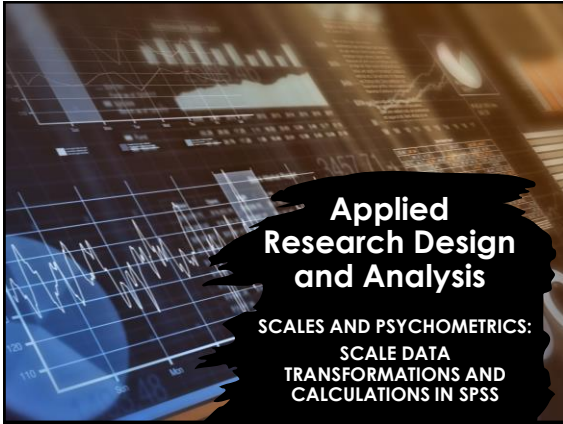
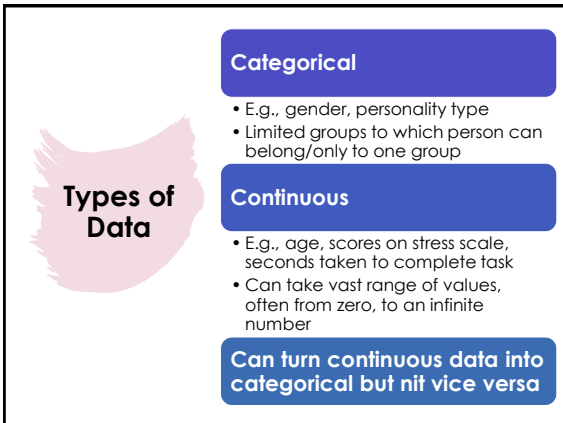




1



2



3

Scale Type	Properties of scale
Nominal	Records differences <i>A is red, B is blue</i>
Ordinal	Records differences and magnitudes <i>A is larger than B</i>
Interval	Records differences, magnitudes, and has equal intervals <i>A is two units larger than B</i>
Ratio	Records differences, magnitudes, has equal intervals, and a true zero <i>A is twice as large as B</i>

4



Study Design: Brief refresher

- Choosing appropriate method not always simple
- Need to think about what you want to find out and best way of doing this
- Different ethical and practical considerations for every project depending on nature of research question, target population, or use of intervention
- Critical thinking is key!

5

Questions to consider



What design issues does your methodological approach raise?



What ethical issues are specific to this approach?



What type of research questions should such an approach employ?

6

Quantitative measures



Choosing appropriate measure is another vital aspect of study design



Think carefully about what you want to measure – think about your operational definition, and the best way to measure this



Measures capturing psychological constructs are expected to be reliable and valid

7

Measures



Choosing a reliable and valid scale is always best option



You know you are measuring something in a robust way



You have existing data from other studies to compare your findings



Sensitive to changes within studies



Allows for stronger statistical analysis

8

Psychometric standards



Key measurement concepts:



Reliability: is the measure consistent and stable over time?



Validity: is it an accurate and precise measure – i.e., does it measure what it claims to measure?



Standardisation

9

Validity:

How well a test measures what it is designed to measure



10

Scale of Extraversion

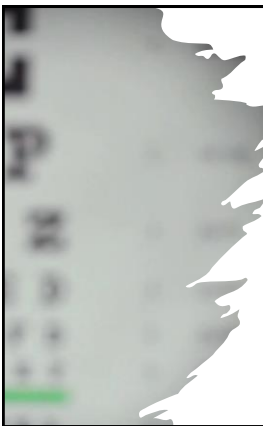
Response to each item should correlate with response to every other item – otherwise not tapping onto same thing!

