Appendix H: Meta-analysis & network meta-analysis results

H.1 Dementia diagnosis

H.1.1 Dementia diagnosis

- What are the most effective methods of primary assessment to decide whether a person with suspected dementia should be referred to a dementia service?

  What are the most effective methods of diagnosing dementia and dementia subtypes in specialist dementia diagnostic services?

Please see appendix P

H.1.2 Distinguishing dementia from delirium or delirium with dementia

- What are the most effective methods of differentiating dementia or dementia with delirium from delirium alone?

No meta-analyses were performed

H.1.3 Case finding for people at high risk of dementia

- What are the most effective methods of case finding for people at high risk of dementia?

No meta-analyses were performed

H.2 Involving people with dementia in decision about care

H.2.1 Barriers and facilitators to involvement in decision making for people living with dementia

- What barriers and facilitators have an impact on involving people living with dementia in decisions about their present and future care?
- What barriers and facilitators have an impact on how people living with dementia can make use of advance planning?

No meta-analyses were performed

H.3 Care planning, review and co-ordination

H.3.1 Health and social care co-ordination

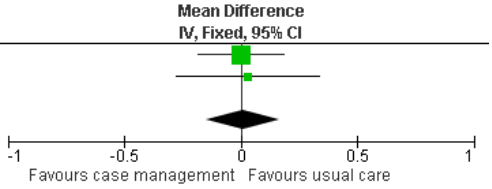
- What are the most effective methods of care planning, focussing upon improving outcomes for people with dementia and their carers?
- How should health and social care be co-ordinated for people living with dementia?

H.3.1.1 Care coordination/management using a protocol/action plan (that involves educating the carers) and monthly meetings vs usual care

Mean number of hospital admissions

Study or Subgroup	Case management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Bass 2003	0	0.56	92	0	0.59	65	73.8%	0.00 [-0.18, 0.18]
Bass 2015	1.8	1.22	206	1.77	1.46	122	26.2%	0.03 [-0.28, 0.34]
Total (95% CI)			**298**			**187**	**100.0%**	**0.01 [-0.15, 0.17]**

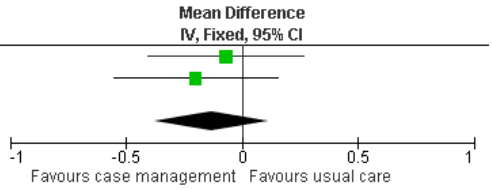
Heterogeneity: Chi² = 0.03, df = 1 (P = 0.87); I² = 0%
Test for overall effect: Z = 0.10 (P = 0.92)



Mean number of emergency department visits

Study or Subgroup	Care management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Bass 2003	-0.07	0.98	92	0	1.12	65	52.5%	-0.07 [-0.41, 0.27]
Bass 2015	2.38	1.69	206	2.58	1.52	122	47.5%	-0.20 [-0.55, 0.15]
Total (95% CI)			**298**			**187**	**100.0%**	**-0.13 [-0.38, 0.11]**

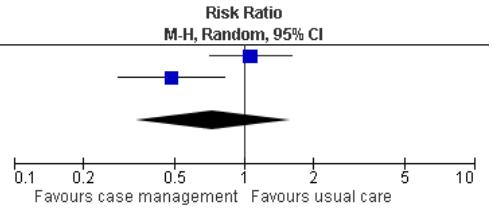
Heterogeneity: Chi² = 0.27, df = 1 (P = 0.60); I² = 0%
Test for overall effect: Z = 1.06 (P = 0.29)



Percentage institutionalised by the end of the study

Study or Subgroup	Care management Events	Total	Usual care Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Eloniemi-Sulkava 2001	32	100	30	100	52.2%	1.07 [0.71, 1.61]
Fortinsky 2009	16	100	33	100	47.8%	0.48 [0.29, 0.82]
Total (95% CI)		**200**		**200**	**100.0%**	**0.73 [0.34, 1.59]**
Total events	48		63			

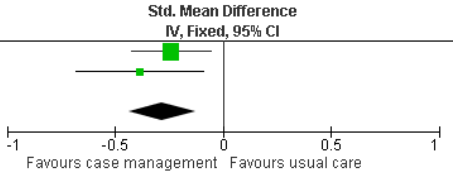
Heterogeneity: Tau² = 0.26; Chi² = 5.35, df = 1 (P = 0.02); I² = 81%
Test for overall effect: Z = 0.79 (P = 0.43)



Unmet needs (change from 6 months to 12 months)

Study or Subgroup	Care management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Bass 2013	-2.4	9.954438	299	0	9.954438	187	72.0%	-0.24 [-0.42, -0.06]
Bass 2014	-5.9	15.25962	122	0	15.25962	72	28.0%	-0.39 [-0.68, -0.09]
Total (95% CI)			**421**			**259**	**100.0%**	**-0.28 [-0.44, -0.13]**

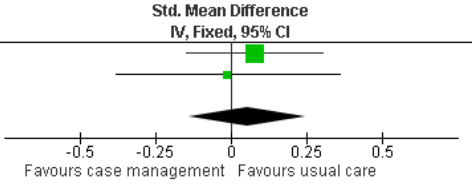
Heterogeneity: Chi² = 0.67, df = 1 (P = 0.41); I² = 0%
Test for overall effect: Z = 3.54 (P = 0.0004)



Cognitive symptoms of person living with dementia

Study or Subgroup	Care management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Bass 2015	0.29	3.61	206	0	3.74	122	73.3%	0.08 [-0.14, 0.30]
Callahan 2006	-0.1	9.5	65	0	9	49	26.7%	-0.01 [-0.38, 0.36]
Total (95% CI)			**271**			**171**	**100.0%**	**0.06 [-0.14, 0.25]**

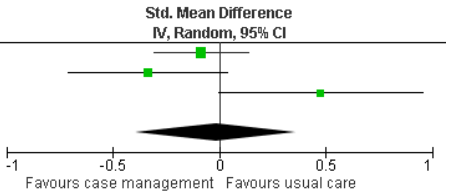
Heterogeneity: Chi² = 0.16, df = 1 (P = 0.68); I² = 0%
Test for overall effect: Z = 0.56 (P = 0.57)



Behavioural symptoms, such as NPI, of person living with dementia

Study or Subgroup	Care management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Bass 2015	-0.22	2.49	206	0	2.7	122	40.7%	-0.09 [-0.31, 0.14]
Callahan 2006	-4.9	10.2	65	0	18.7	49	32.4%	-0.34 [-0.71, 0.04]
Chu 2000	0.7	1.4551889	33	0	1.4551889	36	26.9%	0.48 [-0.00, 0.96]
Total (95% CI)			**304**			**207**	**100.0%**	**-0.02 [-0.39, 0.36]**

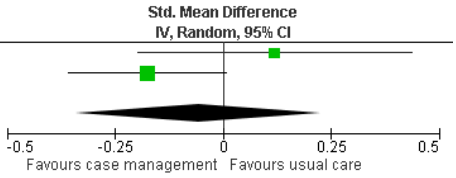
Heterogeneity: Tau² = 0.08; Chi² = 6.95, df = 2 (P = 0.03); I² = 71%
Test for overall effect: Z = 0.08 (P = 0.93)



Caregiver relationship strain

Study or Subgroup	Care management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Bass 2003	0.07	0.54	92	0	0.64	65	39.9%	0.12 [-0.20, 0.44]
Bass 2013	-1.4	7.965373	299	0	7.965373	187	60.1%	-0.18 [-0.36, 0.01]
Total (95% CI)			**391**			**252**	**100.0%**	**-0.06 [-0.34, 0.23]**

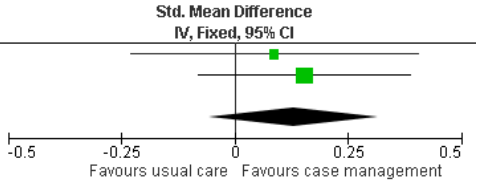
Heterogeneity: Tau² = 0.03; Chi² = 2.48, df = 1 (P = 0.12); I² = 60%
Test for overall effect: Z = 0.40 (P = 0.69)



Caregiver satisfaction with quality of services

Study or Subgroup	Care management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Bass 2003	0.04	0.43	92	0	0.49	65	35.0%	0.09 [-0.23, 0.41]
Vickrey 2006	0.3	1.9	166	0	2	124	65.0%	0.15 [-0.08, 0.39]
Total (95% CI)			**258**			**189**	**100.0%**	**0.13 [-0.06, 0.32]**

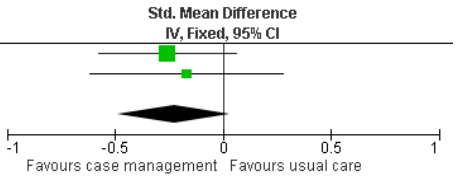
Heterogeneity: Chi² = 0.11, df = 1 (P = 0.74); I² = 0%
Test for overall effect: Z = 1.36 (P = 0.17)



Caregiver depression

Study or Subgroup	Care management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Bass 2003	-0.11	0.39	92	0	0.47	65	66.3%	-0.26 [-0.58, 0.06]
Fortinsky 2009	-2.23	13.34722	54	0	12.54732	30	33.7%	-0.17 [-0.62, 0.28]
Total (95% CI)			**146**			**95**	**100.0%**	**-0.23 [-0.49, 0.03]**

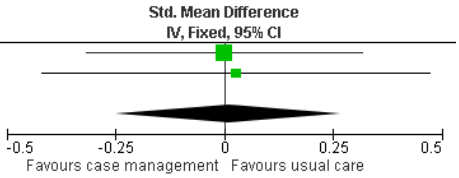
Heterogeneity: Chi² = 0.10, df = 1 (P = 0.75); I² = 0%
Test for overall effect: Z = 1.72 (P = 0.09)



Caregiver health/symptoms

Study or Subgroup	Care management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Bass 2003	0	0.52	92	0	0.65	65	66.4%	0.00 [-0.32, 0.32]
Fortinsky 2009	0.08	3.07436	54	0	2.682723	30	33.6%	0.03 [-0.42, 0.47]
Total (95% CI)			**146**			**95**	**100.0%**	**0.01 [-0.25, 0.27]**

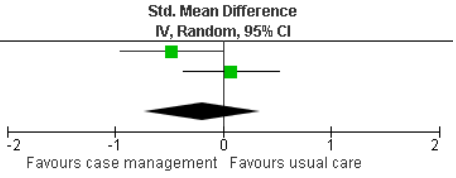
Heterogeneity: Chi² = 0.01, df = 1 (P = 0.92); I² = 0%
Test for overall effect: Z = 0.07 (P = 0.95)



Caregiver burden

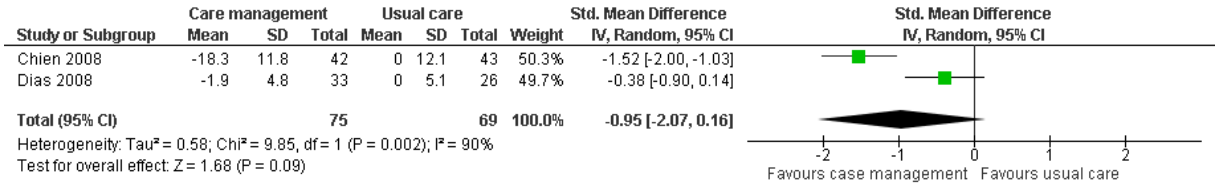
Study or Subgroup	Care management Mean	SD	Total	Usual care Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Chu 2000	-2.4	4.989219	33	0	4.989219	36	48.7%	-0.48 [-0.96, 0.00]
Fortinsky 2009	1.21	16.38409	54	0	15.46757	30	51.3%	0.07 [-0.37, 0.52]
Total (95% CI)			**87**			**66**	**100.0%**	**-0.19 [-0.73, 0.35]**

Heterogeneity: Tau² = 0.10; Chi² = 2.71, df = 1 (P = 0.10); I² = 63%
Test for overall effect: Z = 0.70 (P = 0.48)

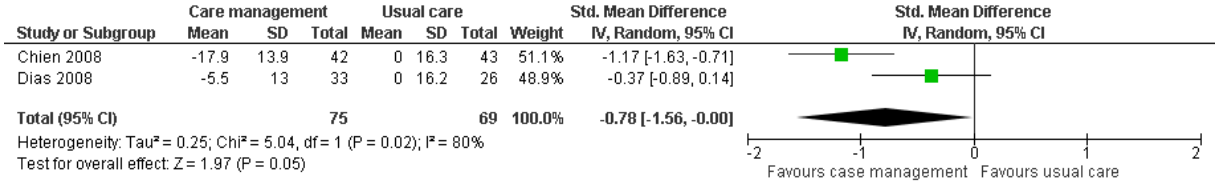


H.3.1.2 Care coordination/management using a protocol/action plan (that involves educating the carers) and 2 meetings per month for 6 months vs usual care

Care recipient's Neuropsychiatric Inventory

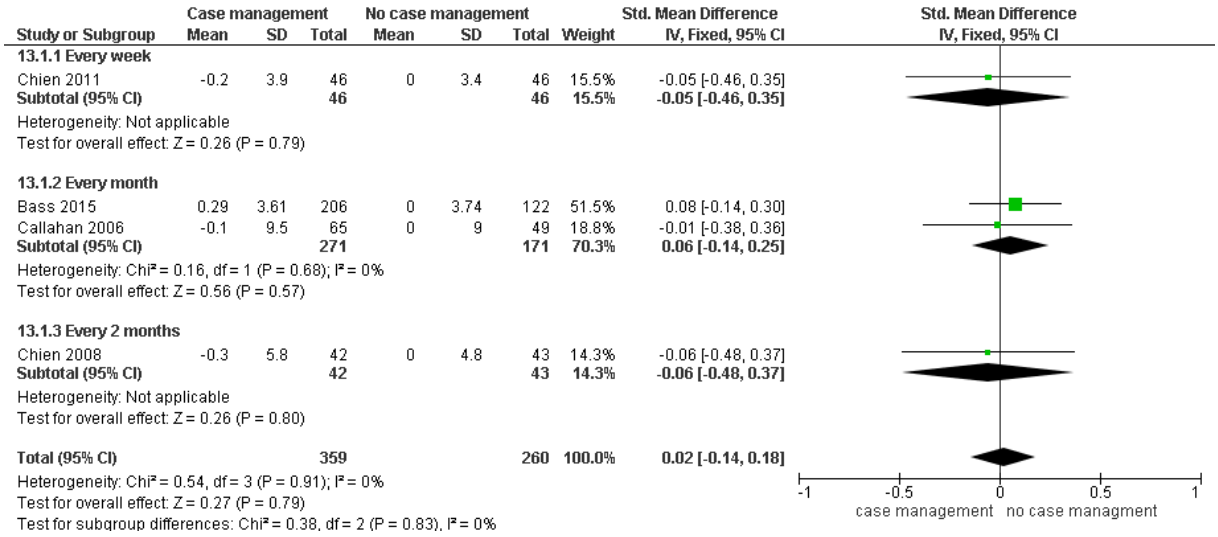


Caregiver burden

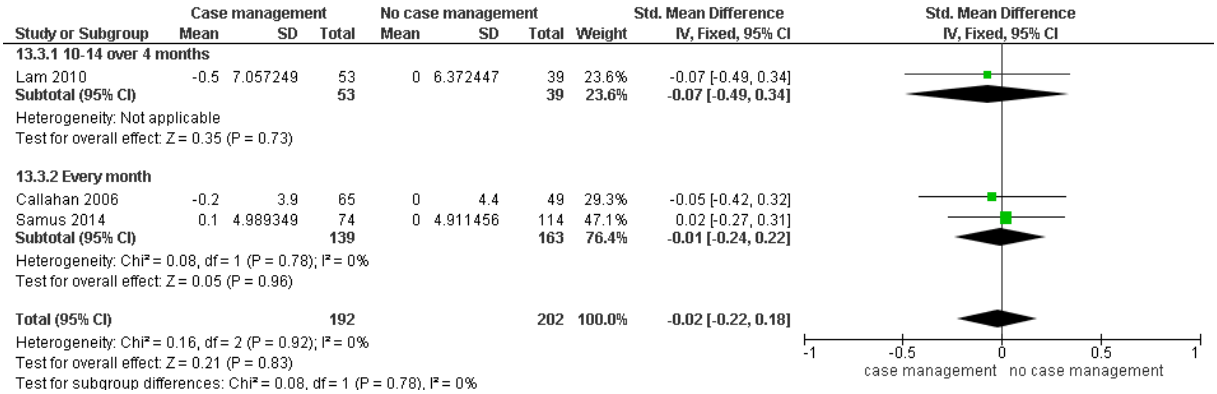


H.3.1.3 Case management: combined, by follow-up frequency

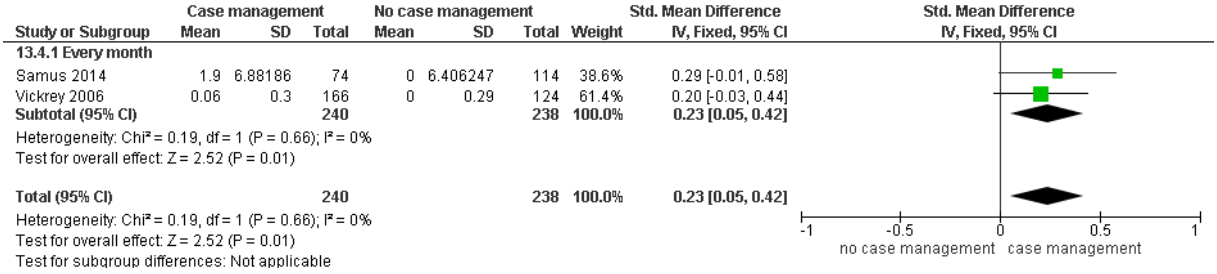
Cognition



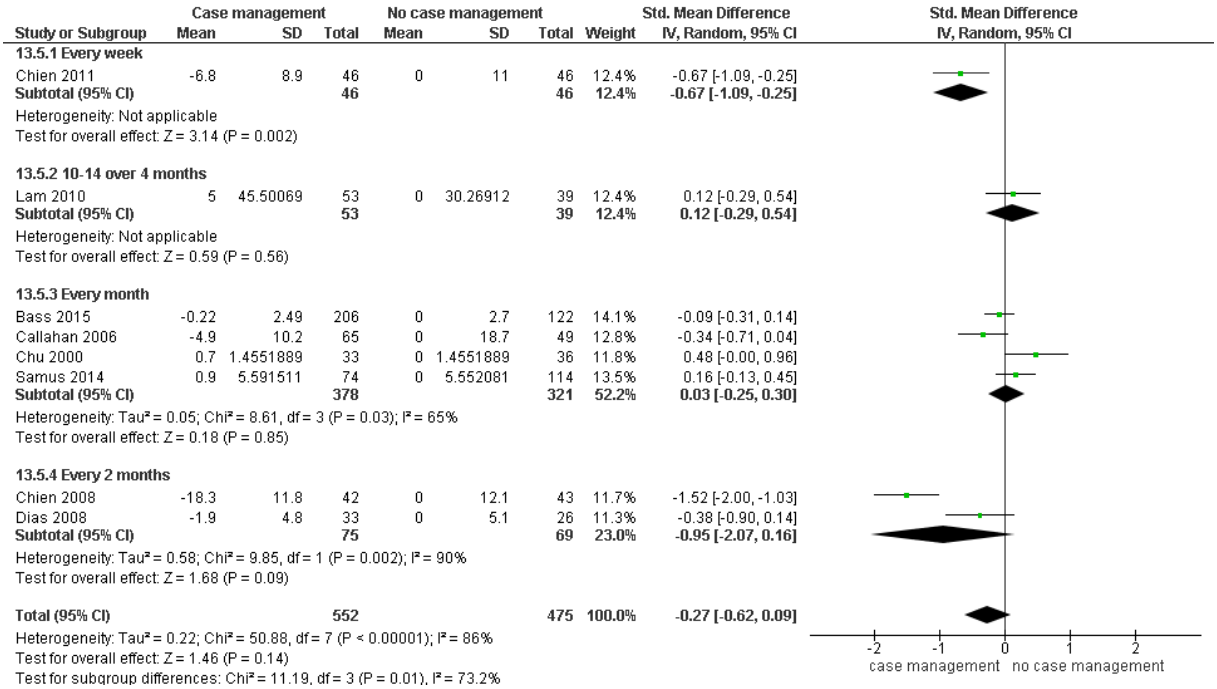
Depression of the person living with dementia



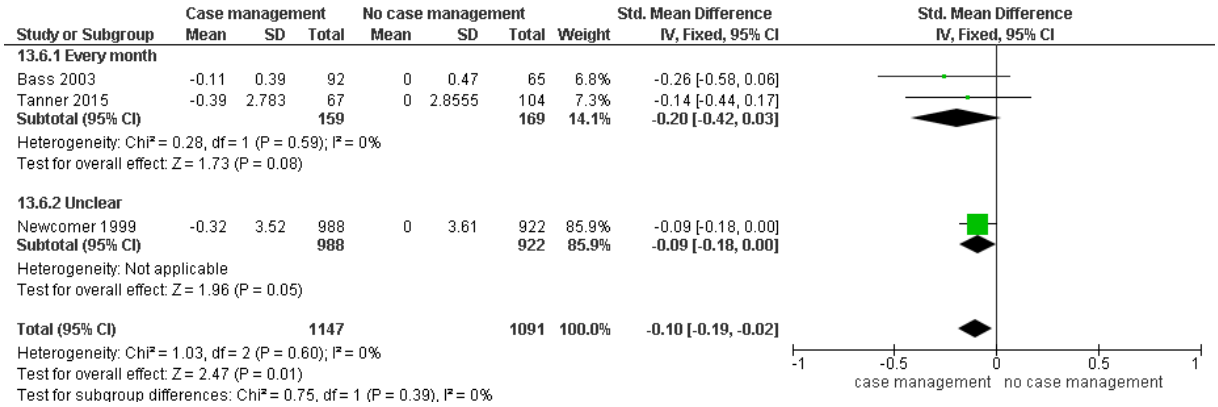
QoL of person living with dementia



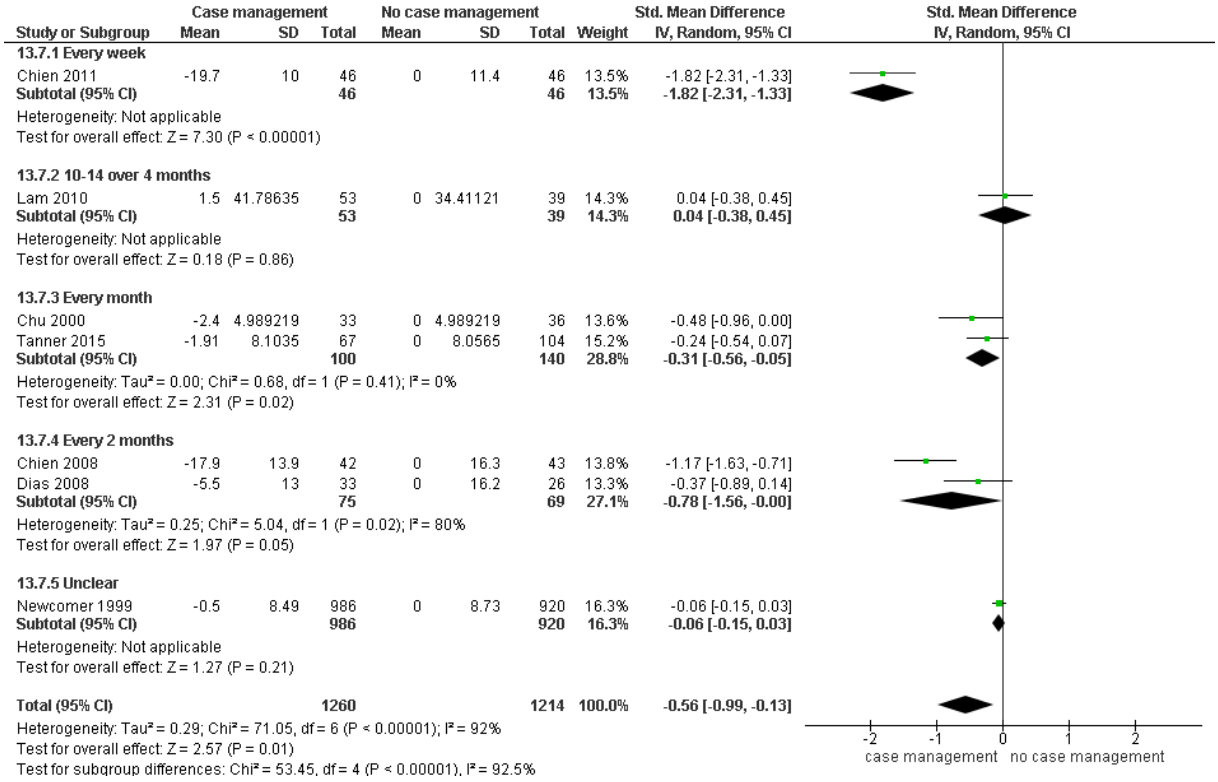
Behavioral and psychological symptoms of dementia



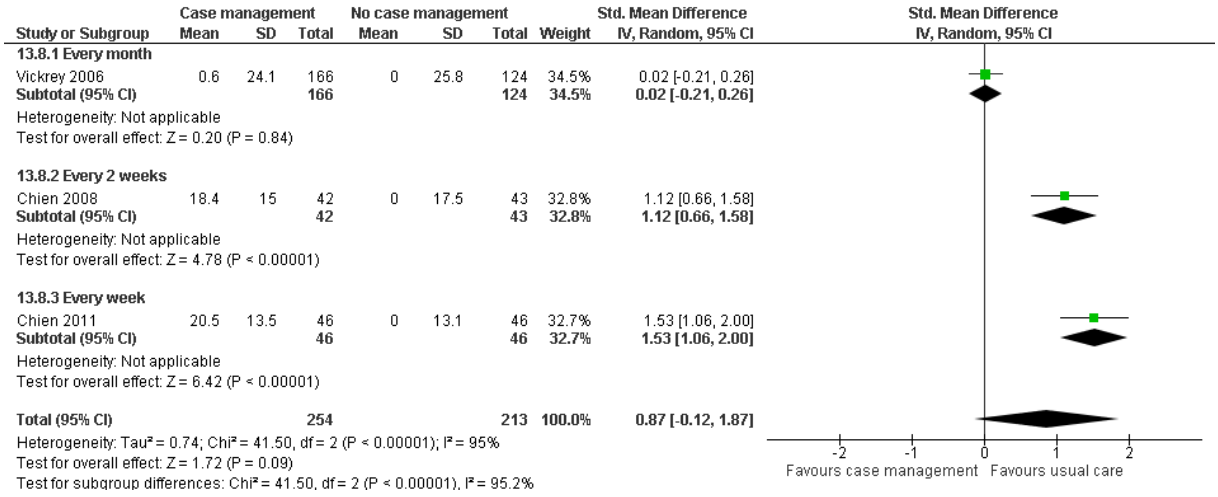
Caregiver depression



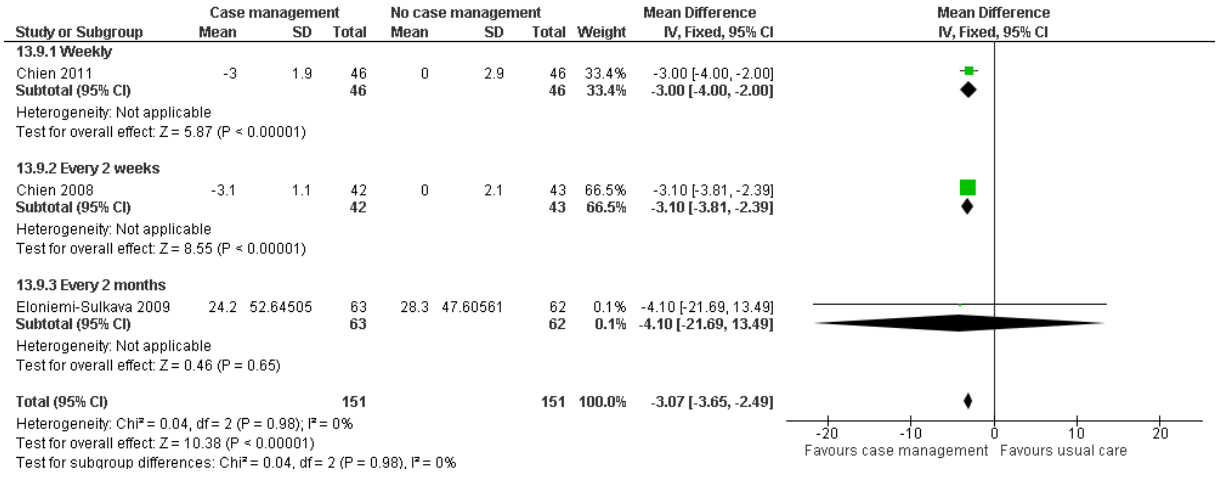
Caregiver burden



QoL of caregiver

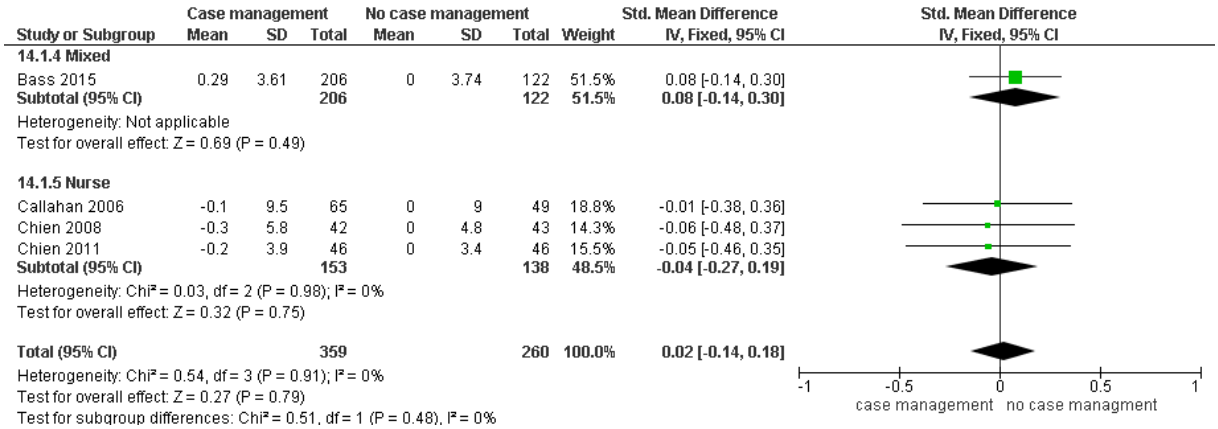


Rate of institutionalisation (number of institutionalisations over a 6-month period or cumulative long-term institutionalisation)

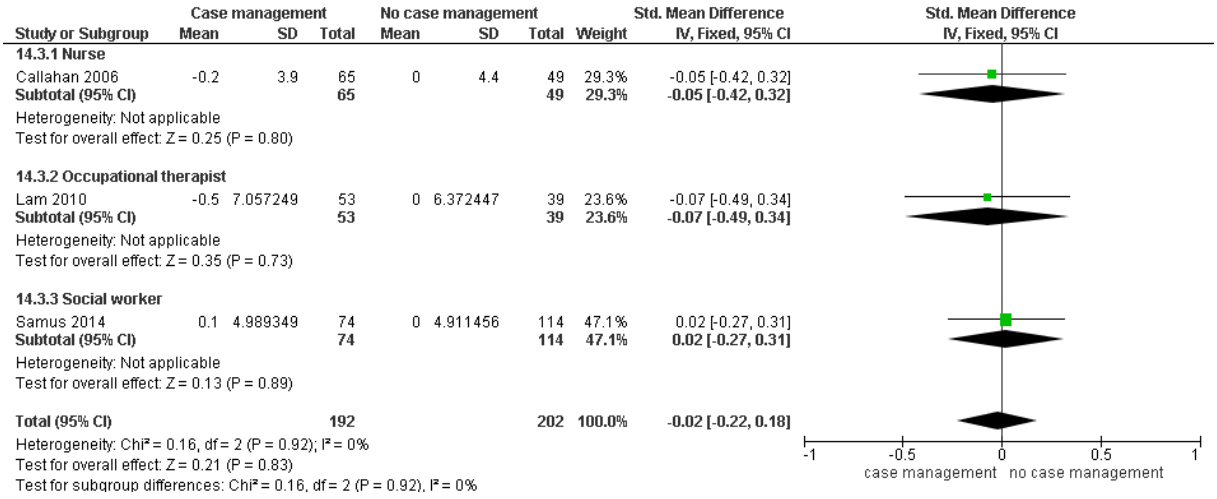


H.3.1.4 Case management: combined, by profession of coordinator

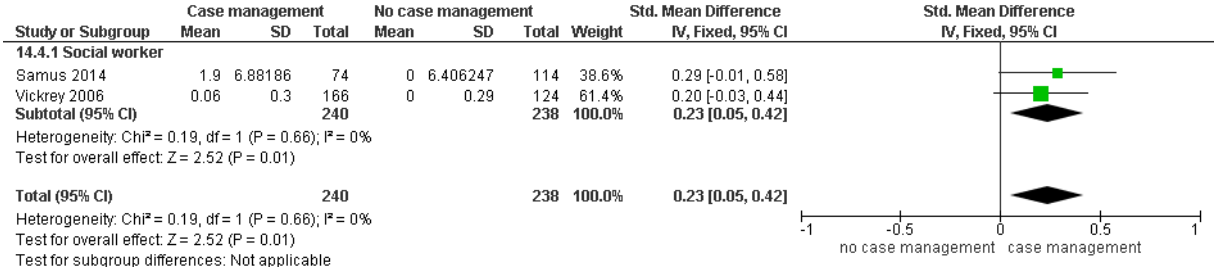
Cognition



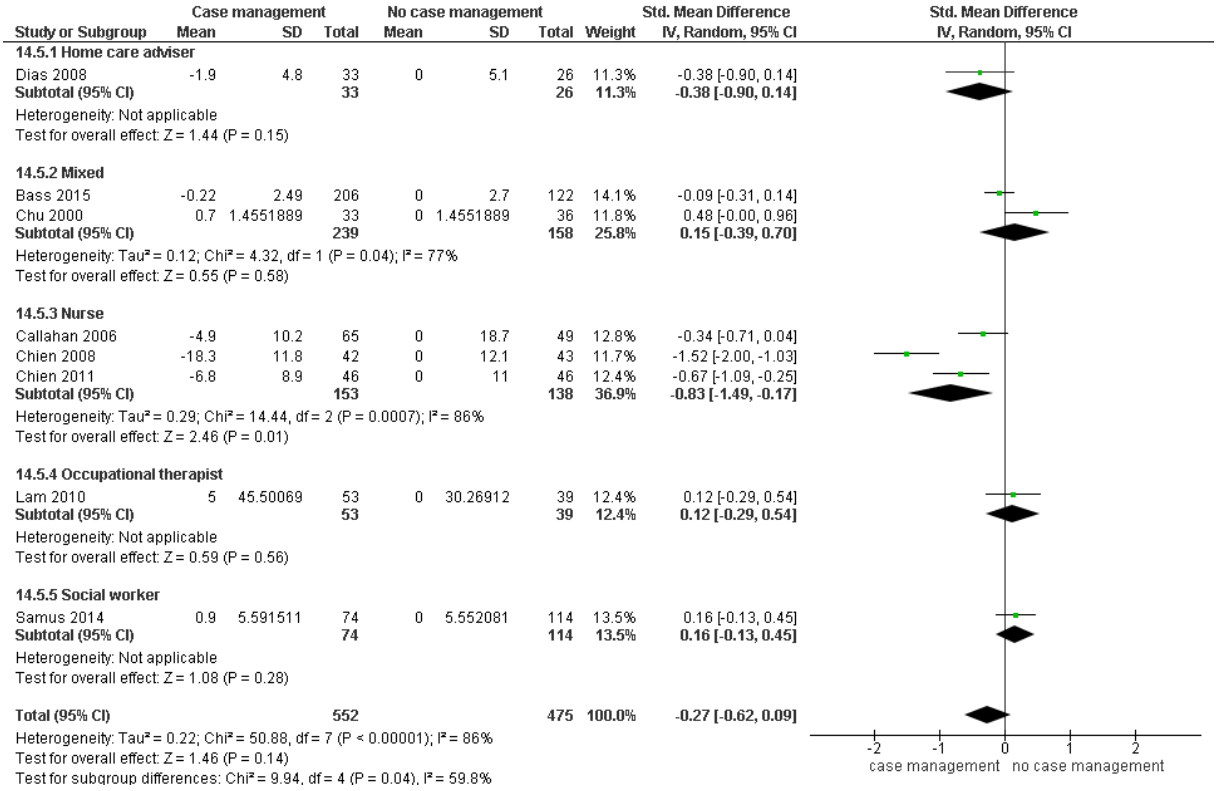
Depression of the person living with dementia



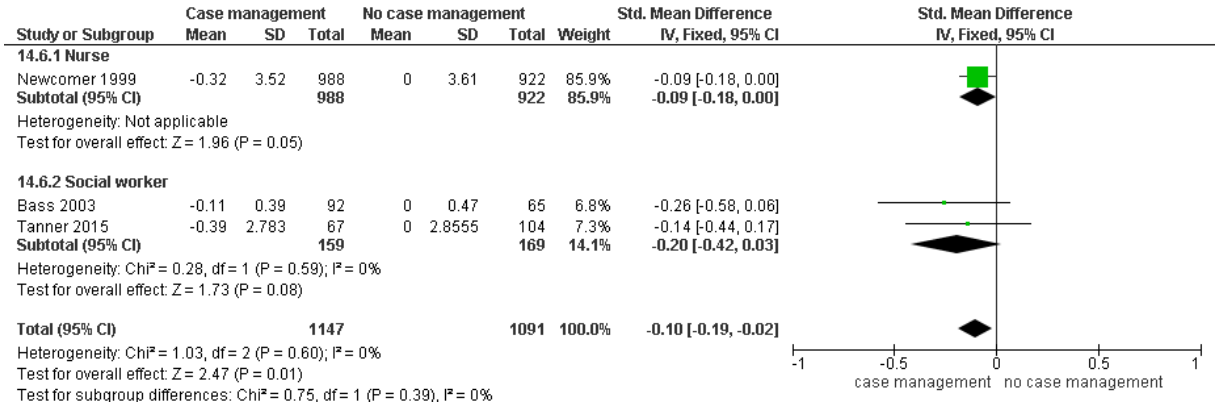
QoL of person living with dementia



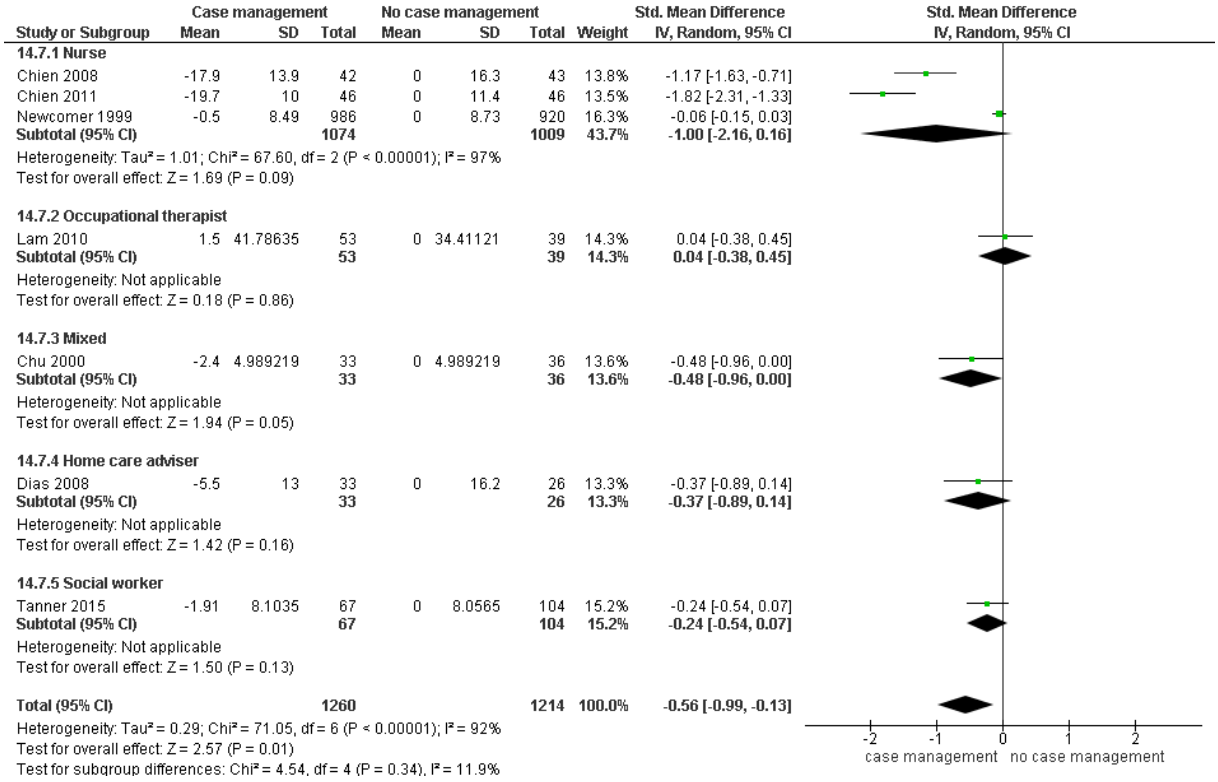
Behavioral and psychological symptoms of dementia



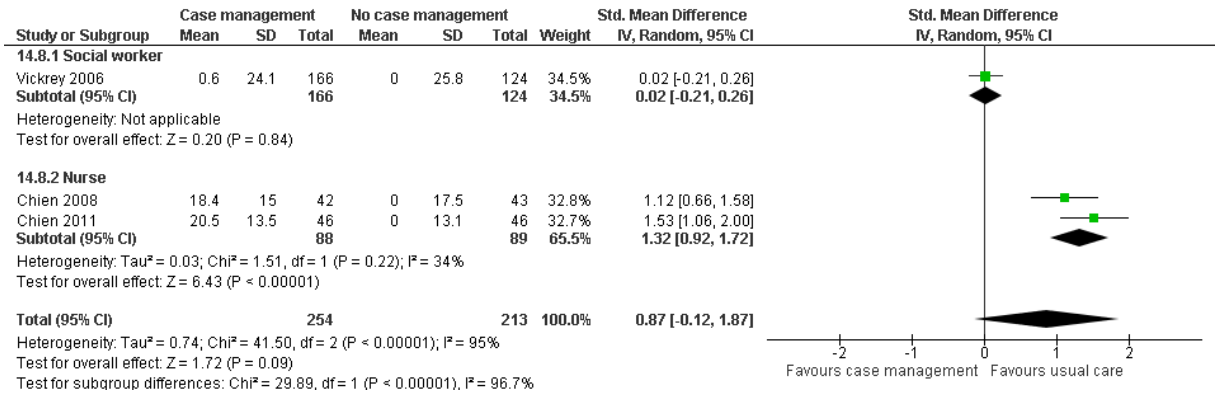
Caregiver depression



Caregiver burden

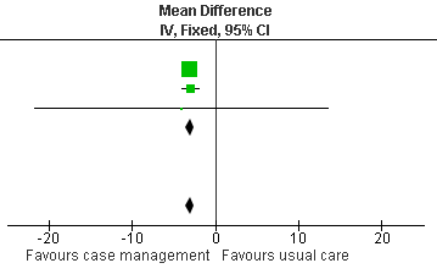


QoL of caregiver



Rate of institutionalisation (number of institutionalisations over a 6-month period or cumulative long-term institutionalisation)

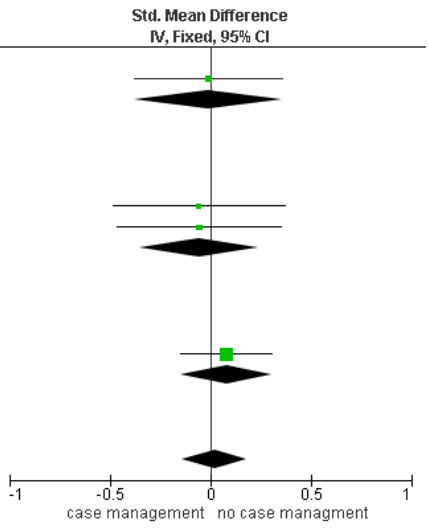
Study or Subgroup	Case management Mean	SD	Total	No case management Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
14.9.1 Nurse								
Chien 2008	-3.1	1.1	42	0	2.1	43	66.5%	-3.10 [-3.81, -2.39]
Chien 2011	-3	1.9	46	0	2.9	46	33.4%	-3.00 [-4.00, -2.00]
Eloniemi-Sulkava 2009	24.2	52.64505	63	28.3	47.60561	62	0.1%	-4.10 [-21.69, 13.49]
Subtotal (95% CI)			**151**			**151**	**100.0%**	**-3.07 [-3.65, -2.49]**
Heterogeneity: Chi² = 0.04, df = 2 (P = 0.98); I² = 0%								
Test for overall effect: Z = 10.38 (P < 0.00001)								
Total (95% CI)			**151**			**151**	**100.0%**	**-3.07 [-3.65, -2.49]**
Heterogeneity: Chi² = 0.04, df = 2 (P = 0.98); I² = 0%								
Test for overall effect: Z = 10.38 (P < 0.00001)								
Test for subgroup differences: Not applicable								



H.3.1.5 Case management: combined, follow-up contact method

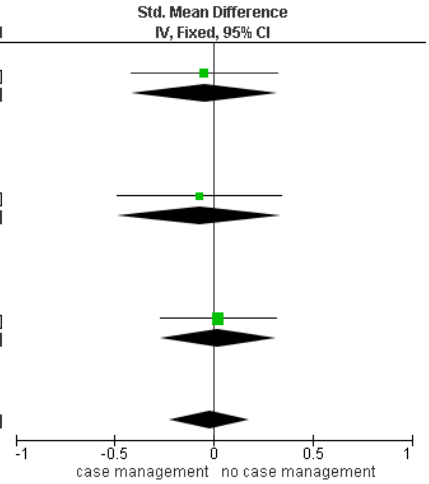
Cognition

Study or Subgroup	Case management Mean	SD	Total	No case management Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
15.1.1 Clinic								
Callahan 2006	-0.1	9.5	65	0	9	49	18.8%	-0.01 [-0.38, 0.36]
Subtotal (95% CI)			**65**			**49**	**18.8%**	**-0.01 [-0.38, 0.36]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.06 (P = 0.95)								
15.1.2 Home								
Chien 2008	-0.3	5.8	42	0	4.8	43	14.3%	-0.06 [-0.48, 0.37]
Chien 2011	-0.2	3.9	46	0	3.4	46	15.5%	-0.05 [-0.46, 0.35]
Subtotal (95% CI)			**88**			**89**	**29.7%**	**-0.06 [-0.35, 0.24]**
Heterogeneity: Chi² = 0.00, df = 1 (P = 1.00); I² = 0%								
Test for overall effect: Z = 0.37 (P = 0.71)								
15.1.3 Telephone								
Bass 2015	0.29	3.61	206	0	3.74	122	51.5%	0.08 [-0.14, 0.30]
Subtotal (95% CI)			**206**			**122**	**51.5%**	**0.08 [-0.14, 0.30]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.69 (P = 0.49)								
Total (95% CI)			**359**			**260**	**100.0%**	**0.02 [-0.14, 0.18]**
Heterogeneity: Chi² = 0.54, df = 3 (P = 0.91); I² = 0%								
Test for overall effect: Z = 0.27 (P = 0.79)								
Test for subgroup differences: Chi² = 0.54, df = 2 (P = 0.76), I² = 0%								

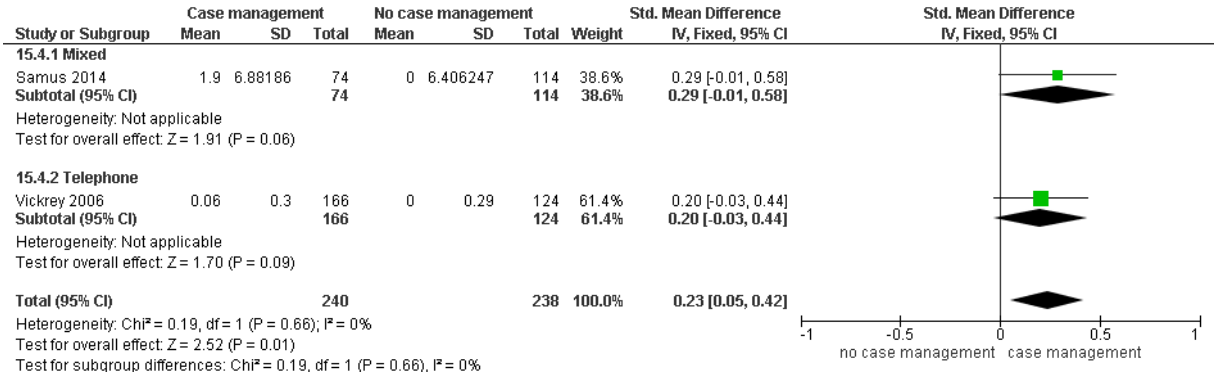


Depression of the person living with dementia

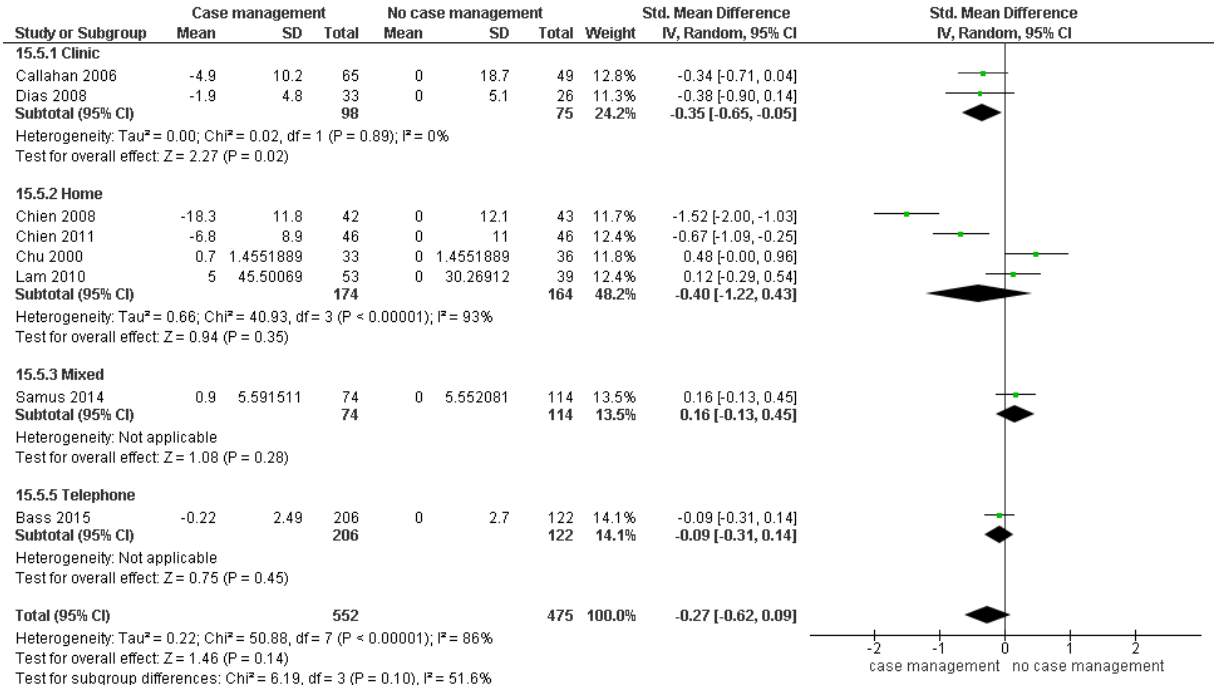
Study or Subgroup	Case management Mean	SD	Total	No case management Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
15.3.1 Clinic								
Callahan 2006	-0.2	3.9	65	0	4.4	49	29.3%	-0.05 [-0.42, 0.32]
Subtotal (95% CI)			**65**			**49**	**29.3%**	**-0.05 [-0.42, 0.32]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.25 (P = 0.80)								
15.3.2 Home								
Lam 2010	-0.5	7.057249	53	0	6.372447	39	23.6%	-0.07 [-0.49, 0.34]
Subtotal (95% CI)			**53**			**39**	**23.6%**	**-0.07 [-0.49, 0.34]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.35 (P = 0.73)								
15.3.3 Mixed								
Samus 2014	0.1	4.989349	74	0	4.911456	114	47.1%	0.02 [-0.27, 0.31]
Subtotal (95% CI)			**74**			**114**	**47.1%**	**0.02 [-0.27, 0.31]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.13 (P = 0.89)								
Total (95% CI)			**192**			**202**	**100.0%**	**-0.02 [-0.22, 0.18]**
Heterogeneity: Chi² = 0.16, df = 2 (P = 0.92); I² = 0%								
Test for overall effect: Z = 0.21 (P = 0.83)								
Test for subgroup differences: Chi² = 0.16, df = 2 (P = 0.92), I² = 0%								



