



# RESEARCH IN ACTION



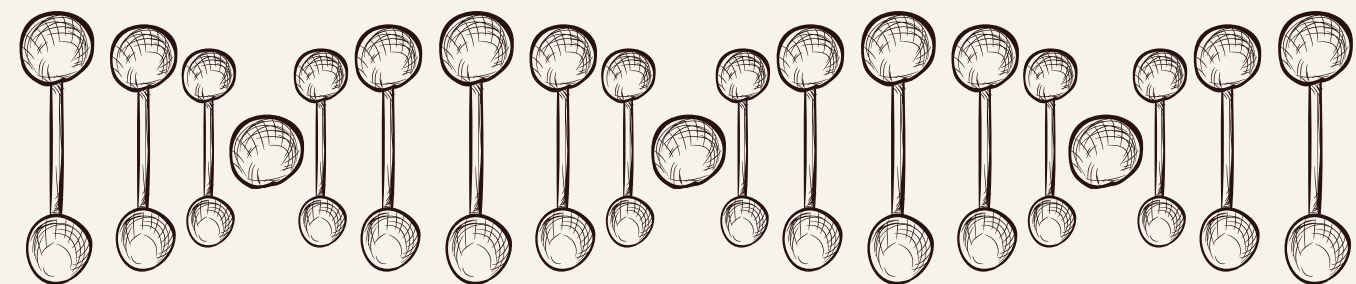
Presented by Calvin Phang 2226265



# The Effects of Physical Activity Intervention on Student Mental Well-being in UWTSD, Swansea: A Quantitative Study using the WEMWBS

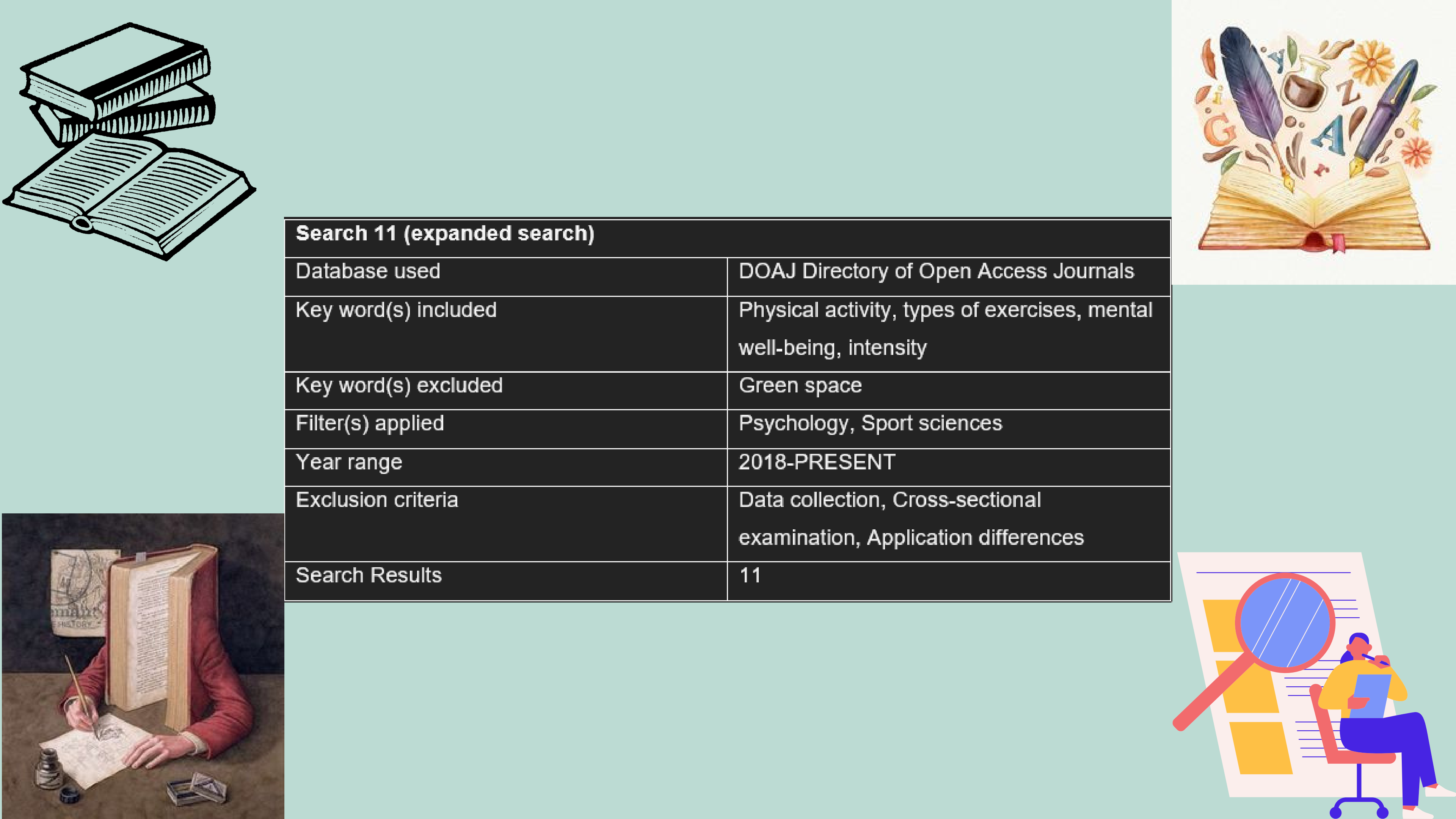
## Why Experimental Research?

