

The Efficacy and Acceptability of Third Wave
Behavioural and Cognitive eHealth Treatments:
A Systematic Review and Meta-analysis of
Randomised Controlled Trials

By

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The Three Waves

- Behaviour therapy
- Cognitive behaviour therapy
- Contextual cognitive behaviour therapy
 - Acceptance and Commitment Therapy
 - Dialectical Behaviour Therapy
 - Functional Analytic Psychotherapy
 - Metacognitive Therapy
 - Mindfulness-based Cognitive Therapy
 - Schema Therapy
 - Integrative Behavioural Couple Therapy
 - Cognitive Behavioural Analysis System of Psychotherapy
 - Compassion focused Therapy

Systematic Reviews & Meta-analyses

- **ACT** (A-Tjak et al., 2015; Bluett et al., 2014; Hacker et al., 2016; Öst, 2014; Swain et al., 2013)
- **DBT** (Kliem et al., 2010; Panos et al., 2014)
- **MCT** (Normann et al., 2014; Sadeghi et al., 2015)
- **MBCT** (Chiesa et al., 2011; Galante et al., 2013; Piet et al., 2011)
- **Schema Therapy** (Jacob et al., 2013; Masley et al., 2012)
- **CBASP** (Negt et al., 2016)
- **CFT & CMT** (Leaviss et al., 2015)
- **Third wave therapies** (Churchill et al., 2013; Hunot et al., 2013; Öst, 2008)

eHealth

- Use of modern IT & electronic communication resources in the delivery of health care
- Advantages:
 - Accessible to individuals restricted by geographical, physical disability, transportation or financial barriers
 - Flexibility of use
 - High treatment fidelity & consistency of care
 - Reduce therapist time & waiting lists

Efficacy in Other Formats

- Cavanagh, Strauss, Forder, & Jones (2014)
 - 15 RCTs of self-help MBIs
 - Anxiety outcomes: $g = 0.34$
 - Depression outcomes: $g = 0.37$
- Spijkerman, Pots, & Bohlmeijer (2016):
 - 15 RCTs of online MBIs
 - Anxiety outcomes: $g = 0.22$
 - Depression outcomes: $g = 0.29$
 - Stress outcomes: $g = 0.51$
 - Well-being outcomes: $g = 0.23$

Aims of the Research

- Determine the efficacy of third wave eHealth treatments in improving mental health outcomes including anxiety, depression, stress and quality of life relative to:
 - Inactive control conditions
 - Active control conditions
 - Comparison interventions
- Elucidate the acceptability of third wave eHealth treatments
 - Indices of participant evaluation
 - Participant attrition rates

