table 1).

As for the number of mastered languages, 38.1 % of the researchers answered three languages and 28.6 % two languages. The most frequently languages mastered by the researchers were identified, with Spanish and English occupying the top positions.

Table 1. Demographic characteristics of medical and health sciences researchers belonging to the Carlos Monge Medrano group, 2022

Variable	*n*	%
Sex		
Female	245	34.70
Male	461	65.30
Country of origin		
Peru	565	80.03
Other country	20	2.83
Not specified	121	17.14
Number of mastered languages		
1 language	48	6.80
2 languages	202	28.61
3 languages	269	38.10
4 languages	93	13.17
5 languages	23	3.26
6 languages	5	0.71
7 languages	1	0.14
Not specified	65	9.21
Most frequently mastered languages		
Spanish	528	74.79
English	634	89.80
Italian	74	10.48
Portuguese	300	42.49
French	129	18.27
Quechua	32	4.53
German	39	4.96
Other	35	5.52

Source: Study database from the *CTI Vitae* data sheet review.

Regarding the results of the characteristics of academic background (Table 2), as to the highest academic degree, 71.2 % had a doctorate degree, 16.4 % a master's degree and 7.8 % a bachelor's degree. A total of 20.3 % reported having a second degree and 79.7 % did not specify. In relation to the primary profession, the most common were Human Medicine (26.9 %), Dentistry and Stomatology (7.2 %), Pharmacy and Biochemistry (3.7 %), Nursing (3.0 %), Obstetrics (2.0 %), Psychology (2.5 %), Nutrition and Bromatology (3.7 %), and Medical Technology (1.1 %). Other majors that were mentioned but not directly related to health included Biology Sciences, Engineering, Education and Biotechnology, among others. Concerning the type of institution where they studied their primary profession, 58.1 % studied at a public Peruvian university, 28.3 % at a private Peruvian university, 3.5 % at a public foreign university and 12.0 % at a private foreign university. A total 80.3 % of the researchers pursued master's studies: 34.7 % at a public Peruvian university, 31.0 % at a private Peruvian university, 28.0 % a public foreign university and 5.5 % a private foreign university. The most frequent countries where the researchers pursued master's studies were Peru (65.1 %), Brazil (10.6 %), the United States (6.7 %) and Spain (5.8 %). In addition, 12.2 % reported that they had more than one master's degree.

A total of 71.2 % of the researchers stated that they had pursued doctoral studies, while 28.8 % did not provide this information. Furthermore, 32.6 % pursued such studies at a public Peruvian university, 18.3 % at a private Peruvian university, 41.7 % at a public foreign university and 7.0 % at a private foreign university. The most frequent countries where the researchers pursued doctoral studies were Peru (49.7 %), Brazil (15.1 %), the United States (10.7 %) and Spain (9.5 %). France, the United Kingdom and Japan were also mentioned, but in lesser extent. Furthermore, 8.3 % stated that they had more than one doctorate degree.

Table 2. Characteristics of the academic background of the medical and health sciences researchers belonging to the Carlos Monge Medrano group, 2022

Variable	*n*	%
Highest academic degree obtained		
Bachelor's degree	55	7.79
Master's degree	116	16.43
Doctor's degree	503	71.25
Not specified	32	4.53
Second degree		
Yes	143	20.25
Not specified	563	79.75
Primary profession		
Human Medicine	190	26.91
Nursing	21	2.97
Nutrition and Bromatology	8	1.13
Obstetrics	14	1.98
Medical Technology	8	1.13
Pharmacy and Biochemistry	26	3.68
Dentistry-Stomatology	51	7.22
Psychology	18	2.55
Veterinary Medicine	43	6.09
Biological Sciences	136	19.26
Engineering	21	2.97
Other	117	16.57
Not specified	53	7.51
Master's studies		
Yes	567	80.31
Not specified	139	19.69
Doctoral studies		
Yes	503	71.25
Not specified	203	28.75

Source: Study database from the *CTI Vitae* data sheet review.

