

A systematic review and meta-analysis of interventions to improve outcomes for parents or carers of children with anxiety and/or depression

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25/06/2024

All analyses were conducted using *R* Version 4.3.1 released 16 June 2023 alongside RStudio version 2023.06.2+561 (Mountain Hydrangea) released 3 December 2022. The following packages were downloaded and installed:

install.packages("dmetar") Version 0.0.9000 still under development as of 2019

install.packages("meta") Version 6.5-0 published 7 June 2023

install.packages("esc") version 0.5.1 published 12 April 2019

install.packages("MOTE") version 1.0.2 published 10 April 2019

library(dmetar)

library(meta)

library(esc)

library(MOTE)

Data and analytical method used to synthesise anxiety outcomes

The corresponding 95% confidence intervals of transformed effects were used to compute a standard error (SE) using the following formula: $SE = (\text{upper limit} - \text{lower limit}) / 3.92$. Pre-calculated effect size data were used because to include between- and within- group studies and raw data was not available for all studies (e.g., Salari et al. 2018).

The function `esc_mean_sd` from the R package *esc* was used to calculate Cohen's *d* and the function `d.dep.t.avg` from the R package *MOTE* was used to calculate Cohen's *d*_{av} for between-group studies and

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within-group studies, respectively. Post-intervention effects were calculated for the following studies:

Bertino et al (2013)

```
esc_mean_sd(grp1m = 27.2, grp1sd = 27.9, grp1n =39,  
            grp2m = 37.9, grp2sd =35.1, grp2n =9, es.type = "d")
```

```
##  
## Effect Size Calculation for Meta Analysis  
##  
##      Conversion: mean and sd to effect size d  
##      Effect Size:  -0.3654  
##      Standard Error:  0.3717  
##      Variance:      0.1381  
##      Lower CI:     -1.0939  
##      Upper CI:      0.3630  
##      Weight:       7.2389
```

Gleeson et al. (2017)

```
d.dep.t.avg(m1=8.65, m2=9.28, sd1=10.34, sd2=10.24, n=25, a = 0.05)
```

```
## $d  
## [1] -0.06122449  
##  
## $dlow  
## [1] -0.4529626  
##  
## $dhigh  
## [1] 0.3317798  
##  
## $M1  
## [1] 8.65  
##  
## $sd1  
## [1] 10.34  
##  
## $se1  
## [1] 2.068  
##  
## $M1low  
## [1] 4.381858  
##  
## $M1high  
## [1] 12.91814  
##  
## $M2  
## [1] 9.28  
##  
## $sd2  
## [1] 10.24  
##
```

```
## $se2
## [1] 2.048
##
## $M2low
## [1] 5.053136
##
## $M2high
## [1] 13.50686
##
## $n
## [1] 25
##
## $df
## [1] 24
##
## $estimate
## [1] "$d_{av}$ = -0.06, 95%% CI [-0.45, 0.33]"
```

Poole *et al.* (2018) reported standard errors (SEs) were first converted to standard deviations.

```
1.31*sqrt(31) #grp1
```

```
## [1] 7.293771
```

```
1.35*sqrt(33) #grp2
```

```
## [1] 7.75516
```

```
esc_mean_sd(grp1m = 4.81, grp1sd = 7.29 , grp1n =31 ,
             grp2m = 6.71, grp2sd =7.76 , grp2n= 33 , es.type = "d")
```

Salari *et al.* (2018) reported a *t*-value from an independent samples *t*-test and this was used to estimate Cohen's *d*.

```
esc_t(t = -0.58, grp1n =15 , grp2n =19, es.type="d")
```

```
##
## Effect Size Calculation for Meta Analysis
##
##      Conversion: t-value to effect size d
##      Effect Size:  -0.2003
##      Standard Error:  0.3462
##      Variance:      0.1199
##      Lower CI:     -0.8790
##      Upper CI:      0.4783
##      Weight:       8.3411
```

Waters *et al.* (2009)

```
esc_mean_sd(grp1m = 1.65, grp1sd = 2.17, grp1n =25,
            grp2m = 1.25, grp2sd =1.98, grp2n =24, es.type = "d")
```

The corresponding 95% confidence intervals of transformed effects were used to compute a standard error (SE) using the following formula: $SE = (\text{upper limit} - \text{lower limit}) / 3.92$.

Bertino et al. (2013)

```
(0.36 - (-1.09)) / 3.92
```

```
## [1] 0.369898
```

Gleeson et al. (2017)

```
(0.33 - (-0.45)) / 3.92
```

Poole et al. (2018)

```
(0.24 - (-0.74)) / 3.92
```

Salari et al. (2018)

```
(0.48 - (-0.88)) / 3.92
```

Waters et al. (2009)

```
(0.75 - (-0.37)) / 3.92
```

The function *metagen* from the R package *meta* was used to pool pre-calculated effect size data

Table of the data was generated using the *kable* function in *knitr*.

```
kable(Anxiety_post_treatment_d)
```

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Bertino et al. (2013)	-0.37	0.37	Between	Family-based	Mixed	Moderate
Gleeson et al. (2017)	-0.06	0.20	Within	“Social therapy”	Mixed	Weak
Poole et al. (2018)	-0.25	0.25	Between	Family-based	Depression	Strong
Salari et al. (2018)	-0.20	0.35	Between	Group CBT	Anxiety	Weak
Waters et al. (2009)	0.19	0.29	Between	Group CBT	Anxiety	Strong

The inverse variance method using a random effects model was used to pool effect sizes due to anticipated high level of between-study heterogeneity. The summary measure produced was Cohen’s *d* with the restricted maximum likelihood estimator (REML) used to estimate between-study variance. Knapp-Hartung adjustment was applied to calculate the confidence interval around the summary effect.

```
Anxiety_PT_d <- metagen(TE = TE,
  seTE = seTE,
  studlab = Author,
  data = Anxiety_post_treatment_d,
  sm = "SMD",
  fixed = FALSE,
  random = TRUE,
  method.tau = "REML",
  prediction = TRUE,
  haki = TRUE,
  title =
    "Effectiveness of interventions on parents'/carers' anxiety at post-intervention")
summary(Anxiety_PT_d)
```

```
## Review:      Effectiveness of interventions on parents'/carers' anxiety at post-intervention
##
##              SMD              95%-CI %W(random)
## Bertino et al. (2013) -0.3700 [-1.0952; 0.3552]      10.7
## Gleeson et al. (2017) -0.0600 [-0.4520; 0.3320]      36.6
## Poole et al. (2018)  -0.2500 [-0.7400; 0.2400]      23.4
## Salari et al. (2018) -0.2000 [-0.8860; 0.4860]      11.9
## Waters et al. (2009)  0.1900 [-0.3784; 0.7584]      17.4
##
## Number of studies: k = 5
##
##              SMD              95%-CI      t p-value
## Random effects model (HK) -0.1108 [-0.3486; 0.1270] -1.29 0.2654
## Prediction interval              [-0.4957; 0.2741]
##
## Quantifying heterogeneity:
## tau2 = 0 [0.0000; 0.2835]; tau = 0 [0.0000; 0.5324]
## I2 = 0.0% [0.0%; 79.2%]; H = 1.00 [1.00; 2.19]
##
## Test of heterogeneity:
##      Q d.f. p-value
## 2.01  4  0.7346
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau2
## - Q-Profile method for confidence interval of tau2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 4)
## - Prediction interval based on t-distribution (df = 3)
```

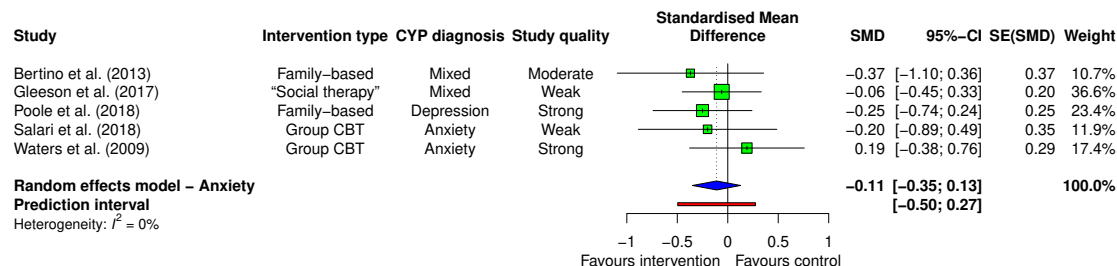
A forest plot was generated using the *forest.meta* function from the *meta* package using the meta-analysis output *Anxiety_PT_d*.

```
forest.meta(Anxiety_PT_d, leftcols=c("studlab", "Intervention type", "CYP diagnosis", "Study quality"),
  rightcols=c("effect", "ci", "seTE", "w.random"),
  print.tau2 = FALSE,
  text.random = "Random effects model - Anxiety",
  print.pval.Q = FALSE,
  prediction = TRUE,
```

```

digits.TE= 2,
digits.se= 2,
label.left = "Favours intervention",
label.right = "Favours control",
col.diamond="blue",
col.square="green", col.square.lines="black")

```



The function `find.outliers` part of the `dmetar` package was used to identify potential outliers (i.e., extremely small or large effects).

```
find.outliers(Anxiety_PT_d)
```

```
## No outliers detected (random-effects model).
```

Leave-one-out analysis was performed using the function `InfluenceAnalysis` part of the `dmetar` package. Influential cases have a large impact on the summary effect or heterogeneity.

```
InfluenceAnalysis(Anxiety_PT_d, random = TRUE)
```

```
## [=====] DONE
```

```
## Leave-One-Out Analysis (Sorted by I2)
```

```
## -----
##               Effect  LLCI  ULCI  I2
## Omitting Bertino et al. (2013) -0.080 -0.364 0.204  0
## Omitting Gleeson et al. (2017) -0.140 -0.525 0.245  0
## Omitting Poole et al. (2018)   -0.068 -0.390 0.253  0
## Omitting Salari et al. (2018)  -0.099 -0.428 0.230  0
## Omitting Waters et al. (2009) -0.174 -0.379 0.031  0
##
```

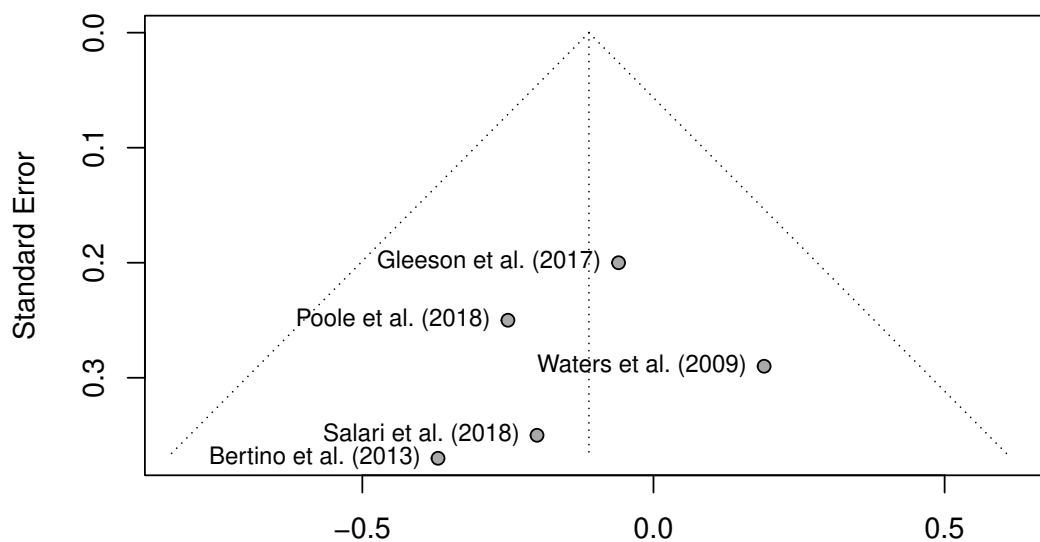
```
## Influence Diagnostics
## -----
```

```
##               rstudent  dffits  cook.d  cov.r  QE.del  hat  weight  infl
## Omitting Bertino et al. (2013) -0.741 -0.256  0.066  1.120  1.457  0.107  10.686
## Omitting Gleeson et al. (2017)  0.319  0.242  0.059  1.577  1.904  0.366  36.572
## Omitting Poole et al. (2018)   -0.636 -0.352  0.124  1.306  1.602  0.234  23.406
## Omitting Salari et al. (2018)  -0.271 -0.100  0.010  1.136  1.932  0.119  11.942
## Omitting Waters et al. (2009)  1.141  0.524  0.274  1.211  0.703  0.174  17.394
##
```

```
##
## Baujat Diagnostics (sorted by Heterogeneity Contribution)
## -----
##
##           HetContrib InfluenceEffectSize
## Omitting Waters et al. (2009)          1.076          0.227
## Omitting Bertino et al. (2013)         0.491          0.059
## Omitting Poole et al. (2018)           0.310          0.095
## Omitting Gleeson et al. (2017)         0.065          0.037
## Omitting Salari et al. (2018)          0.065          0.009
```

Publication test was visually assessed through funnel plot asymmetry.

```
funnel(Anxiety_PT_d, xlab = "Funnel plot for anxiety at post-intervention", studlab = TRUE)
```



Funnel plot for anxiety at post-intervention

Asymmetry was quantified using Egger's test.

```
eggertest(Anxiety_PT_d)
```

```
## Eggers' test of the intercept
## =====
##
## intercept      95% CI      t      p
##      -0.861 -3.88 - 2.15 -0.56 0.6146429
##
## Eggers' test does not indicate the presence of funnel plot asymmetry.
```

A sensitivity analysis was conducted that examined *between-group studies* only. This analysis used a corrected version of effects by applying Hedges' *g* to the pre-calculated effect size data before pooling was conducted.

