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EDITORIAL

Meta-analysis: an intelligent way to tackle the economic crisis of Brazilian science

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It is widely known that Brazil has been facing economic difficulties in recent years. As an upper-middle income country with a rather unstable financial scenario, national budgets are unavoidably affected by contingencies in all areas. Unfortunately, science is not an exception. Funding opportunities for research in Brazil have historically been scarce. Nonetheless, Brazil leads academic production in Latin America and is ranked 13th worldwide, with growing citation impact between 2011 and 2016.[1] Clinical medicine has been highlighted as an area of excellency, and this particularly applies to the neurosciences and mental health. To deal with financial setbacks, researchers from Brazil and countries with similar economies should look for low-cost alternatives to sustain or even increase their output of high-quality publications. Systematic reviews, particularly with meta-analysis, constitute a relatively cheap option to yield high-impact knowledge.

Meta-analyses take literature reviews a step beyond their narrative character: they allow the authors to combine results from different studies or trials to obtain a summarized measure of effect that is more precise (and has expectedly narrower confidence intervals) than the primary studies alone.[2] Consequently, conclusions from meta-analyses are vital for evidence-based healthcare.[3] In recent publications, the hierarchy of evidence is classified into seven levels,[4] as follows: level I comprises systematic reviews and meta-analysis of relevant randomized controlled trials (RCT); level II, a single well-designed RCT; level III, a well-designed non-randomized trial; level IV, well-designed case-control and/or cohort studies; level V, systematic reviews of descriptive and/or qualitative studies; level VI, a single descriptive or qualitative study; and level VII, expert opinions and/or reports of expert committees.

It is only natural that systematic reviews with meta-analysis are the most cited type of study in the scientific literature,[5] as they provide the most reliable evidence for therapeutic or epidemiological research questions.[6] Yet, the cost of producing a meta-analysis is relatively low, especially if compared to those of individual RCTs, cohort studies, or large epidemiological surveys. The main expenses to be considered when producing a meta-analysis consist of access to databases (some of which offer complimentary access), the investigators' time, and statistical work. Such costs are easily exceeded by those of the other types of high-impact research mentioned above.

If meta-analyses provide such a fruitful opportunity to produce relevant research with limited funding, they could be the flagship of a shift towards reducing the research output gap between high-income and lower-income countries. The former still dominate the field, accounting for all of the 100 most cited meta-analyses published until 2013.[7] Brazil in particular has all it takes to gather momentum for production of meta-analyses in lower- and middle-income countries: harsh economic problems that heavily reflect on science funding, combined with high-quality scientists - particularly in clinical medicine and even more so in the fields of neuroscience and psychiatry. Research questions are widely available in the literature, some of which are of special relevance in the national context. Producing high-quality evidence from already existing work is an intelligent way not only to maintain productivity, but to address public health issues that should be prioritized in the country. After all, no one is more entitled to answer Brazilian questions than Brazilian scientists ourselves.

Disclosure

The authors report no conflicts of interest.

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