

**Review of Literature on the migration of dentists. Its implications for Latin America and the Caribbean.**

**Revisión de Literatura sobre la migración de odontólogos. Sus implicancias para Latinoamérica y el Caribe.**

**Revisão de Literatura sobre migração de dentistas. Suas implicações para a América Latina e o Caribe.**

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**Abstract:**

The international migration of dentists is a growing but little studied phenomenon. Objective: Recognize the approach in scientific literature to the phenomenon of migration of dentists in different regions of the world. Method: An exploratory systematic review was carried out in

PubMed, Medline, Scopus, Lilacs and Web of Science databases in Spanish and English. Objectives, methodologies, problems, themes, main findings and discussions were analyzed. Results 25 selected studies used qualitative, quantitative and mixed approaches. They focused on North America, Europe, Oceania and Asia aimed at improving migration policies and adjusting demand-supply. The topics addressed were: migratory flow, demographic data, evaluation and qualification; aspects of the migratory experience; and political conditions of migration. South-North migration or between central countries was discussed, but not south-south migration, nor in Latin America. It is identified that the migration of dentists has repercussions on health systems, equity of care; weaknesses in regulation, information systems and evaluation and qualification of migrants; The reasons for migration can be personal, professional and sociopolitical; Working conditions, cultural adaptation, and migration experiences depend on the personal and professional migratory process and conditions. Conclusion: It is necessary to carry out research on south-south migration, improve information on migration in the countries of departure. Periphery countries must articulate their efforts with destination countries to better understand the phenomenon, not produce inequalities and guarantee a better flow and job satisfaction of migrant dentists.

**Key Words:** Scoping Review, Migrants, Dentist, work force

**Resumen:**

La migración internacional de odontólogos es un fenómeno en aumento, pero poco estudiado. Objetivo: Reconocer el abordaje en la literatura científica del fenómeno de migración de odontólogos en diferentes regiones del mundo. Método: Se realizó una revisión sistemática exploratoria en bases de datos de Pubmed, Medline, Scopus, Lilacs y Web of Science en español e inglés. Se analizaron objetivos, metodologías, problemas, temas, principales hallazgos y las discusiones. Resultados 25 estudios seleccionados utilizaron abordajes cualitativos, cuantitativos y mixtos. Se enfocaron en América del norte, Europa, Oceanía y Asia orientados a mejorar políticas migratorias, y ajustar demanda -

oferta. Los temas abordados fueron: flujo migratorio, datos demográficos, evaluación y cualificación; aspectos de la experiencia migratoria; y condiciones políticas de la migración. Se trató la migración sur-norte o entre países centrales, pero no la migración sur-sur, ni en Latinoamérica. Se identifica que la migración de odontólogos tiene repercusiones en los sistemas de salud, equidad de la atención; debilidades en la regulación, sistemas de información y evaluación y cualificación de los migrantes; los motivos de migración pueden ser personales, profesionales y sociopolíticos; las condiciones de trabajo, adaptación cultural y experiencias de la migración dependen del proceso y condiciones migratorias, personales y profesionales. Conclusión: Es necesario realizar investigaciones de la migración sur-sur, mejorar la información sobre la migración en los países de salida. Los países de la periferia deben articular sus esfuerzos con los países receptores para entender mejor el fenómeno, no producir inequidades y garantizar un mejor flujo y satisfacción laboral de los odontólogos migrantes.

Palabras clave: Revisión de alcance, Migrantes, Odontólogos, fuerza laboral

### **Resumo:**

A migração internacional de dentistas é um fenômeno crescente, mas pouco estudado.

Objetivo: Reconhecer a abordagem na literatura científica do fenômeno da migração de dentistas em diferentes regiões do mundo. Método: Foi realizada uma revisão sistemática exploratória nas bases de dados Pubmed, Medline, Scopus, Lilacs e Web of Science em espanhol e inglês. Foram analisados objetivos, metodologias, problemas, temas, principais achados e discussões. Resultados 25 estudos selecionados utilizaram abordagens qualitativas, quantitativas e mistas. Centraram-se na América do Norte, Europa, Oceânia e Ásia, com o objetivo de melhorar as políticas de migração e ajustar a procura-oferta. Os temas abordados foram: fluxo migratório, dados demográficos, avaliação e qualificação; aspectos da experiência migratória; e condições políticas da migração. A migração Sul-Norte ou entre países centrais foi discutida, mas não a migração Sul-Sul, nem na América Latina. Identifica-se que a migração de dentistas repercute nos sistemas de saúde, na