Bertino et al. (2013)

```
esc_mean_sd(grp1m = 27.2, grp1sd = 27.9, grp1n =39 ,
            grp2m = 37.9, grp2sd =35.1, grp2n =9, es.type = "g")
```

Poole et al. (2018)

```
esc_mean_sd(grp1m = 4.81, grp1sd = 7.29 , grp1n =31 ,
            grp2m = 6.71, grp2sd =7.76 , grp2n= 33 , es.type = "g")
```

Salari et al. (2018)

```
esc_t(t = -0.58, grp1n =15 , grp2n =19, es.type="g")
```

Waters et al. (2009)

```
esc_mean_sd(grp1m = 1.65, grp1sd = 2.17, grp1n =25,
            grp2m = 1.25, grp2sd =1.98, grp2n =24, es.type = "g")
```

The corresponding 95% confidence intervals of transformed effects were used to compute a SE.

Bertino et al. (2013)

```
(0.37 - (-1.09)) / 3.92
```

Poole et al. (2018)

```
(0.24 - (-0.74)) / 3.92
```

Salari et al. (2018)

```
(0.48 - (-0.87)) / 3.92
```

Waters et al. (2009)

```
(0.75 - (-0.37)) / 3.92
```

The data frame was tabulated.

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Bertino et al. (2013)	-0.36	0.37	Between	Family-based	Mixed	Moderate
Poole et al. (2018)	-0.25	0.25	Between	Family-based	Depression	Strong
Salari et al. (2018)	-0.20	0.34	Between	Group CBT	Anxiety	Weak
Waters et al. (2009)	0.19	0.29	Between	Group CBT	Anxiety	Strong

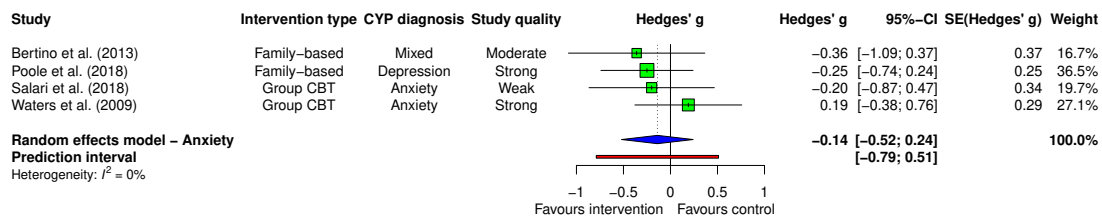
A random effects model was ran estimating Hedges' *g* by using REML as the estimator with Hartung-Knapp adjustment applied.


```

## Review:      Effectiveness of interventions on parents'/carers' anxiety at post-intervention
##
##              Hedges' g          95%-CI %W(random)
## Bertino et al. (2013)  -0.3600 [-1.0852; 0.3652]      16.7
## Poole et al. (2018)   -0.2500 [-0.7400; 0.2400]      36.5
## Salari et al. (2018)  -0.2000 [-0.8664; 0.4664]      19.7
## Waters et al. (2009)   0.1900 [-0.3784; 0.7584]      27.1
##
## Number of studies: k = 4
##
##              Hedges' g          95%-CI      t p-value
## Random effects model (HK)  -0.1391 [-0.5189; 0.2406] -1.17 0.3279
## Prediction interval                [-0.7889; 0.5107]
##
## Quantifying heterogeneity:
## tau^2 = 0 [0.0000; 0.7018]; tau = 0 [0.0000; 0.8377]
## I^2 = 0.0% [0.0%; 84.7%]; H = 1.00 [1.00; 2.56]
##
## Test of heterogeneity:
##      Q d.f. p-value
## 1.87   3 0.5991
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 3)
## - Prediction interval based on t-distribution (df = 2)

```

A forest plot was generated



A test to detect outliers was performed

```
## No outliers detected (random-effects model).
```

Leave-one-out analysis was performed and identified *Waters et al. 2009* as an influential study on the summary effect

```
## [=====] DONE
```

```
## Leave-One-Out Analysis (Sorted by I2)
```

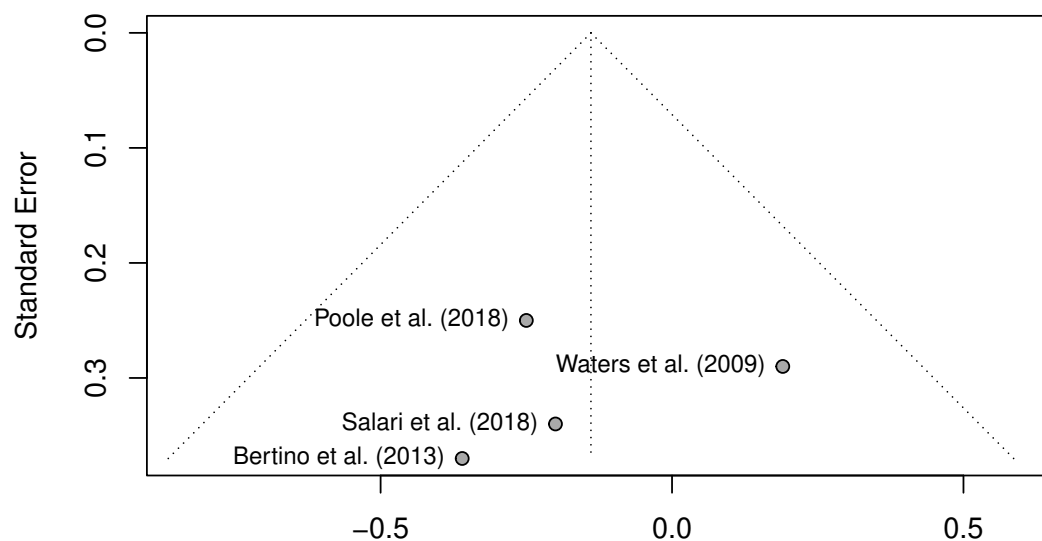
```
## -----
##              Effect   LLCI   ULCI  I2
```

```

## Omitting Bertino et al. (2013) -0.095 -0.700 0.510 0
## Omitting Poole et al. (2018) -0.075 -0.796 0.645 0
## Omitting Salari et al. (2018) -0.124 -0.819 0.570 0
## Omitting Waters et al. (2009) -0.262 -0.437 -0.087 0
##
##
## Influence Diagnostics
## -----
##               rstudent dffits cook.d cov.r QE.del  hat weight infl
## Omitting Bertino et al. (2013)  -0.654 -0.292 0.085 1.200 1.446 0.167 16.660
## Omitting Poole et al. (2018)   -0.556 -0.422 0.178 1.575 1.563 0.365 36.492
## Omitting Salari et al. (2018)  -0.200 -0.099 0.010 1.246 1.833 0.197 19.729
## Omitting Waters et al. (2009)  1.329 0.811 0.658 1.372 0.106 0.271 27.119  *
##
##
## Baujat Diagnostics (sorted by Heterogeneity Contribution)
## -----
##               HetContrib InfluenceEffectSize
## Omitting Waters et al. (2009)      1.288          0.479
## Omitting Bertino et al. (2013)    0.356          0.071
## Omitting Poole et al. (2018)     0.197          0.113
## Omitting Salari et al. (2018)    0.032          0.008

```

Funnel plot was then generated to visually assess asymmetry for any potential publication bias



Funnel plot for Anxiety at post-treatment

Egger's test was performed to statistically test for asymmetry

```
## Eggers' test of the intercept
```

```
## =====
##
## intercept      95% CI      t      p
##      -0.931 -7.09 - 5.23 -0.296 0.7951844
##
## Eggers' test does not indicate the presence of funnel plot asymmetry.
```

The analysis was re-ran to remove the influential case of *Waters et al. 2009* using the *update.meta* function part of the *meta* package

```
## Review:      Effectiveness of interventions on parents'/carers' anxiety at post-intervention
##
## Number of studies: k = 3
##
##              Hedges' g          95%-CI      t p-value
## Random effects model (HK)  -0.2616 [-0.4366; -0.0866] -6.43 0.0233
## Prediction interval                [-2.5093; 1.9861]
##
## Quantifying heterogeneity:
## tau^2 = 0 [0.0000; 0.1378]; tau = 0 [0.0000; 0.3712]
## I^2 = 0.0% [0.0%; 89.6%]; H = 1.00 [1.00; 3.10]
##
## Test of heterogeneity:
##      Q d.f. p-value
## 0.11  2 0.9485
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 2)
## - Prediction interval based on t-distribution (df = 1)
```

Follow-up effects on anxiety were calculated using raw data from studies.

Raw data from the studies tabulated

Author	n.e	mean.e	sd.e	n.c	mean.c	sd.c	Follow-up period	Intervention type	CYP diagnosis	Study quality
Bertino et al. (2013)	24	36.50	26.30	2	36.00	33.9	6-month	Family-based	Mixed	Moderate
O'Brien (2007)	6	8.70	1.60	6	11.20	2.1	1-month	Group CBT	Anxiety	Strong
Poole et al. (2018)	31	2.94	7.79	33	7.18	8.1	3-month	Family-based	Depression	Strong

The *metacont* function part of the *meta* package was used to meta-analyse raw data of eligible studies. An inverse variance method using a random effects model was ran with the REML as the estimator and Hartung-Knapp adjustments were applied. The bias-corrected Hedges' *g* was the summary measure. Below is the meta-analysis for anxiety at follow-up.

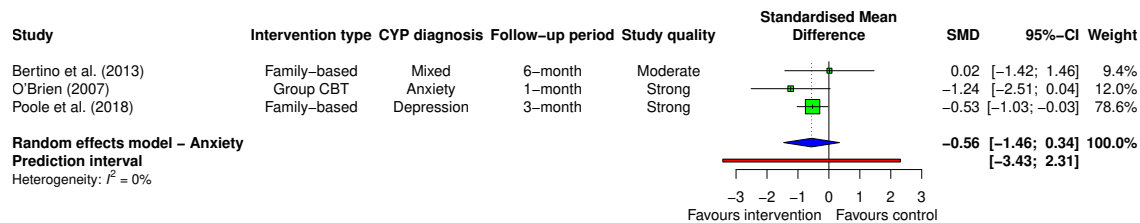
```
## Review:      Effectiveness of interventions on parents'/carers' anxiety at follow-up
##
```

```

##                               SMD           95%-CI %W(random)
## Bertino et al. (2013)  0.0182 [-1.4243;  1.4607]      9.4
## O'Brien (2007)        -1.2357 [-2.5144;  0.0430]     12.0
## Poole et al. (2018)   -0.5268 [-1.0259; -0.0276]     78.6
##
## Number of studies: k = 3
## Number of observations: o = 102
##
##                               SMD           95%-CI      t p-value
## Random effects model -0.5604 [-1.4580; 0.3372] -2.69  0.1151
## Prediction interval      [-3.4296; 2.3089]
##
## Quantifying heterogeneity:
## tau^2 < 0.0001 [0.0000; 15.1366]; tau = 0.0017 [0.0000; 3.8906]
## I^2 = 0.0% [0.0%; 89.6%]; H = 1.00 [1.00; 3.10]
##
## Test of heterogeneity:
##   Q d.f. p-value
##  1.71  2  0.4259
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 2)
## - Prediction interval based on t-distribution (df = 1)
## - Hedges' g (bias corrected standardised mean difference; using exact formulae)

```

A forest plot was generated for the results



Data and analytical method used to synthesise depression outcomes Post-intervention effects were calculated for the following studies:

Gerkenmeyer et al. (2013) reported a *t*-value from an independent samples *t*-test and this was used to estimate Cohen's *d*.

```
esc_t(p = 0.0224, grp1n = 26, grp2n = 28, es.type = "d")
```

Gleeson et al. (2017)

```
d.dep.t.avg(m1=13.31, m2=12.31, sd1=16.15, sd2=12.43, n=25, a = 0.05)
```

Poole et al. (2018) reported SEs were first converted to standard deviations.

```
2.05*sqrt(31) #grp1
2.11*sqrt(33) #grp2
```

```
esc_mean_sd(grp1m = 10.87, grp1sd =11.41 , grp1n =31 ,
            grp2m = 10.95, grp2sd =12.12 , grp2n =33 , es.type = "d")
```

Racey et al. (2018)

```
d.dep.t.avg(m1=6.7, m2=8.6, sd1=8.4, sd2=7.7, n=21, a = 0.05)
```

Salari et al. (2018) reported a *t*-value from an independent samples *t*-test and this was used to estimate Cohen's *d*.

```
esc_t(t = 2.95, grp1n =15 , grp2n =19, es.type="d")
```

Waters et al. (2009)

```
esc_mean_sd(grp1m = 1.65, grp1sd = 2.17, grp1n =25,
            grp2m = 1.25, grp2sd =1.98, grp2n =24, es.type = "d")
```

The corresponding 95% confidence intervals of transformed effects were used to compute SEs using the following formula: $SE = (\text{upper limit} - \text{lower limit}) / 3.92$.

