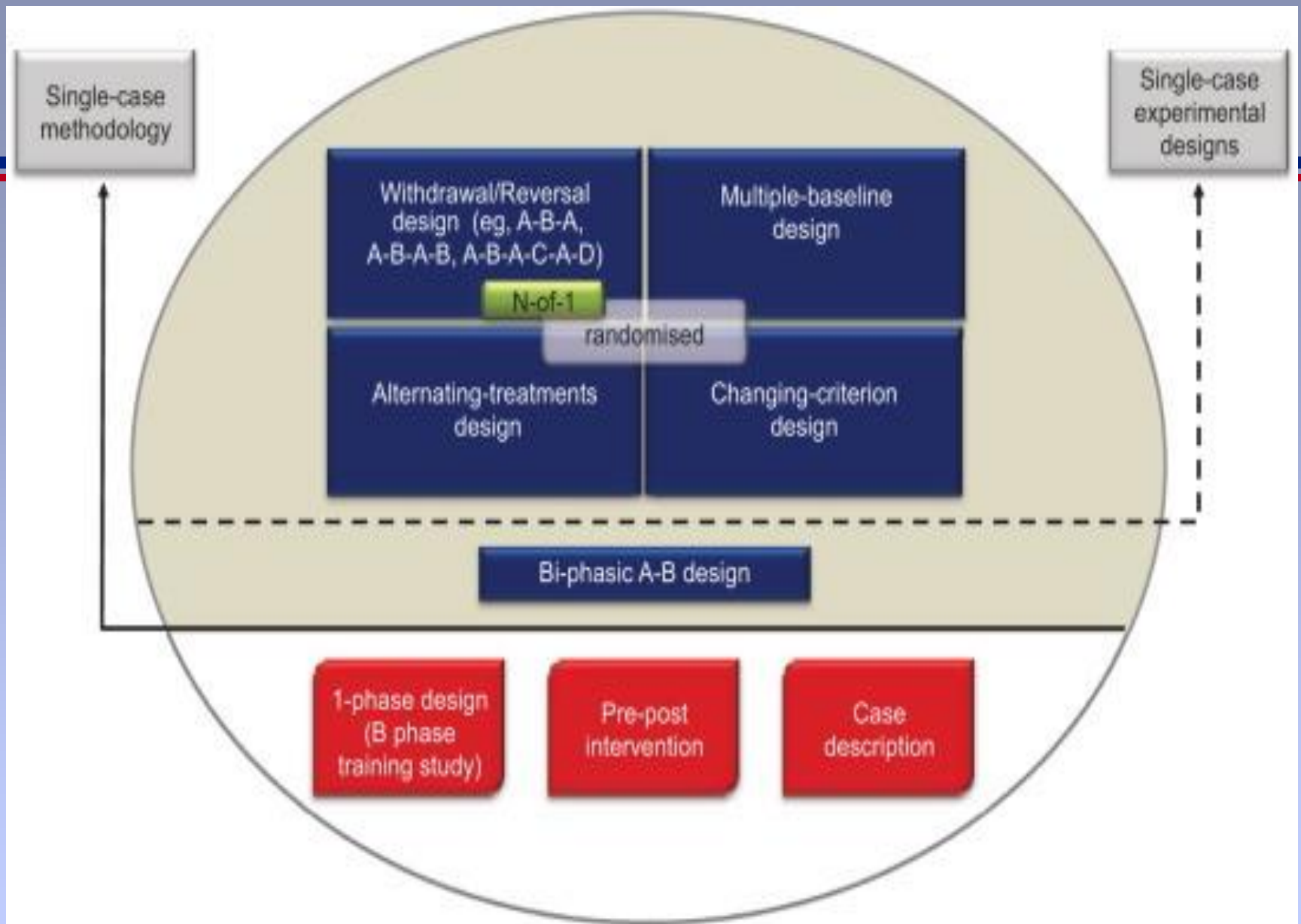

**Single case experimental designs;
practical tips on how to integrate the
methodology into your everyday
clinical practice and an example of
scaling up across cases**

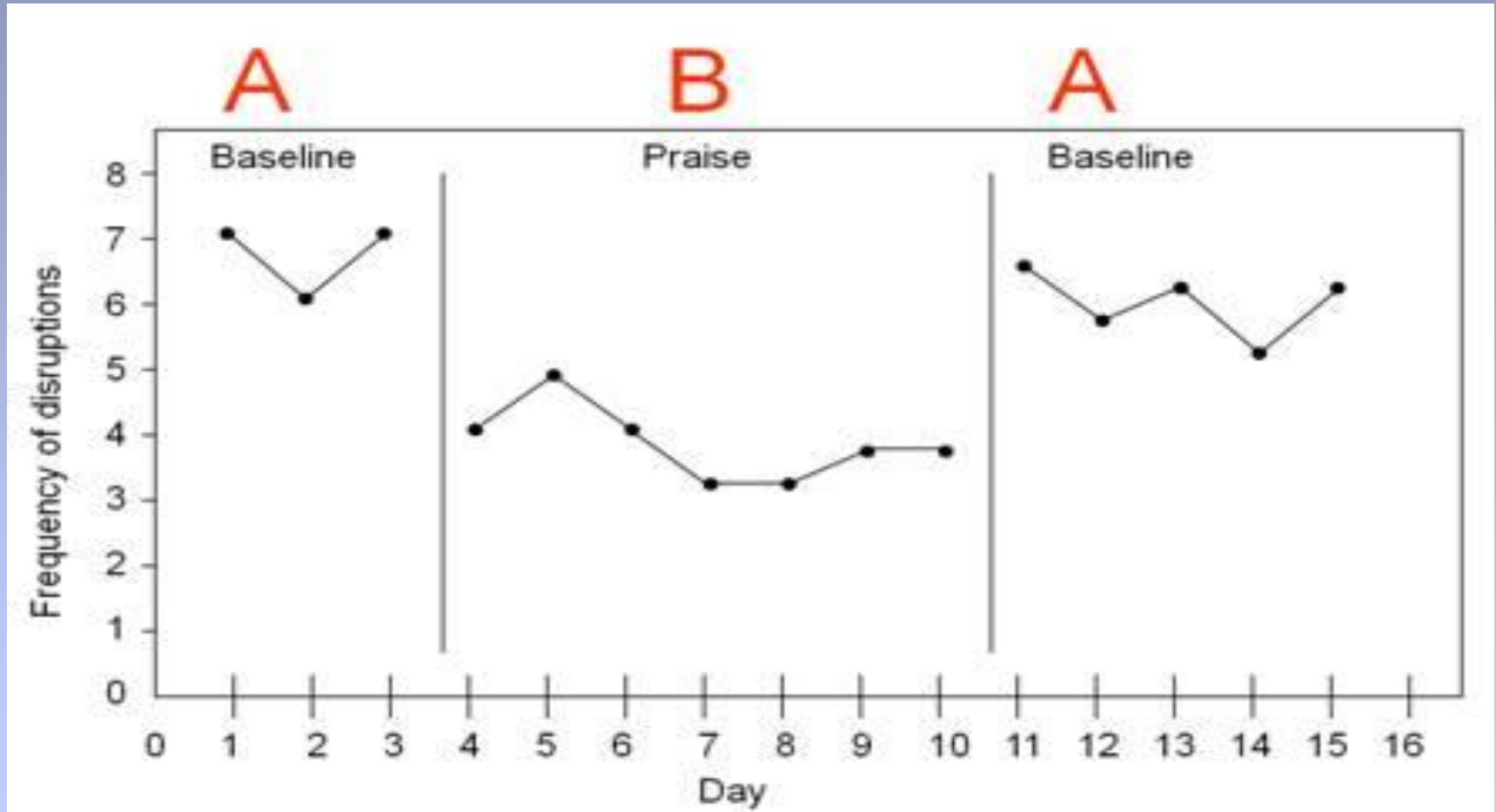
**Stephen Kellett
Clinical Psychology Unit
University of Sheffield**

