

Bridging the gaps of headache care for underserved populations: Current status of the headache field in Latin America

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Marco Lisicki^{1,*} , Marcio Nattan Portes Souza^{2,*} ,
 Arão Belitardo de Oliveira³ , Eloísa Rubio-Beltrán⁴ ,
 Alejandro Labastida-Ramirez⁴ , Messoud Ashina^{5,#} and
 Mario Peres^{6,#} 

Abstract

Objective: To evaluate the current status of specialized headache care and research in Latin America.

Background: Latin America corresponds to about 9% of the global population. There is considerably limited access to headache services, and very few resources are allocated to headache research in this region.

Methods: The study consisted of two parts. First, in order to evaluate headache-related scientific output from Latin American countries we performed a 10-year bibliometric analysis and contrasted the results with a human developmental index-adjusted projection model. Secondly, we conducted a survey addressing different aspects of headache research, education, clinical practice, and awareness among members of the Latin American Headache Society.

Results: During the last 10 years 70% of Latin American countries published less than three articles regarding headache disorders. This contrasts with an average expected publication rate of 889 scientific papers. Indeed, none of the countries fulfilled their human developmental index – adjusted projected scientific output, with Brazil being the closest reaching 84.1% of what would be considered optimal according to the model. From the 86 headache-dedicated professionals that responded to the survey, most (64%) reported not having a headache specialization programme of any kind available in their countries. The biggest impediments towards conducting research observed by participants were the lack of time (39%), resources (22%), and training (21%).

Conclusions: Latin American countries have a considerable gap in headache-related scientific production, and also in formal education, research, and implementation of multidisciplinary services. Access to specialized headache care is particularly limited for patients with lower economic income.

Keywords

Migraine, burden, low-income populations, headache, education

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Introduction

Headache disorders are the second leading cause of disability worldwide, and the first among young women (1,2). Limited access to headache care is a critical barrier that patients encounter, even in developed countries (3,4). The situation in Latin America is far from being any better. A recent study conducted in Brazil showed that, on average, the more severely affected patients experienced head pain for more than seventeen years before seeing a headache specialist (5). This situation is reprehensible, especially

¹Neuroscience Unit, Conci-Carpinella Institute, Córdoba, Argentina

²Hospital das Clínicas, University of São Paulo, São Paulo, Brazil

³Centro de Pesquisa Clínica e Epidemiológica, Hospital Universitário, Universidade de São Paulo, São Paulo, Brazil

⁴Headache Group, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK

⁵Danish Headache Center, Rigshospitalet Glostrup, University of Copenhagen, Denmark

⁶Instituto de Psiquiatria, Hospital das Clínicas, Universidade de São Paulo, São Paulo, Brazil

*Contributed equally.

#These authors share last authorship.

Corresponding author:

Mario Peres, Hospital Albert Einstein, R Turquia, 26 São Paulo, 01449-050 Brazil.

Email: mariop3r3s@gmail.com

acknowledging that headache services in lower income countries are potentially sustainable (6).

Similar circumstances occur with respect to scientific research. While the population of Latin America corresponds to about 9% of the global population, only 3.5% of the world's scientists are based or live in this region (7), and this is reflected (and perhaps accentuated) when focusing on headache science. Compared to most developed countries, prior data suggests that headache-related scientific output from Latin America during the preceding decade was sparse and unevenly generated (8). Whether this scenario persists to date and what the limitations are that stakeholders observe, becomes crucial information to advance headache science in the region.

Therefore, the purpose of this study was to evaluate the current status of headache research in Latin America, and how headache-dedicated professionals in this region evaluate major aspects of education, awareness, and patients' care. Improvement strategies for the future are discussed on the basis of the results.

Materials and methods

This study consisted of two main parts. First, we searched the literature for headache publications from Latin American countries by introducing the terms “—(Country's name) – AND (migraine OR tension-type headache OR medication overuse headache OR cluster headache OR trigeminal neuralgia)” in the US National Library of Medicine database search engine, PubMed. Results were limited to studies from the last 10 years. The search ended on April 22, 2020. To contrast these results, a projection of what could be the ‘optimal’ number of publications in each case was modelled using the headache-related scientific output from Spain during the same period, adjusted by the human development index (HDI) of each Latin American country, as estimated by the United Nations Development Programme (9). Briefly, the HDI measures the social and economic development of each country based on the life expectancy at birth, average and expected years of schooling, and gross national income per capita (9).