Gerkenmeyer et al. (2013)

```
(1.19 - (0.09)) / 3.92
```

Gleeson et al. (2017)

```
(0.46 - (-0.32)) / 3.92
```

Poole et al. (2018)

```
(0.48 - (-0.50)) / 3.92
```

Racey et al. (2018)

```
(0.20 - (-0.67)) / 3.92
```

Salari et al. (2018)

```
(1.71 - (0.28)) / 3.92
```

Waters et al. (2009)

```
(0.75 - (-0.37)) / 3.92
```

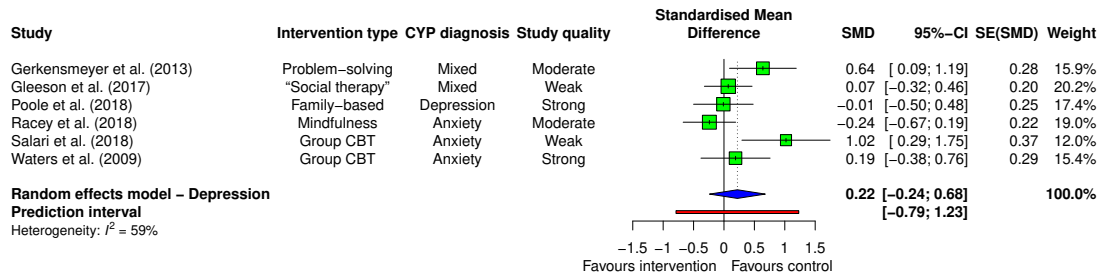
Depression data at post-intervention.

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Gerkenmeyer et al. (2013)	0.64	0.28	Between	Problem-solving	Mixed	Moderate
Gleeson et al. (2017)	0.07	0.20	Within	“Social therapy”	Mixed	Weak
Poole et al. (2018)	-0.01	0.25	Between	Family-based	Depression	Strong
Racey et al. (2018)	-0.24	0.22	Within	Mindfulness	Anxiety	Moderate
Salari et al. (2018)	1.02	0.37	Between	Group CBT	Anxiety	Weak
Waters et al. (2009)	0.19	0.29	Between	Group CBT	Anxiety	Strong

Meta-analysis results for depression at post-intervention

```
## Review:      Effectiveness of interventions on parents'/carers' depression at post-intervention
##
##              SMD              95%-CI %W(random)
## Gerkenmeyer et al. (2013)  0.6400 [ 0.0912; 1.1888]    15.9
## Gleeson et al. (2017)     0.0700 [-0.3220; 0.4620]    20.2
## Poole et al. (2018)       -0.0100 [-0.5000; 0.4800]    17.4
## Racey et al. (2018)       -0.2400 [-0.6712; 0.1912]    19.0
## Salari et al. (2018)      1.0200 [ 0.2948; 1.7452]    12.0
## Waters et al. (2009)      0.1900 [-0.3784; 0.7584]    15.4
##
## Number of studies: k = 6
##
##              SMD              95%-CI      t p-value
## Random effects model (HK)  0.2204 [-0.2383; 0.6792]  1.24  0.2716
## Prediction interval          [-0.7889; 1.2297]
##
## Quantifying heterogeneity:
## tau^2 = 0.1033 [0.0000; 1.2067]; tau = 0.3213 [0.0000; 1.0985]
## I^2 = 59.4% [0.2%; 83.5%]; H = 1.57 [1.00; 2.46]
##
## Test of heterogeneity:
##      Q d.f. p-value
## 12.32  5  0.0307
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 5)
## - Prediction interval based on t-distribution (df = 4)
```

A forest plot of the results.



A test to identify outliers was conducted.

No outliers detected (random-effects model).

Leave-one-out analysis was performed. *Salari et al. (2018)* was identified as an influential case because of its undue influence on both the summary effect and magnitude of heterogeneity.

[=====] DONE

Leave-One-Out Analysis (Sorted by I2)

Effect	LLCI	ULCI	I2	
Omitting Salari et al. (2018)	0.098	-0.292	0.487	0.374
Omitting Racey et al. (2018)	0.320	-0.185	0.824	0.511
Omitting Gerkenmeyer et al. (2013)	0.132	-0.395	0.660	0.548
Omitting Poole et al. (2018)	0.281	-0.313	0.874	0.661
Omitting Gleeson et al. (2017)	0.272	-0.342	0.885	0.669
Omitting Waters et al. (2009)	0.240	-0.371	0.851	0.675

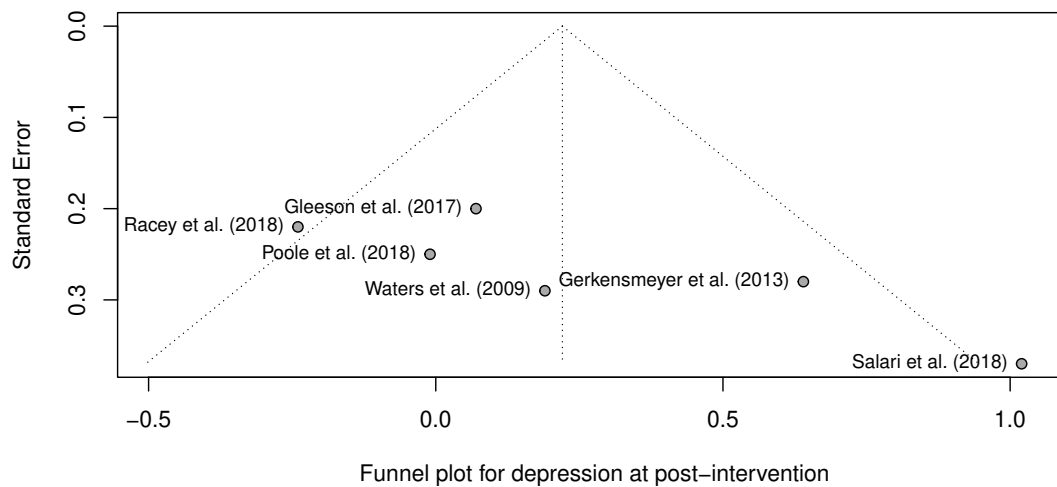
Influence Diagnostics

rstudent	dfits	cook.d	cov.r	QE.del	hat	weight	infl
Omitting Gerkenmeyer et al. (2013)	1.180	0.560	0.269	1.007	8.846	0.159	15.904
Omitting Gleeson et al. (2017)	-0.408	-0.256	0.090	1.629	12.074	0.202	20.167
Omitting Poole et al. (2018)	-0.582	-0.317	0.125	1.497	11.795	0.174	17.429
Omitting Racey et al. (2018)	-1.434	-0.649	0.341	1.027	8.185	0.190	19.050
Omitting Salari et al. (2018)	2.122	0.857	0.521	0.644	6.391	0.120	12.030
Omitting Waters et al. (2009)	-0.094	-0.102	0.013	1.541	12.304	0.154	15.420

Baujat Diagnostics (sorted by Heterogeneity Contribution)

HetContrib	Influence	EffectSize
Omitting Salari et al. (2018)	5.466	0.463
Omitting Racey et al. (2018)	3.223	0.913
Omitting Gerkenmeyer et al. (2013)	3.001	0.473
Omitting Poole et al. (2018)	0.435	0.090
Omitting Gleeson et al. (2017)	0.180	0.066
Omitting Waters et al. (2009)	0.015	0.002

Funnel plot was generated.



Egger's test was conducted.

```
## Eggers' test of the intercept
## =====
##
## intercept      95% CI      t      p
##      6.055  1.65 - 10.46  2.694  0.05445785
##
## Eggers' test does not indicate the presence of funnel plot asymmetry.
```

The meta-analysis was updated to remove the influential study.

```
## Review:      Effectiveness of interventions on parents'/carers' depression at post-intervention
##
## Number of studies: k = 5
##
##              SMD              95%-CI      t p-value
## Random effects model (HK) 0.0978 [-0.2916; 0.4872] 0.70 0.5240
## Prediction interval              [-0.6272; 0.8228]
##
## Quantifying heterogeneity:
## tau^2 = 0.0333 [0.0000; 0.8073]; tau = 0.1825 [0.0000; 0.8985]
## I^2 = 37.4% [0.0%; 76.7%]; H = 1.26 [1.00; 2.07]
##
## Test of heterogeneity:
##   Q d.f. p-value
##  6.39  4  0.1718
##
## Details on meta-analytical method:
## - Inverse variance method
```



```
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 4)
## - Prediction interval based on t-distribution (df = 3)
```

A sensitivity analysis was conducted that examined *between-group studies* only. This analysis used a corrected version of effects by applying Hedges' *g* to the pre-calculated effect size data before pooling was conducted.

Gerkenmeyer et al. (2013)

```
esc_t(p = 0.0224, grp1n = 26, grp2n = 28, es.type = "g")
```

Poole et al. (2018)

```
esc_mean_sd(grp1m = 10.87, grp1sd = 11.41, grp1n = 31,
            grp2m = 10.95, grp2sd = 12.12, grp2n = 33, es.type = "g")
```

Salari et al. (2018)

```
esc_t(t = 2.95, grp1n = 15, grp2n = 19, es.type = "g")
```

Waters et al. (2009)

```
esc_mean_sd(grp1m = 1.65, grp1sd = 2.17, grp1n = 25,
            grp2m = 1.25, grp2sd = 1.98, grp2n = 24, es.type = "g")
```

The corresponding 95% confidence intervals of transformed effects were used to compute SEs.

Gerkenmeyer et al. (2013)

```
(1.18 - (0.08)) / 3.92
```

Poole et al. (2018)

```
(0.48 - (-0.50)) / 3.92
```

Salari et al. (2018)

```
(1.74 - (0.30)) / 3.92
```

Waters et al. (2009)

```
(0.75 - (-0.37)) / 3.92
```

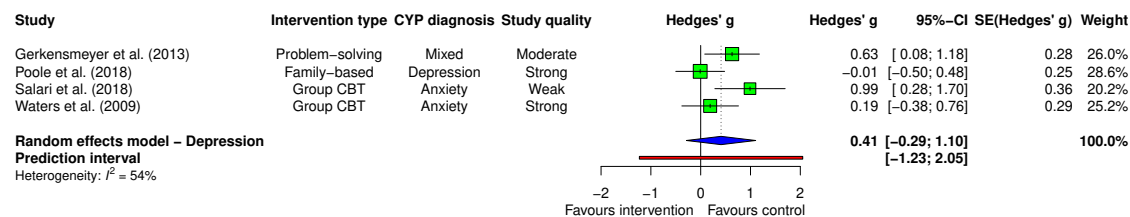
Table of depression data at post-intervention.

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Gerkenmeyer et al. (2013)	0.63	0.28	Between	Problem-solving	Mixed	Moderate
Poole et al. (2018)	-0.01	0.25	Between	Family-based	Depression	Strong
Salari et al. (2018)	0.99	0.36	Between	Group CBT	Anxiety	Weak
Waters et al. (2009)	0.19	0.29	Between	Group CBT	Anxiety	Strong

Meta-analysis results for depression at post-treatment for between-group studies only.

```
## Review:      Effectiveness of interventions on parents'/carers' depression at post-intervention
##
##              Hedges' g          95%-CI %W(random)
## Gerkenmeyer et al. (2013)    0.6300 [ 0.0812; 1.1788]    26.0
## Poole et al. (2018)          -0.0100 [-0.5000; 0.4800]    28.6
## Salari et al. (2018)         0.9900 [ 0.2844; 1.6956]    20.2
## Waters et al. (2009)         0.1900 [-0.3784; 0.7584]    25.2
##
## Number of studies: k = 4
##
##              Hedges' g          95%-CI    t p-value
## Random effects model (HK)    0.4089 [-0.2863; 1.1040] 1.87 0.1580
## Prediction interval          [-1.2307; 2.0484]
##
## Quantifying heterogeneity:
## tau^2 = 0.0990 [0.0000; 2.6972]; tau = 0.3147 [0.0000; 1.6423]
## I^2 = 54.0% [0.0%; 84.8%]; H = 1.47 [1.00; 2.56]
##
## Test of heterogeneity:
##   Q d.f. p-value
## 6.52  3 0.0887
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 3)
## - Prediction interval based on t-distribution (df = 2)
```

A forest plot of the results.