Table 3 presents the characteristics of the professional activity of the researchers. A summary of the results is included below.

Regarding the type of main institution as their primary affiliation, 75.5 % of the researchers stated that their primary affiliation was a university, 7.4 % other state institution and 4.0 % a healthcare institution (HI). A total of 45.9 % reported having a secondary and 23.2 % even a tertiary affiliation.

As to their work experience, 38.2 % reported having more than 20 years of overall work experience, 22.0 % between 11 and 15 years, and 18.7 % between 16 and 20 years. Also, 32.0 % stated having worked for an institution abroad.

Concerning their teaching experience, 84.0 % of the researchers had work experience as an educator. Out of them, 70.0 % had 10 years of experience or more, and 12.1 % had between 7 and 9 years of experience. Also, 22.8 % (135 researchers) had teaching experience abroad.

As for the experience as a research project evaluator/developer, 51.7 % reported having such experience. Out of this group, 39.2 % participated in 1 or 2 projects, followed by 20.3 % in 3 or 4 projects, and 13.7 %, in 5 and 6 projects.

A total of 74.8 % of the researchers stated that they had received awards or distinctions. Out of this group, 60.0 % received an international award or distinction. The types of reported awards or distinctions included awards (59.8 %), distinctions (18.8 %), graduate study fellowships (22.5 %) and internship scholarships (20.3 %).

Table 3. Characteristics of the professional activity of medical and health sciences researcher belonging to the Carlos Monge Medrano group, 2022

Variable	*n*	%
Type of main institution as their primary affiliation		
HI	28	3.97
University	533	75.50
Other governmental institution	52	7.37
Non-profit organization	6	0.85
Business organization	1	0.14
Scientific institution	21	2.97
Private practice	5	0.71
Other	8	1.13
Not specified	52	7.37
Work experience abroad		
Yes	226	32.01
Not specified	480	67.99
Work experience as an educator		
Yes	593	83.99
Not specified	113	16.01
Experience as research project evaluator/developer		
Yes	365	51.70
Not specified	341	48.30
Awards or distinctions during their career		
Yes	528	74.79
Not specified	178	25.21

Source: Study database from the *CTI Vitae* sheet review.

Table 4 shows the characteristics of scientific output; the data are presented below.

Regarding the level at Renacyt, level III researchers (45.9 %) are more frequent. Among the most outstanding facts about the h-index, researchers achieved scores ranging from 4 to 6 (18.8 %), 7 to 9 (16.6 %) and 19 or higher (9.9 %); however, this information was not specified in 19.4 % of the researchers (Figure 1). In the group of 569 researchers with an h-index, a mean of 10.31 was found.

As to scientific papers, 94.5 % (667 cases) reported having drafted scientific papers, and out of this group, 31.3 % had 41 articles or more and 12.9 % between 16 to 20 in their career. In the past 5 years, 23.8 % (159 researchers) had 1 to 5 articles, 21.1 % between 6 and 10, and 21.0 % 26 or more. As to the articles as the lead author, 41.4 % had between 1 and 5, 21.4 % between 6 and 10, and 15.1 % did not have any publications as the lead author.

Concerning other scientific output, 87.1 % (615 cases) was reported, among which abstracts or conference papers (59.2 %), articles in scientific journals (75.9 %) and conference posters (48.8 %) were mentioned, among others.

Research projects included 80.3 % (567 researchers): 35.6 % in 1 to 5 projects and 56.1 % in 1 to 5 projects as principal investigators.

In the research and development areas proposed by the Organization for Economic Co-operation and Development (OECD) (18,19), 98.3 % of the researchers identified themselves as medical and health sciences researchers. The specific research fields comprised basic medicine (17.4 %), clinical medicine (22.3 %) and health sciences (48.7 %), among others.