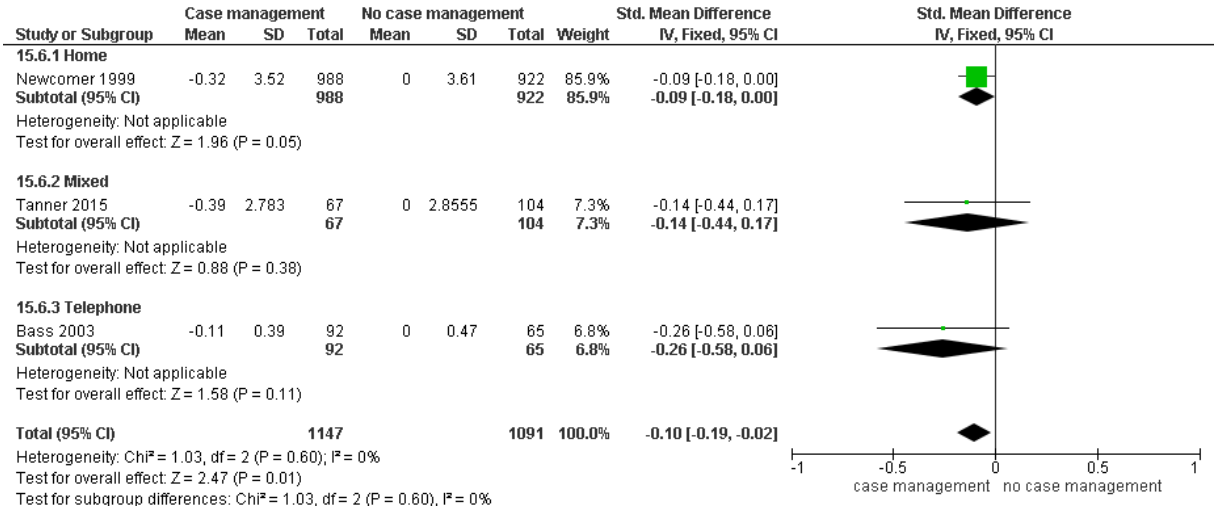
QoL of person living with dementia



Behavioral and psychological symptoms of dementia

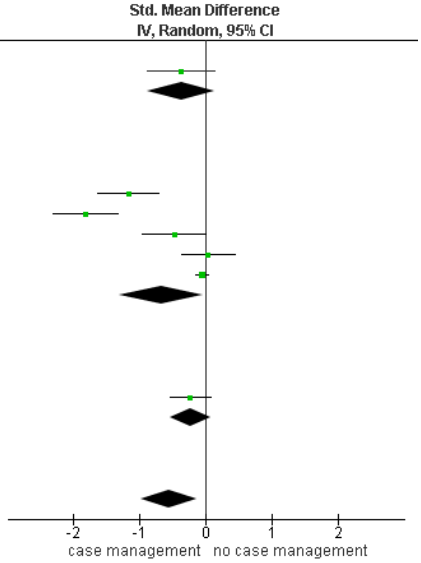


Caregiver depression



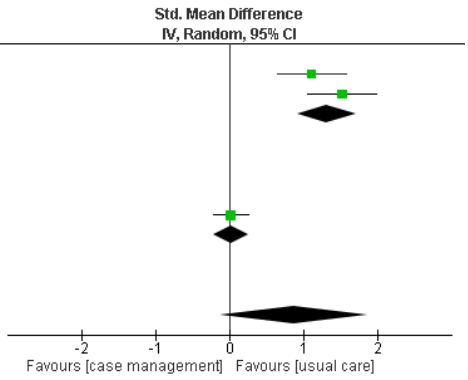
Caregiver burden

Study or Subgroup	Case management Mean	SD	Total	No case management Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
15.7.1 Clinic								
Dias 2008	-5.5	13	33	0	16.2	26	13.3%	-0.37 [-0.89, 0.14]
Subtotal (95% CI)			**33**			**26**	**13.3%**	**-0.37 [-0.89, 0.14]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 1.42 (P = 0.16)								
15.7.3 Home								
Chien 2008	-17.9	13.9	42	0	16.3	43	13.8%	-1.17 [-1.63, -0.71]
Chien 2011	-19.7	10	46	0	11.4	46	13.5%	-1.82 [-2.31, -1.33]
Chu 2000	-2.4	4.989219	33	0	4.989219	36	13.6%	-0.48 [-0.96, 0.00]
Lam 2010	1.5	41.78635	53	0	34.41121	39	14.3%	0.04 [-0.38, 0.45]
Newcomer 1999	-0.5	8.49	986	0	8.73	920	16.3%	-0.06 [-0.15, 0.03]
Subtotal (95% CI)			**1160**			**1084**	**71.6%**	**-0.68 [-1.32, -0.04]**
Heterogeneity: Tau² = 0.49; Chi² = 70.16, df = 4 (P < 0.00001); I² = 94%								
Test for overall effect: Z = 2.07 (P = 0.04)								
15.7.4 Mixed								
Tanner 2015	-1.91	8.1035	67	0	8.0565	104	15.2%	-0.24 [-0.54, 0.07]
Subtotal (95% CI)			**67**			**104**	**15.2%**	**-0.24 [-0.54, 0.07]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 1.50 (P = 0.13)								
Total (95% CI)			**1260**			**1214**	**100.0%**	**-0.56 [-0.99, -0.13]**
Heterogeneity: Tau² = 0.29; Chi² = 71.05, df = 6 (P < 0.00001); I² = 92%								
Test for overall effect: Z = 2.57 (P = 0.01)								
Test for subgroup differences: Chi² = 1.52, df = 2 (P = 0.47), I² = 0%								



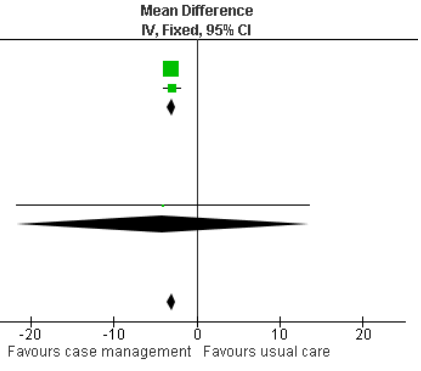
QoL of caregiver

Study or Subgroup	Case management Mean	SD	Total	No case management Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
15.8.1 Home								
Chien 2008	18.4	15	42	0	17.5	43	32.8%	1.12 [0.66, 1.58]
Chien 2011	20.5	13.5	46	0	13.1	46	32.7%	1.53 [1.06, 2.00]
Subtotal (95% CI)			**88**			**89**	**65.5%**	**1.32 [0.92, 1.72]**
Heterogeneity: Tau² = 0.03; Chi² = 1.51, df = 1 (P = 0.22); I² = 34%								
Test for overall effect: Z = 6.43 (P < 0.00001)								
15.8.2 Telephone								
Vickrey 2006	0.6	24.1	166	0	25.8	124	34.5%	0.02 [-0.21, 0.26]
Subtotal (95% CI)			**166**			**124**	**34.5%**	**0.02 [-0.21, 0.26]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.20 (P = 0.84)								
Total (95% CI)			**254**			**213**	**100.0%**	**0.87 [-0.12, 1.87]**
Heterogeneity: Tau² = 0.74; Chi² = 41.50, df = 2 (P < 0.00001); I² = 95%								
Test for overall effect: Z = 1.72 (P = 0.09)								
Test for subgroup differences: Chi² = 29.89, df = 1 (P < 0.00001), I² = 96.7%								



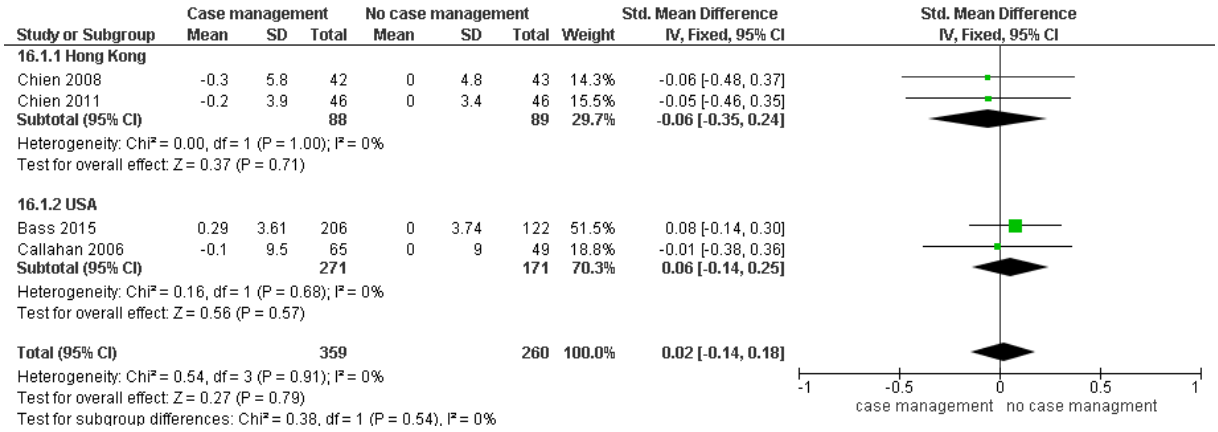
Rate of institutionalisation (number of institutionalisations over a 6-month period or cumulative long-term institutionalisation)

Study or Subgroup	Case management Mean	SD	Total	No case management Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
15.9.1 Home								
Chien 2008	-3.1	1.1	42	0	2.1	43	66.5%	-3.10 [-3.81, -2.39]
Chien 2011	-3	1.9	46	0	2.9	46	33.4%	-3.00 [-4.00, -2.00]
Subtotal (95% CI)			**88**			**89**	**99.9%**	**-3.07 [-3.65, -2.49]**
Heterogeneity: Chi² = 0.03, df = 1 (P = 0.87); I² = 0%								
Test for overall effect: Z = 10.37 (P < 0.00001)								
15.9.3 Mixed								
Eloniemi-Sulkava 2009	24.2	52.64505	63	28.3	47.60561	62	0.1%	-4.10 [-21.69, 13.49]
Subtotal (95% CI)			**63**			**62**	**0.1%**	**-4.10 [-21.69, 13.49]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.46 (P = 0.65)								
Total (95% CI)			**151**			**151**	**100.0%**	**-3.07 [-3.65, -2.49]**
Heterogeneity: Chi² = 0.04, df = 2 (P = 0.98); I² = 0%								
Test for overall effect: Z = 10.38 (P < 0.00001)								
Test for subgroup differences: Chi² = 0.01, df = 1 (P = 0.91), I² = 0%								

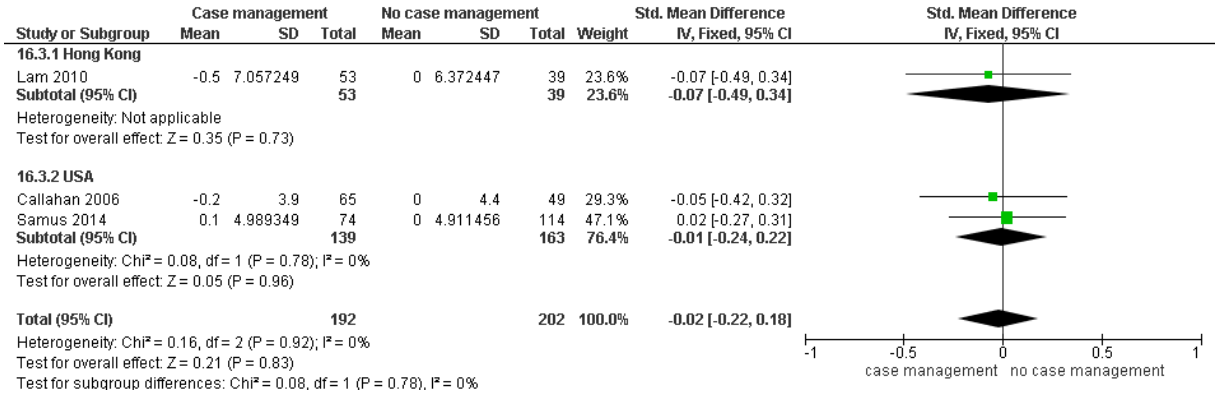


H.3.1.6 Case management: combined, by country

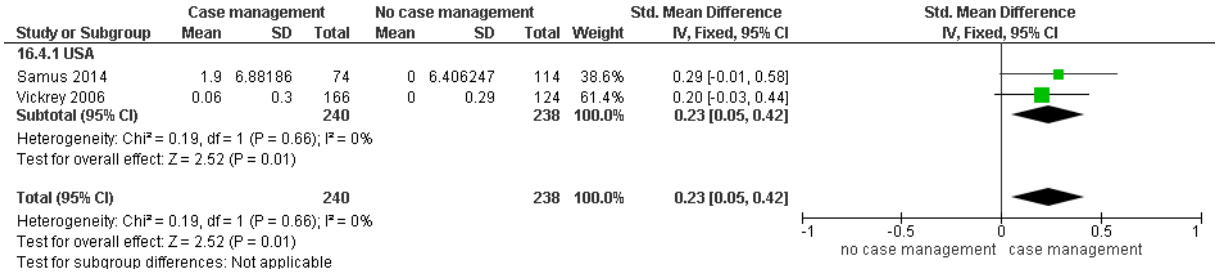
Cognition



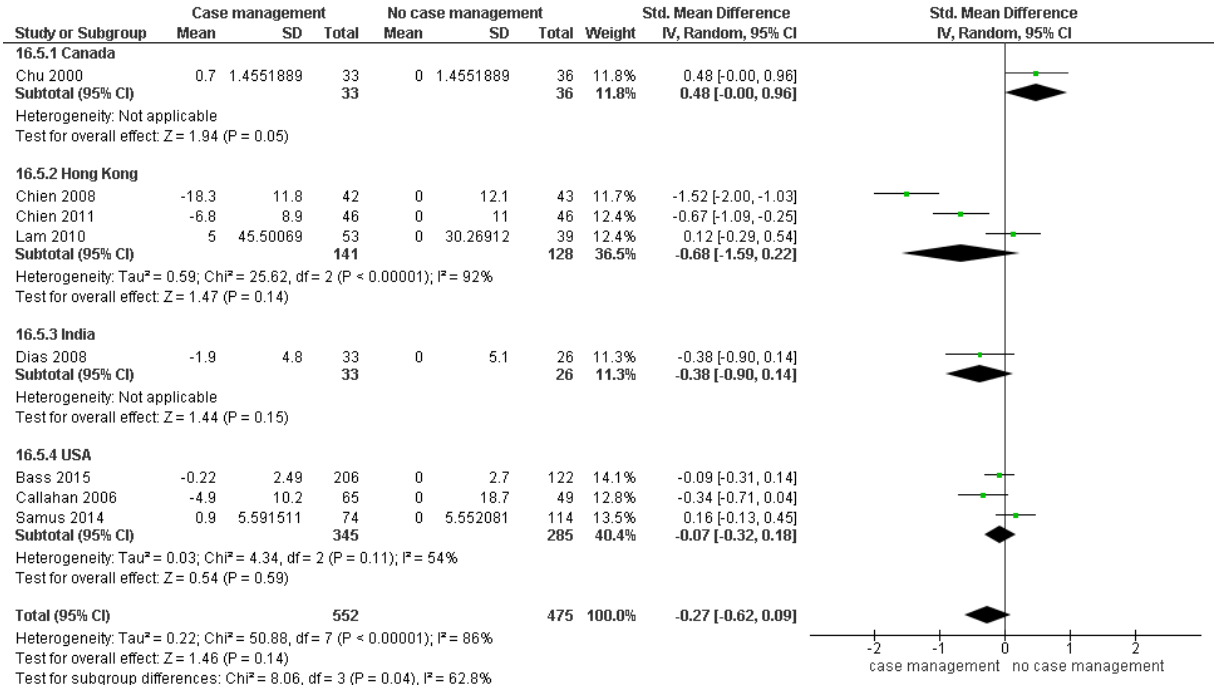
Depression of the person living with dementia



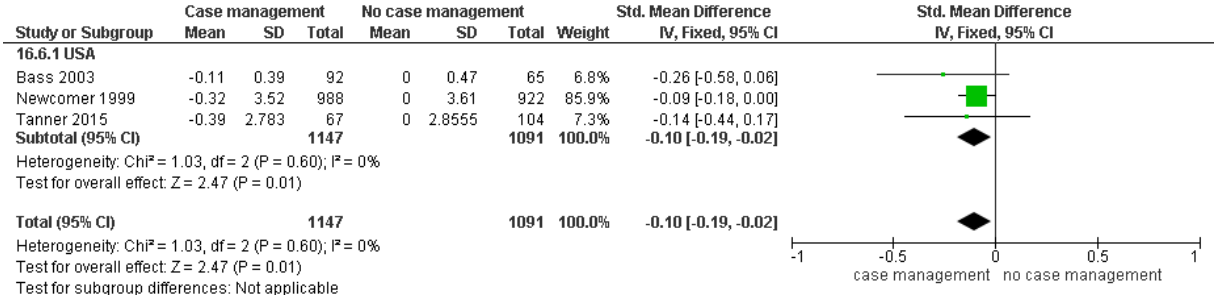
QoL of person living with dementia



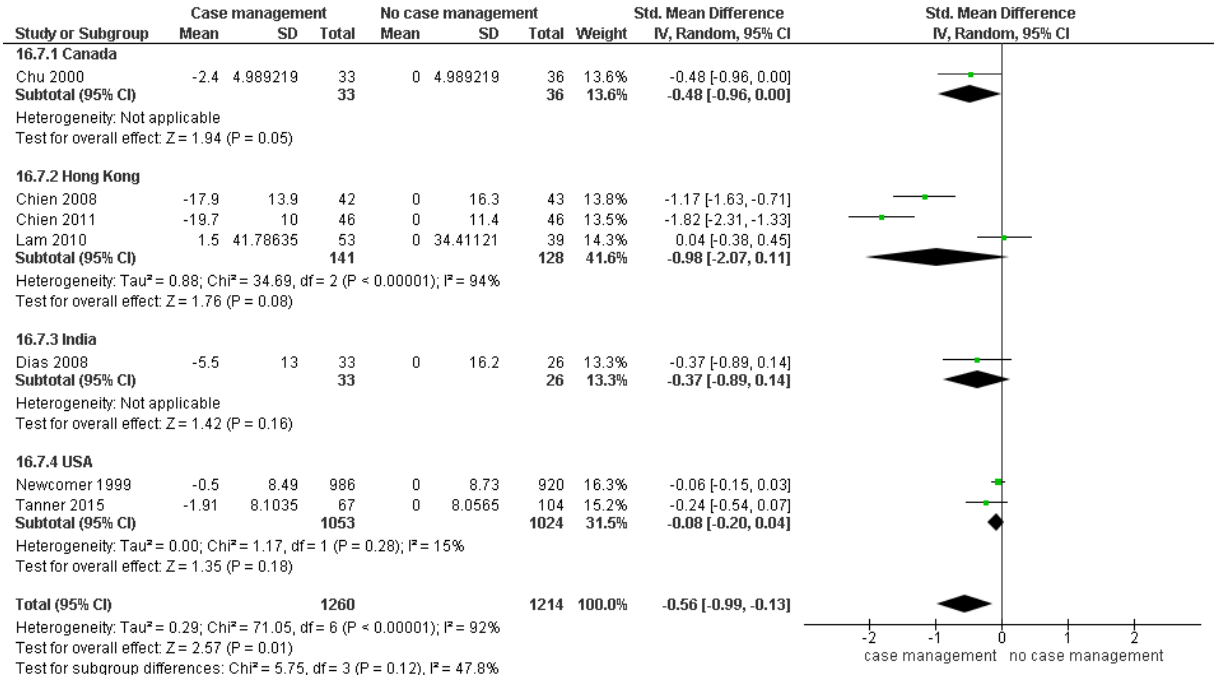
Behavioral and psychological symptoms of dementia



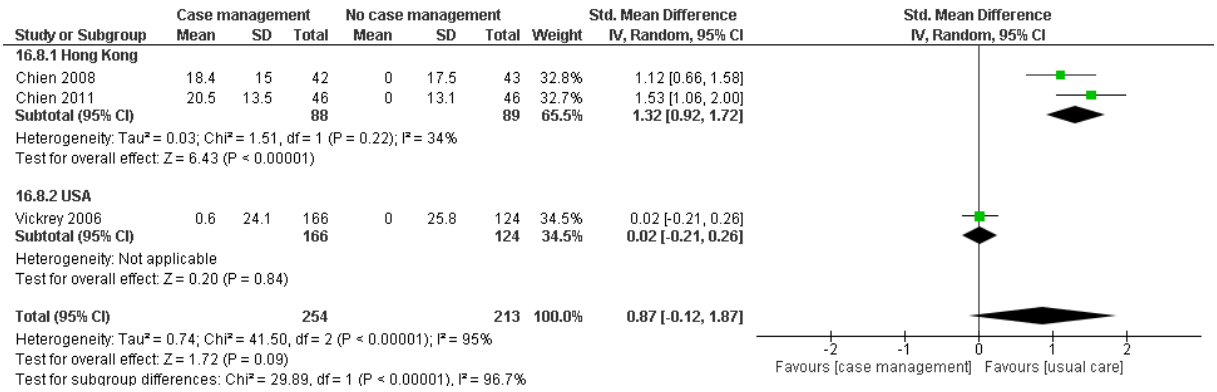
Caregiver depression



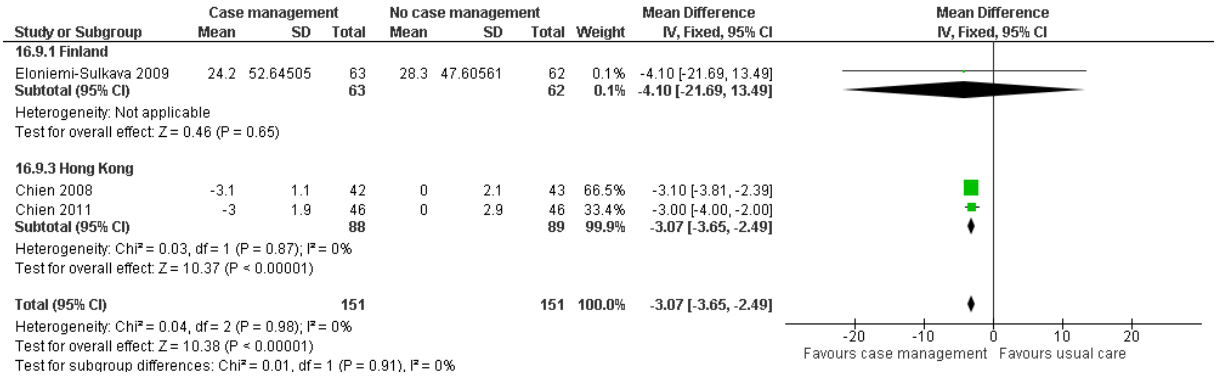
Caregiver burden



QoL of caregiver



Rate of institutionalisation (number of institutionalisations over a 6-month period or cumulative long-term institutionalisation)



H.3.2 Post diagnosis review for people living with dementia

- How should people living with dementia be reviewed post diagnosis?

No meta-analyses were performed

H.4 Inpatient care

H.4.1 Caring for people living with dementia who are admitted to hospital

- How should people living with dementia be cared for when admitted to hospital?

No meta-analyses were performed

H.5 Care setting transitions

H.5.1 Managing the transition between different settings for people living with dementia

- What are the most effective ways of managing the transition between different settings (home, care home, hospital, and respite) for people living with dementia?

No meta-analyses were performed

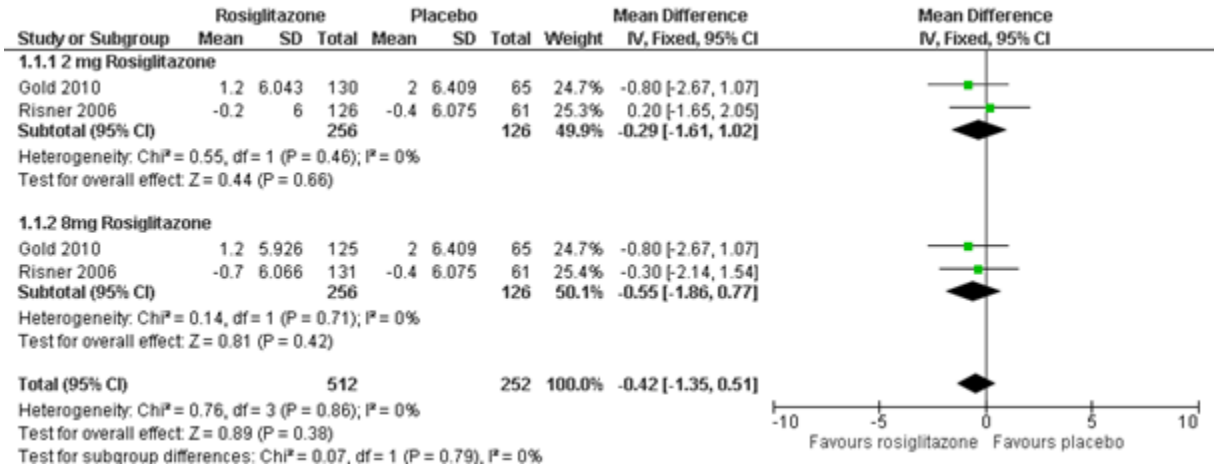
H.6 Modifying risk factors for dementia progression

H.6.1 Risk factors for dementia progression

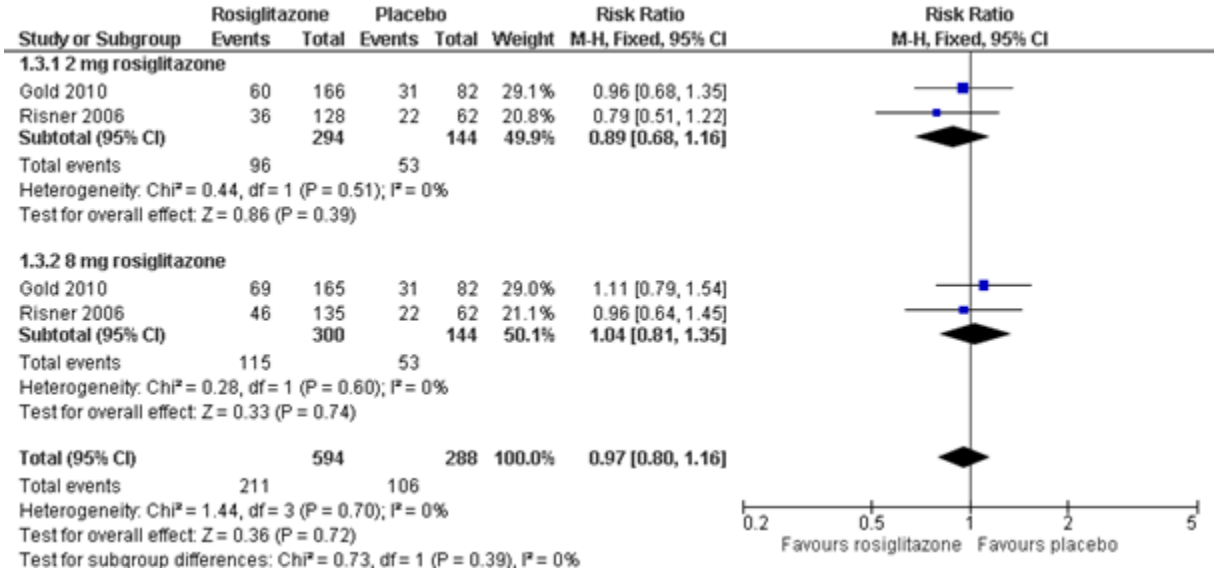
- What effect does modifying risk factors have on slowing the progression of dementia?

H.6.1.1 Antidiabetic drugs versus placebo

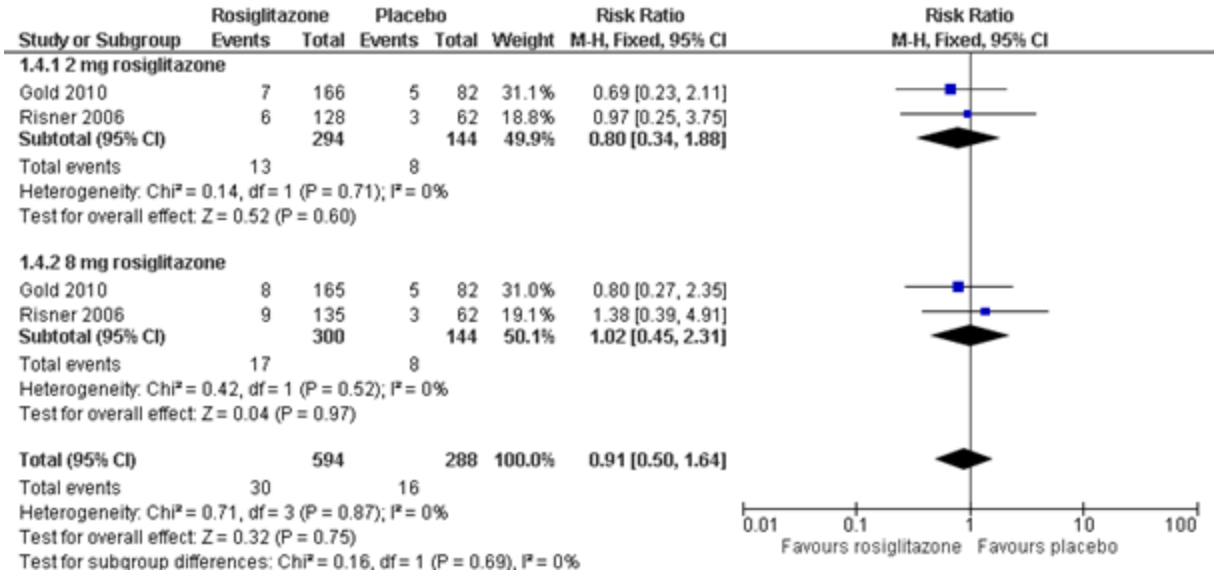
ADAS-cog (6 months)



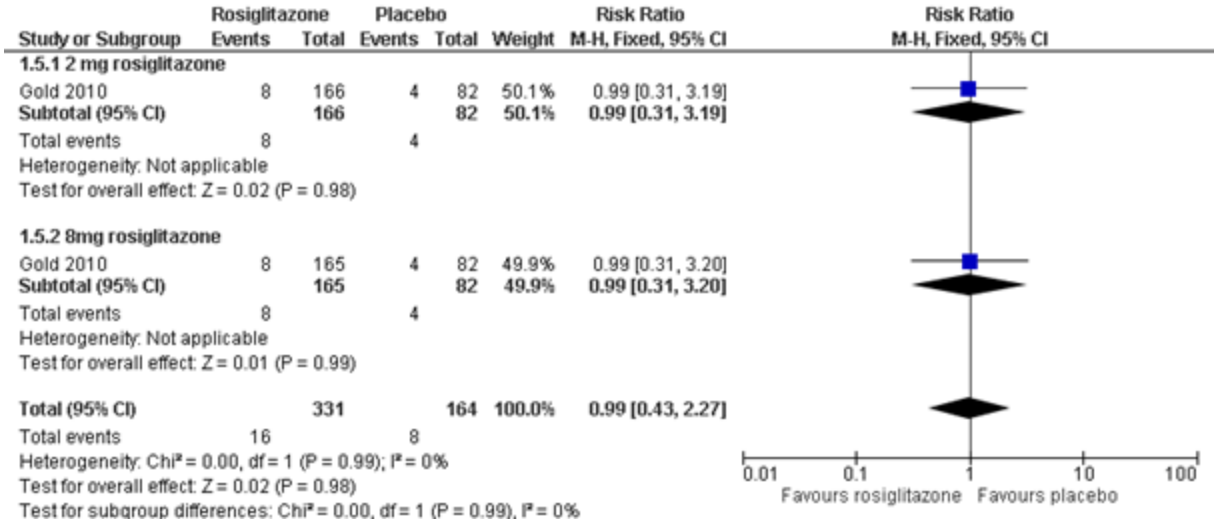
Any adverse events (6 months)



Serious adverse events (6 months)

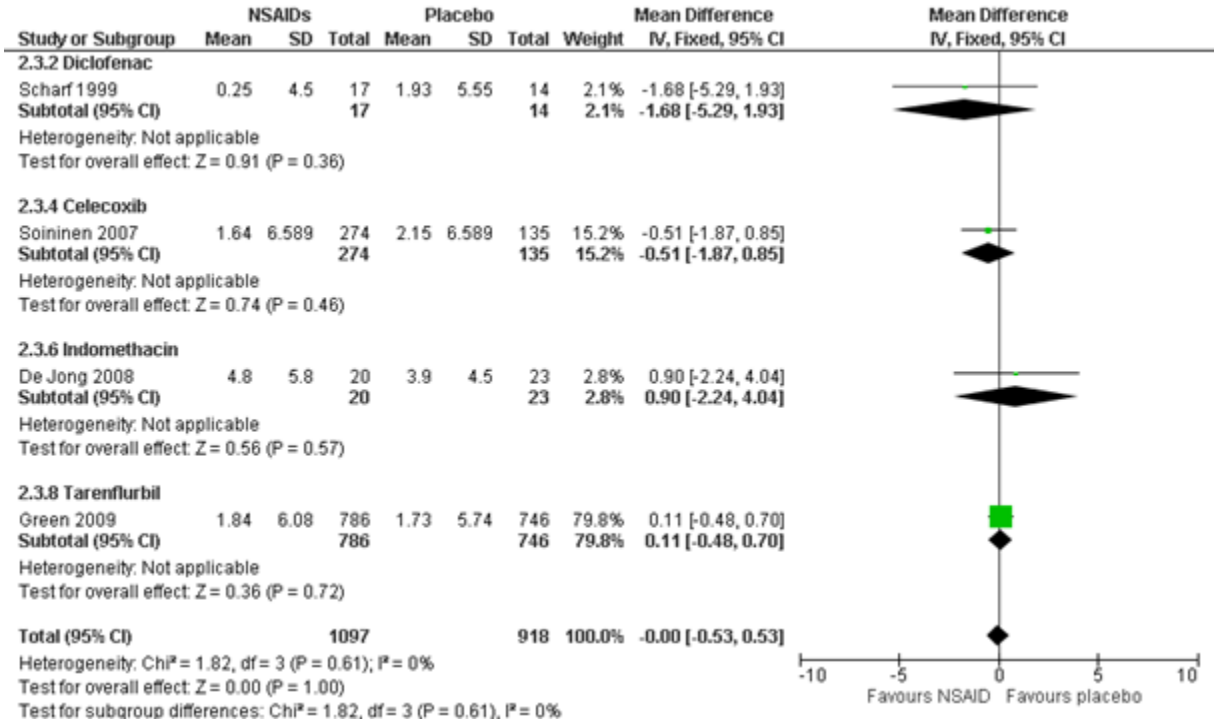


Adverse events leading to discontinuation (6 months)

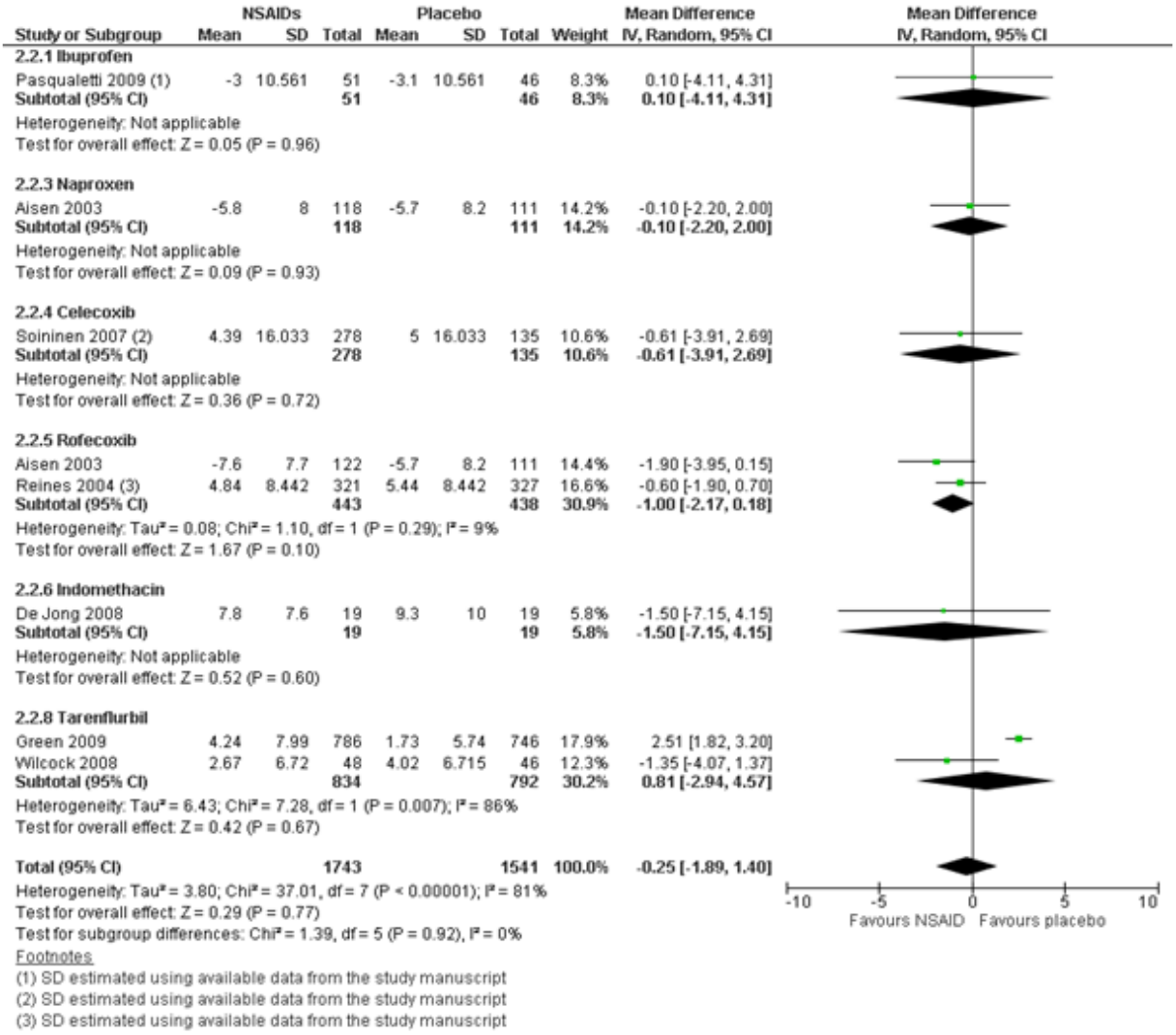


H.6.1.2 NSAIDs versus placebo

ADAS-cog (6 months)



ADAS-cog (12 months)



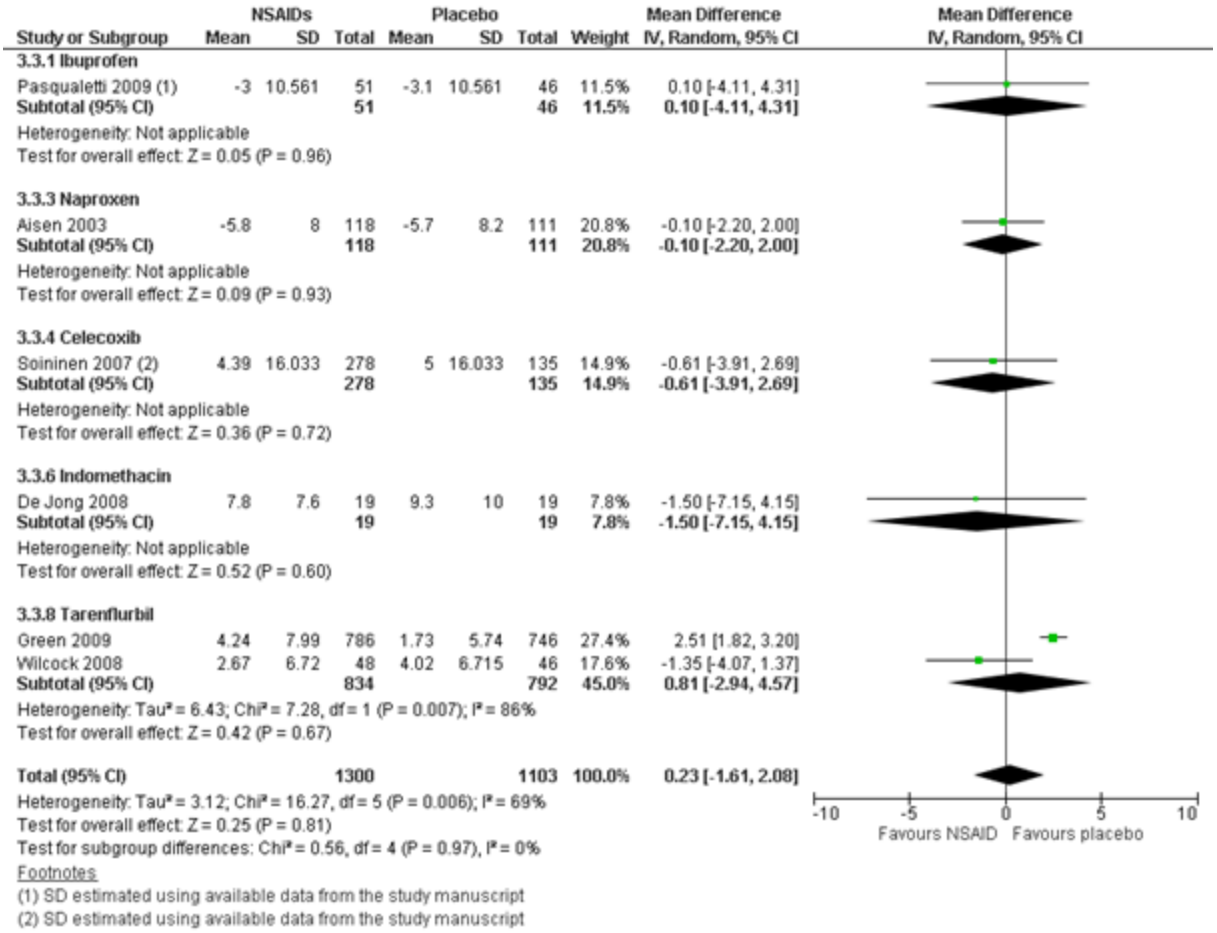
Footnotes

(1) SD estimated using available data from the study manuscript

(2) SD estimated using available data from the study manuscript

(3) SD estimated using available data from the study manuscript

ADAS-cog (12 months) – sensitivity analysis excluding rofecoxib

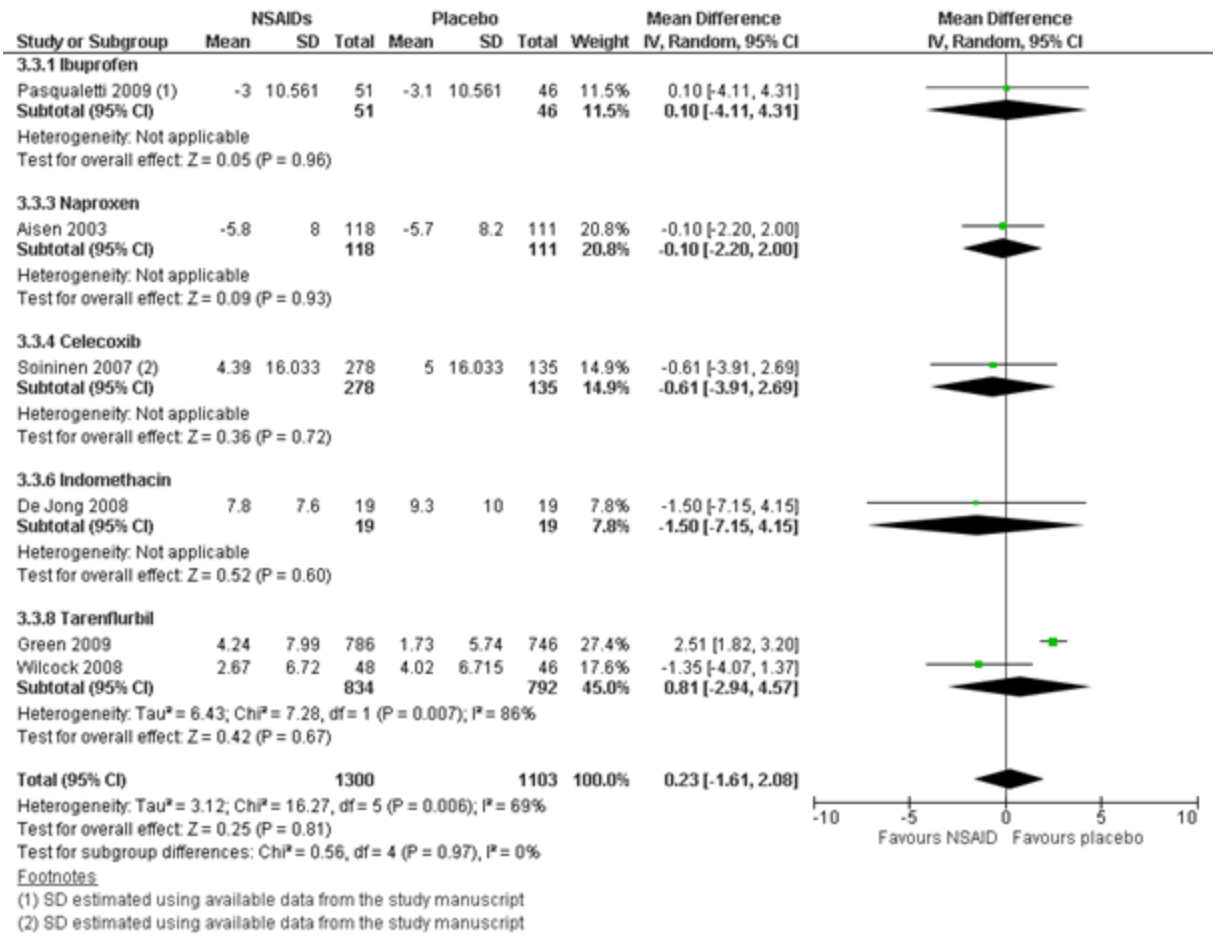


Footnotes

(1) SD estimated using available data from the study manuscript

(2) SD estimated using available data from the study manuscript

MMSE (6 months)

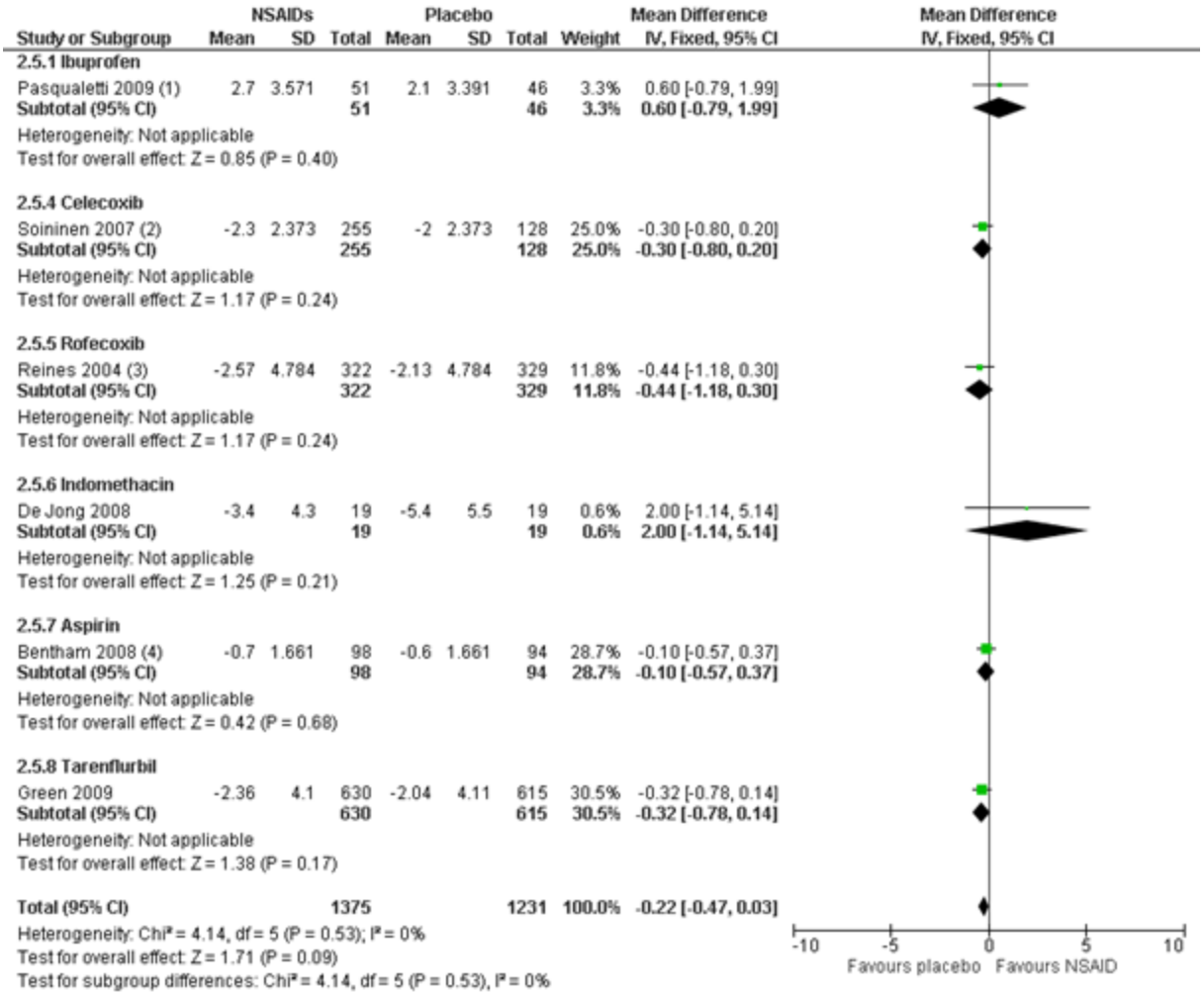


Footnotes

(1) SD estimated using available data from the study manuscript

(2) SD estimated using available data from the study manuscript

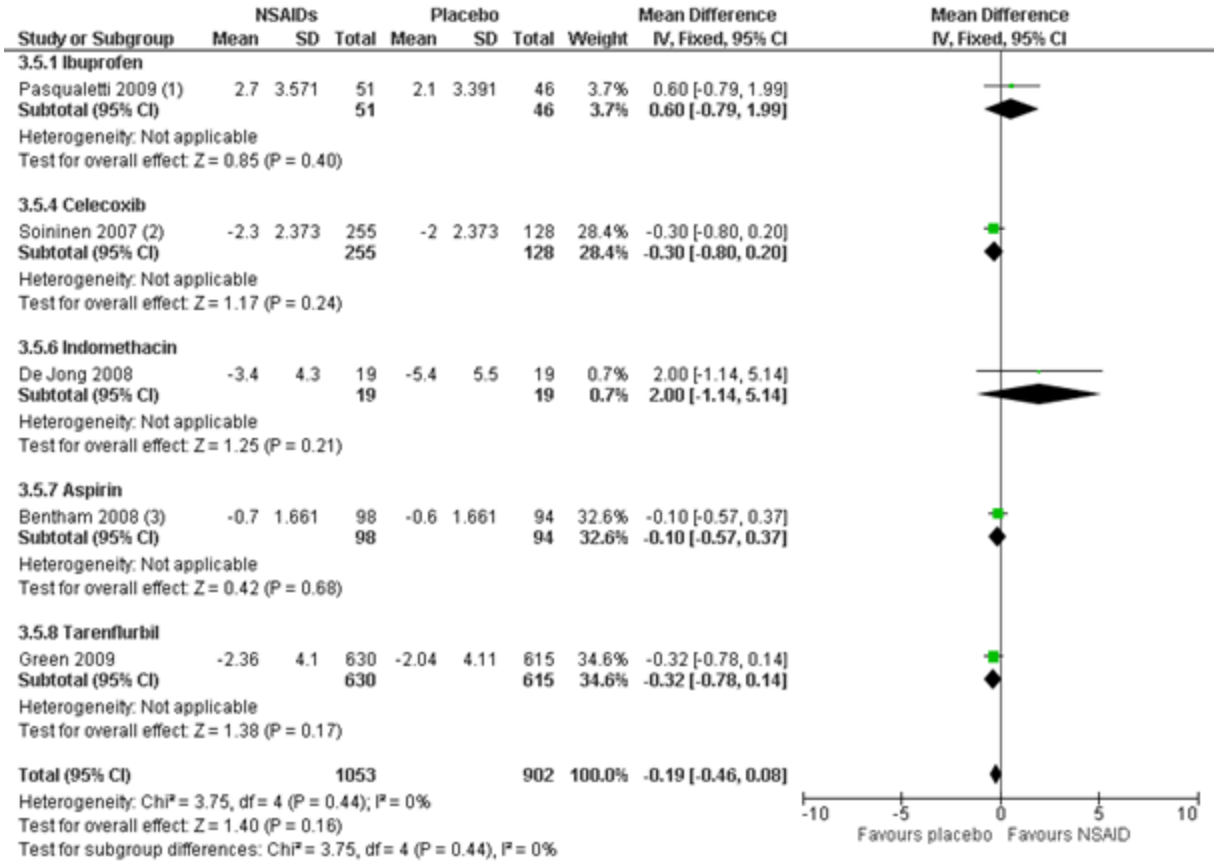
MMSE (12 months)



Footnotes

(1) SD estimated using available data from the study manuscript
(2) SD estimated using available data from the study manuscript
(3) SD estimated using available data from the study manuscript
(4) Mean changes obtained from graphs; SD estimated using available data from the study manuscript

MMSE (12 months) – sensitivity analysis excluding rofecoxib



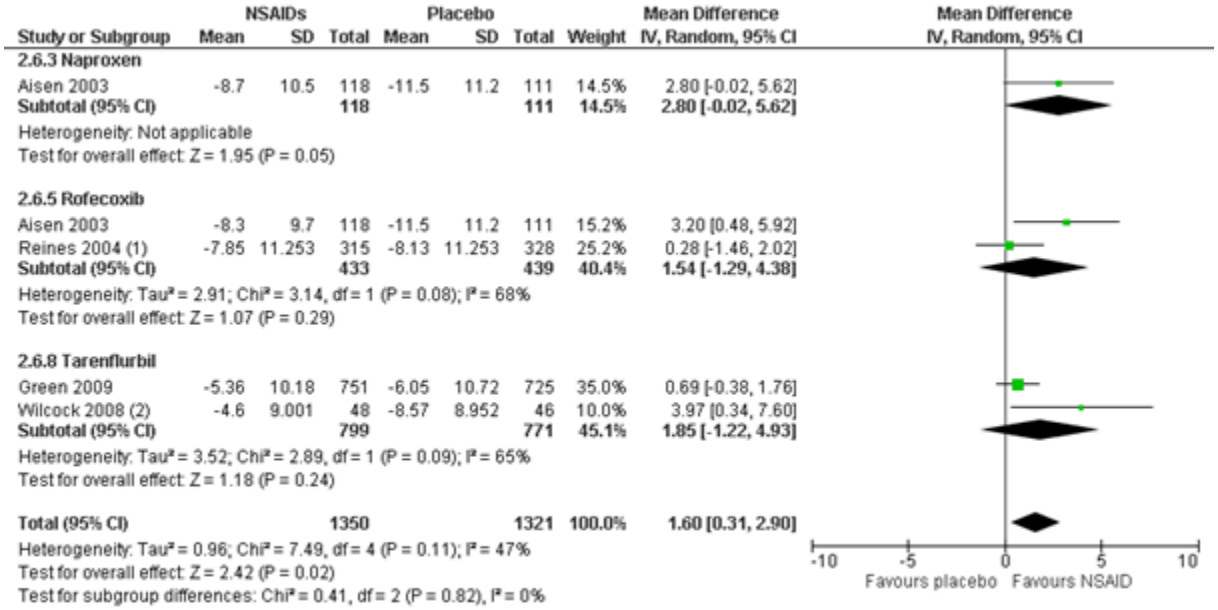
Footnotes

(1) SD estimated using available data from the study manuscript

(2) SD estimated using available data from the study manuscript

(3) Mean changes obtained from graphs; SD estimated using available data from the study manuscript

ADCS-ADL (12 months)

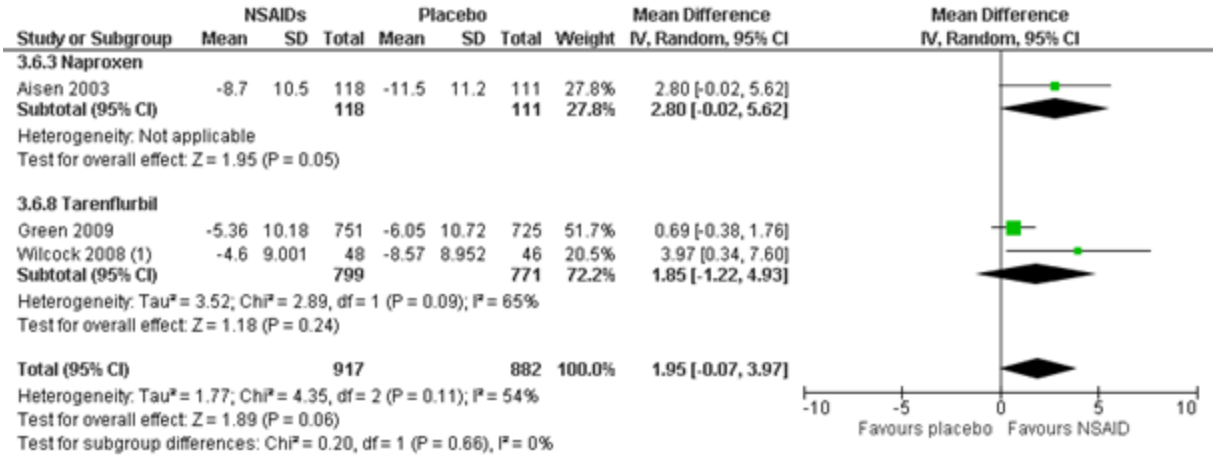


Footnotes

(1) SD estimated using available data from the study manuscript

(2) SD estimated using available data from the study manuscript

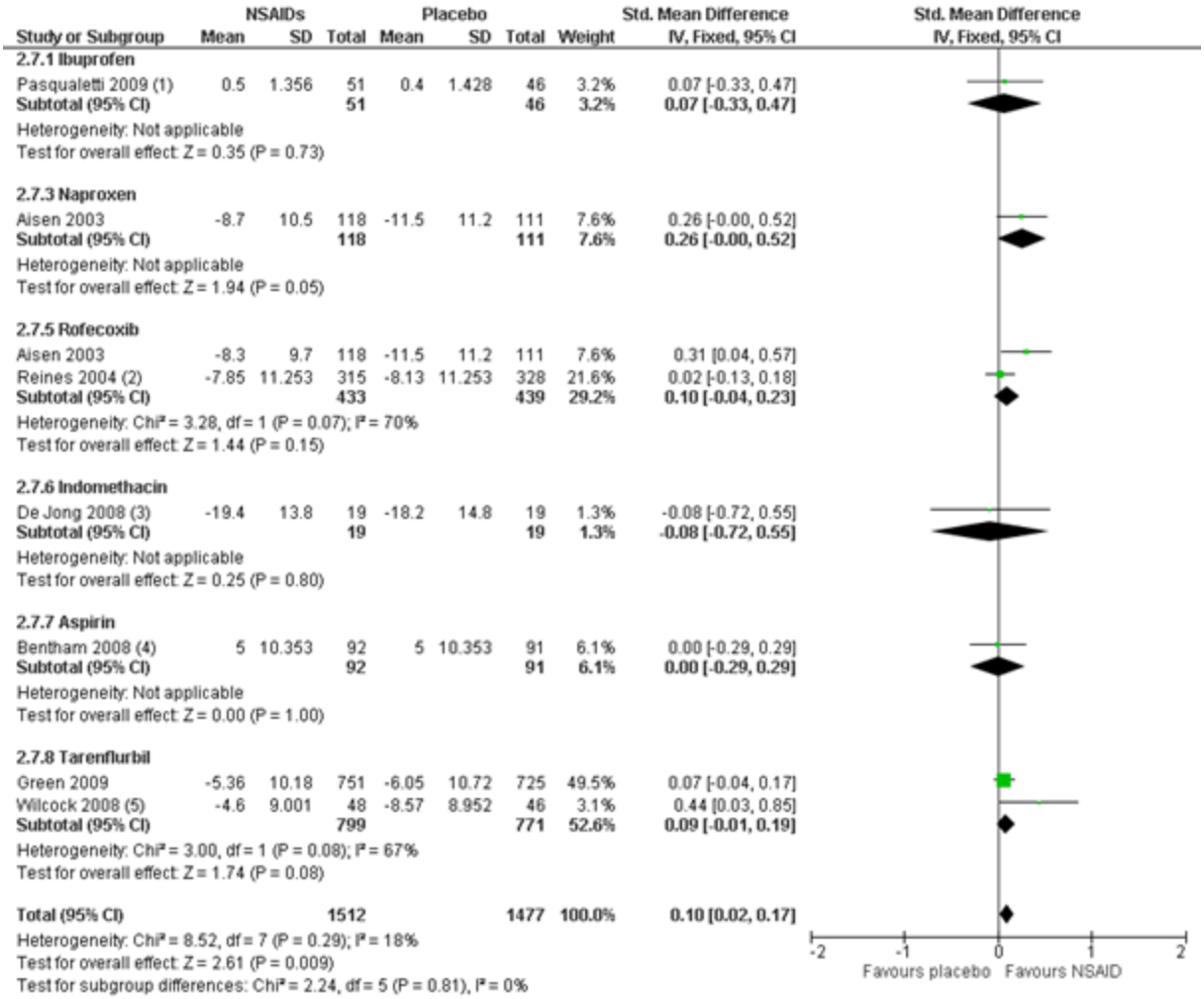
ADCS-ADL (12 months) – sensitivity analysis excluding rofecoxib



Footnotes

(1) SD estimated using available data from the study manuscript

ADCS-ADL, IDDD & BADLS (12 months: SMD)



Footnotes

(1) Changes in BADLS scores were inverted (to match the direction of scale of ADCS-ADL scores); SD estimated using available data from the study...