The detection for outliers was performed.

No outliers detected (random-effects model).

Leave-one-out analyses identified *Poole et al. (2018)* and *Salari et al. (2018)* as influential cases that had a large impact on the level of heterogeneity.

[=====] DONE

Leave-One-Out Analysis (Sorted by I2)

##	Effect	LLCI	ULCI	I2
## Omitting Salari et al. (2018)	0.257	-0.563	1.077	0.326
## Omitting Poole et al. (2018)	0.569	-0.395	1.532	0.358
## Omitting Gerkenmeyer et al. (2013)	0.344	-0.926	1.615	0.625
## Omitting Waters et al. (2009)	0.497	-0.759	1.753	0.668

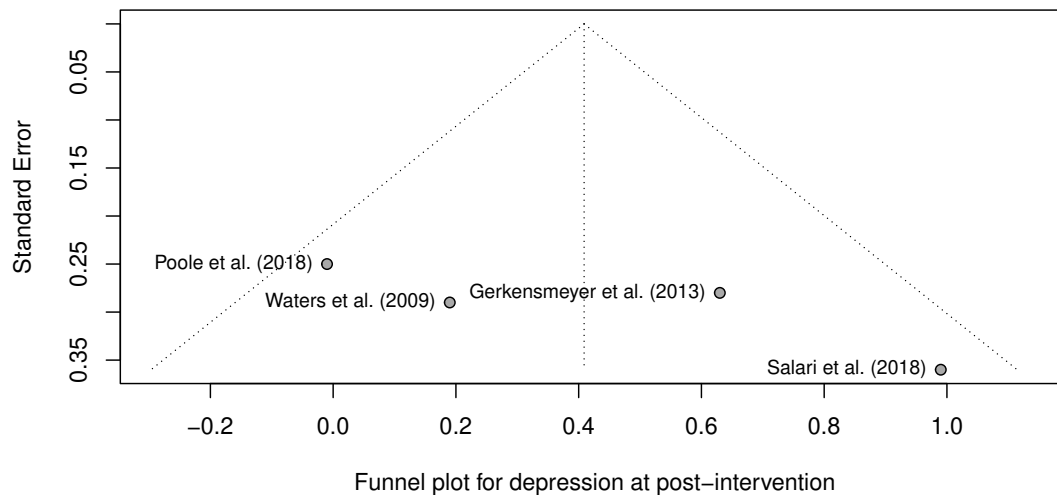
Influence Diagnostics

##	rstudent	dfits	cook.d	cov.r	QE.del	hat	weight	infl
## Omitting Gerkenmeyer et al. (2013)	0.507	0.261	0.090	1.779	5.330	0.260	26.019	
## Omitting Poole et al. (2018)	-1.446	-0.892	0.553	1.038	3.116	0.286	28.580	*
## Omitting Salari et al. (2018)	1.623	0.828	0.500	0.805	2.966	0.202	20.192	*
## Omitting Waters et al. (2009)	-0.526	-0.348	0.169	1.861	6.027	0.252	25.209	

Baujat Diagnostics (sorted by Heterogeneity Contribution)

##	HetContrib	Influence	EffectSize
## Omitting Salari et al. (2018)	2.990		0.568
## Omitting Poole et al. (2018)	2.280		1.127
## Omitting Gerkenmeyer et al. (2013)	0.879		0.315
## Omitting Waters et al. (2009)	0.375		0.122

Funnel plot was generated to allow for visual inspection for publication bias.



Egger's 'test was conducted to supplement visual inspection.

```
## Eggers' test of the intercept
## =====
##
## intercept      95% CI      t      p
##      8.557 1.05 - 16.06 2.235 0.1550066
##
## Eggers' test does not indicate the presence of funnel plot asymmetry.
```

The meta-analysis was re-ran without the two influential studies.

```
## Review:      Effectiveness of interventions on parents'/carers' depression at post-intervention
##
## Number of studies: k = 2
##
##              Hedges' g      95%-CI      t p-value
## Random effects model (HK)  0.4165 [-2.3777; 3.2106] 1.89 0.3093
## Prediction interval
##
## Quantifying heterogeneity:
## tau^2 = 0.0155; tau = 0.1247; I^2 = 16.1%; H = 1.09
##
## Test of heterogeneity:
##      Q d.f. p-value
##      1.19  1 0.2751
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model (df = 1)
```

Follow-up effects on depression were calculated using pre-calculated effect size data.

Boxmeyer (2004)

```
d.dep.t.avg(m1=19.2, m2=20.3, sd1=13.6, sd2=13.0, n=154, a = 0.05)
```

Gerkenmeyer et al. (2013)

```
esc_t(p = 0.0056, grp1n = 24, grp2n = 27, es.type = "d")
```

Poole et al. (2018) reported standard errors and was first converted to standard deviations.

```
2.16*sqrt(31) #grp1n
2.18*sqrt(33) #grp2n
```

```
esc_mean_sd(grp1m = 8.17, grp1sd = 12.03 , grp1n =31 ,
             grp2m = 13.37, grp2sd =12.52 , grp2n =33 , es.type = "d")
```

SEs were computed from 95% confidence intervals. *Boxmeyer (2004)*

```
(0.08 - (-0.24)) / 3.92
```

Gerkenmeyer et al. (2013)

```
(1.39 - (0.24)) / 3.92
```

Poole et al. (2018)

```
(0.07 - (-0.92)) / 3.92
```

Data frame for depression data at follow-up

Author	TE	seTE	Follow-up period	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Boxmeyer (2004)	-0.08	0.08	6-month	Within	Mixed	Mixed	Moderate
Gerkenmeyer et al. (2013)	0.80	0.29	3-month	Between	Problem-solving	Mixed	Moderate
Poole et al. (2018)	-0.42	0.25	3-month	Between	Family-based	Depression	Strong

A random effects meta-analysis using the REML estimator with Hartung-Knapp modification applied.

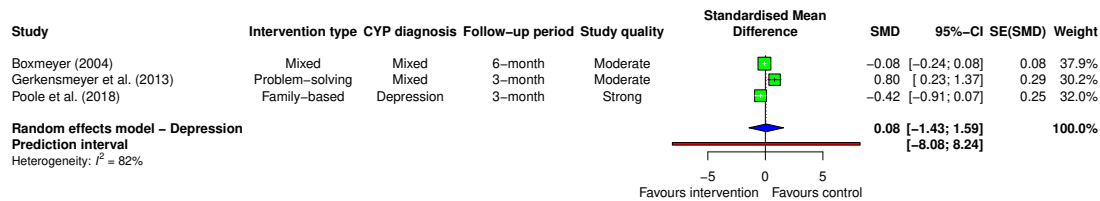
```
## Review:      Effectiveness of interventions on parents'/carers' depression at follow-up
##
##              SMD          95%-CI %W(random)
## Boxmeyer (2004)      -0.0800 [-0.2368; 0.0768]      37.9
## Gerkenmeyer et al. (2013)  0.8000 [ 0.2316; 1.3684]      30.2
## Poole et al. (2018)      -0.4200 [-0.9100; 0.0700]      32.0
##
```

```

## Number of studies: k = 3
##
##                               SMD           95%-CI      t p-value
## Random effects model (HK) 0.0767 [-1.4321; 1.5855] 0.22 0.8472
## Prediction interval                [-8.0830; 8.2364]
##
## Quantifying heterogeneity:
## tau^2 = 0.2974 [0.0343; 15.5834]; tau = 0.5453 [0.1853; 3.9476]
## I^2 = 81.7% [43.2%; 94.1%]; H = 2.34 [1.33; 4.11]
##
## Test of heterogeneity:
##      Q d.f. p-value
## 10.92   2 0.0043
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 2)
## - Prediction interval based on t-distribution (df = 1)

```

A forest plot for the meta-analytic results.



A sensitivity analysis was conducted that examined *between-group studies* only. This analysis used a corrected version of effects by applying Hedges' g to the pre-calculated effect size data before pooling was conducted.

Gerkenmeyer et al. (2013)

```
esc_t(p = 0.0056, grp1n = 24, grp2n = 27, es.type = "g")
```

Poole et al. (2018)

```
esc_mean_sd(grp1m = 8.17, grp1sd = 12.03, grp1n = 31,
            grp2m = 13.37, grp2sd = 12.52, grp2n = 33, es.type = "g")
```

SEs were then estimated using 95% confidence intervals from the above effects

Gerkenmeyer et al. (2013)

```
(1.37 - (0.23)) / 3.92
```

Poole et al. (2018)

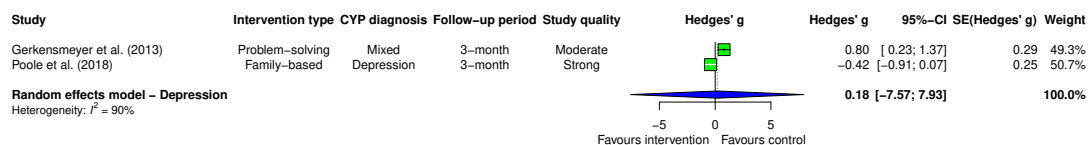
(0.08 - (-0.91)) / 3.92

Data frame containing the pre-calculated effect size data of the studies

Author	TE	seTE	Follow-up period	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Gerkenmeyer et al. (2013)	0.80	0.29	3-month	Between	Problem-solving	Mixed	Moderate
Poole et al. (2018)	-0.42	0.25	3-month	Between	Family-based	Depression	Strong

Meta-analysis results for depression at follow-up.

```
## Review:      Effectiveness of interventions on parents'/carers' depression at follow-up
##
##              Hedges' g          95%-CI %W(random)
## Gerkenmeyer et al. (2013)    0.8000 [ 0.2316; 1.3684]    49.3
## Poole et al. (2018)         -0.4200 [-0.9100; 0.0700]    50.7
##
## Number of studies: k = 2
##
##              Hedges' g          95%-CI    t p-value
## Random effects model (HK)    0.1811 [-7.5688; 7.9311] 0.30 0.8162
## Prediction interval
##
## Quantifying heterogeneity:
## tau^2 = 0.6709; tau = 0.8191; I^2 = 90.2% [64.0%; 97.3%]; H = 3.19 [1.67; 6.09]
##
## Test of heterogeneity:
##      Q d.f. p-value
## 10.15  1 0.0014
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model (df = 1)
```



Data and analytical method used to synthesise stress outcomes

Pre-calculated effect sizes were obtained for the following studies

Gleeson et al. (2017)

```
d.dep.t.avg(m1=19.07, m2=21.86, sd1=7.36, sd2=6.84, n=25, a = 0.05)
```

Poole et al. (2018) reported SEs were first converted to standard deviations.

```
1.68*sqrt(31) #grp1n1
1.72*sqrt(33) #grp1n2
```

```
esc_mean_sd(grp1m = 14.53 , grp1sd = 9.35 , grp1n =31 ,
             grp2m = 12.50 , grp2sd = 9.88, grp2n= 33 , es.type = "d")
```

Reigstad et al. (2022)

```
d.dep.t.avg(m1=237, m2=250.33, sd1=45.83, sd2=36.61, n=15, a = 0.05)
```

Salari et al. (2016)

```
esc_t(t = 1.10, grp1n =15, grp2n =19, es.type="d")
```

Waters et al. (2009)

```
esc_mean_sd(grp1m = 6.57, grp1sd = 5.75, grp1n =25,
             grp2m = 5.88, grp2sd =4.04, grp2n =24, es.type = "d")
```

SEs were then estimated from the corresponding 95% confidence intervals of the computed effects.

Gleeson et al. (2017)

```
(0.02 - (-0.80)) / 3.92
```

Poole et al. (2018)

```
(0.70 - (-0.28)) / 3.92
```

Reigstad et al. (2022)

```
(0.20 - (-0.84)) / 3.92
```

Salari et al. (2016)

```
(1.06 - (-0.30)) / 3.92
```

Waters et al. (2009)

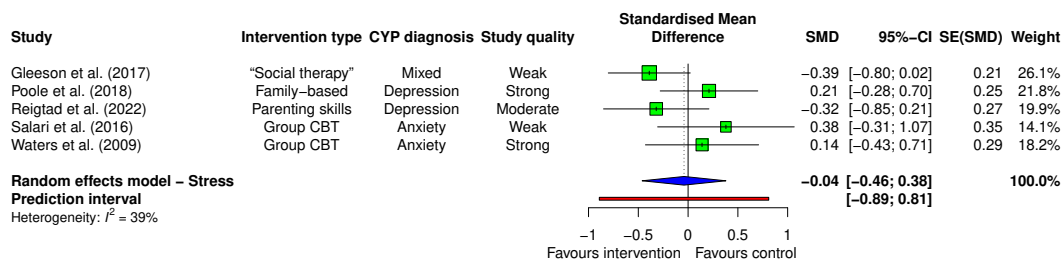
```
(0.70 - (-0.42)) / 3.92
```

Data frame of studies investigating the effectiveness of interventions on stress.

