

The SDQ and KIDSCREEN

At the Rasch User Group 2015

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Outline

- The issue
- The SDQ and KIDSCREEN instruments
- Origin of the data
- Reliabilities of scales
- Errors of measurement
- Dimensionality
- DIF
- Conclusions

The Issue

- A major epidemiological nationwide study of well-being is planned
- “It is ten years since the last survey of children’s and young people’s mental health, and the **lack of reliable and up to date information** in this area means that those planning and running CAMHS services have been operating in a "fog".
- Two of the possible instruments are:
 - The SDQ
 - KIDSCREEN

The SDQ

- SDQ – Strengths and Difficulties Questionnaire
- “A brief behavioural screening questionnaire”
- Often used for mental health surveys
- For 3-16 year olds.
- “To meet the needs of researchers, clinicians and educationalists.”
- Developed by Goodman: 1997
- More than 10,000 papers refer to it
- Versions for parents, teachers and students
- Available in 50 languages

KIDSCREEN

- “Children’s and adolescents’ subjective health and well-being”
- Self-report 8-18 and parental version
- Developed by a European team of 44 researchers
- Developed 2001-4
- Rasch employed in development
- 2,700 paper refer to it
- Available in 33 languages
- SDQ used during validation procedures

Origin of the data

- ESRC funded clustered RCT
- Y7 students
- Aim to increase physical activity levels and thereby impact on feelings of well-being.
- Collected data pre and post
- 1183 students completed the SDQ & KIDSCREEN at baseline

