**Discussion Topic - Case Study: Accuracy of information**

**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.**

Abi's ethical dilemma is about around the integrity of data representation and the consequences of selective analysis. Ethically, presenting analyses that support only positive conclusions while ignoring or downplaying negative results is dishonest. According to the American Statistical Association, misleading with statistics can be as unethical as fabricating data (Wasserstein & Lazar, 2016). Abi needs to follow the principles of honesty and transparency in her analysis and present both positive and negative findings to make sure she presents a balanced, honest and accurate view.

Abi is morally obligated to present both positive and negative analyses to maintain scientific integrity (Mlinarić *et al.*, 2017). Selective reporting, which is also known as ‘cherry-picking’, undermines the trustworthiness of research and can lead to public harm, especially in a field like nutrition where public health is at stake (Ioannidis, 2005). By showing the full picture, Abi is making sure that the manufacturer and consumers are know about all potential effects of Whizzz cereal.

Regarding the responsibility for the use of her results, Abi does hold some accountability. Whilst she can’t control how others use her findings, she should try to mitigate misuse of her findings by clearly communicating the limitations and implications of her results (Kass *et al.*, 2016). She can document her methodology and findings to providing context and prevent misinterpretations.

If Abi suspects the manufacturer will only make the positive results public she could include a comprehensive summary of her findings in her own report, clearly stating the potential negative impacts. She could publish her full analysis in an academic journal or a public platform to make sure there is transparency and accountability. This approach would align with the ethical standards of openness and reproducibility in scientific research (Baker, 2016).

References

* Baker, M. (2016). Reproducibility crisis. *Nature*, 533(7604), 26-28.
* Ioannidis, J. P. A. (2005). Why most published research findings are false. *PLoS Medicine*, 2(8), e124.
* Kass, R. E., Caffo, B. S., Davidian, M., Meng, X. L., Yu, B., & Reid, N. (2016). Ten simple rules for effective statistical practice. *PLOS Computational Biology*, 12(6), e1004961.
* Mlinarić, A., Horvat, M. and Šupak Smolčić, V. (2017). Dealing with the positive publication bias: Why you should really publish your negative results. *Biochemia medica*, 27(3), pp.447-452.
* Wasserstein, R. L., & Lazar, N. A. (2016). The ASA's statement on p-values: Context, process, and purpose. *The American Statistician*, 70(2), 129-133.