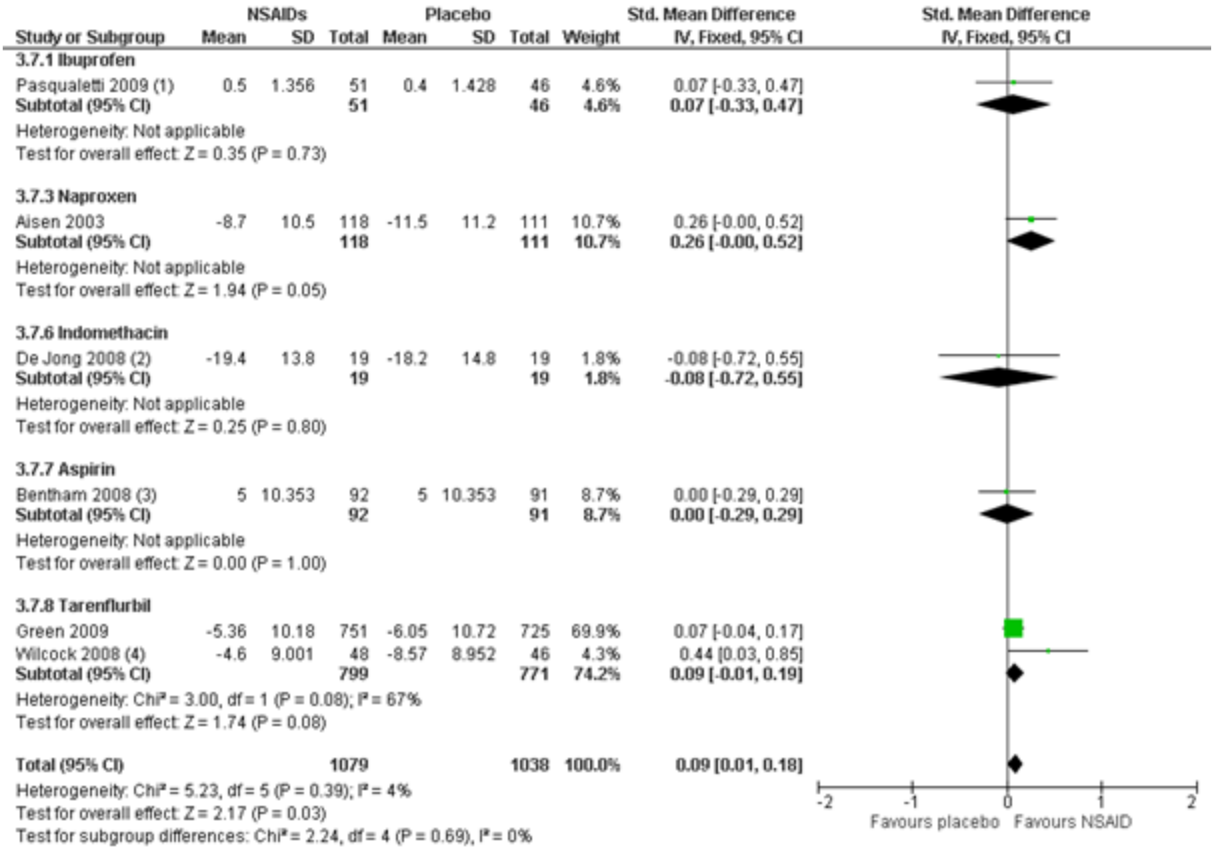
(2) SD estimated using available data from the study manuscript

(3) Changes in IDDD scores were inverted (to match the direction of scale of ADCS-ADL scores)

(4) Changes in BADLS scores were inverted (to match the direction of scale of ADCS-ADL scores); Mean changes obtained from graphs; SD estimated...

(5) SD estimated using available data from the study manuscript

ADCS-ADL, IDDD & BADLS (12 months: SMD) – sensitivity analysis excluding rofecoxib



Footnotes

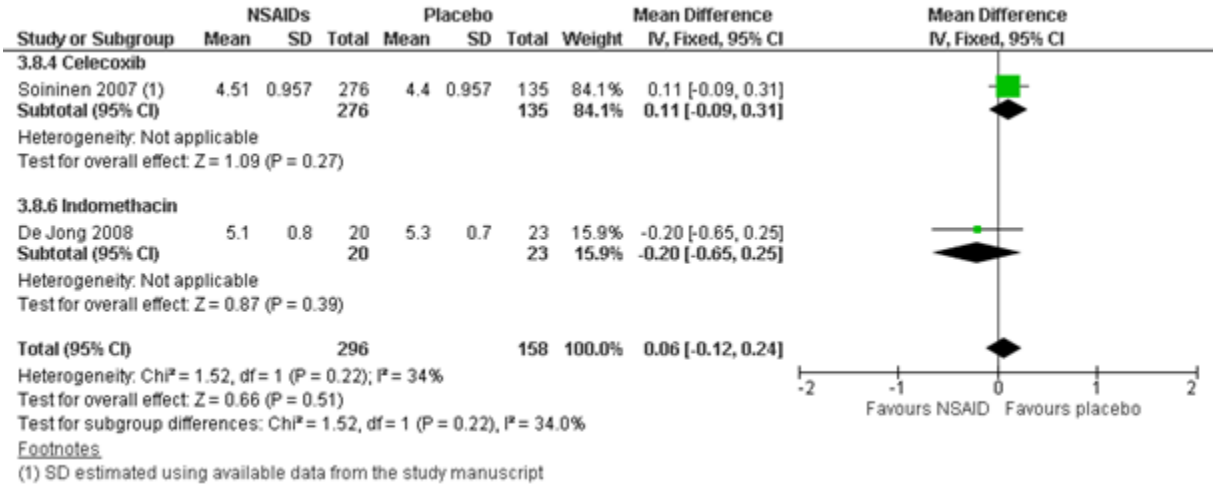
(1) Changes in BADLS scores were inverted (to match the direction of scale of ADCS-ADL scores); SD estimated using available data from the study...

(2) Changes in IDDD scores were inverted (to match the direction of scale of ADCS-ADL scores)

(3) Changes in BADLS scores were inverted (to match the direction of scale of ADCS-ADL scores); Mean changes obtained from graphs; SD estimated...

(4) SD estimated using available data from the study manuscript

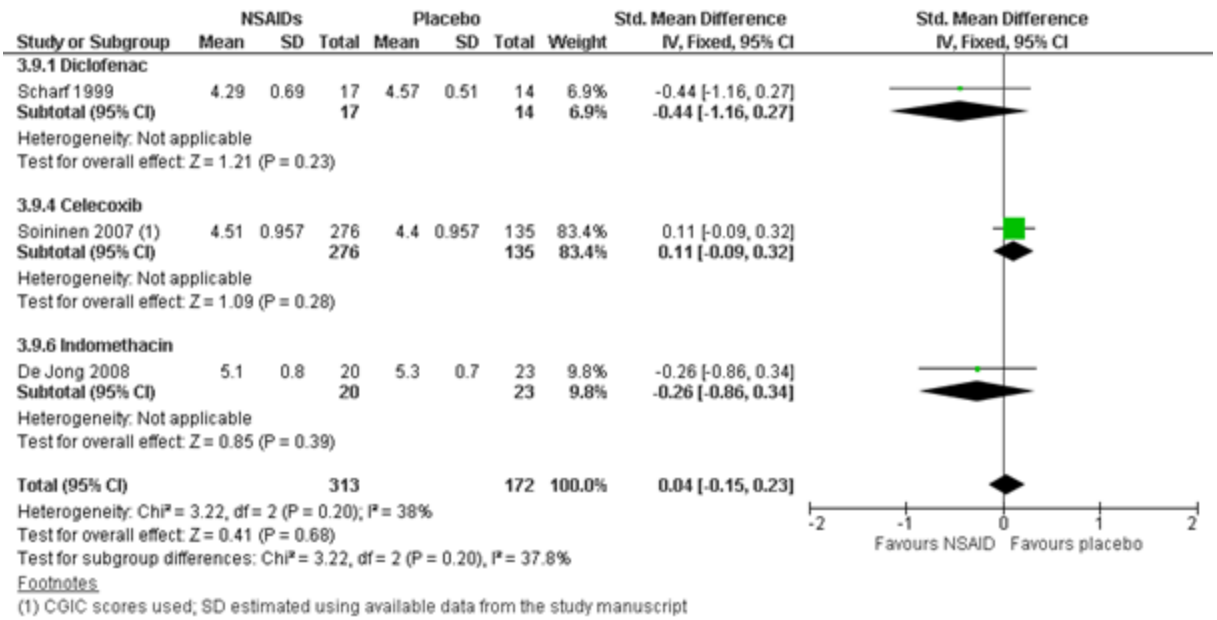
CIBIC+ (6 months)



Footnotes

(1) SD estimated using available data from the study manuscript

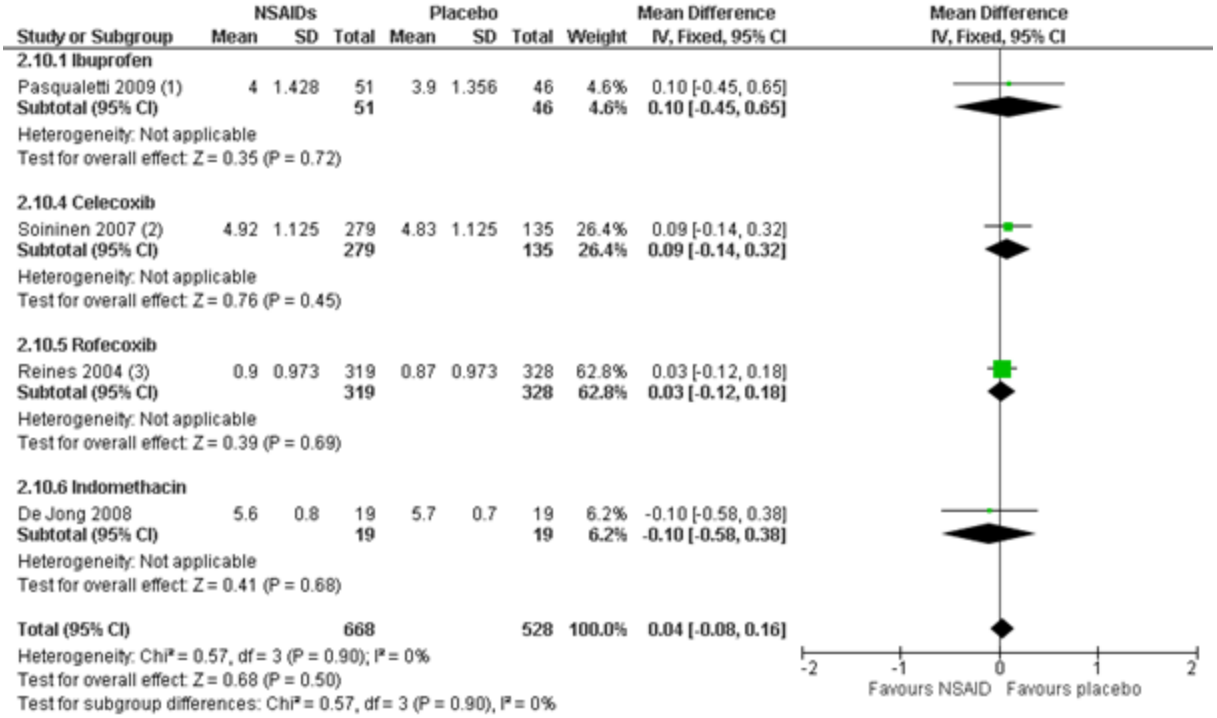
CIBIC+ & CGIC (6 months: SMD)



Footnotes

(1) CGIC scores used; SD estimated using available data from the study manuscript

CIBIC+ (12 months)



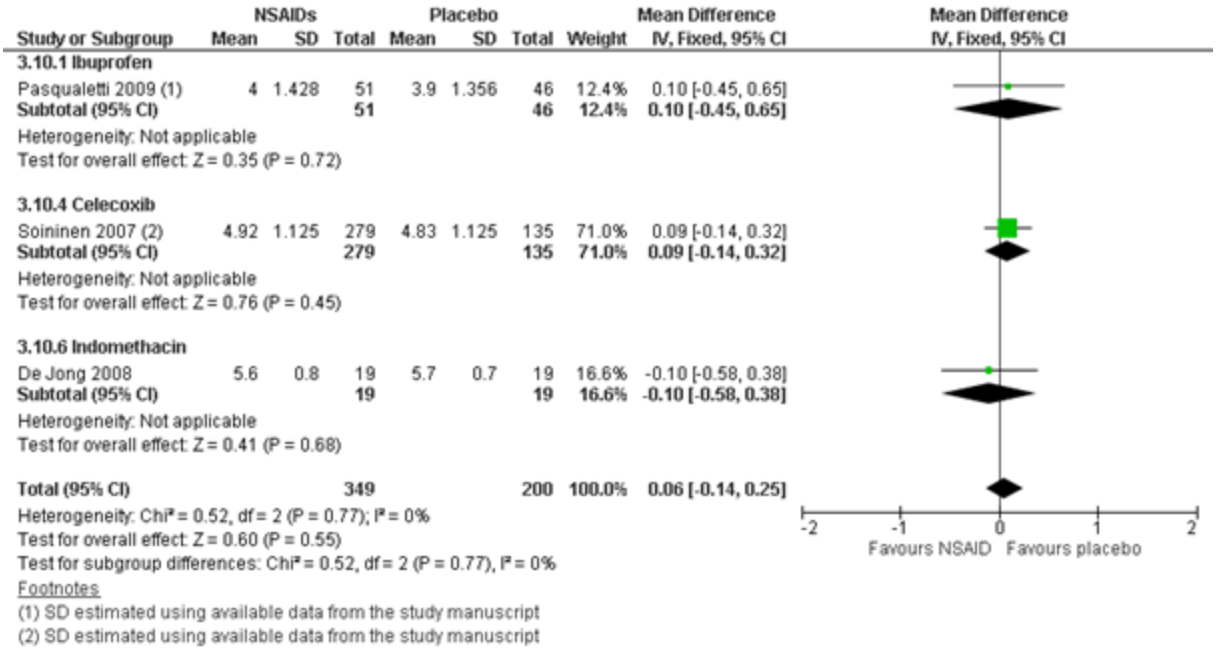
Footnotes

(1) SD estimated using available data from the study manuscript

(2) SD estimated using available data from the study manuscript

(3) SD estimated using available data from the study manuscript

CIBIC+ (12 months) - sensitivity analysis excluding rofecoxib

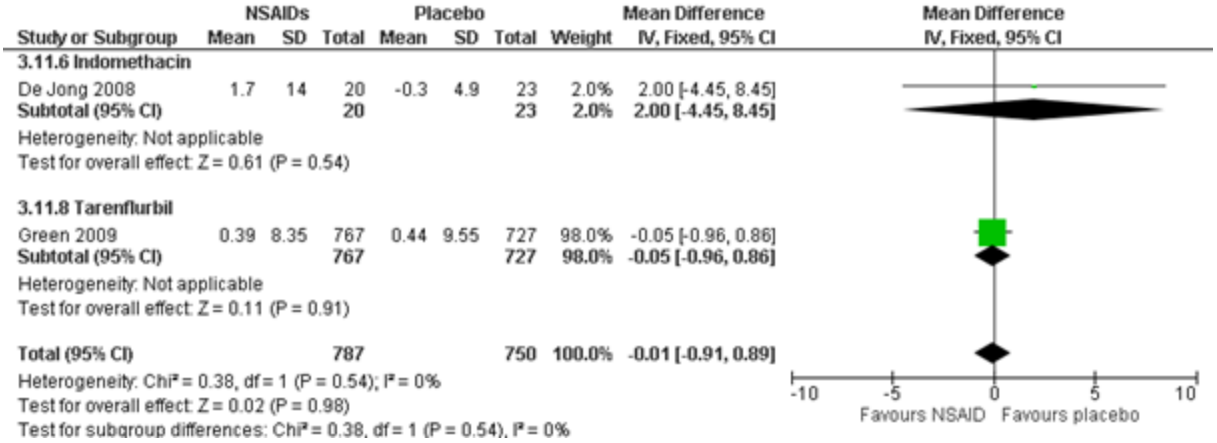


Footnotes

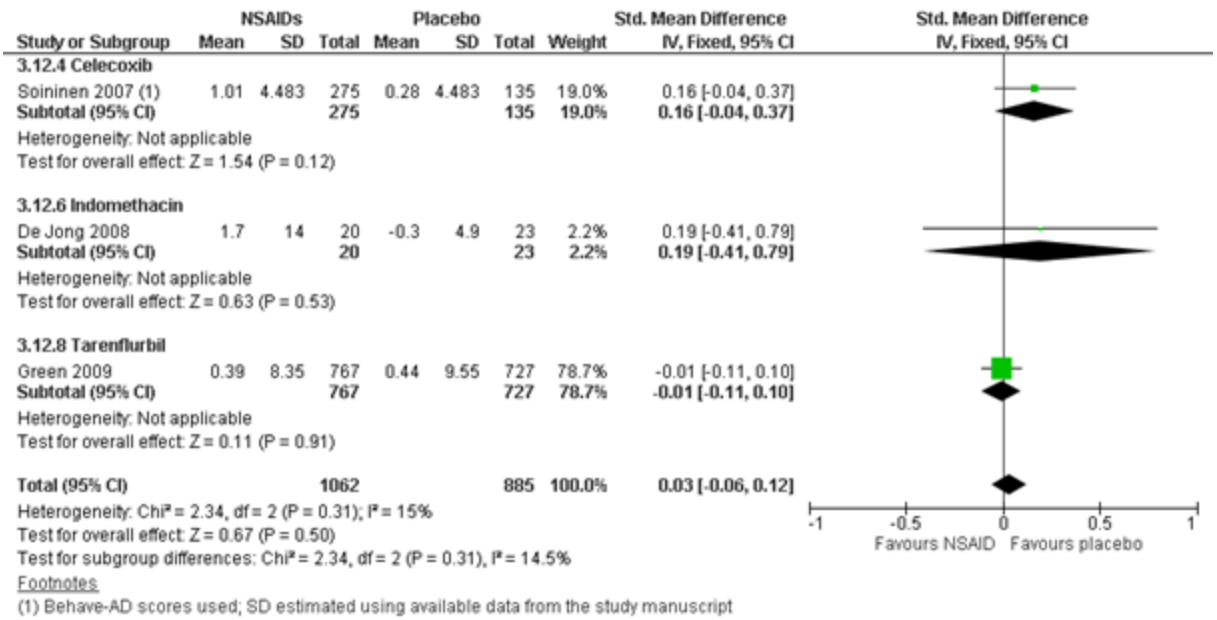
(1) SD estimated using available data from the study manuscript

(2) SD estimated using available data from the study manuscript

NPI (6 months)



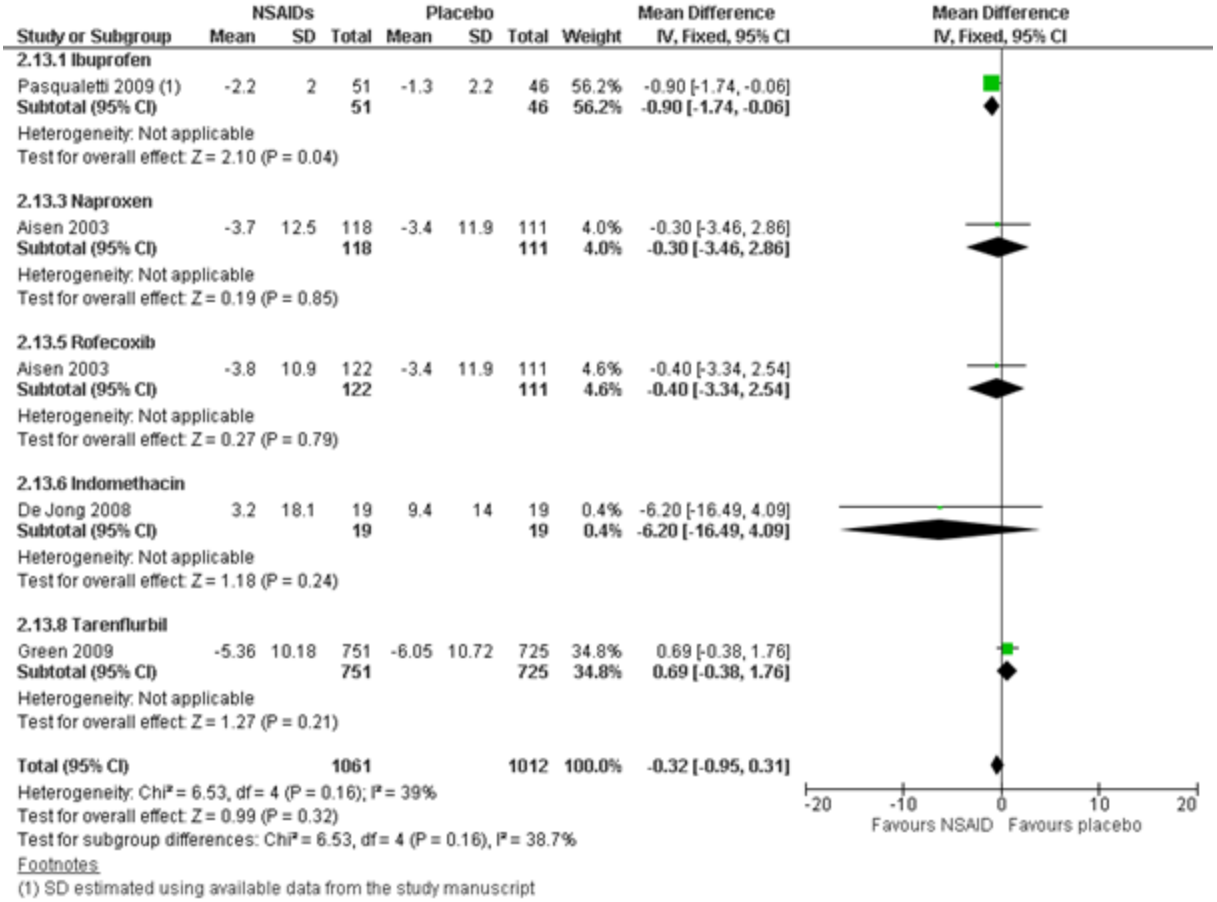
NPI & BEHAVE-AD (6 months: SMD)



Footnotes

(1) Behave-AD scores used; SD estimated using available data from the study manuscript

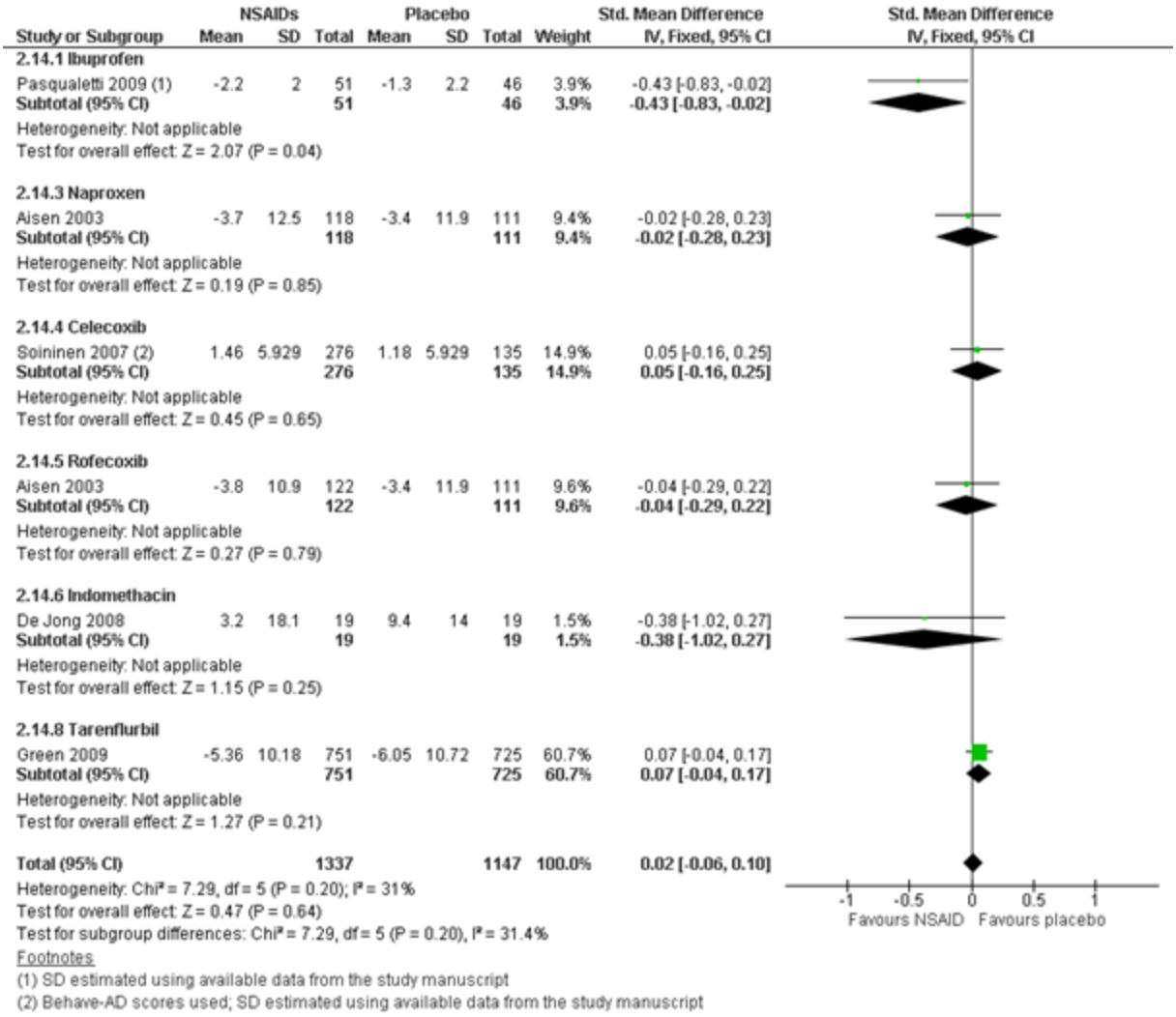
NPI (12 months)



Footnotes

(1) SD estimated using available data from the study manuscript

NPI & BEHAVE-AD (12 months: SMD)

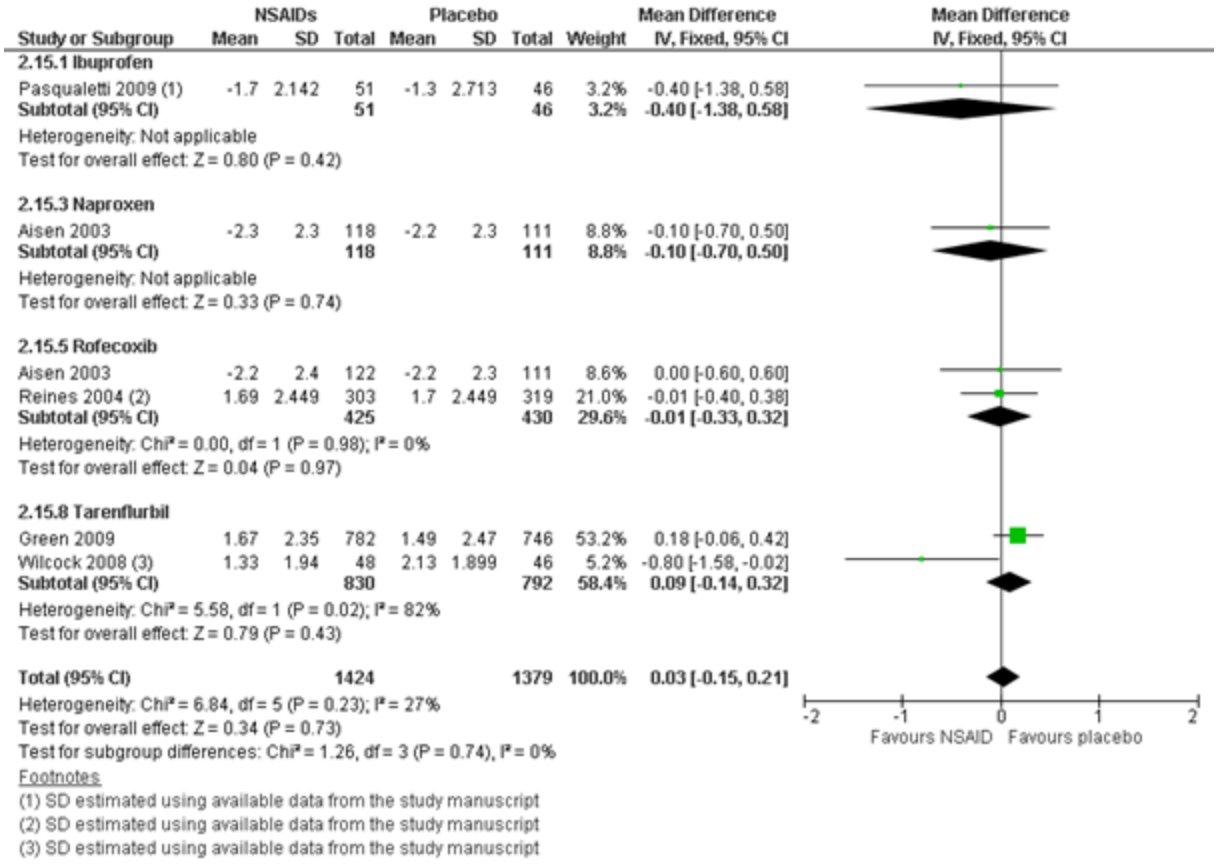


Footnotes

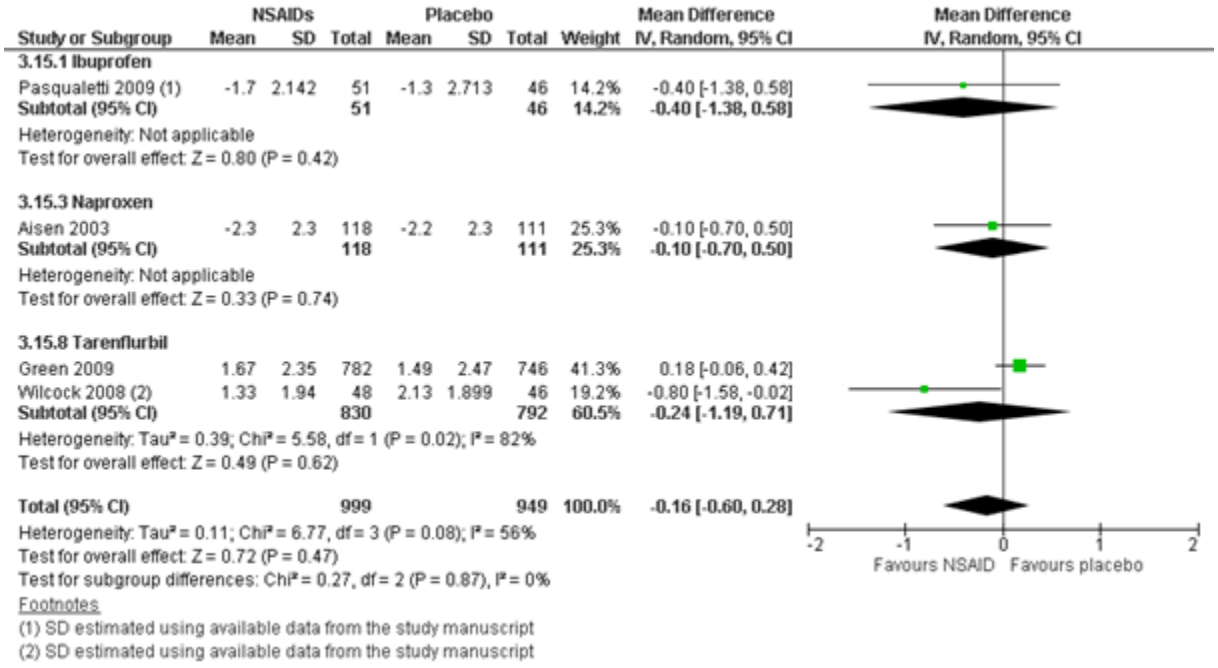
(1) SD estimated using available data from the study manuscript

(2) Behave-AD scores used; SD estimated using available data from the study manuscript

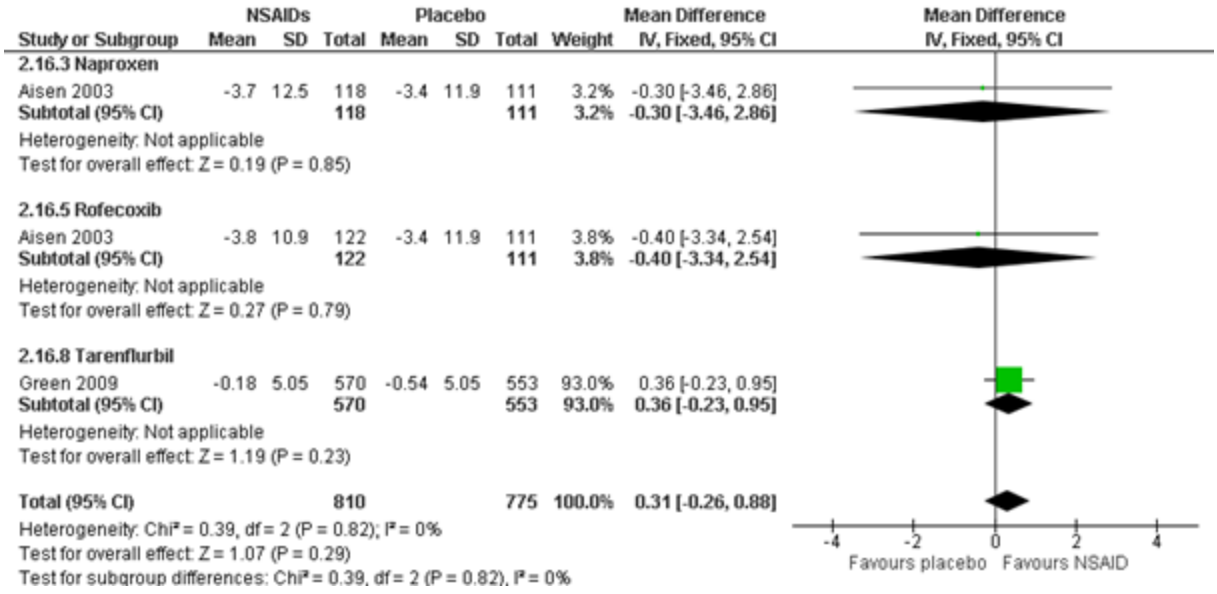
CDR-SB (12 months)



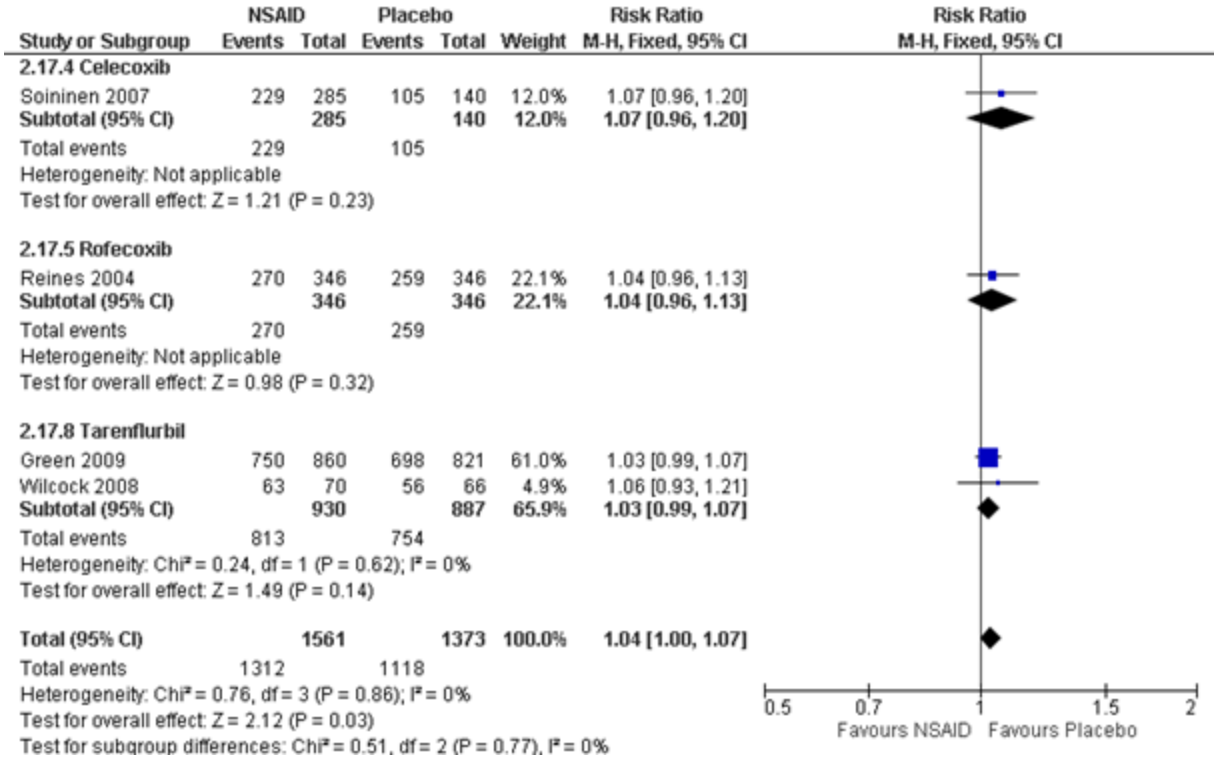
CDR-SB (12 months) – sensitivity analysis excluding rofecoxib



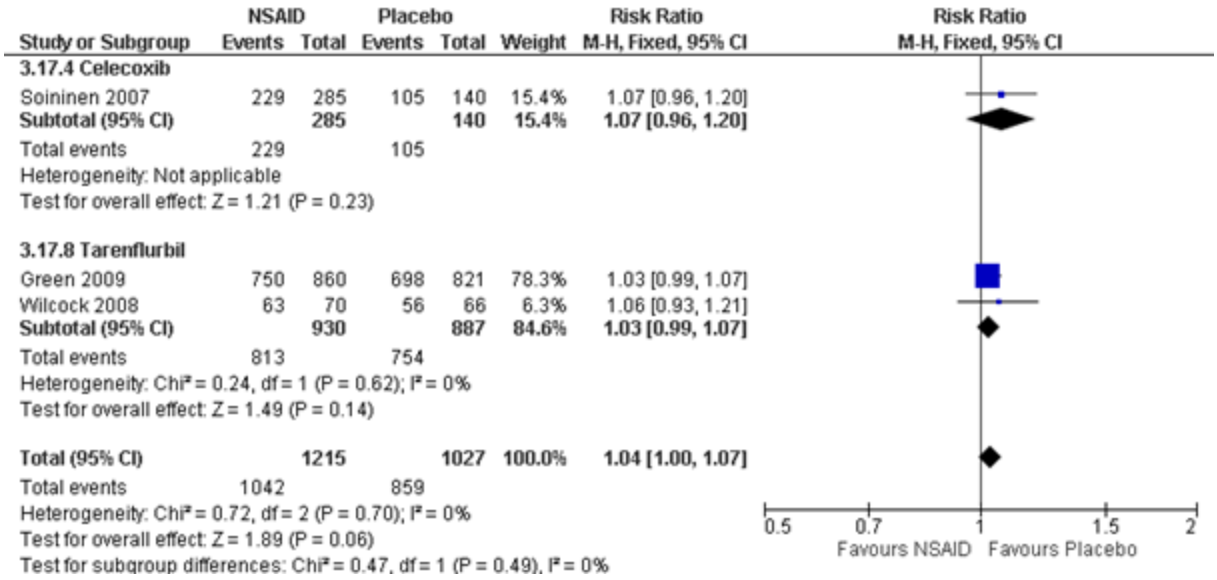
QoL-AD (12 months)



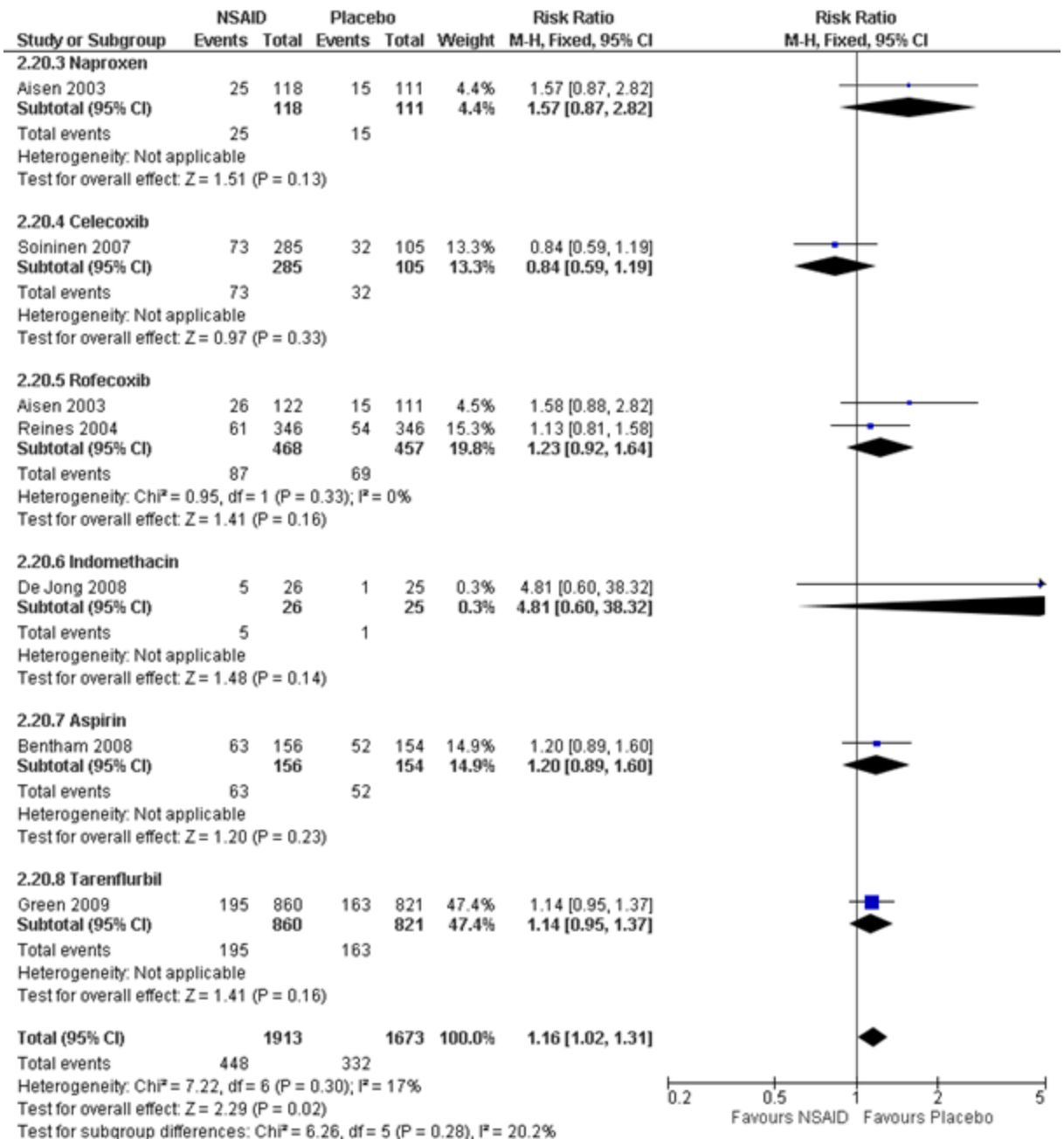
Any adverse events (12 months)



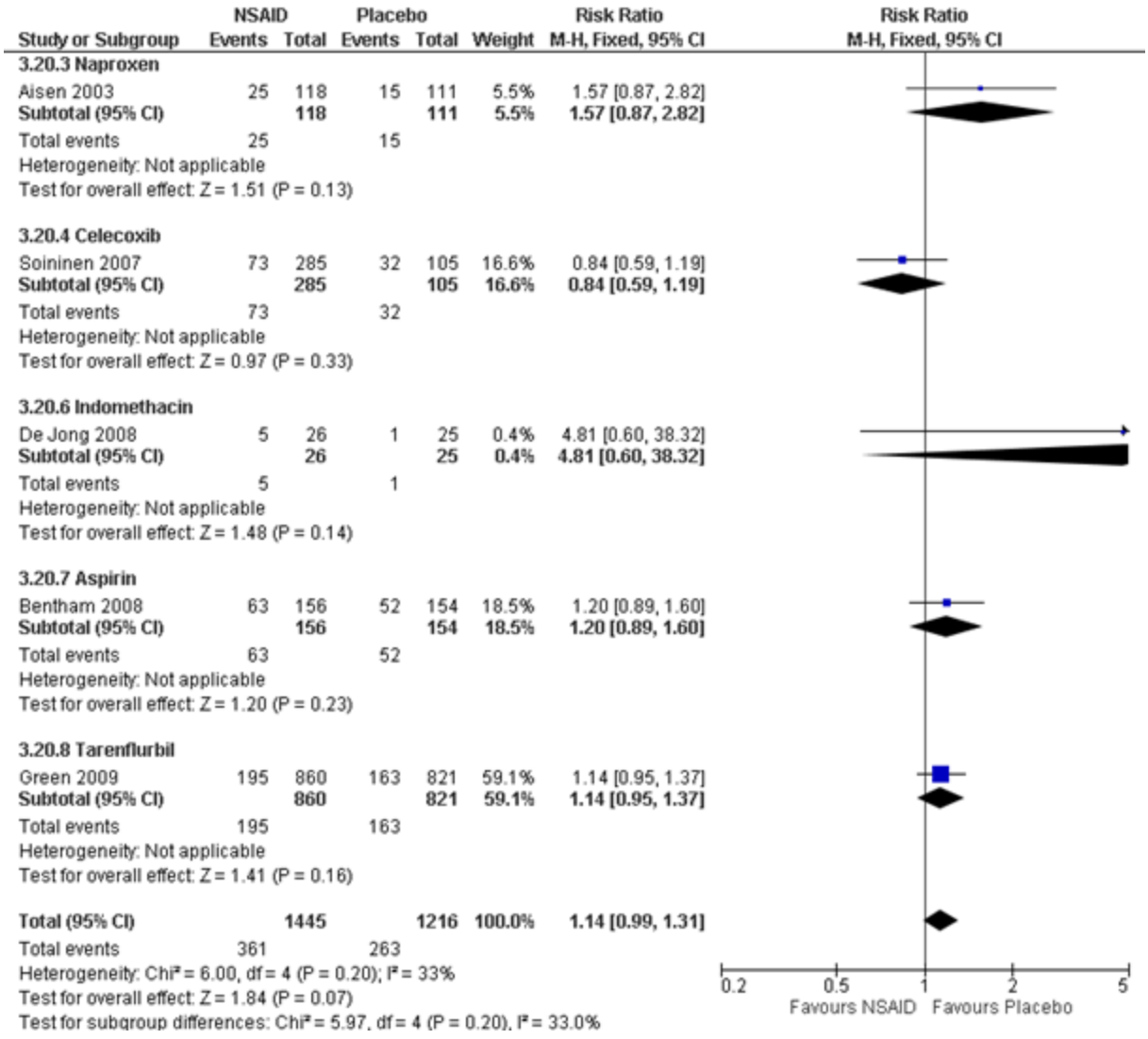
Any adverse events (12 months) – sensitivity analysis excluding rofecoxib