Learning objectives

- For you to feel more confident in collecting ideographic data
- To be aware of different single case designs and the pros and cons of these
- To be aware of an example quantifying effects of a therapy (CAT) across single cases



But reversal doesn't make sense in psychotherapy!



How to engage clients in being interested

- Not a must do aspect of your work with every patient
- Have a relaxed attitude
- Display interest in their emotional plight
- Be flexible
- This is an aspect of your normal practice; SCED as a reflective and accountable practice tool
- Encourage reflectivity in both you and your patient
- Keeping an eye on progress
- Promise feedback
- Listen very carefully!
- Be active
- Integrate it into the screening of the patient
- Good to use regardless of modality – but there does need to be a recognized modality or phase of introduction (its good to have a fidelity check)
- Be creative in terms of who collects the data

Baseline; practical issues

- Suitable baseline: screening session plus assessment phase
- Go for an achievable design in you head (A/B is fine)
- Identify a small number of target variables during the screening/assessment and then generate a brief rating scale, which the client would complete daily over time.
- Don't measure the same variable twice – think here about what would capture the phenomena – frequency, duration or intensity are good things to be thinking about with the client/patient
- Use nomothetic measures (i.e. established psychometrics) at the key junctures of the therapy that are appropriate to the case. Need these to hand really.
- The degree of improvement during the assessment can be readily examined, if repeated measures are taken during the course of this phase. If the baseline does not indicate pre-treatment improvement, then this threat to the interpretation of the results can be ruled out

The ideographic measures

- Designed collaboratively
- In the patient's language
- Can be a piece of cognition, behaviour, affect or interpersonal process (or a variety of these; topographical variation)
- Anchored and scaled effectively – in the clients own words
- High frequency occurrences
- When to complete – problem solve this with the person
- What time period do they cover?
- Have a date for each day on the diary!
- Follow-up – plan on placement ...

Conduct and writing up guidance



Contents lists available at ScienceDirect

Journal of School Psychology

journal homepage: www.elsevier.com/locate/jpsych



The Single-Case Reporting guideline In BEhavioural interventions (SCRIBE) 2016 statement☆



Robyn L. Tate^{a,b,*}, Michael Perdices^{c,d}, Ulrike Rosenkoetter^{a,b}, William Shadish^e, Sunita Vohra^f, David H. Barlow^g, Robert Horner^h, Alan Kazdinⁱ, Thomas Kratochwill^j, Skye McDonald^k, Margaret Sampson^l, Larissa Shamseer^{m,n}, Leanne Togher^o, Richard Albin^h, Catherine Backman^p, Jacinta Douglas^q, Jonathan J. Evans^r, David Gast^s, Rumen Manolov^t, Geoffrey Mitchell^u, Lyndsey Nickels^v, Jane Nikles^w, Tamara Ownsworth^x, Miranda Rose^q, Christopher H. Schmid^y, Barbara Wilson^z

Modelling

- Need someone to play a client/patient they can be ...

Single case meta analysis

- We were interested in the effectiveness of CAT on complex mental health disorders.
- I will present half the project, as it has evolved.
- Contributors Dan Stockton, Nate Shearman and Rebecca Dalby

Inclusion criteria

(a) papers had to be written in English and published in a peer-reviewed journal, (b) studies had to use a clinical adult participant with a formal diagnosis and/or demonstrate meeting criteria on a validated psychopathology measure (c) studies had to use a validated nomothetic outcome measure directly related to the targeted psychopathology, (d) participants had to be treated exclusively using CAT

