

# Role of statistics in the research process

[Science](#), [Statistics](#)



The methods involved in statistics are an intermediate measure between the theoretical speculations and anecdotal evidence, which lead to the discovery of new information and validate known facts. Statistics has also a role in the justification phase of the research process. This is the phase whereby, theories need to be elaborated further in order that comprehensive understanding will be established. Ideally, statistical methods are designed in order to observe or detect and measure the cause-effect relationships in certain situations where outcomes cannot be

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equally replicated due to normal variability in the applied measurements of interest. Statistics show the fashion how initial solution/s of the problem has been sought, whether or not statistical methods can create an impact on the system of management, consequently, help in the realignment of policies, techniques, or overall system leading to the better working environment of an organization.

Researchers often utilize statistics to describe meaningfully the results of an experiment or a certain investigation. They also use statistics if and when the entire target population is not accessible to them due to some reason. The application is used is the so-called sampling technique, whereby only a certain component or portion of the population is included to answer questions for the whole population.

In addition, statistics also have a role in identifying and quantifying pertinent effects and relationships prior to any discussion, and one of the most familiar ways for carrying this out is to apply empirical data or information to reject a " null hypothesis" which states that there could be no relationship or no

effect in a given variable. Several scientific advances would not be made possible without the use of appropriate statistical treatment. For example, the relationship between lung cancer and smoking was first proposed by a physician when he noticed that most of his patients with lung cancer are active smokers. Numerous investigations were then carried out to explore the connection between smoking habits and the level of lung cancer. However, a statistical relationship was already instituted long before the causal mechanism was found out.

Statistics is designed to objectively measure and incorporate normal variability among individuals, in order to find out what relationships or trends exist. It is powerful enough to create a strong foundation in the research process and consequently influence the minds of decision making bodies.