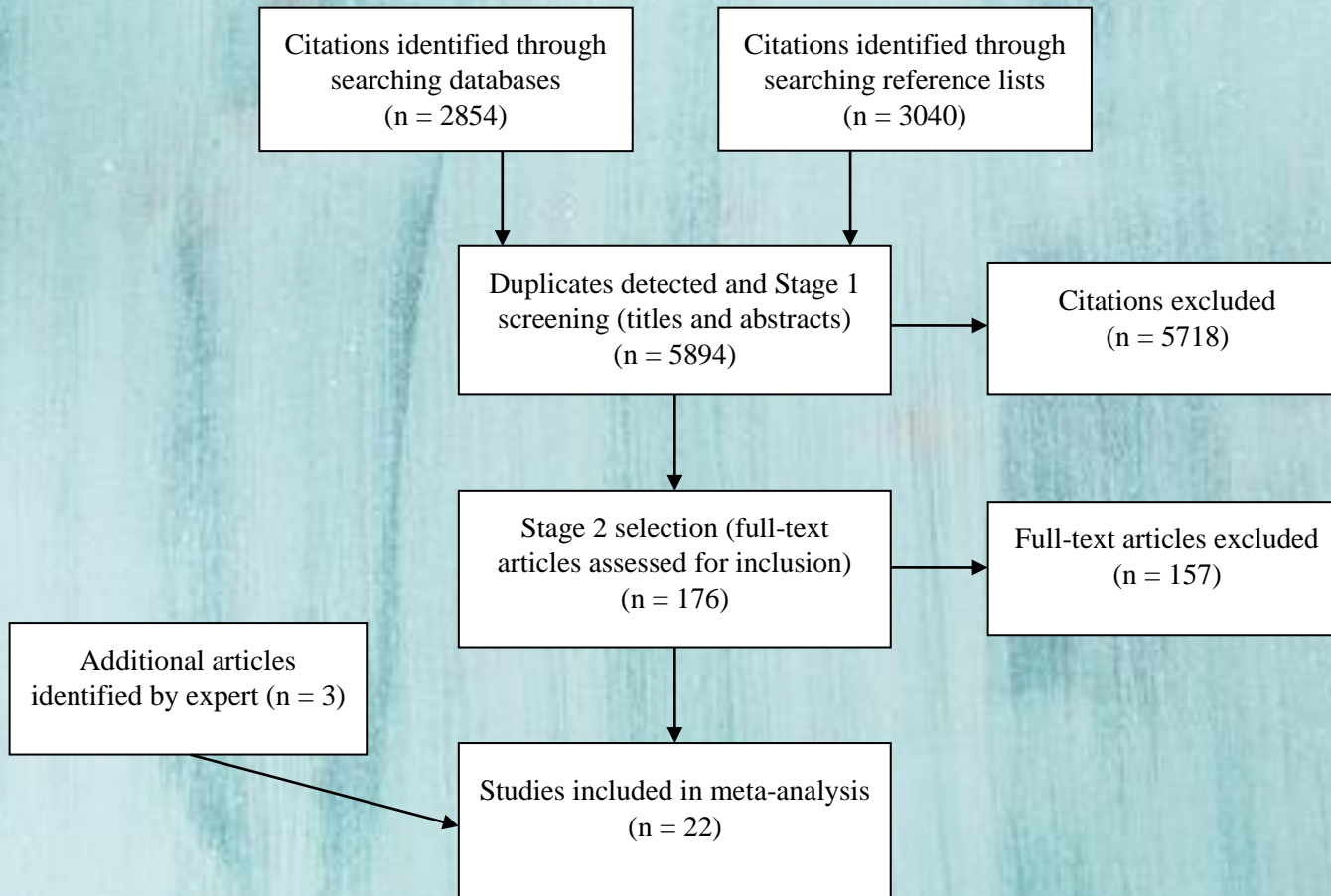
Method

- Eligibility criteria
 - Types of studies
 - RCTs in English language peer-reviewed journals
 - Types of intervention
 - ACT, DBT, FAP, MBCT, MCT, Schema Therapy, CFT, CBASP or IBCT
 - Main component delivered via eHealth
 - Types of outcome measures
 - Valid & reliable measures of anxiety, depression, stress and quality of life at post-treatment

- Information sources
 - PubMed, PsycINFO and Web of Science
 - Reference lists of all selected articles
 - Relevant review articles
- Search strategy
 - Key search terms related to third wave behavioural & cognitive eHealth treatments
