

## Bioestadística y epidemiología: una mirada a los roles en la investigación

### *Biostatistics and epidemiology: a look at roles in research*

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#### **Mr. Editor:**

Current science, in its vertiginous advance, increasingly requires individuals to train and specialize in topics that allow them to make robust proposals for solutions to health problems. In my experience working as a statistical data analyst in joint work with groups of health professionals, I have observed that, for most researchers it is very difficult to recognize the difference between a statistician dedicated to working with problems that include measurements in living beings (in this case human individuals) which is generally called biostatistics (1) and a professional who is concerned with the study of the causes, the risks, the dispersion of diseases and health problems, which is called an epidemiologist (1,2).

In a world where interdisciplinarity and teamwork is increasingly necessary, especially in medical research, I consider important to identify the role of each member of the work team because this allows to give the value that the activities carried out deserve. From my perception, the epidemiologist makes a very important contribution in the identification of the health problem that needs to be studied and which dynamics need to be understood. In the hands of these professionals, it is to establish the best approximation strategy (study design) to address the issue, identify the factors that should be controlled and how they should be controlled; participate in the construction of measurement protocols and the definition of events of interest (outcomes) among other important methodological aspects. For his part, the biostatistician, must understand the problem from a holistic and systemic vision of it, participates in the construction of the information system and perhaps his most important task is to obtain the quantitative results of the project from mathematical procedures applied to the data collected in the field by the other professionals of the group (including the epidemiologist). So, it is easy to see that the two professionals despite keeping similarities in some of their tasks, have well-defined roles within the project.

Generally, public health schools and health schools that offer graduate degrees in epidemiology consider two, three, and up to four statistics courses in their curriculum, in which students learn some basic concepts of probability and statistics and emphasize the use of already established statistical methods that must be used, assuming that the study design meets a certain number of theoretical assumptions. Nevertheless, for the biostatistician, it is clear that, although the strategies developed to obtain the data in the field are as rigorous as possible, there will always be aspects that cannot be controlled or that are not easily manipulated (such as the willingness of the subjects to participate, to cite a simple aspect), which implies that, the data collected in the field, not necessarily meet all the requirements imposed by the theoretical assumptions, an aspect that was reported since the third decade of the last century (1,3,4). These situations, which may be common in the practice of health research, induce to rethink and evaluate in the light of reality and context, how to develop statistical methodologies by making modifications to existing methods or creating new ones that allow a more robust or realistic approach to the problem under study, work that can be done by the biostatistician with the support not only of the epidemiologist but of all professionals of the research team (4).

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