- Uncharted territory
  - Not done by us in Malaysia, Topic not done in contemporary academia
- Physical activity intervention for students



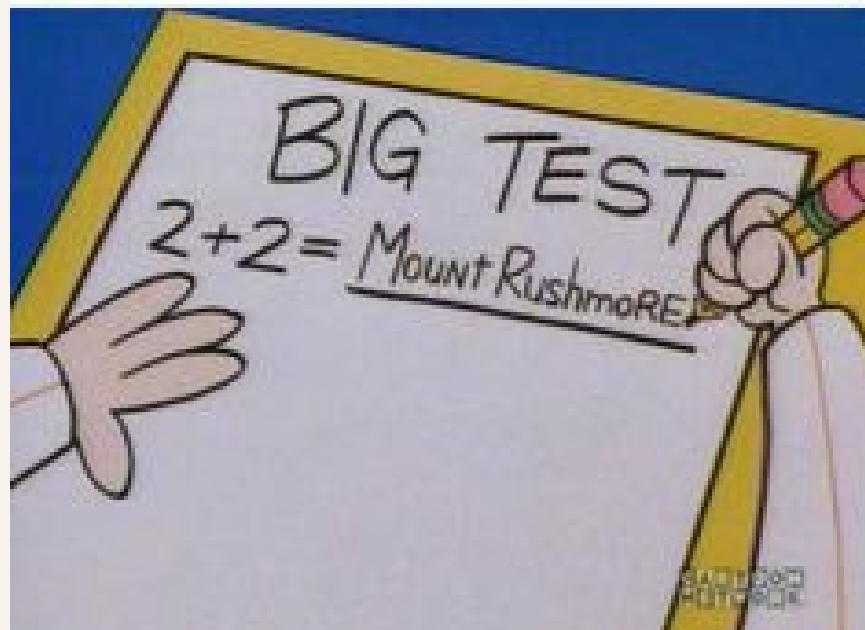
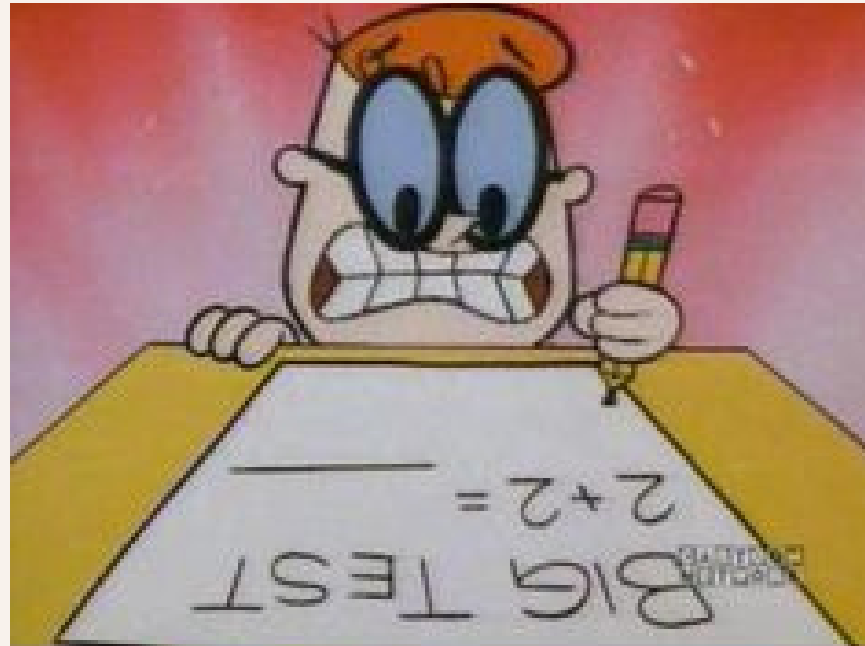
# Competency 1: Systematic Literature Review