- Study selection
 - Independently screened titles & abstracts
 - Inclusion criteria applied to full-text
 - Discrepancies resolved through consensus

- Risk of bias in Individual studies
 - Cochrane Collaboration's tool for assessing risk of bias
 - Seven evidence-based domains of bias
- Risk of bias across studies
 - Funnel plots
 - Duval and Tweedie's (2000) Trim and Fill procedure
- Summary measures
 - Hedges's g
 - Odds ratio

Results



Study Characteristics

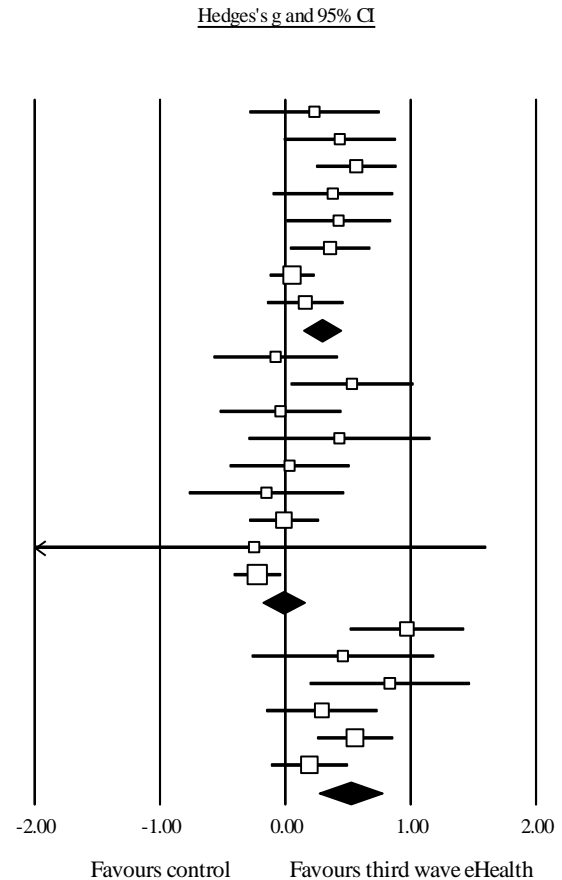
- Participants
- Interventions
- Comparators
- Outcome measures
 - Primary outcomes
 - Secondary outcomes

