```
course = "Improving your statistical inferences through simulation studies in R"


lesson_iteration = 6
lesson_title = "different ways to analyse RCTs (2X2 within-between experiments)“


auth = "Ian Hussey"
dept = "Psychology of Digitalisation"
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Overview

RCTs
a 2X2 within-between experiment

- In each of these scenarios, a Randomized Controlled Trial studied the effect of a psychotherapeutic intervention (vs. control) on a self-report measure of well-being.

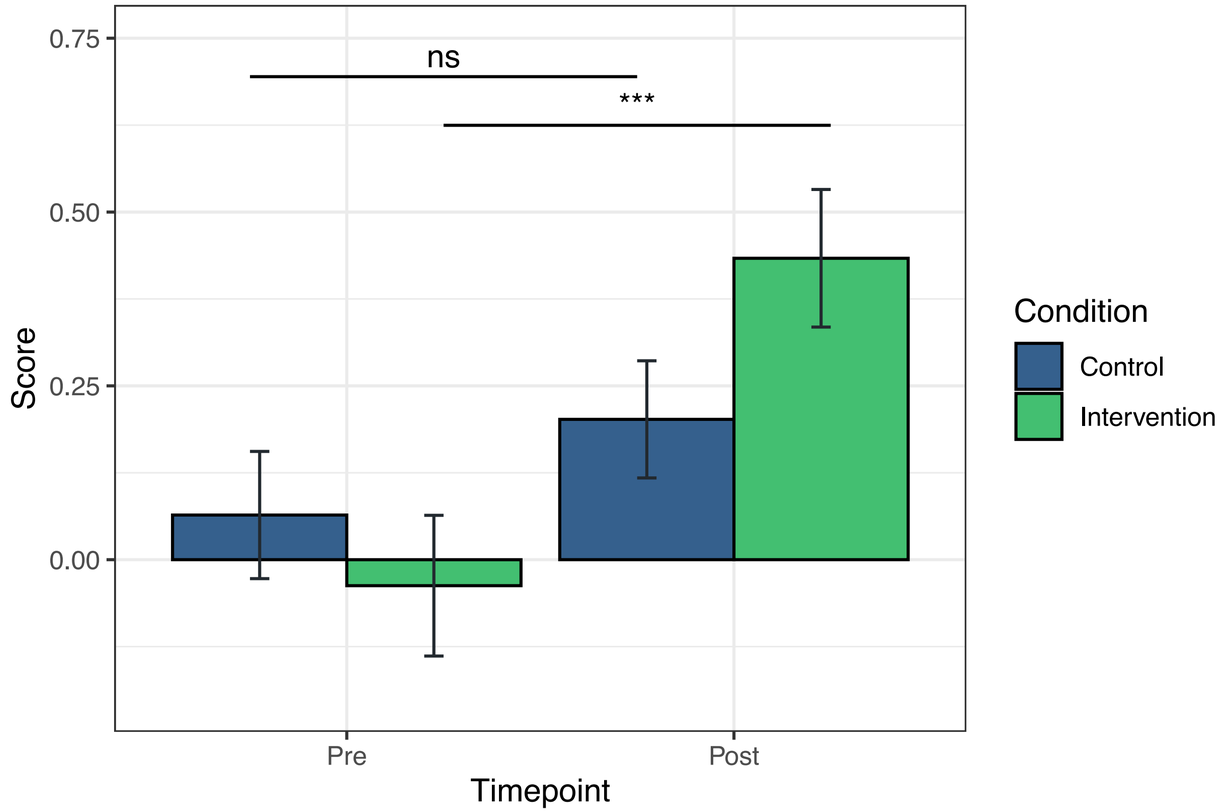
- Participants were randomized to either the control or intervention group.

- They completed the measure of well-being before completing the intervention (timepoint ‘pre’) and after it (timepoint ‘post’).

- For each scenario, what should we conclude about the efficacy of the intervention for well-being?