A total of 65.9 % (465 cases) of the researchers reported having

served as thesis advisors. Out of this group, 41.3 % reported advising 11 theses or more, and 65.6 % (305 researchers) reported advising graduate theses. Within the group with experience in graduate thesis advising, 41.6 % reported advising 1 to 2 master's degree theses, 22.3 % 1 to 2 doctoral theses, and 8.2 %, 1 to 2 second-degree theses.

Table 4. Characteristics of scientific output of medical and health sciences researchers belonging to the Carlos Monge Medrano group, 2022

Variable	*n*	%
Level assigned by Renacyt		
Level I	77	10.91
Level II	146	20.68
Level III	324	45.89
Level IV	159	22.52
h-Index		
1 to 3	101	14.31
4 to 6	133	18.84
7 to 9	117	16.57
10 to 12	77	10.91
13 to 15	39	5.52
16 to 18	32	4.53
19 or higher	70	9.92
Not specified	137	19.41
Scientific papers		
Yes	667	94.48
Not specified	39	5.52
Number of research papers published during their career		
1 to 5	37	5.55
6 to 10	81	12.14
11 to 15	75	11.24
16 to 20	86	12.89
21 to 25	53	7.95
26 to 30	47	7.05
31 to 35	40	6.00
36 to 40	32	4.80
41 or higher	209	31.33
Not specified	7	1.05
Other scientific output		
Yes	615	87.11
Not specified	91	12.89
Type of other scientific output		
Conference abstract or paper	364	59.19
Scientific journal article	467	75.93
Book	212	34.47
Chapter of a book	183	29.76
Copyright	3	0.49
Patent	4	0.65

Variable	*n*	%
Conference poster	300	48.75
Bulletin article	31	5.04
Dissertation	23	3.74
Research projects		
Yes	567	80.31
Not specified	139	19.69
Number of research projects in which they have participated		
1 to 5	202	35.63
6 to 10	165	29.10
11 to 15	96	16.93
16 to 20	50	8.82
21 or more	54	9.52
Not specified	0	0.00
Number of research projects in which they have participated as principal investigators		
No report of being principal investigator	65	11.46
1 to 5	318	56.08
6 to 10	125	22.05
11 to 15	36	6.35
16 to 20	11	1.94
21 or more	12	2.12
Not specified	0	0.00
Field of research and development - OECD		
Medical and health sciences	694	98.30
Not specified	12	1.70
Medical and health science field		
Basic medicine	121	17.44
Clinical medicine	155	22.33
Health sciences	338	48.70
Medical biotechnology	64	9.22
Other medical sciences	13	1.87
Not specified	3	0.43
Thesis advising		
Yes	465	65.86
Not specified	241	34.14
Graduate thesis advising		
Yes	305	65.59
Not specified	160	34.41

Source: Study database from the *CTI Vitae* sheet review.

