

Simulation Studies for Methodological Research in Psychology

Björn S. Siepe^{*}, František Bartos, Tim P. Morris, Anne-Laure Boulesteix, Daniel Heck, Samuel Pawel

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SIPS 2024. Slides available at <https://bsiepe.github.io>

“Simulation studies are **experiments** and should be treated as such by authors and editors”(Hauck & Anderson, 1984)

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Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives

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The design of simulation studies in medical statistics

Andrea Burton^{1,2,*}, Douglas G. Altman¹, Patrick Royston^{1,3} and Roger L. Holder⁴

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- Review of 100 recent simulation studies in psychology
- Majority does not provide code

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This project:

- Review of **100 recent simulation studies** in psychology
- Majority does not provide code
- Majority does not provide enough information on the uncertainty of results

ADEMP-PreReg Template for Simulation Studies

Version: 0.1.0

Last updated: 2023-10-31

Preregistration template designed by

Björn S. Siepe, František Bartoš, Tim P. Morris, Anne-Laure Boulesteix, Daniel W.
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- **Living document:** <https://github.com/bsiepe/ADEMP-PreReg>

The ADEMP-PreReg template

Purposes

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- **Planning** of simulation studies

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- **Preregistration**

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- **Preregistration**
- Blueprint for **reporting**

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- **Preregistration**
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- **Reviewing** of simulation studies

Limitations

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- **Planning** of simulation studies
- **Preregistration**
- Blueprint for **reporting**
- **Reviewing** of simulation studies

Limitations

- Preregistration could be **faked**

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Purposes

- **Planning** of simulation studies
- **Preregistration**
- Blueprint for **reporting**
- **Reviewing** of simulation studies

Limitations

- Preregistration could be **faked**
- May **slow down** exploratory research



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**Simulation Studies for Methodological Research in Psychology:
A Standardized Template for Planning, Preregistration, and Reporting**

Björn S. Siepe^{*1}, František Bartoš^{*2}, Tim P. Morris³, Anne-Laure Boulesteix⁴, Daniel W.
Heck¹, and Samuel Pawel^{*5} * contributed equally

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- Simulation studies can have **big impact**, should be **conducted carefully**

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- Simulation studies can have **big impact**, should be **conducted carefully**
- **Protocols** can make simulation studies **more reliable**
- **ADEMP-PreReg template** helps in preregistration, planning, reporting, reviewing of simulation studies

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