In addition, we conducted an electronic survey among members of the Latin American Headache Association. The questionnaire consisted of 10 items addressing different aspects of headache research, education, clinical practice, and awareness. It was sent via a mobile messaging application platform to 90 members in a distribution group, with the possibility of being forwarded to other certified headache specialists in their countries if considered appropriate.

Results

Scientific output

During the analyzed period, scientific output was highly dissimilar between the different countries (skewness (33) = 5.05). The country with the largest number of publications was Brazil (n = 779) distantly followed by Mexico (n = 191) and Argentina (n = 125). The median number of publications per country during the last decade was three. Most Latin American countries (69.7%) published less than 10 PubMed-indexed scientific papers regarding headache during the last 10 years. In the same period, Spain published 1096 articles. Based on this number, the HDI-adjusted scientific output projections for Latin American countries resulted in a mean expected number of 889 publications. None of these countries fulfilled their individual projection. Brazil was the closest country, reaching 84.1% of the model's optimal output, with Mexico and Argentina barely achieving 20.6% and 12.2% respectively (Figure 1).

Survey

Eighty-six headache-dedicated professionals from nine different Latin American countries responded to the questionnaire (Figure 2). Most respondents were physicians/neurologists (87%). Although 75% of responders dedicate at least half of their time to headache (i.e., $\geq 50\%$), just 9% have a full-time dedication. Only 18% of respondents reported that most of the patients they see in consultation belong to the lower-income class. Around 70% of respondents are involved in educational activities, and a similar percentage participates in headache awareness promotional campaigns. A large portion of respondents (64%) reported not having a headache specialization programme of any kind available in their countries. With respect to research in the headache field, $>70\%$ of respondents were involved in research activities, and the biggest impediments that they observe towards conducting research were: lack of time (39%), lack of resources (22%), and lack of training (21%). The aspect of headache most commonly evaluated as “good” by headache specialists in the region was “headache patients care”, while the aspect most commonly evaluated as “very bad” was “headache research”.

Discussion

Headache disorders are among the leading causes of disability in Latin America (10). While significant progress has been recently made in other fields of neurology in this region (11), our data regrettably show that the same thing is not happening for headache. In fact, as

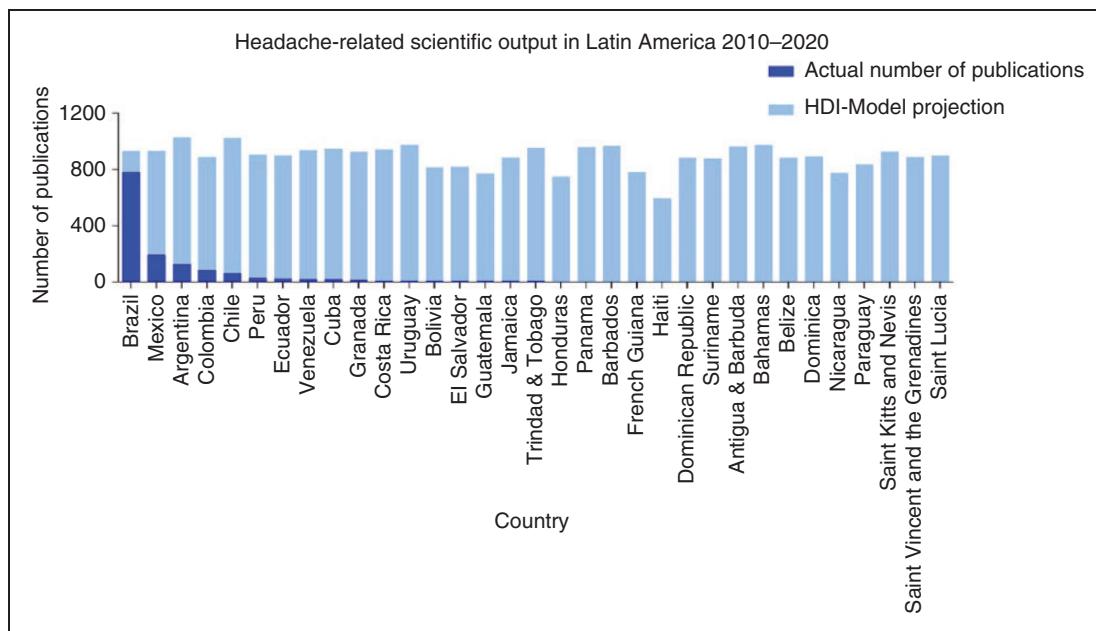


Figure 1 Headache-related scientific output in Latin America 2010–2020.