Risk of Bias

- Random sequence generation
- Allocation concealment
- Blinding of participants and personnel
- Blinding of outcome assessment
- Incomplete outcome data
- Selective reporting
- Other bias

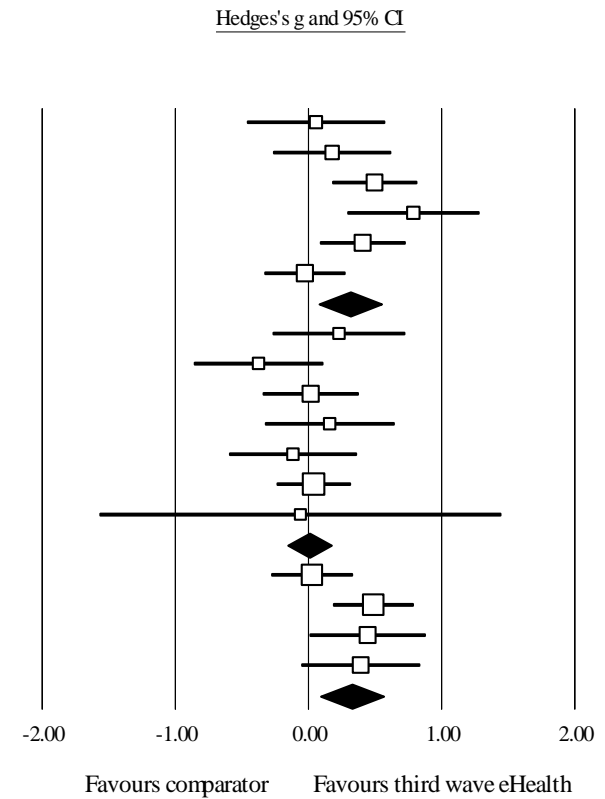
Depression Outcomes

Group by Comparator type	Study name	Outcome	Statistics for each study					Hedges's g and 95% CI
			Hedges's g	Standard error	Lower limit	Upper limit	p-Value	
Active control	Braithwaite et al., 2007	BDI	0.23	0.27	-0.29	0.76	0.38	
Active control	Buhrman et al., 2013	HADS-D	0.44	0.23	-0.01	0.89	0.06	
Active control	Cukrowicz et al., 2007	BDI	0.57	0.16	0.24	0.89	0.00	
Active control	Hesser et al., 2012	HADS-D	0.38	0.25	-0.10	0.86	0.12	
Active control	Ljótsson et al., 2010	MADRS-S	0.43	0.21	0.01	0.85	0.05	
Active control	Pots et al., 2015*	CES-D	0.36	0.17	0.03	0.68	0.03	
Active control	Shapira et al., 2010	CES-D	0.06	0.09	-0.13	0.24	0.55	
Active control	Trompetter et al., 2015*	HADS-D	0.16	0.16	-0.15	0.47	0.31	
Active control			0.29	0.08	0.14	0.44	0.00	
Comparison intervention	Braithwaite et al., 2007*	BDI	-0.08	0.26	-0.58	0.42	0.76	
Comparison intervention	Dowd et al., 2015	HADS-D	0.53	0.25	0.04	1.03	0.03	
Comparison intervention	Hesser et al., 2012*	HADS-D	-0.04	0.25	-0.53	0.45	0.88	
Comparison intervention	Kelly et al., 2015*	CES-D	0.43	0.37	-0.30	1.16	0.25	
Comparison intervention	Kivi et al., 2014	BDI-II	0.03	0.25	-0.45	0.52	0.89	
Comparison intervention	Lappalainen et al., 2014	BDI-II	-0.15	0.32	-0.77	0.47	0.64	
Comparison intervention	Ljótsson, Hedman et al., 2011	HADS-D	-0.01	0.14	-0.29	0.27	0.94	
Comparison intervention	Ly, Trüschel et al., 2014	BDI-II	-0.25	0.95	-2.10	1.61	0.79	
Comparison intervention	Shapira et al., 2010*	CES-D	-0.22	0.10	-0.42	-0.03	0.02	
Comparison intervention			-0.02	0.08	-0.18	0.15	0.83	
Inactive control	Carlbring et al., 2013	BDI-II	0.97	0.23	0.51	1.43	0.00	
Inactive control	Kelly et al., 2015	CES-D	0.46	0.37	-0.27	1.19	0.22	
Inactive control	Lappalainen et al., 2015	BDI-II	0.83	0.33	0.19	1.48	0.01	
Inactive control	Levin et al., 2014	DASS-D	0.29	0.23	-0.16	0.74	0.20	
Inactive control	Pots et al., 2015	CES-D	0.56	0.16	0.25	0.86	0.00	
Inactive control	Trompetter et al., 2015	HADS-D	0.19	0.16	-0.12	0.50	0.22	
Inactive control			0.52	0.13	0.26	0.77	0.00	

