

Collaborative Discussion 2: Initial Post (361 words)

Abi is potentially faced with an ethical challenge, therefore it is critical how he handles it. With running a range of statistical tests to surface a statistically significant result, Abi is engaging in inflation bias, also known as p-hacking. P-hacking involves applying a range of statistical tests on gathered data and selectively reporting only the significant results based on the desired p-value, usually 0.05 (Head et al., 2015). Strategies for p-hacking include selectively reporting on the dependent and independent variables, early stopping of research and exclusion of outliers amongst multiple other strategies (Stefan & Schönbrodt, 2023).

To answer the questions posed:

1. 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?

It is critical to highlight that statistical tests come with a rigorous set of assumptions which must be met, and some tests are more powerful than others (Erceg-Hurn & Mirosevich, 2018). Thus, it is vital that Abi ensures the data meets the necessary assumptions for the selected statistical tests, deeming the testing results valid. If in this scenario, there are still two conflicting outcomes when using the same data including the same dependent and independent variables, both should be reported with their respective effect sizes and detailed explanation of the methodology, and an explanation as to why there could be conflicting outcomes. This would ensure full transparency with the cereal company.

2. Is Abi responsible for the use to which others put his program results?

Abi is not responsible for the use to which others put his program results. However, as highlighted in the earlier answer, Abi is responsible for the accuracy and integrity of his analysis, including appropriate application of statistical testing (National Academy of Sciences, 2009).

3. 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?

If Abi's suspicions materialise, he has multiple courses of action. Firstly, he should report suspected unethical behaviour. For example, the UK Research Integrity Office highlights that "manipulating and/or selecting research processes, materials, equipment, data etc. to present a false impression or outcome", also known as falsification, is a type of research misconduct (Hodgkinson, 2023) and in Abi's particular example, should be reported to known regulators, for example, the Food Standards Agency.

The implications of falsification and taking no action in the scenario of the scientific misconduct are significant. Firstly, it has significant impacts on the scientific field (National Academies of Science, 2017). Secondly, as highlighted, there may be a risk of regulatory action and legal repercussions to the cereal maker based on negligence and harm to human health. Additionally, financial and reputational harm may also be incurred (Stern et al., 2014).

References:

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