Author	TE	seTE	Within- or between-group	Intervention type	CYP diagnosis	Study quality
Gleeson et al. (2017)	-0.39	0.21	Within	“Social therapy”	Mixed	Weak
Poole et al. (2018)	0.21	0.25	Between	Family-based	Depression	Strong
Reigtad et al. (2022)	-0.32	0.27	Within	Parenting skills	Depression	Moderate
Salari et al. (2016)	0.38	0.35	Between	Group CBT	Anxiety	Weak
Waters et al. (2009)	0.14	0.29	Between	Group CBT	Anxiety	Strong

Meta-analysis results for stress at post-intervention.

```
## Review:      Effectiveness of interventions on parents'/carers' stress at post-intervention
##
##              SMD              95%-CI %W(random)
## Gleeson et al. (2017) -0.3900 [-0.8016; 0.0216]      26.1
## Poole et al. (2018)   0.2100 [-0.2800; 0.7000]      21.8
## Reigtad et al. (2022) -0.3200 [-0.8492; 0.2092]      19.9
## Salari et al. (2016)  0.3800 [-0.3060; 1.0660]      14.1
## Waters et al. (2009)  0.1400 [-0.4284; 0.7084]      18.2
##
## Number of studies: k = 5
##
##              SMD              95%-CI      t p-value
## Random effects model (HK) -0.0408 [-0.4616; 0.3800] -0.27 0.8010
## Prediction interval          [-0.8917; 0.8101]
##
## Quantifying heterogeneity:
## tau^2 = 0.0476 [0.0000; 0.8776]; tau = 0.2181 [0.0000; 0.9368]
## I^2 = 39.5% [0.0%; 77.6%]; H = 1.29 [1.00; 2.11]
##
## Test of heterogeneity:
##   Q d.f. p-value
## 6.61  4 0.1579
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 4)
## - Prediction interval based on t-distribution (df = 3)
```



The detection of potential outliers was conducted.

No outliers detected (random-effects model).

The test to identify influential cases was conducted. *Gleeson et al. (2017)* was detected as an influential case due to its influence on the summary effect and levels of heterogeneity.

[=====] DONE

Leave-One-Out Analysis (Sorted by I2)

	Effect	LLCI	ULCI	I2
## Omitting Gleeson et al. (2017)	0.077	-0.393	0.547	0.074
## Omitting Salari et al. (2016)	-0.112	-0.609	0.386	0.368
## Omitting Poole et al. (2018)	-0.110	-0.677	0.457	0.399
## Omitting Reigtad et al. (2022)	0.035	-0.516	0.585	0.460
## Omitting Waters et al. (2009)	-0.074	-0.668	0.519	0.498

##

##

Influence Diagnostics

	rstudent	dfits	cook.d	cov.r	QE.del	hat	weight	infl
## Omitting Gleeson et al. (2017)	-1.705	-1.003	0.578	0.933	3.241	0.261	26.118	*
## Omitting Poole et al. (2018)	0.851	0.447	0.201	1.287	4.996	0.218	21.751	
## Omitting Reigtad et al. (2022)	-0.863	-0.461	0.238	1.407	5.558	0.199	19.873	
## Omitting Salari et al. (2016)	1.137	0.470	0.210	1.070	4.744	0.141	14.076	
## Omitting Waters et al. (2009)	0.496	0.201	0.047	1.441	5.981	0.182	18.182	

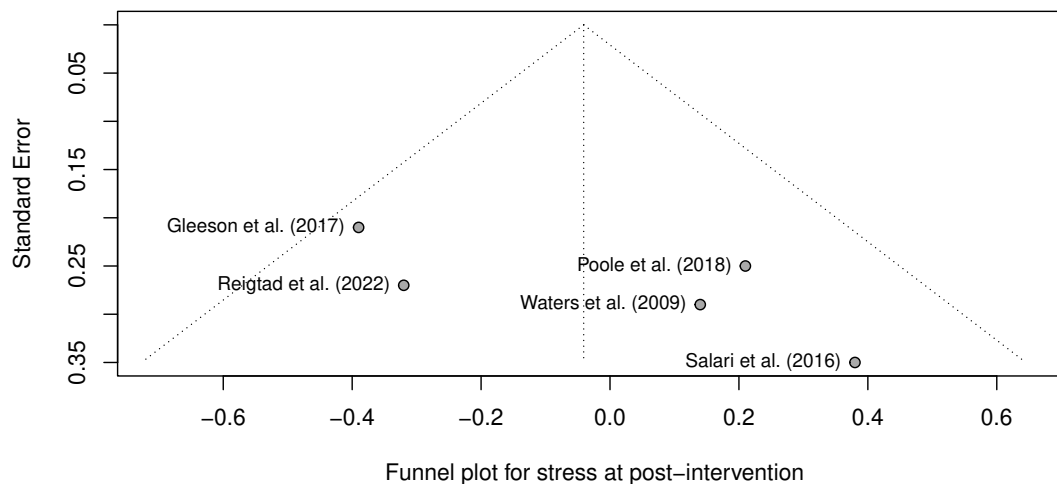
##

##

Baujat Diagnostics (sorted by Heterogeneity Contribution)

	HetContrib	InfluenceEffectSize
## Omitting Gleeson et al. (2017)	2.315	1.055
## Omitting Salari et al. (2016)	1.657	0.210
## Omitting Poole et al. (2018)	1.259	0.357
## Omitting Reigtad et al. (2022)	0.854	0.199
## Omitting Waters et al. (2009)	0.527	0.103

A funnel plot was generated.



Egger's test was performed

```
## Eggers' test of the intercept
## =====
##
## intercept      95% CI      t      p
##      5.052 -0.37 - 10.47 1.827 0.165165
##
## Eggers' test does not indicate the presence of funnel plot asymmetry.
```

The analysis was updated to remove the influential case.

```
## Review:      Effectiveness of interventions on parents'/carers' stress at post-intervention
##
## Number of studies: k = 4
##
##              SMD              95%-CI      t p-value
## Random effects model (HK) 0.0768 [-0.3930; 0.5466] 0.52 0.6390
## Prediction interval              [-0.6787; 0.8322]
##
## Quantifying heterogeneity:
## tau^2 = 0.0085 [0.0000; 1.1577]; tau = 0.0922 [0.0000; 1.0760]
## I^2 = 7.4% [0.0%; 85.8%]; H = 1.04 [1.00; 2.66]
##
## Test of heterogeneity:
##   Q d.f. p-value
## 3.24  3 0.3559
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
```

```
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 3)
## - Prediction interval based on t-distribution (df = 2)
```

A sensitivity analysis was conducted that examined *between-group studies* only. This analysis used a corrected version of effects by applying Hedges' *g* to the pre-calculated effect size data before pooling was conducted.

Poole et al. (2018)

```
esc_mean_sd(grp1m = 14.53 , grp1sd = 9.35 , grp1n =31 ,
            grp2m = 12.50 , grp2sd = 9.88, grp2n= 33 , es.type = "g")
```

Salari et al. (2016)

```
esc_t(t = 1.10, grp1n =15, grp2n =19, es.type="g")
```

Waters et al. (2009)

```
esc_mean_sd(grp1m = 6.57, grp1sd = 5.75, grp1n =25,
            grp2m = 5.88, grp2sd =4.04, grp2n =24, es.type = "g")
```

SEs were then estimated using the corresponding 95% confidence intervals of the computed effects above.

Poole et al. (2018)

```
(0.70 - (-0.28)) / 3.92
```

Salari et al. (2016)

```
(1.05 - (-0.30)) / 3.92
```

Waters et al. (2009)

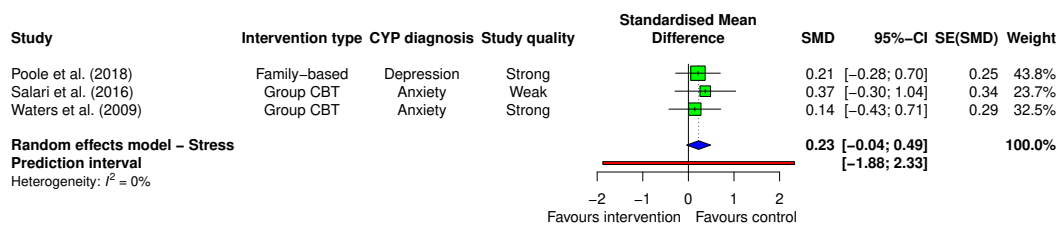
```
(0.70 - (-0.42)) / 3.92
```

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Poole et al. (2018)	0.21	0.25	Between	Family-based	Depression	Strong
Salari et al. (2016)	0.37	0.34	Between	Group CBT	Anxiety	Weak
Waters et al. (2009)	0.14	0.29	Between	Group CBT	Anxiety	Strong

Meta-analysis results for stress at post-intervention for between-group studies only.

```
## Review:      Effectiveness of interventions on parents'/carers' stress at post-intervention
##
##              SMD              95%-CI %w(random)
## Poole et al. (2018) 0.2100 [-0.2800; 0.7000]    43.8
## Salari et al. (2016) 0.3700 [-0.2964; 1.0364]    23.7
## Waters et al. (2009) 0.1400 [-0.4284; 0.7084]    32.5
```

```
##
## Number of studies: k = 3
##
##              SMD              95%-CI      t p-value
## Random effects model (HK) 0.2251 [-0.0371; 0.4873] 3.69 0.0661
## Prediction interval              [-1.8769; 2.3271]
##
## Quantifying heterogeneity:
## tau^2 = 0 [0.0000; 0.4465]; tau = 0 [0.0000; 0.6682]
## I^2 = 0.0% [0.0%; 89.6%]; H = 1.00 [1.00; 3.10]
##
## Test of heterogeneity:
##   Q d.f. p-value
## 0.27  2 0.8731
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 2)
## - Prediction interval based on t-distribution (df = 1)
```



Poole et al. (2018) was the only study that reported an effect for stress at follow-up (3-month)

SEs were converted into standard deviations

```
1.79*sqrt(31) #grp1
1.79*sqrt(33) #grp2
```

```
esc_mean_sd(grp1m =10.04 , grp1sd = 9.97, grp1n =31 ,
            grp2m =14.86 , grp2sd =10.28 , grp2n= 33 , es.type = "d")
```

```
##
## Effect Size Calculation for Meta Analysis
##
## Conversion: mean and sd to effect size d
## Effect Size: -0.4758
## Standard Error: 0.2536
## Variance: 0.0643
## Lower CI: -0.9729
## Upper CI: 0.0214
## Weight: 15.5450
```

Data and analytical method used to synthesise burden outcomes

Pre-calculated effect sizes were obtained for the following studies

Boxmeyer (2004)

```
d.dep.t.avg(m1=2.5, m2=2.9, sd1=0.8, sd2=0.8, n=155, a = 0.05)
```

Gerkenmeyer et al. (2013)

```
esc_t(p = 0.0022, grp1n = 26, grp2n = 28, es.type = "d")
```

Khor et al. (2021)

```
d.dep.t.avg(m1=42.55, m2=46.15, sd1=12.30, sd2=13.29, n=64, a = 0.05)
```

SEs were estimated using the corresponding 95% confidence intervals of the calculated effects above

Boxmeyer (2004)

```
(-0.33 - (-0.67)) / 3.92
```

Gerkenmeyer et al. (2013)

```
(1.57 - (0.42)) / 3.92
```

Khor et al. (2021)

```
(-0.03 - (-0.53)) / 3.92
```

Data frame of pre-calculated effect size data.

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Boxmeyer (2004)	- 0.50	0.09	Within	Mixed	Mixed	Moderate
Gerkenmeyer et al. (2013)	1.00	0.29	Between	Problem- solving	Mixed	Moderate
Khor et al. (2021)	- 0.28	0.13	Within	Parent training	Anxiety and/or depression	Moderate

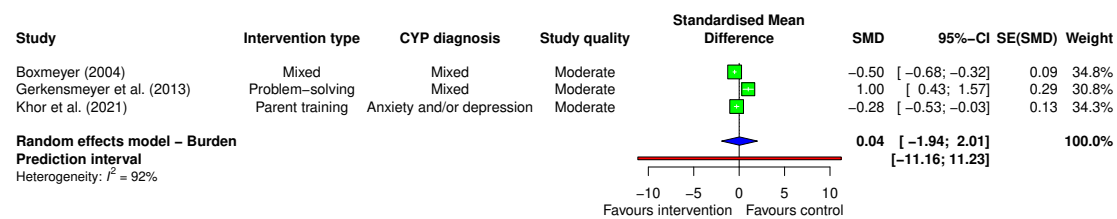
Meta-analysis results for burden at post-intervention.

```
## Review:      Effectiveness of interventions on parents'/carers' burden at post-intervention
##
##              SMD              95%-CI %W(random)
## Boxmeyer (2004)      -0.5000 [-0.6764; -0.3236]      34.8
## Gerkenmeyer et al. (2013)  1.0000 [ 0.4316;  1.5684]      30.8
## Khor et al. (2021)      -0.2800 [-0.5348; -0.0252]      34.3
##
## Number of studies: k = 3
##
```

```

##                               SMD                95%-CI      t p-value
## Random effects model (HK) 0.0379 [ -1.9358;  2.0115] 0.08  0.9417
## Prediction interval                [-11.1589; 11.2346]
##
## Quantifying heterogeneity:
## tau^2 = 0.5738 [0.1198; 25.8572]; tau = 0.7575 [0.3461; 5.0850]
## I^2 = 91.9% [79.5%; 96.8%]; H = 3.52 [2.21; 5.60]
##
## Test of heterogeneity:
##      Q d.f.  p-value
## 24.72    2 < 0.0001
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 2)
## - Prediction interval based on t-distribution (df = 1)

```



A sensitivity analysis examining *within-group* studies only was conducted.