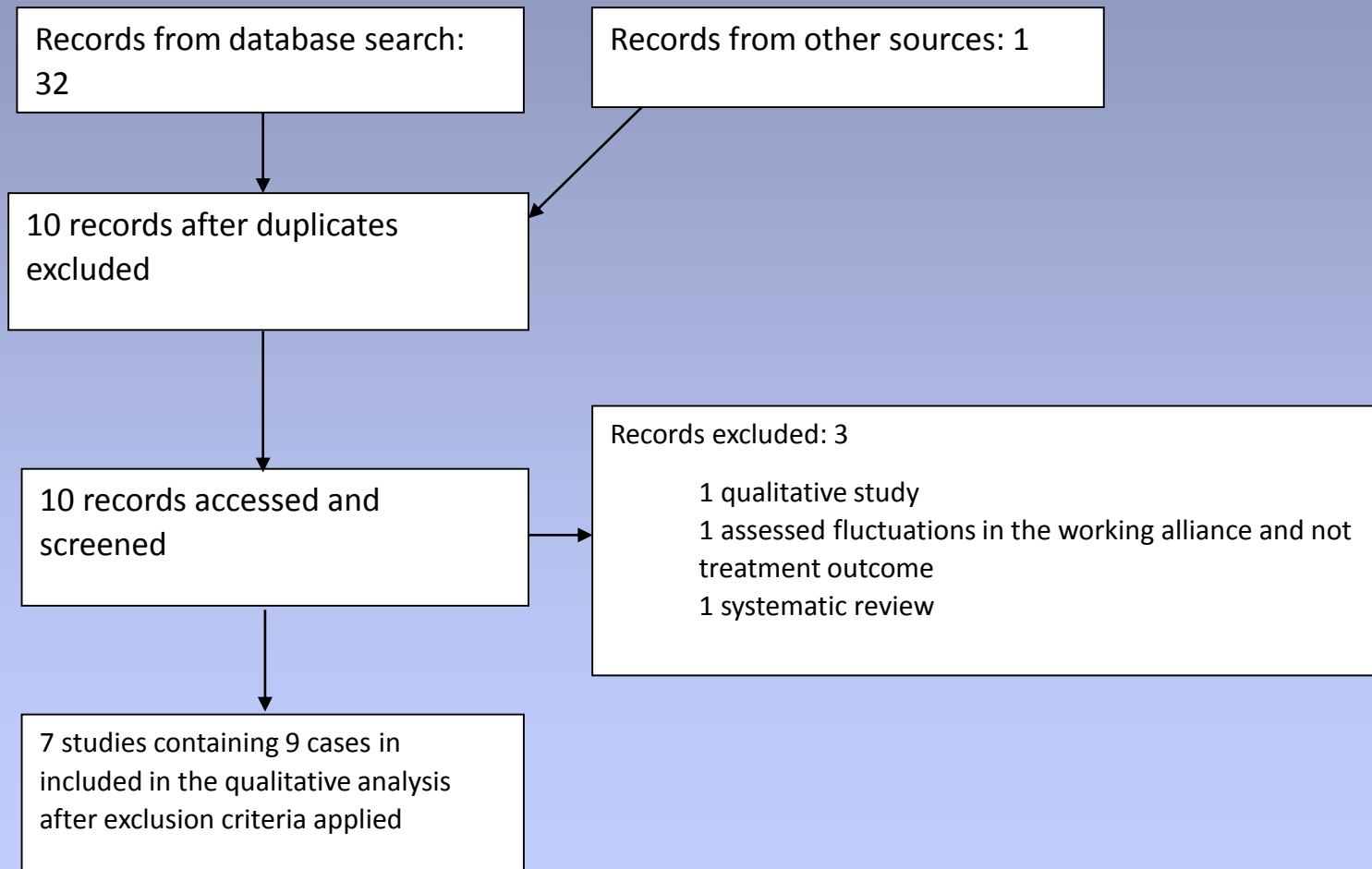
Inclusion criteria

(e) the studies had to use a recognised quasi or single-case experimental design, in which the method used included discrete phases with a target ideographic symptom measured frequently and continuously across all phases, (f) the study had to have a follow-up phase and also target ideographic measures had to be measured continually throughout the follow-up phase and (g) the studies had to use a primary ideographic outcome measure directly related to the patient's main presenting problem and/or diagnosis.

Exclusion criteria

(a) studies that did not have at least three measurement points per phase as this is a design requirement for N=1 single case research (Kratochwill et al. 2010), (b) studies were only descriptive and (c) the studies had not corrected for autocorrelation of ideographic outcomes during each phase of the study.

Flow chart of the literature search process



DISORDER	DESIGN and DURATION	PRIMARY IDEOGRAPHIC MEASURE	PRIMARY NOMOTHETIC MEASURE IN THE TEST BATTERY
Dissociative Identity Disorder	A-B with FU of 24 session CAT	Daily measure of state depersonalization	Dissociative Experiences Scale
Histrionic PD	A-B with FU of 24 session CAT	Daily measure of attention seeking	Personality Structure Questionnaire
Paranoid PD	A-B with FU of 24 session CAT	Daily measure of suspiciousness	Personality Structure Questionnaire
Hypersexuality Disorder	A-B with FU of 24 session CAT	Daily measure of porn usage hours	Sexual Compulsivity Scale
Obsessive Morbid Jealousy (3 cases)	A-B with FU of 16 session CAT Adjudicated Hermeneutic single case efficacy design	Daily measure of jealousy	Prestwich Jealousy Questionnaire
Obsessive Morbid Jealousy (2 cases)	A-B with FU of 24 session CAT	Daily measure of jealousy	Prestwich Jealousy Questionnaire

Risk of bias assessment

Risk of bias was assessed for each study using the evaluative method (Reichow, 2011) which offers a framework for identifying the methodological quality of single case experimental designs.