	Very much so	Moderately so	Somewhat so	Not at all
I feel at ease with people				
I start conversations				
I take charge				
I am the life of the party				
I am skilled in handling social situations				
I make friends easily				
I talk to a lot of different people at parties				
I know how to captivate people				
I do not mind being the centre of attention				
I feel comfortable around other people				

11

Face Validity

- Test looks plausible at face value – i.e., does it look like its measuring what it claims to be measuring?
- E.g., Life Orientation Test (Scheier & Carver, 1985)
 - Measure of dispositional optimism:
 - In uncertain times I usually expect the best
 - If something can go wrong for me, it will
 - I'm always optimistic about my future
 - I hardly ever expect things to go my way



12

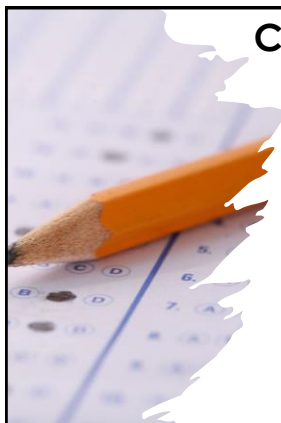
Construct validity



- Does the test measure the psychological construct it is designed to measure?
 - E.g., intelligence
- Assessed by looking at relationship between test scores & other behaviour it should be related to
 - Do scores on new IQ test relate to academic performance?
 - Does a measure of psychological distress report similar scores to a psychiatric interview?
- Should be related to measures of same construct = **convergent validity**, and unrelated to measures of unrelated constructs = **discriminant validity**

13

Content validity



- Whether items on a test measure all knowledge or skills assumed to underlie construct of interest
- E.g., does measure of intelligence capture all types of intelligence or just certain types – e.g., problem-solving, numerical ability?

14

Criterion-related validity



Ability of test scores to correlate with meaningful criterion measures



Are they able to predict future outcomes?



Test should be able to predict present or future outcomes that are influenced by the construct being measured

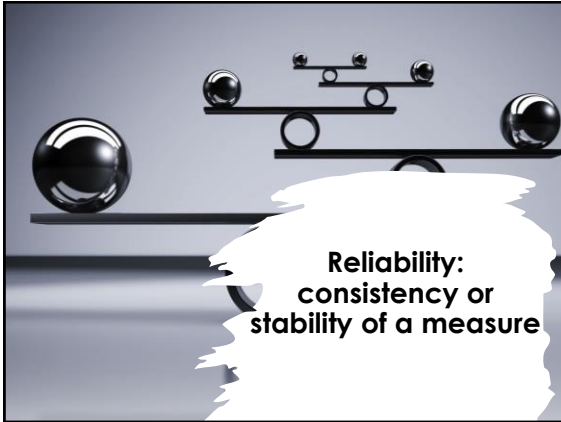


E.g., does a measure of IQ successfully predict future performance /success at a job?



E.g., do scores on measure of conscientiousness predict future academic performance?

15



16

Test-retest reliability

-  Consistency of measurement over time
-  Assessed by administering measure to same group of participants on two or more separate occasions and correlating the set of scores
-  If construct being measured is stable, scores should be consistent over time
-  E.g., would not expect results of an IQ test or personality traits to be different if measured more than once

17

Split-half reliability

Internal consistency between two sets of scores

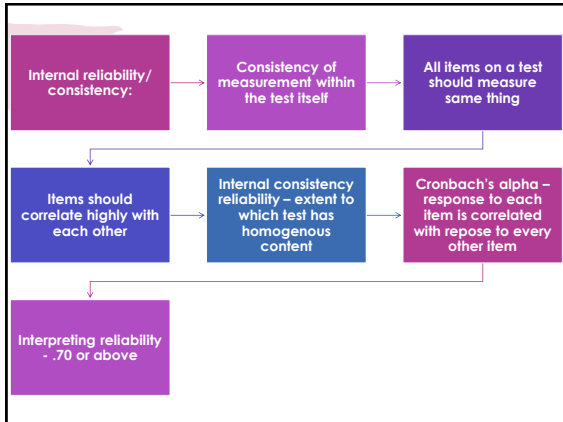
Inter-rater reliability

Extent to which two different raters agree in evaluations

Consistency of measurement when different people observe same event or score same test



18



19



Running reliability analysis is SPSS

Analyse →

Scale →

Reliability Analysis

20

Test Analysis – Internal Consistency	
Cronbach's Alpha (α)	Internal consistency
≥ .9	Excellent
.9 > α ≥ .8	Good
.8 > α ≥ .7	Acceptable
.7 > α ≥ .6	Questionable
.6 > α ≥ .5	Poor
< .5	Unacceptable

