

Editor's comment

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Health research and undergraduate medical teaching

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At many universities in the developed world, where research is a priority, undergraduates are involved together with professors/researchers in relevant research projects. In the medical faculties of the world leading universities, students actively work in research projects of those institutions. It is intuitive that, in countries where socioeconomic development level is high, the university as a whole has an outstanding role in the training of future researchers, and begin training in research from the early years of college education is an undeniable priority.

According to the authors of the paper we publish today, (doi: 10.5867/medwave.2014.10.6032), in developing countries the situation is completely different; teaching of research methodology is weak and out of place. The authors illustrate the case of Colombia but in other countries of Latin America, the situation is not very different [1],[2],[3],[4]. Colombia even seems to be one of the Latin American countries where there is greater concern about this issue; creating what they call "research seedbeds" that function in some Colombian universities [5],[6],[7]. According to the authors explaining the subject, research seedbeds are an extracurricular strategy for promoting research in higher education, groups of college students focused on a research topic and led by a teacher/researcher[8].

Still, about college student participation in scientific research, there are some features to discuss. One of these is related to the fact that research is the main form of science to enrich its knowledge base. Hence, research is in some way considered the most complex of human being activities; the main source of knowledge for the development of technology that directly influences the people's lives. These two premises support the need for a high quality research process. It means to develop research that avoids biases that may lead to questionable results and conclusions and therefore is of little value for introducing knowledge into practice.

One can and should reflect on the practical impact that can have, a study conducted with low methodological rigor and the subsequent publication of its results [9]. This is unfortunately common in medical sciences particularly in

the epidemiological and clinical area. A significant amount of research is carried out but a high percentage of studies are conducted with high risk of bias, in a nutshell, investigation of low quality with no or very little impact on the development of science or society is often done. This is a problem that afflicts not only developing countries, though here the problem is more evident; some developed countries allege the existence of a significant amount of research of questionable quality [10],[11],[12].

Thus, the inclusion of college students in research, not only as an educational exercise but as a real contribution to science, must be conducted with close mentorship of experienced investigators. The best way for students to learn to investigate and be motivated by research is involving them in real research projects with optimal methodological quality. The goal is not that they themselves develop hypotheses or questions that lead to new knowledge (although there will always be exceptions), they must assimilate the need and also the beauty of contributing to the production of real scientific evidence. This is the best motivation for the future and the best way to settle the academic knowledge of research methodology, which they often forget. Forcing them to participate in ill-conceived projects or conceived only with the intention of achieving a degree can be counterproductive. This is perhaps the biggest problem in developing countries where the problems of methodological rigor in research are common even among professionals with experience. Thus, where to find tutors for studies conducted by students?

A related problem is the teaching of research methodology. In the era of evidence-based medicine research methods are especially important. However, research methodology teaching activities of all kinds (postgraduate, diploma, master degree courses and others) are not always of the highest quality. The curriculum subjects of medical students on this matter are also often not well conceived. Avila and Rodríguez Restrepo, authors of the article published today, address this issue and emphasize the need to organize the teaching of methodological issues in order to bring it closer to the moment the student should or can use them, a major difficulty in medicine study programs. A student, who hopes to learn to practice medicine, without

having received training on the importance of research, receives research methodology or statistics, as true unavoidable tortures.

A further problem is motivation. How to generate interest for research among college students in an environment where research work is not sufficiently valued by society? Unfortunately, developing countries have been rather more consumers than producers of knowledge and technology; research is far from being a social or financially valued activity.

Undoubtedly, a not minor problem addressed by the article of Avila and Rodríguez Restrepo, is funding; universities in developing countries often do not have adequate budgets to promote and conduct research that involves students. According to UNESCO, in developed countries like the United States, total spending on research and development in 2007 was more than twenty times higher than in Latin America [13].

However, the Latin American scenario today, seems to offer some hopeful alternatives though still timid. Some countries have increased their budgets for research and improved their policies to promote health research activity [14]. This progress was reflected in slight increases in public spending on higher education albeit still far below the developed countries [15],[16]. How this increase has reflected in opportunities to participate in research projects for college students, specifically in health careers; and how the future looks in this context, could be the subject of further contributions to the journal for which we invite our readers.

Notes

Conflicts of interest

The author has completed the ICMJE uniform disclosure form for potential conflicts of interest, translated into Spanish by Medwave (available on request from the corresponding author), and declares not having conflicts of interest with the subject of the article.

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