

# Applying Ethical Issues in Research Statistical Analysis and Their Relation to Human Actions

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**Abstract:** Researchers in calculating or measuring statistics use research tools or software, and researchers must apply research ethics. However, many researchers are negligent in research ethics, especially in using statistics. It is related to the relationship and the actions of the researchers themselves. Thus, if ethical norms in research are not applied, there is falsifying, fabrication, and misrepresenting data that does not support the truth. The researcher's responsibility seems to be lost, and the honesty of the researcher disappears.

The actions of researchers or humans like that happen a lot and make research useless. This article discusses the dishonesty of researchers, third-party interference, and conflicts of interest. So, it becomes a fatal error. Therefore, the ideal of scientific perfection, where researchers must think critically and scientifically, feel or act and have reliability in measurement, is unpredictable.

**Keywords:** Ethical issues, statistical research, human nature, misleading research

## I. INTRODUCTION

In research, a researcher places their actions described in the framework of footing as established general principles. In applying basic ethics and ethical principles, a researcher must regulate interactions in various aspects. Ethics identifies good, desirable, or acceptable behavior and provides reasons for concluding. According to Arichie & Archie (2003) and Lucero-Montaño, 2012 stated that researchers should be careful with ethical norms that are simple and rational. Many claims that civilization uses laws that apply moral standards and the rule of law. It is important to know that ethics and law are not the same. An action can be said to be legal but immoral or unlawful but moral. Thus, researchers must adhere to norms with reasons to support research objectives such as knowledge, truth, and avoiding mistakes. For example, researchers must be able to prevent fabricating, falsifying, or misrepresenting research data that supports truth and avoids errors. In addition, Aggarwal & Ryoo (2011) indicated that ethical standards promote important values for collaborative work, mutual trust, accountability, respect for other researchers, and fairness in involving collaboration and coordination among researchers in the same or allied disciplines or a mixture of disciplines. Chirk et al. (2006) described that two conditions can be put forward to maintain a consistent research point. These are (1) the researcher must leave the things he does in observing to complete his research without interference from the people around him. (2) Researchers must consistently hold on to the observer's position and not in a consistent imagination in observing what

is observed. Many researchers ignore the construction of logic that comes from the community. The first neglect is the inherent imperfection in the science of human behavior; The second neglect is more of a fallacy in which the thinker relaxes in thinking so that his mind is not focused on what is being studied. If the results of his research are published, it will produce an unexpected source of interference. In other words, if the researcher tends to ignore it, then this condition must be tested continuously and alternately. Research results are statements about what people do and what they will do. There are new motives that produce behavioral disorders that have been inferred.

Daoud & Azram (2014) stated that many ethical research standards, such as copyright, patent policies, data sharing policies, and confidentiality rules in peer review, are discussed to protect intellectual property interests and encourage collaboration. Several ethical norms help ensure that researchers are held accountable to the public, for example, government or state regulatory policies regarding research violations, conflicts of interest, protection of human subjects, and the care or use of animals necessary to ensure that researchers funded by public money can be held accountable to the public. Furthermore, ethical norms in research help build public support for sustainable research, and many ethical research standards promote various moral and social values such as human rights, animal welfare, legal compliance, health, and safety.

The downward trend in ethical standards in research can significantly harm the entire community and animal subjects. For example, a researcher fabricating data in a clinical trial could harm patients. In maintaining research guidelines and regulations, a researcher will fail concerning radiation or biological safety and endanger the health and safety of himself, staff and students (Ahmar et al., 2018). Researchers must find out how to understand, read between the lines, assess, and apply various research rules and regulations, and know how to make decisions and take a right ethical action in various conditions. The one who decides an ethical dilemma should be able to rationalize the decision to themselves and others who might be concerned or affected by the decision. Also, one should be able to articulate causes and reasons to explain how and why such a decision (D. Baneres, M. Elena Rodríguez, A.-E. Guerrero-Roldán, 2016).

Hagendorff & Meding (2021) explained that when people think of ethics or morals, they think of rules for distinguishing between right and wrong, which is the "Golden

Rule" (doing to others as you would want them to do to you). It is the most common way of defining "ethics": ethics are norms for behavior that distinguish between what is acceptable and unacceptable behavior. In research, ethical norms are used to measure research data using statistics. Marco et al. (2000) indicated that the researcher's practice in using the data must be appropriate. Human nature is descriptive, and the embodied standard of accuracy must be calculated and measured without interference from any party, and there is no reason to calculate or measure data to be disturbed (Shenavarmasouleh & Arabnia, 2019). Therefore, mastery of human thoughts, feelings, and actions, will achieve the ideal of scientific perfection and make it possible to predict how a researcher thinks, feels, or acts throughout life, and has reliability in measurements that can predict research.