Scenario 1

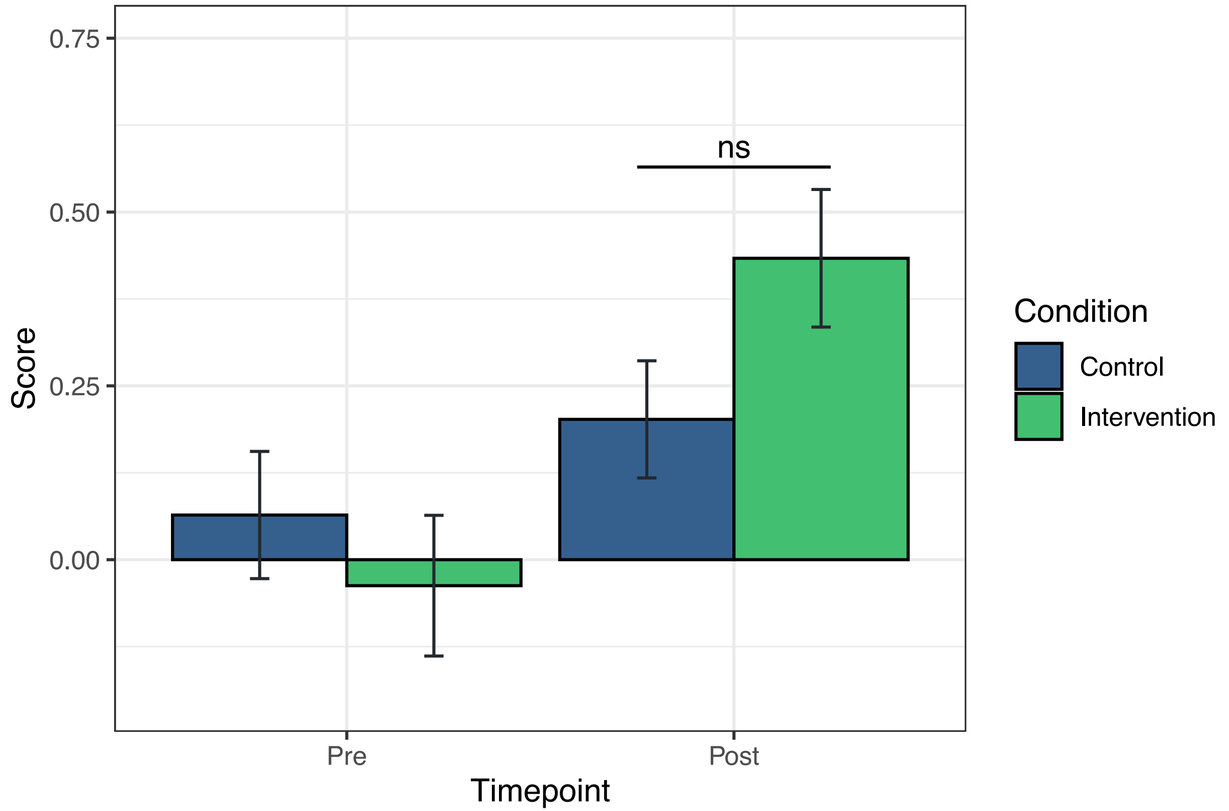
- A dependent t-test compared scores between pre and post in the intervention group: $p < .001$
- A dependent t-test compared scores between pre and post in the control group: $p \geq .05$



aut = "Ian Hussey";

Scenario 2

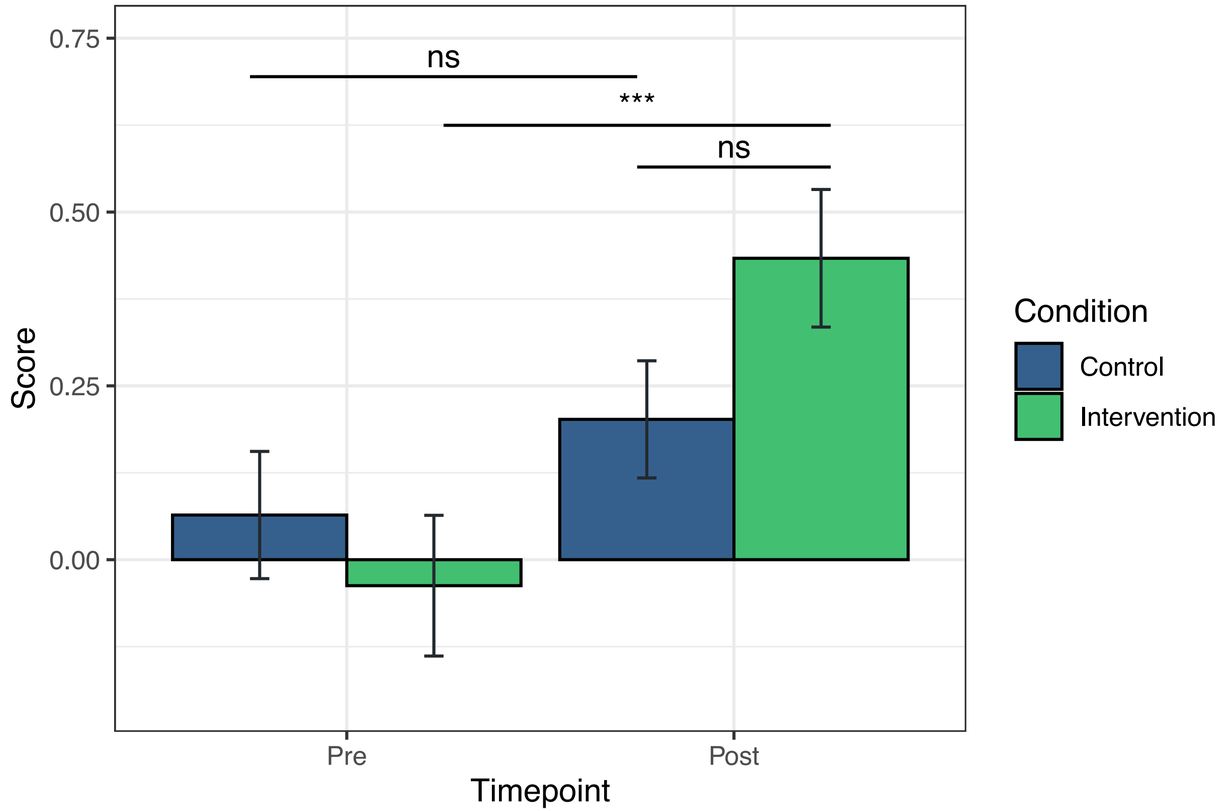
- An independent t-test compared scores between the control and intervention groups at the post intervention timepoint: p ≥ .05



aut = "Ian Hussey";

Scenario 3

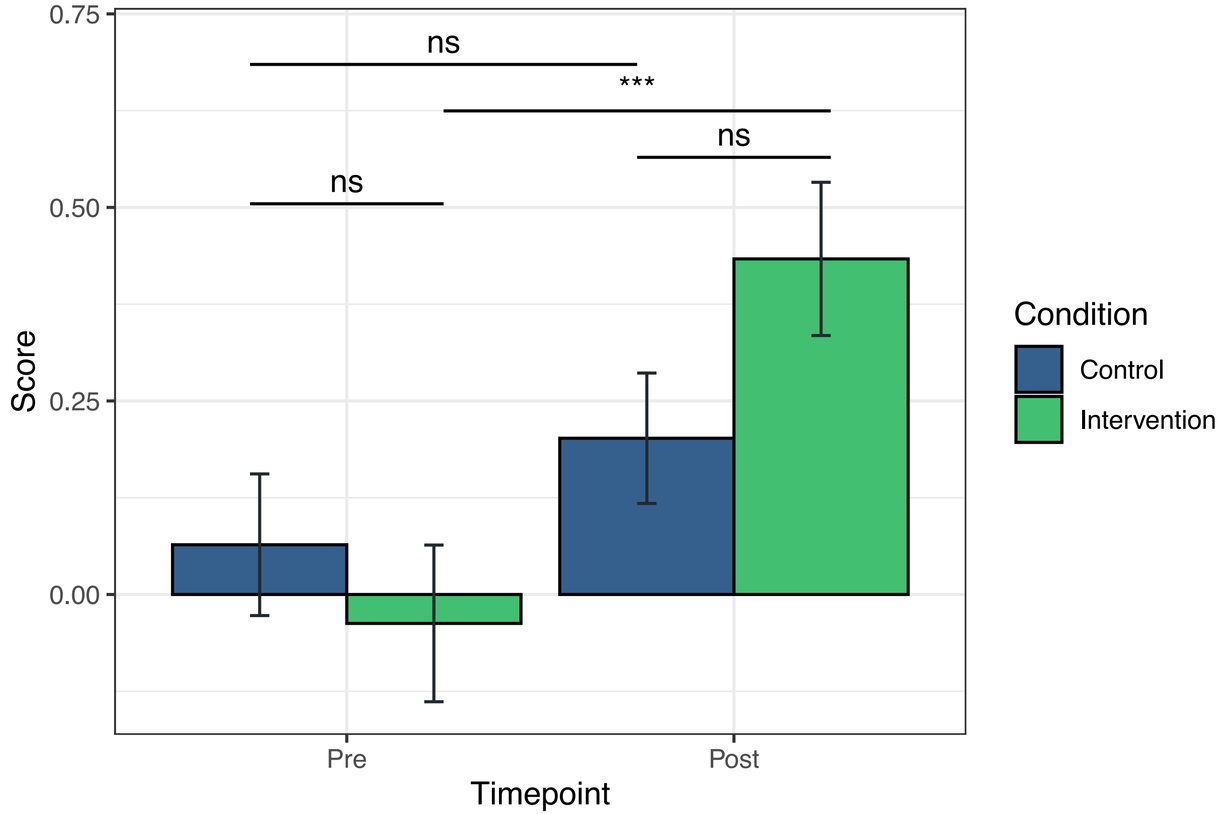
- A dependent t-test compared scores between pre and post in the intervention group: $p < .001$
- A dependent t-test compared scores between pre and post in the control group: $p \geq .05$
- An independent t-test compared scores between the control and intervention groups in the post intervention timepoint: $p \geq .05$



aut = "Ian Hussey";

Scenario 3

- A dependent t-test compared scores between pre and post in the intervention group: $p < .001$
- A dependent t-test compared scores between pre and post in the control group: $p \geq .05$
- An independent t-test compared scores between the control and intervention groups in the post intervention timepoint: $p \geq .05$
- An independent t-test compared scores between the control and intervention groups in the pre intervention timepoint: $p \geq .05$



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General Qs

- In analytic strategy 4 where all four tests are run, are any of the tests redundant to answering the primary research question of ‘is the intervention effective’?

- What other ways are there of analyzing these data?
  - What are the pros and cons of each of them?

- What are the inappropriate ways of analyzing these scores? Why?

- Which is the most appropriate way of analyzing these scores? Why?

Preparation

for next lesson

Assignment

> 5_different_ways_to_analyse_RCTs__assignment.docx

> 5_writing_functions__lesson_and_assignment.Rmd