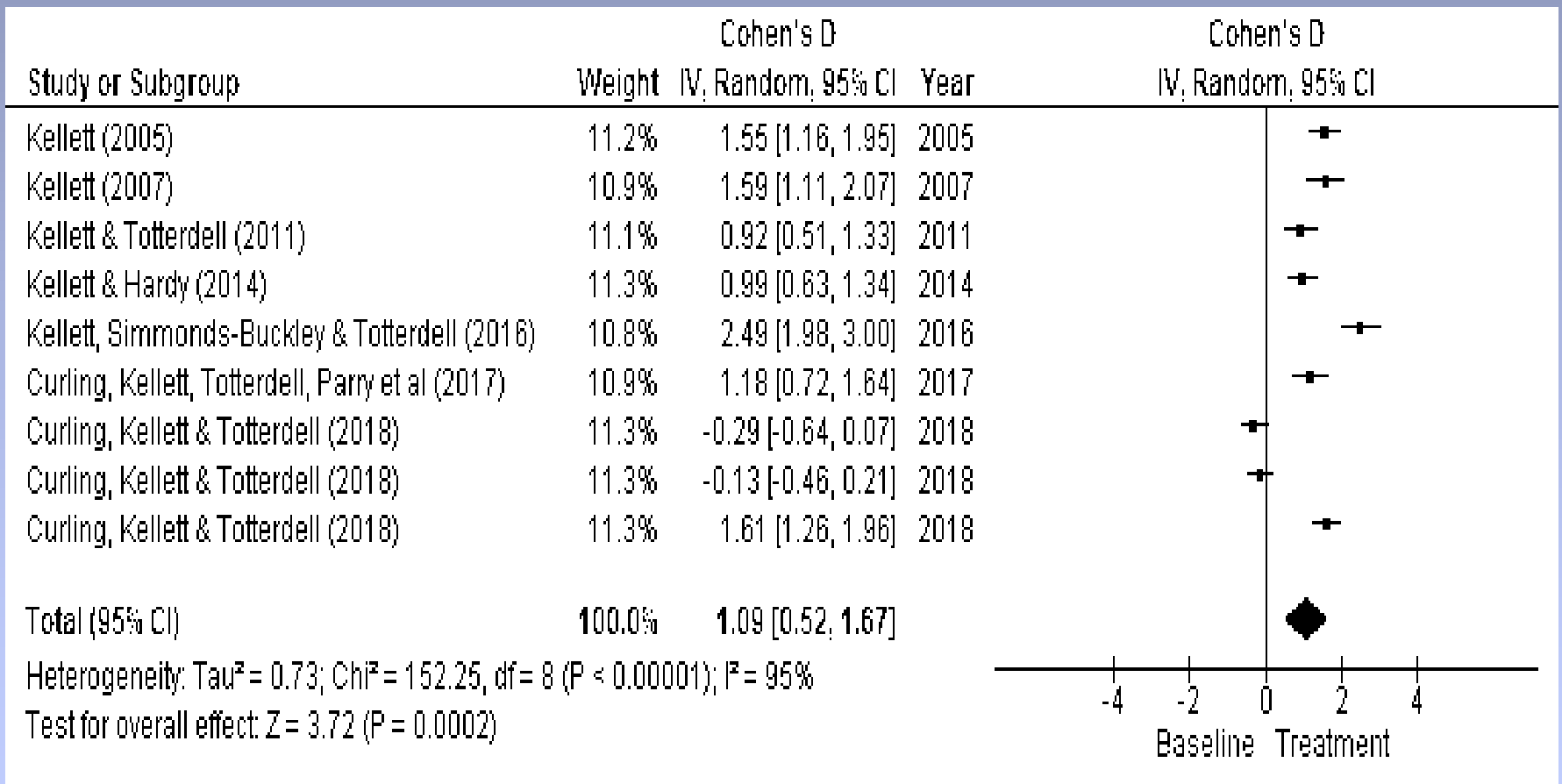
Ratings were completed by two independent raters, both masters level students. The intraclass correlation coefficient was 0.81 ($p < 0.00$) indicating good levels of agreement (Koo & Li, 2006).

Quality appraisals for studies included in the meta-analysis

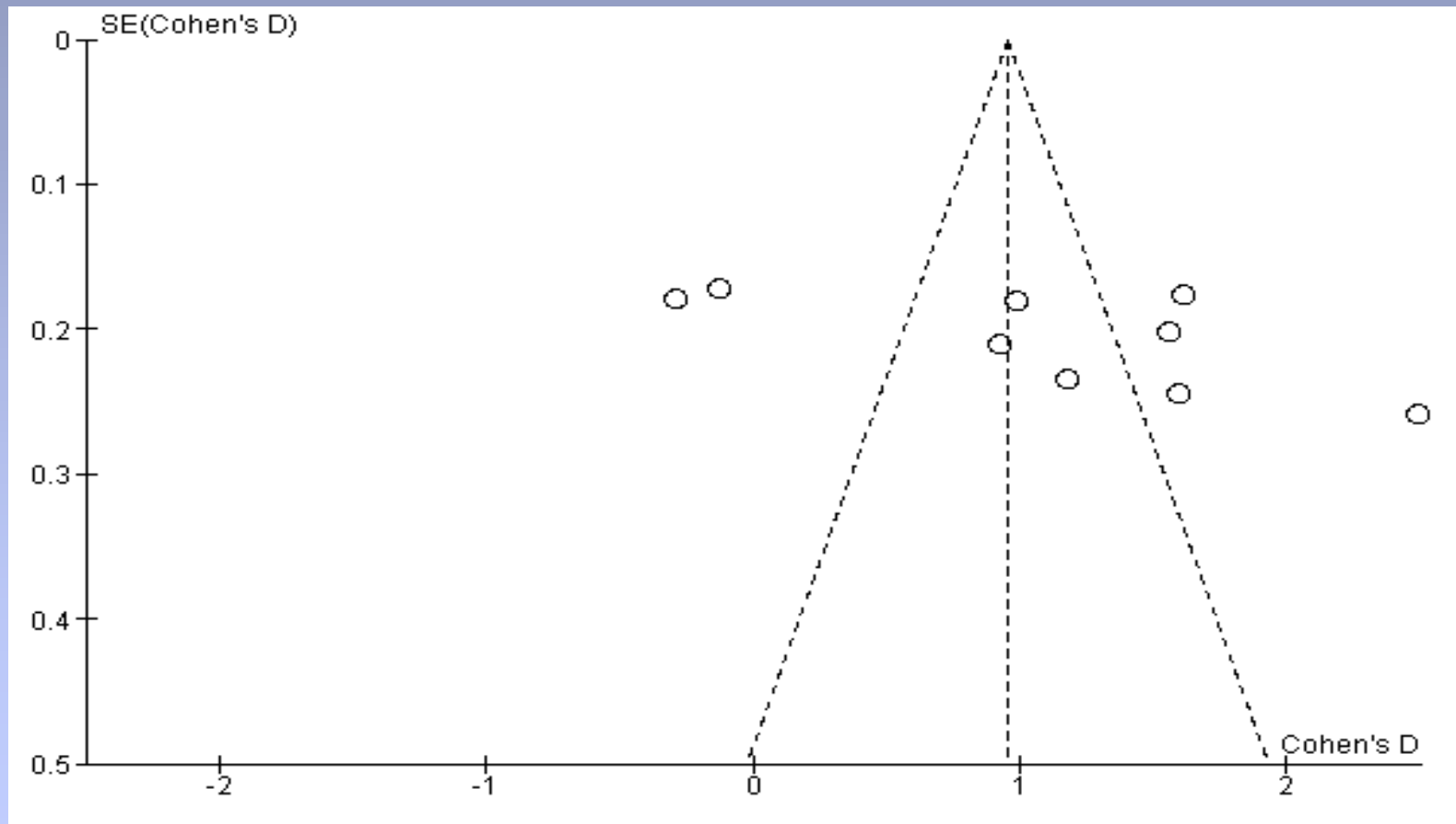
STUDY	Essential Quality Indicators						Secondary Quality Indicators						RATING
	PARTICIPANTS	DEPENDENT VARIABLE	INDEPENDENT VARIABLE	BASELINE	VISUAL ANALYSIS	EXPERIMENTAL CONTROL	INTER-OBSERVER AGREEMENT	KAPPA	BLIND RATERS	FIDELITY	GENERALISATIO N	SOCIAL VALIDTY	
Kellett (2005); DID	U	H	H	H	H	H	x	x	x	x	✓	✓	Weak
Kellett (2007); HPD	U	H	H	A	U	H	x	x	x	x	✓	✓	Weak
Kellett & Totterdell (2011); OMJ	U	H	H	A	H	H	x	x	x	x	✓	✓	Weak
Kellett & Hardy (2014); PPD	A	H	H	H	H	H	x	x	x	x	✓	✓	Adequate
Kellett, Simmonds-Buckley & Totterdell (2016); HD	H	H	H	A	H	H	x	x	x	x	✓	✓	Adequate
Curling, Kellett, Totterdell, Parry, Hardy & Berry (2017); OMJ	H	H	H	A	A	H	x	x	x	x	✓	✓	Adequate
Curling Kellett & Totterdell (2018); OMJ	H	H	H	A	A	H	x	x	x	x	✓	✓	Adequate