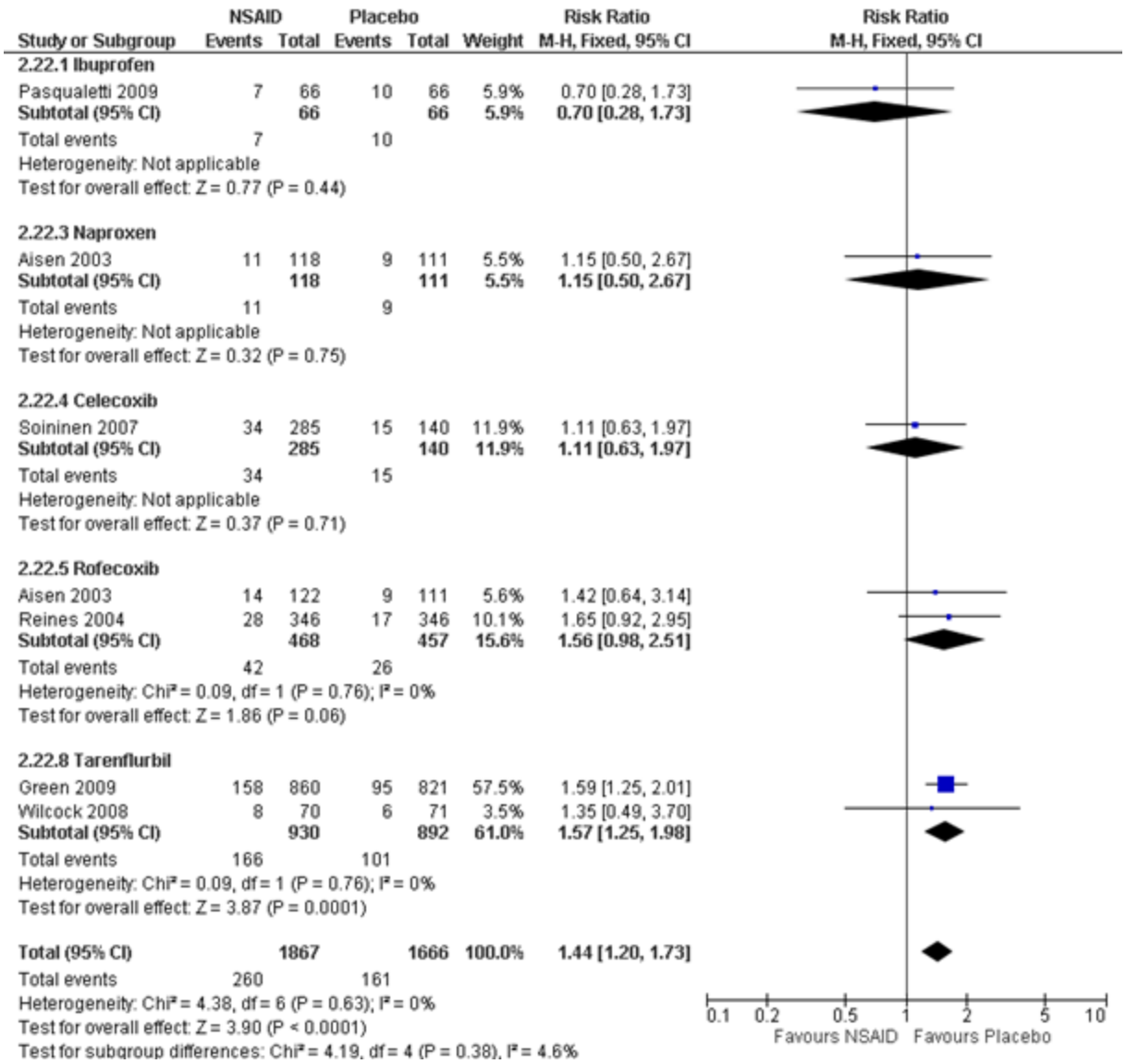
Serious adverse events (12 months)



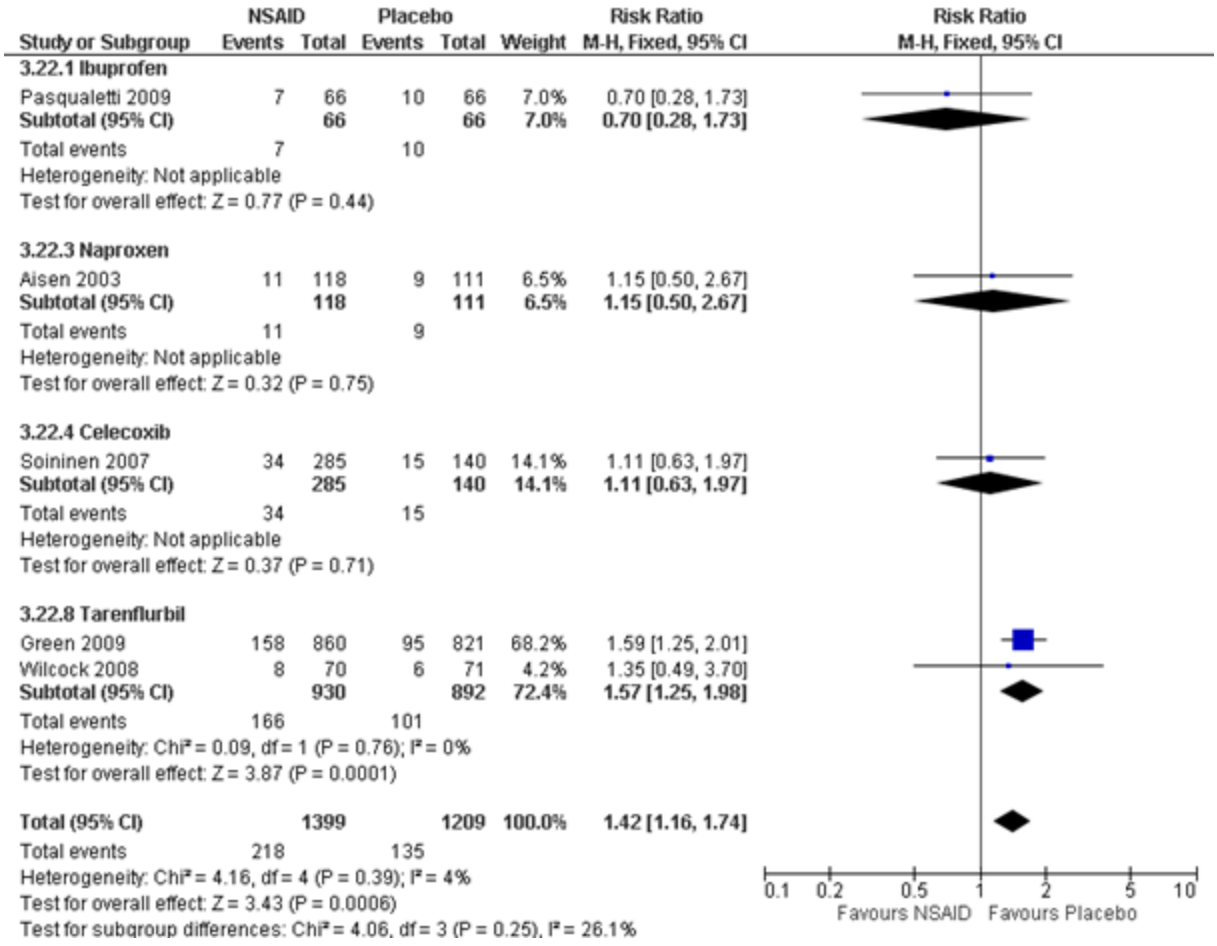
Serious adverse events (12 months) – sensitivity analysis excluding rofecoxib



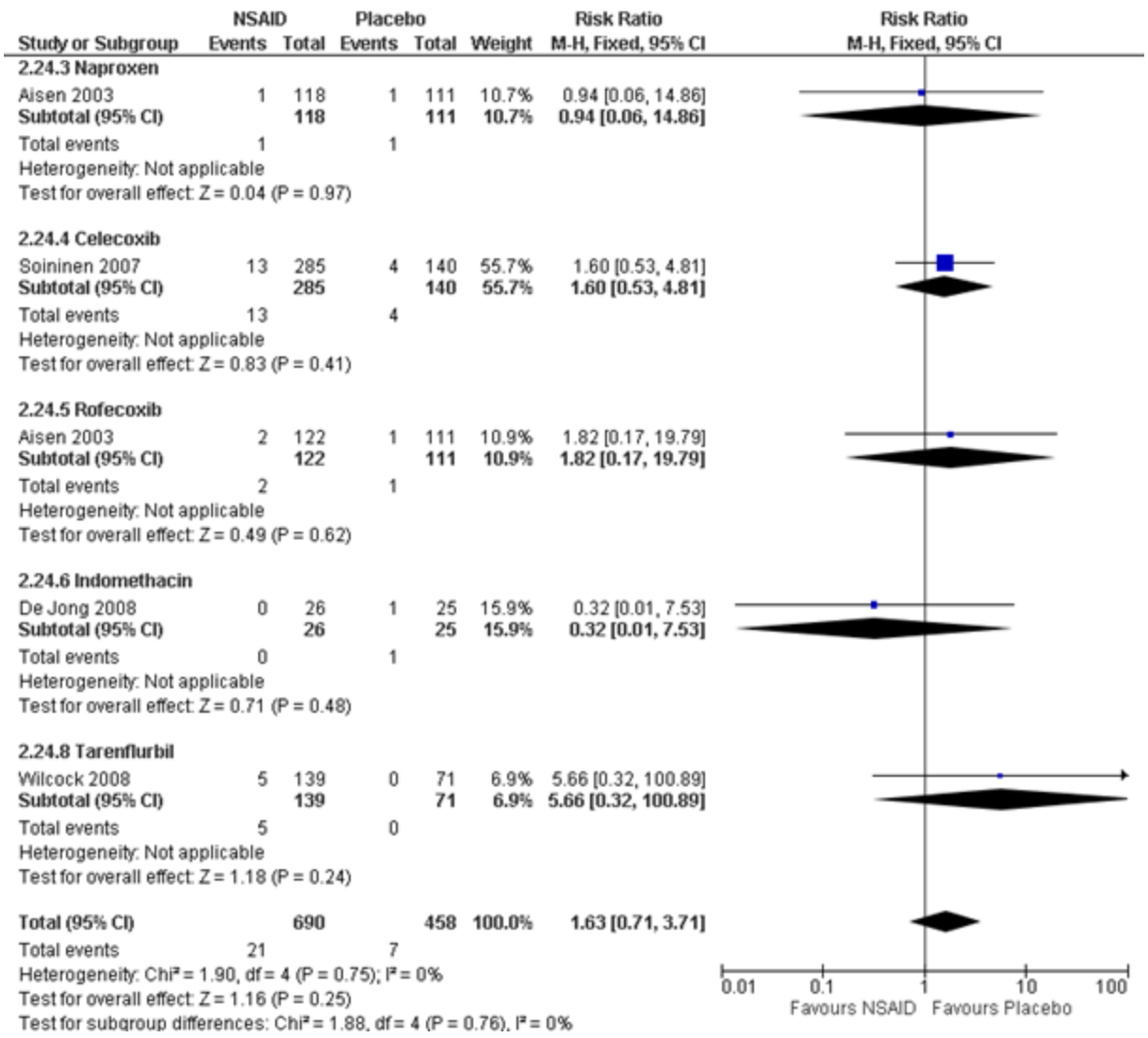
Adverse events leading to discontinuation



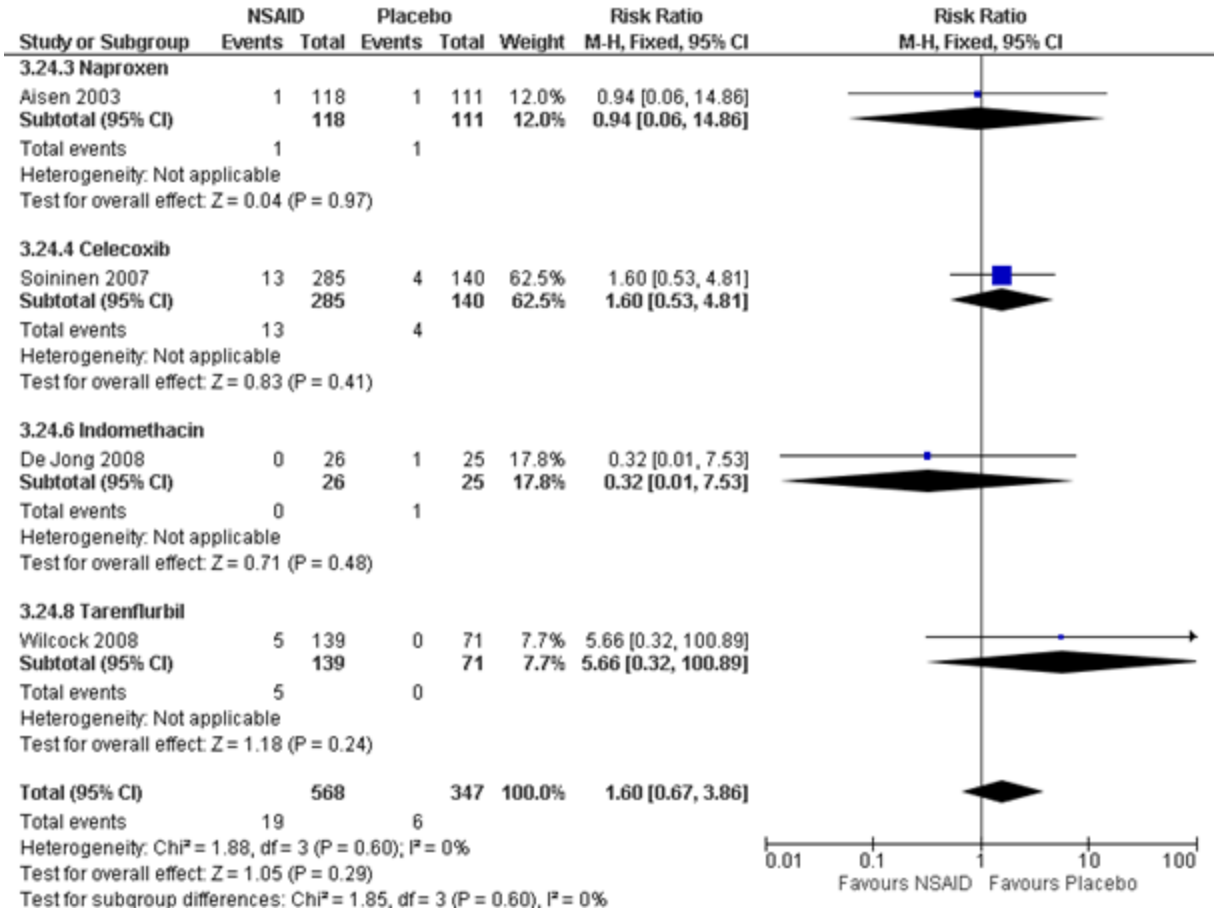
Adverse events leading to discontinuation – sensitivity analysis excluding rofecoxib



Mortality

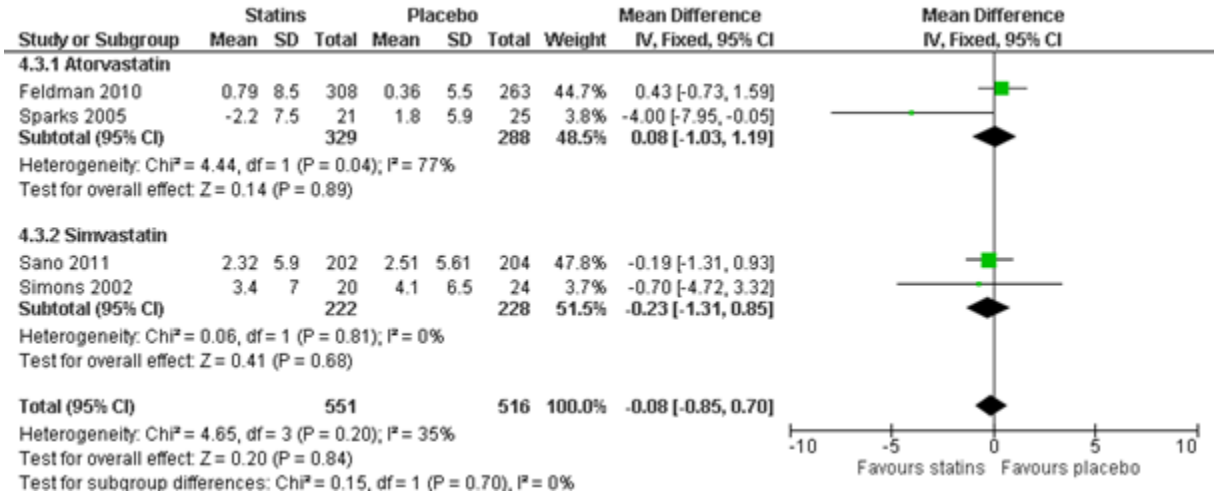


Mortality – sensitivity analysis excluding rofecoxib

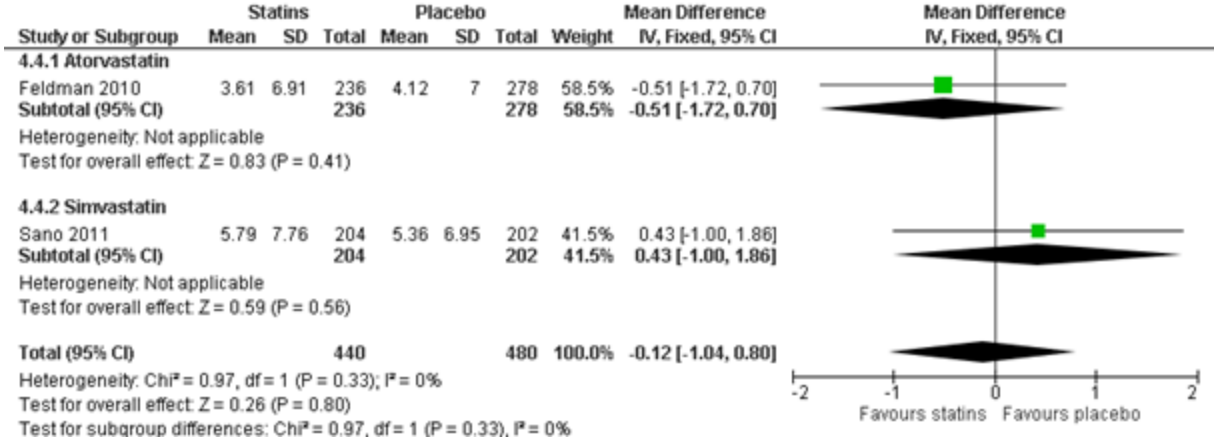


H.6.1.3 Statins versus placebo

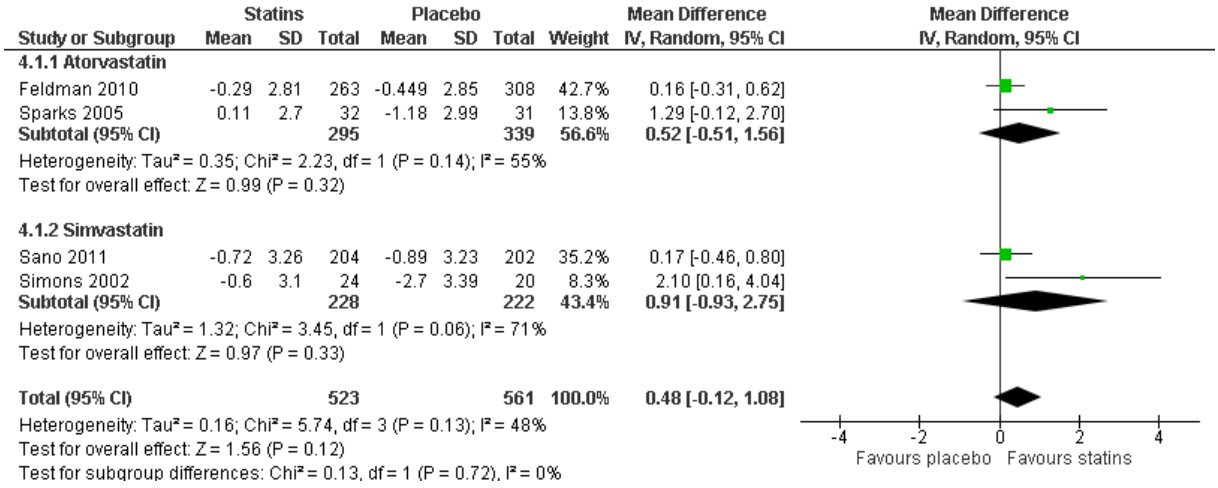
ADAS-cog (6 months)



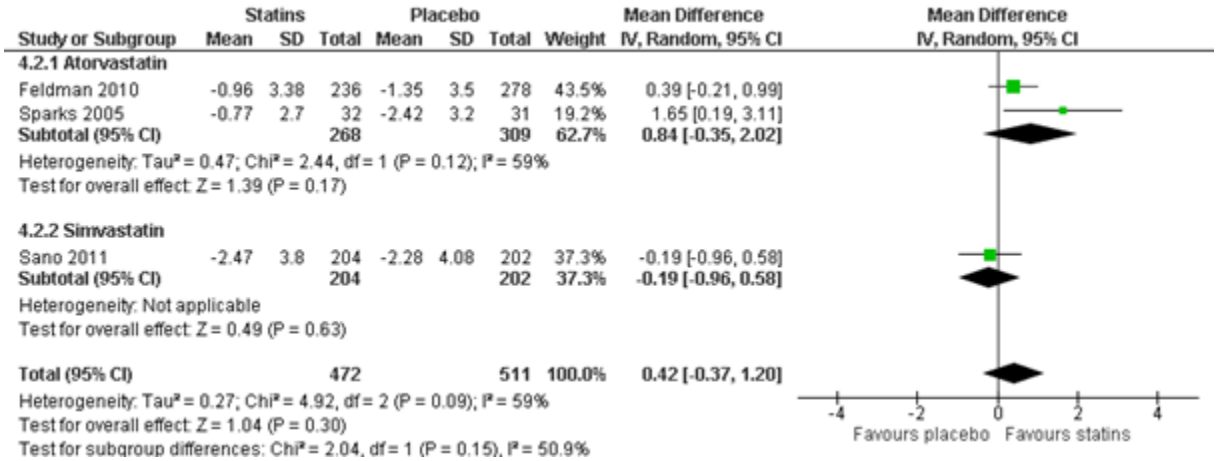
ADAS-cog (12 months)



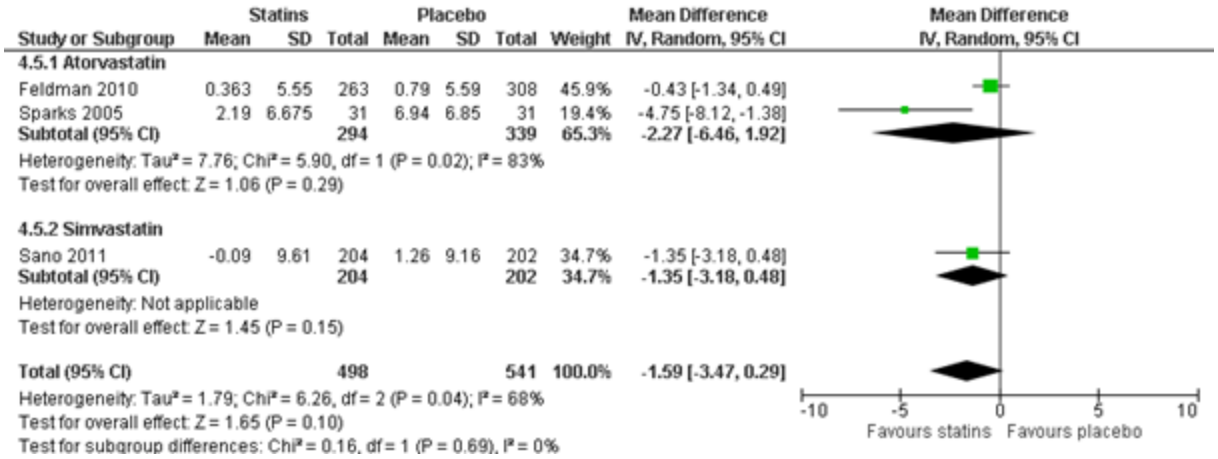
MMSE (6 months)



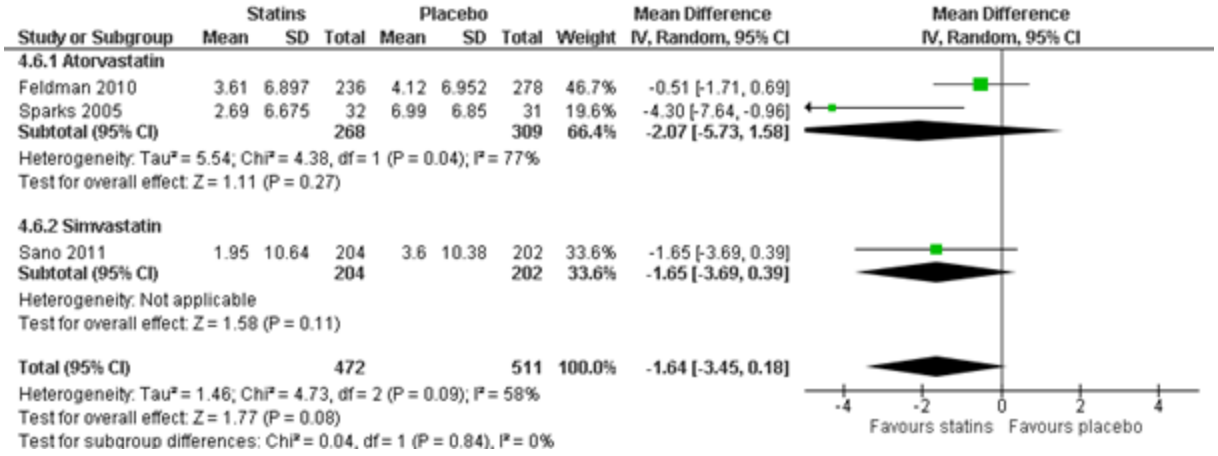
MMSE (12 months)



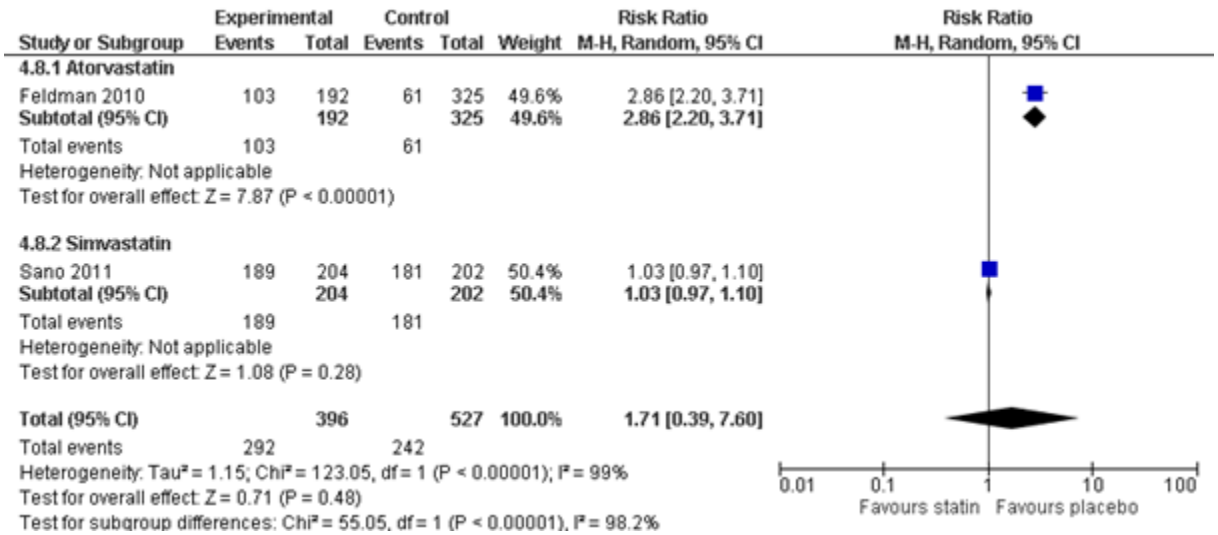
NPI (6 months)



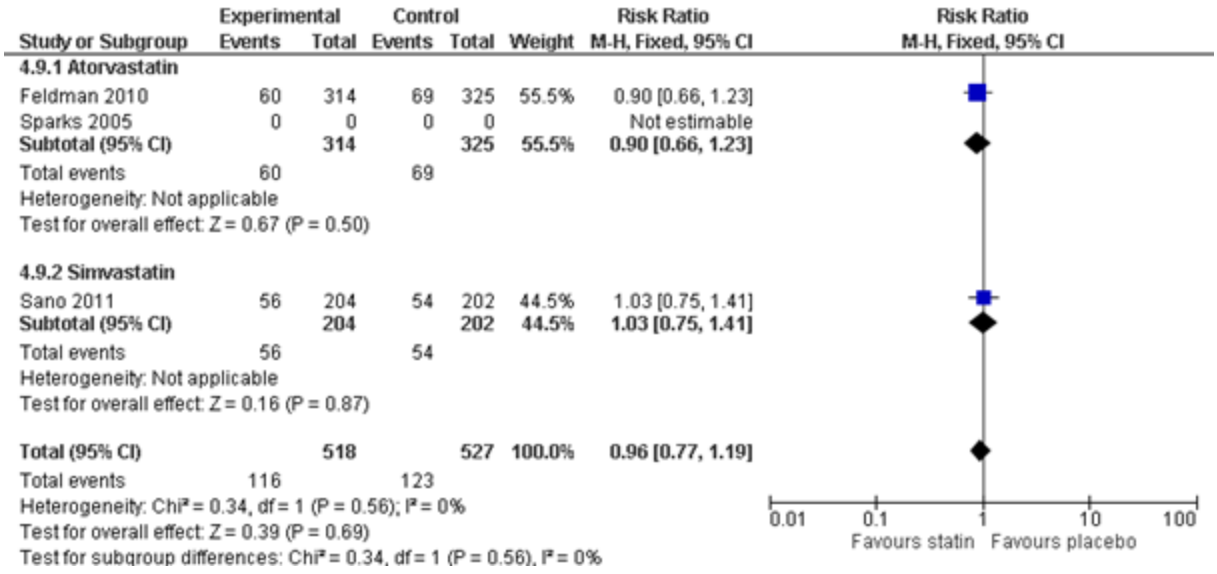
NPI (12 months)



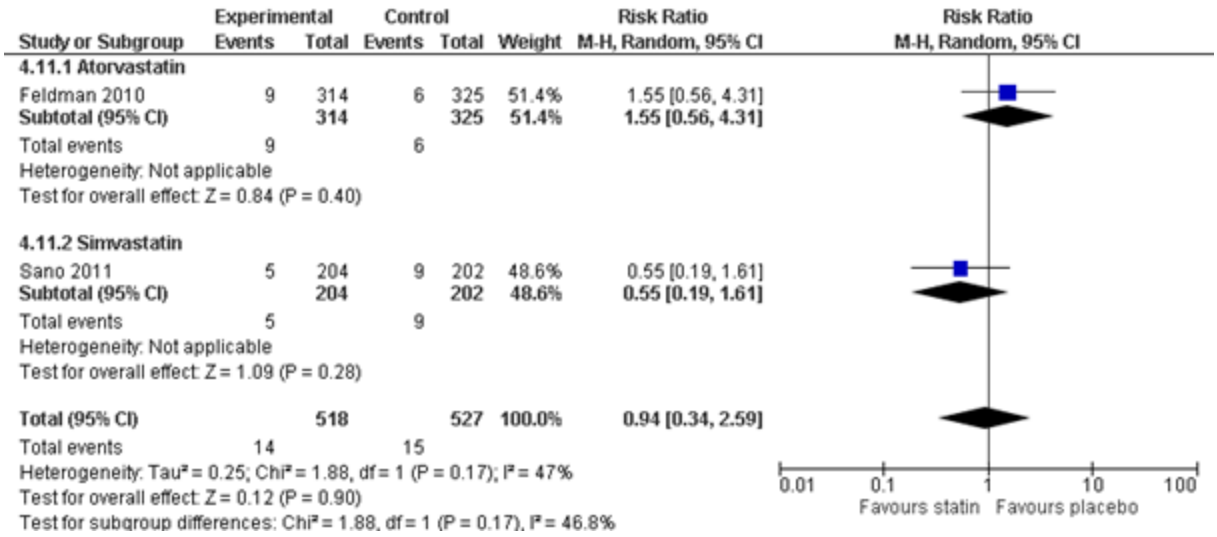
Any adverse events



Serious adverse events

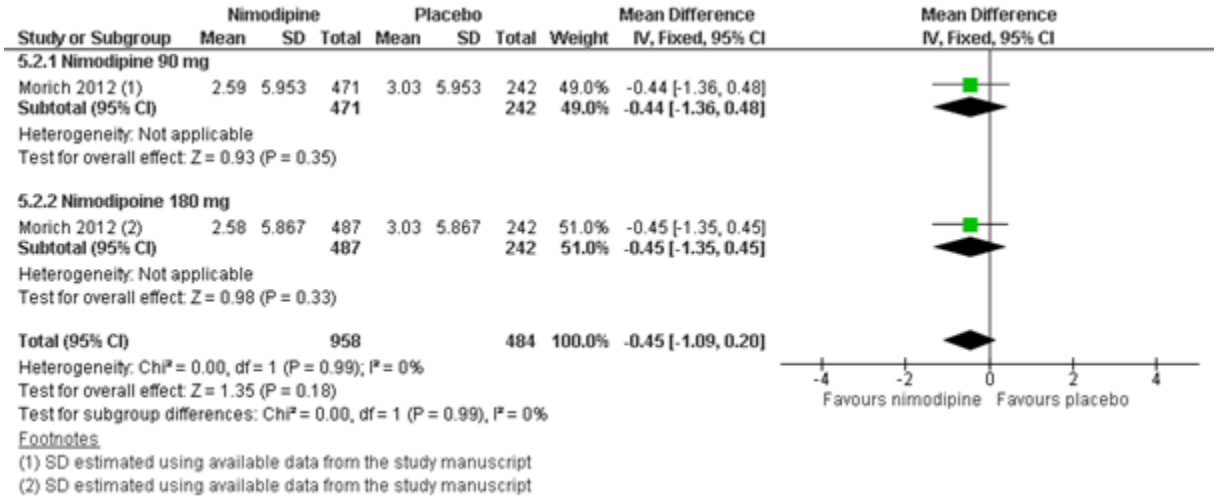


Mortality



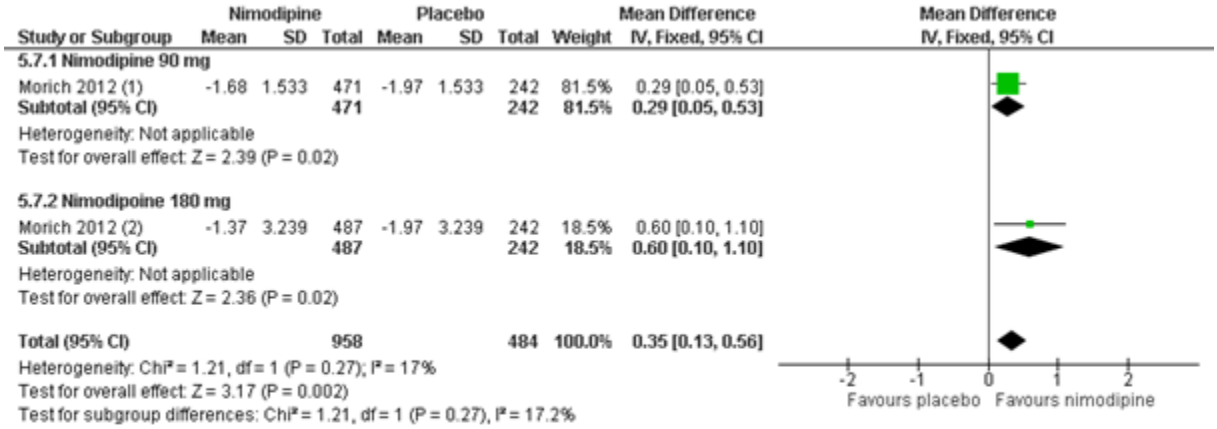
H.6.1.4 Antihypertensive drugs versus placebo

ADAS-cog (6 months)



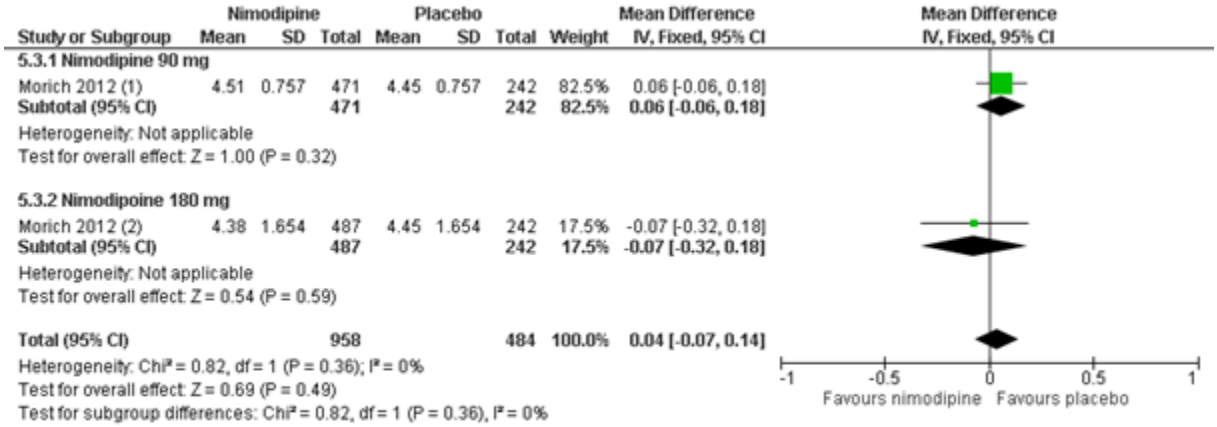
Footnotes
(1) SD estimated using available data from the study manuscript
(2) SD estimated using available data from the study manuscript

MMSE (6 months)



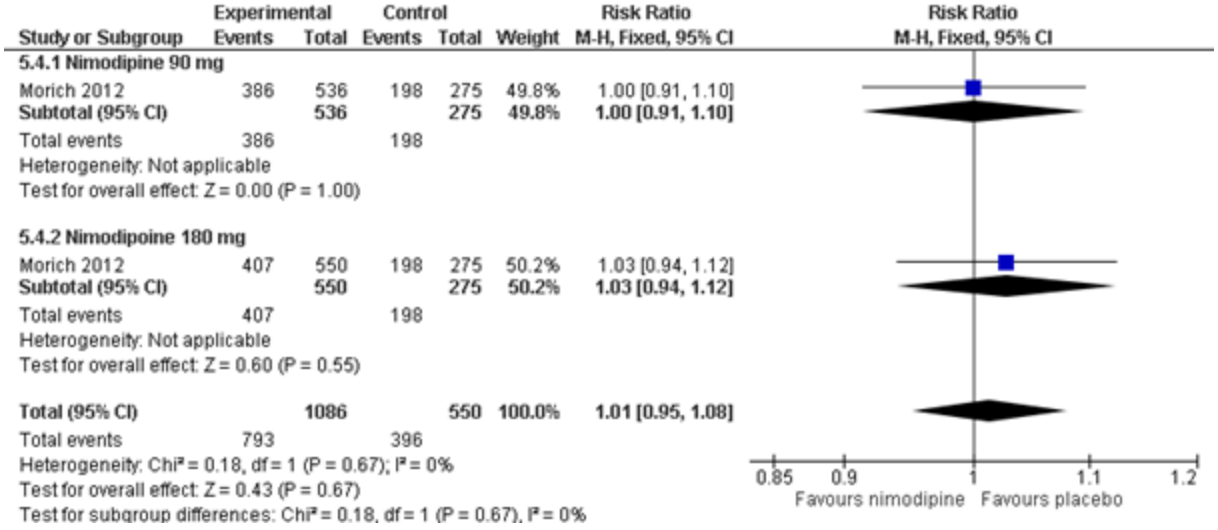
Footnotes
(1) SD estimated using available data from the study manuscript
(2) SD estimated using available data from the study manuscript

CGI-global improvement (6 months)

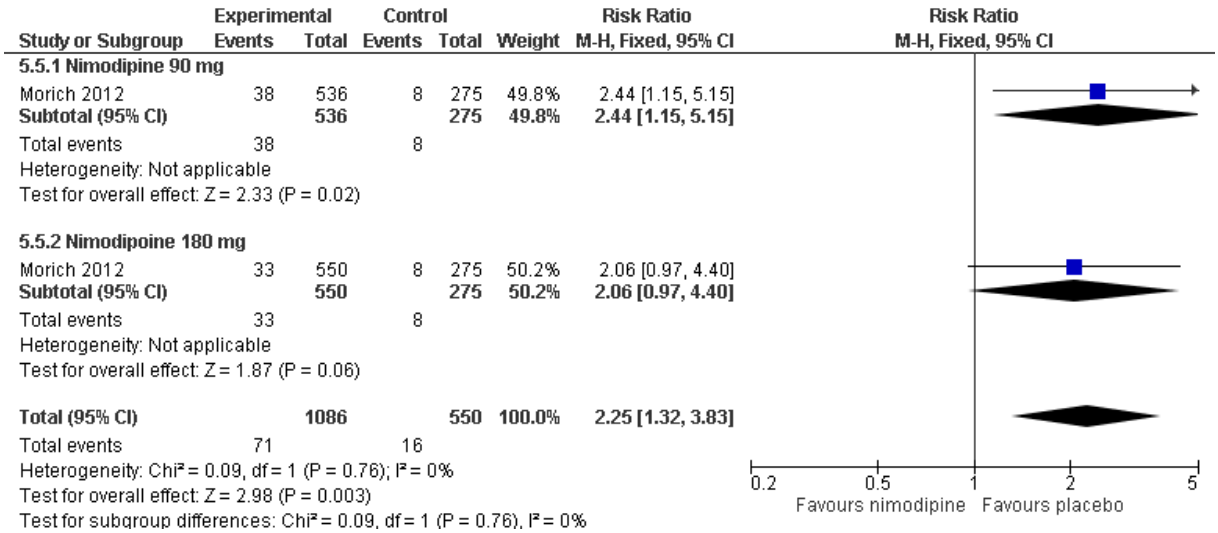


Footnotes
(1) SD estimated using available data from the study manuscript
(2) SD estimated using available data from the study manuscript

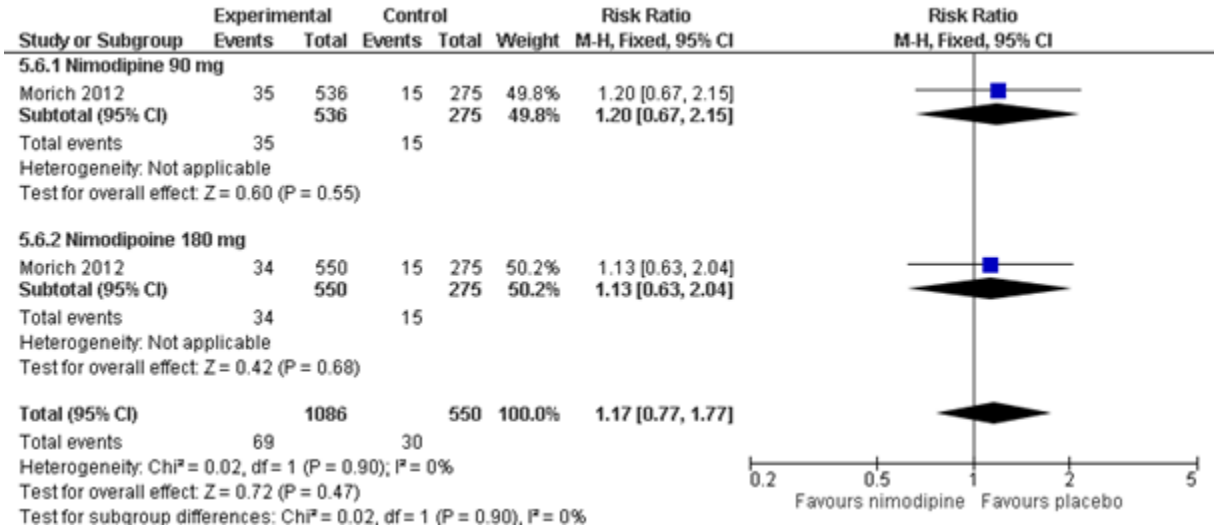
Any adverse events (6 months)



Serious adverse events (6 months)



Adverse events leading to discontinuation (6 months)



H.7 Cholinesterase inhibitors and memantine for dementia

H.7.1 Cholinesterase inhibitors and memantine for people living with Alzheimer's disease

- Who should start and review the following pharmacological interventions: (donepezil, galantamine, rivastigmine, memantine) for people with Alzheimer's disease and how should a review be carried out?

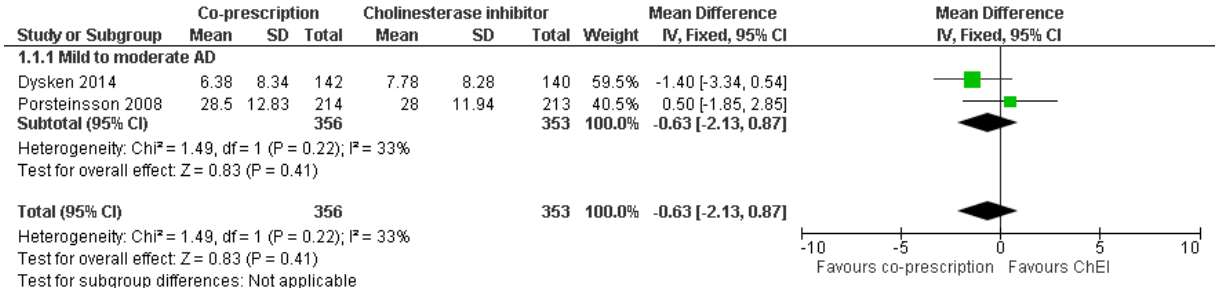
No meta-analyses were performed

H.7.2 Cholinesterase inhibitors and memantine in Alzheimer's disease

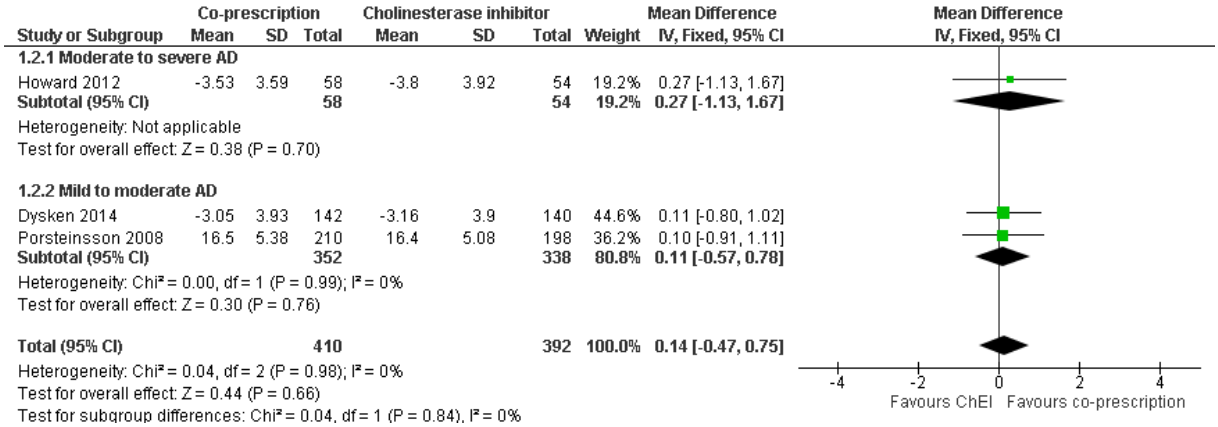
- How effective is the co-prescription of cholinesterase inhibitors and memantine for the treatment of Alzheimer's disease?
- When should treatment with donepezil, galantamine, rivastigmine, memantine be withdrawn for people with Alzheimer's disease?