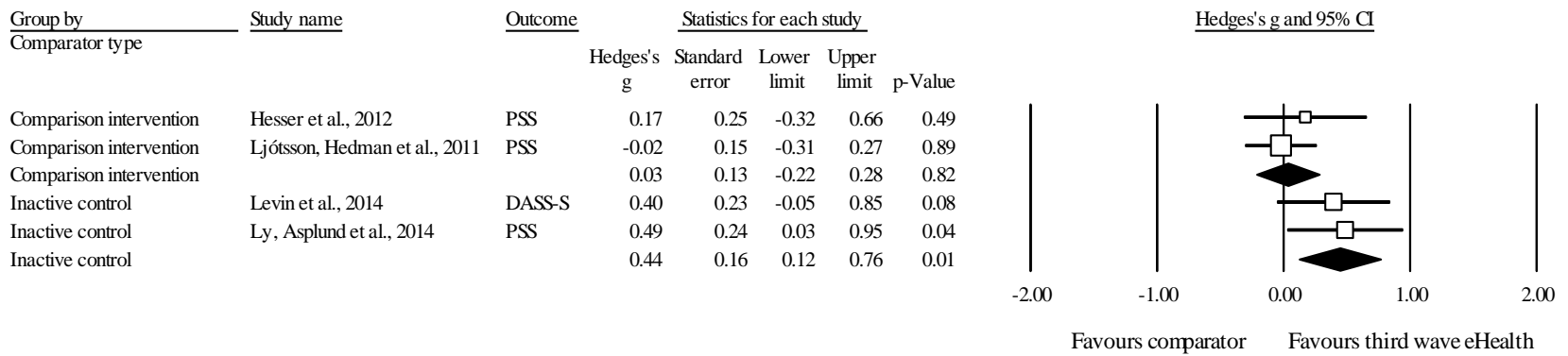


Anxiety Outcomes

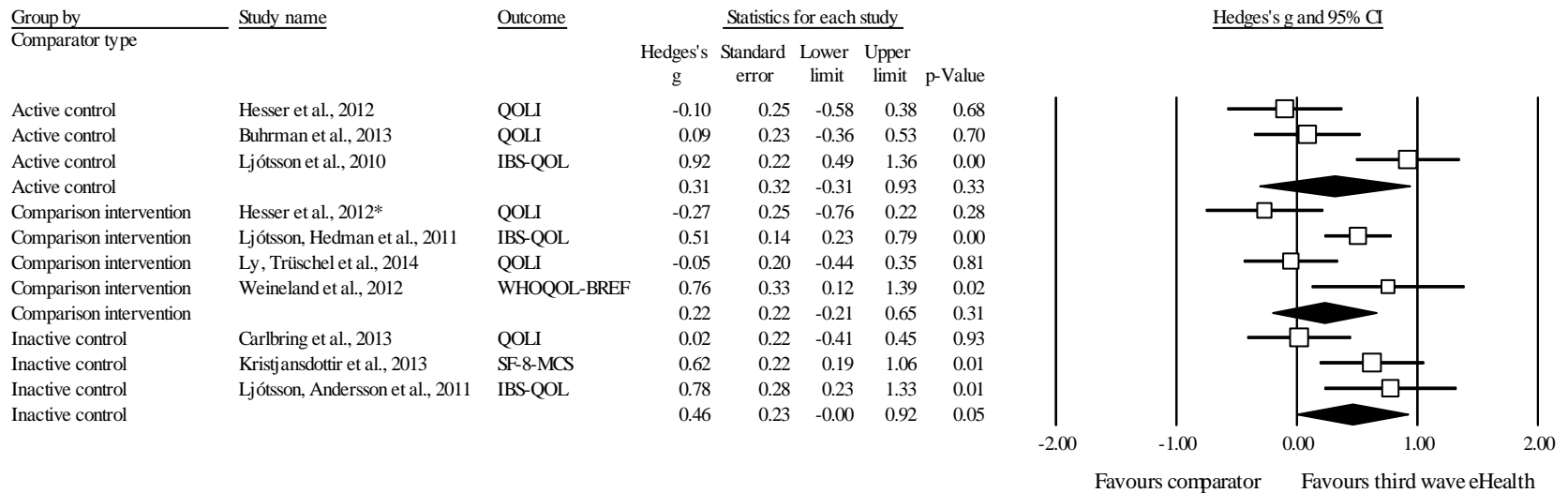
Group by Comparator type	Study name	Outcome	Statistics for each study				
			Hedges's g	Standard error	Lower limit	Upper limit	p-Value
Active control	Braithwaite et al., 2007	BAI	0.06	0.27	-0.46	0.58	0.83
Active control	Buhrman et al., 2013	HADS-A	0.18	0.23	-0.27	0.62	0.43
Active control	Cukrowicz et al., 2007	BAI	0.50	0.16	0.18	0.82	0.00
Active control	Hesser et al., 2012	HADS-A	0.79	0.25	0.29	1.29	0.00
Active control	Pots et al., 2015*	HADS-A	0.41	0.17	0.08	0.73	0.01
Active control	Trompetter et al., 2015*	HADS-A	-0.03	0.16	-0.33	0.28	0.87
Active control			0.31	0.12	0.07	0.54	0.01
Comparison intervention	Braithwaite et al., 2007*	BAI	0.23	0.26	-0.27	0.73	0.37
Comparison intervention	Dowd et al., 2015	HADS-A	-0.37	0.25	-0.86	0.12	0.13
Comparison intervention	Glickel et al., 2015	STAI	0.02	0.19	-0.35	0.38	0.93
Comparison intervention	Hesser et al., 2012*	HADS-A	0.16	0.25	-0.33	0.65	0.52
Comparison intervention	Kivi et al., 2014	BAI	-0.12	0.25	-0.60	0.37	0.64
Comparison intervention	Ljótsson, Hedman et al., 2011	HADS-A	0.04	0.14	-0.24	0.32	0.78
Comparison intervention	Ly, Trüschel et al., 2014	BAI	-0.06	0.77	-1.57	1.45	0.94
Comparison intervention			0.00	0.08	-0.16	0.17	0.97
Inactive control	Trompetter et al., 2015	HADS-A	0.03	0.16	-0.28	0.34	0.86
Inactive control	Pots et al., 2015	HADS-A	0.49	0.16	0.18	0.79	0.00
Inactive control	Carlbring et al., 2013	BAI	0.45	0.22	0.01	0.89	0.05
Inactive control	Levin et al., 2014	DASS-A	0.39	0.23	-0.06	0.84	0.09
Inactive control			0.32	0.12	0.09	0.56	0.01