U = Unacceptable Quality; A = Acceptable Quality, H = High Quality

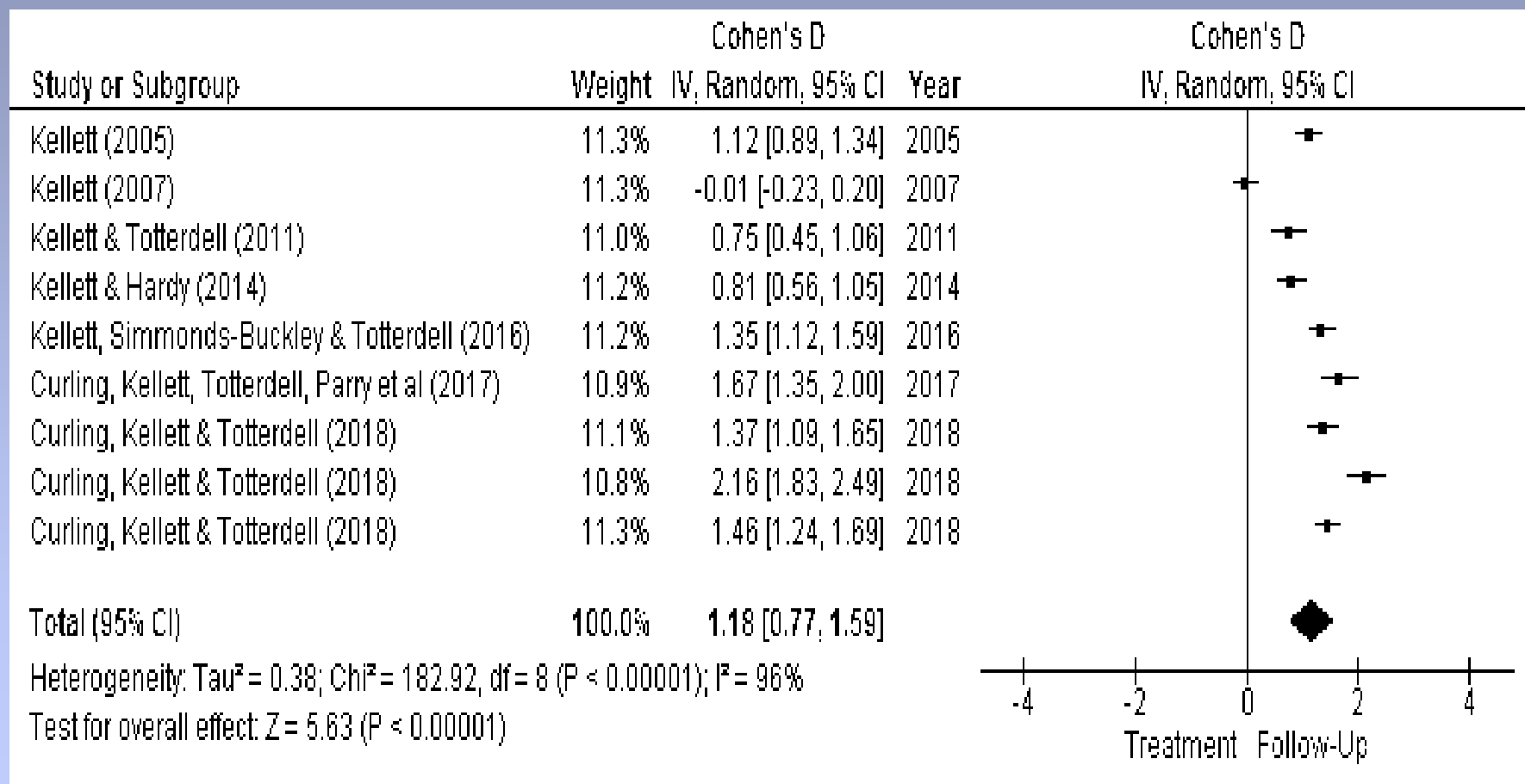
Forest plot comparing baseline and treatment phases across the cases