## II. THE ETHICAL ISSUE IN STATISTICAL RESEARCH

Singh (2021) revealed that the principle in ethical statistical practice is to seek to understand and reduce known or suspected limitations, defects, or biases in data or methods and communicate the potential impact on interpretations, conclusions, recommendations, decisions, or other results of statistical practice. Thus, professional integrity and accountability require responsibility for research work. The practice of statistics supports valid and wise decision-making with appropriate methodologies because the ethical use of statistics represents the capabilities and activities of research honestly and treats activities with respect (Young, 2018). Those who fund, contribute to, use, or are affected by statistical practices are considered stakeholders. Ethical statistical practitioners will respect stakeholder interests in practicing statistics following these guidelines (Shenavarmasouleh & Arabnia, 2019).

Aggarwal & Ryoo (2011) mentioned that as ethical practitioners of statistics, researchers do not abuse or condone data misuse. Researchers protect and respect the rights and interests of human and animal subjects. This responsibility extends to those directly affected by the statistical practice. Researchers who use statistical practice and consist of teams of different disciplines must know how to work ethically in this environment. Responsibilities to researchers and other professions include honest communication and engagement that can strengthen the work of others and the profession (Katz, 2014)

Research leaders may lead, supervise, and guide other researchers in statistical practice who have a special obligation to follow and promote ethical guidelines for the integrity of research practice. In order to identify cases of statistical misuse in research, researchers must have ethical guidelines to integrate research practices and the use of statistics. Honest research is carried out by the researcher, who applies the correct data collection and interpretation techniques, re-corrects the data with their questions, and analyzes their results (Vrigkas et al., 2015). In addition, Hagendorff & Meding (2021) stated that the researcher's affiliation with the funder may have other interest because no

one works for free. Knowing who sponsors research is always interesting; what is the motive behind the research? What was the scientist looking for? Finally, how big is the sample being studied, and who is a part of it? How inclusive is it? This question is important and needs to be answered before distributing the questionnaire so that the results are not skewed or biased.

### 2.1 Human Nature

In research, human nature is descriptive far from the standard of accuracy; however, human nature must be considered using statistics. Human nature in using statistics is shown in understanding the basics of software statistics with complex calculations. It takes a long time to produce attractive visuals and help present research results.

According to Seglow J (2002) many books that explain statistics are written by an expert in their field but do not qualify to write about statistics in research. Nevertheless, many books raise erroneous ideas in which the author makes mistakes and then justifies false arguments to justify them. It becomes a problem for people who read these books and do not have sufficient knowledge to detect defects, and as a result, errors continue to spread. The use of the software by a researcher in statistical calculations has grown. Using software packages on the computer can be accessed for research (Yellapu, Vikas, 2018). While these tools are useful and can save time, using them without fully understanding them can be dangerous. The operation of statistical calculation tools on computers has many different versions and applications. For example, the standard deviation should be calculated as  $n$  and not  $n-1$ . It is wrong to use variance that is not collected in the t-test. This small difference could not give a significant result (Daoud, 2014).

### 2.2. Resources and Tools

The use of maps describes the distribution of spatial data, such as the level of COVID-19 in each region. The results can be deceptive if the sample size differs from region to region, especially in poorly sampled areas. Any adjustments, such as using the posterior route, can lead to new problems (Sainani, 2012). Many incorrect patterns were found, while the data never existed. Gelman et al. (1999) stated that while using computed maps can be helpful, they are still unsuitable for presenting results as they can further confuse the reader. Therefore, this software and tools cannot be used generally.

In addition, in using maps that depict the spatial distribution of data, such as COVID-19 rates by region, the results can be deceptive if the sample size differs from region to region, especially in poorly sampled areas. When each adjustment of the use of the posterior route can cause new problems, and the wrong pattern is found, even though the data never existed (Hagendorff & Meding, 2021). In using maps that depict the spatial distribution of data, such as COVID-19 rates by region, the results can be deceptive if the sample size differs from region to region, especially in poorly

sampled areas. When each adjustment of the use of the posterior route can cause new problems, and the wrong pattern is found, even though the data never existed.

Gelman et al. (1999) stated that while using computed maps can be helpful, they are still not suitable for presenting results because they can confuse the reader more. Therefore, this software and tools cannot be used generally.

### 2. 3. Data Collections

Calzon, B (2021) explained that statistics is a subset of mathematics, and it should come as no surprise that understanding, mapping, and modeling concepts are not an easy process. Misinterpretation can affect research, resources, and also funding. Research data collection must be done correctly and according to facts to produce the right research. Data collection is not in a conflict of interest, and it is not uncommon for research to be intentionally expanded to attract greater attention—for example, research on the difficulties of lecturers in using digital technology.

Sainani, K. (2012) stated many studies duplicate this data collection to show that many lecturers cannot use digital technology, even though the sources are only a few lecturers. However, the data collection is misguided for the smooth running of this research, and the funders need this data. As a result, the institution makes the wrong decision, so that the institution provides training on the use of the same digital technology continuously; on the one hand, many lecturers are fired and do not teach again for the next semester, and this is a new problem and provides misleading information.