H.7.2.1 Any AChEI + memantine versus AChEI + placebo (full population)

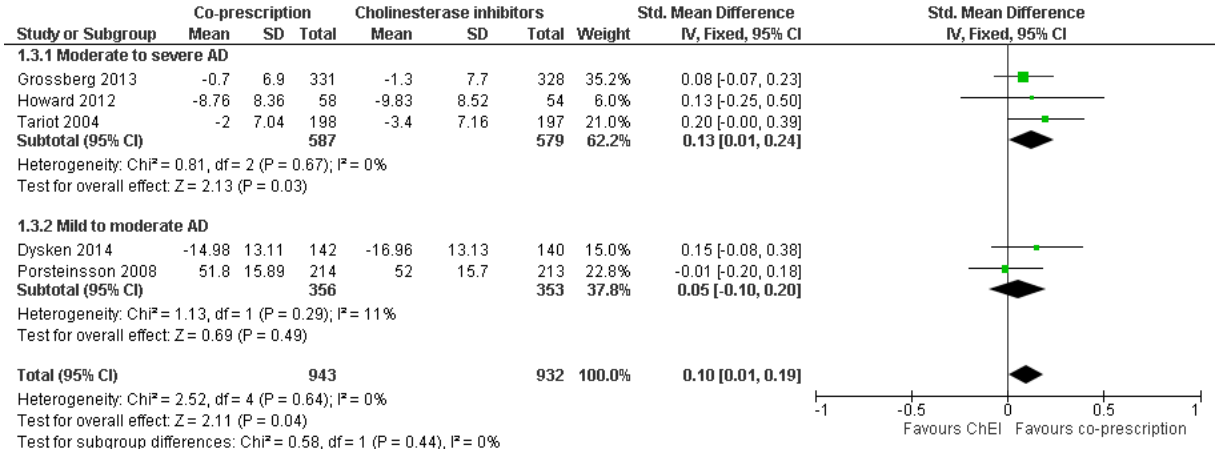
ADAS-cog



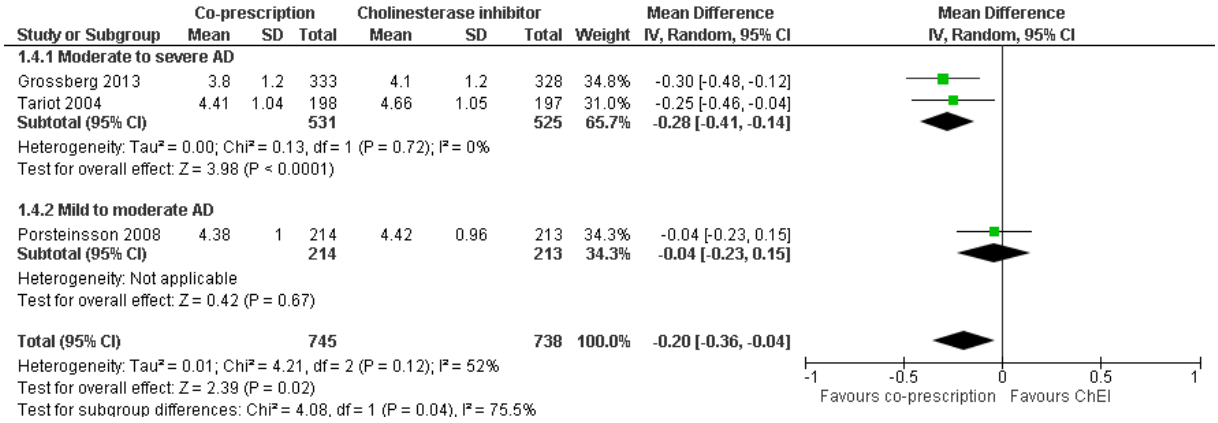
MMSE



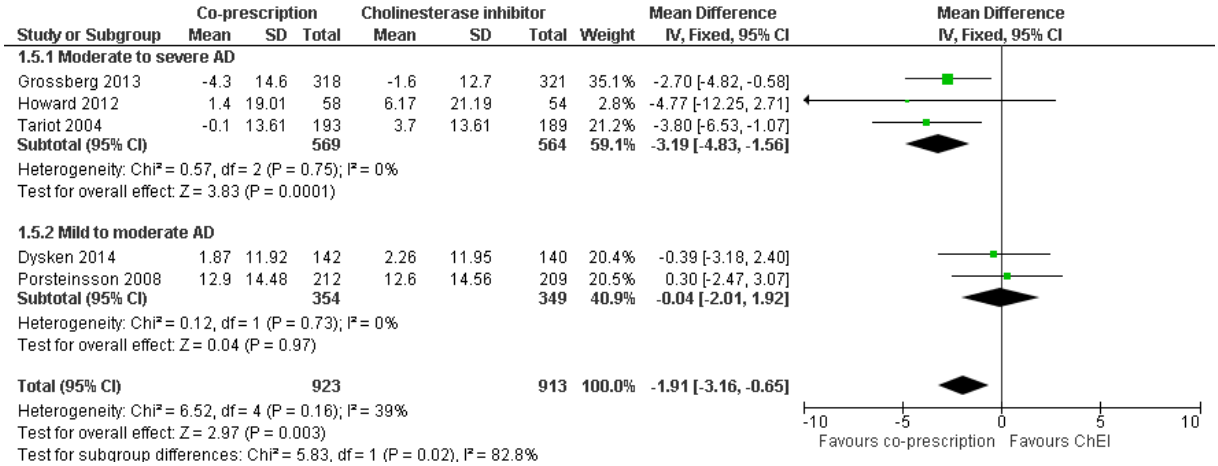
ADL (ADCS-ADL/BADLS)



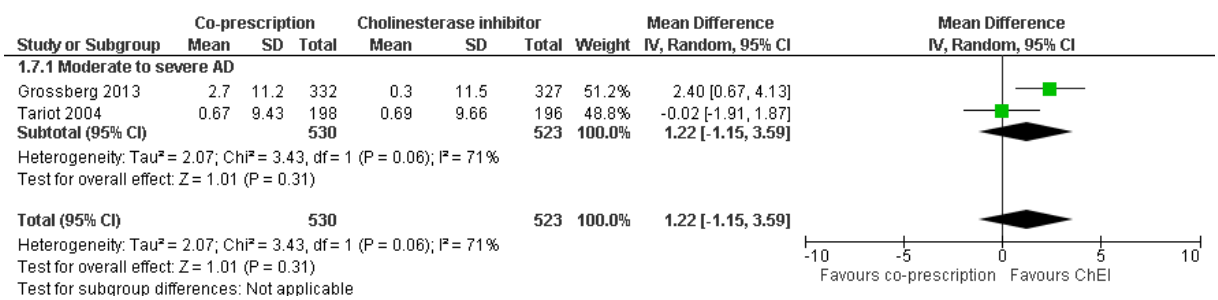
CIBIC plus



NPI

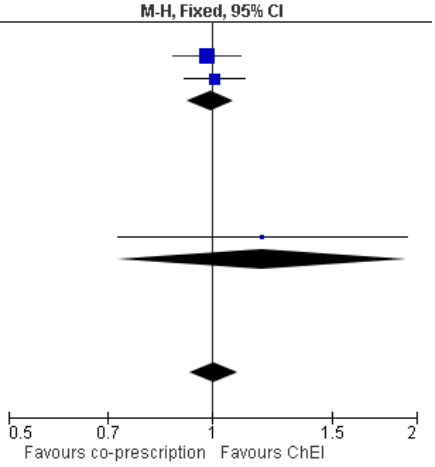


SIB



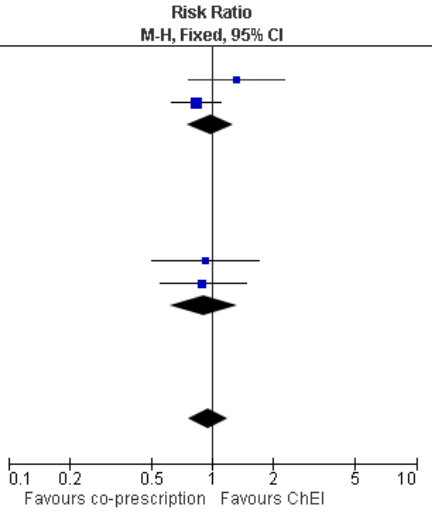
Total number of adverse events

Study or Subgroup	Co-prescription Events	Total	Cholinesterase inhibitor Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
1.11.1 Moderate to severe AD						
Grossberg 2013	214	341	214	335	54.4%	0.98 [0.88, 1.10]
Tariot 2004	158	202	156	201	39.4%	1.01 [0.91, 1.12]
Subtotal (95% CI)		**543**		**536**	**93.9%**	**0.99 [0.92, 1.08]**
Total events	372		370			
Heterogeneity: Chi² = 0.11, df = 1 (P = 0.74); I² = 0%						
Test for overall effect: Z = 0.17 (P = 0.86)						
1.11.2 Mild to moderate AD						
Dysken 2014	29	155	24	152	6.1%	1.18 [0.72, 1.94]
Subtotal (95% CI)		**155**		**152**	**6.1%**	**1.18 [0.72, 1.94]**
Total events	29		24			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.68 (P = 0.50)						
Total (95% CI)		**698**		**688**	**100.0%**	**1.00 [0.93, 1.09]**
Total events	401		394			
Heterogeneity: Chi² = 0.58, df = 2 (P = 0.75); I² = 0%						
Test for overall effect: Z = 0.12 (P = 0.91)						
Test for subgroup differences: Chi² = 0.48, df = 1 (P = 0.49), I² = 0%						



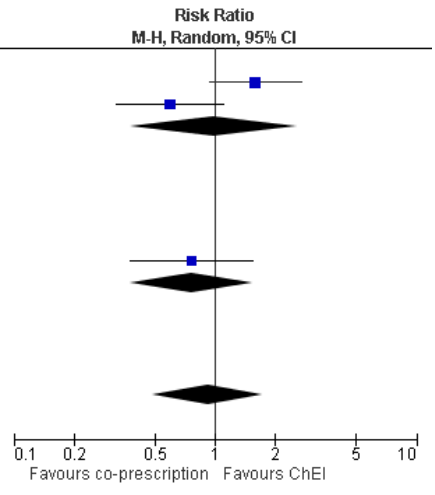
Total number of serious adverse events

Study or Subgroup	Co-prescription Events	Total	Cholinesterase inhibitor Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
1.12.1 Moderate to severe AD						
Grossberg 2013	28	341	21	335	18.1%	1.31 [0.76, 2.26]
Howard 2012	40	76	46	73	40.0%	0.84 [0.63, 1.10]
Subtotal (95% CI)		**417**		**408**	**58.0%**	**0.98 [0.76, 1.28]**
Total events	68		67			
Heterogeneity: Chi² = 2.40, df = 1 (P = 0.12); I² = 58%						
Test for overall effect: Z = 0.13 (P = 0.90)						
1.12.2 Mild to moderate AD						
Dysken 2014	18	155	19	152	16.3%	0.93 [0.51, 1.70]
Porsteinsson 2008	27	217	30	216	25.6%	0.90 [0.55, 1.45]
Subtotal (95% CI)		**372**		**368**	**42.0%**	**0.91 [0.62, 1.33]**
Total events	45		49			
Heterogeneity: Chi² = 0.01, df = 1 (P = 0.93); I² = 0%						
Test for overall effect: Z = 0.50 (P = 0.62)						
Total (95% CI)		**789**		**776**	**100.0%**	**0.95 [0.76, 1.19]**
Total events	113		116			
Heterogeneity: Chi² = 2.24, df = 3 (P = 0.52); I² = 0%						
Test for overall effect: Z = 0.44 (P = 0.66)						
Test for subgroup differences: Chi² = 0.11, df = 1 (P = 0.74), I² = 0%						

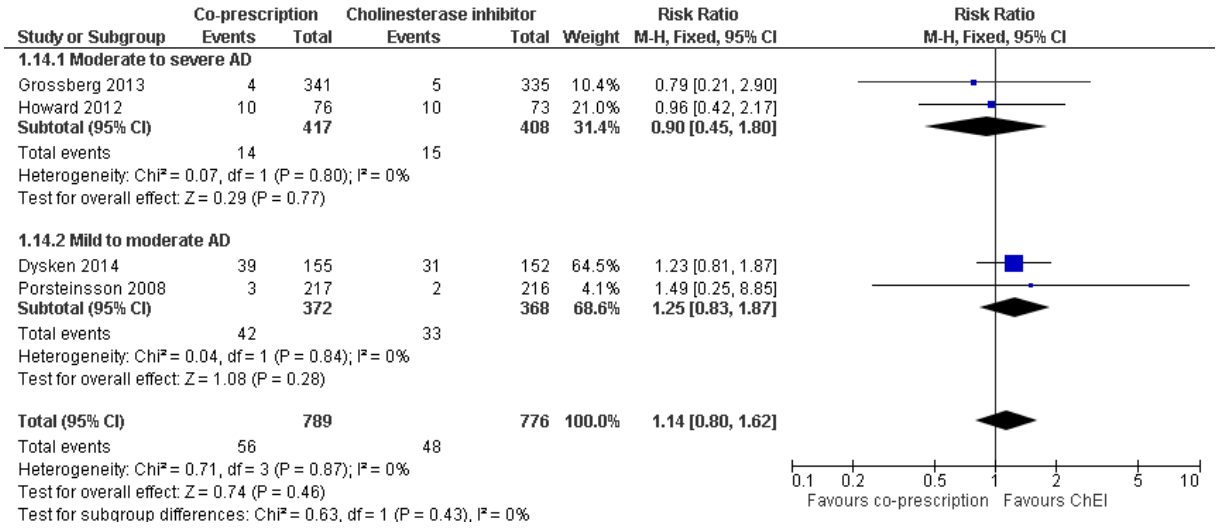


Adverse events to discontinuation

Study or Subgroup	Co-prescription Events	Total	Cholinesterase inhibitor Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
1.13.1 Moderate to severe AD						
Grossberg 2013	34	341	21	335	36.4%	1.59 [0.94, 2.68]
Tariot 2004	15	202	25	201	33.3%	0.60 [0.32, 1.10]
Subtotal (95% CI)		**543**		**536**	**69.7%**	**0.99 [0.38, 2.58]**
Total events	49		46			
Heterogeneity: Tau² = 0.40; Chi² = 5.72, df = 1 (P = 0.02); I² = 83%						
Test for overall effect: Z = 0.03 (P = 0.98)						
1.13.2 Mild to moderate AD						
Porsteinsson 2008	13	217	17	216	30.3%	0.76 [0.38, 1.53]
Subtotal (95% CI)		**217**		**216**	**30.3%**	**0.76 [0.38, 1.53]**
Total events	13		17			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.77 (P = 0.44)						
Total (95% CI)		**760**		**752**	**100.0%**	**0.92 [0.49, 1.71]**
Total events	62		63			
Heterogeneity: Tau² = 0.21; Chi² = 6.34, df = 2 (P = 0.04); I² = 68%						
Test for overall effect: Z = 0.27 (P = 0.79)						
Test for subgroup differences: Chi² = 0.18, df = 1 (P = 0.67), I² = 0%						

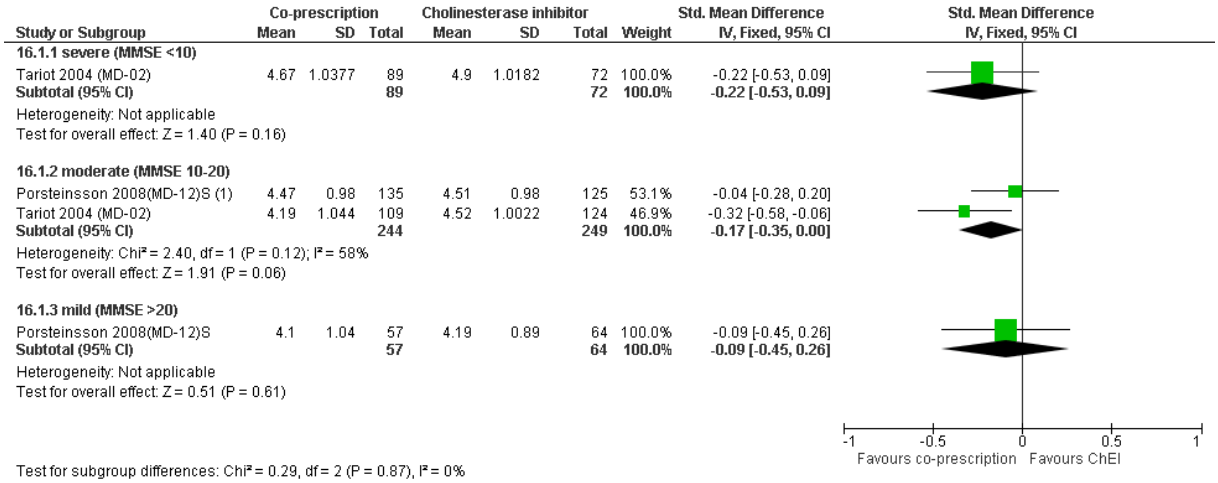


Mortality



H.7.2.2 Any AChEI + memantine versus AChEI + placebo (subdivided)

Clinical Global: post-hoc within-trial subgroup analyses

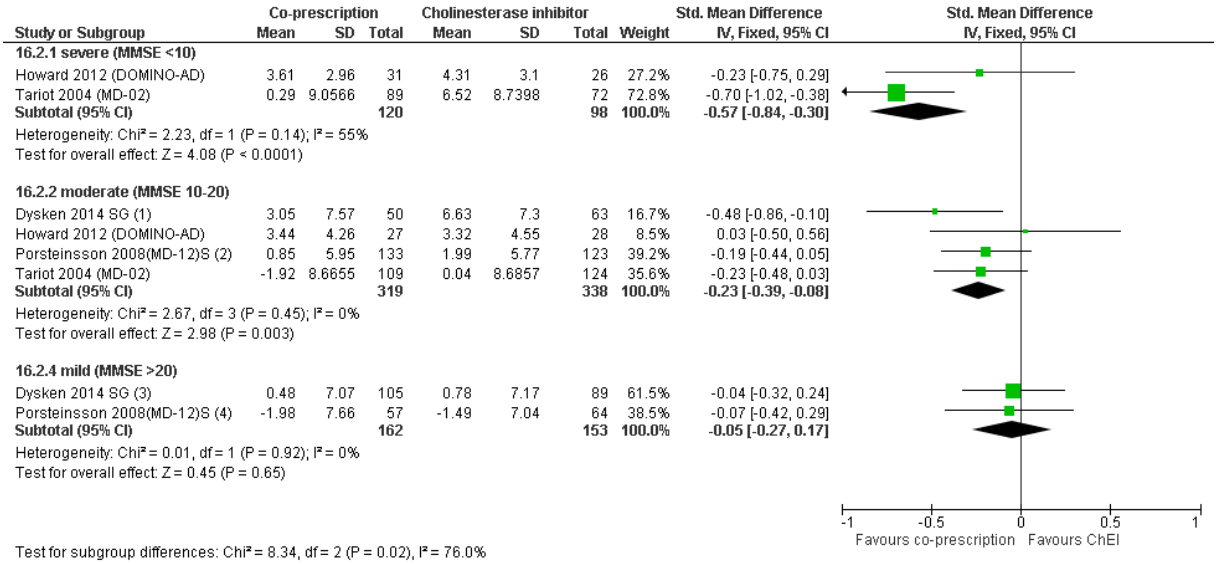


Test for subgroup differences: Chi² = 0.29, df = 2 (P = 0.87), I² = 0%

Footnotes

(1) OC from Winblad 2007; CIBIC+; on stable ChEI

Cognitive Function: post-hoc within-trial subgroup analyses



Test for subgroup differences: Chi² = 8.34, df = 2 (P = 0.02), I² = 76.0%

Footnotes

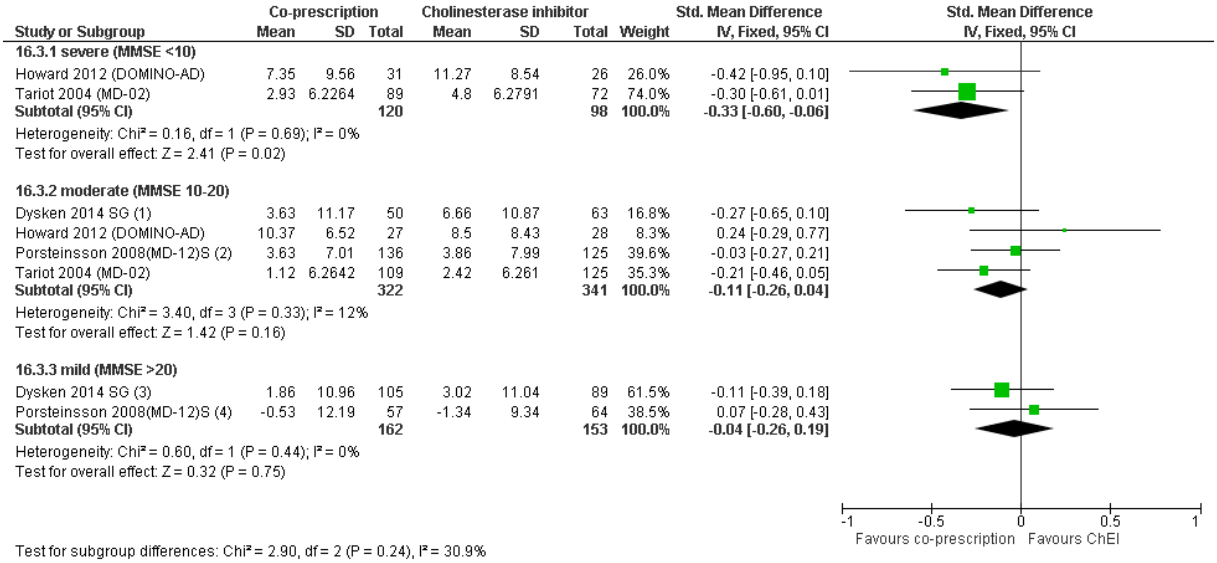
(1) ADAS-Cog; moderate severity subgroup; Currently taking an AChEI; baseline not stated for subgroup

(2) OC from Winblad 2007; ADAS-Cog; on stable ChEI; baseline 27.9 and 26.8

(3) Mild subgroup (data provided by authors)

(4) Mild subgroup (data calculated)

Decline in Activities of Daily Living: post-hoc within-trial subgroup analyses



Test for subgroup differences: Chi² = 2.90, df = 2 (P = 0.24), I² = 30.9%

Footnotes

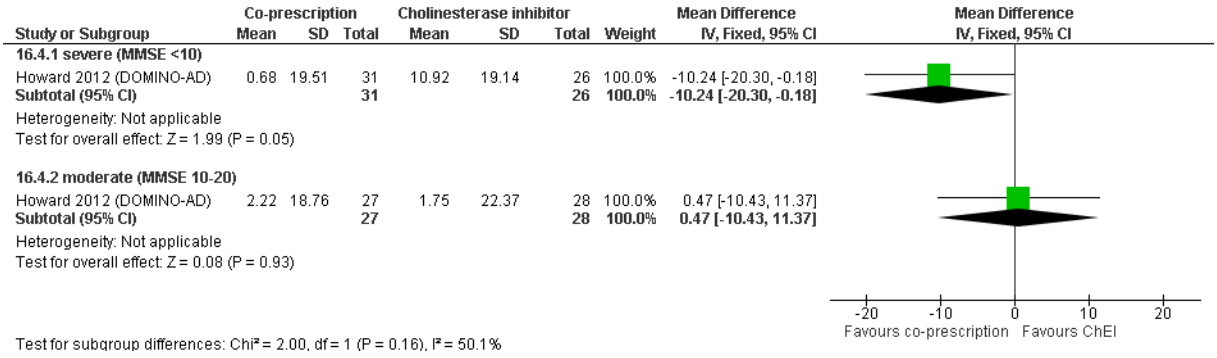
(1) ADCS-ADL23 - Currently taking an AChEI

(2) From Winblad 2007 - ADCS-ADL23; on stable ChEI

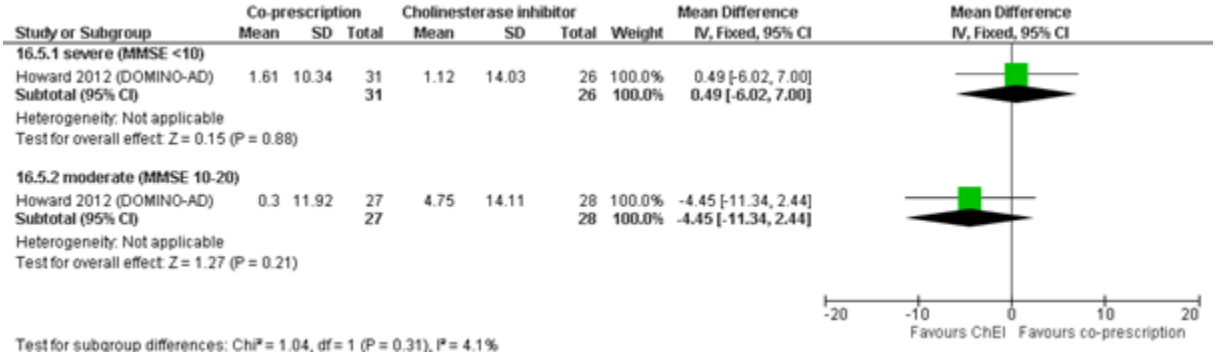
(3) Mild subgroup; data from authors

(4) Mild subgroup, calculated

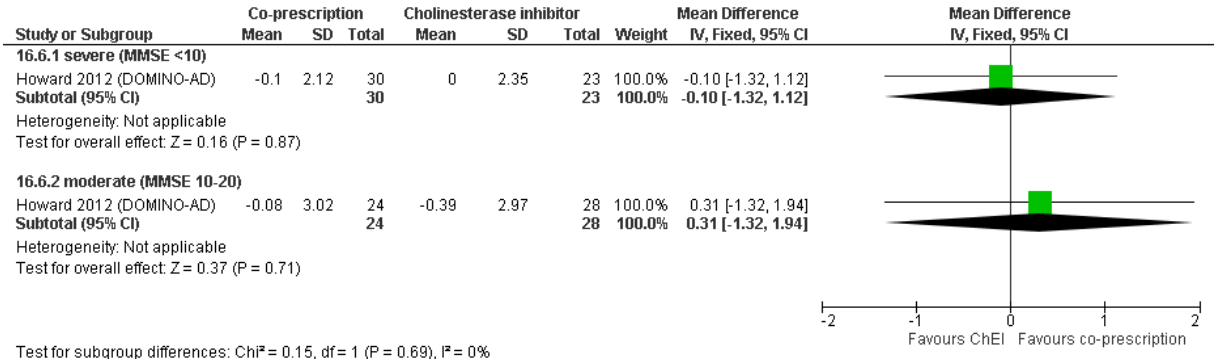
NPI: post-hoc within-trial subgroup analyses



DEMQOL: post-hoc within-trial subgroup analyses

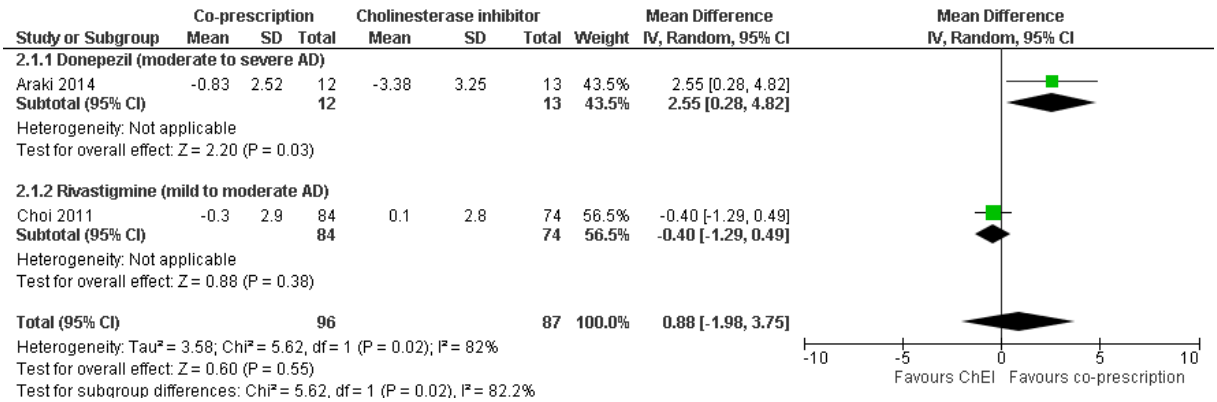


GHQ-12: post-hoc within-trial subgroup analyses



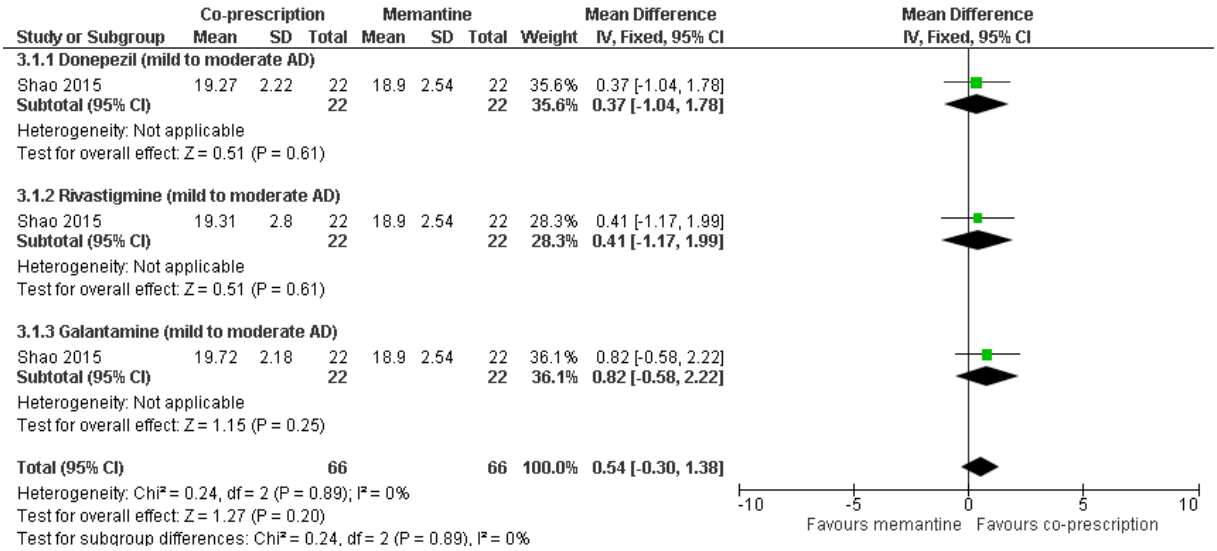
H.7.2.3 Any AChEI + memantine versus AChEI monotherapy

MMSE

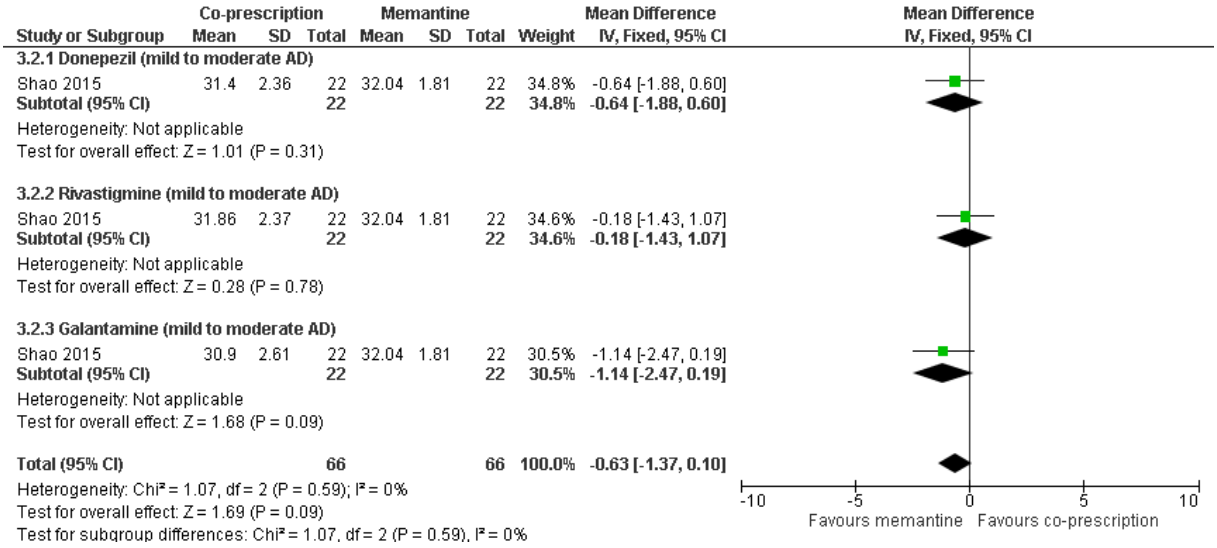


H.7.2.4 Any AChEI + memantine versus memantine + placebo

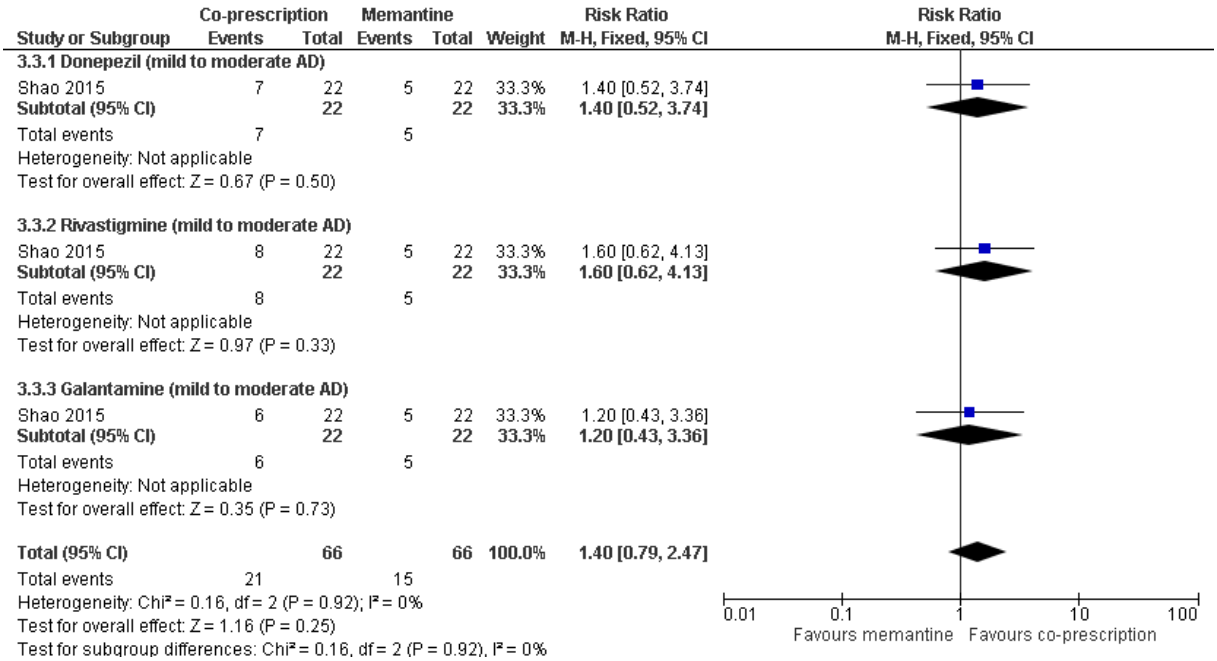
MMSE



ADCS-ADL

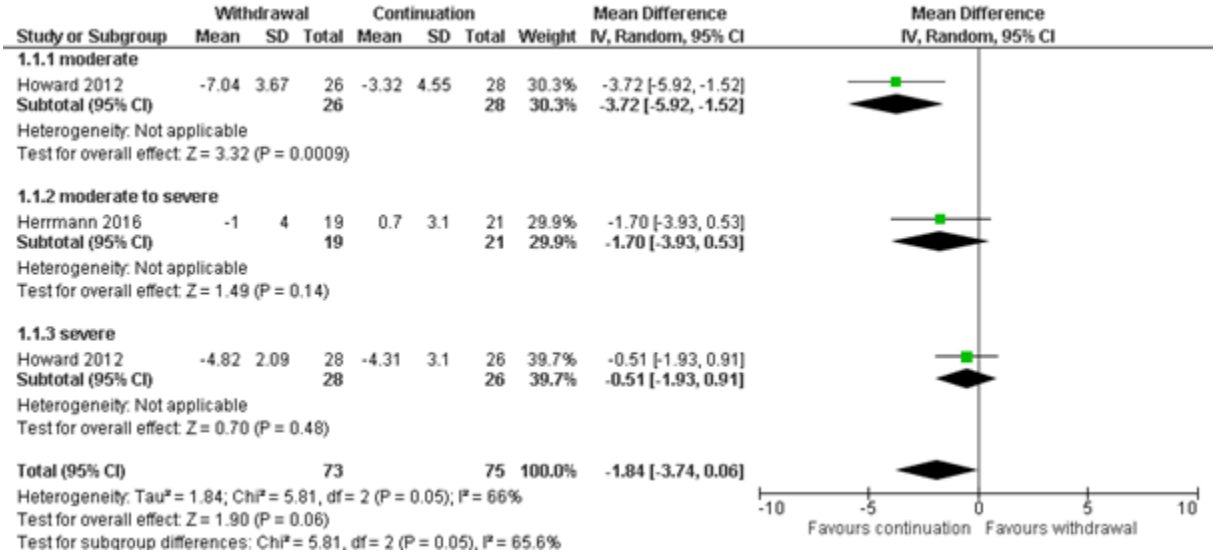


Number of adverse events



H.7.2.5 Cholinesterase inhibitor withdrawal

MMSE

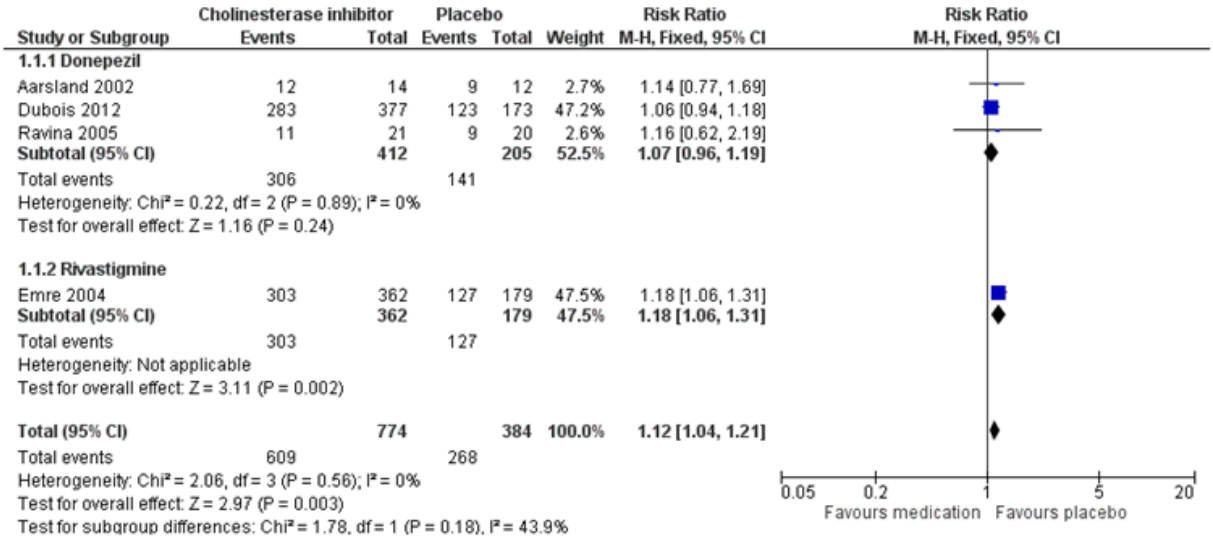


H.7.3 Pharmacological management of dementia with Lewy bodies

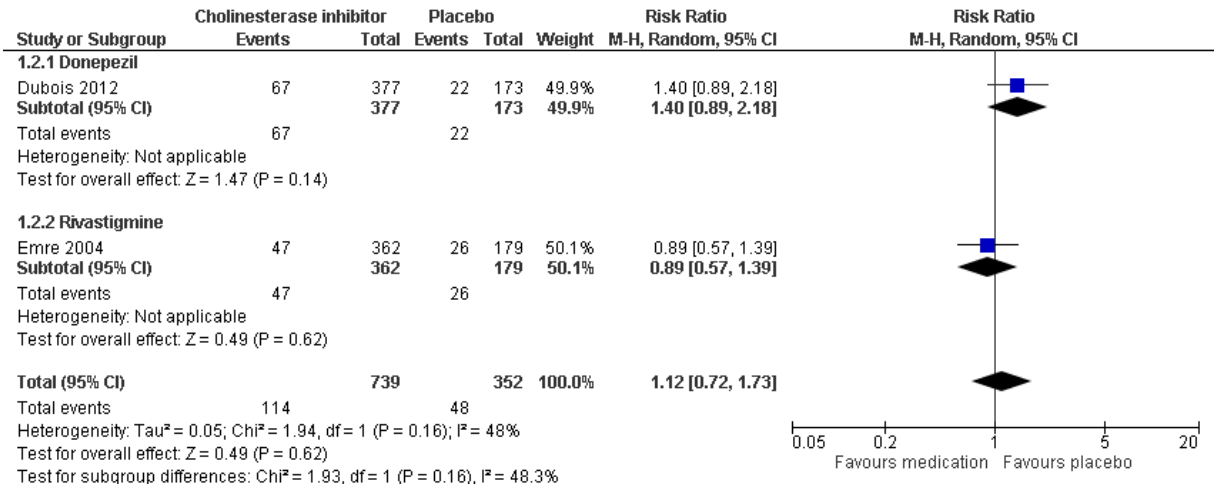
- What is the comparative effectiveness of donepezil, galantamine, memantine and rivastigmine for cognitive enhancement in dementia associated with Parkinson's disease?

H.7.3.1 PDD

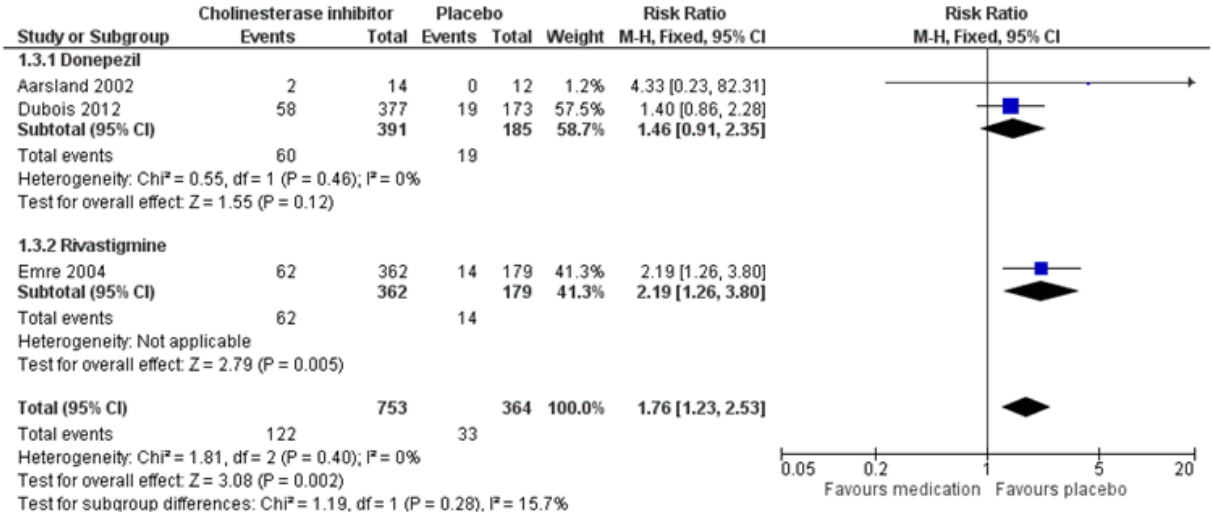
Cholinesterase inhibitor vs placebo: any adverse events (proportion of participants experiencing ≥1)



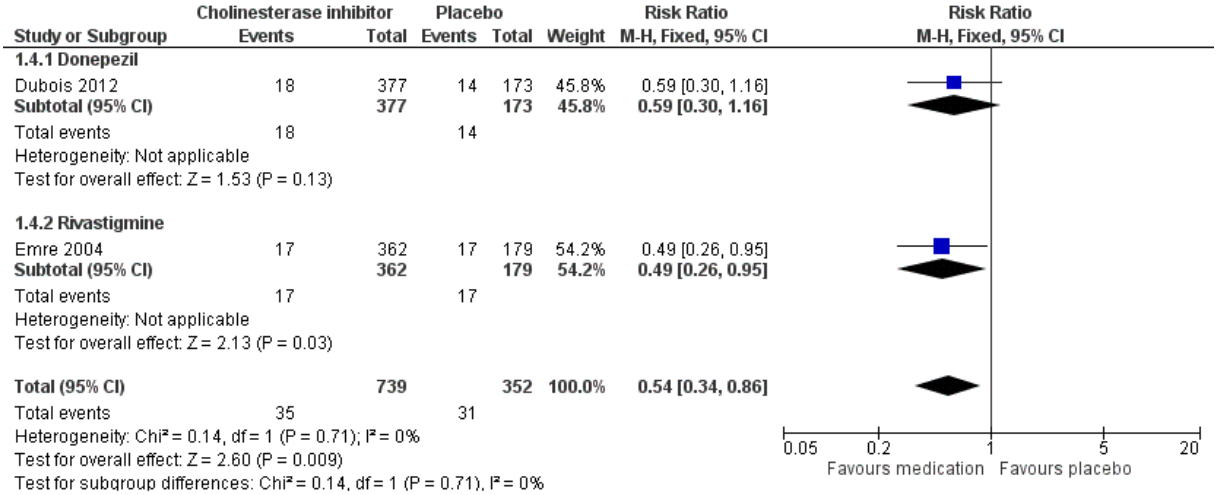
Cholinesterase inhibitor vs placebo: serious adverse events (proportion of participants experiencing ≥1)



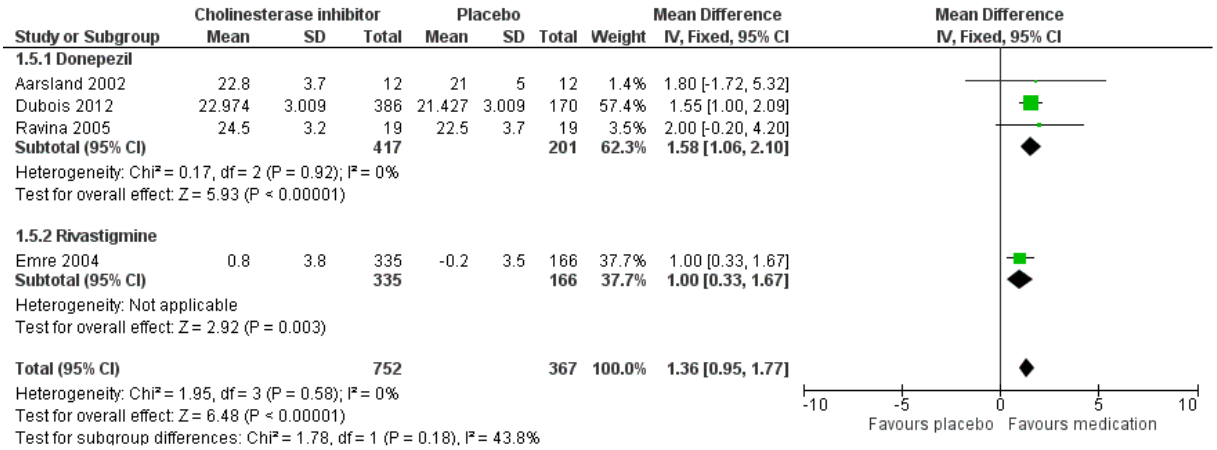
Cholinesterase inhibitor vs placebo: adverse events requiring treatment withdrawal (proportion of participants experiencing) – forest plot



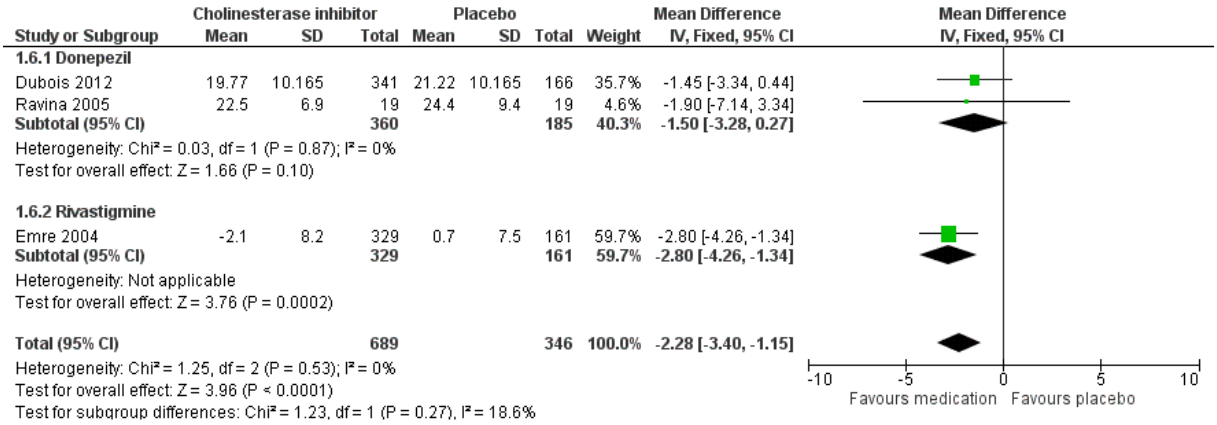
Cholinesterase inhibitor vs placebo: hallucinations (proportion of participants experiencing) – forest plot



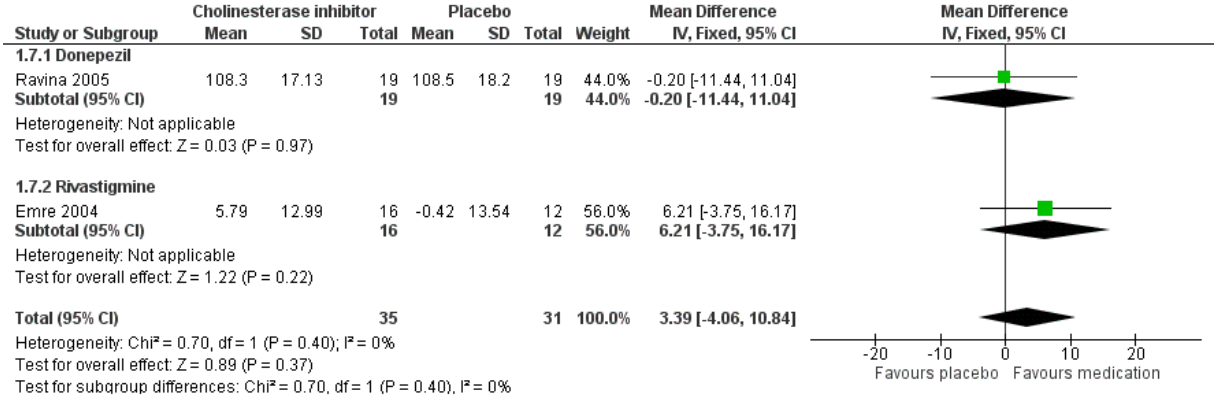
Cholinesterase inhibitor vs placebo: MMSE



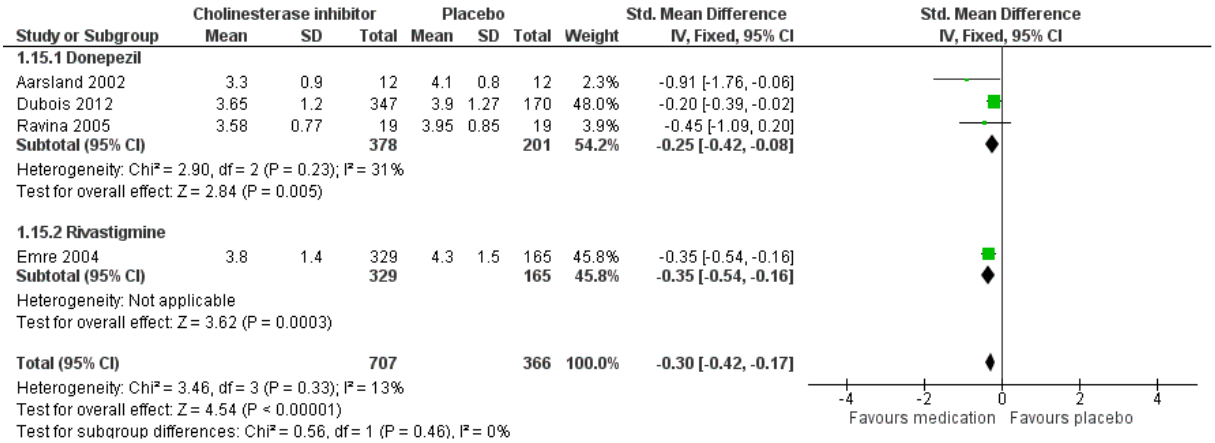
Cholinesterase inhibitor vs placebo: ADAS-cog



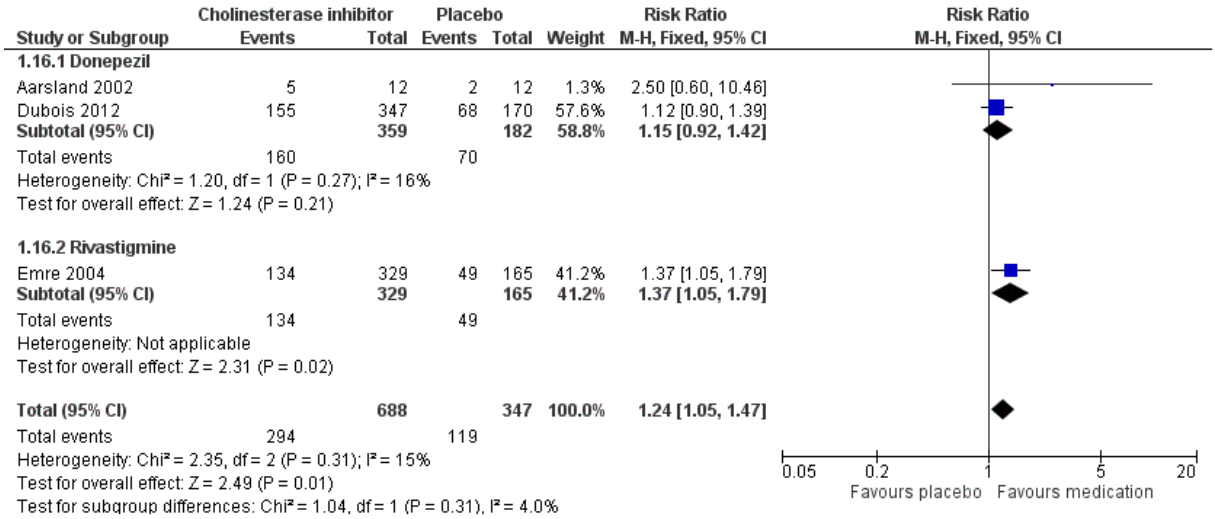
Cholinesterase inhibitor vs placebo: MDRS (total score)



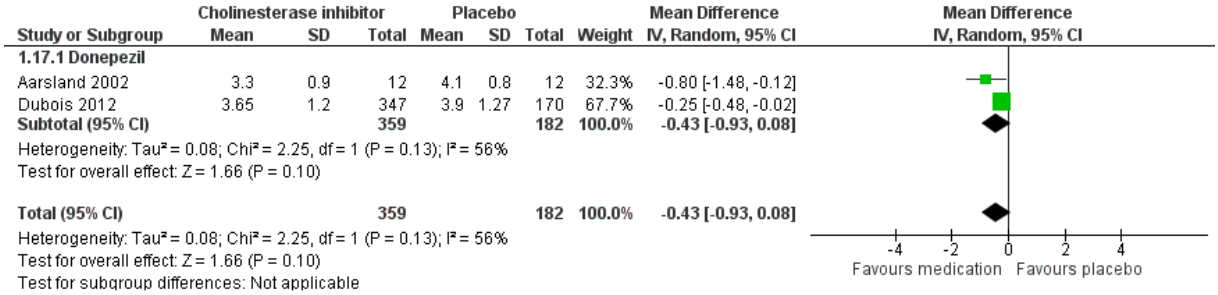
Cholinesterase inhibitor vs placebo: global function



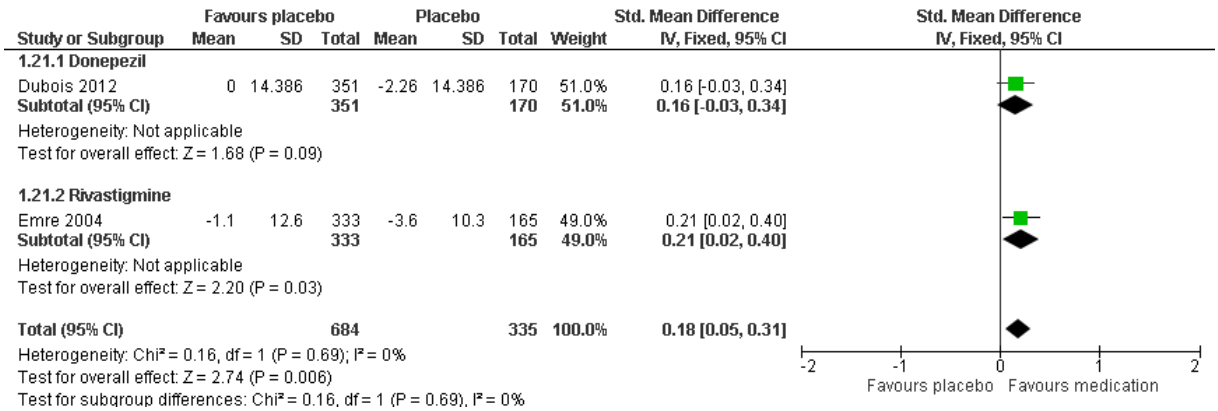
Cholinesterase inhibitor vs placebo: global response (at least minimal improvement)



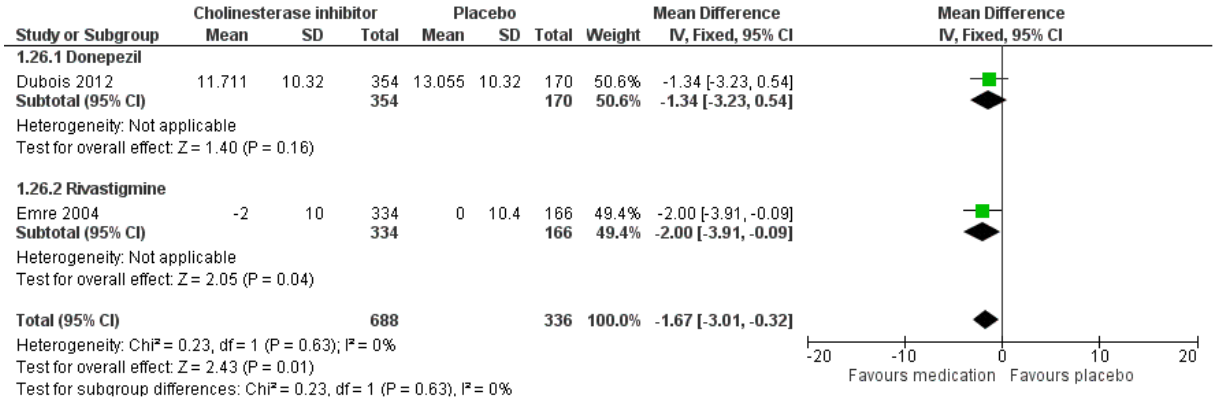
Cholinesterase inhibitor (donepezil) vs placebo: CIBIC+



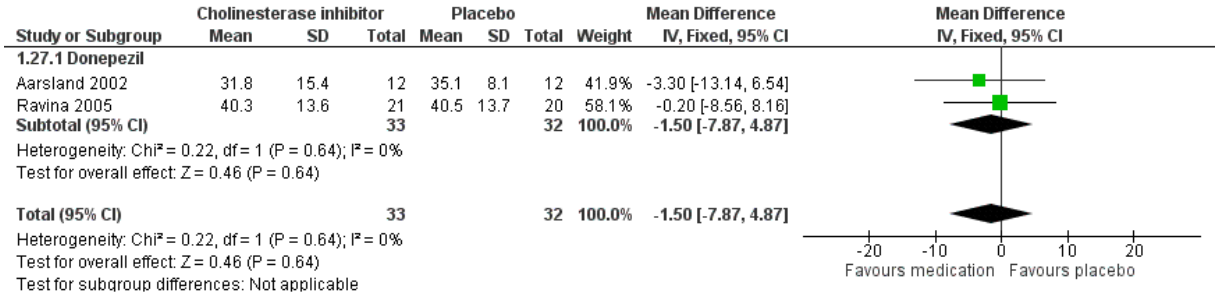
Cholinesterase inhibitor vs placebo: ADL (different measures)



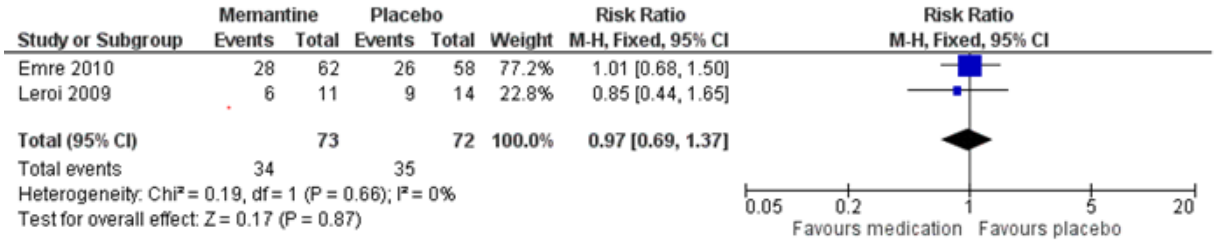
Cholinesterase inhibitor vs placebo: NPI-10 item