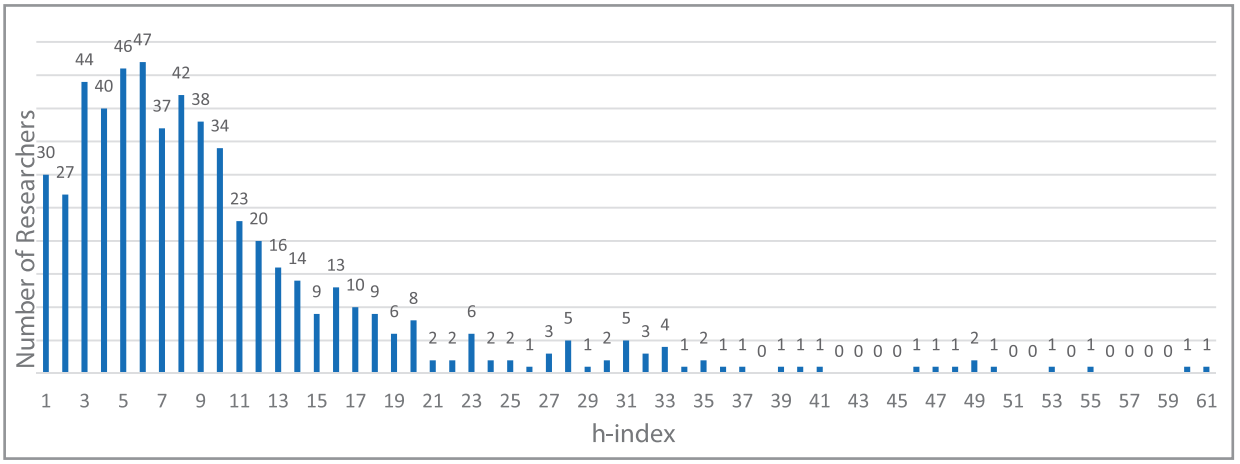

Figure 1. h-index among medical and health sciences, the Carlos Monge Medrano group, 2022
Source: Study database from the *CTI Vitae* sheet review.

DISCUSSION

Scientific output by medical and health sciences researchers belonging to the Carlos Monge Medrano group shows an uneven distribution in terms of level. The highest percentage of researchers was classified at level III (45.9 %), followed by level IV (22.5 %), level II (20.7 %) and level I (10.9 %). This indicates that most of the researchers are at the intermediate and upper levels of the classification which may be related to their career path and scientific output experience.

As to the h-index, which measures the productivity and impact of a researcher, 18.8 % has an index ranging between 4 and 6, 16.6 % between 7 and 9, and 14.3 % between 1 and 3. Therefore, a significant proportion of researchers exhibits a moderate level of productivity and impact of their scientific publications; half of the researchers have an index less than or equal to 9. The h-index is a scienciometric indicator that links the number of scientific papers of a researcher to the number of times it has been cited. Despite its limitations, it is still widely used to evaluate scientific output [20,21].

The average h-index in this study was 10.31. Alhuay-Quispe et al. reviewed 170 public profiles of Peruvian researchers affiliated with UNMSM and found that 70.0 % had an h-index under 5, 21.8 % between 5 and 10, and 8.2 % over 10 [22]. On the other hand, Mejía et al. reported nearly no scientific publications among Peruvian specialist physicians since out of a sample of 2,108, 85.9 % and 96.2 % have never published in scientific journals that can be found by Google Scholar or are indexed in Scopus, respectively. Additionally, their scientific journals output (in Scopus) reached an h-index of 2, with a maximum value of 13 [23]. Therefore, the h-index of this study exceeds that of the aforementioned studies.

Regarding scientific output, 94.5 % reported having drafted scientific papers. Among this group, 31.3 % had authored 41 articles or more, indicating a high output in terms of the number of articles. In the past five years, 23.8 % of the researchers published between 1 and 5 articles, 21.1 % between 6 and 10, and 21.0 % 26 or more. These data exhibit a varied distribution, suggesting that some researchers have been more active in recent publications than others.

As for the participation in research projects, the reported figure was 80.3 %. Out of this group, 35.6 % participated in 1 to 5 projects, 29.1 %, in 6 to 10, and 16.9 % in 11 to 15. This demonstrates an active participation in research projects, which is an important indicator of the researcher contribution to advancing of scientific knowledge.

Concerning sex, males are the largest group (65.3 %) compared to females (34.7 %). This gender inequality has also been identified in other studies, and reflects the gender gap in science. For example, the research study by Gómez Briceño, in 2020, found that the group of male medical researchers belonging to Renacyt (80 %) was four times the number of the female researchers (20 %) [24]. Nevertheless, in the last few years, initiatives have been worked on to reduce this gap and to promote the recognition and leadership of female researchers, such as the Por las Mujeres en la Ciencia (For Women in Science) National Award, promoted by L'Oréal in partnership with the United Nations Educational, Scientific and Cultural Organization (Unesco) with the collaboration of ProCiencia, Concytec and Academia Nacional de Ciencias (Peruvian National Academy of Sciences) [25, 26].