- I initially led the discussion and planned on including the Warwick-Edinburgh Mental Well-Being Scale, as one of our key words to increase specificity to our topic. However, after consultation with our supervisor, I was advised and learned that only viewing literature that used our scale would hinder many other studies which would greatly inform our knowledge of our study.
- Moreover, I decided to exclude key words like “Green space” as many studies would compare physical activities indoor and outdoor which we found to be irrelevant to our study. Learning what to exclude helped me greatly in knowing what was important for my specific paper, and this would help me for future studies as well (Anguera et al., 2017).



| Search 11 (expanded search) |                                                                       |
|-----------------------------|-----------------------------------------------------------------------|
| Database used               | DOAJ Directory of Open Access Journals                                |
| Key word(s) included        | Physical activity, types of exercises, mental well-being, intensity   |
| Key word(s) excluded        | Green space                                                           |
| Filter(s) applied           | Psychology, Sport sciences                                            |
| Year range                  | 2018-PRESENT                                                          |
| Exclusion criteria          | Data collection, Cross-sectional examination, Application differences |
| Search Results              | 11                                                                    |

# Competency 2: Applied Research Skills



01

Selected Research Area, and Research Question.

02

Quality checking and conflict resolution



01

## Research Area, and Research Question

While clearly understood that physical activity would improve mental well-being (Siefken et al., 2019; Pressman et al., 2020; Kim et al., 2020), our research project would question the effectiveness of an **intervention** aimed to promote physical activity in the busy schedules of university students.

This novel idea was inspiring to me as it taught me that even if a subject is thought to be well understood, there were still measures I can personally take to improve application of said ideas into society.