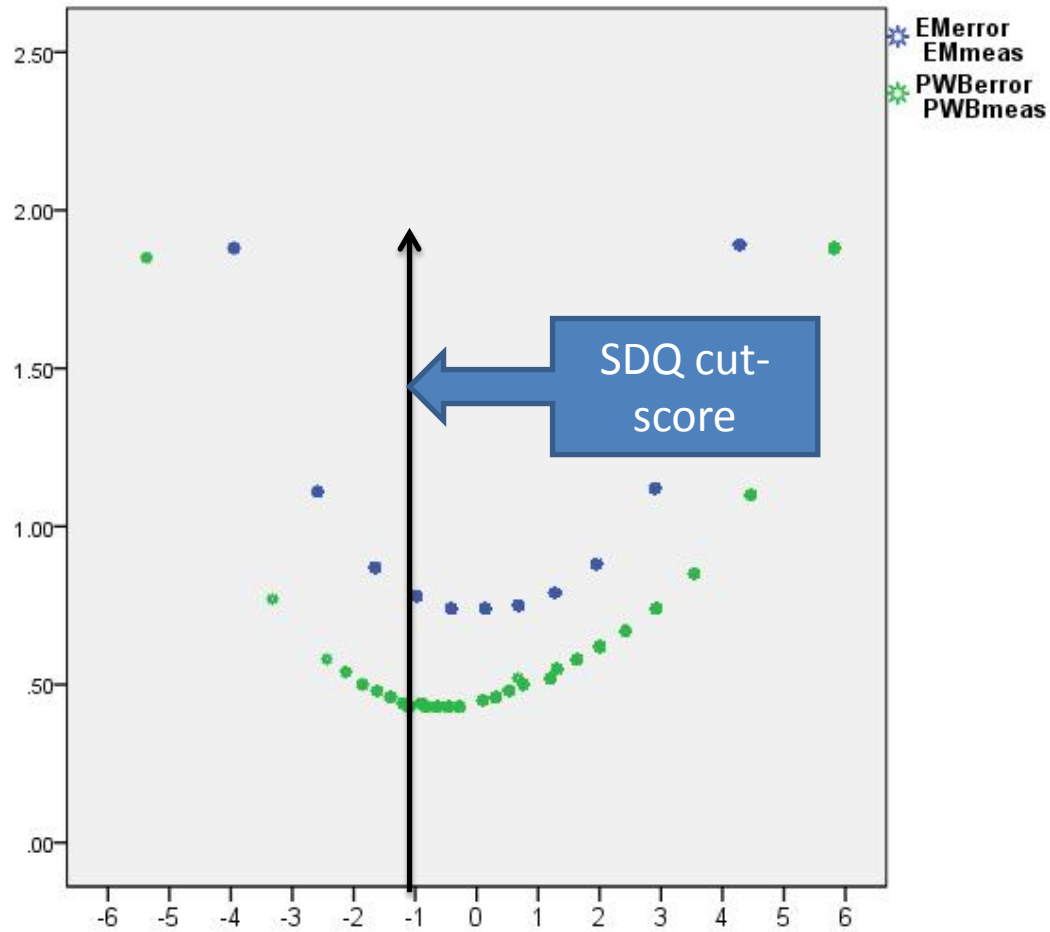
Reliabilities of scales

Scale	Subscale	N of Items	Person Reliability
SDQ 1st Admin	Prosocial	5	0.57
	Peer Problems	5	0.13
	Hyperactivity	5	0.25
	Emotional Problems	5	0.52
	Conduct Problems	5	0.43
KIDSCREEN 1st Admin	Physical Well Being	5	0.82
	Psychological Well Being	7	0.78
	Autonomy & Parents	7	0.76
	Peers & Social Support	4	0.79
	School Environment	4	0.80

Perhaps