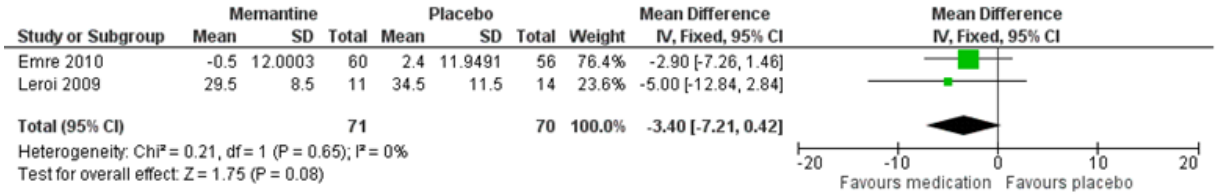
Cholinesterase inhibitor vs placebo: UPDRS III



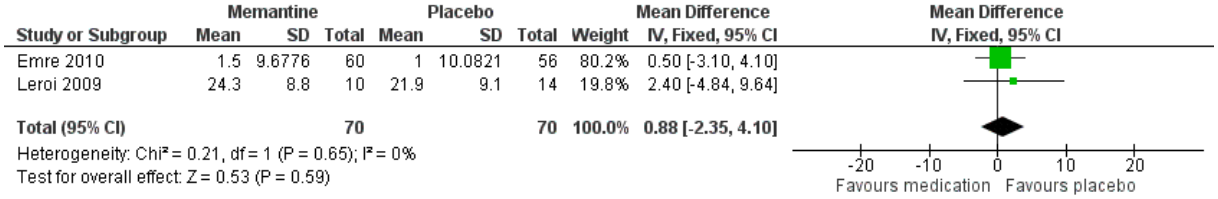
Memantine vs placebo: any adverse events (proportion of participants experiencing ≥1)



Memantine vs placebo: ZBI

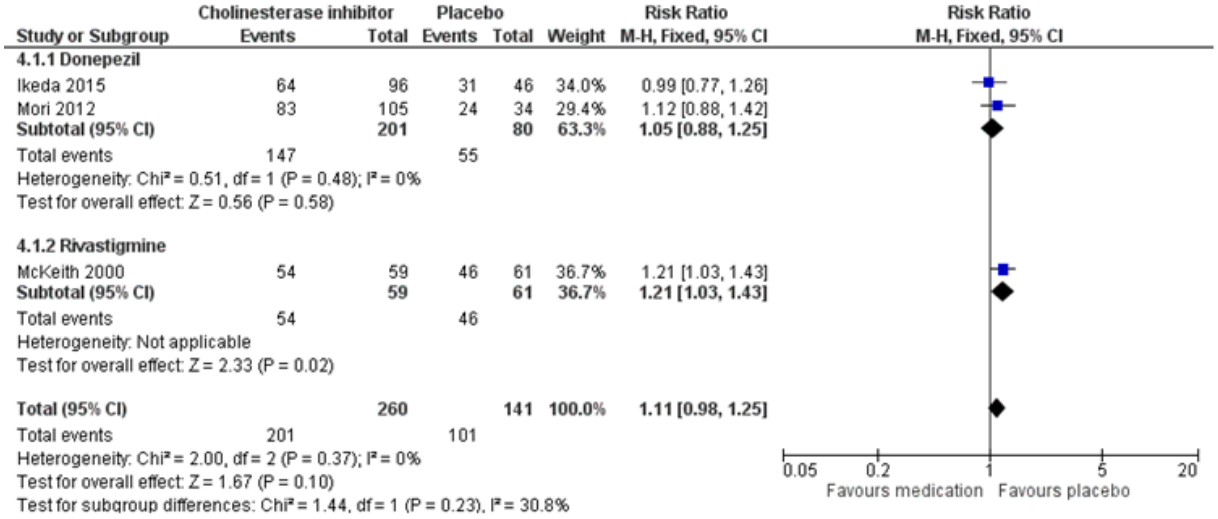


Memantine vs placebo: UPDRS III

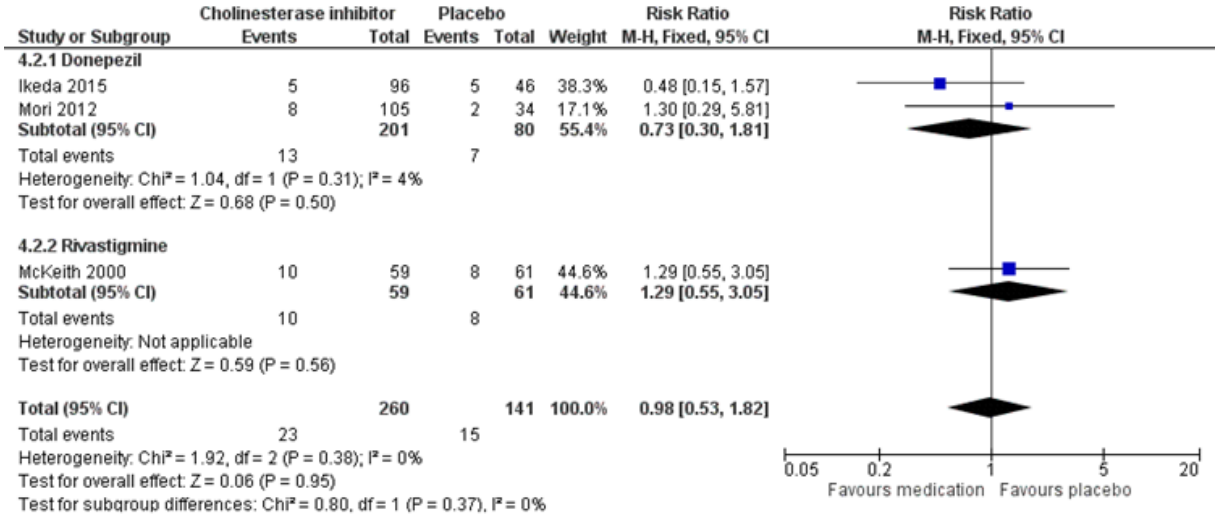


H.7.3.2 DLB

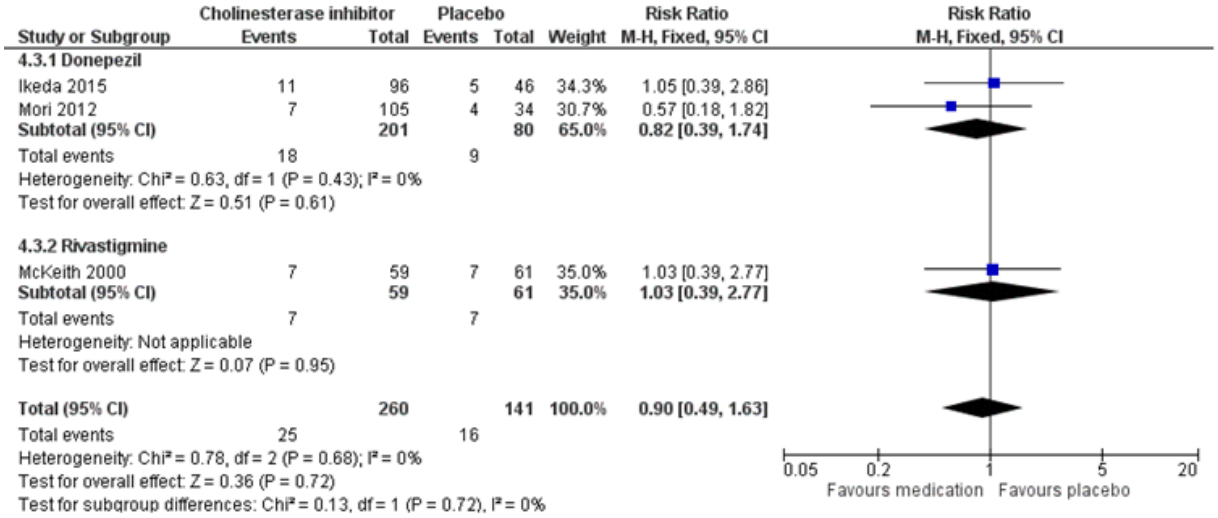
Cholinesterase inhibitor vs placebo: any adverse events (proportion of participants experiencing ≥1)



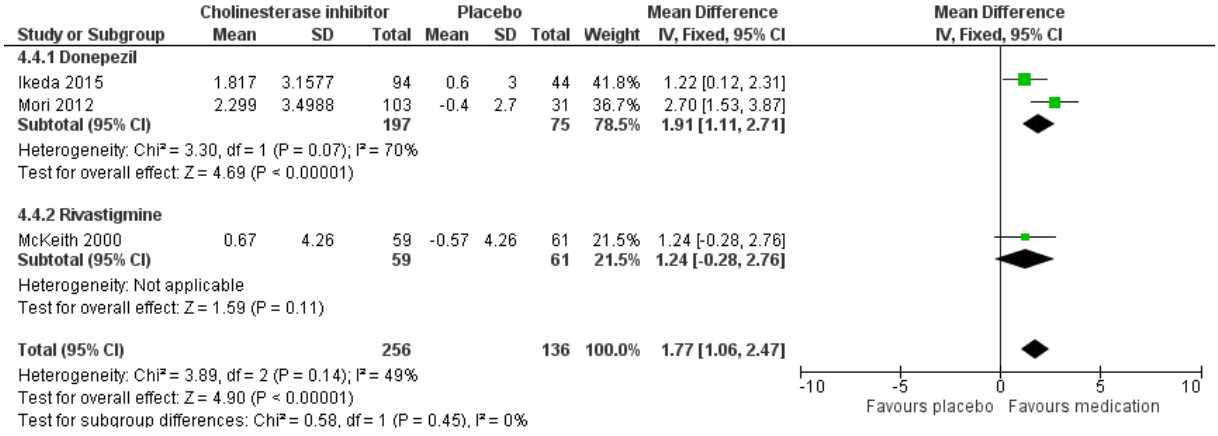
Cholinesterase inhibitor vs placebo: serious adverse events (proportion of participants experiencing ≥1)



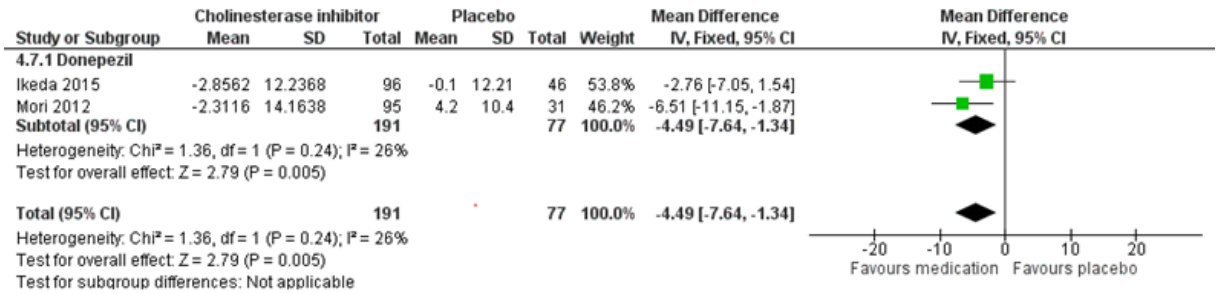
Cholinesterase inhibitor vs placebo: adverse events requiring treatment withdrawal (proportion of participants experiencing)



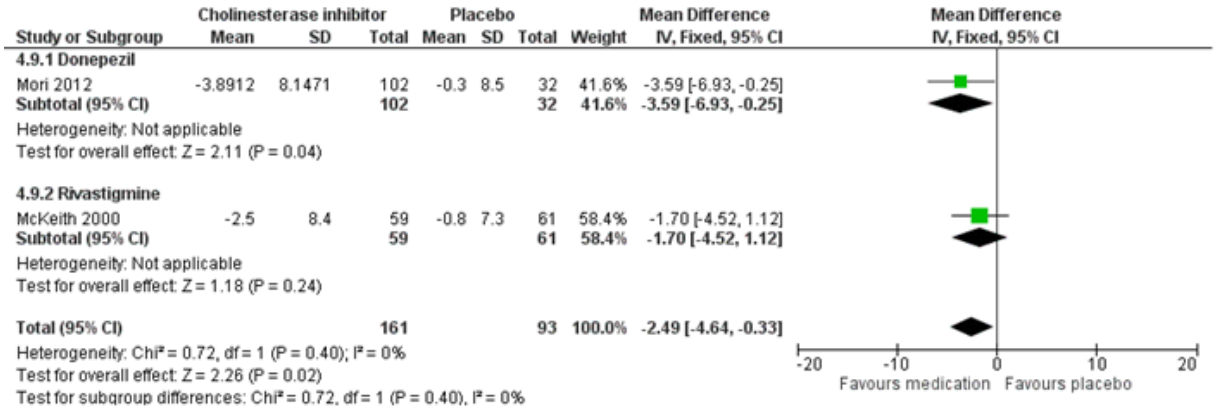
Cholinesterase inhibitor vs placebo: MMSE



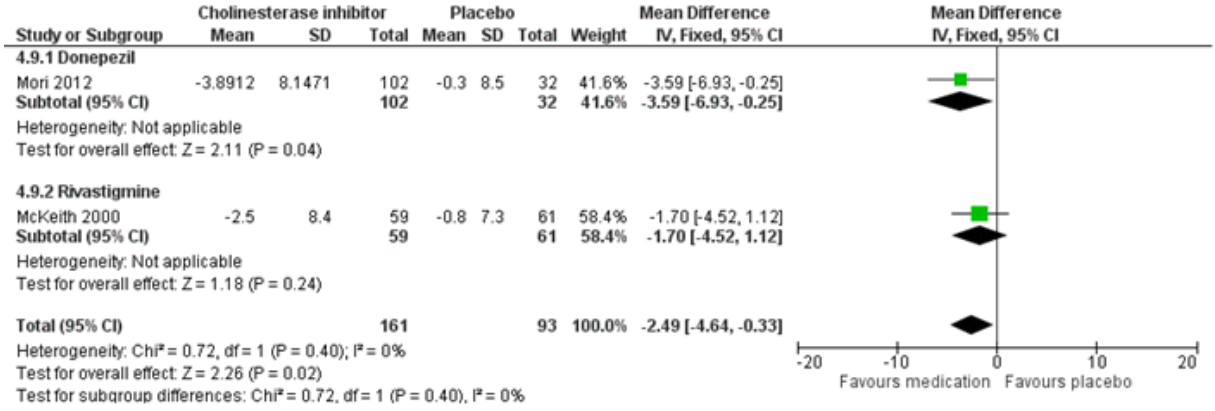
Cholinesterase inhibitor (donepezil) vs placebo: ZBI



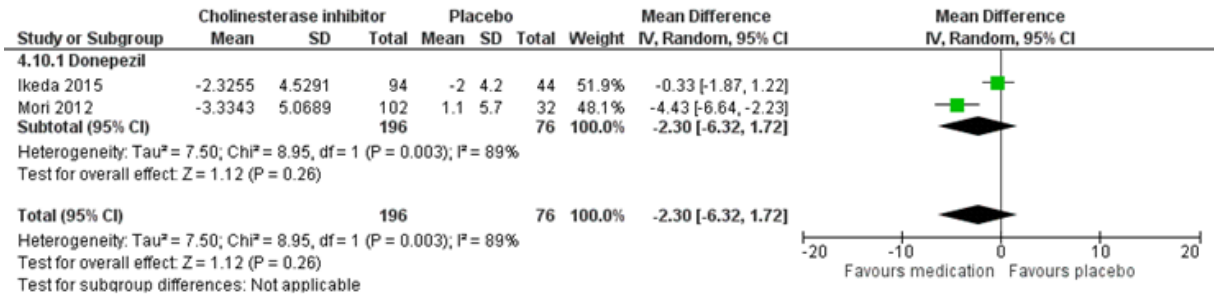
Cholinesterase inhibitor vs placebo: NPI-10 item



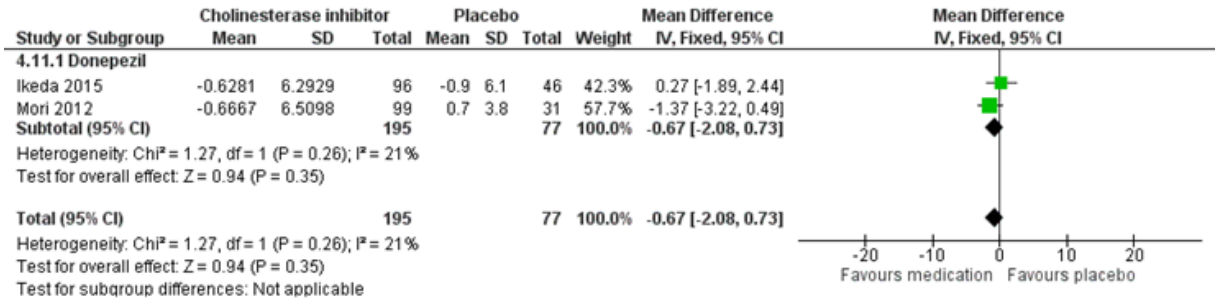
Cholinesterase inhibitor vs placebo: NPI-4 item



Cholinesterase inhibitor (donepezil) vs placebo: NPI-2 item



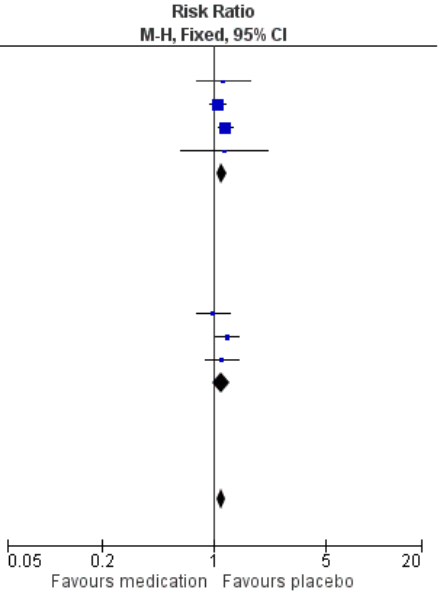
Cholinesterase inhibitor (donepezil) vs placebo: UPDRS III



H.7.3.3 Mixed population (PDD or DLB)

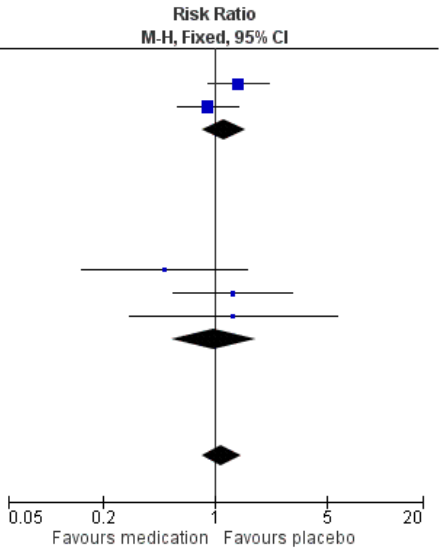
PDD/DLB – cholinesterase inhibitor vs placebo: any adverse events (proportion of participants experiencing ≥1)

Study or Subgroup	Cholinesterase inhibitor Events	Total	Placebo Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
6.1.1 PDD						
Aarsland 2002	12	14	9	12	2.0%	1.14 [0.77, 1.69]
Dubois 2012	283	377	123	173	35.1%	1.06 [0.94, 1.18]
Emre 2004	303	362	127	179	35.3%	1.18 [1.06, 1.31]
Ravina 2005	11	21	9	20	1.9%	1.16 [0.62, 2.19]
Subtotal (95% CI)		**774**		**384**	**74.3%**	**1.12 [1.04, 1.21]**
Total events	609		268			
Heterogeneity: Chi² = 2.06, df = 3 (P = 0.56); I² = 0%						
Test for overall effect: Z = 2.97 (P = 0.003)						
6.1.2 DLB						
Ikeda 2015	64	96	31	46	8.7%	0.99 [0.77, 1.26]
McKeith 2000	54	59	46	61	9.4%	1.21 [1.03, 1.43]
Mori 2012	83	105	24	34	7.5%	1.12 [0.88, 1.42]
Subtotal (95% CI)		**260**		**141**	**25.7%**	**1.11 [0.98, 1.25]**
Total events	201		101			
Heterogeneity: Chi² = 2.00, df = 2 (P = 0.37); I² = 0%						
Test for overall effect: Z = 1.67 (P = 0.10)						
Total (95% CI)		**1034**		**525**	**100.0%**	**1.12 [1.05, 1.19]**
Total events	810		369			
Heterogeneity: Chi² = 4.00, df = 6 (P = 0.68); I² = 0%						
Test for overall effect: Z = 3.41 (P = 0.0007)						
Test for subgroup differences: Chi² = 0.01, df = 1 (P = 0.90), I² = 0%						



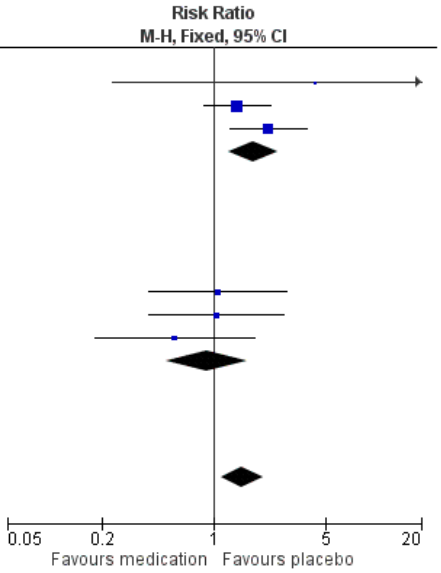
PDD/DLB – cholinesterase inhibitor vs placebo: serious adverse events (proportion of participants experiencing ≥1)

Study or Subgroup	Cholinesterase inhibitor Events	Total	Placebo Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
6.2.1 PDD						
Dubois 2012	67	377	22	173	36.5%	1.40 [0.89, 2.18]
Emre 2004	47	362	26	179	42.1%	0.89 [0.57, 1.39]
Subtotal (95% CI)		**739**		**352**	**78.6%**	**1.13 [0.82, 1.54]**
Total events	114		48			
Heterogeneity: Chi² = 1.94, df = 1 (P = 0.16); I² = 48%						
Test for overall effect: Z = 0.75 (P = 0.45)						
6.2.2 DLB						
Ikeda 2015	5	96	5	46	8.2%	0.48 [0.15, 1.57]
McKeith 2000	10	59	8	61	9.5%	1.29 [0.55, 3.05]
Mori 2012	8	105	2	34	3.7%	1.30 [0.29, 5.81]
Subtotal (95% CI)		**260**		**141**	**21.4%**	**0.98 [0.53, 1.82]**
Total events	23		15			
Heterogeneity: Chi² = 1.92, df = 2 (P = 0.38); I² = 0%						
Test for overall effect: Z = 0.06 (P = 0.95)						
Total (95% CI)		**999**		**493**	**100.0%**	**1.10 [0.83, 1.45]**
Total events	137		63			
Heterogeneity: Chi² = 4.00, df = 4 (P = 0.41); I² = 0%						
Test for overall effect: Z = 0.65 (P = 0.52)						
Test for subgroup differences: Chi² = 0.15, df = 1 (P = 0.69), I² = 0%						



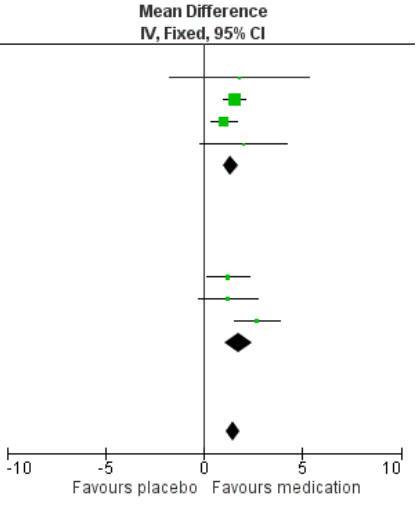
PDD/DLB – cholinesterase inhibitor vs placebo: adverse events requiring treatment withdrawal (proportion of participants experiencing)

Study or Subgroup	Cholinesterase inhibitor Events	Total	Placebo Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
6.3.1 PDD						
Aarsland 2002	2	14	0	12	0.8%	4.33 [0.23, 82.31]
Dubois 2012	58	377	19	173	40.1%	1.40 [0.86, 2.28]
Emre 2004	62	362	14	179	28.8%	2.19 [1.26, 3.80]
Subtotal (95% CI)		**753**		**364**	**69.7%**	**1.76 [1.23, 2.53]**
Total events	122		33			
Heterogeneity: Chi² = 1.81, df = 2 (P = 0.40); I² = 0%						
Test for overall effect: Z = 3.08 (P = 0.002)						
6.3.2 DLB						
Ikeda 2015	11	96	5	46	10.4%	1.05 [0.39, 2.86]
McKeith 2000	7	59	7	61	10.6%	1.03 [0.39, 2.77]
Mori 2012	7	105	4	34	9.3%	0.57 [0.18, 1.82]
Subtotal (95% CI)		**260**		**141**	**30.3%**	**0.90 [0.49, 1.63]**
Total events	25		16			
Heterogeneity: Chi² = 0.78, df = 2 (P = 0.68); I² = 0%						
Test for overall effect: Z = 0.36 (P = 0.72)						
Total (95% CI)		**1013**		**505**	**100.0%**	**1.50 [1.10, 2.04]**
Total events	147		49			
Heterogeneity: Chi² = 6.09, df = 5 (P = 0.30); I² = 18%						
Test for overall effect: Z = 2.60 (P = 0.009)						
Test for subgroup differences: Chi² = 3.61, df = 1 (P = 0.06), I² = 72.3%						



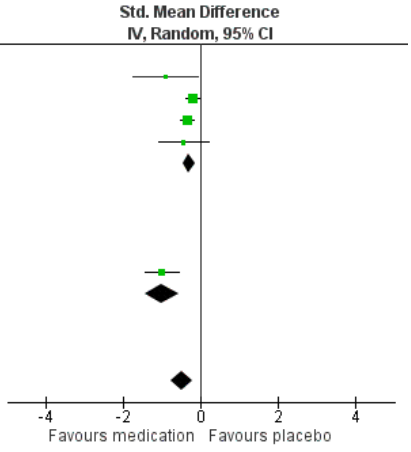
PDD/DLB – cholinesterase inhibitor vs placebo: MMSE

Study or Subgroup	Cholinesterase inhibitor Mean	SD	Total	Placebo Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
6.4.1 PDD								
Aarsland 2002	22.8	3.7	12	21	5	12	1.0%	1.80 [-1.72, 5.32]
Dubois 2012	22.974	3.009	386	21.427	3.009	170	42.9%	1.55 [1.00, 2.09]
Emre 2004	0.8	3.8	335	-0.2	3.5	166	28.1%	1.00 [0.33, 1.67]
Ravina 2005	24.5	3.2	19	22.5	3.7	19	2.6%	2.00 [-0.20, 4.20]
Subtotal (95% CI)		**752**				**367**	**74.7%**	**1.36 [0.95, 1.77]**
Heterogeneity: Chi² = 1.95, df = 3 (P = 0.58); I² = 0%								
Test for overall effect: Z = 6.48 (P < 0.00001)								
6.4.2 DLB								
Ikeda 2015	1.817	3.1577	94	0.6	3	44	10.6%	1.22 [0.12, 2.31]
McKeith 2000	0.67	4.26	59	-0.57	4.26	61	5.4%	1.24 [-0.28, 2.76]
Mori 2012	2.299	3.4988	103	-0.4	2.7	31	9.3%	2.70 [1.53, 3.87]
Subtotal (95% CI)		**256**				**136**	**25.3%**	**1.77 [1.06, 2.47]**
Heterogeneity: Chi² = 3.89, df = 2 (P = 0.14); I² = 49%								
Test for overall effect: Z = 4.90 (P < 0.00001)								
Total (95% CI)		**1008**				**503**	**100.0%**	**1.46 [1.11, 1.82]**
Heterogeneity: Chi² = 6.78, df = 6 (P = 0.34); I² = 12%								
Test for overall effect: Z = 8.06 (P < 0.00001)								
Test for subgroup differences: Chi² = 0.95, df = 1 (P = 0.33), I² = 0%								

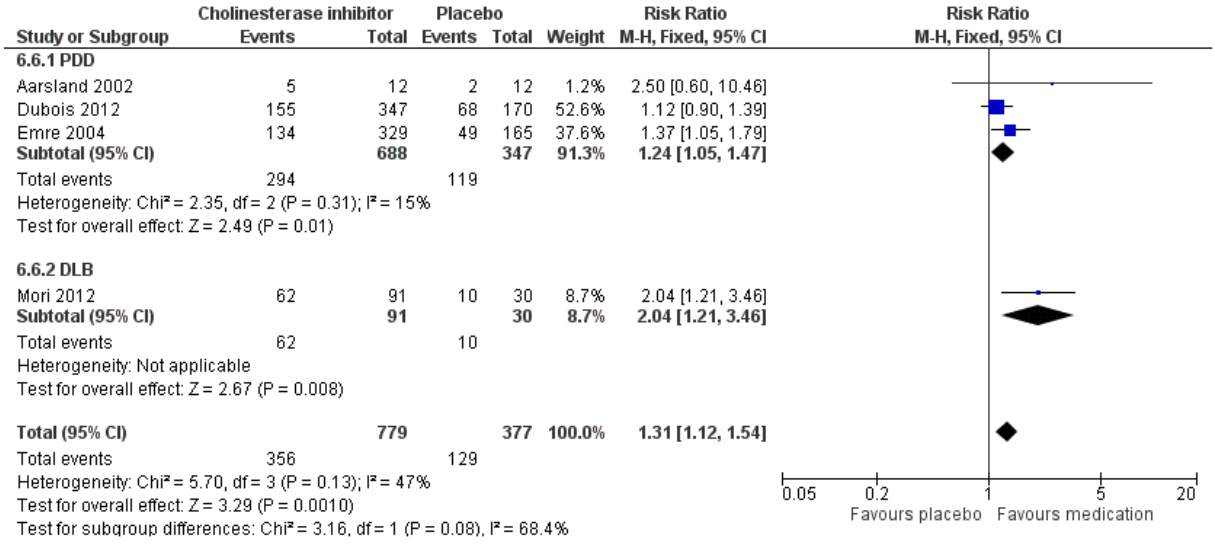


PDD/DLB – cholinesterase inhibitor vs placebo: global function (different measures)

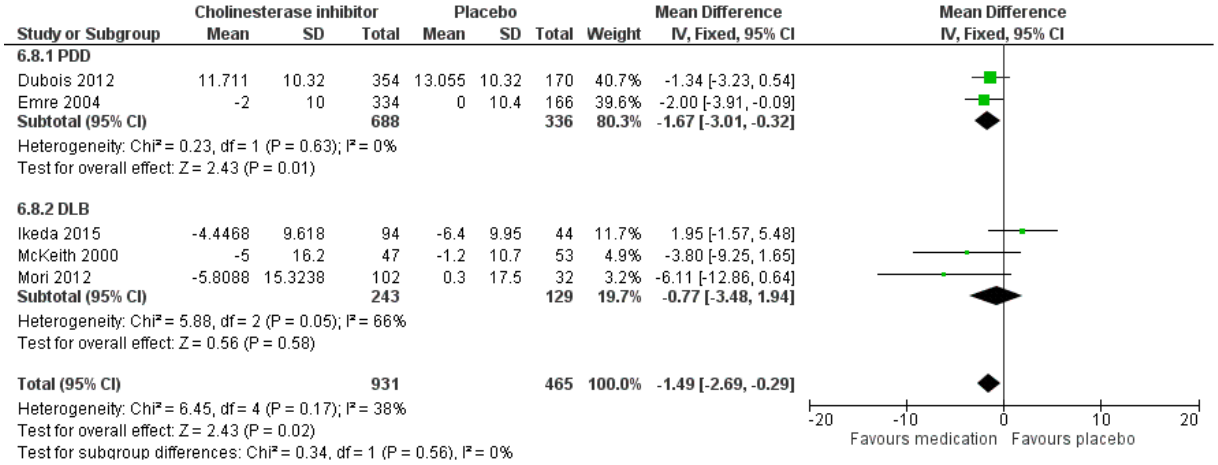
Study or Subgroup	Cholinesterase inhibitor Mean	SD	Total	Placebo Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
6.5.1 PDD								
Aarsland 2002	3.3	0.9	12	4.1	0.8	12	8.1%	-0.91 [-1.76, -0.06]
Dubois 2012	3.65	1.2	347	3.9	1.27	170	30.6%	-0.20 [-0.39, -0.02]
Emre 2004	3.8	1.4	329	4.3	1.5	165	30.4%	-0.35 [-0.54, -0.16]
Ravina 2005	3.58	0.77	19	3.95	0.85	19	12.0%	-0.45 [-1.09, 0.20]
Subtotal (95% CI)		**707**				**366**	**81.1%**	**-0.30 [-0.45, -0.15]**
Heterogeneity: Tau² = 0.00; Chi² = 3.46, df = 3 (P = 0.33); I² = 13%								
Test for overall effect: Z = 4.00 (P < 0.0001)								
6.5.2 DLB								
Mori 2012	3.0997	1.1512	91	4.27	1.197	30	18.9%	-1.00 [-1.43, -0.57]
Subtotal (95% CI)		**91**				**30**	**18.9%**	**-1.00 [-1.43, -0.57]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 4.54 (P < 0.00001)								
Total (95% CI)		**798**				**396**	**100.0%**	**-0.48 [-0.76, -0.21]**
Heterogeneity: Tau² = 0.06; Chi² = 12.87, df = 4 (P = 0.01); I² = 69%								
Test for overall effect: Z = 3.45 (P = 0.0006)								
Test for subgroup differences: Chi² = 8.96, df = 1 (P = 0.003), I² = 88.8%								



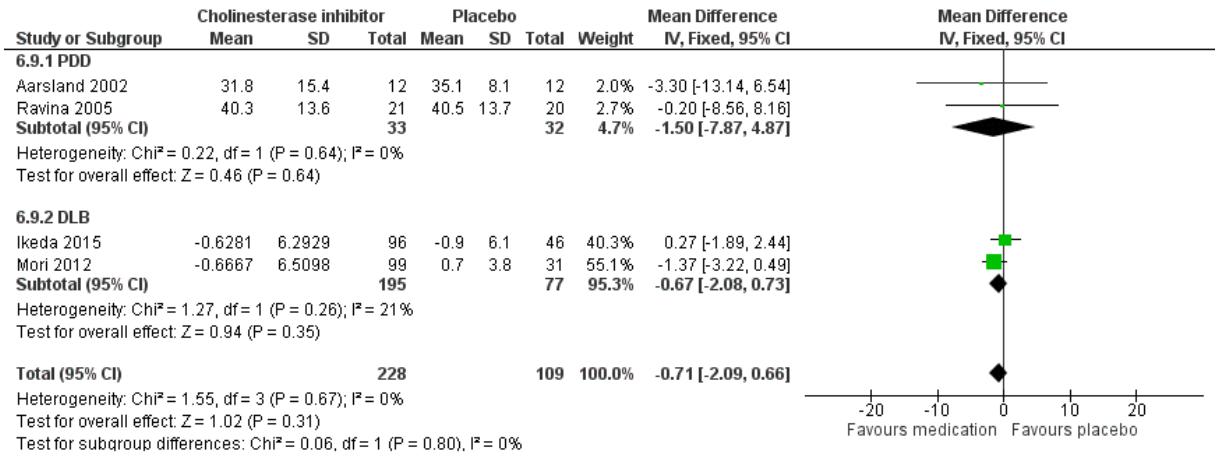
PDD/DLB – cholinesterase inhibitor vs placebo: global response (at least minimal improvement)



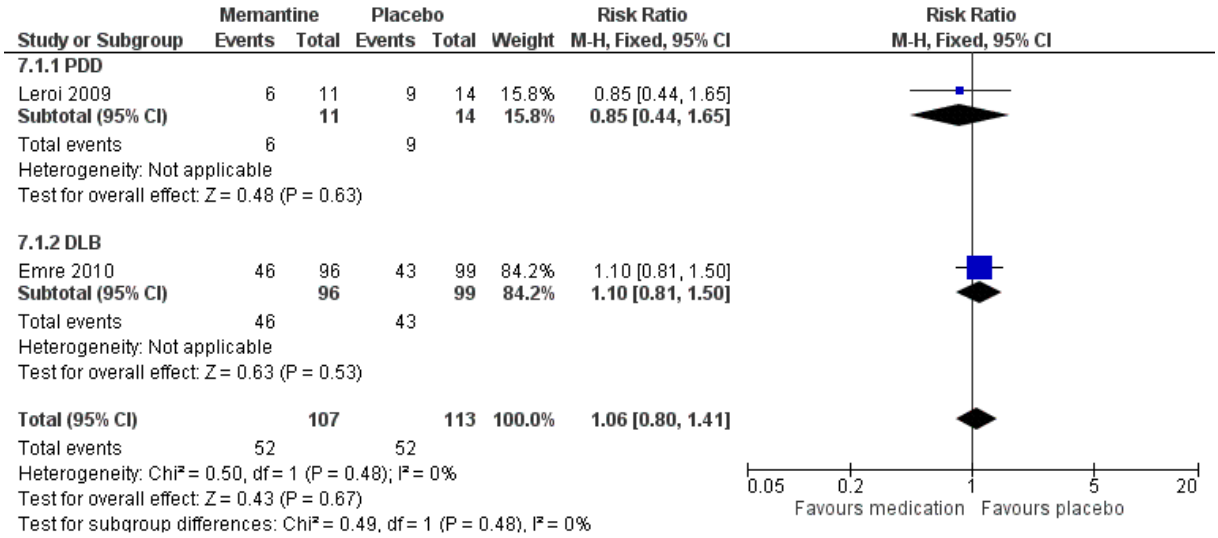
PDD/DLB – cholinesterase inhibitor vs placebo: NPI-10 item



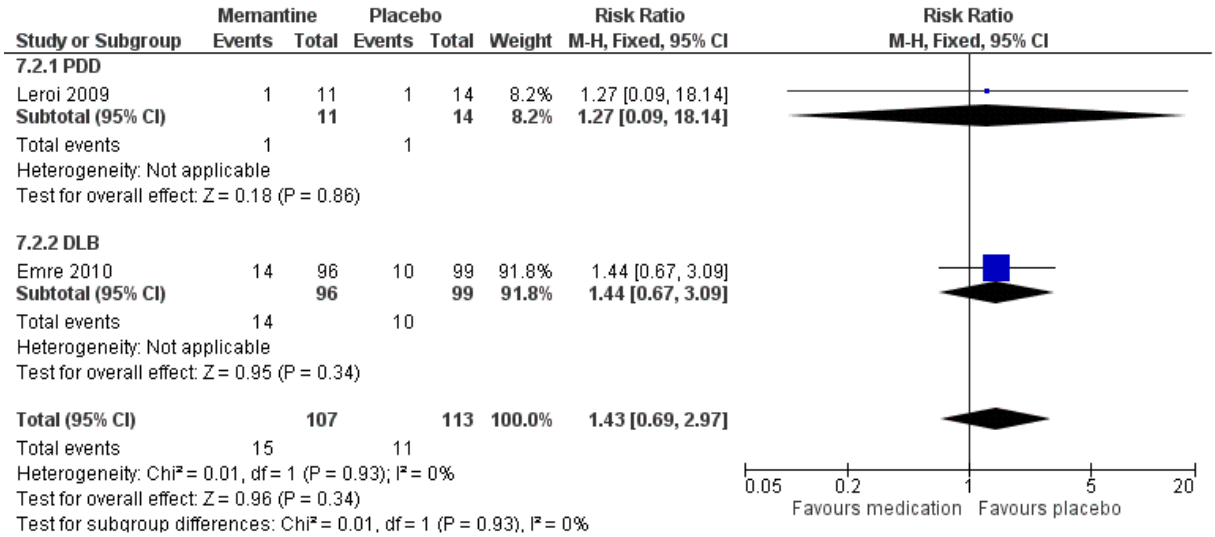
PDD/DLB – cholinesterase inhibitor vs placebo: UPDRS III



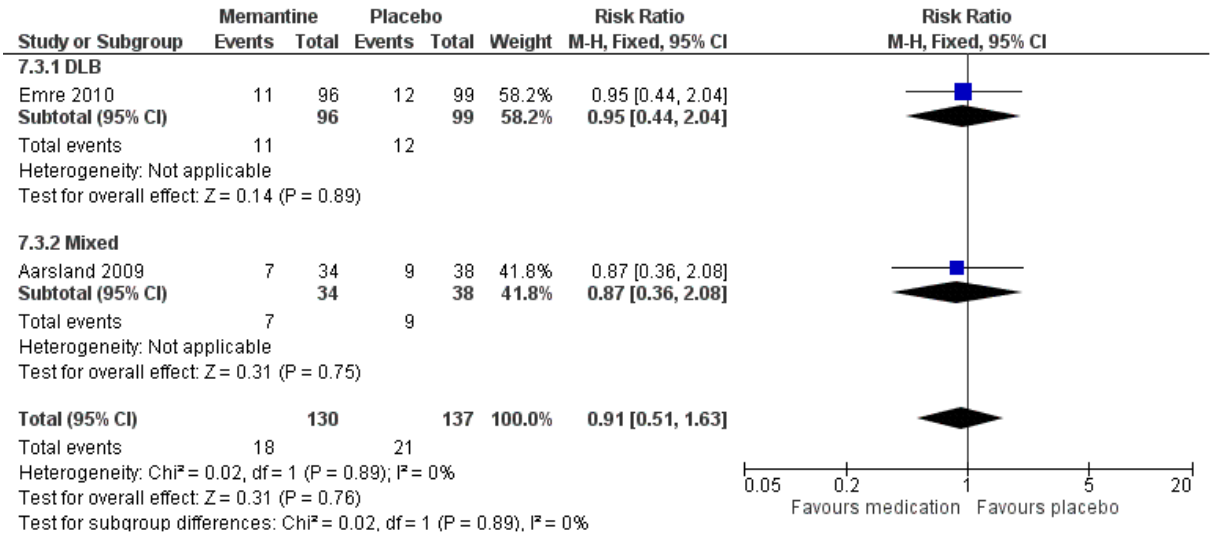
PDD/DLB – memantine vs placebo: any adverse events (proportion of participants experiencing ≥1)



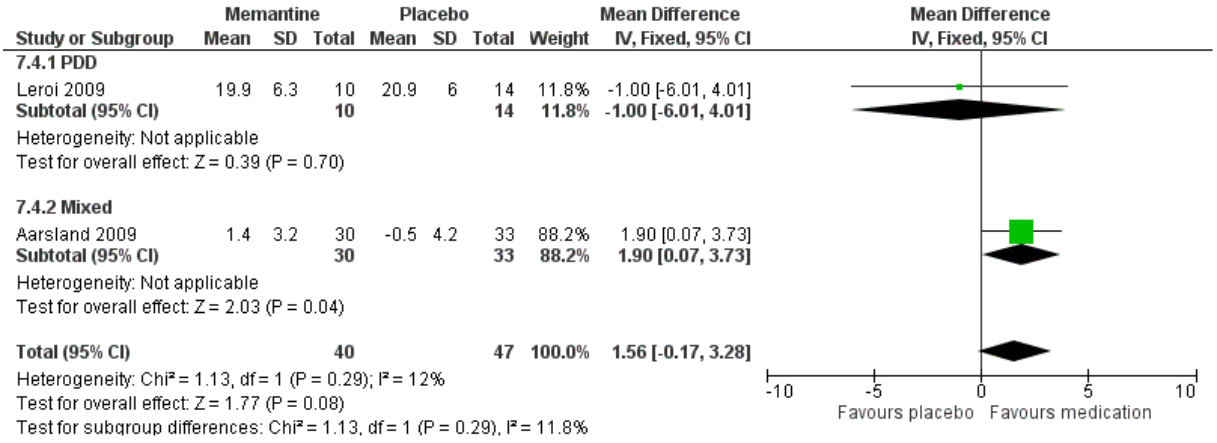
PDD/DLB – memantine vs placebo: serious adverse events (proportion of participants experiencing ≥1)



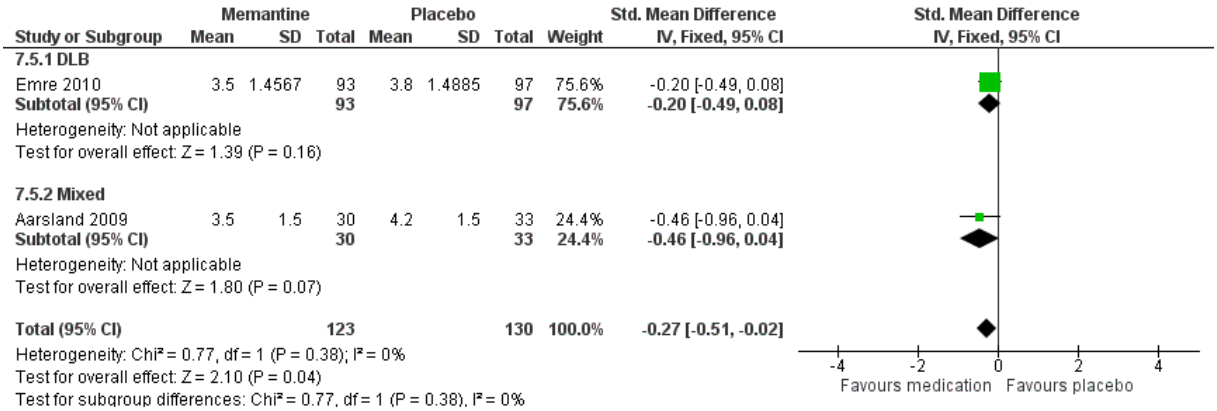
PDD/DLB – memantine vs placebo: adverse events requiring treatment withdrawal (proportion of participants experiencing)



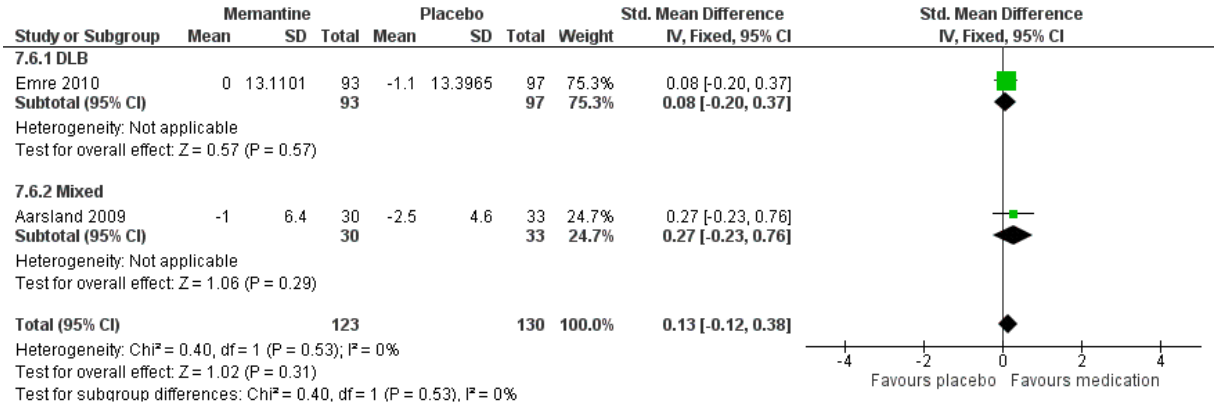
PDD/DLB – memantine vs placebo: MMSE



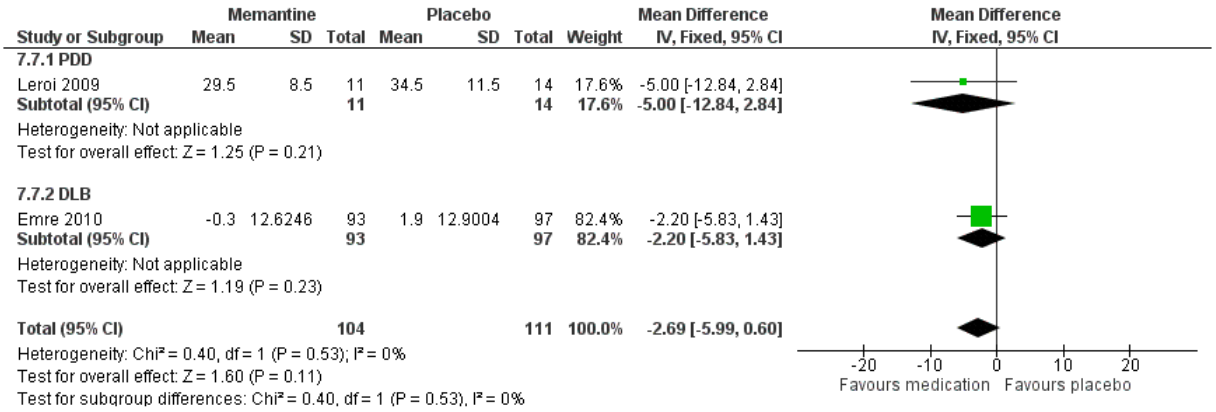
PDD/DLB – memantine vs placebo: global function (different measures)



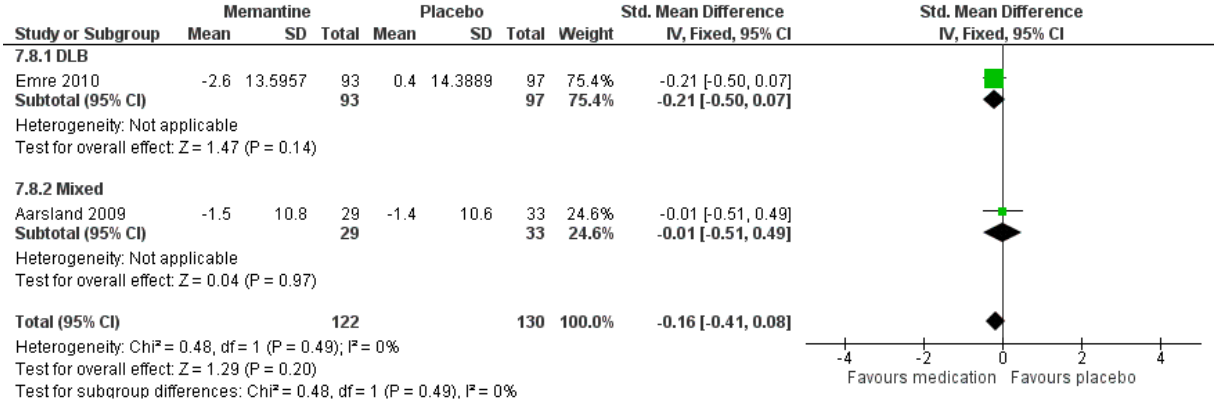
PDD/DLB – memantine vs placebo: activities of daily living (different measures)



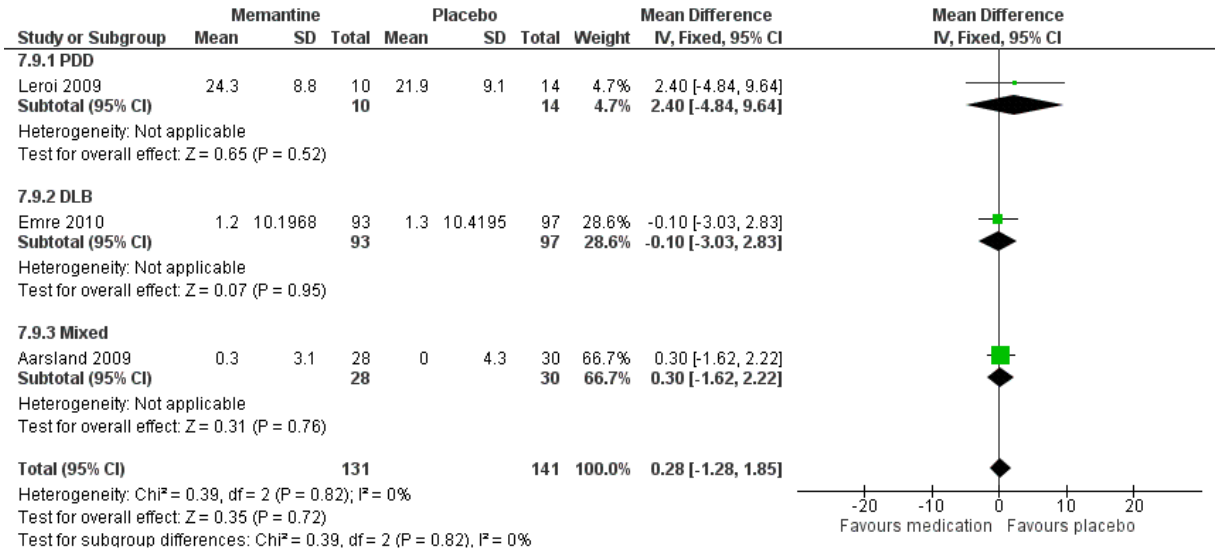
PDD/DLB – memantine vs placebo: ZBI



PDD/DLB – memantine vs placebo: NPI (different measures)

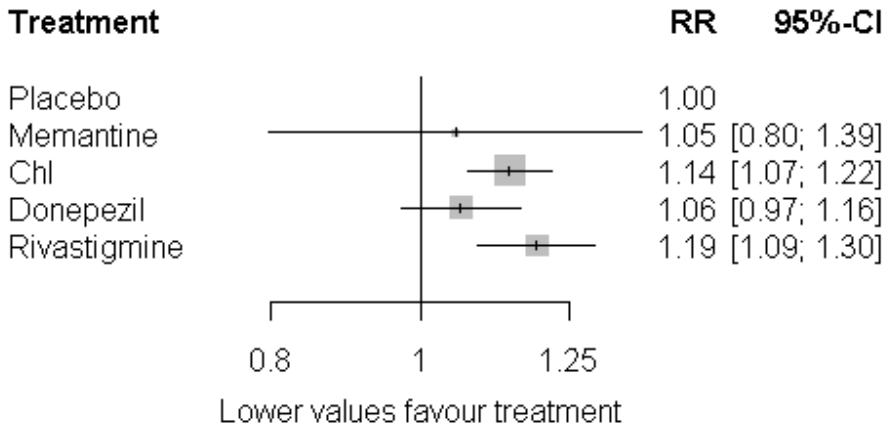


PDD/DLB – memantine vs placebo: UPDRS III



Network meta-analyses

PDD/DLB – any adverse events – FE model



Differences between treatments – relative risk and 95% confidence interval

	Placebo	Memantine	Chl	Donepezil	Rivastigmine
Placebo	N/A				
Memantine	1.05 (0.80, 1.39)	N/A			
Chl	1.14 (1.07, 1.22)	1.08 (0.81, 1.44)	N/A		
Donepezil	1.06 (0.97, 1.16)	1.01 (0.75, 1.35)	N/A	N/A	
Rivastigmine	1.19 (1.09, 1.30)	1.13 (0.84, 1.51)	N/A	1.12 (0.99, 1.27)	N/A

