

Exercise walk-through

6.1

Measurement, methods, statistics and history: evidence and transfer

GRE · GRE Subject Test · GRE Psychology

Concepts 2

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Random assignment improves comparisons; random sampling supports population generalisation. Ethics constrains both design and interpretation.

A p-value is a probability of data at least as incompatible under the null model, not the probability that the null is true. History questions distinguish explanatory schools and their methods.

Check the transfer argument

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Under the specified null model and assumptions, the probability of results at least as extreme as the observed result is .03. It is not a posterior probability for the theory. Effect size and uncertainty must be reported separately; even a small effect can have a small p-value in a large sample. Design bias is not removed by significance.

Accept a different explanation when its evidence and limits are justified.

Check yourself

Independent retrieval

Random sampling is used but allocation is not random. Which inference is strengthened and which causal problem remains?

Write your reasoning before comparing it with the methods and limits taught in this lesson.

Exercises 2.1·2.3

2.1 A stable wrong measurement shows:

[1]

A. reliability without demonstrated validity B. perfect validity C. no consistency

2.2 Random assignment primarily supports:

[1]

A. causal group comparison B. representative population sampling C. automatic external validity

2.3 Revisit the worked case. State one conclusion its evidence supports and one stronger conclusion it does not support. Explain the difference.

[2]

Exercises 2.1·2.3

2.1 A stable wrong measurement shows: [1]

A. reliability without demonstrated validity B. perfect validity C. no consistency

2.1 Answer: A. Repeatability alone does not establish accuracy or construct fit. The other options do not satisfy the stated defining conditions.

2.2 Random assignment primarily supports: [1]

A. causal group comparison B. representative population sampling C. automatic external validity

2.2 Answer: A. It balances group differences in expectation. Compare the exact process, design or evidence, rather than an associated keyword.

2.3 Revisit the worked case. State one conclusion its evidence supports and one stronger conclusion it does not support. Explain the difference. [2]

2.3 Use the worked case evidence to support a bounded claim and explain why a causal, universal or stronger claim needs additional evidence. The claim must fit the specific design and observed process.

Exercise 3.1

3.1 A report finds $p=.03$ and concludes that its theory has a 97% probability of being true and a large effect. Correct both inferences. Give the interpretation, supporting reasoning, a relevant alternative or limitation, and an appropriate check. [4]

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3.1 Under the specified null model and assumptions, the probability of results at least as extreme as the observed result is .03. It is not a posterior probability for the theory. Effect size and uncertainty must be reported separately; even a small effect can have a small p-value in a large sample. Design bias is not removed by significance. Award B1 each (authored) for the interpretation, its reasoning, a relevant limitation/alternative and an appropriate check, up to four points. Accept a different justified answer satisfying these demands.