From evidence to results, does our behavior condemn us?

There is no doubt regarding the impact of chronic diseases on the global mortality and burden of disease, both in developed and developing countries. According to the WHO, 1 52% of the deaths that occur each year around the world are from ischemic heart disease, stroke, respiratory infections, chronic obstructive pulmonary disease, diarrhea, HIV, lung and airway cancer, tuberculosis, diabetes mellitus, and injuries, accounting for, in absolute numbers, approximately 30 million deaths.

Similarly, respiratory infections, diarrhea, depressive disorders, ischemic heart disease, HIV, cerebrovascular disease, prematurity and low birth weight, neonatal asphyxia, traffic accidents, and neonatal infections constitute the top ten causes of disease accounting for a higher morbidity burden.

Over the last years, the knowledge on their characteristics, mechanisms involved, risk factors or determinants has remarkably increased, as well as the evidence on the source of many of the diseases that occur at an early age. Only a few factors, conditions or determinants are accountable for one fourth of the 60 million deaths that occur every year around the world: childhood underweight, unsafe sex, alcohol consumption, lack of drinkable water, sanitation and hygiene, and high blood pressure. While some of these conditions are related to environmental factors, such as air or water quality, many of them, such as alcohol or tobacco consumption, inadequate dietary patterns, hyperglycemia, hypertension, high body mass index, hypercholesterolemia or sedentariness, among others, are clearly related to specific individual habits and behaviors.

The article by Kovalskys et al. in this issue of the Archivos Argentinos de Pediatría describes the prevalence of overweight and obesity in school-aged children and their inadequate dietary patterns. The situation reflected in the article is alarming and consistent with what has been observed in other populations and age groups mentioned by the authors. The promotion of healthy habits and behaviors since an early age, and especially in relation to those habits associated with the priority health problems mentioned above, constitutes one of the most relevant challenges for public health for the next years. This is a challenge not only in terms of reducing the burden of disease, particularly at an early age, but also given the complexity of achieving a change in behavior and practice, because such habits or behaviors are the cover for more complex underlying conditions, multiple factors and influences that sustain them at an individual, family, social or other level, in spite of their adverse consequences.

Behind risk factors or determinants, there are underlying behaviors and conducts that might exert a “healthy” or an “unhealthy” role. These may be individual behaviors, including unsafe sex, eating habits, or sedentariness, that expose them to specific risks, or certain health team practices that may contribute or limit the achievement of results, such as inadequate hand washing, inappropriate oxygen management in newborn infants, etc.

Therefore, the obstacles or hurdles to making changes and promoting healthy behaviors in the population are a great challenge. How could we effectively promote healthy eating habits, increase physical activity, avoid tobacco consumption, etc.? Is it just the general population that requires to essentially modify its behaviors in order to promote healthy or effective habits and practice? There is high quality evidence on the interventions sustaining its applicability on health problems in children and adolescents; however, its implementation is far from what is expected.

The availability of information for making decisions is critical in every situation and context. As mentioned earlier, there is information available on the rate and distribution of most health problems in the different populations. There is also information available on the efficacy of different specific interventions targeted at such problems. However, is the approach to problems wide enough to include the analysis of factors and determinants that influence certain conducts, behaviors or practices? When factors involved in the development of such conditions are related to human behavior, its approach becomes highly complex, and the use of specific analysis strategies and techniques that, from a standard biomedical research perspective are usually not adequately assessed, becomes essential. Such underassessment is critical in terms of problem analysis and health outcomes, and also in relation to processes and practices of health teams.

As a consequence, what approach will be more effective for issues related to behaviors and practices, both of individuals as well as of the
health team? Although it is becoming more frequent, the approach and analysis of problems as determinants, and not only as risk factors within a conceptual framework, and its relation to other determinants at different levels --individual, familiar, social, economic, etc.-- will allow to identify those conditions associated with or sustaining the practices to be modified. The translation from recognizing evidence-based interventions into evidence-based practices clearly implies a change in scope. Therefore, such change in scope implies the implementation or complementation with other analyses and study techniques approaches.

There are currently no signs of the discovery of a sedentariness vaccine or a drug treatment of unsafe sex in adolescents, so the assessment of such influences should lead to implementing other types of interventions. As long as evidence provides information on the factors or determinants sustaining such practice in individuals, it will be easier to outline these interventions.

But there is an additional aspect that may be relevant when considering the above mentioned change in scope. When considering major health problems such as overweight and obesity, as in the case of the article written by Kovalskys et al., or other problems related to behaviors and practices with important social and cultural influences, the implementation of interventions from a level other than the individual one may yield better results. Examples of this include the implementation of interventions targeted at reducing tobacco consumption by the impact on its price, tax implementation, advertisement regulation and event sponsoring, or the design of packaging and labeling as a means to disseminate messages. Similarly, the implementation of interventions targeted at food consumers or producers by the enforcement of taxes and subsidies to foster the manufacturing of healthier foods, the communication and the selective promotion of specific foods. Therefore, the incorporation of interventions from other levels and means other than the individual level will quite likely bring about positive public health results.