equidade do atendimento; fragilidades na regulação, nos sistemas de informação e na avaliação e qualificação dos migrantes; As razões da migração podem ser pessoais, profissionais e sociopolíticas; As condições de trabalho, a adaptação cultural e as experiências migratórias dependem do processo e das condições migratórias pessoais e profissionais. Conclusão É necessário realizar pesquisas sobre a migração sul-sul, melhorar a informação sobre a migração nos países de partida. Os países periféricos devem articular os seus esforços com os países receptores para melhor compreender o fenómeno, não produzir desigualdades e garantir um melhor fluxo e satisfação profissional dos dentistas migrantes.

**Palavras-chave:** Scoping review, Migrantes, Dentistas, força de trabalho

### **Introduction:**

Migratory processes have been a part of human history. Each historical moment has had unique characteristics in human mobility, with different dynamics, interests, consequences, and approaches. In this context, the migration of health workers has been an area of interest for both the countries of origin and destination countries <sup>(1)</sup>.

The migration of health professionals is part of what is known as skilled migration. This phenomenon involves factors that go beyond a mobility process where migrants, due to their professional status, are well received in the destination country and considered a loss (brain drain) in the country of origin. Multiple reasons contribute to this skilled labor migration, including a lack of professional and training opportunities, personal or family reasons, security concerns, the future of children, and economic factors <sup>(1,2)</sup>.

Currently, figures show that 25% of qualified health personnel in global north countries are migrants, with half coming from low- and middle-income countries. Australia is a representative case in dentistry, where one in four dentists is a migrant. This data calls for further research, especially on the consequences of this dynamic for global south countries, in light of a projected shortage of 18 million health personnel by 2030 according to the WHO

<sup>(1)</sup>.

The Systematic Exploratory Review, or Scoping Review, is a summary of scientific evidence on a topic. It is useful for generating hypotheses and lines of research and serves as a basis for technical reports <sup>(3)</sup>. *The Objective of this review* is to recognize how the migration of dentists is addressed in scientific literature worldwide, to identify patterns, trends, and challenges, especially in Latin America and the Caribbean. In this sense, the guiding question for this review is: how has the scientific literature addressed the phenomenon of dentist migration worldwide?

**Methodology:**

An exploratory literature search was conducted using original scientific articles, master's and doctoral theses, literature reviews, letters to the editor, and editorials in the Medline (PubMed), Scopus, Lilacs, and Web of Science databases in Spanish and English. Controlled language via thesauri and natural language keywords were used in the title and abstract fields. The keywords were: dentists, migrants, migration, and migrates, as shown in Figure 1.

Selection criteria included qualitative, quantitative, or mixed studies on dentist migration between different countries, regions, and continents. The search was open, with no time nor region limits, aiming to explore how dentist migration has been approached, under what perspectives and theories, and to identify the regions that have addressed it. Figure 1 shows the search strategies used.

**Figure 1. Search strategies**

Database	Search query
<b>PUBMED</b>	(Dentists) AND (migration),"dentist "[All Fields] OR "dentists"[MeSH Terms] OR "dentists"[All Fields] OR "dentist"[All Fields]) AND ("migrate"[All Fields] OR "migrated"[All Fields] OR "migrates"[All Fields] OR "migrating"[All Fields] OR "migration"[All Fields] OR "migrational"[All Fields] OR "migrations"[All Fields] OR "migrator"[All Fields] OR "migrators"[All Fields])"
<b>OVID (MEDLINE, GLOBAL HEALTH)</b>	dentist[Title/Abstract]) AND (migrants[Title/Abstract]) dentist""[Title/Abstract] AND ""migrants""[Title/Abstract]

<b>WEB OF SCIENCE</b>	dentist (All fields) AND Migration (All Fields)
<b>SCOPUS</b>	dentist AND migrants
<b>LILACS</b>	dentist AND migrants

For study selection and data extraction, two researchers searched the same databases using different strategies and keywords. Then, each performed an initial filter by title and abstract. The initial individual selections were included in an Excel database, and a cross-check was made to exclude duplicates thus consolidating a single database. After cleaning and consolidating the database, each researcher reviewed each article again by title and abstract and made a final selection.