02

## Quality Checking and Conflict Resolution

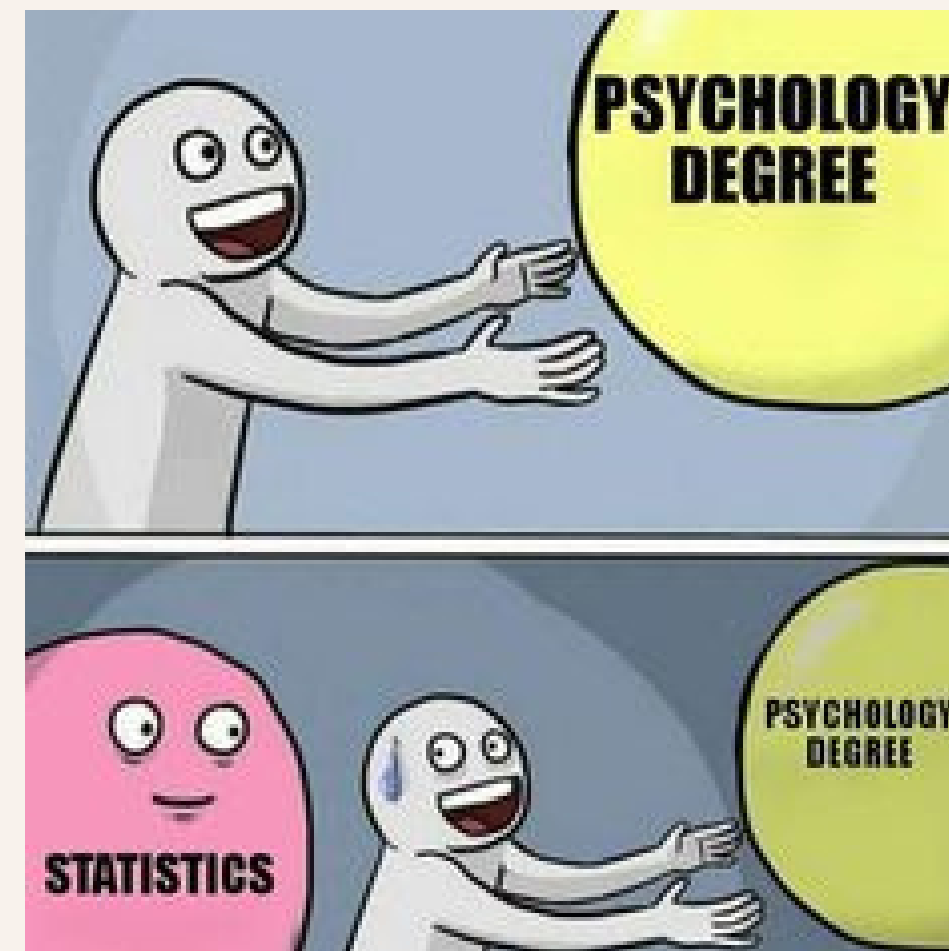


This process was not so simple as it also included many difficult moments from me as I struggled to effectively communicate and collaborate with my team as we had certain moments of disputes and disagreements. Although it was not easy, I managed to learn to work together and compromise with my team when we disagreed on certain topics (Owsiak, 2023).

For example, when my colleague was unable to do certain tasks delegated to them, I was always quick to fairly but sternly advise them and help them solve the issue along with help from the supervisor.



# Competency 3: Quantitative Data Management



# Participant Anonymity

Given the nature of our intervention involving physical activity, it was crucial participants remained anonymous (Coonan & Denicolo, 2022).

As such, no sensitive details were taken from the participants. Only demographic questions such as "Age", "Gender", and "Course of study" was asked.



Questionnaire Form  
Section A: Demographic Information

|                 |                                                                                                                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Age             | 21                                                                                                                                                                                                 |
| Gender          | <input checked="" type="checkbox"/> Female<br><input type="checkbox"/> Male<br><input type="checkbox"/> Non-Binary<br><input type="checkbox"/> Other<br><input type="checkbox"/> Prefer not to say |
| Course of study | psychology                                                                                                                                                                                         |

# Code Book

I did the code book with respect to the template and example provided by the supervisor, with specific data like dates and variable names being changed in accordance to our study, with advice from the supervisor.

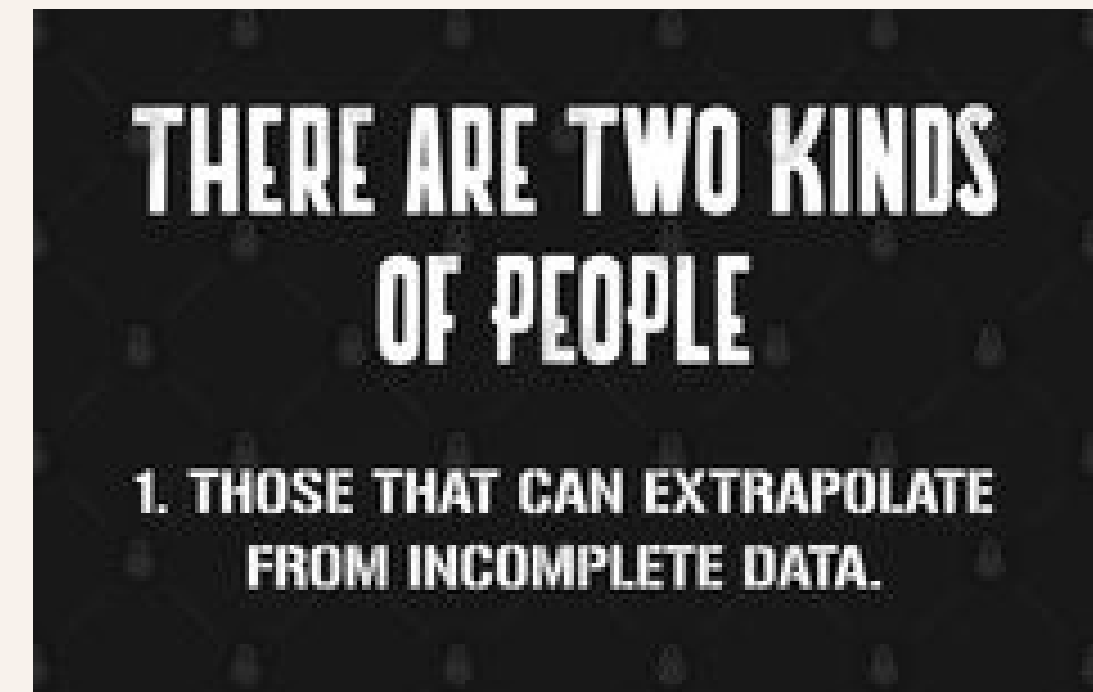
| Physical activity intervention Research Project Code Book                                                                                                                                                                                                                              |                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Initial code book put together by Calvin Phang, Abiraami Sundararajan, Ahmad Hazim Mizaiyusri, Myura Kiirthanasai Arree Chandran, Avinaash Muniandy<br>If amending the code book please add name and file name of any associated documents in table below                              |                                                                                         |
| Name                                                                                                                                                                                                                                                                                   | File name(s) if applicable associated with changes                                      |
| Calvin Phang, Abiraami Sundararajan, Ahmad Hazim Mizaiyusri, Myura Kiirthanasai Arree Chandran, Avinaash Muniandy<br>22nd April 2024 (Date of PAI)                                                                                                                                     | 'PAIdatase 18th March 2024'<br><br>Data converted from written to numerical categorical |
| Broad dataset information                                                                                                                                                                                                                                                              |                                                                                         |
| Number of responses = 15<br>First response =22nd April 2024<br>Last response = 22nd April 2024<br>Survey closed (Time PAI is conducted) 3pm GMT 22nd April 2024<br>Data downloaded into Excel dataset 'PAIdataset 22nd April 2024 – this will be stored as 'Mastercopy 22 April 2024'. |                                                                                         |