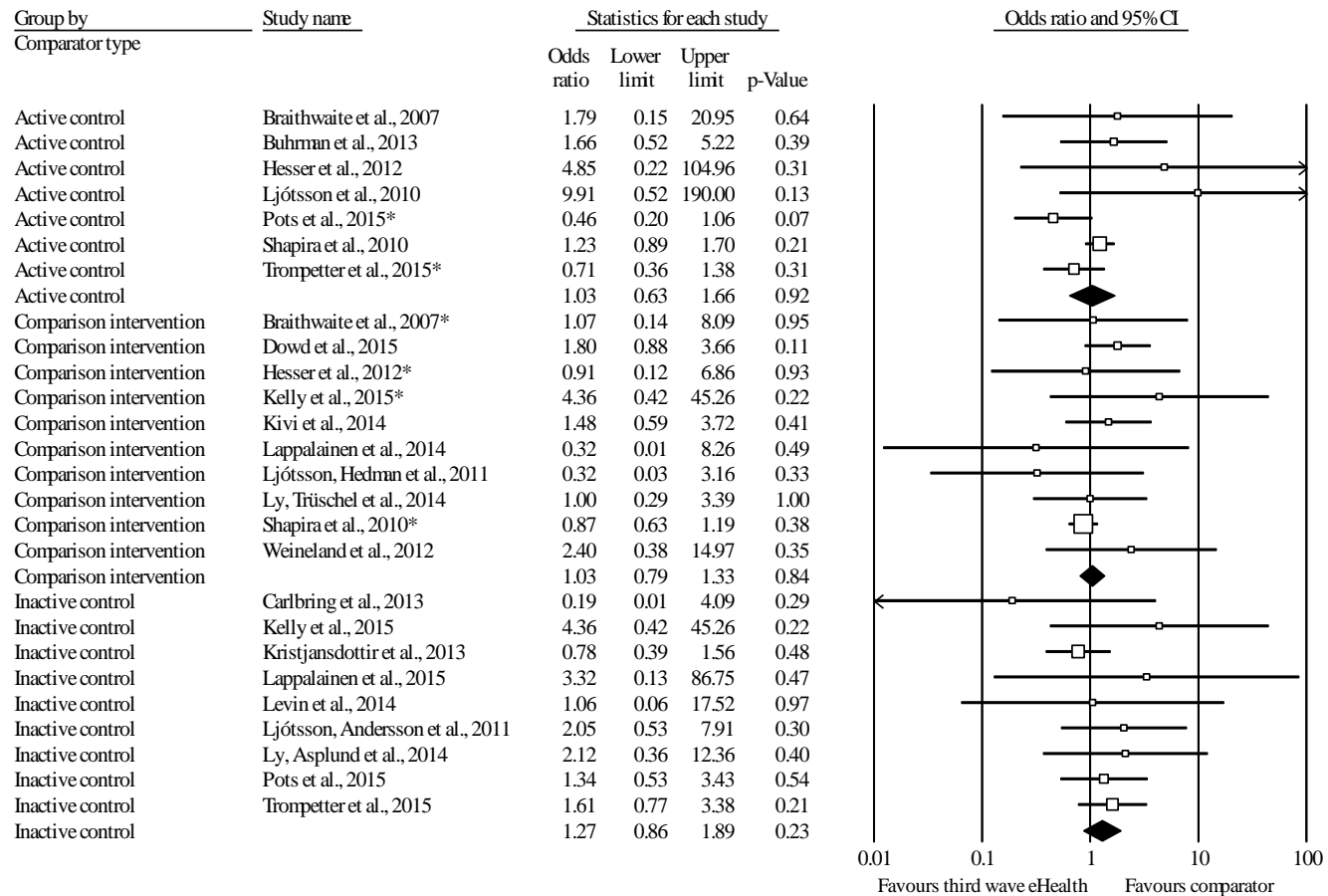
Stress Outcomes



Quality of Life



Participant Attrition



Discussion

- Relation to previously published research
 - Cavanagh, Strauss, Forder, & Jones (2014)
 - Spijkerman, Pots, & Bohlmeijer (2016)
 - Öst (2008)
 - Acceptability
 - Participant evaluation
 - Attrition rates

Limitations

- Only RCTs in English language peer-reviewed journals were included
- Findings restricted to data collected at post-treatment
- Third wave treatments with no eligible studies

Future Directions

- Are third wave eHealth treatments efficacious for children and adolescents?
- Are third wave eHealth treatments non-inferior to existing empirically supported treatments?
 - Lappalainen et al. (2014)