Boxmeyer (2004)

```
d.dep.t.avg(m1=2.5, m2=2.9, sd1=0.8, sd2=0.8, n=155, a = 0.05)
```

Khor et al. (2021)

```
d.dep.t.avg(m1=42.55, m2=46.15, sd1=12.30, sd2=13.29, n=64, a = 0.05)
```

SEs were estimated using the corresponding 95% confidence intervals of the calculated effects above.

Boxmeyer (2004)

```
(-0.33 - (-0.67)) / 3.92
```

Khor et al. (2021)

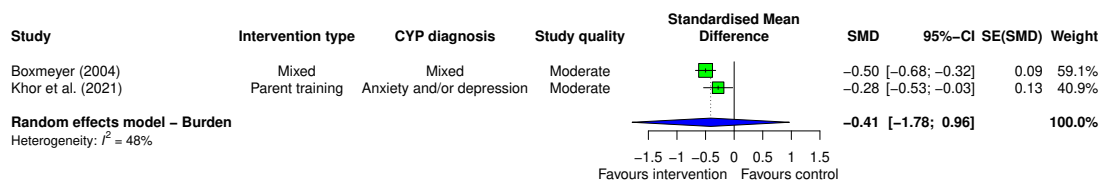
```
(-0.03 - (-0.53)) / 3.92
```

Table of the pre-calculated effects.

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Boxmeyer (2004)	-	0.09	Within	Mixed	Mixed	Moderate
Khor et al. (2021)	-	0.13	Within	Parent training	Anxiety and/or depression	Moderate

Meta-analysis results for burden pertaining to within-group studies only.

```
## Review:      Effectiveness of interventions on parents'/carers' burden at post-intervention
##
##              SMD              95%-CI %W(random)
## Boxmeyer (2004)  -0.5000 [-0.6764; -0.3236]    59.1
## Khor et al. (2021) -0.2800 [-0.5348; -0.0252]    40.9
##
## Number of studies: k = 2
##
##              SMD              95%-CI      t p-value
## Random effects model (HK) -0.4100 [-1.7844; 0.9644] -3.79 0.1642
## Prediction interval
##
## Quantifying heterogeneity:
## tau^2 = 0.0117; tau = 0.1082; I^2 = 48.3%; H = 1.39
##
## Test of heterogeneity:
##   Q d.f. p-value
##  1.94   1 0.1641
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model (df = 1)
```



Data and analytical method used to synthesise self-efficacy outcomes

Pre-calculated effect size data were obtained for the following studies

Khor et al. (2021)

`d.dep.t.avg(m1=27.27, m2=22.52, sd1=3.49, sd2=4.80, n=64, a = 0.05)`

Reigstad et al. (2022)


```
d.dep.t.avg(m1=53.47, m2=48.40, sd1=6.64, sd2=6.30, n=15, a = 0.05)
```

Waters et al. (2009)

```
esc_mean_sd(grp1m = 27.54, grp1sd = 8.57, grp1n =25,
            grp2m = 27.2, grp2sd =7.58, grp2n =24, es.type = "d")
```

SEs were estimated using the corresponding 95% confidence intervals of the calculated effects above.

Khor et al. (2021)

```
(1.46 - (0.83)) / 3.92
```

Reigstad et al. (2022)

```
(1.36 - (0.19)) / 3.92
```

Waters et al. (2009)

```
(0.60 - (-0.52)) / 3.92
```

Table of pre-calculated effect size data.

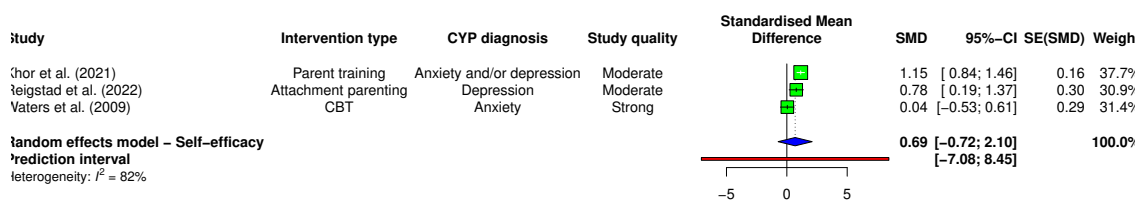
Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Khor et al. (2021)	1.15	0.16	Within	Parent training	Anxiety and/or depression	Moderate
Reigstad et al. (2022)	0.78	0.30	Within	Attachment parenting	Depression	Moderate
Waters et al. (2009)	0.04	0.29	Between	CBT	Anxiety	Strong

Meta-analysis results for self-efficacy at post-intervention.

```
## Review:      Effectiveness of interventions on parents'/carers' self-efficacy at post-intervention
##
##              SMD              95%-CI %W(random)
## Khor et al. (2021)  1.1500 [ 0.8364; 1.4636]    37.7
## Reigstad et al. (2022) 0.7800 [ 0.1920; 1.3680]    30.9
## Waters et al. (2009)  0.0400 [-0.5284; 0.6084]    31.4
##
## Number of studies: k = 3
##
##              SMD              95%-CI      t p-value
## Random effects model (HK) 0.6873 [-0.7234; 2.0979] 2.10 0.1710
## Prediction interval          [-7.0797; 8.4543]
##
## Quantifying heterogeneity:
## tau^2 = 0.2643 [0.0287; 12.5550]; tau = 0.5141 [0.1694; 3.5433]
## I^2 = 82.4% [45.8%; 94.3%]; H = 2.38 [1.36; 4.17]
```

```
##
## Test of heterogeneity:
##      Q d.f. p-value
## 11.34  2  0.0034
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Q-Profile method for confidence interval of tau^2 and tau
## - Hartung-Knapp adjustment for random effects model (df = 2)
## - Prediction interval based on t-distribution (df = 1)
```

Forest plot for the outcome self-efficacy.



A sensitivity analysis examining *within-group* studies only was conducted.

Khor et al. (2021)

```
d.dep.t.avg(m1=27.27, m2=22.52, sd1=3.49, sd2=4.80, n=64, a = 0.05)
```

Reigstad et al. (2022)

```
d.dep.t.avg(m1=53.47, m2=48.40, sd1=6.64, sd2=6.30, n=15, a = 0.05)
```

```
## $d
## [1] 0.7836167
##
## $dlow
## [1] 0.1910806
##
## $dhigh
## [1] 1.355149
##
## $M1
## [1] 53.47
##
## $sd1
## [1] 6.64
##
## $se1
## [1] 1.714441
##
## $M1low
## [1] 49.79289
##
## $M1high
```

```

## [1] 57.14711
##
## $M2
## [1] 48.4
##
## $sd2
## [1] 6.3
##
## $se2
## [1] 1.626653
##
## $M2low
## [1] 44.91118
##
## $M2high
## [1] 51.88882
##
## $n
## [1] 15
##
## $df
## [1] 14
##
## $estimate
## [1] "$d_{av}$ = 0.78, 95%% CI [0.19, 1.36]"

```

SEs were estimated using the corresponding 95% confidence intervals of the calculated effects above.

Khor et al. (2021)

(1.46 - (0.83)) / 3.92

Reigstad et al. (2022)

(1.36 - (0.19)) / 3.92

Table of pre-calculated effect size data.

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Khor et al. (2021)	1.15	0.16	Within	Parent training	Anxiety and/or depression	Moderate
Reigstad et al. (2022)	0.78	0.30	Within	Attachment parenting	Depression	Moderate

Meta-analysis results for self-efficacy at post-intervention.

```

## Review:      Effectiveness of interventions on parents'/carers' self-efficacy at post-intervention
##
##              SMD              95%-CI %W(random)
## Khor et al. (2021)  1.1500 [0.8364; 1.4636]      73.5
## Reigstad et al. (2022) 0.7800 [0.1920; 1.3680]      26.5

```

```
##
## Number of studies: k = 2
##
##              SMD              95%-CI      t p-value
## Random effects model (HK) 1.0520 [-1.0223; 3.1263] 6.44 0.0980
## Prediction interval
##
## Quantifying heterogeneity:
## tau^2 = 0.0106; tau = 0.1032; I^2 = 15.6%; H = 1.09
##
## Test of heterogeneity:
##   Q d.f. p-value
## 1.18   1 0.2765
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model (df = 1)
```

Study	Intervention type	CYP diagnosis	Study quality	Standardised Mean Difference	SMD	95%-CI	SE(SMD)	Weight
Chor et al. (2021)	Parent training	Anxiety and/or depression	Moderate		1.15	[0.84; 1.46]	0.16	73.5%
Teigstad et al. (2022)	Attachment parenting	Depression	Moderate		0.78	[0.19; 1.37]	0.30	26.5%
Random effects model - Self-efficacy					1.05	[-1.02; 3.13]		100.0%

Forest plot showing Standardised Mean Difference (SMD) for two studies. The x-axis ranges from -3 to 3, with 0 as the line of no effect. Values to the left of 0 favour control, and values to the right favour intervention. The overall SMD is 1.05 with a 95% confidence interval of [-1.02, 3.13]. Heterogeneity: I² = 16%.

Data and analytical method used to synthesise quality of life outcomes
Pre-calculated effect size were obtained from the following studies

Abedi and Vostanis (2010)

```
esc_mean_sd(grp1m = 2.85, grp1sd = 1.18, grp1n = 20 ,
            grp2m = 0.60, grp2sd = 1.69, grp2n = 20, es.type = "d")
```

Gleeson et al. (2017)

```
d.dep.t.avg(m1=126.48, m2=131.90, sd1=37.83, sd2=37.75, n=25, a = 0.05)
```

SEs were then calculated using the corresponding 95% confidence intervals from the calculated effects above
Abedi and Vostanis (2010)

```
(2.25 - (0.84)) / 3.92
```

Gleeson et al. (2017)

```
(0.25 - (-0.54)) / 3.92
```

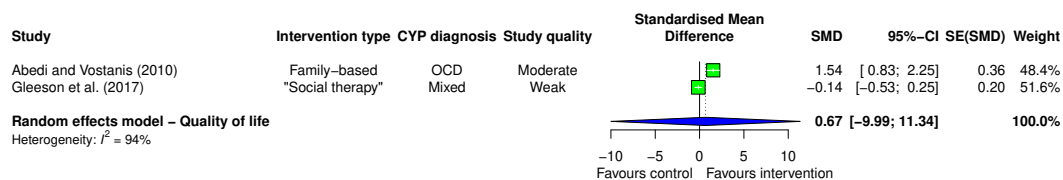
Data frame of data of included studies investigating quality of life.

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Abedi and Vostanis (2010)	1.54	0.36	Between	Family-based	OCD	Moderate
Gleeson et al. (2017)	-0.14	0.20	Within	“Social therapy”	Mixed	Weak

Meta-analysis results for quality of life.

```
## Review:      Effectiveness of interventions on parents'/carers' quality of life at post-intervention
##
##              SMD              95%-CI %W(random)
## Abedi and Vostanis (2010)  1.5400 [ 0.8344; 2.2456]      48.4
## Gleeson et al. (2017)     -0.1400 [-0.5320; 0.2520]      51.6
##
## Number of studies: k = 2
##
##              SMD              95%-CI      t p-value
## Random effects model (HK)  0.6733 [-9.9945; 11.3412]  0.80  0.5697
## Prediction interval
##
## Quantifying heterogeneity:
## tau^2 = 1.3264; tau = 1.1517; I^2 = 94.0% [80.9%; 98.1%]; H = 4.08 [2.29; 7.27]
##
## Test of heterogeneity:
##      Q d.f.  p-value
## 16.64    1 < 0.0001
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model (df = 1)
```

Forest plot was generated.



Data and analytical method used to synthesise knowledge of mood disorders outcomes

Pre-calculated effect size were obtained from the following studies at post-intervention.