Funnel plot for baseline and treatment phase comparisons

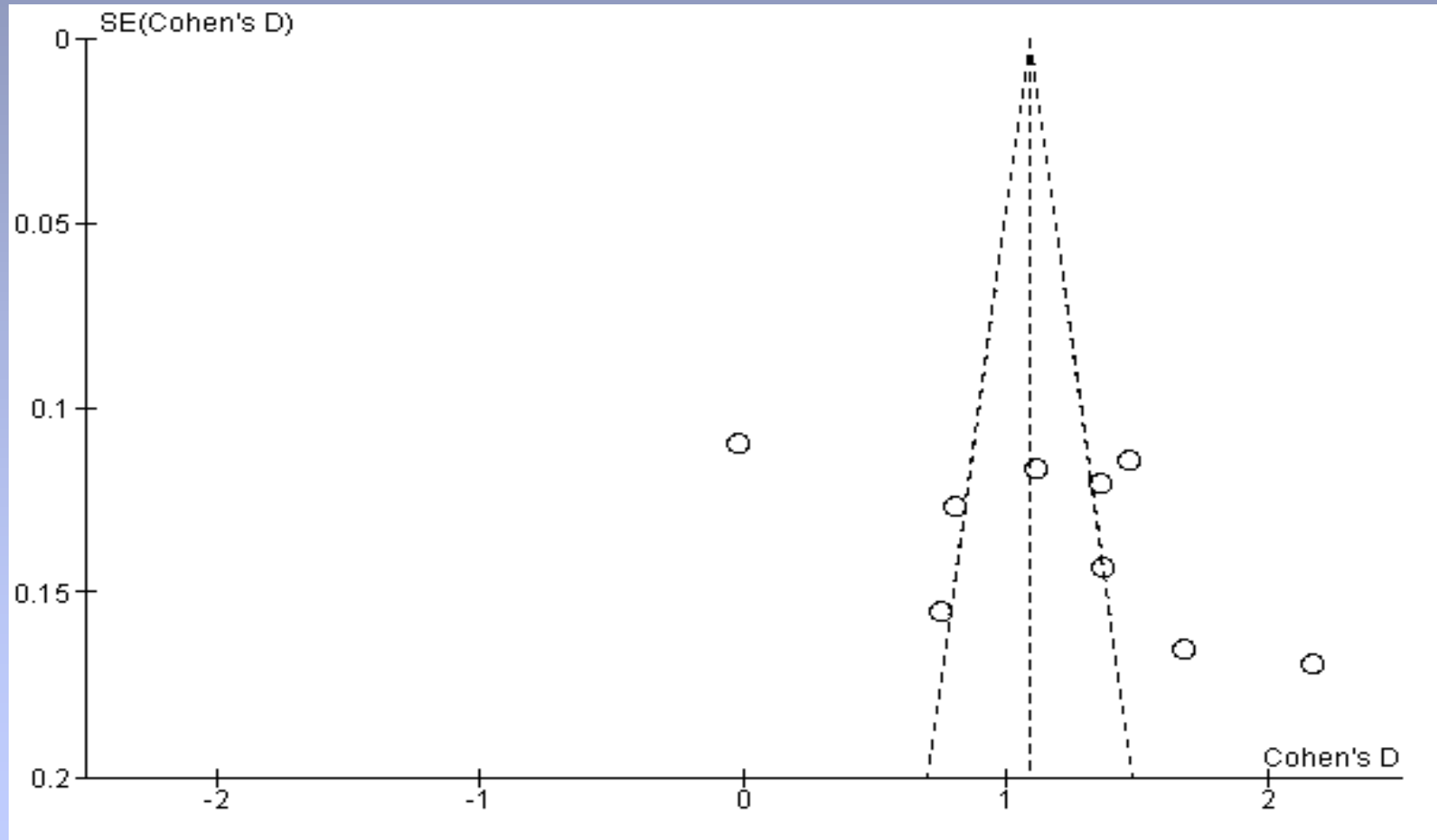


Forest plot for all maintenance effects from treatment to follow up



$$\chi^2 = 182.92, df = 8, P < 0.01, I^2 = 96\%$$

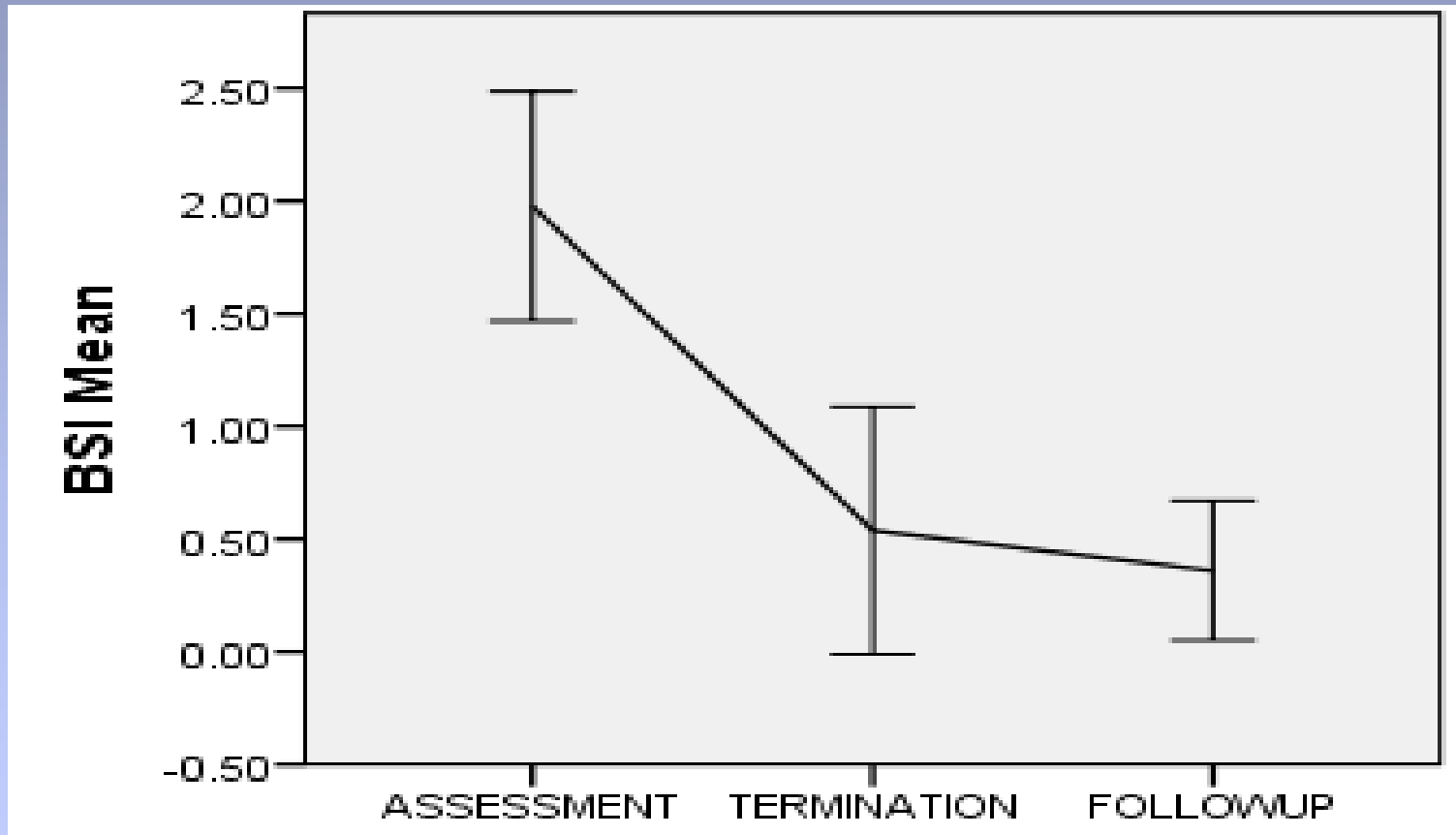
Funnel plot for treatment to follow-up comparisons



Outcomes for subgroup analyses

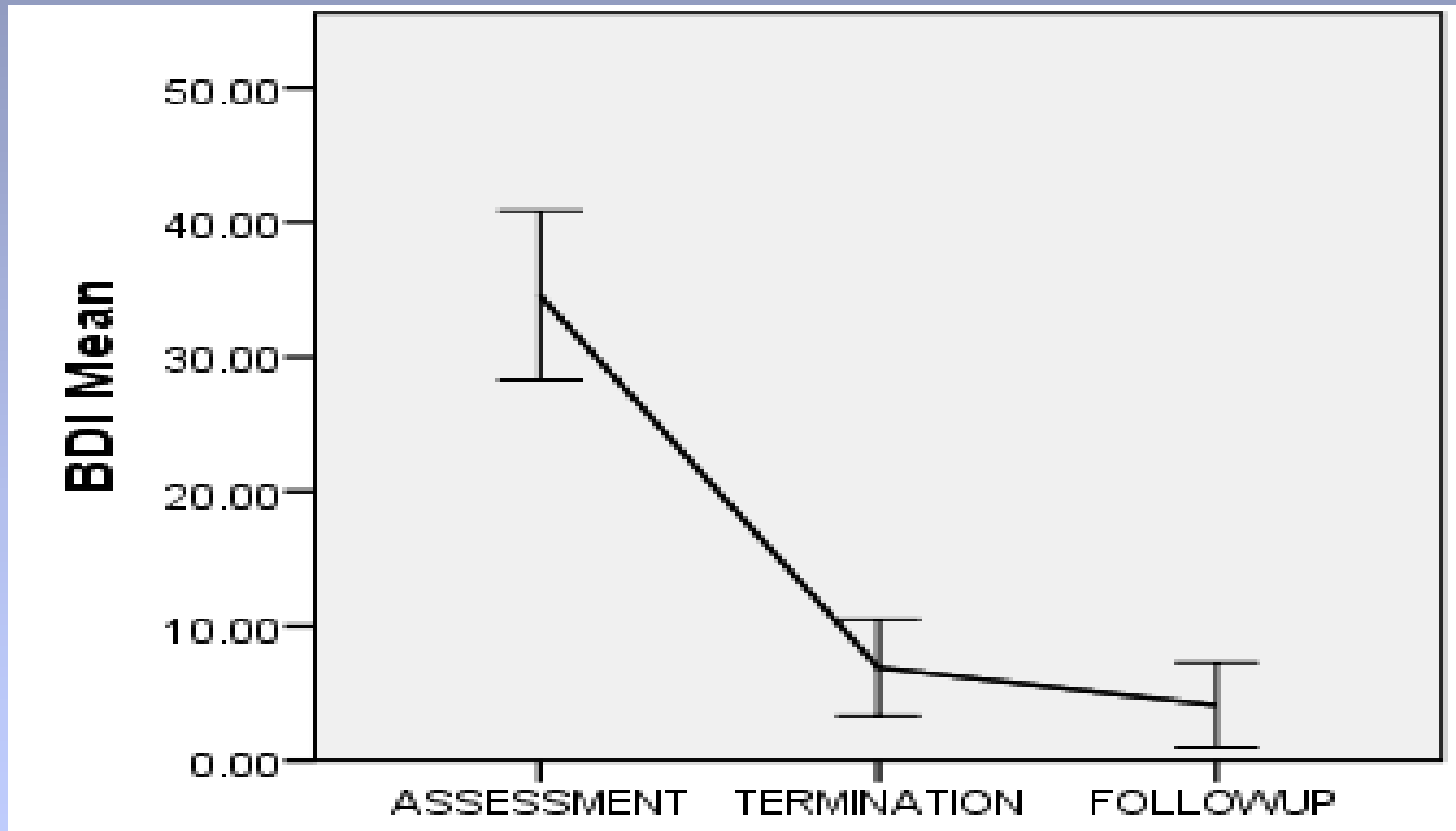
Category	No. of Studies	No. of Cases	Effectiveness of Treatment (Baseline to Treatment)		Durability of Treatment (Treatment to Follow-Up)	
			Mean effect size	95% CI	Mean effect size	95% CI
Gender						
Male	2	2	1.11	-.26-2.47	1.17	.81-1.54
Female	6	7	1.09	.45-1.73	1.19	.57-1.81
Session Length						
16-Session	3	4	0.85	-.02-1.73	1.49	.92-2.05
24-Session	5	5	1.29	.44-2.14	.94	.40-1.49
Disorder						
Obsessive Morbid Jealousy	3	5	0.66	-.11-1.42	1.48	1.07-1.89
Other	4	4	1.64	1.05-2.23	.81	.20-1.42