Following this selection, both researchers reached a consensus and resolved any discrepancies to finalize the list of articles included in the review. This final selection was then distributed among the four researchers. The articles were read in full, leading to a final round of selection that excluded those not meeting the review's objectives.

For the information analysis, only original papers in English, Portuguese, and Spanish were considered, with research protocols being the exclusion criterion. Each researcher reviewed the list of selected articles, extracting those available in full text for reading and subsequent analysis.

Articles that passed both filters were used to extract information using a template that included author details, publication year, country, study design, topics and subtopics, main results, conclusions, and recommendations.

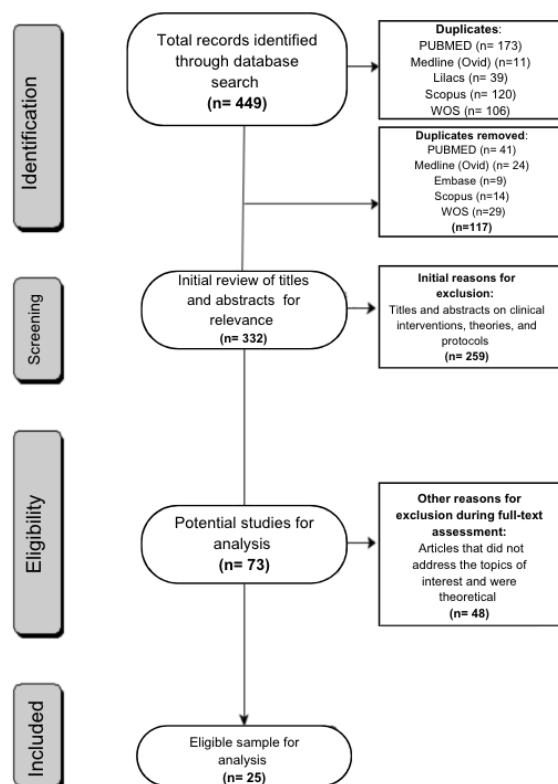
## **Results**

A total of 449 articles were retrieved, with 117 excluded due to duplication and 259 excluded because they did not align with the review's interests or did not meet the inclusion criteria.

A total of 73 papers were selected for full-text reading; during the review process, 44 studies were discarded as they were either different versions of the same article, reviews of already reviewed articles, or did not meet the inclusion criteria. The final selection yielded 25 papers

for analysis. These included papers written in English and studies from Europe, Oceania, and North America, specifically from Australia, England, and Canada, focusing on migrations between countries within these regions. The complete selection process is shown in Figure 2.

**Figure 2. Selection process flow chart. Adapted from PRISMA flow chart.**



The selected articles were categorized by year, authors, and countries, as shown in Table 1.

**Table 1. Descriptive summary of the selected studies.**

Authors	Country	Article	Year
Lukens, Jay Phelps <sup>(4)</sup>	Texas, United States	An empirical analysis of geographic mobility among practicing dentists	1981
Spencer, AJ. <sup>(5)</sup>	Australia	Migration of dentist into Australia	1982

Balázs P. <sup>(6)</sup>	Hungary	Immigration of physicians and dentists into Hungary in the 1980's and 90's	2002
Sweis, Luciana E; Guay, Albert H <sup>(7)</sup>	United States	Foreign-trained dentists licensed in the United States: exploring their origins	2007
Mathur, VP; Duggal, R <sup>(9)</sup>	India	International recruitment of dentists: A professional dilemma	2009
Boorberg, D.M.D. Noriko B.; Dieter J. Schönwetter, M.A., Ph.D.; Vanessa L. Swain, D.M.D., M.Sc <sup>(10)</sup>	Canada and United States	Advanced Placement, Qualifying, and Degree Completion Programs for Internationally Trained Dentists in Canada and the United States: An Overview	2009
Balasubramanian M, Short S. <sup>(11)</sup>	Australia and India	The Commonwealth as a custodian of dental migratory ethics: views of senior oral health leaders from India and Australia	2011
Janulyte, Vilija; Puriene, Alina; Petrauskiene, Jadvyga; Peciuliene, Vytaute; Benzian, Habib <sup>(13)</sup>	Lithuania	International migration of Lithuanian oral health professionals: a survey of graduates	2011
Balázs P. <sup>(14)</sup>	Hungary Germany, and Austria	Dentists' workforce in Hungary and international migration	2012
Owusu, Yaw <sup>(15)</sup>	Canada	International Migration and Occupational Integration of Skilled Health Professionals	2014
Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS <sup>(16)</sup>	Australia	Characteristics and practice profiles of migrant dentist groups in Australia: implications for dental workforce policy and planning	2015
Balasubramanian, Madhan; Brennan, David S; Spencer, A John; Short, Stephanie D <sup>(17)</sup>	Australia	The 'global interconnectedness' of dentist migration: a qualitative study of the life-stories of international dental graduates in Australia	2015
Balasubramanian, Madhan; Spencer, A John; Short, Stephanie D; Watkins, Keith; Chrisopoulos, Sergio; Brennan, David S <sup>(19)</sup>	Australia	Job satisfaction among 'migrant dentists' in Australia: implications for dentist migration and workforce policy	2016
Balasubramanian M, Spencer AJ, Short SD, Watkins K, Chrisopoulos S, Brennan DS <sup>(20)</sup>	Australia	Development of life story experience (LSE) scales for migrant dentists in Australia: a sequential qualitative-quantitative study"	2016
Balasubramanian, Madhan; Brennan, David Simon; Spencer, A John; Short, Stephanie Doris <sup>(21)</sup>	Australia	The international migration of dentists: directions for research and policy	2016
Varga, Júlia <sup>(22)</sup>	Hungary	Out-migration and attrition of physicians and dentists before and after EU accession (2003 and 2011): the case of Hungary	2016



