

Section C**Research methods**

Answer **all** questions in this section.

A psychologist wanted to investigate whether exercise would affect stress levels in 15-year-olds. Previous research into the effects of exercise on stress in teenagers had shown that exercise decreased stress levels.

The psychologist decided to use a repeated measures design to investigate the effects of exercise on stress levels in 20 15-year-old students. All the students were approaching their end-of-year exams.

For **Condition A**, students were required to complete a 2 km run during their morning breaktime each school day for one week.

In **Condition B**, students continued their normal activities in the playground during their morning breaktime each school day for one week.

At the end of each week of the investigation, for both **Condition A** and **Condition B**, each student was asked to rate their levels of stress on a rating scale of 1–10, where the higher the self-reported rating the greater the stress levels.

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Which of the following types of hypothesis is **not** appropriate for the psychologist to use in their study?

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[1 mark]

A Directional hypothesis

B Non-directional hypothesis

C Null hypothesis

D One-tailed hypothesis



1 1

Explain why a repeated measures design was more appropriate than an independent groups design in this study.

[2 marks]

Participant variables like workload or overthinking could have created a difference between condition A and condition B by affecting stress levels if an independent-groups design was used. Repeated measures design eliminated such variables, increasing validity.

To improve the validity of the findings, the psychologist counterbalanced the students across the experimental conditions.

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Describe how the psychologist could have counterbalanced the students across the experimental conditions.

[3 marks]

The psychologist could allocate ten participants to one group and the other ten to a separate group. The first group will do the 2km first in one week, followed by the normal activities in the second week. The other group will do these tasks in reverse order. At the end of each week, each group will rate its stress levels.

Students self-reported their stress levels on a scale of 1–10.

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Explain how this might have affected the validity of the data collected.

[4 marks]

Validity could be increased as participants' stress levels are internally experienced by them. They would be able to best report how stressed they felt. However, validity could also be decreased as participants could forget how stressed they felt over the course of the week. So, stress ^{levels} reported at the end of the week would not accurately reflect their experience.

Turn over ►