Fristad et al (2003)

```
esc_mean_sd(grp1m = 36.3, grp1sd = 4.1, grp1n = 18,
            grp2m = 37.4, grp2sd = 2.1, grp2n = 13, es.type = "d")
```

MacPherson et al. (2016)

```
d.dep.t.avg(m1=36.11, m2=31.25, sd1=3.95, sd2=6.29, n=27, a = 0.05)
```

SEs were then calculated using the corresponding 95% confidence intervals from the calculated effects above
Fristad et al (2003)

```
(1.31 - (-0.11)) / 3.92
```

MacPherson et al. (2016)

```
(1.40 - (0.49)) / 3.92
```

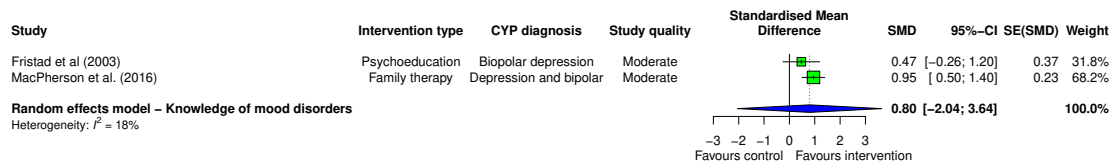
Table depicting data pertaining to knowledge of mood disorders.

Author	TE	seTE	Within- or between-groups	Intervention type	CYP diagnosis	Study quality
Fristad et al (2003)	0.47	0.37	Between	Psychoeducation	Biopolar depression	Moderate
MacPherson et al. (2016)	0.95	0.23	Within	Family therapy	Depression and bipolar	Moderate

Meta-analysis results for knowledge of mood disorders at post-intervention.

```
## Review:      Effectiveness of interventions on parents'/carers' knowledge of
##              mood disorders at post-intervention
##
##              SMD              95%-CI %W(random)
## Fristad et al (2003)      0.4700 [-0.2552; 1.1952]      31.8
## MacPherson et al. (2016) 0.9500 [ 0.4992; 1.4008]      68.2
##
## Number of studies: k = 2
##
##              SMD              95%-CI      t p-value
## Random effects model (HK) 0.7975 [-2.0421; 3.6371] 3.57 0.1739
## Prediction interval
##
## Quantifying heterogeneity:
## tau^2 = 0.0203; tau = 0.1425; I^2 = 17.6%; H = 1.10
##
## Test of heterogeneity:
##      Q d.f. p-value
## 1.21  1 0.2706
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model (df = 1)
```

Forest plot depicting the meta-analysis results.



Knowledge of mood disorders at follow-up were calculated using pre-calculated effect size data.

Fristad et al (2003)

```
esc_mean_sd(grp1m = 36.9, grp1sd = 3.4, grp1n =16,
            grp2m = 33.8, grp2sd =6.5, grp2n =16, es.type = "d")
```

MacPherson et al. (2016) reported effects for two follow-up time points. The mean difference between six and twelve month follow-up were calculated using the below code

```
d.dep.t.avg(m1=36.25, m2=35.64, sd1=2.95, sd2=3.95, n=20, a = 0.05)
```

SEs were then calculated using the corresponding 95% confidence intervals from the calculated effects above

Fristad et al (2003)

```
(1.31 - (-0.11)) / 3.92
```

MacPherson et al. (2016)

```
(0.62 - (-0.27)) / 3.92
```

Data frame of follow-up data for knowledge of mood disorders.

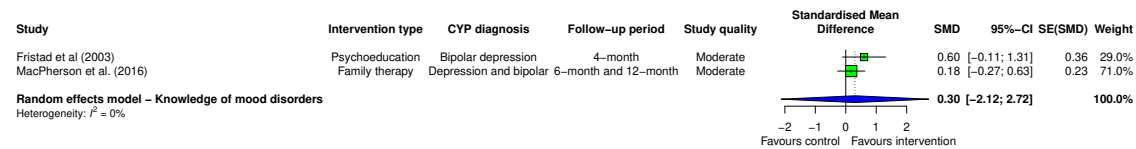
Author	TE	seTE	Within- or between-groups	Follow-up period	Intervention type	CYP diagnosis	Study quality
Fristad et al (2003)	0.60	0.36	Between	4-month	Psychoeducation	Bipolar depression	Moderate
MacPherson et al. (2016)	0.18	0.23	Within	6-month and 12-month	Family therapy	Depression and bipolar	Moderate

Meta-analysis of knowledge of mood disorders at follow-up.

```
## Review:      Effectiveness of interventions on parents'/carers' knowledge of
##              mood disorders at follow-up
##
##              SMD          95%-CI %W(random)
## Fristad et al (2003)    0.6000 [-0.1056; 1.3056]    29.0
## MacPherson et al. (2016) 0.1800 [-0.2708; 0.6308]    71.0
##
## Number of studies: k = 2
##
##              SMD          95%-CI    t p-value
```

```
## Random effects model (HK) 0.3017 [-2.1195; 2.7230] 1.58 0.3586
## Prediction interval
##
## Quantifying heterogeneity:
## tau^2 = 0; tau = 0; I^2 = 0.0%; H = 1.00
##
## Test of heterogeneity:
## Q d.f. p-value
## 0.97 1 0.3255
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model (df = 1)
```

Forest plot for knowledge of mood disorders at follow-up



Below are parental outcomes that were only investigated by single studies. To standardise the reporting of effects for each outcome, between-group effects were either calculated using reported raw data or recalculated using the `esc_mean_sd` or `esc_f`, or `esc_t` functions available in the `esc` package for consistency. For within-group studies, the `d.dep.t.avg` function was used from the `MOTE` package to calculate Cohen's d_{av}

Bertino et al. (2013)

Avoidance at post-intervention

```
esc_mean_sd(grp1m = 35.6, grp1sd = 27.5, grp1n = 39 ,
            grp2m = 39.2, grp2sd = 28.2, grp2n = 9, es.type = "g")
```

```
##
## Effect Size Calculation for Meta Analysis
##
## Conversion: mean and sd to effect size Hedges' g
## Effect Size: -0.1282
## Standard Error: 0.3700
## Variance: 0.1369
## Lower CI: -0.8535
## Upper CI: 0.5971
## Weight: 7.3031
```

Avoidance at six-month follow-up

```
esc_mean_sd(grp1m = 44.3, grp1sd = 26.8, grp1n = 24 ,
            grp2m = 38.5, grp2sd = 30.5, grp2n = 2, es.type = "g")
```



```
##  
## Effect Size Calculation for Meta Analysis  
##  
## Conversion: mean and sd to effect size Hedges' g  
## Effect Size: 0.2083  
## Standard Error: 0.7366  
## Variance: 0.5426  
## Lower CI: -1.2354  
## Upper CI: 1.6520  
## Weight: 1.8431
```

Bertino et al. (2013)

Compulsive traits at post-intervention

```
esc_mean_sd(grp1m = 67, grp1sd = 17.5, grp1n =39 ,  
            grp2m = 73.1, grp2sd =10.7, grp2n =9, es.type = "g")
```

```
##  
## Effect Size Calculation for Meta Analysis  
##  
## Conversion: mean and sd to effect size Hedges' g  
## Effect Size: -0.3632  
## Standard Error: 0.3717  
## Variance: 0.1382  
## Lower CI: -1.0918  
## Upper CI: 0.3653  
## Weight: 7.2373
```

Compulsive traits at six-month follow-up

```
esc_mean_sd(grp1m = 60.2, grp1sd = 21.1, grp1n =24 ,  
            grp2m = 69, grp2sd =15.6, grp2n =2, es.type = "g")
```

```
##  
## Effect Size Calculation for Meta Analysis  
##  
## Conversion: mean and sd to effect size Hedges' g  
## Effect Size: -0.4078  
## Standard Error: 0.7383  
## Variance: 0.5451  
## Lower CI: -1.8548  
## Upper CI: 1.0393  
## Weight: 1.8346
```

Bertino et al. (2013)

Avoidant attachment at post-intervention

```
esc_mean_sd(grp1m = 21.7, grp1sd = 3.6, grp1n =38 ,  
            grp2m = 23.2, grp2sd =2.2, grp2n =9, es.type = "g")
```

```
##
## Effect Size Calculation for Meta Analysis
##
##      Conversion: mean and sd to effect size Hedges' g
##      Effect Size:  -0.4346
##      Standard Error:  0.3735
##      Variance:      0.1395
##      Lower CI:     -1.1667
##      Upper CI:      0.2975
##      Weight:       7.1682
```

Bertino et al. (2013)

Anxious attachment at post-intervention

```
esc_mean_sd(grp1m = 9.9, grp1sd = 4.3, grp1n =39 ,
            grp2m = 12.2, grp2sd =5.2, grp2n =9, es.type = "g")
```

```
##
## Effect Size Calculation for Meta Analysis
##
##      Conversion: mean and sd to effect size Hedges' g
##      Effect Size:  -0.5062
##      Standard Error:  0.3735
##      Variance:      0.1395
##      Lower CI:     -1.2382
##      Upper CI:      0.2259
##      Weight:       7.1679
```

Fristad et al. (2003)

Positive expressed emotion at post-intervention

```
esc_mean_sd(grp1m = 119.3, grp1sd = 13.4, grp1n =18,
            grp2m = 111.5, grp2sd =13.8, grp2n =16, es.type = "g")
```

```
##
## Effect Size Calculation for Meta Analysis
##
##      Conversion: mean and sd to effect size Hedges' g
##      Effect Size:   0.5604
##      Standard Error:  0.3506
##      Variance:      0.1229
##      Lower CI:     -0.1267
##      Upper CI:      1.2475
##      Weight:       8.1366
```

Positive expressed emotion at 4-month follow-up

```
esc_mean_sd(grp1m = 121.7, grp1sd = 14.3, grp1n =16,
            grp2m = 104.4, grp2sd =19.1, grp2n =14, es.type = "g")
```

```
##  
## Effect Size Calculation for Meta Analysis  
##  
## Conversion: mean and sd to effect size Hedges' g  
## Effect Size: 1.0079  
## Standard Error: 0.3896  
## Variance: 0.1518  
## Lower CI: 0.2442  
## Upper CI: 1.7715  
## Weight: 6.5871
```

Fristad et al. (2003)

Negative expressed emotion at post-intervention

```
esc_mean_sd(grp1m = 66.9, grp1sd = 11.1, grp1n = 18,  
            grp2m = 72.9, grp2sd = 12.1, grp2n = 16, es.type = "g")
```

```
##  
## Effect Size Calculation for Meta Analysis  
##  
## Conversion: mean and sd to effect size Hedges' g  
## Effect Size: -0.5059  
## Standard Error: 0.3493  
## Variance: 0.1220  
## Lower CI: -1.1905  
## Upper CI: 0.1787  
## Weight: 8.1965
```

Negative expressed emotion at 4-month follow-up

```
esc_mean_sd(grp1m = 58.7, grp1sd = 16.5, grp1n = 16,  
            grp2m = 70.4, grp2sd = 15.3, grp2n = 14, es.type = "g")
```

```
##  
## Effect Size Calculation for Meta Analysis  
##  
## Conversion: mean and sd to effect size Hedges' g  
## Effect Size: -0.7135  
## Standard Error: 0.3780  
## Variance: 0.1429  
## Lower CI: -1.4544  
## Upper CI: 0.0274  
## Weight: 6.9983
```

Gerkenmeyer et al. (2013)

Perceived personal control at post-intervention

```
esc_f(f = 0.39, grp1n = 26, grp2n = 28, es.type="g")
```

```
##
```

```
## Effect Size Calculation for Meta Analysis
##
##      Conversion: F-value (one-way-Anova) to effect size Hedges' g
##      Effect Size: 0.1676
##      Standard Error: 0.2728
##      Variance: 0.0744
##      Lower CI: -0.3671
##      Upper CI: 0.7024
##      Weight: 13.4330
```

Perceived personal control at 3-month follow-up

```
esc_f(f=3.26, grp1n = 24, grp2n = 27, es.type="d")
```

```
##
## Effect Size Calculation for Meta Analysis
##
##      Conversion: F-value (one-way-Anova) to effect size d
##      Effect Size: 0.5065
##      Standard Error: 0.2850
##      Variance: 0.0812
##      Lower CI: -0.0520
##      Upper CI: 1.0651
##      Weight: 12.3124
```

Gerkensmeyer et al. (2013)

Problem solving attitudes and skills at post-intervention

```
esc_f(f = 1.61, grp1n = 26, grp2n = 28, es.type="d")
```

```
##
## Effect Size Calculation for Meta Analysis
##
##      Conversion: F-value (one-way-Anova) to effect size d
##      Effect Size: 0.3456
##      Standard Error: 0.2744
##      Variance: 0.0753
##      Lower CI: -0.1922
##      Upper CI: 0.8833
##      Weight: 13.2835
```

Problem solving attitudes and skills at 3-month follow-up

```
esc_f(f=0.03, grp1n = 24, grp2n = 27, es.type="d")
```

```
##
## Effect Size Calculation for Meta Analysis
##
##      Conversion: F-value (one-way-Anova) to effect size d
##      Effect Size: 0.0486
##      Standard Error: 0.2806
```

```
## Variance: 0.0787
## Lower CI: -0.5013
## Upper CI: 0.5985
## Weight: 12.7021
```

Gleeson et al. (2017)

