

Ethics of health research priority setting

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Pecha Kucha presentation

Contribution of public universities to tackle leading causes of mortality in Ecuador: evidence based on 100 years of scientific production

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Brief description of case study context

Ecuador, an Andean country located in northwestern South America with a population of 18.1 million inhabitants, has not made scientific research a priority as in other low- and middle- income countries (LMICs). Thus, its publication rate (25 docs/million inhabitants) is among the lowest in the Latin American region.¹ In 2010 the Ecuadorian Ministry of Public Health (EMoPH) led an initiative to set local health research priorities. The defined health research priorities included broad health areas such as sanitation-environmental pollution and disease burden, including chronic degenerative diseases (cardiovascular and cancer).² Likewise, in 2013 the EMoPH set national health research priorities to be fulfilled during the period of 2013-2017.³ However, despite these priorities, a mismatch between the actual health needs and the research conducted locally has been documented.^{4,5} For example, during the period of 1999 to 2017, a total of 2784 health sciences-related articles (HSRA) were published in the country, and the primary research focus for Ecuadorian healthcare researchers was in the clinical-surgical area (49.3%, n=1372). In addition, the predominant specific research lines were in the categories of: i) research on causes of diseases (2.5%, n=70), ii) quantification of the disease burden and surveillance (2.1%, n=58), and iii) diagnosis and treatment (1.9%, n=53). Yet, despite this strong biomedical paradigm among local researchers, only 9% of research production was dedicated to addressing the primary causes of Ecuadorian mortality, such as diabetes mellitus, hypertension, and cerebrovascular disease.⁵ Based on those previous findings and in an effort to provide more granular/disaggregate evidence to inform our health research policy, we conducted a systematic and bibliometric analysis of the last 100 years (1920-2021) of Ecuadorian HSRA output. The main findings of this new analysis are as follows: i) 12.5% (404/3225) of the total HSRA output (excluding COVID-19-related publications [n=194]) was dedicated to addressing the main and historical causes of local mortality. ii) Over time we observed a decrement pattern in the percentage of HSRAs dedicated to addressing leading causes of death. Thus, between 1920 and 1980, 42.8% (3/7) of research production was aligned with the main burden of disease for that period of time. Meanwhile, the lowest research output dedicated to tackling the main causes of mortality (10.7%, 44/410) was seen between 2000 and 2010. iii) Private universities were the primary drivers of HSRA publications in the country compared to public institutions, 40.1% (1294/3225) vs. 19.6% (632/3225), respectively (Unpublished results).

Ethical issues

Utilization of government resources by public universities: It is well-documented that shortage of funding is a constant barrier to conduct biomedical research in LMICs and meet national health priorities. Furthermore, most LMICs have ignored the recommendation of the Commission for

Health Research that 2% of the national health budget be destined for health research.⁶ However, this reality has not been the case for Ecuador, especially during the period of 2007 to 2015 when the country had its second oil boom, which dramatically increased government revenues.⁷ For example, Ecuadorian GDP grew from USD 51 billion in 2007 to USD 94.47 billion in 2013.⁸ This translated to higher investment in education and health; thus, the portion of GDP allocated to education grew to 4.6% in 2014, and for the health sector up to 9% in 2015.^{8,9} Traditionally, public higher education has been considered a central societal resource and public good. In most countries, state-sponsored universities occupy the higher ranks in terms of quality, scientific production, and innovation.¹⁰ Thus, public universities are called to use tax money in an efficient, responsible, and ethical manner. Therefore, scientific research produced by public universities should be of high quality and impactful in order to improve population health and health equity.¹¹ However, this is not the case in Ecuador, where, between 1920 and 2021, 19.6% (n=632/3225) of the overall HSRA production was led by public universities. In terms of quality, 37.8% (239/632) of publications by public universities were indexed in Q1 journals, compared to 41.6% (538/1294) of HSRA publications by private universities. As for research-focused public universities in Ecuador, they concentrated more HSRAs in the area of public health than private universities— 41.8% vs. 33.6% (p-value<.001), respectively. Yet, this finding is contrary to the fact that only 15.6% (63/404) of its production is on track to resolve main causes of mortality among the Ecuadorian population, compared to private universities—38.6% (156/404). So, what are the reasons for this lower HSRA output, that is also poorly aligned with the main burden of disease, by public universities in Ecuador? The answer is not easy since this issue has different edges that affect most LMICs. Among the principal causes, we can list the following: i) Politicization of public universities. Currently, university authorities (e.g., Chancellors) are appointed through internal elections where even high school graduates are required to vote. This has undermined and interfered with the autonomy, independence, and governance of local public universities. Ultimately, this politicization of the Ecuadorian public higher education system weakens its research endeavors and its contribution to national human capital formation and societal development as described in other LMICs.^{12,13} ii) Incapacity to use research funding due to an inefficient, rigid, and highly bureaucratic management system that causes long waiting time to acquire even basic laboratory supplies. For example, Jan Feyen in his publication entitled “WAKE-UP CALL for Ecuador’s universities” describes an administrative hierarchy within public universities through which all activities must pass, resulting in a huge loss of time. He also observes that contracted staff are required to complete activity reports, which are seldom if ever read in the first place.¹⁴ iii) Strong preference for immediate outcomes, which has precluded the realization of long-term and impactful research projects/interventions that assure sustainable funding beyond specific project life cycle.

Role of Ministry of Public Health: This observed mismatch and scant participation of public universities is also due to a weak role of the EMoPH, which is reflected in the following: i) failure to implement a health research policy, perhaps due to an inadequate definition of policy goals and lack of communication between main local stakeholders (e.g., public universities); and ii) weak role in supporting an articulate national health research system driven by strong country priorities.

Role of regulatory bodies of Higher Education Institutions and Research: Also, contributors to the reported mismatch and low scientific output of Ecuadorian public universities are government agencies in charge of assuring quality, innovation, and technology of higher education institutions. For example, a public university professor is mainly dedicated to teaching and administrative activities other than research. Thus, professors could have a teaching schedule between 16 and 24h in a week, leaving no time for research activities.¹⁴ Another contributing factor could be the lack of professors with appropriate qualifications (PhD degree) and training to perform research. In 2018 Ecuador registered 35,324 faculty members of which 18.5% (n=6551) hold a PhD degree; of this amount, ~63% (n=4127) of doctoral professors are based in public universities.¹⁵ This percentage (18.5%) is far too low compared to the target defined by the Higher Education Council which states that 30% of academic/teaching staff members

should hold a PhD degree.¹⁶

Conclusions and recommendations

Currently, a low percentage of Ecuadorian HSRA output is dedicated to addressing the country's health priorities. Ecuadorian public universities have not been active key actors to resolve this observed mismatch between actual health needs and the research conducted at the local level. In order to overcome this issue, we believe that it is necessary to depoliticize the Ecuadorian public university system, strengthen and build a strong governance role of the EMOPH, use validated and probed models to prioritize local research needs (e.g., the Child Health and Nutrition Research Initiative method, the combined approach matrix, Essential National Health Research and Priority Setting, and the James Lind Alliance framework)¹⁷, remove awkward and cumbersome bureaucratic/administrative processes by using digital and innovative technologies to streamline and simplify research activities¹⁴, and foster an environment in which public university professors can dedicate more time to research activities.

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