BSI outcomes across cases

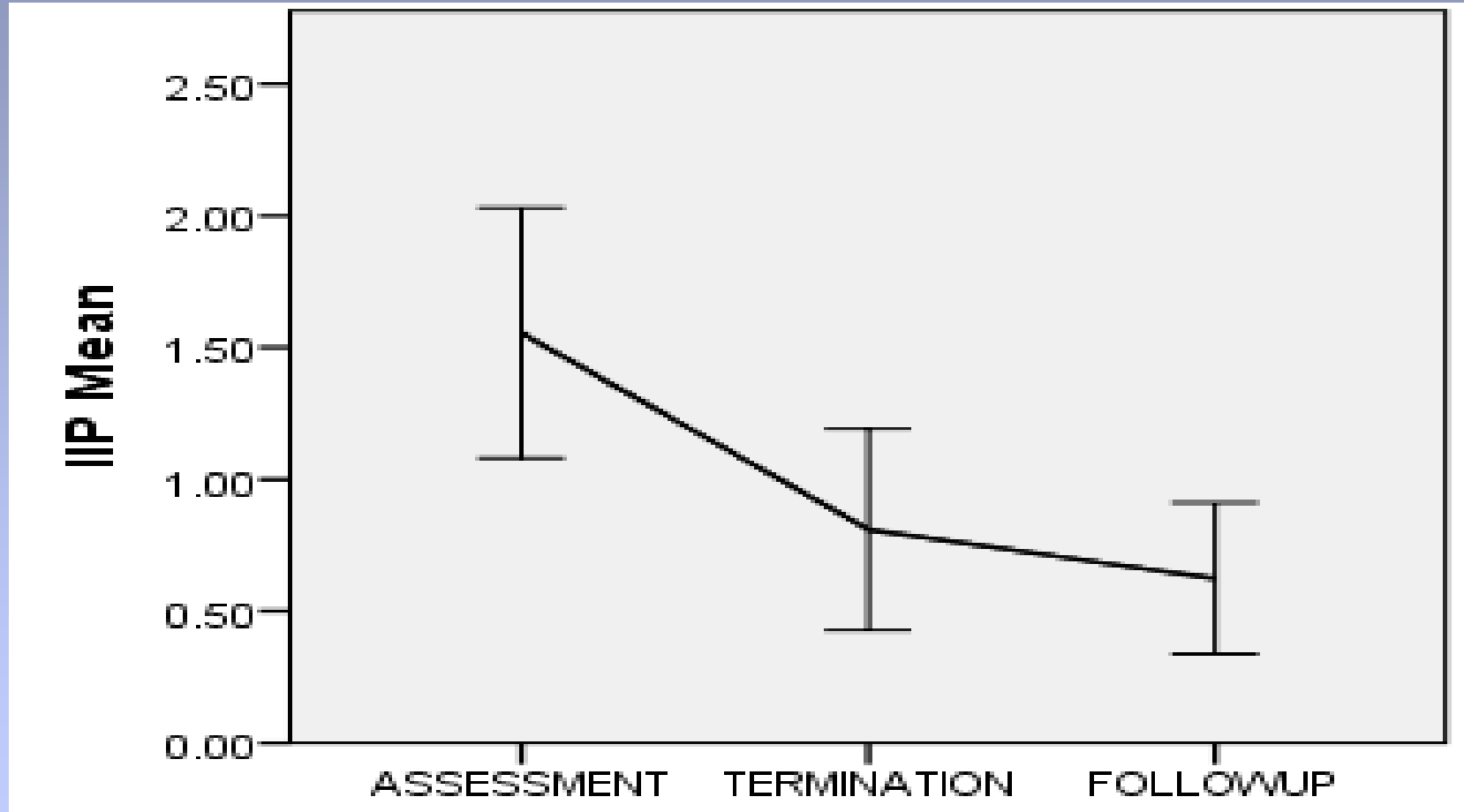


($\chi^2 = 14.8, p = 0.001$)

BDI-II outcomes across the cases



IIP-32 outcomes across the cases



($\chi^2 = 11.556, p = 0.003$).

Conclusions and next steps

- CAT seems to be effective of complex disorders on ideographic outcomes both at post treatment and follow-up
- Seems to treat depression even when its not the focus of the intervention (all cases had a reliable and clinically significant change)?
- The effect size for the follow-up phase is impressive
- Need for more real SCED designs and improve the internal validity of A/B designs
- Need to collect the grey literature (k=22)

Rounding up

- **SCED has been used in a wide variety of situations and with a wide variety of therapies**
- **Be aware of rubbish in = rubbish out**
- **Its fun to use and useful for the patient**
- **Be accountable for your practice**
- **Integrate the methods into your practice**
- **Always start with the baseline - the design can evolve and be flexible**
- **Remember to remember your client - your job is to help them and not manipulate variables and phases**
- **Keep a diary yourself and see what think is like (Bennett-Levy, 2008)**

Finished!

- Reflections, questions or comments on this bit?