Madhan Balasubramanian, Jennifer E Gallagher, Stephanie D Short and David S Brennan <sup>(23)</sup>	Australia, New Zealand, Malaysia, and India	Dentist migration in Asia Pacific: Problems, priorities, and policy recommendations	2017
Jennifer E. Gallagher, Lynn Hutchinson <sup>(25)</sup>	Global Study	Analysis of human resources for oral health globally: inequitable distribution,	2018
Gabriel, M; Cayetano, MH; Galante, ML; Carrer, FC; Dussault, G; Araujo, ME <sup>(26)</sup>	Global Study	A global overview of the geographical distribution of dentists: A scoping review	2018
Shishir Ram Shetty, Sura Ali Ahmed Fuoad Al-Bayati, Mohammed Said Hame , Hossam Abdelatty Eid Abdelmagyd, Walid Shaaban Elsayed <sup>(27)</sup>	Arab Emirates	Immigration of the Dental Workforce: Changing Global Trends	2018
Davda, Latha S; Gallagher, Jennifer E; Radford, David R <sup>(28)</sup>	United Kingdom	Migration motives and integration of international human resources of health in the United Kingdom: systematic review and meta-synthesis of qualitative studies using framework analysis	2018
Song, Youngha <sup>(29)</sup>	Australia and United Kingdom	Examinations for overseas-trained dentists in Australia and the UK: formative and summative feedback, British Dental	2019
Torresan, Angela <sup>(30)</sup>	Brazil and United Kingdom	Postcolonial social drama: The case of Brazilian dentists in Portugal	2021
Davda, Latha S; Radford, David R; Scambler, Sasha; Gallagher, Jennifer E <sup>(31)</sup>	United Kingdom	Accreditation and professional integration experiences of internationally qualified dentists working in the United Kingdom	2022
Dalum, Jesper; Christidis, Nikolaos; Myrberg, Ida Hed; Karlgren, Klas; Leanderson, Charlotte; Englund, Gunilla Sandborgh <sup>(32)</sup>	Sweden	Are we passing the acceptable? Standard setting of theoretical proficiency tests for foreign-trained dentists	2023

Upon reviewing the **objectives** proposed by the researchers in the publications found, the following approaches were identified: one involves the behavioral analysis of the migration of dentists and understanding the characteristics of migrant dentists; another approach focuses on understanding the reasons for migration, the barriers, and facilitators that these professionals face in making the decision to migrate to other countries. Moreover, some of the assessed studies present the experiences of professional integration in the destination countries, including validation exams and analysis of these exams in terms of content, quality,

and validity, as well as descriptions of various programs aimed at educating dentists to meet degree validation requirements. In this regard, some national and international policies and guidelines are described concerning the regulation and accreditation of degrees in different countries, as well as interdisciplinary border policies on the international migration of health professionals, both from the perspective of developed and developing countries. Finally, some papers report analyses related to the working conditions of migrant dentists, where gaps between native and immigrant dentists and their job satisfaction levels are identified.