| Excel column | Title              | Data                                                                 | Comments                |
|--------------|--------------------|----------------------------------------------------------------------|-------------------------|
| A            | Participant Number | ID                                                                   | Number given on booklet |
| B            | Age                | String (Written in)                                                  |                         |
| C            | Gender             | 1=Female<br>2=Male<br>3=Non-binary<br>4=Other<br>5=Prefer not to say |                         |
| D            | Course of Study    | String (Written in)                                                  |                         |

|   |                                                                   |                                                                                                 |     |
|---|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----|
| E | I've been feeling optimistic about the future<br><br>"MWBS_T1_Q1" | 0=None of the time<br>1=Rarely<br>2=Some of the time<br>3=Most of the time<br>4=All of the time | Pos |
|---|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----|

# Data Interpretation (yay)

I analysed and interpreted the data after the experiment using data analysis software, “jamovi”. Overall, this process taught me to use a different software as SPSS was unavailable due to software issues. Moreover, I learnt to manually input data, as I had only ever done statistical analysis through online surveys.



Results of the paired-t test indicated that there is a significant large difference between Before ( $M = 3.1$ ,  $SD = 0.5$ ) and After ( $M = 3.4$ ,  $SD = 0.6$ ),  $t(14) = 3.5$ ,  $p = .003$

The null hypothesis is rejected!  
The intervention was shown to have a statistically significant positive impact on mental well-being.

# Paired Samples T-Test

Paired Samples T-Test

|             |            |             |           |      |       |                 | 95% Confidence Interval |        |        |           |             |
|-------------|------------|-------------|-----------|------|-------|-----------------|-------------------------|--------|--------|-----------|-------------|
|             |            |             | statistic | df   | p     | Mean difference | SE difference           | Lower  | Upper  |           | Effect Size |
| M_WB_Before | M_WB_After | Student's t | -3.51     | 14.0 | 0.003 | -0.300          | 0.0854                  | -0.483 | -0.117 | Cohen's d | -0.907      |

Note.  $H_0: \mu_{\text{Measure 1}} - \mu_{\text{Measure 2}} = 0$

Descriptives

|             | N  | Mean | Median | SD    | SE    |
|-------------|----|------|--------|-------|-------|
| M_WB_Before | 15 | 3.09 | 3.00   | 0.500 | 0.129 |
| M_WB_After  | 15 | 3.39 | 3.36   | 0.612 | 0.158 |

## 1. P-value

The p-value equals 0.003474, (  $P(x \leq 3.5087) = 0.9983$  ).

The sample difference between the averages of After and Before wellbeing is big enough to be statistically significant.

## 2. Test statistic

The test statistic  $T = -3.51$

The negative t value indicates that the Mean of mental wellbeing before the intervention is lower than after the intervention.