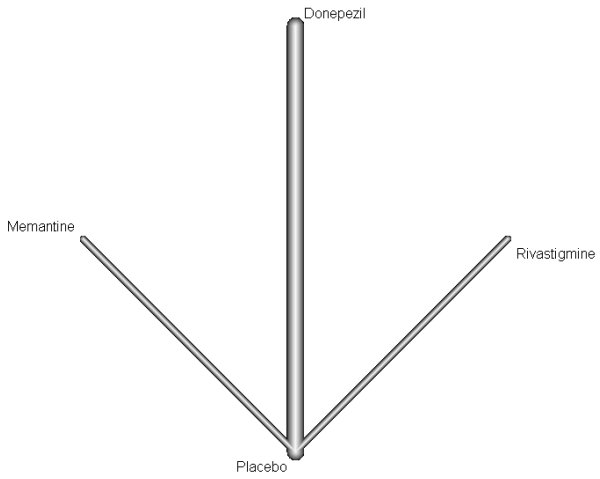
Quantifying heterogeneity/inconsistency:

$tau^2 < 0.0001$; $I^2 = 0\%$

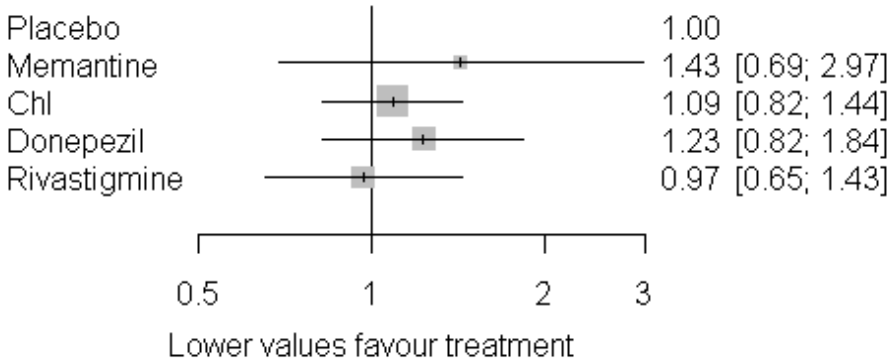
Test of heterogeneity/inconsistency:

Q	d.f.	p.value
1.31	6	0.971

Network graph:



PDD/DLB – serious adverse events – FE model



Differences between treatments – relative risk and 95% confidence interval

	Placebo	Memantine	ChI	Donepezil	Rivastigmine
Placebo	N/A				
Memantine	1.43 (0.69, 2.97)	N/A			
ChI	1.09 (0.82, 1.44)	0.76 (0.35, 1.67)	N/A		
Donepezil	1.23 (0.82, 1.84)	0.86 (0.37, 1.98)	N/A	N/A	
Rivastigmine	0.97 (0.65, 1.43)	0.68 (0.29, 1.55)	N/A	0.79 (0.45, 1.38)	N/A

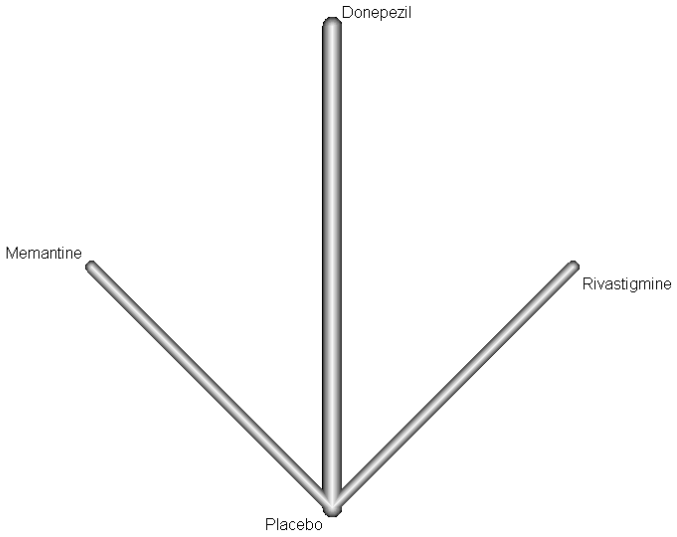
Quantifying heterogeneity/inconsistency:

$tau^2 < 0.0001$; $I^2 = 0\%$

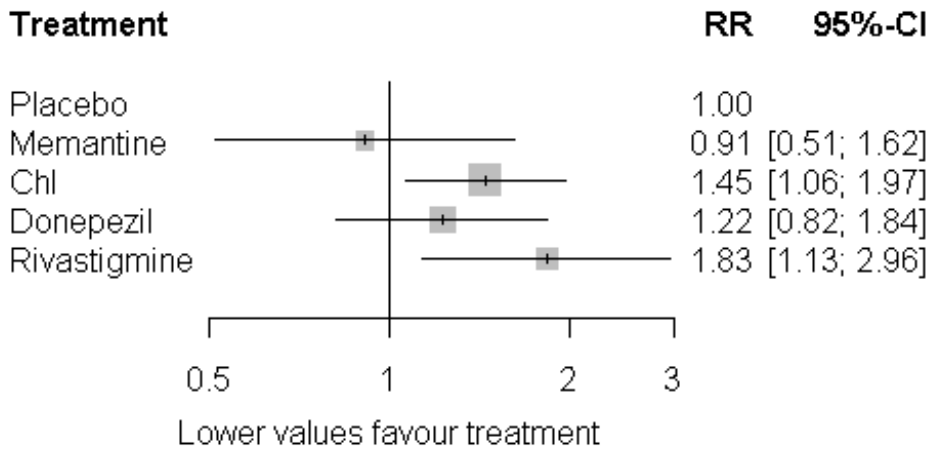
Test of heterogeneity/inconsistency:

Q	d.f.	p.value
3.3	4	0.5087

Network graph:



PDD/DLB – adverse events requiring treatment withdrawal – FE model



Differences between treatments – relative risk and 95% confidence interval

	Placebo	Memantine	Chl	Donepezil	Rivastigmine
Placebo	N/A				
Memantine	0.91 (0.51, 1.62)	N/A			
Chl	1.45 (1.06, 1.97)	1.59 (0.82, 3.05)	N/A		
Donepezil	1.22 (0.82, 1.84)	1.34 (0.66, 2.72)	N/A	N/A	
Rivastigmine	1.83 (1.13, 2.96)	2.01 (0.95, 4.26)	N/A	1.50 (0.80, 2.80)	N/A

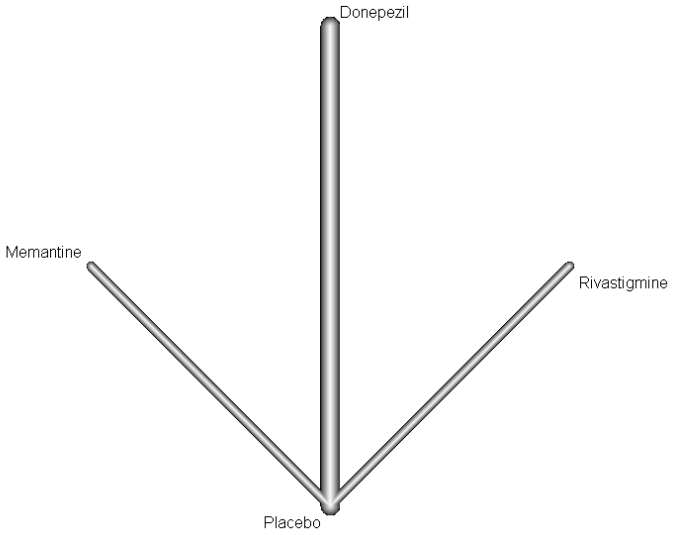
Quantifying heterogeneity/inconsistency:

$tau^2 < 0.0001$; $I^2 = 0\%$

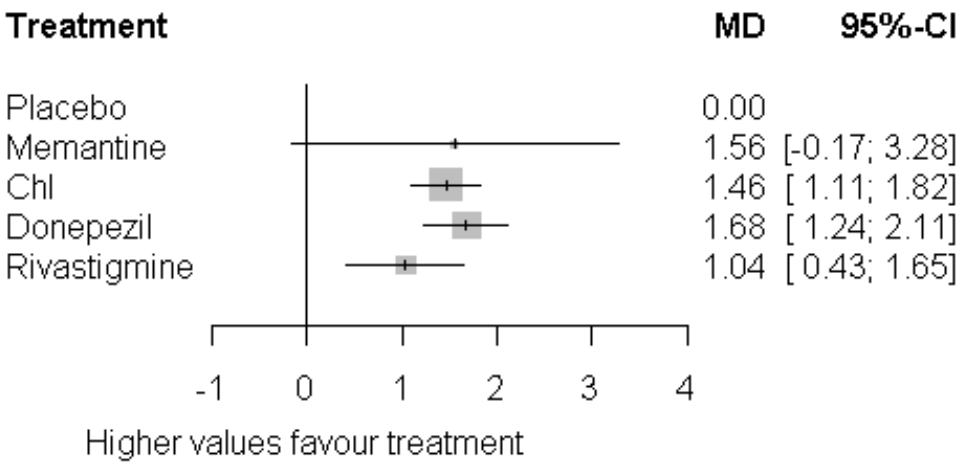
Test of heterogeneity/inconsistency:

Q	d.f.	p.value
4.49	5	0.4819

Network graph:



PDD/DLB – MMSE – FE model



Differences between treatments – mean difference and 95% confidence interval

	Placebo	Memantine	Chl	Donepezil	Rivastigmine
Placebo	N/A				
Memantine	1.56 (-0.17, 3.28)	N/A			
Chl	1.46 (1.11, 1.82)	-0.09 (-1.85, 1.66)	N/A		
Donepezil	1.68 (1.24, 2.11)	0.12 (-1.66, 1.90)	N/A	N/A	
Rivastigmine	1.04 (0.43, 1.65)	-0.52 (-2.35, 1.31)	N/A	-0.64 (-1.39, 0.11)	N/A

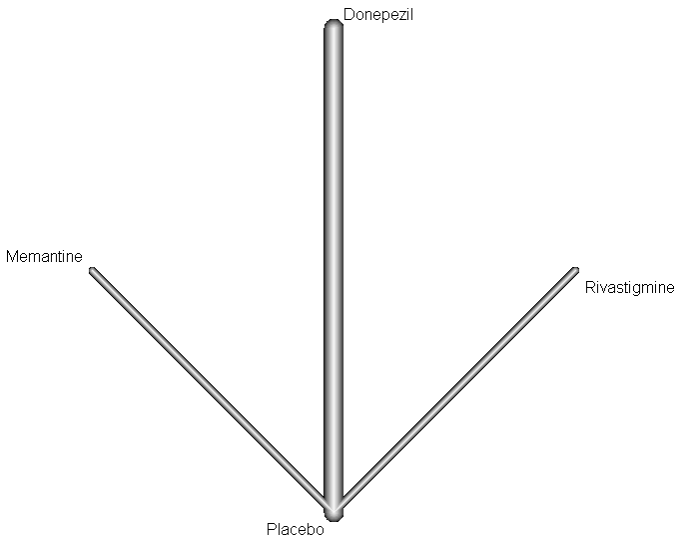
Quantifying heterogeneity/inconsistency:

$tau^2 < 0.0001$; $I^2 = 0\%$

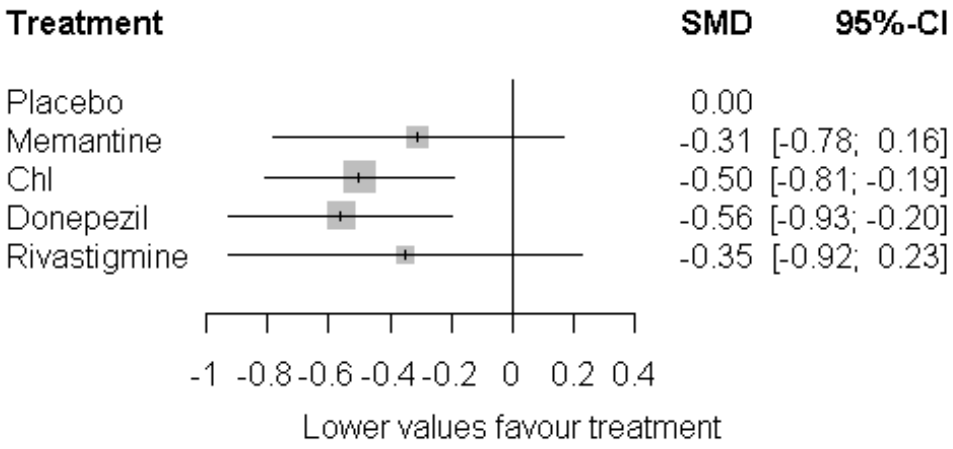
Test of heterogeneity/inconsistency:

Q	d.f.	p.value
5.15	6	0.5243

Network graph:



PDD/DLB – global function – RE model



Differences between treatments – standardised mean difference and 95% confidence interval

	Placebo	Memantine	ChI	Donepezil	Rivastigmine
Placebo	N/A				
Memantine	-0.31 (-0.78, 0.16)	N/A			
ChI	-0.50 (-0.81, -0.19)	-0.19 (-0.76, 0.37)	N/A		
Donepezil	-0.56 (-0.93, -0.20)	-0.25 (-0.85, 0.34)	N/A	N/A	
Rivastigmine	-0.35 (-0.92, 0.23)	-0.04 (-0.78, 0.70)	N/A	0.21 (-0.47, 0.90)	N/A

Quantifying heterogeneity/inconsistency:

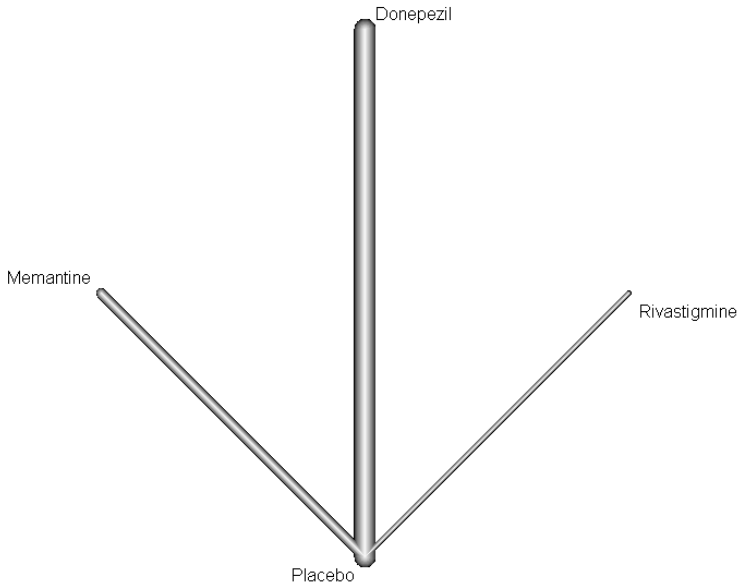
$tau^2 = 0.1182$; $I^2 = 70.7\%$

Test of heterogeneity/inconsistency:

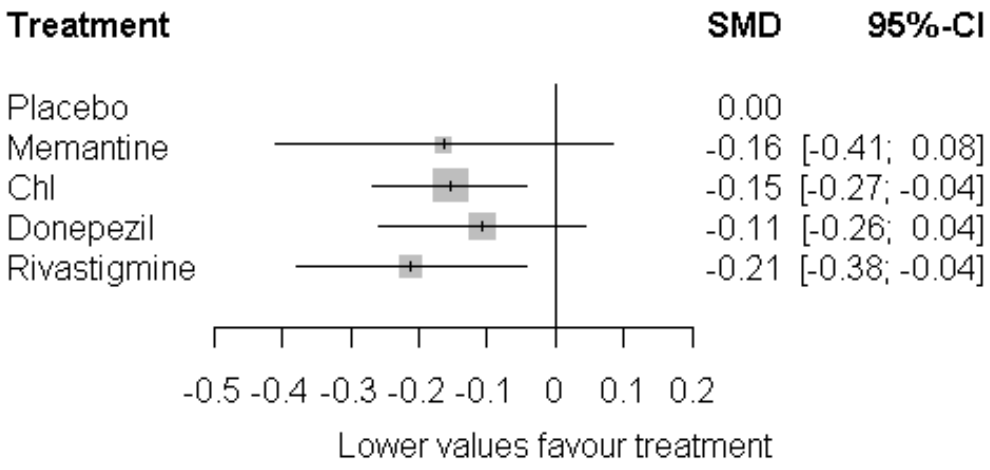
Q d.f. p.value

13.63 4 0.0086

Network graph:



PDD/DLB – NPI – FE model



Differences between treatments – standardised mean difference and 95% confidence interval

	Placebo	Memantine	Chl	Donepezil	Rivastigmine
Placebo	N/A				
Memantine	-0.16 (-0.41, 0.08)	N/A			
Chl	-0.15 (-0.27, -0.04)	0.01 (-0.26, 0.28)	N/A		
Donepezil	-0.11 (-0.26, 0.04)	0.06 (-0.23, 0.35)	N/A	N/A	
Rivastigmine	-0.21 (-0.38, -0.04)	-0.05 (-0.35, 0.25)	N/A	-0.10 (-0.33, 0.12)	N/A

Quantifying heterogeneity/inconsistency:

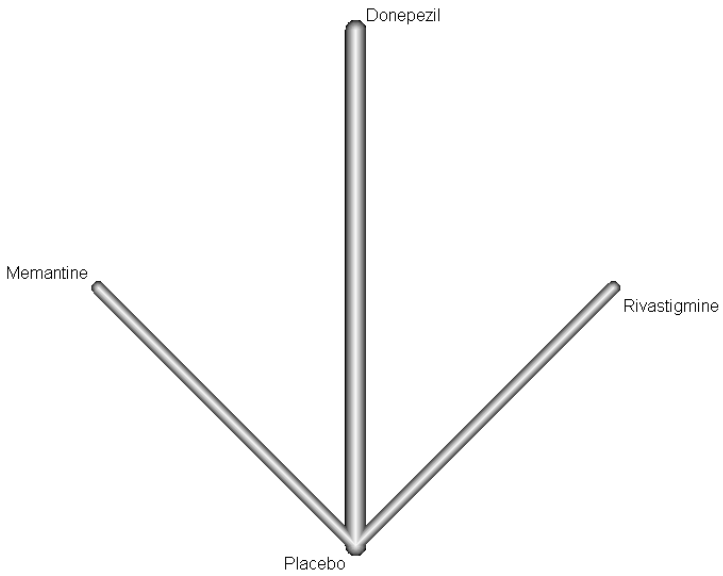
tau^2 = 0.0090; I^2 = 24.7%

Test of heterogeneity/inconsistency:

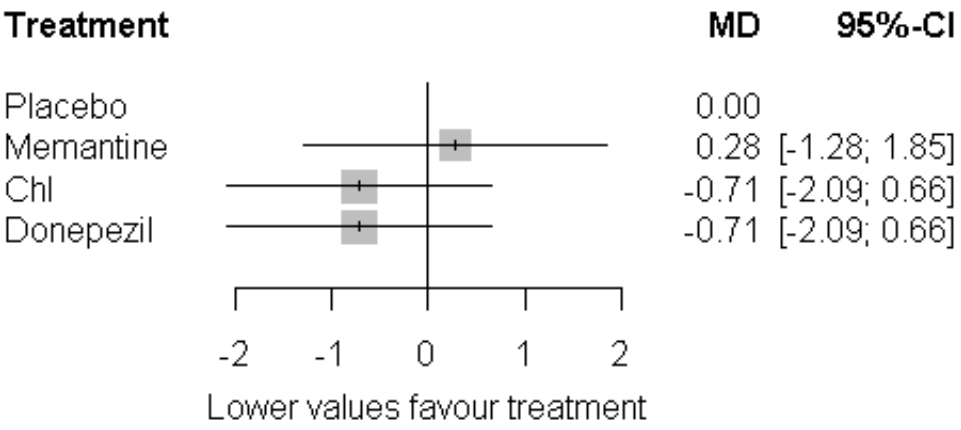
Q d.f. p.value

5.31 4 0.2565

Network graph:



PDD/DLB – UPDRS III – FE model



Differences between treatments – mean difference and 95% confidence interval

	Placebo	Memantine	Chl	Donepezil
Placebo	N/A			
Memantine	0.28 (-1.28, 1.85)	N/A		
Chl	-0.71 (-2.09, 0.66)	-1.00 (-3.08, 1.09)	N/A	
Donepezil	-0.71 (-2.09, 0.66)	-1.00 (-3.08, 1.09)	N/A	N/A

Quantifying heterogeneity/inconsistency:

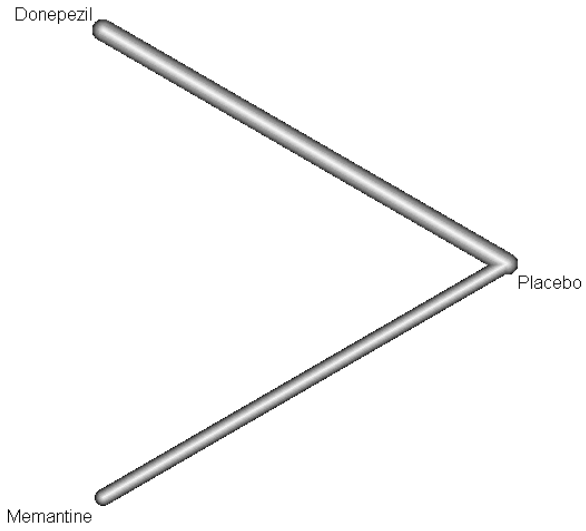
$tau^2 < 0.0001$; $I^2 = 0\%$

Test of heterogeneity/inconsistency:

Q d.f. p.value

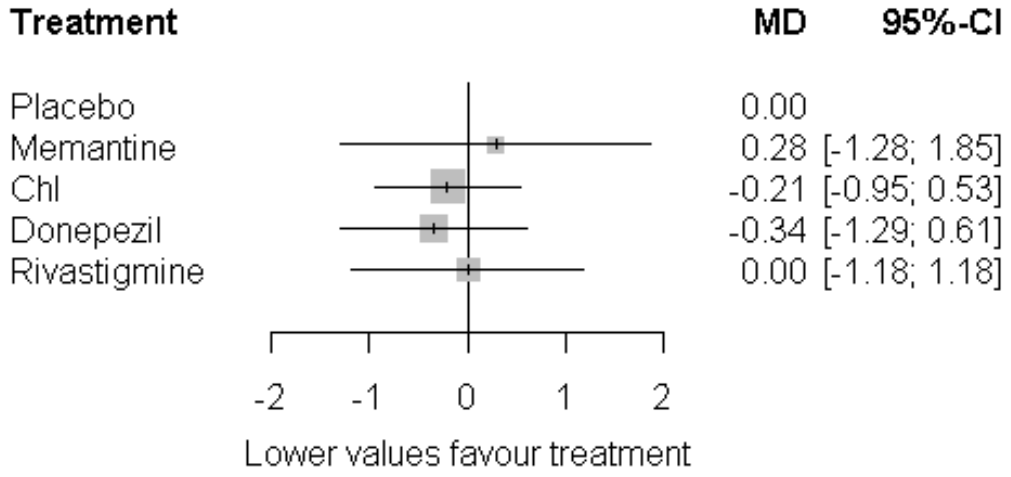
1.95 5 0.8566

Network graph:



PDD/DLB – UPDRS III sensitivity analysis – FE model

For this sensitivity analysis, in the 3 studies where the UPDRS III was measured but reported only as “non-significant”, an effect size of 0 was assumed, and a SD imputed based on the pooled SD from the other trials of cholinesterase inhibitors versus placebo.



Differences between treatments – mean difference and 95% confidence interval

	Placebo	Memantine	ChI	Donepezil	Rivastigmine
Placebo	N/A				
Memantine	0.28 (-1.28, 1.85)	N/A			
ChI	-0.21 (-0.95, 0.53)	-0.49 (-2.22, 1.24)	N/A		
Donepezil	-0.34 (-1.29, 0.61)	-0.63 (-2.46, 1.21)	N/A	N/A	
Rivastigmine	0.00 (-1.18, 1.18)	-0.28 (-2.24, 1.68)	N/A	0.34 (-1.17, 1.86)	N/A

Quantifying heterogeneity/inconsistency:

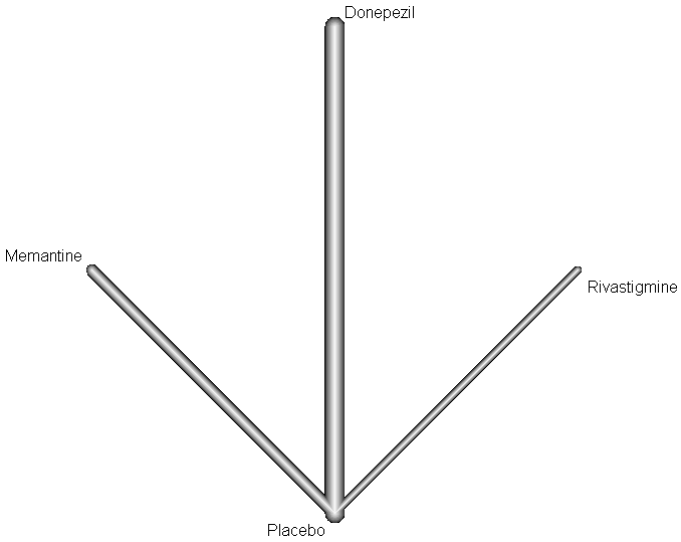
$tau^2 < 0.0001$; $I^2 = 0\%$

Test of heterogeneity/inconsistency:

Q d.f. p.value

2.48 7 0.9284

Network graph:



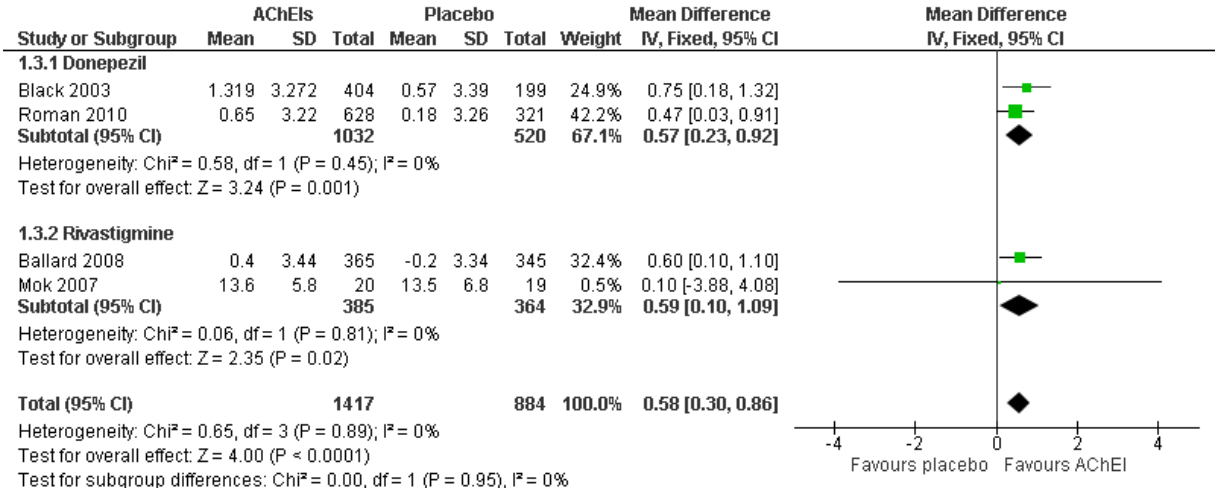
H.7.4 Cholinesterase inhibitors and memantine for types of dementia other than typical Alzheimer's disease

- How effective are cholinesterase inhibitors and memantine for types of dementia other than typical Alzheimer's disease?

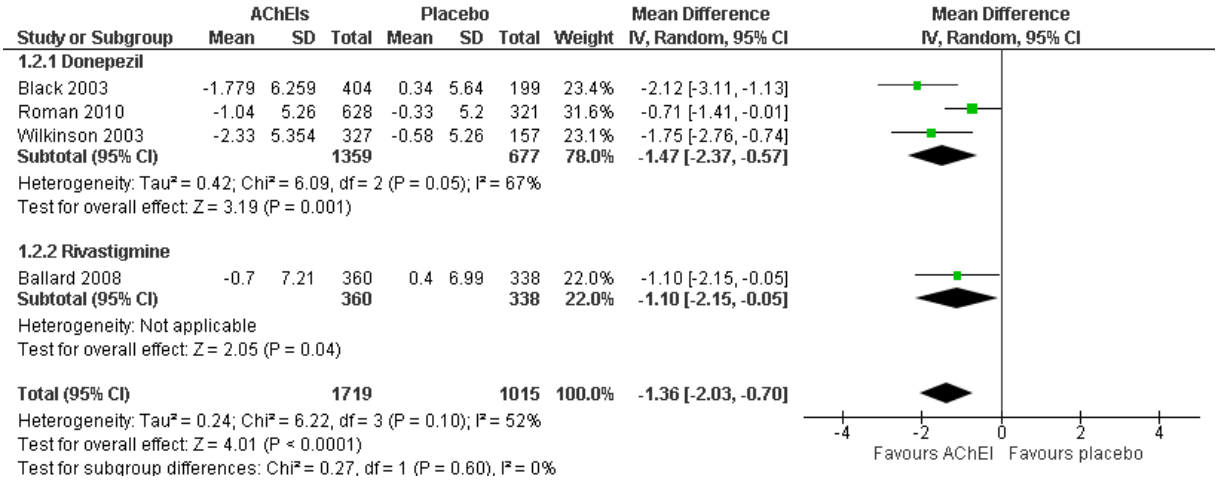
H.7.4.1 Vascular dementia

Cholinesterase inhibitors versus placebo

MMSE

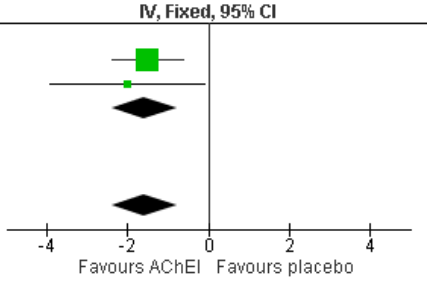


ADAS-cog



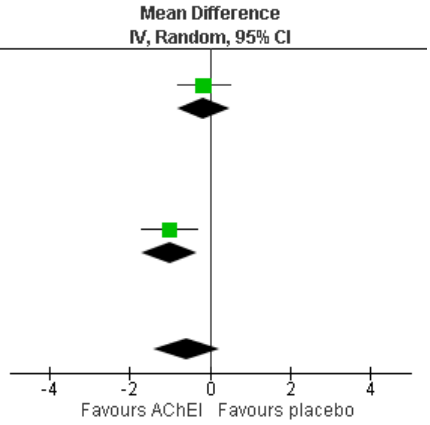
ADAS-cog-11

Study or Subgroup	AChEIs Mean	SD	Total	Placebo Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
1.1.1 Galantamine								
Auchus 2007	-1.8	5.94	367	-0.3	6.32	373	82.6%	-1.50 [-2.38, -0.62]
Small 2003	-2.6	6.33	119	-0.6	6.47	67	17.4%	-2.00 [-3.92, -0.08]
Subtotal (95% CI)			**486**			**440**	**100.0%**	**-1.59 [-2.39, -0.78]**
Heterogeneity: Chi² = 0.21, df = 1 (P = 0.64); I² = 0%								
Test for overall effect: Z = 3.88 (P = 0.0001)								
Total (95% CI)			**486**			**440**	**100.0%**	**-1.59 [-2.39, -0.78]**
Heterogeneity: Chi² = 0.21, df = 1 (P = 0.64); I² = 0%								
Test for overall effect: Z = 3.88 (P = 0.0001)								
Test for subgroup differences: Not applicable								



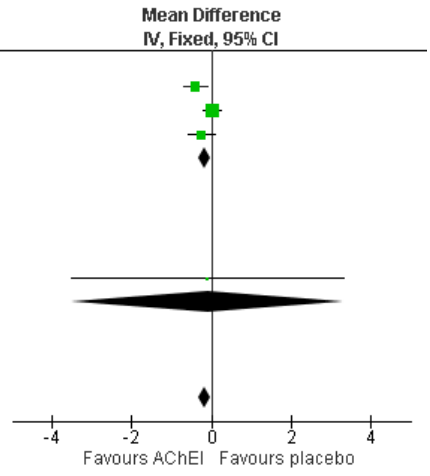
EXIT-25

Study or Subgroup	AChEIs Mean	SD	Total	Placebo Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
1.14.1 Donepezil								
Roman 2010	-0.86	5.01	628	-0.7	4.84	321	50.9%	-0.16 [-0.82, 0.50]
Subtotal (95% CI)			**628**			**321**	**50.9%**	**-0.16 [-0.82, 0.50]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.48 (P = 0.63)								
1.14.2 Galantamine								
Auchus 2007	-2.4	4.6	363	-1.4	5	371	49.1%	-1.00 [-1.69, -0.31]
Subtotal (95% CI)			**363**			**371**	**49.1%**	**-1.00 [-1.69, -0.31]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 2.82 (P = 0.005)								
Total (95% CI)			**991**			**692**	**100.0%**	**-0.57 [-1.40, 0.25]**
Heterogeneity: Tau² = 0.23; Chi² = 2.96, df = 1 (P = 0.09); I² = 66%								
Test for overall effect: Z = 1.36 (P = 0.17)								
Test for subgroup differences: Chi² = 2.96, df = 1 (P = 0.09), I² = 66.2%								

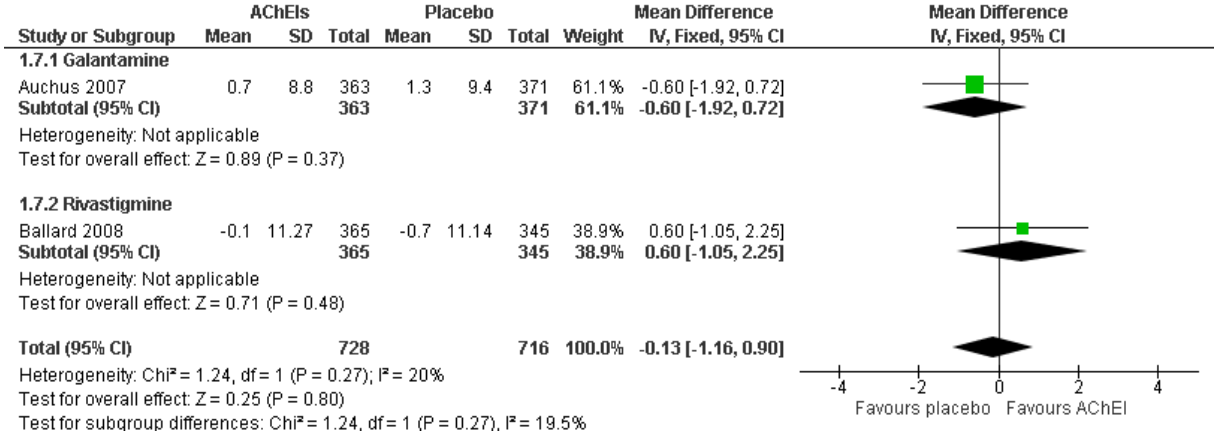


CDR-SB

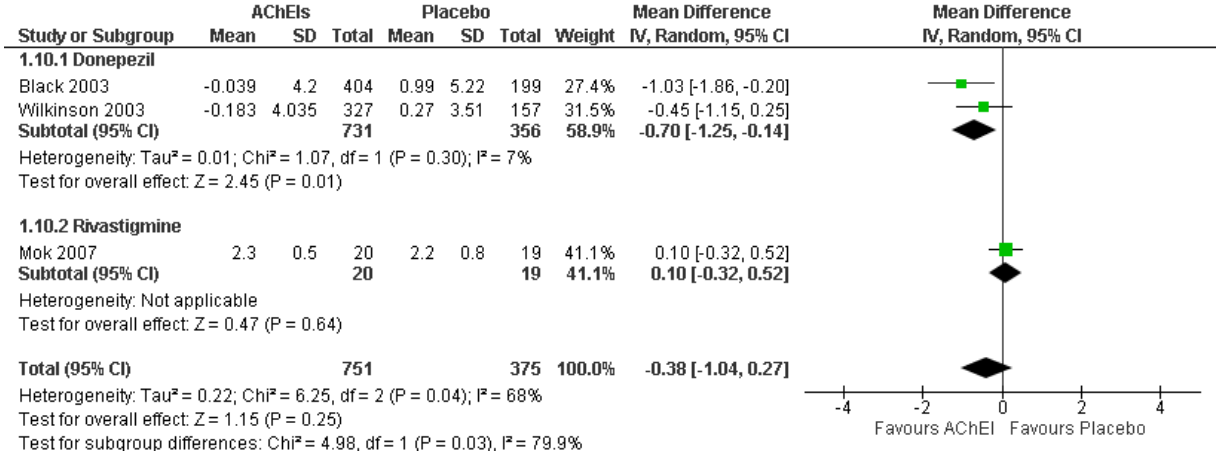
Study or Subgroup	AChEIs Mean	SD	Total	Placebo Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
1.16.1 Donepezil								
Black 2003	-0.278	1.774	404	0.12	1.83	199	28.2%	-0.40 [-0.71, -0.09]
Roman 2010	0.05	1.75	628	0.03	1.79	321	46.7%	0.02 [-0.22, 0.26]
Wilkinson 2003	-0.17	1.662	327	0.08	1.75	157	24.8%	-0.25 [-0.58, 0.08]
Subtotal (95% CI)			**1359**			**677**	**99.8%**	**-0.17 [-0.33, -0.00]**
Heterogeneity: Chi² = 4.77, df = 2 (P = 0.09); I² = 58%								
Test for overall effect: Z = 1.98 (P = 0.05)								
1.16.3 Rivastigmine								
Mok 2007	9.4	5.5	20	9.5	5.4	19	0.2%	-0.10 [-3.52, 3.32]
Subtotal (95% CI)			**20**			**19**	**0.2%**	**-0.10 [-3.52, 3.32]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.06 (P = 0.95)								
Total (95% CI)			**1379**			**696**	**100.0%**	**-0.17 [-0.33, -0.00]**
Heterogeneity: Chi² = 4.77, df = 3 (P = 0.19); I² = 37%								
Test for overall effect: Z = 1.98 (P = 0.05)								
Test for subgroup differences: Chi² = 0.00, df = 1 (P = 0.97), I² = 0%								



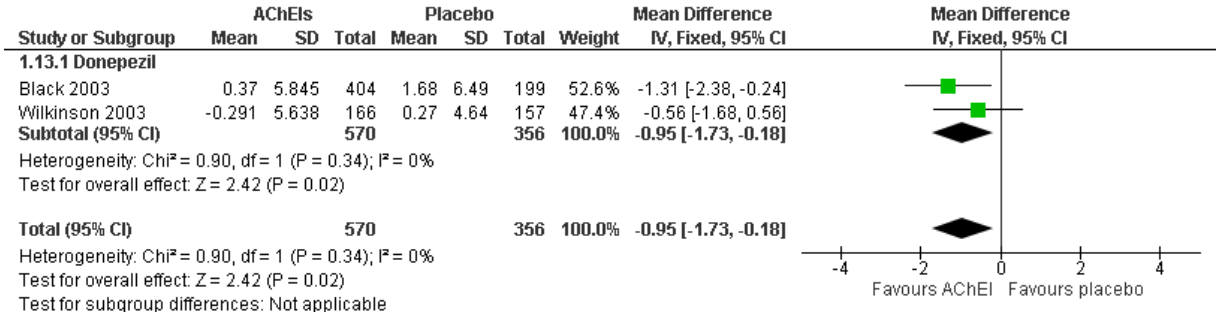
ADCS-ADL



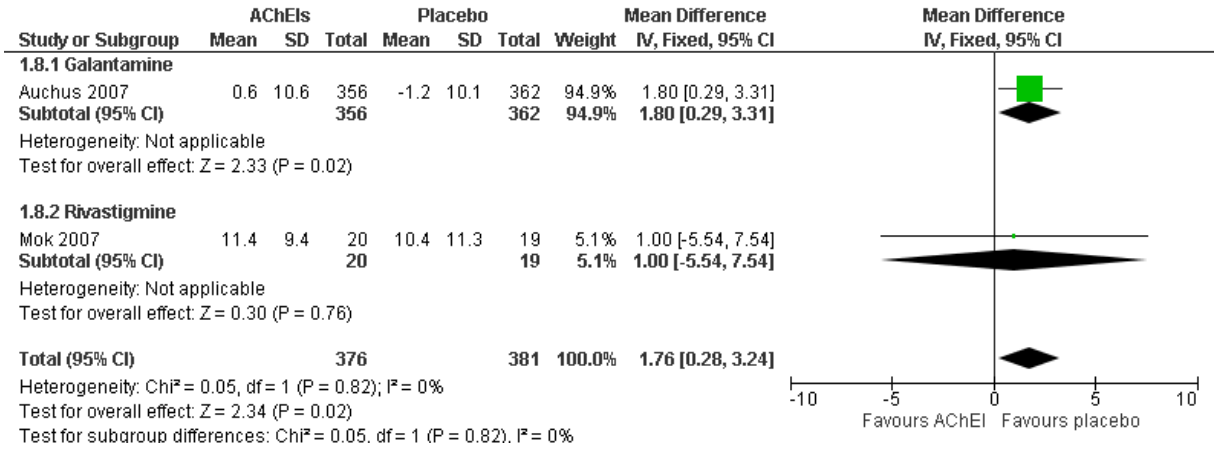
IADL



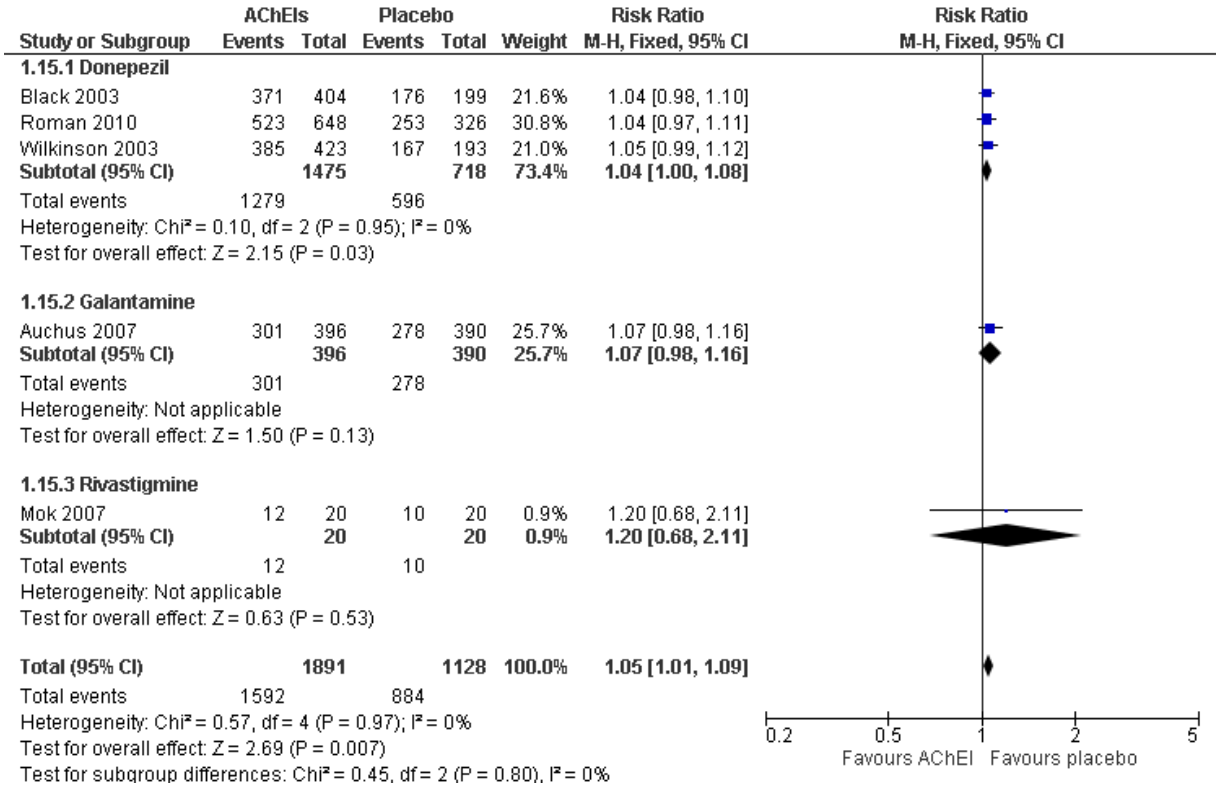
ADFACS



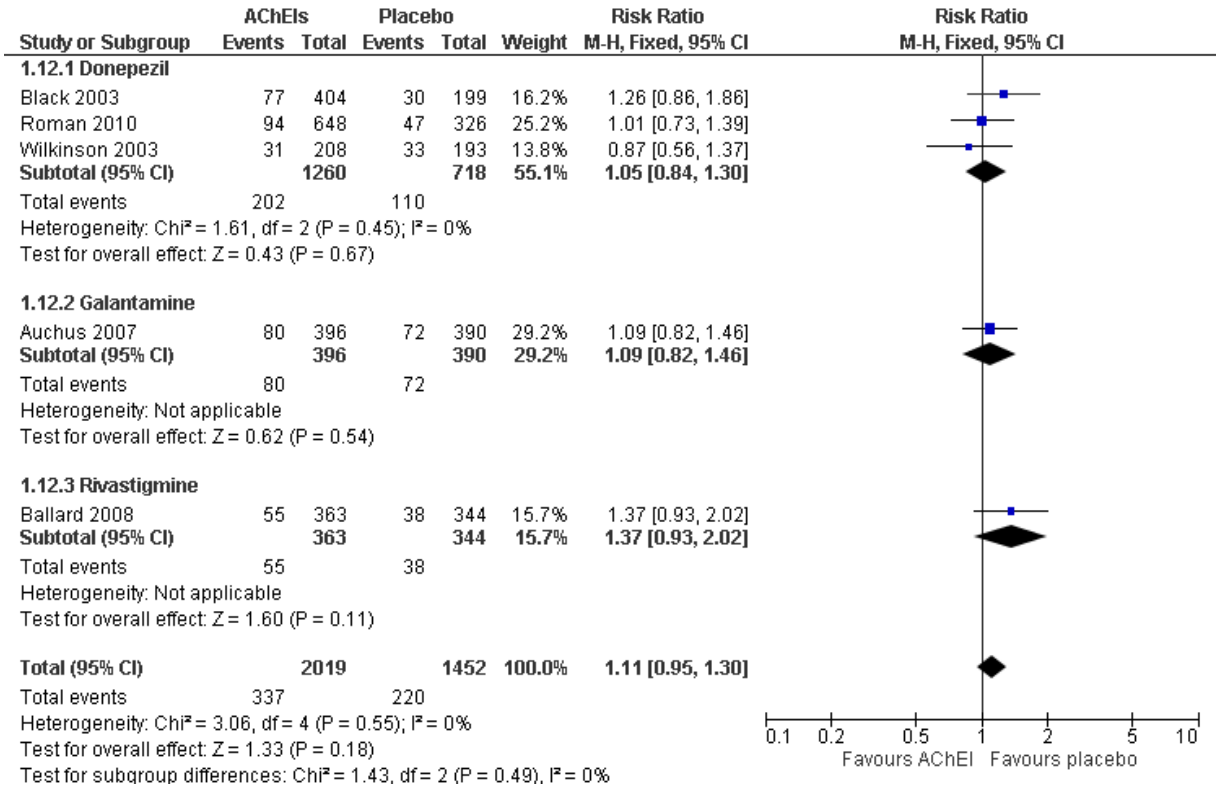
NPI



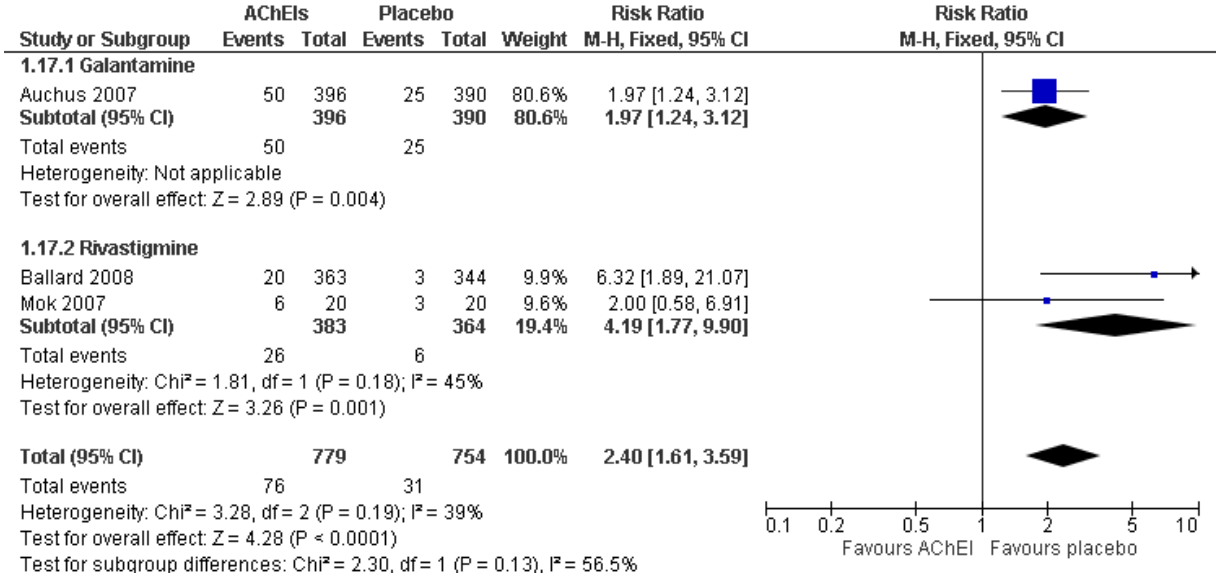
Any adverse events



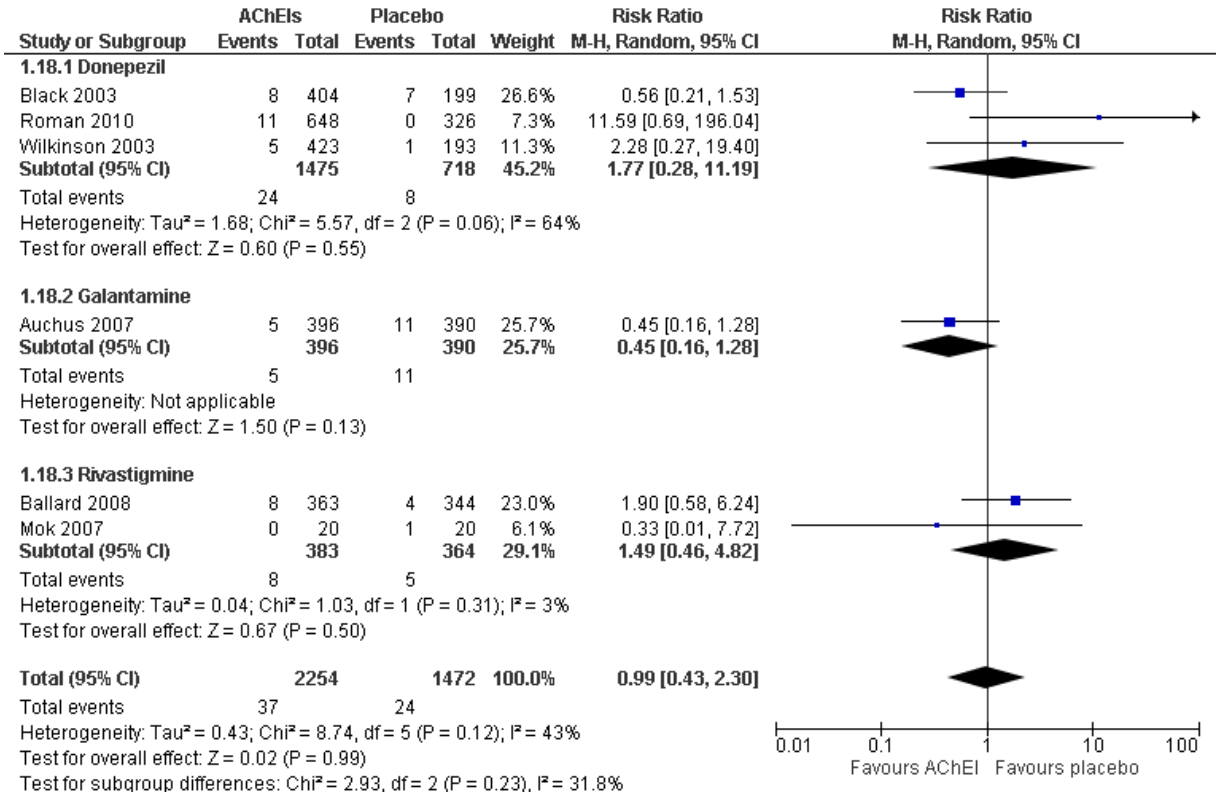
Serious adverse events



Adverse events leading to discontinuation

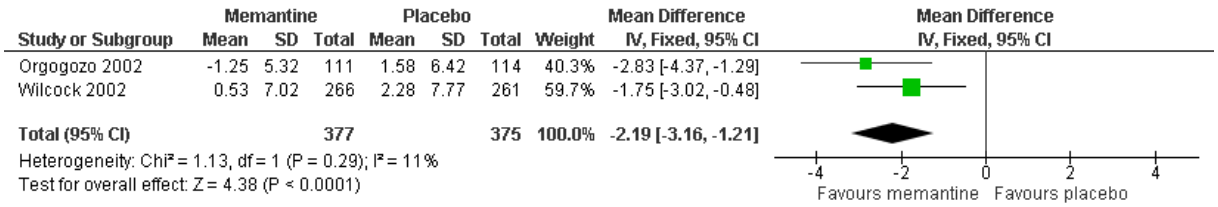


Mortality

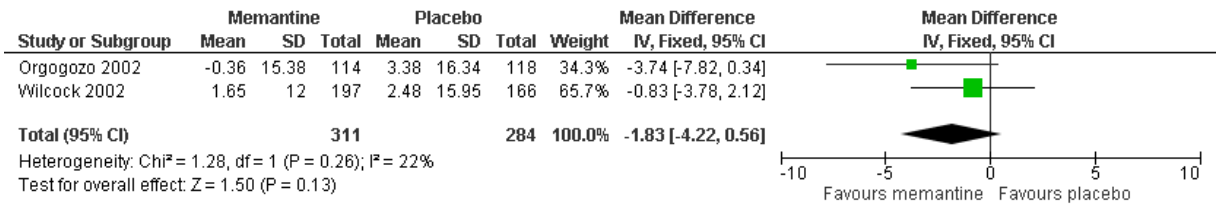


Memantine versus placebo

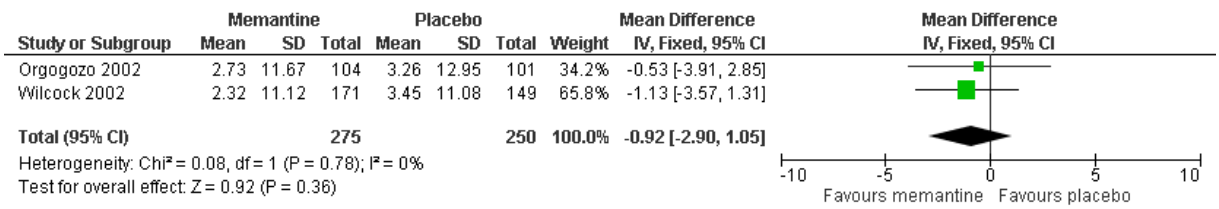
ADAS-cog



GBS

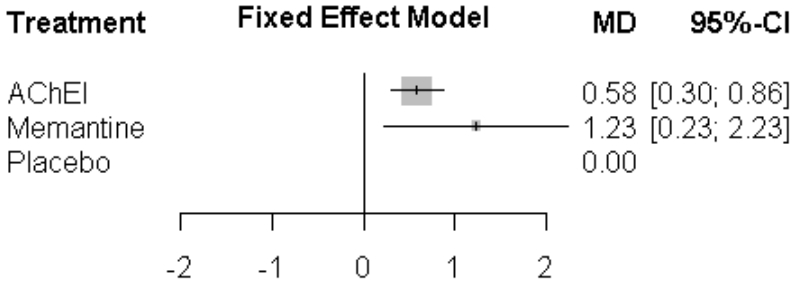


NOSGER



Network meta-analyses (comparison of cholinesterase inhibitors, memantine and placebo)