Available information and evidence about population health problems and the strategies to reduce them is encouraging in one sense: there are interventions applicable for many of the prevailing problems, and most of them do not imply high costs or advanced technologies. At the same time, we are facing a great challenge: it is essential to promote behavioral change, both in individuals and health teams.

This is a complex but key field for achieving results related to population health and to which stakeholders from different domains may contribute a lot.

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Does size matter? Considerations on the use of the impact factor

When comparing scientific publications, we should ponder on how important it is for us to be able to compete, to play the game, to be able to be ranked and evaluated, condition we have accessed to thank to the increasingly renowned position of our Archivos Argentinos de Pediatría. Since its creation and in the quest for being chosen by readers our journal has undergone many changes. Particularly over the last ten years, Archivos Argentinos de Pediatría has celebrated its diamond wedding and has consolidated its frequency of publication, has made all of its contents available online
for free, has been included in outstanding index databases (Scielo and Pubmed), and has recently started offering its contents in English.2

All this has led to an increase in the journal visualization; and in the last two years, *Archivos Argentinos de Pediatría* has been included in the more than 8200 journals considered by the *Journal Citation Reports* (JCR), together with its impact factor (IF) evaluation.3 After only two years of being evaluated, *Archivos Argentinos de Pediatría* is already in the third quartile of pediatric publications and reaching the top half of the list, and it would be reasonable to believe that the English version, together with the growing international collaborations, will rank us in a remarkably better position in the next evaluation.

At this stage, it would be advisable to reflect on the meaning and significance of the IF.

What is the Impact Factor? It is a measure of the importance of a journal initially developed for librarians to decide which regular publications had to be acquired for their library.4

How is the Impact Factor calculated? A journal’s IF for a specific year is the result of dividing the number of citations received that year by the articles published in the two previous years in the same journal by the number of articles published that year in the same journal. For example, the IF of a journal in 2012 will be the number of citations received in 2012 for the articles published in that journal during 2010 and 2011.

Who estimates the Impact Factor? The calculation is made by Thomson-Reuters, a private company specialized in information services.

What is the current use of the Impact Factor? The IF has appeared in the *Journal Citation Reports* (JCR) for more than 35 years, and it has been extensively used to rank and evaluate not only scientific journals, but also articles and their authors.

As mentioned before, the IF was developed as a guideline for those in charge of selecting which publications to acquire and, in time, it was more and more used to make a value judgment of articles and, almost transitively, of their authors.5 Several national scientific research support systems use the IF as one of the items to be taken into account for the ranking of their researchers. Even social networks for researchers use the IF of journals where participants’ results are reported to categorize them.5

However, this index has some weaknesses that should also be addressed. The calculation is based on the number of citations received by “citable” items in a journal (total citations/citable items).

While this calculation includes all citations made to a journal articles (the numerator), the classification of an item as “citable” or not (the denominator) depends on the individuals in charge of the calculation process, which is not publicly available. In addition, it is usually believed that the IF represents the average number of citations to an article, when the distribution of citations per article is not normal. Finally, the IF might be manipulated by journal editors who could adopt some specific policies to boost their impact factor.7

However, the most serious problem is that the IF is sometimes used as a proxy for the quality of the article and, even worse, for the quality of the researcher.5 It is true that journals with the highest IF are usually viewed as the most prestigious ones5 and tend to receive the best contributions from the most outstanding researchers, thus creating the virtuous cycle that has been in place for a long time. Nevertheless, the contribution of information technology to the dissemination of scientific contents is changing this reality and, since the 1990s, the number of cited articles appearing in journals with a high IF is getting smaller and smaller.6 And this is very reasonable, since researchers may currently access numerous citable items online, with no need to search for them in the most prestigious journals.

In addition, in many cases it is possible to use information technology tools to evaluate the number of citations made to each article, which is a more accurate indicator of its scientific value than the very fact of having been published in a prestigious journal.

Finally, we should provide an answer to the question posed in the title: Does the IF matter? Even with its limitations and weaknesses, the IF is still a simple and powerful tool for the global evaluation of the scientific quality of a journal. We should not ask of it more than what it can offer, and we should be attentive to other sources for bibliometric measurement.10

Of course, we should always bear in mind the importance of thoroughly reading each article and categorizing and ranking it according to its scientific content, instead of doing so by taking into account the journal, the researcher or the institution involved. When it comes to science, only facts matter.

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