Cronbach's Alpha – popular reliability measure

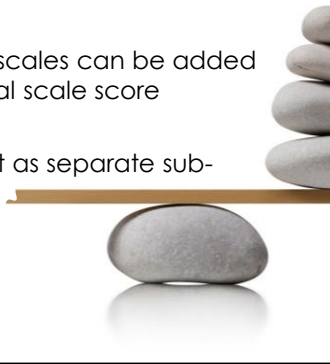
Very high reliability may indicate redundant items

Sub-scores should also be reliable

21

Scales and Sub-scales

- Sometimes sub-scales can be added up to give a total scale score
- Or they are kept as separate sub-scales



22

Example – Impact of events scale (Horowitz et al., 1979)

Intrusion sub-scale: Seven items measure intrusive thoughts "intrusion" about a stressful event (0-35)

- "I thought about it when I didn't mean to"

Avoidance sub-scale: Eight items measure attempts to avoid those thoughts "avoidance" (0-40)

- "I stayed away from reminders of it"

Both can be combined to create a Global Distress Scale (0-75)

23

(Tick one box from each row)	Not at all	Rarely	Sometimes	Often
I thought about it when I didn't mean to	☐	☐	☐	☐
I avoided letting myself get upset when I thought about it or was reminded of it	☐	☐	☐	☐
I tried to remove it from my memory	☐	☐	☐	☐
I had trouble falling asleep or staying asleep, because of pictures or thoughts about it that came into my mind	☐	☐	☐	☐
I had waves of strong feelings about it	☐	☐	☐	☐
I had dreams about it	☐	☐	☐	☐
I stayed away from reminders of it	☐	☐	☐	☐
I felt as if it hadn't happened or wasn't real	☐	☐	☐	☐
I tried not to talk about it	☐	☐	☐	☐
Pictures about it popped into my mind	☐	☐	☐	☐
Other things kept making me think about it	☐	☐	☐	☐
I was aware that I still had a lot of feelings about it, but I didn't deal with them	☐	☐	☐	☐
I tried not to think about it	☐	☐	☐	☐
Any reminder brought back feelings about it	☐	☐	☐	☐
My feelings about it were kind of numb	☐	☐	☐	☐

24



Reverse coding

Some scales contain items that require reverse coding (to prevent demand characteristics and lazy responses)

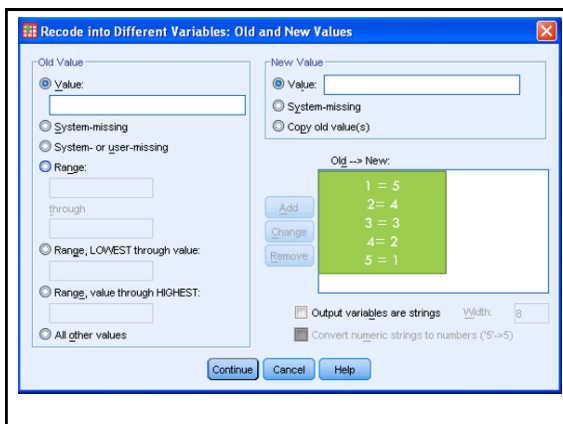
- E.g., Life Orientation Test (Scheier & Carver, 1985)
 - Measure of dispositional optimism:
 - In uncertain times I usually expect the best
 - If something can go wrong for me, it will
 - I'm always optimistic about my future
 - I hardly ever expect things to go my way

25

Other data transformations

Recoding	Recoding (according to scale instructions)
Data type	Turning continuous data into categories
Scores	Creating total scores/mean scores for total scales and sub-scales
Missing data	Missing data commands

26



27

Summary

Choosing appropriate measure is vital aspect of study design



Need to think about what you want to measure (operational definition) and best way of measuring it



Measures capturing psychological constructs are expected to be reliable and valid



Need to understand how scale has been constructed to analyse properly

Recoding instructions

Reverse scoring

Sub-scales