Regarding the **methods** used in the studies, out of the 25 articles reviewed, it was found that most were quantitative studies which employ descriptive methods and cohort studies. Techniques for collecting information included self-administered questionnaires, surveys, tests, Likert scale surveys, and the evaluation of validation and certification tests using the ANGOFF method. These instruments examined variables such as demographic characteristics (sex, age, region of residence) and the dentist-to-population ratio. Other variables related to migration and residence conditions, professional practice profiles, job satisfaction, and life experiences.

Regarding labor conditions, the studies investigated the income levels of migrant professionals in relation to the national average income, and their practice or exercise, including how their current job aligns with their professional training. Some studies also linked variables from the country of origin, such as the professional training process, program name, duration of studies, type of program, training costs, number of available positions, and type of degree obtained.

As part of these quantitative works, four research studies are included based on the review of secondary sources (databases), using techniques such as: single panel data exploration, the review of statistics from multilateral organizations, as well as population and labor censuses.

Two of the studies in the review employed a qualitative approach, including grounded theory, phenomenological, and hermeneutic methods. The main techniques used were: snowball sampling for participant recruitment; telephone interviews, semi-structured interviews, life stories, and observation. Some investigations included documentary reviews (legislation,

journalistic notes, training programs). Additional techniques identified were opinions based on anecdotal evidence and snapshot analysis.

Two of the studies had a mixed approach; one was concurrent, and in the other, the qualitative study served as the basis for defining the quantitative study.

Four systematic literature reviews were found, including narrative, meta-analysis, and scoping review techniques, and using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) tool.

The subject populations of the reviewed articles included newly graduated dentists, immigrant dentists: directly recognized, evaluated, and alternative ones (such as students, teachers, specialists, candidates for registration), assistants, and technicians. There were also comparisons between physicians and nurses.

Sources of information reported by studies included the WHO, Central Intelligence Agency, the United Nations, the World Bank, and UK Registration Agency; University graduate lists and censuses. Databases for reviews included: Ovid MEDLINE, EMBASE, PubMed, Web of Knowledge, and OECD publications, dental program websites, and dental program directors. Seven main themes were identified in the selected documents and are listed in Table 2 with specific subthemes.

**Table 2. Themes and Subthemes Identified in the Selected Articles on Dentist Migration in the World, Latin America, and the Caribbean**

Theme	# of Articles	Subthemes
International Migration Policy	5	International organizations working on dentist migration, such as: the World Health Organization (WHO), the FDI World Dental Federation, and the Commonwealth of Nations are described. Additionally, the influence power of institutions and other associations on ethical dentist migration and bilateral cooperation as a viable alternative to regulate dentist mobility is analyzed.
Working Conditions of Migrant Dentists	6	Aspects such as job satisfaction, income, and professional integration of migrants in different countries, such as Australia and Canada, are examined.
Migration Flow of Dentists	6	Destination and source countries of migrants, as well as the types of migration flows observed in different regions of the world.
Demographics of Migrant Dentists	8	Territorial distribution, growth in the proportion of dentists, distribution by gender, and other demographic characteristics of migrant dentists are analyzed.
Qualification Process for Migrant Dentists	5	Sociodemographic data, examination methodology, and other relevant aspects in the process of legalizing the profession in different countries are examined.
Psychosocial Aspects of Dentist Migration	10	Topics such as lifestyle, sociability, and motivations driving dentists to migrate are explored.
Research on Dentist Migration	2	Issues and challenges in researching this phenomenon, as well as the importance of having reliable data to support policy decisions.

## Discussion

The migration and international mobility of dentists worldwide are increasing in volume and complexity, posing a challenge to health systems globally in managing both the inflow and outflow of these professionals. Migrant dentists, whether moving permanently or temporarily, play a critical role in responding to health system needs and pose significant challenges to the oral health of populations worldwide. Additionally, the migration of dentists impacts their living, working, psychosocial, and family conditions. This review highlights three central categories that inform the approach to the migration of dentists to other world regions.

One of the categories, the international migration of dentists, poses significant challenges in achieving an ethical and fair approach for all parties <sup>(12)</sup>. In this sense, one of the themes identified in this review is related to international migration policy and the role of national and multilateral institutions in addressing the challenges of migration. Multilateral institutions <sup>(21)</sup>

include the World Health Organization and its Global Code of Practice <sup>(28)</sup>, the Commonwealth of Nations <sup>(11)</sup>, the FDI World Dental Federation <sup>(17)</sup>, the World Bank, and the Global Health Workforce Alliance. Their main challenges are understanding the phenomenon, its causes, and its implications for professionals <sup>(28)</sup> and health systems, as well as the regulation of migration in terms of its flow, labor conditions, and migrants' adaptation processes, among others, through public policies. Finally, defining international codes of practice and promoting collaboration among actors.