Another example of sampling is a data set built over a long-time frame from a standard threshold. During COVID-19, many hospitals could not accommodate patients due to the small number of vacant beds and hospitals not reporting the emergency conditions that had to be carried out when this problem occurred. So that many patients are not accommodated in one hospital, which is very dangerous and misguided, causing patient deaths due to misreporting (Driessen et al., 2022). The data used in the study cannot be too large or too much. If this happens, the research becomes too complex and must be revised several times. What needs to be known and used in research is that using the right method is necessary. Otherwise, the output may lead to misleading deductions (Thausend, 2019).

### III. THE CORRECT USE OF STATISTICS IS COMPATIBLE WITH FREE WILL

Archie & Archie (2003) indicated that using statistics in research can create controversy between fate and free will. The difficulties faced by research do not arise from the researcher's knowledge but from predictions about what the researcher is doing. Gelman & Price (1999) stated that the use of statistics raises the controversy between destiny and free will. Researchers found difficulties that did not arise from their knowledge but from predictions about what was done after using statistics and software or statistical tools, and the

results may differ from expectations (Lucero-Montaño, 2012). Therefore, predicting human actions in research can be cited and inserted in manuscripts and writing abstracts. Practical awareness of freedom of thought must be maintained even though using software or tools is challenging. Thus, researchers can predict the actions to be taken so that they can research properly so as not to give problems to publishers or not to give errors in the use of statistics to readers. If all cause problems with using statistics, then it is very likely that the results are falsified so as not to interfere with publication.

Using statistics with false results gives different contradictions to the reader. Certain actions may announce that results are inappropriate or false, and some may not announce such actions, but the researcher compensates by publishing others. Thus, researchers still find a way out of trouble if this happens (Calzon, 2021). Researchers must understand that the complication of research results using false statistics will conflict between the news spread and the actions taken. Therefore, the real problem is not in his knowledge but in the predictions that create difficulties, and observations, after making an announcement of errors in using statistics. Researchers should be aware of the effects and may even be able to personally communicate the results to others so that the study can be canceled (Király et al., 2020). A researcher works above his or her power to predict things that will happen, and it must be admitted that the researcher works under an inherent disability. It can be a lesson for other researchers to be careful, and the hypothesis provides an alternative and does not harm by causing falsification.

Yellapu & Vikas (2018) stated that statistics are concerned with the research probabilities stated by the researcher, behavior is tabulated and has reasons, and the action in question is the habit of doing research. The researcher will discuss the results of the statistical calculations used in the publication forum. Researchers can defend their opinion by using statistics with rigid consistency. Therefore, the general public can express opinions about the author's ability to disseminate information that will increase statistical studies. It can happen in the form of an invisible sentiment.

### IV. THE FATALISTIC FALLACY

Katz, M. (2014) described that probability and induction, and invariability are antecedent statistical uniformity. Researchers have always made mistakes in using statistics, and they are wrong. When the human action hypothesis is accepted, the effect of the consequences is declared insignificant. However, the consequential effects are large and inconsistent when the hypotheses act. Thus, causing confusion and do not make sense. The fatal act of the researcher by complaining about the great social power can bring out that the researcher is selfish and allows everything, good or bad, so it can interfere. This kind of fatalistic view is seen as disparaging comments about the researcher's efforts, with the intention that these complaints are often made. It can call the researcher's complaints selfish and not from the results of his research (Crow et al., 2006)

Calzon, B (2021) explained that many people judge a researcher's ability to use statistical information and measures. Judgments happen and are not all based on facts, so researchers need to expand the experience and rules of inductive philosophy to get the right direction in using statistical calculations. The researchers' errors in using statistics should be changed (Sainani, 2012). Therefore, the act of a researcher who deliberately uses incorrect statistics is a researcher who does not care morally. And this becomes fatalistic, accompanied by moral weakness in practice.

Seglow, J. (2002) stated that the view of speculative people states that the researcher's actions can be justified because the facts that arise allow the researcher to be inconsistent and not research so that it becomes fatal. Fatalism risks undermining moral judgment by paying attention to human action with the indifference of its research. As a result, research against the real current cannot be broken. Researchers should re-examine their research before publishing because there is no protection against the habit of constantly using statistics (Chirk et al., 2006).

It can be suggested to reduce the speculation of researchers by practicing using statistics so that there are no mistakes and they make sense. Fatalism does not easily escape the judgment of society. Being the most hopeful person, the researcher is certainly selfless and must correct the best for research service (Crow et al., 2006). Therefore, researchers must avoid this danger and always discuss it with statisticians and research experts so as not to fall into further research. Society will always remember the fatal mistakes of researchers.

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