## 3. Effect size

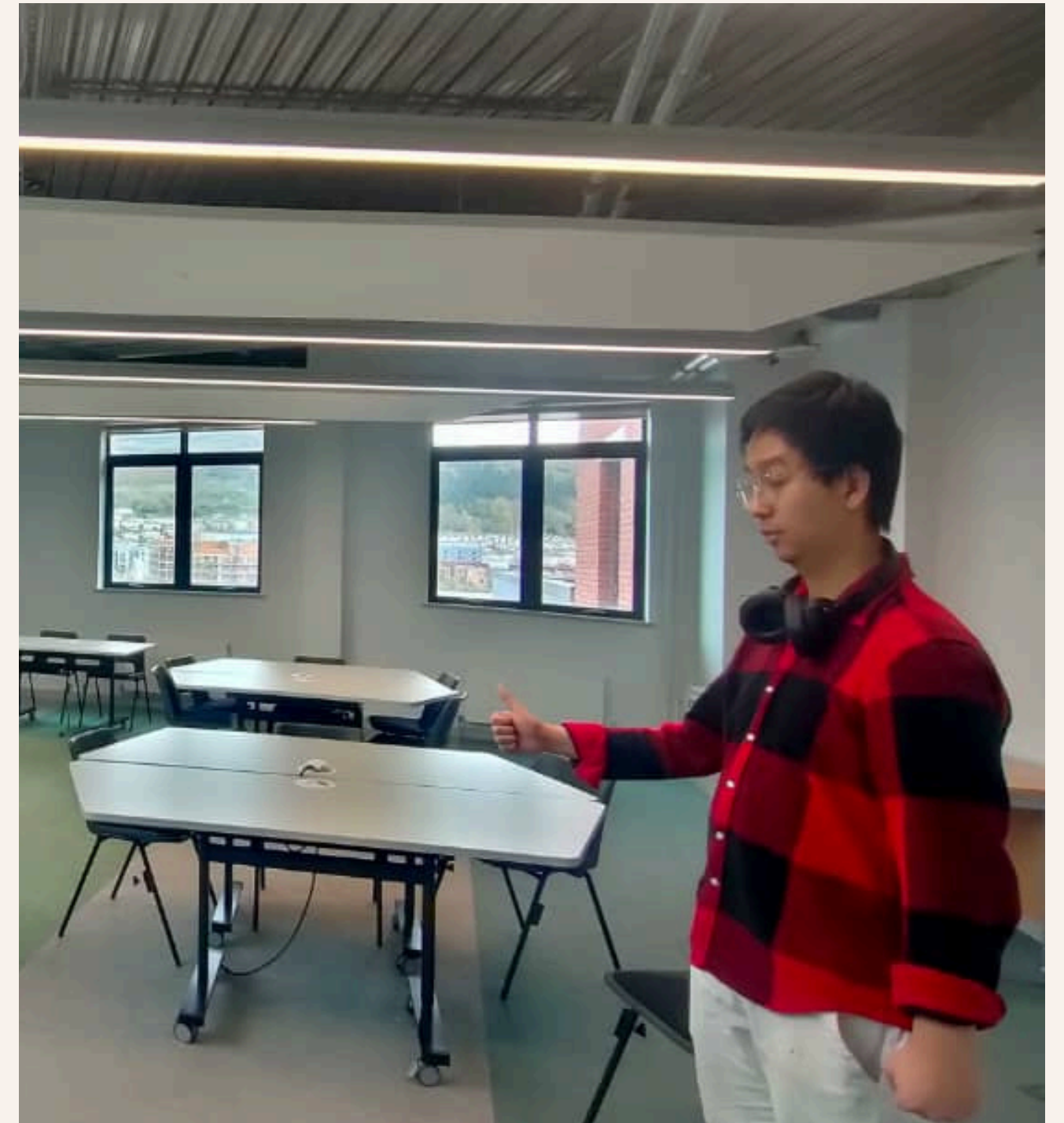
The observed effectsize of Cohen’s d, the measure of difference between the two groups, is large, 0.91 (Sullivan & Feinn, 2012).

# Competency 4: Leading the experiment

I guided the participants through the physical activity intervention and assisted in guiding them through the exercise video.

While I was nervous to guide them through the video as I am not the most fit myself, it was important to show the participants that the stretching exercise displayed could also be done easily and quickly.

I can confidently say the experimentation process went well as we also had a keen eye out for any individuals who needed help or aid, and feedback received was generally positive.





# Thank you!

**Do you have any questions?**



# References

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