More than 60 % of the researchers stated that they knew two or three languages, which may be related to the graduate school requirements that include fluency in one or more additional languages for academic degrees. A total of 89.8 % of the researchers stated that they were fluent in English since it is the most used language in scientific literature and international conferences and congresses, surpassing French and Spanish [27]. Another noteworthy foreign language is Portuguese (42.5 %) since Brazil is one of the seven countries with initiatives in open science for scientific publications and has made significant progress in research innovation and participatory research [28].

There is a high percentage of researchers who obtained a doctorate degree (71.2 %). This may be related to the requirements established by Renacyt to assign groups and levels, which are based on the career path and scientific output of researchers. The doctorate degree is widely known as an indicator of advanced academic background and commitment to research, which, in turn, promotes the development of science and the generation of knowledge in the health field [29]. However, despite the high number of researchers with a doctorate degree, the study conducted by Herrera-Añazco and Alhuay-Quispe revealed that only one of every four individuals holding a PhD degree in Medical and Health Sciences is considered as a researcher qualified by Renacyt or has published scientific papers [30]. This suggests a missed opportunity to fully capitalize on the potential of highly qualified human resources that contribute directly to generate scientific knowledge. It is essential to promote their active participation in research activities and ensure adequate conditions to develop their scientific work.

As to the professions of health sciences researchers, Human Medicine and Dentistry-Stomatology are the most common. Nevertheless, there is also an increase in interdisciplinary research, which integrates different disciplines to comprehensively address research problems within the health field [31]. This trend reflects the need for multidisciplinary and collaborative approaches to face the complex health challenges, a fact that requires the participation of professionals with different areas of experience.

Concerning academic background, it is interesting that other countries such as Brazil, the United States and Spain have been usual destinations for Peruvian medical and health researchers pursuing master's and doctoral studies. This would demonstrate a search for training opportunities in internationally renowned academic environments with a solid tradition in health research. In addition, Brazil stands out as the country with the highest scientific output in health sciences in Latin America, which may indicate strong support for science and research in this country [32].

Universities are the main affiliation institutions of researchers, as it was expected, considering that universities play a fundamental role in teaching, university extension and scientific development. University education is essential for generating knowledge through research, and contributes to the development of a country in economic and social terms. Therefore, it is crucial that universities have the support and resources required to foster a culture of research and provide science researchers with training and development opportunities [33, 34].

It should be mentioned that the study has limitations, such as the fact that the information is based on self-referenced data and only public information available from Renacyt was collected. In addition, the classification criteria have changed in the last few years. However, Peru is implementing initiatives to promote research development, e.g., Law 30948 for the Promotion of Scientific Researcher Development, which recognizes the work of researchers and fosters the development of research in the country [35], and Supreme Decree No. 026-2022-EF, which determines amounts, criteria and conditions of special bonus for educators-researchers. In this regard, monthly amounts of the bonus in the framework of Law No. 30220 (University Law) according to the category of regular professor (full-time senior, full-time associate and full-time assistant). The law provides that such amounts are not remunerative, compensatory or pensionable, and determines that they should be delivered over eight months, between May and December 2022. More recently, in June 2023, the regulations of Law 30948 were published, establishing the conditions, reclassification and promotion of scientific researchers, call, assessment, selection and supervision, and describing the assignment to the "contract" and "subsidy" modalities, as well as the corresponding bonuses and incentives [36,37].

In conclusion, the country requires more medical and health sciences researchers registered in Renacyt, whose scientific and technological output allows for improving public health, contributing to close healthcare gaps, better understanding the dynamics of health systems and providing relevant information for decision-making in such field. This is a future possibility since there is a favorable environment for developing research in Peru, where current regulations recognize the work of researchers and establish conditions to further promote their development.

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