- The SDQ did not aim to form scales
- The SDQ concentrated on cut-scores
- Let's look at two similar scales
 - SDQ: Emotional Problems
 - KIDSCREEN: Psychological Well Being
- Used together in a Rasch model
- Fixed difficulties and then ran each separately

Errors of measurement



Dimensionality

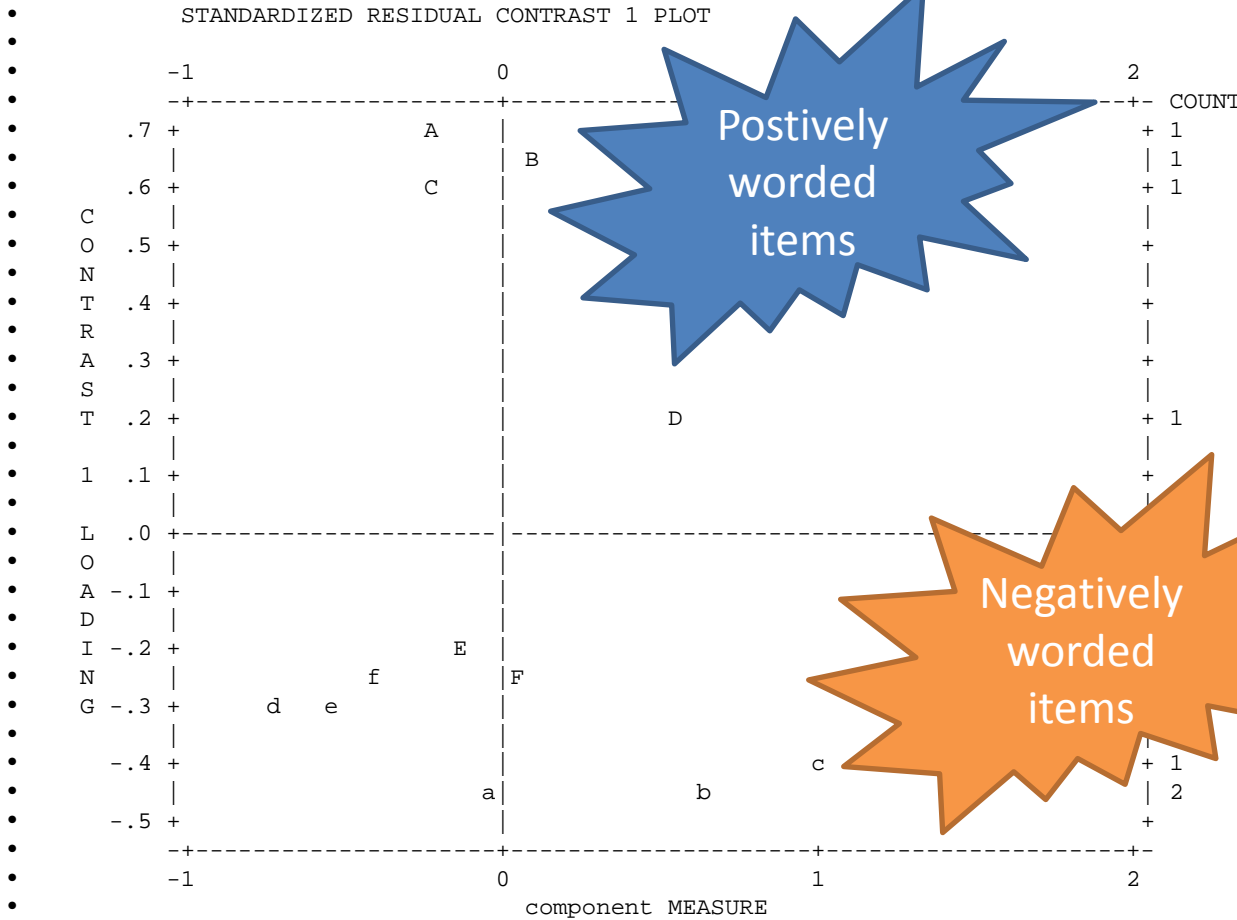
- The two SDQ (EP) and KIDSCREEN(PWB) were checked together for Dimensionality

