Unit 7: Inferential Statistics and Hypothesis Testing

e-Portfolio Activity: Collaborative Learning Discussion 2: Case Study: Accuracy of information

Initial Post

Task:

Abi is a researcher at an institute and also a statistical programmer. Abi has received a project from a manufacturer to review the nutritional value of a new cereal, Whizzz. Having collected the necessary data, he now needs to perform the appropriate analyses and print the reports for him to send to the manufacturer. Unfortunately, the data Abi has collected seems to refute the claim that Whizzz is nutritious, and, in fact, they may indicate that Whizzz is harmful.

Abi also realises that some other correlations could be performed that would cast Whizzz in a more favourable light. “After all,” he thinks, “I can use statistics to support either side of any issue.”

Ethical Concerns

- Clearly, if Abi changed data values in this study he would be acting unethically. But is it any more ethical for him to suggest analysing correct data in a way that supports two or more different conclusions?
- Is Abi obligated to present both the positive and the negative analyses?
- Is Abi responsible for the use to which others put his program results?
- If Abi does put forward both sets of results to the manufacturer, he suspects that they will publicise only the positive ones. What other courses of action has he?

You should also highlight legal, social and professional impacts of any choices made. Please note that there are no right or wrong answers here and you may introduce local, as well as international, legislature in your responses.

You should demonstrate that you understand the topic covered and ensure you use references to academic literature (including journals, books, and reports). This activity will provide evidence of your personal growth and your summary post is required in your e-portfolio.

Your initial posting should respond to the question and be at least 200 words long. Your initial post should be labelled "initial post".

Initial Post:

Abi, a researcher and statistical programmer, is at the juncture where ethical and practical issues intersect. His role involves analyzing data on the nutritional content of a new cereal, Whizzz, for a company. However, the data he gathered indicates that Whizzz might not be as nutritious as advertised and could even pose health risks. This presents several ethical, legal, and professional dilemmas.

Abi has an ethical duty to disclose all findings, whether favourable or unfavourable, to uphold the transparency and integrity of his research. The Ethical Guidelines for Statistical Practice of the American Statistical Association emphasize the necessity of applying statistical methods scientifically without biasing the results (American Statistical Association, n.d.). If Abi suggests analyses that could lead to varied conclusions, the risks undermine this integrity. Legally, Abi must be mindful of how his results may be misused. Misleading consumers, through selective reporting, could breach consumer protection laws, potentially resulting in legal repercussions for both the manufacturer and Abi (Resnik, 2025).

From a professional standpoint, if Abi chooses to present only one set of results, this could harm his reputation and credibility within the scientific community. It might also encourage other researchers to manipulate data to achieve desired outcomes, eroding trust in scientific research (Resnik 2025). Socially, providing inaccurate information about Whizzz's nutritional value could lead to public health problems if consumers are deceived into thinking the product is beneficial when it might not be. This underscores the broader responsibility of researchers to the public, ensuring that their work does not contribute to misinformation or harm (Resnik, 2025).

There are several alternative actions to consider for Abi. First, he could present both sets of results to the manufacturer along with a thorough explanation of the methodologies and potential biases. This ensures transparency and allows manufacturers to make informed decisions. Second, Abi suggested that the manufacturer conduct additional studies to confirm the findings. This would offer a more complete understanding of the nutritional value of Whizzz. Another option is to involve an independent third party in reviewing the data and providing an unbiased evaluation. This would help ensure that all relevant information is considered, and that the manufacturer is aware of the potential risks of selective reporting (American Statistical Association, n.d.).

Conclusion

Abi's situation highlights the complex ethical challenges faced by researchers and statistical programmers. While he is ethically required to present all the analyses, he must also consider the potential misuse of his results. By presenting both sets of results and recommending further studies or third-party reviews, Abi can maintain his professional integrity while minimizing the risk of misuse of his findings. This approach aligns with ethical guidelines and legal frameworks, ensuring that his work contributes positively to both the scientific community and public health (Resnik 2025).

References

American Statistical Association, (n.d.) Ethical guidelines for statistical practice. Available at: https://www.amstat.org/asa/files/pdfs/EthicalGuidelines.pdf [Accessed 20 Feb. 2025].

Grand Valley State University, (n.d.) Ethical guidelines for statistical practice. Available at: https://www.gvsu.edu/stat/ethical-guidelines-for-statistical-practice-15.htm [Accessed 20 Feb. 2025].

Resnik, D.B., (2025) What is ethics in research & why is it important? National Institute of Environmental Health Sciences. Available at: https://www.niehs.nih.gov/research/resources/bioethics/whatis [Accessed 20 Feb. 2025].