Editorial

Statistical medicine as a distinct medical specialty

Statistics is an important science that applies almost to all research domains. The credibility and generalization of any research are tested using statistics tools. The idea of statistical validation data arises in the past from the novel work of Mendel on the genetics of the pea plant. Before Mendel's work, the credibility of research was proved based on the number of arguments and facts. Even Darwin proves the evolutionary phenomena in his book Origin of Species using a large number of supporting facts. Nowadays, in medical science, each piece of data is tested with statistical tools for its validity. Advancement of information technology has led to the development of various software which can analyze clinical data and perform complicated calculations by themselves, providing direct graphs and tables to the users.

Statistics that are taught in the university environment are rarely encountered in real-world data. In the medical institute, the statistics department is usually considered a technical department, and hardly any course is run in the department for medical students. Even if short-term courses are available, it is not possible to understand the basics of statistics and deal with large-scale data based on knowledge gained in such short courses. University graduates lack knowledge of medical terminology and the nature of data and outcomes. Therefore, they remain confused while dealing with medical data. Some medical institutes run collaborations with universities under which clinical data from the medical institutes is provided to university students for learning purposes.

In earlier times, the clinical data was very simple and could be analyzed using simple statistical tests. Nowadays, large-scale data is being generated from medical institutions, including time-series data, proteomics, and genomic data, which require advanced statistical skills along with medical knowledge to deal with. With the evolution of medical technology, new medical devices are developed every year, which generate new types of data. Various machine learning models and artificial intelligence also find their way into medical science. These models are used to support the clinician's decision-making and make the prediction regarding the hospital stay, survival outcome, and other parameters in case of complex disease. Only the individuals who understand the nature of clinical data can perform the statistical analysis of data.

Specialties such as nuclear medicine, which has applications to very limited conditions, and laboratory medicine, which has a wider yet specific role in diagnosis and monitoring, are established medical disciplines. We also have disciplines such as computer medicine and even academic medicine. In the wake of this, we wonder why statistical medicine has not been proposed as a distinct medical specialty. We have various statistical tools, such as scoring systems, indexes, decision trees, and models, that have widely accepted applications to diagnosis, treatment, and prognosis at a personal level for several conditions. This contrasts global statistical indicators such as sensitivity-specificity /predictivities and odds ratio, which are also used at the personal level.

Many clinicians have a deep interest in medical statistics indicating that statistical medicine can grow as a medical specialty. Based on the wider applicability of statistics in medical research and its role in clinical decision-making, which is increasing day by day, we strongly favor that biostatistics has the full potential to be recognized as statistical medicine as a medical specialty. This is the need of the hour to include Bayesian ideas also into clinical practice under the proposed statistical medicine. Bayesian statistics has a more realistic predictive role in clinical decision-making, accumulating updated clinical evidence.

Students who become graduates in statistical medicine will have deep knowledge of medical terminology and the nature of clinical data. They will be able to understand the requirement of the research project and kind of expected outcome. Statistical medicine is an evolving field that has opportunities for both employment and entrepreneurship. Instead of dealing with all kinds of data with the same methodology, advanced programming languages provide the opportunity to code the program according to the nature of data and output requirements. Each institution wants to have personalized programs that analyze particular data in a particular way. Such a level can only be achieved if we have statistical medicine as a distinct specialty. Therefore, we call for statistical medicine as a distinct medical specialty in medical institutions.

Access this article online

Website: http://www.jpbs-online.com | **E-ISSN:** 2321-0125

How to cite this article: Goyal AK, Saini J. Role of multidisciplinary journals in academic acceleration. J Pharm BioSci 2023;11(2):1-1.

Source of Support: Nil, **Conflicts of Interest:** None declared

Atul K. Goyal, Jyoti Saini

Associate Editor, Journal of Pharmaceutical and Biosciences

Correspondence:
Dr. Atul K Goyal, Managing Director, Doc Navigator, New Chandigarh, Mohali, Punjab, India.
Email: atlgyl@gmail.com