Perceived social support at post-intervention

```
d.dep.t.avg(m1=4.00, m2=3.83, sd1=0.94, sd2=0.94, n=25, a = 0.05)
```

```
## $d
## [1] 0.1808511
##
## $dlow
## [1] -0.2162746
##
## $dhigh
## [1] 0.57429
##
## $M1
## [1] 4
##
## $sd1
## [1] 0.94
##
## $se1
## [1] 0.188
##
## $M1low
## [1] 3.611987
##
## $M1high
## [1] 4.388013
##
## $M2
## [1] 3.83
##
## $sd2
## [1] 0.94
##
## $se2
## [1] 0.188
##
## $M2low
## [1] 3.441987
##
## $M2high
## [1] 4.218013
##
## $n
## [1] 25
##
## $df
```

```
## [1] 24
##
## $estimate
## [1] "$d_{av}$ = 0.18, 95%% CI [-0.22, 0.57]"
```

Khor et al. (2021)

Parent-adolescent attachment at post-intervention

```
d.dep.t.avg(m1=63.97, m2=59.29, sd1=9.82, sd2=10.87, n=64, a = 0.05)
```

```
## $d
## [1] 0.4523925
##
## $dlow
## [1] 0.1933955
##
## $dhigh
## [1] 0.7081279
##
## $M1
## [1] 63.97
##
## $sd1
## [1] 9.82
##
## $se1
## [1] 1.2275
##
## $M1low
## [1] 61.51704
##
## $M1high
## [1] 66.42296
##
## $M2
## [1] 59.29
##
## $sd2
## [1] 10.87
##
## $se2
## [1] 1.35875
##
## $M2low
## [1] 56.57475
##
## $M2high
## [1] 62.00525
##
## $n
## [1] 64
##
## $df
```

```
## [1] 63
##
## $estimate
## [1] "$d_{av}$ = 0.45, 95%% CI [0.19, 0.71]"
```

Khor et al. (2021)

Parental behaviours associated with reducing anxiety/depression in adolescents at post-intervention

```
d.dep.t.avg(m1=53.41, m2=47.77, sd1=7.40, sd2=7.51, n=64, a = 0.05)
```

```
## $d
## [1] 0.7565392
##
## $dlow
## [1] 0.4759754
##
## $dhigh
## [1] 1.032399
##
## $M1
## [1] 53.41
##
## $sd1
## [1] 7.4
##
## $se1
## [1] 0.925
##
## $M1low
## [1] 51.56153
##
## $M1high
## [1] 55.25847
##
## $M2
## [1] 47.77
##
## $sd2
## [1] 7.51
##
## $se2
## [1] 0.93875
##
## $M2low
## [1] 45.89406
##
## $M2high
## [1] 49.64594
##
## $n
## [1] 64
##
## $df
```

```
## [1] 63
##
## $estimate
## [1] "$d_{av}$ = 0.76, 95\\% CI [0.48, 1.03]"
```

MacPherson et al. (2016)

Treatment beliefs at post-intervention

```
d.dep.t.avg(m1=4.00, m2=3.82, sd1=0.39, sd2=0.42, n=26, a = 0.05)
```

```
## $d
## [1] 0.4444444
##
## $dlow
## [1] 0.03697258
##
## $dhigh
## [1] 0.8438668
##
## $M1
## [1] 4
##
## $sd1
## [1] 0.39
##
## $se1
## [1] 0.07648529
##
## $M1low
## [1] 3.842476
##
## $M1high
## [1] 4.157524
##
## $M2
## [1] 3.82
##
## $sd2
## [1] 0.42
##
## $se2
## [1] 0.08236878
##
## $M2low
## [1] 3.650358
##
## $M2high
## [1] 3.989642
##
## $n
## [1] 26
##
## $df
```



```
## [1] 25
##
## $estimate
## [1] "$d_{av}$ = 0.44, 95%% CI [0.04, 0.84]"
```

Treatment beliefs at six-month follow-up

```
d.dep.t.avg(m1=3.90, m2=3.82, sd1=0.54, sd2=0.42, n=21, a = 0.05)
```

```
## $d
## [1] 0.1666667
##
## $dlow
## [1] -0.2661411
##
## $dhigh
## [1] 0.5953928
##
## $M1
## [1] 3.9
##
## $sd1
## [1] 0.54
##
## $se1
## [1] 0.1178377
##
## $M1low
## [1] 3.654195
##
## $M1high
## [1] 4.145805
##
## $M2
## [1] 3.82
##
## $sd2
## [1] 0.42
##
## $se2
## [1] 0.09165151
##
## $M2low
## [1] 3.628818
##
## $M2high
## [1] 4.011182
##
## $n
## [1] 21
##
## $df
## [1] 20
```

```
##
## $estimate
## [1] "$d_{av}$ = 0.17, 95\\% CI [-0.27, 0.60]"
```

Treatment beliefs at twelve-month follow-up

```
d.dep.t.avg(m1=3.80, m2=3.82, sd1=0.59, sd2=0.42, n=20, a = 0.05)
```

```
## $d
## [1] -0.03960396
##
## $dlow
## [1] -0.4775266
##
## $dhigh
## [1] 0.3993528
##
## $M1
## [1] 3.8
##
## $sd1
## [1] 0.59
##
## $se1
## [1] 0.131928
##
## $M1low
## [1] 3.523872
##
## $M1high
## [1] 4.076128
##
## $M2
## [1] 3.82
##
## $sd2
## [1] 0.42
##
## $se2
## [1] 0.09391486
##
## $M2low
## [1] 3.623434
##
## $M2high
## [1] 4.016566
##
## $n
## [1] 20
##
## $df
## [1] 19
##
```

```
## $estimate
## [1] "$d_{av}$ = -0.04, 95\% CI [-0.48, 0.40]"
```

Due to incompatible statistics, the following effects were not transformed from Pina (2005)

Anxiety at post-intervention (repeated measures ANOVA)

($F(1,66)$, 16.89, $p < 0.001$; $\eta^2 = 0.20$)

Anxiety at one year follow-up

($F(1,45)$ = 5.73, $p < 0.05$; $\eta^2 = 0.1$)

Racey et al. (2018)

Self-compassion at post-intervention

```
d.dep.t.avg(m1=3.4, m2=3.0, sd1=0.9, sd2=0.9, n=21, a = 0.05)
```

```
## $d
## [1] 0.4444444
##
## $dlow
## [1] -0.009631756
##
## $dhigh
## [1] 0.8884852
##
## $M1
## [1] 3.4
##
## $sd1
## [1] 0.9
##
## $se1
## [1] 0.1963961
##
## $M1low
## [1] 2.990325
##
## $M1high
## [1] 3.809675
##
## $M2
## [1] 3
##
## $sd2
## [1] 0.9
##
## $se2
## [1] 0.1963961
##
## $M2low
## [1] 2.590325
##
```

```
## $M2high
## [1] 3.409675
##
## $n
## [1] 21
##
## $df
## [1] 20
##
## $estimate
## [1] "$d_{av}$ = 0.44, 95%% CI [-0.01, 0.89]"
```

Racey et al. (2018)

Mindfulness at post-intervention

```
d.dep.t.avg(m1=4.7, m2=3.9, sd1=0.8, sd2=1.2, n=8, a = 0.05)
```

```
## $d
## [1] 0.8
##
## $dlow
## [1] -0.02604859
##
## $dhigh
## [1] 1.585204
##
## $M1
## [1] 4.7
##
## $sd1
## [1] 0.8
##
## $se1
## [1] 0.2828427
##
## $M1low
## [1] 4.031183
##
## $M1high
## [1] 5.368817
##
## $M2
## [1] 3.9
##
## $sd2
## [1] 1.2
##
## $se2
## [1] 0.4242641
##
## $M2low
## [1] 2.896775
##
```

```
## $M2high
## [1] 4.903225
##
## $n
## [1] 8
##
## $df
## [1] 7
##
## $estimate
## [1] "$d_{av}$ = 0.80, 95%% CI [-0.03, 1.59]"
```

Racey et al. (2018)

Decentring at post-intervention

```
d.dep.t.avg(m1=37.9, m2=31.3, sd1=6.5, sd2=8.5, n=17, a = 0.05)
```

```
## $d
## [1] 0.88
##
## $dlow
## [1] 0.3068579
##
## $dhigh
## [1] 1.433628
##
## $M1
## [1] 37.9
##
## $sd1
## [1] 6.5
##
## $se1
## [1] 1.576482
##
## $M1low
## [1] 34.55801
##
## $M1high
## [1] 41.24199
##
## $M2
## [1] 31.3
##
## $sd2
## [1] 8.5
##
## $se2
## [1] 2.061553
##
## $M2low
## [1] 26.9297
##
```

```
## $M2high
## [1] 35.6703
##
## $n
## [1] 17
##
## $df
## [1] 16
##
## $estimate
## [1] "$d_{av}$ = 0.88, 95%% CI [0.31, 1.43]"
```

Racey et al. (2018)

Rumination at post-intervention

```
d.dep.t.avg(m1=32.2, m2=39.3, sd1=9.8, sd2=15.5, n=20, a = 0.05)
```

```
## $d
## [1] -0.5612648
##
## $dlow
## [1] -1.027685
##
## $dhigh
## [1] -0.08219718
##
## $M1
## [1] 32.2
##
## $sd1
## [1] 9.8
##
## $se1
## [1] 2.191347
##
## $M1low
## [1] 27.61346
##
## $M1high
## [1] 36.78654
##
## $M2
## [1] 39.3
##
## $sd2
## [1] 15.5
##
## $se2
## [1] 3.465905
##
## $M2low
## [1] 32.04578
##
```

```
## $M2high
## [1] 46.55422
##
## $n
## [1] 20
##
## $df
## [1] 19
##
## $estimate
## [1] "$d_{av}$ = -0.56, 95%% CI [-1.03, -0.08]"
```

Reigstad et al. (2022)

Stress at follow-up

```
d.dep.t.avg(m1=232.25, m2=250.33, sd1=45.93, sd2=36.61, n=15, a = 0.05)
```

```
## $d
## [1] -0.4380906
##
## $dlow
## [1] -0.9620286
##
## $dhigh
## [1] 0.09993468
##
## $M1
## [1] 232.25
##
## $sd1
## [1] 45.93
##
## $se1
## [1] 11.85908
##
## $M1low
## [1] 206.8148
##
## $M1high
## [1] 257.6852
##
## $M2
## [1] 250.33
##
## $sd2
## [1] 36.61
##
## $se2
## [1] 9.452661
##
## $M2low
## [1] 230.0561
##
```

```
## $M2high
## [1] 270.6039
##
## $n
## [1] 15
##
## $df
## [1] 14
##
## $estimate
## [1] "$d_{av}$ = -0.44, 95%% CI [-0.96, 0.10]"
```

Reigstad et al. (2022)

Adolescent-parent relationship domain at post-intervention

```
d.dep.t.avg(m1=33.83, m2=37.75, sd1=6.87, sd2=5.55, n=15, a = 0.05)
```

```
## $d
## [1] -0.6312399
##
## $dlow
## [1] -1.178545
##
## $dhigh
## [1] -0.06544369
##
## $M1
## [1] 33.83
##
## $sd1
## [1] 6.87
##
## $se1
## [1] 1.773826
##
## $M1low
## [1] 30.02552
##
## $M1high
## [1] 37.63448
##
## $M2
## [1] 37.75
##
## $sd2
## [1] 5.55
##
## $se2
## [1] 1.433004
##
## $M2low
## [1] 34.67651
##
```



```
## $M2high
## [1] 40.82349
##
## $n
## [1] 15
##
## $df
## [1] 14
##
## $estimate
## [1] "$d_{av}$ = -0.63, 95%% CI [-1.18, -0.07]"
```

Adolescent-parent relationship domain at follow-up

```
d.dep.t.avg(m1=33.83, m2=37.75, sd1=9.74, sd2=5.55, n=15, a = 0.05)
```

```
## $d
## [1] -0.5127534
##
## $dlow
## [1] -1.044685
##
## $dhigh
## [1] 0.03513045
##
## $M1
## [1] 33.83
##
## $sd1
## [1] 9.74
##
## $se1
## [1] 2.514857
##
## $M1low
## [1] 28.43617
##
## $M1high
## [1] 39.22383
##
## $M2
## [1] 37.75
##
## $sd2
## [1] 5.55
##
## $se2
## [1] 1.433004
##
## $M2low
## [1] 34.67651
##
## $M2high
```

```
## [1] 40.82349
##
## $n
## [1] 15
##
## $df
## [1] 14
##
## $estimate
## [1] "$d_{av}$ = -0.51, 95%% CI [-1.04, 0.04]"
```

Salari et al. (2018)

Global functioning at post-intervention

```
esc_t(t = -2.11, grp1n =15, grp2n =19, es.type="g")
```

```
##
## Effect Size Calculation for Meta Analysis
##
##      Conversion: t-value to effect size Hedges' g
##      Effect Size:  -0.7116
##      Standard Error:  0.3565
##      Variance:  0.1271
##      Lower CI:  -1.4103
##      Upper CI:  -0.0128
##      Weight:  7.8673
```