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

		-- Empirical --		Modeled
Total raw variance in observations	=	21.2	100.0%	100.0%
Raw variance explained by measures	=	9.2	43.3%	43.0%
Raw variance explained by persons	=	5.0	23.7%	23.5%
Raw Variance explained by items	=	4.2	19.6%	19.5%
Raw unexplained variance (total)	=	12.0	56.7%	100.0% 57.0%
Unexplned variance in 1st contrast	=	2.3	10.7%	18.9%
Unexplned variance in 2nd contrast	=	1.6	7.5%	13.3%
Unexplned variance in 3rd contrast	=	1.2	5.6%	9.8%
Unexplned variance in 4th contrast	=	1.1	5.0%	8.8%
Unexplned variance in 5th contrast	=	1.0	4.8%	8.6%

- It seems that there is one dominant construct and then a 1st contrast
- What defines the first contrast?

Dimensionality



Marsh (1996)

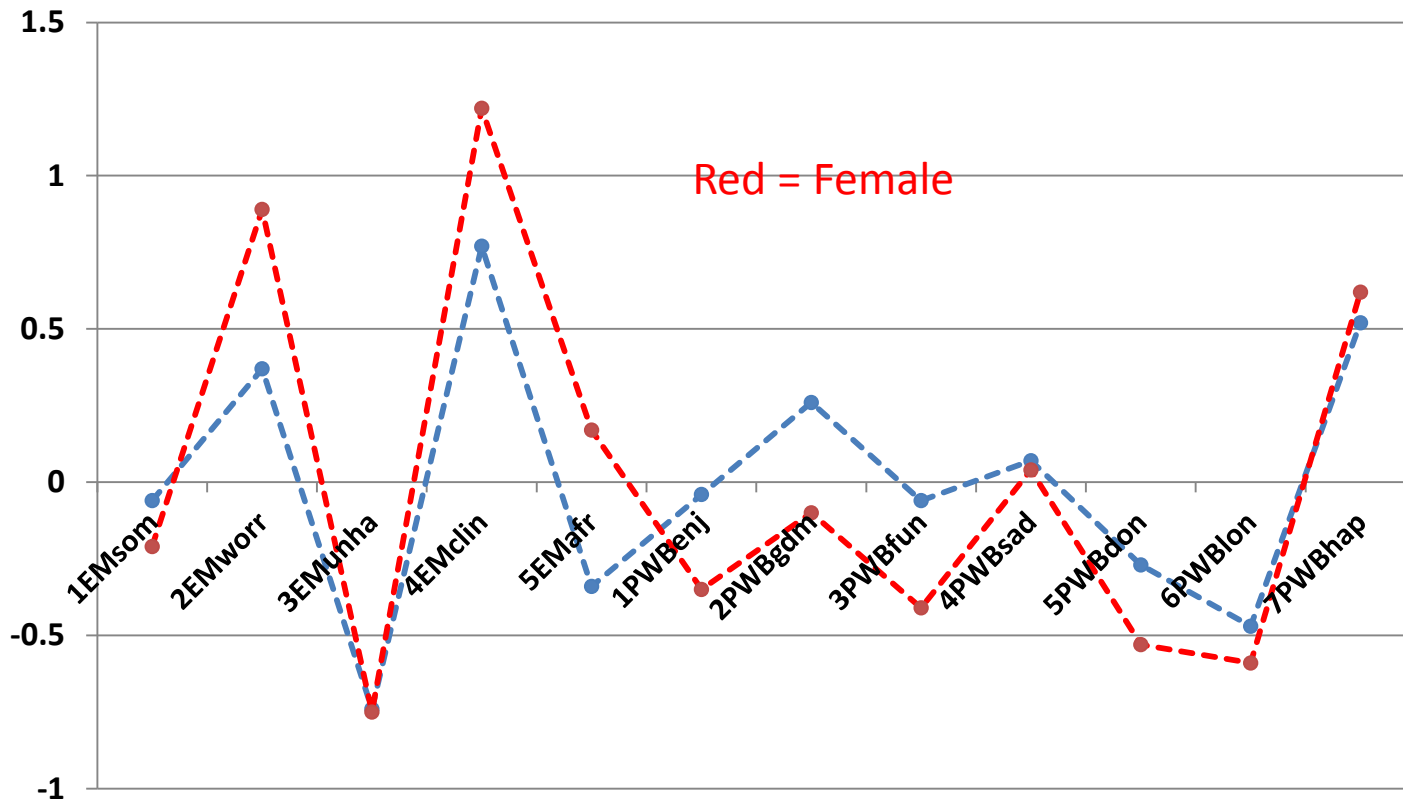
- Writes of the need to explore:
- *“whether factors associated with positively and negatively worded items are substantively meaningful or artifacts”*.

DIF

Scale	Subscale	Sex	KS2 Eng
SDQ 1st Admin	Prosocial	✓	
	Peer Problems		
	Hyperactivity		
	Emotional Problems		
	Conduct Problems	✓	
KIDSCREEN 1st Admin	Physical Well Being		
	Psychological Well Being		
	Autonomy & Parents		
	Peers & Social Support		
	School Environment		

DIF (Male/Female)

- Looking at the same two scales together.



- If we use the “0.5 logits” rule (Draba, 1977) then the only two items that exhibit DIF are SDQ(EM) items.
- A group of girls, with the same underlying level of emotional symptoms as a group of boys, would tend to score higher on the SDQ EM scale, by dint of their gender.

Conclusions

- Despite extensive evidence for the SDQ.
- We found problems with
 - Negatively worded items
 - Low person reliability
 - Evidence of DIF
- Use of the SDQ should be considered carefully in further large scale survey work.
- KIDSCREEN may be a better choice to measure wellbeing/emotional health

Thank you

Weblinks

- <http://www.parliament.uk/business/committees/committees-a-z/commons-select/health-committee/news/14-11-04-camhs-report-substantive/>
- <http://www.sdqinfo.org/>
- <http://www.kidscreen.org/english/questionnaires/kidscreen-27-short-version/>
- www.move-project.org
- <http://onlinelibrary.wiley.com/doi/10.1111/j.1740-9713.2015.00802.x/epdf>
- <http://www.ncbi.nlm.nih.gov/pubmed/20623175>