

Collaborative Discussion 2 – Research Methods and Professional Practice – Peer Response, Gurkan Huray – Michael Geiger

Thank you Gurkan for your thoughtful post about Abi's dilemma. I consider the argument of pursuing a null-hypothesis approach to be particularly important in relation to scientific research in general.

Research results must be documented, validated and reproducible so that further research can take place and the accuracy can be confirmed or influencing factors can be identified (Pusztai et al., 2013). The null-hypothesis approach is a key component as it follows the principle of the scientific approach and helps to ensure that research is designed in such a way that it can be theoretically falsified, which is what constitutes the scientific value of research (Wallis, 2008).

While this approach contributes significantly to the scientific principle, possible dangers and limitations should also be considered so that the null-hypothesis approach cannot be misused as a basis for justifying misleading reasoning.

One aspect here is the formulation and choice of the distinction between H_0 and H_1 hypothesis. Since this choice can significantly influence the verification or falsification of the hypothesis, the choice of the delimitation area can influence the interpretation of the results. Although this approach will be noticeable on closer examination of the study or control studies, damage can occur in the intervening period of time, as it could be the case in Abi's study, for example. Ethically responsible behaviour is therefore the prerequisite for the correct application of the null-hypothesis approach.

Furthermore, it should be noted that "no test based upon a theory of probability can by itself provide any valuable evidence of the truth or falsehood of a hypothesis" (Neyman & Pearson, 1933). The null-hypothesis approach should always be

evaluated as evidence to suggest a conjecture rather than absolute evidence to support a theory.

It can therefore be summarized that the null hypothesis approach makes a valuable contribution to the scientific process and contributes significantly to the consistency of research. However it should be noted, that the correct handling of this approach and ethical behaviour is required.

References:

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