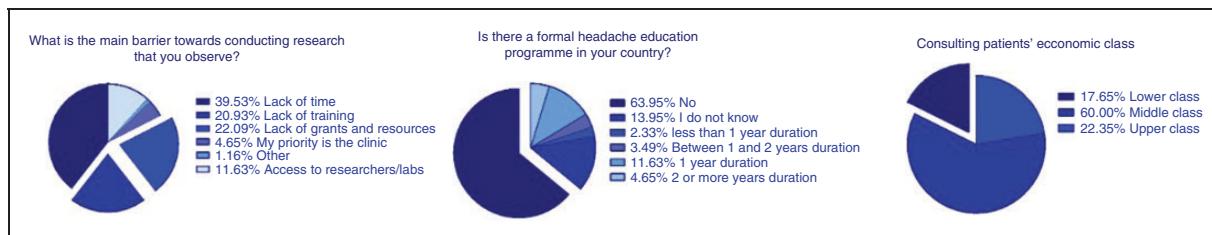


Figure 2 Latin American headache-dedicated professionals survey.

shown by our results, headache dedicated healthcare providers in the region observe numerous impediments towards developing a successful career in headache care and headache research, lack of formal training being the major obstacle existent in this region. Furthermore, although the survey was conducted among members of Latin American Headache Societies, only 30% of the respondents have over 75% of their time dedicated to headache medicine practice.

Some research activities were reported by 69% of the respondents, but this was not generally translated into scientific publications. Lack of time was pointed out by 39% and lack of grants and resources by 22% of the respondents as a barrier for conducting research. It is possible that the relatively expensive article processing fees charged by many journals and a language barrier (which is one of the factors that motivated us to choose Spain when building the model) do also play a role. As a result, when compared to the Spanish-HDI corrected projection, all countries in the region were below the expected rate of publications in the headache

field. Interestingly, our data pointed to significant regional differences. While Brazil approaches the desired projection for its HDI, 23 countries published less than one paper a year during the same period.

Although the multidisciplinary treatment of headache disorders is increasingly recognized as the best standard of care, especially for chronic migraine and other highly disabling headache conditions, only 2% of the respondents in this study were not physicians (12). The lack of headache educational programs, headache centers with formal training programs, research laboratories, grants and resources might contribute to this gap.

Latin America is one of the regions with highest income inequality in the world, and there is evidence of a strong correlation between this inequality and poor health outcomes (13). Although 30% of the population in the region is currently living in poverty, only 18% of the survey respondents see mostly patients from the lower economic income class (14). Improving access to formal headache education for

healthcare providers is potentially beneficial to all populations in Latin America. Still, measures to foster adequate healthcare access for the underserved populations in the region should be considered.

The present study has several limitations worth mentioning. For instance, the HDI is calculated on the basis of data provided by each country and not gathered by an independent consultant. This might lead to an HDI overestimation bias, particularly in countries where transparency is an issue. Nonetheless, scientific production in most cases was so limited that, even with more conservative projections, the observed academic output would still produce a worrisome result. Also, the survey was conducted among members of the Latin American Headache Society, which restricted the sample size, and made results representative only of the personal opinion of its members. Yet, this relatively limited sample size is nothing more than a

reflection of the reduced number of headache specialists in this region, and thus constitutes a caveat that could not be overcome. Finally, while the opinion of this group certainly cannot be generalized to all headache-treating physicians, it accurately depicts the situation of those with a special interest in headache disorders. The scenario could be even more critical for general neurologists and general practitioners.

Conclusion

Latin American countries present a considerable gap in formal education, research, multidisciplinary care, and scientific production in the headache field. There are significant differences between countries regarding the headache-related scientific output. In all countries, access to headache care is even more limited for lower economic income patients.

Clinical implications

- Latin American countries have a gap in headache-related scientific production, and also in formal education, research, and implementation of multidisciplinary services.
- Access to specialized headache care is particularly limited for patients with lower economic income.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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ORCID iDs

Marco Lisicki  <https://orcid.org/0000-0001-9765-6759>

Marcio Nattan Portes Souza  <https://orcid.org/0000-0003-4841-4491>

Arão Belitardo de Oliveira  <https://orcid.org/0000-0001-6408-0634>

Eloísa Rubio-Beltrán  <https://orcid.org/0000-0002-2912-3632>

Alejandro Labastida-Ramirez  <https://orcid.org/0000-0003-2079-1156>

Mario Peres  <https://orcid.org/0000-0002-0068-1905>

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