However, studies have questioned the capacity of these organizations to influence the migration of dentists due to their differing priorities <sup>(28)</sup> and lack of funds <sup>(11)</sup>. Additionally, there is limited information and understanding of the phenomenon at various levels and dimensions <sup>(21)</sup>.

Furthermore, the phenomenon of migration flows at the level of the general population has been gaining relevance, reflecting the permanent mobility of human groups between different continents and regions as a fundamental aspect of our societies <sup>(33)</sup>. In this review, most studies examine the migratory flows of dentists between countries in the Global North (North-North) <sup>(6, 10, 13, 14, 22, 23, 29, 31, 32)</sup>, while other studies describe migration processes from the Global South to the Global North <sup>(7, 9, 11, 15, 16, 19, 28, 30)</sup>. Regarding migration processes between countries in the Global South (South-South), no studies were found that analyzed this phenomenon, indicating a lack of systematized information on what occurs in regions such as Latin America.

The review clearly shows that the study of the migration phenomenon of dentists is of greater interest to the destination countries, which are almost always developed nations <sup>(7, 10, 11, 14-16, 19, 28, 29, 31, 32)</sup>, than to the countries from which they migrate, which are generally emerging or developing countries <sup>(6, 9, 13, 30)</sup>. In other words, the potential oversupply that this situation can cause in wealthy countries, where efforts are made to strengthen regulatory processes, is of much greater concern <sup>(7, 10, 15, 19, 28, 29, 31, 32)</sup>. However, the emigration of qualified professionals and its direct impact on the demand-supply relationship in developing or poor countries does not seem to be as relevant.

Regarding the working conditions of migrant dentists, the analyzed studies reveal aspects related to satisfaction, with high levels observed in studies conducted in Australia <sup>(16)</sup>. Income levels are also evaluated, showing that migrant dentists receive lower remuneration than resident dentists <sup>(10)</sup>, and they face significant difficulties in achieving adequate professional integration <sup>(18, 20)</sup>. These factors all play a role in their insertion into the destination countries.

Some limitations of this review are related to its exploratory nature. On the one hand, it included a wide range of material types (not only scientific articles), and the objectives did not include a meta-analysis of the quality of the reviewed literature. This approach provides a general overview of the focus of the literature on the subject but may introduce various biases in the analysis.

The above is related to other limitations, such as the fact that a significant portion of the reviewed studies come from the same author, which may limit the diversity of perspectives on the subject. On the other hand, the broad time range of the reviewed material (1982-2023) and the fact that these studies were not developed in the region may result in an unclear understanding of how migratory changes over the last few decades relate to the specific migration of dental professionals in Latin America. It also raises questions about whether these changes can be compared to studies from other regions, such as those reviewed in this work.

## **Conclusions**

The migration of dentists worldwide has been a consistent phenomenon, documented in the literature since the 1970s. Alongside the overall increase in human migration, the migration of qualified personnel, including those in all health disciplines such as dentistry, has also risen.

This review shows that research on dentist migration has predominantly focused on Europe and the Global North. It particularly examines countries that receive migrant dentists and those identified as major sources of migration. Key research topics on dentist migration worldwide include personal motivations, adaptation processes, and psychosocial factors affecting dentists and their immediate surroundings. Additionally, the research covers qualification and training processes, labor conditions in both origin and destination countries, and local and

international public policies aimed at regulating migration, often in terms of supply and demand.

In light of this review, it is evident that there is a gap in research on the migration of dentists from and between Latin American countries, which is a new finding. Therefore, it is crucial to investigate the migration of qualified dentists within the Latin American region, taking into account the new realities and specific migration dynamics on the continent; this should adopt an interdisciplinary and participatory approach, involving academia, dental communities, and policymakers.

Conducting studies on this phenomenon in specific countries such as Uruguay and Colombia would be both appropriate and feasible. These studies should aim to gain a deep understanding of the various aspects examined in this review and their impact on health systems, oral health conditions, and the lives of migrant dentists. The goal is to identify the challenges this migration presents for policy development in areas such as labor, training, and regional integration.

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