

# Research, statistics, and psychology

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Without research methods and processes, an unimaginable amount of information would be lost to the world. Though research topics and researcher personalities vary greatly, universal truths or basics of research stand the test of time. In this paper, I examine the role of research and statistics in the field of psychology by explaining several important parts of research. I define research and the scientific method. I compare and contrast the characteristics of primary and secondary data. I also define statistics and describe their role in research.

Diverse fields of study use research through the scientific method, primary data, secondary data, and statistics. Professionals use research to investigate topics, discover, and interpret facts. Research is also performed to revise theories. Psychological theories are consistently revisited. One psychologist will create the base of a school of thought, but later psychologists will expand and update the original work. The scientific method is used in research and is considered necessary for scientific investigation. The scientific method is a series of steps.

Researchers identify a problem or area of interest, research to gather information, make hypothesis, empirically test hypothesis with experiments, make changes to hypothesis or tests if necessary, draw a conclusion, and write findings. According to "Merriam-Webster" (2014), "Many empirical sciences, especially the social sciences, use mathematical tools borrowed from probability theory and statistics, together with such outgrowths of these as decision theory, game theory, utility theory, and operations research" (scientific method).

Psychologists and researchers from other fields can use different types of data. Primary and secondary data are used in research and experiments. Primary data is data collected from first hand experience. A psychologist who observes animal or human behavior is collecting primary data. Secondary data is collected from the past, other people, or publications. According to "Publish Your Articles" (2012), "It refers to the statistical material which is not originated by the investigator himself but obtained from someone else's records" (secondary data).

Psychologists cannot ethically recreate situations of child abuse to learn about psychological dynamics, related stress, and immediate reactions, so referral to past research may be necessary. Primary and secondary data types pose advantages and disadvantages to researchers. Primary data can be more credible, believable, telling, and will better fit the needs of a study. However, primary data requires funding, time, and participants. Secondary data can save time and expenses, and some research will not provide the opportunity to collect primary data.

A wealth of secondary data is available, but it can be painstaking to find sufficiently accurate secondary data to use. It can also be difficult for researchers to find secondary data that precisely fits the desired area of focus. The role of statistics in research is to access and organize research data throughout various fields of study. The summation that statistics provide paints an understandable picture of data. Psychological statistics may tell the percentage of a population that experiences seasonal depression, or what type of childhood environment influences a psychological disorder, like schizophrenia.

According to " Bcps. org" (2010), " It is important for researchers and also consumers of research to understand statistics so that they can be informed, evaluate the credibility and usefulness of information, and make appropriate decisions" (The role of statistics in research). Researchers must navigate through many different types of variables and levels of measurement in research. Levels of measurement, including rank-order, nominal, and equal-interval measure variables. Tables and graphs may be used to illustrate data, but statistics help researchers draw reliable conclusions.

To research is to investigate, whether researching a new topic, or testing an established theory. The scientific method is an integral part of any research. Respected researchers follow the steps of the scientific method. According to " Merriam-Webster" (2014), " Principles and procedures for the systematic pursuit of knowledge involving the recognition and formulation of a problem, the collection of data through observation and experiment, and the formulation and testing of hypotheses" (scientific method). Primary or secondary data can be used in research.

Primary data is data obtained directly from the researcher. Secondary data is collected from secondary sources like articles, books, and previous experiments. Each type of data has its advantages and disadvantages, and the researcher must choose a data type. According to " Bcps. org" (2010), " Statistics is the science of collecting, analyzing and making inference from data. Statistics is a particularly useful branch of mathematics that is not only studied theoretically by advanced mathematicians but one that is used by researchers in many fields" (The role of statistics in research).

The aspects of research reviewed are universal, despite the topic of research. However, research and statistics are undeniably valuable and influential. Human civilization should respect the process and endeavor of research because the world would be extremely different without research. For example, psychological medications and technology would not exist, and the human mind might be considered a hopeless mystery.