MMSE



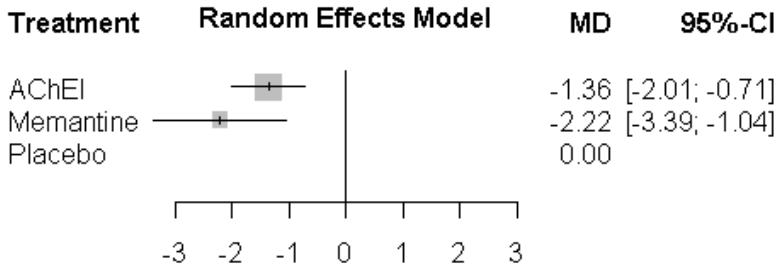
Pairwise mean differences from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	0.58 (0.30, 0.86)	N/A	
Memantine	1.23 (0.23, 2.23)	0.65 (-0.39, 1.69)	N/A

Quantifying heterogeneity/inconsistency:

tau^2 < 0.0001; I^2 = 0%

ADAS-cog



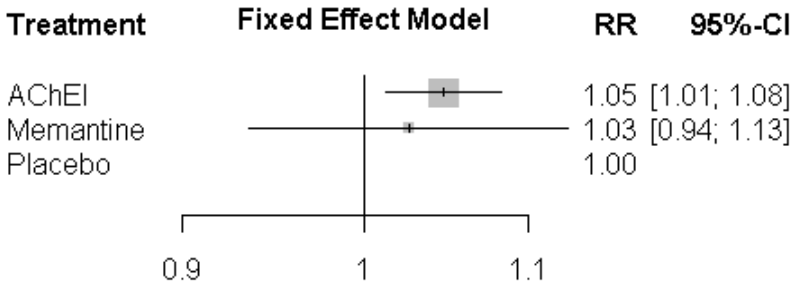
Pairwise mean differences from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	-1.36 (-2.01, -0.71)	N/A	
Memantine	-2.22 (-3.39, -1.04)	0.85 (-0.49, 2.20)	N/A

Quantifying heterogeneity/inconsistency:

tau^2 = 0.2166; I^2 = 45.6%

Any adverse events



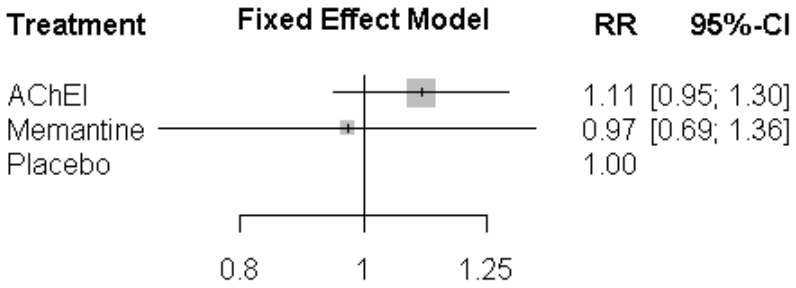
Pairwise relative risks from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	1.05 (1.01, 1.08)	N/A	
Memantine	1.03 (0.94, 1.13)	0.98 (0.89, 1.08)	N/A

Quantifying heterogeneity/inconsistency:

tau^2 <0.0001; I^2 = 0%

Serious adverse events



Pairwise relative risks from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	1.11 (0.95, 1.30)	N/A	
Memantine	0.97 (0.69, 1.36)	0.87 (0.60, 1.27)	N/A

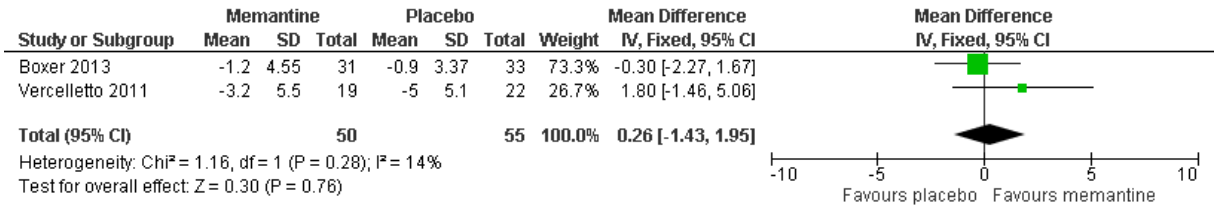
Quantifying heterogeneity/inconsistency:

tau^2 <0.0001; I^2 = 0%

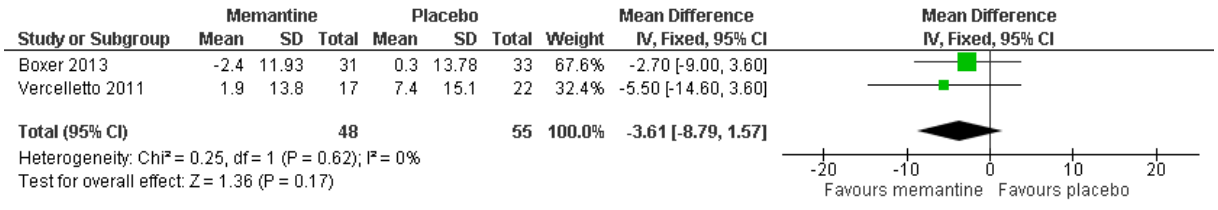
H.7.4.2 Frontotemporal dementia (behavioural variant)

Memantine versus placebo

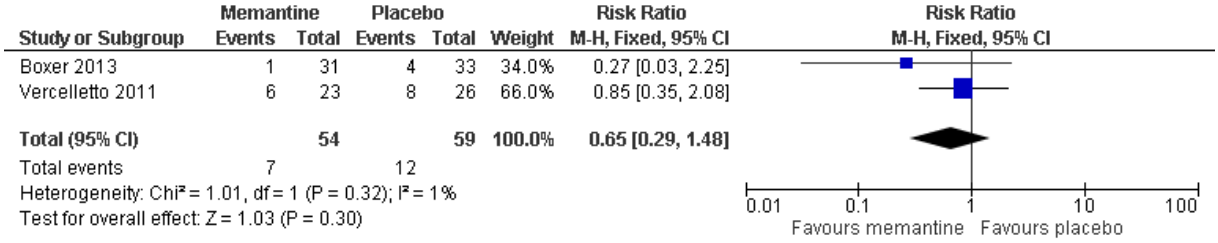
MMSE



NPI

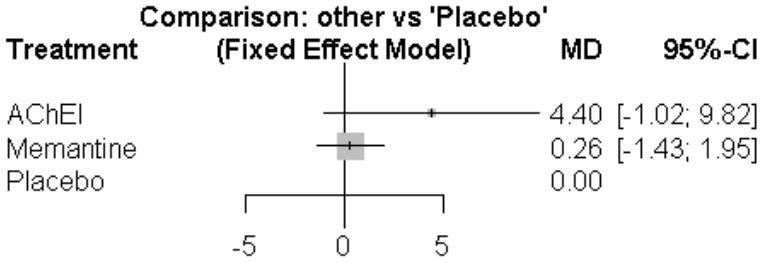


Serious adverse events



Network meta-analyses (comparison of cholinesterase inhibitors, memantine and placebo)

MMSE



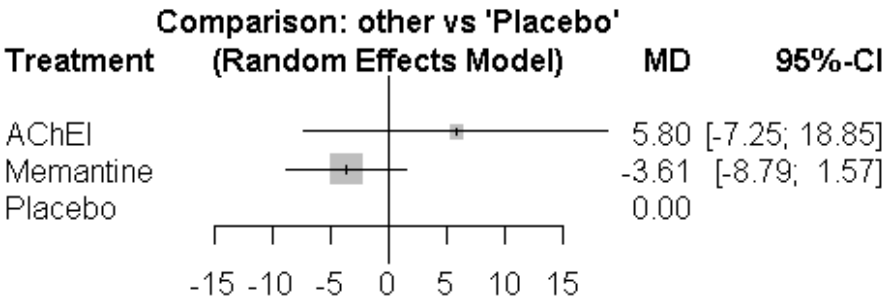
Pairwise mean differences from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	4.40 (-1.02, 9.82)	N/A	
Memantine	0.26 (-1.43, 1.95)	-4.14 (-9.82, 1.54)	N/A

Quantifying heterogeneity/inconsistency:

tau^2 = 0.3118; I^2 = 14.1%

NPI



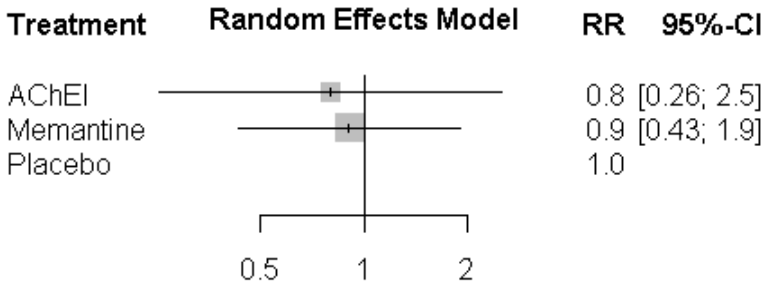
Pairwise mean differences from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	5.80 (-7.25, 18.85)	N/A	
Memantine	-3.61 (-8.79, 1.57)	-9.41 (-23.45, 7.25)	N/A

Quantifying heterogeneity/inconsistency:

tau^2 = 0; I^2 = 0%

Any adverse events



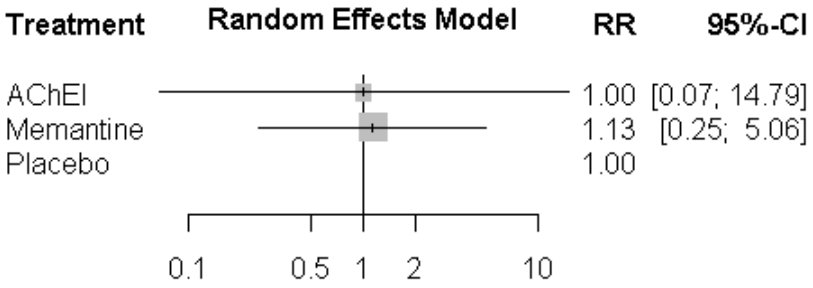
Pairwise relative risks from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	0.80 (0.26, 2.50)	N/A	
Memantine	0.90 (0.43, 1.90)	1.13 (0.29, 4.41)	N/A

Quantifying heterogeneity/inconsistency:

tau^2 <0.0001; I^2 = 100%

Adverse events leading to discontinuation



Pairwise relative risks from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	1.00 (0.07, 14.79)	N/A	
Memantine	1.13 (0.25, 5.06)	1.13 (0.05, 24.66)	N/A

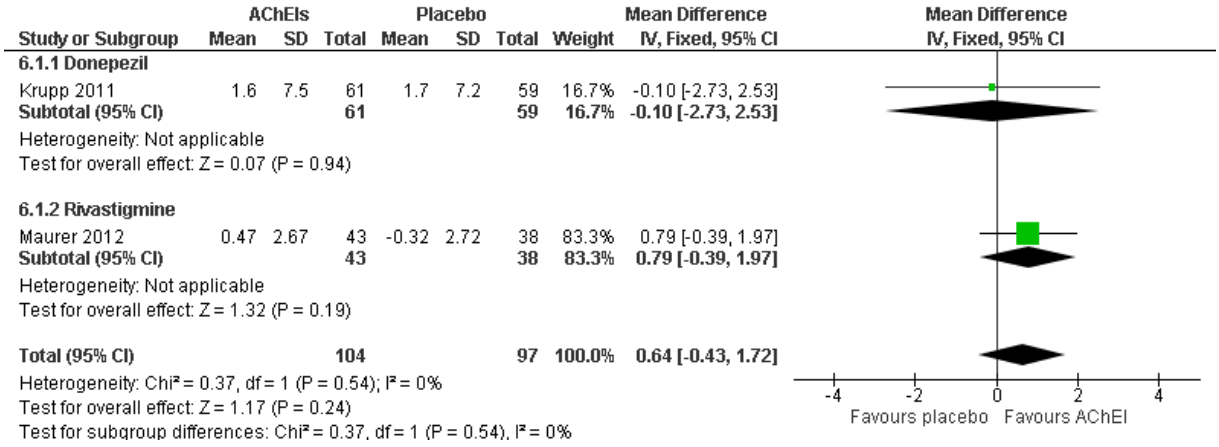
Quantifying heterogeneity/inconsistency:

tau^2 <0.0001; I^2 = 100%

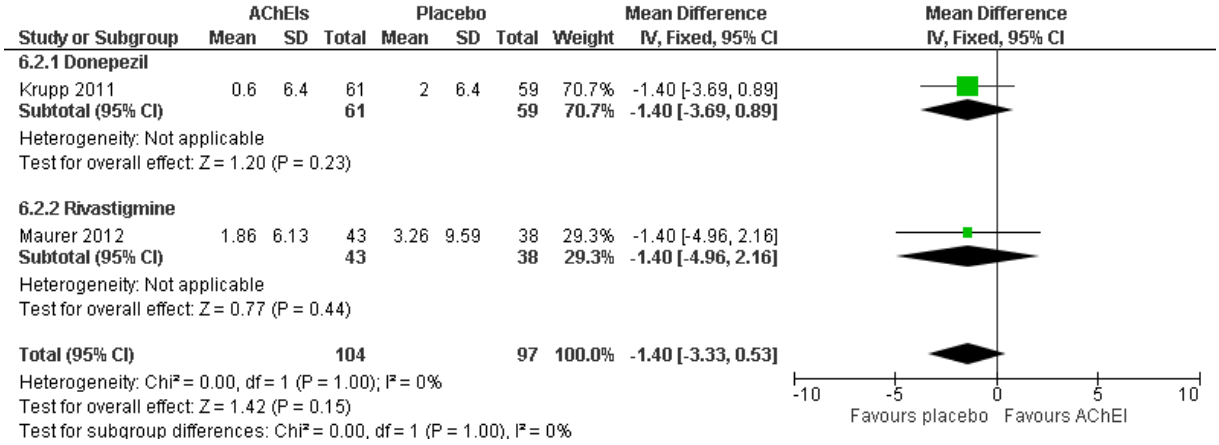
H.7.4.3 Cognitive impairment in people with multiple sclerosis

Cholinesterase inhibitors versus placebo

SRT

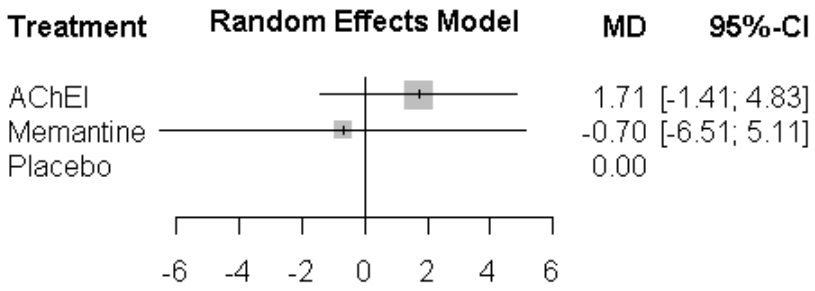


SDMT



Network meta-analyses (comparison of cholinesterase inhibitors, memantine and placebo)

PASAT



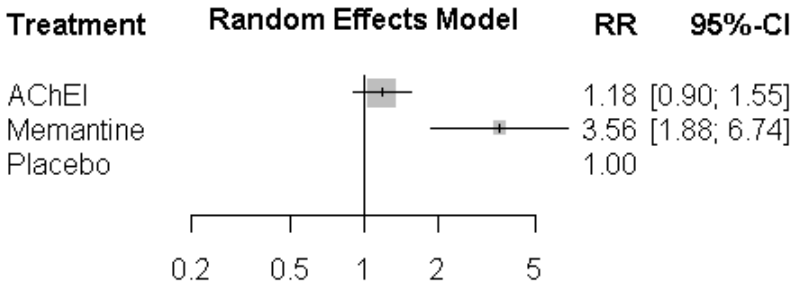
Pairwise mean differences from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	1.71 (-1.41, 4.83)	N/A	
Memantine	-0.70 (-6.51, 5.11)	-2.41 (-9.00, 4.18)	N/A

Quantifying heterogeneity/inconsistency:

tau^2 <0.0001; I^2 = 100%

Any adverse events



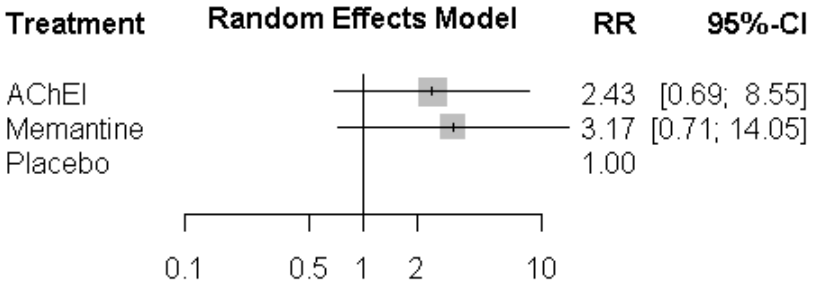
Pairwise relative risks from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	1.18 (0.90, 1.55)	N/A	
Memantine	3.56 (1.88, 6.74)	3.02 (1.51, 6.03)	N/A

Quantifying heterogeneity/inconsistency:

tau^2 <0.0001; I^2 = 100%

Adverse events leading to discontinuation



Pairwise relative risks from NMA

	Placebo	AChEI	Memantine
Placebo	N/A		
AChEI	2.43 (0.69, 8.55)	N/A	
Memantine	3.17 (0.71, 14.05)	1.30 (0.19, 9.16)	N/A

Quantifying heterogeneity/inconsistency:

tau^2 <0.0001; I^2 = 100%

H.8 Drugs that may worsen cognitive decline

H.8.1 Drugs that may cause cognitive decline

- What drugs that may worsen cognitive decline are commonly prescribed in people diagnosed with dementia?
- What are the most effective tools to identify whether drugs may be the cause of cognitive decline in someone suspected of having dementia?

No meta-analyses were performed

H.9 Non-pharmacological interventions for dementia

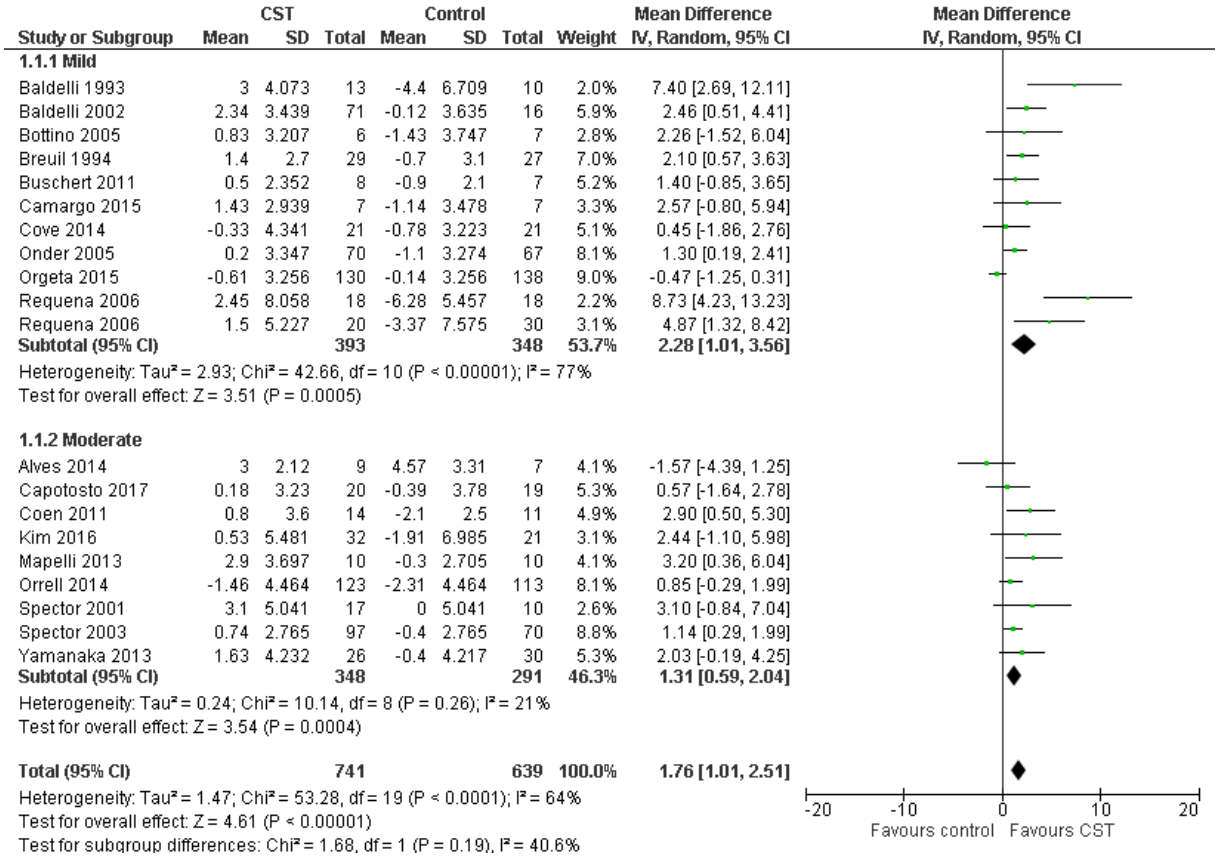
H.9.1 Non-pharmacological interventions for people living with dementia

- What are the most effective non-pharmacological interventions for supporting cognitive functioning in people living with dementia?
- What are the most effective non-pharmacological interventions for supporting functional ability in people living with dementia?
- What are the most effective non-pharmacological interventions to support wellbeing in people living with dementia?
- What are the most effective methods of supporting people living with dementia to reduce harm and stay independent?

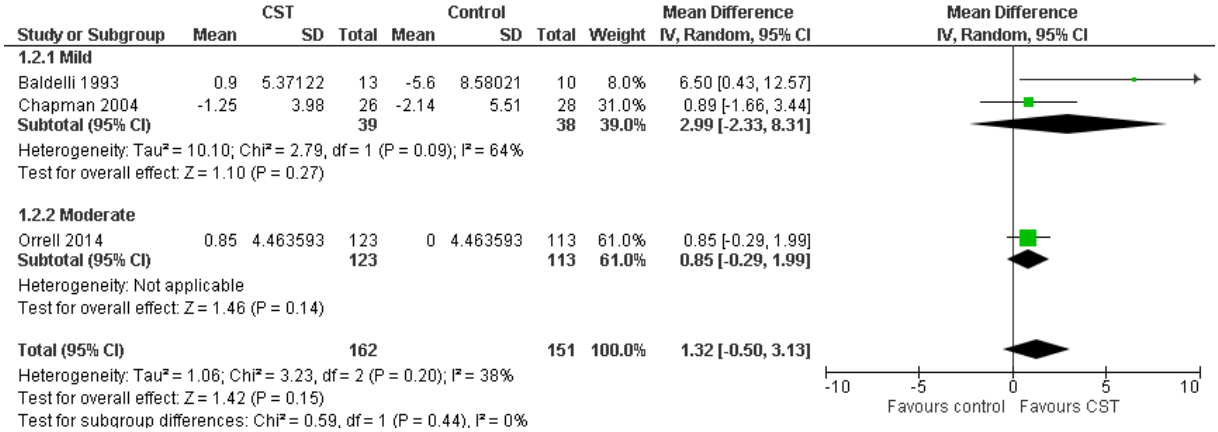
H.9.1.1 Cognitive stimulation therapy

Outcomes stratified by dementia severity

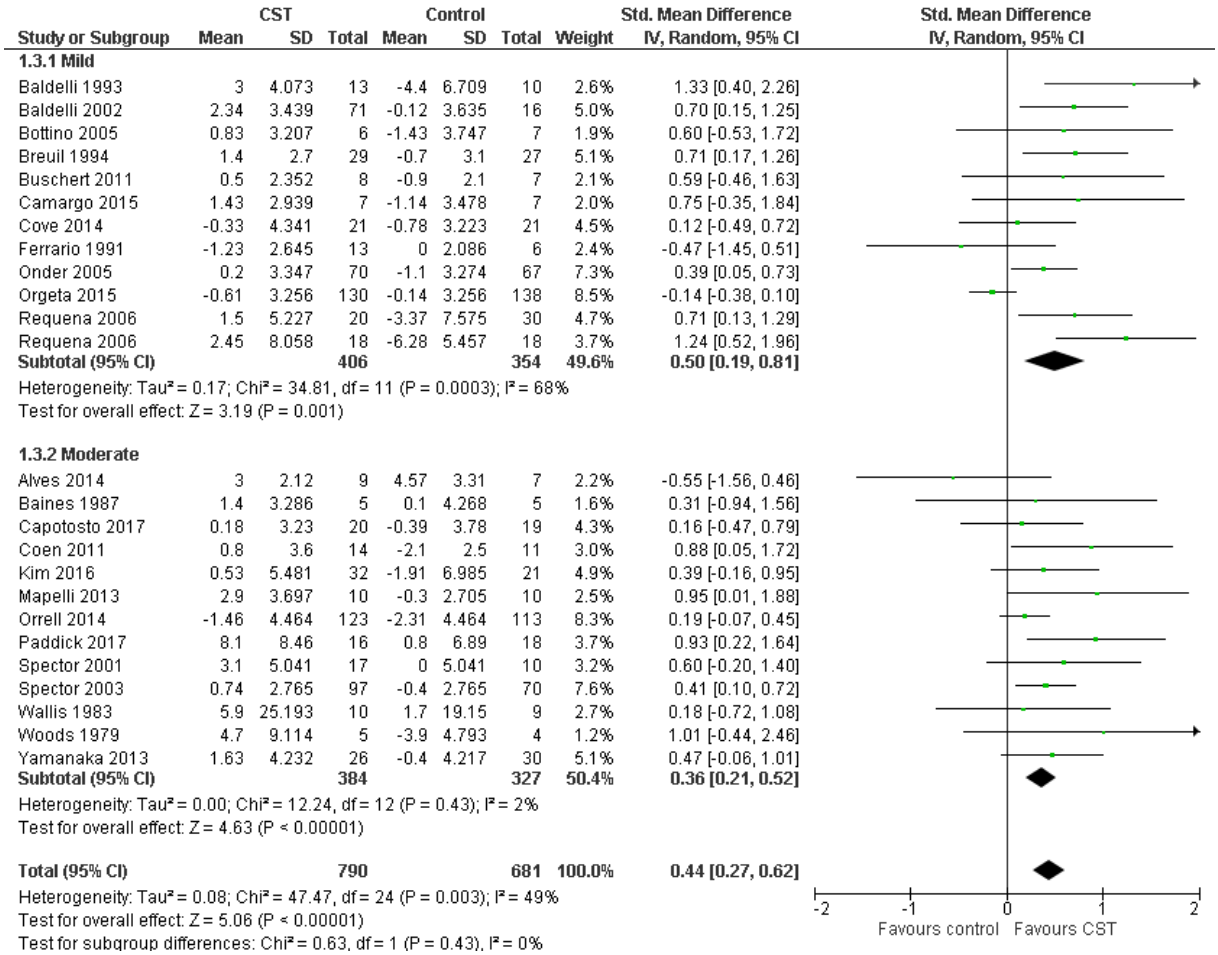
MMSE (post-intervention)



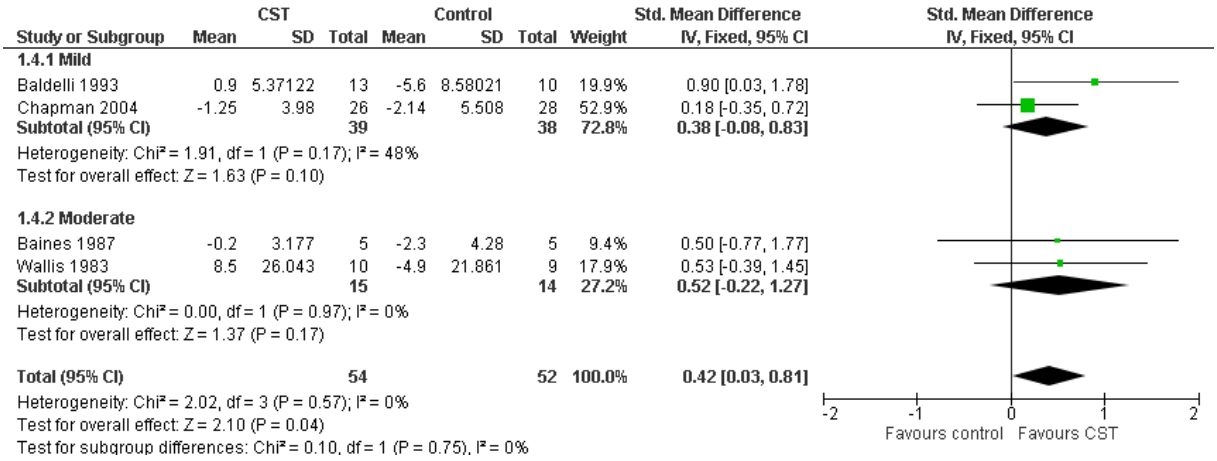
MMSE (follow-up)



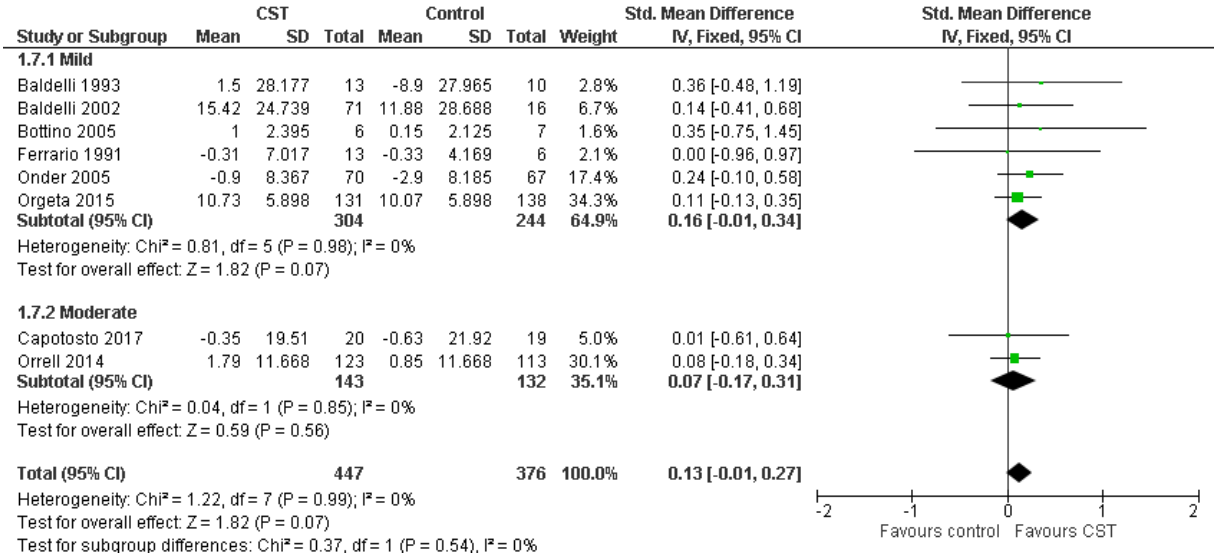
Cognition (post-intervention)



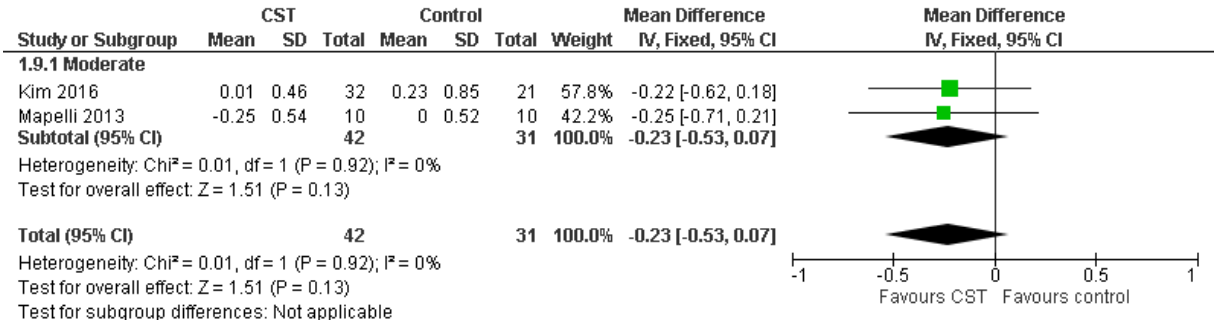
Cognition (follow-up)



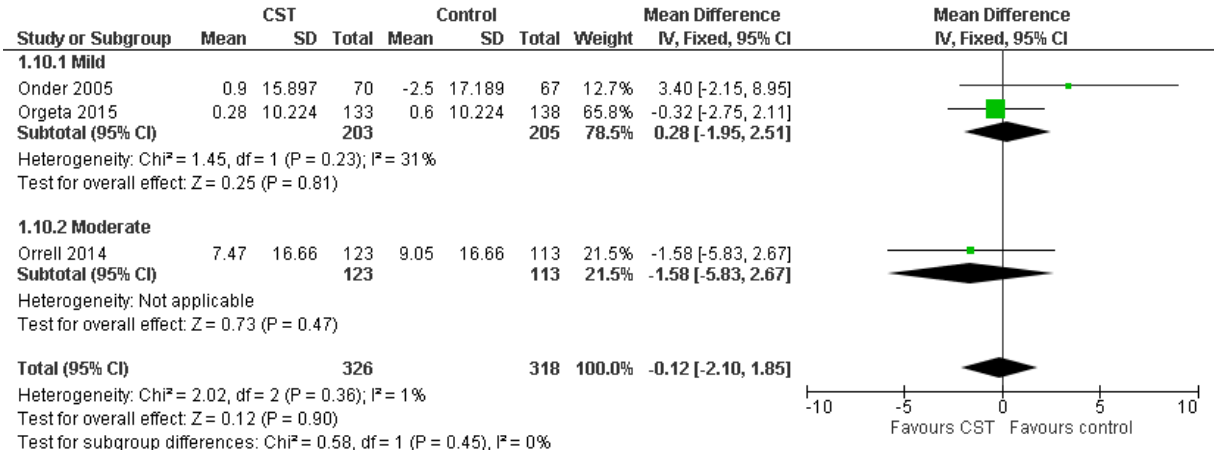
ADL (post-intervention)



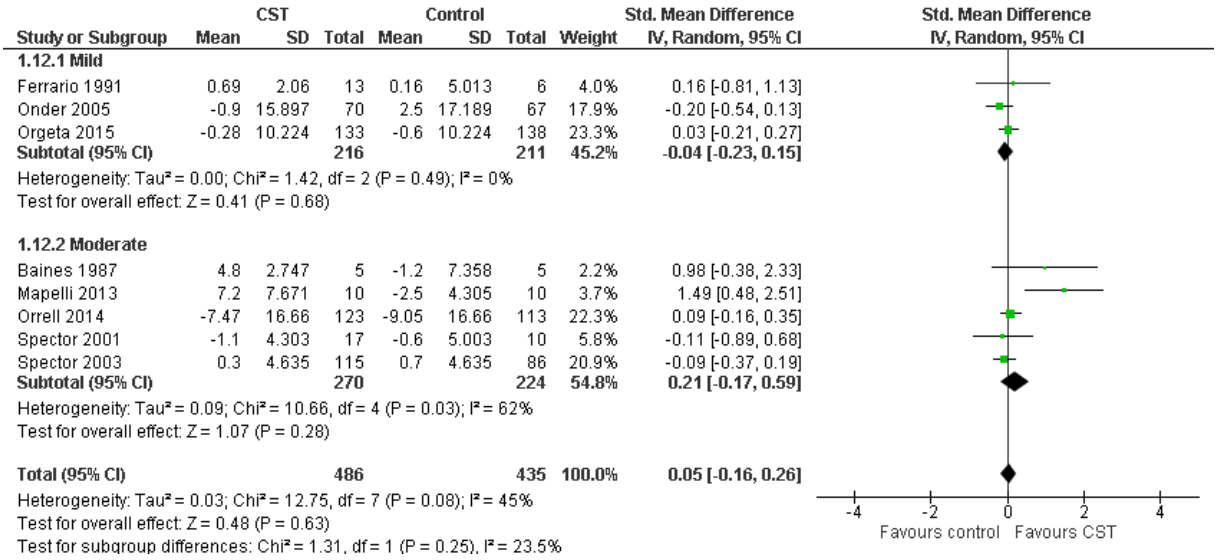
CDR (post-intervention)



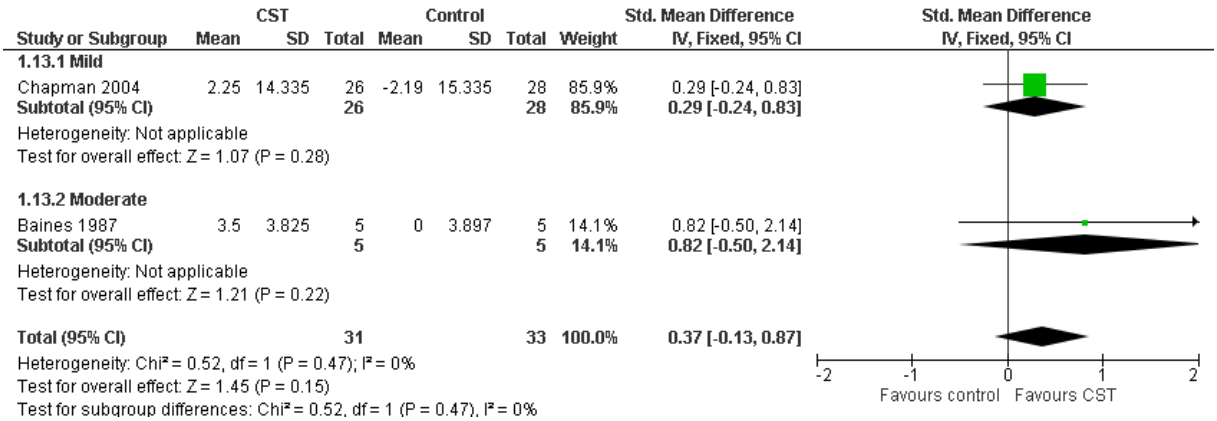
NPI (post-intervention)



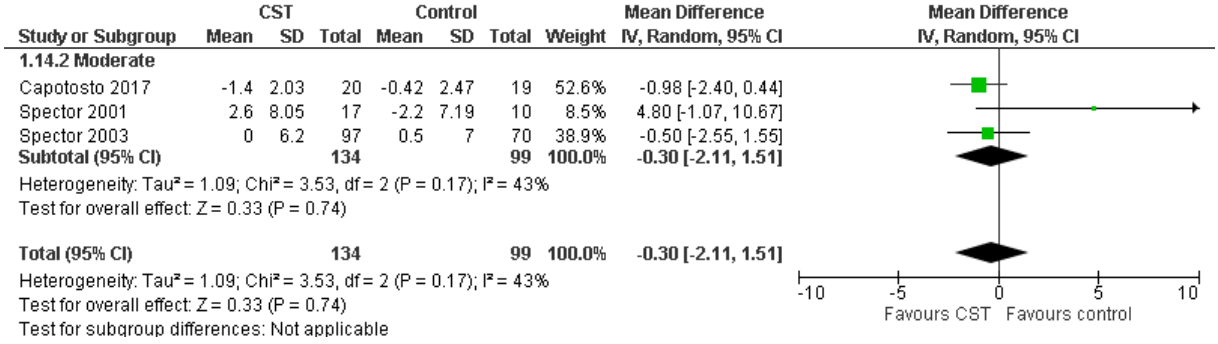
BPSD (post-intervention)



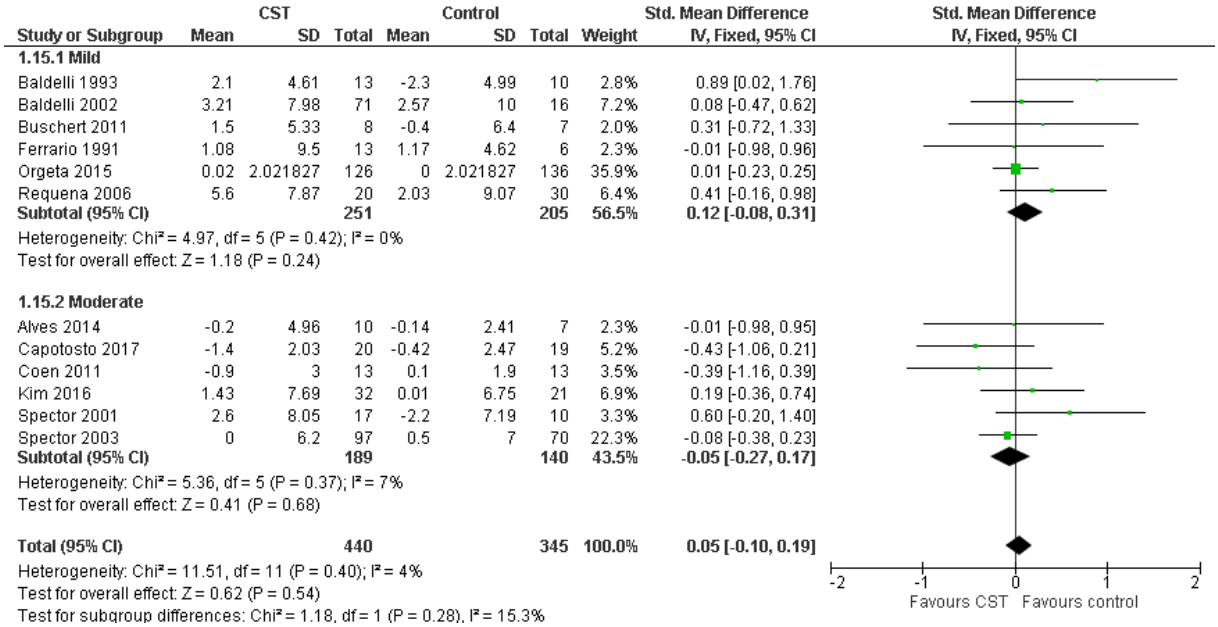
BPSD (follow-up)



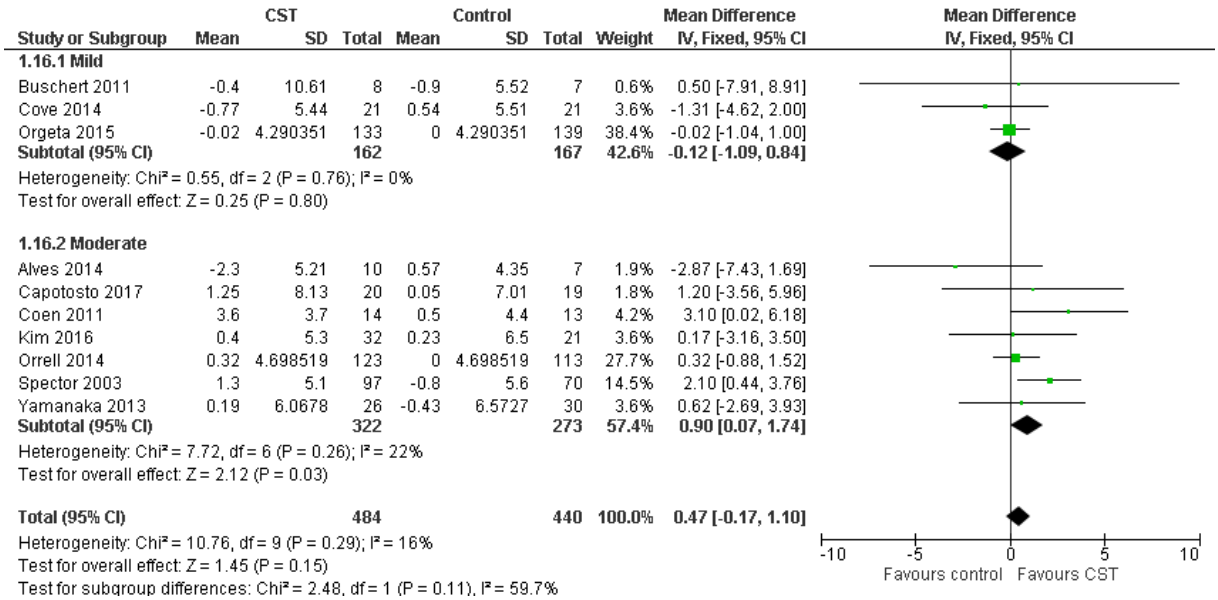
CSDD (post-intervention)



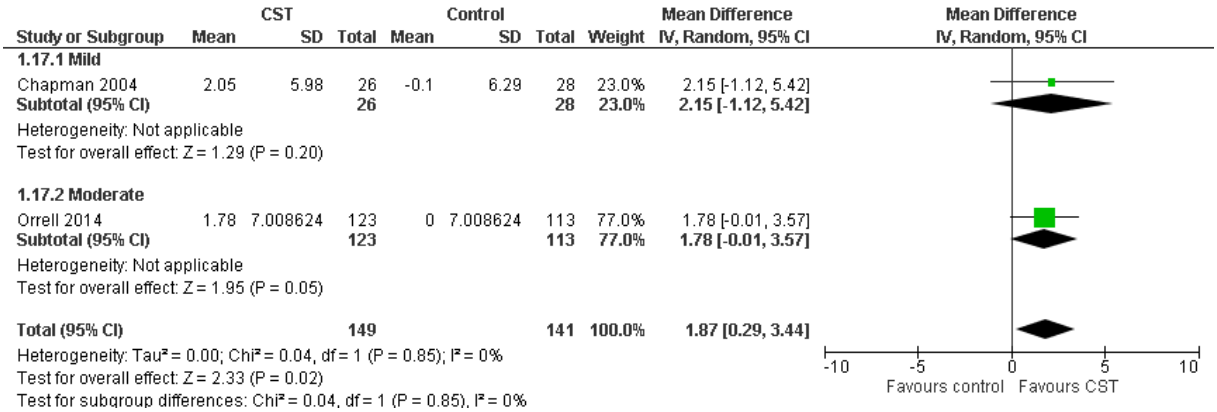
Depression (post-intervention)



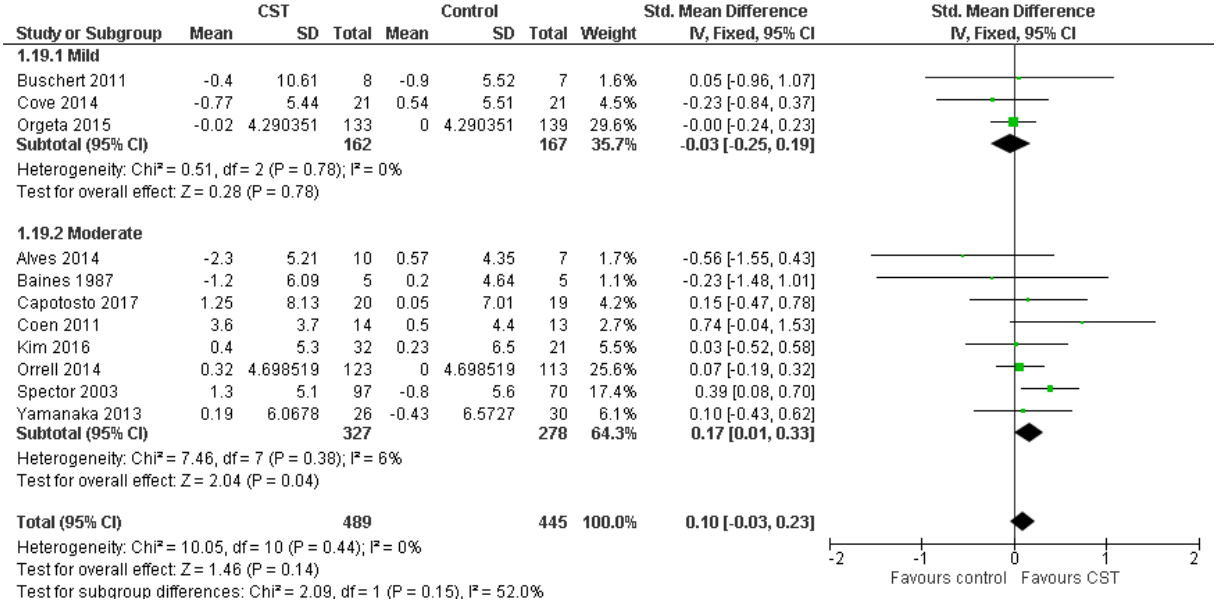
QoL-AD (post-intervention)



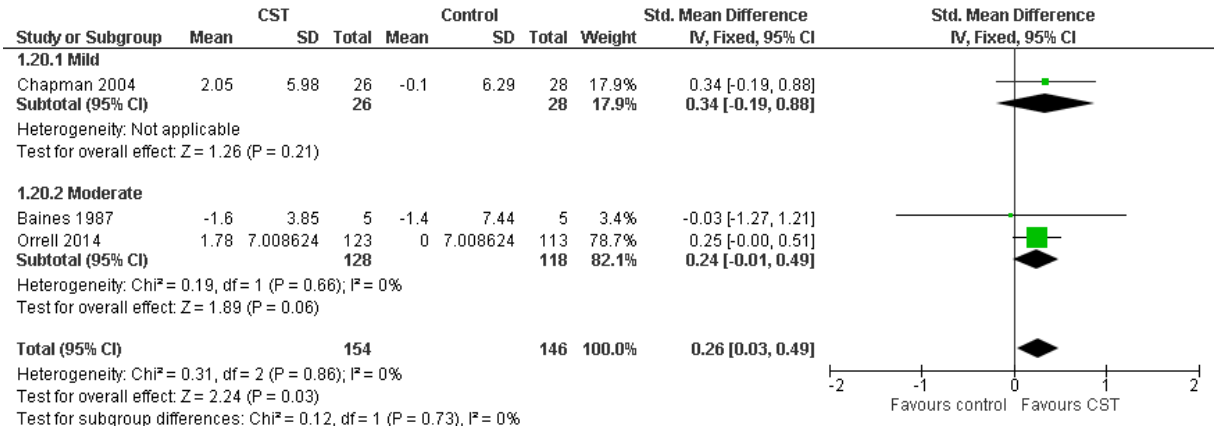
QoL-AD (follow-up)



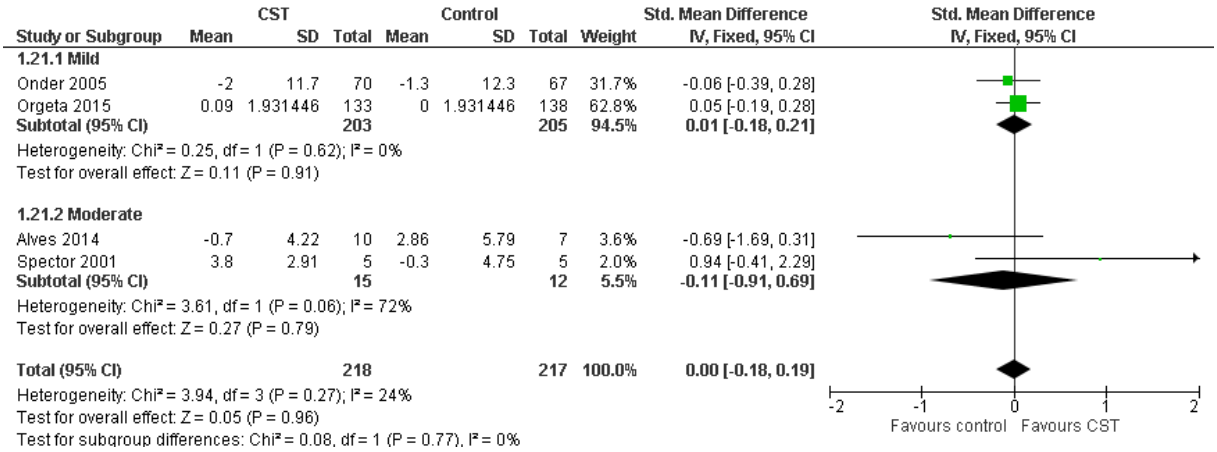
Quality of life (post-intervention)



Quality of life (follow-up)



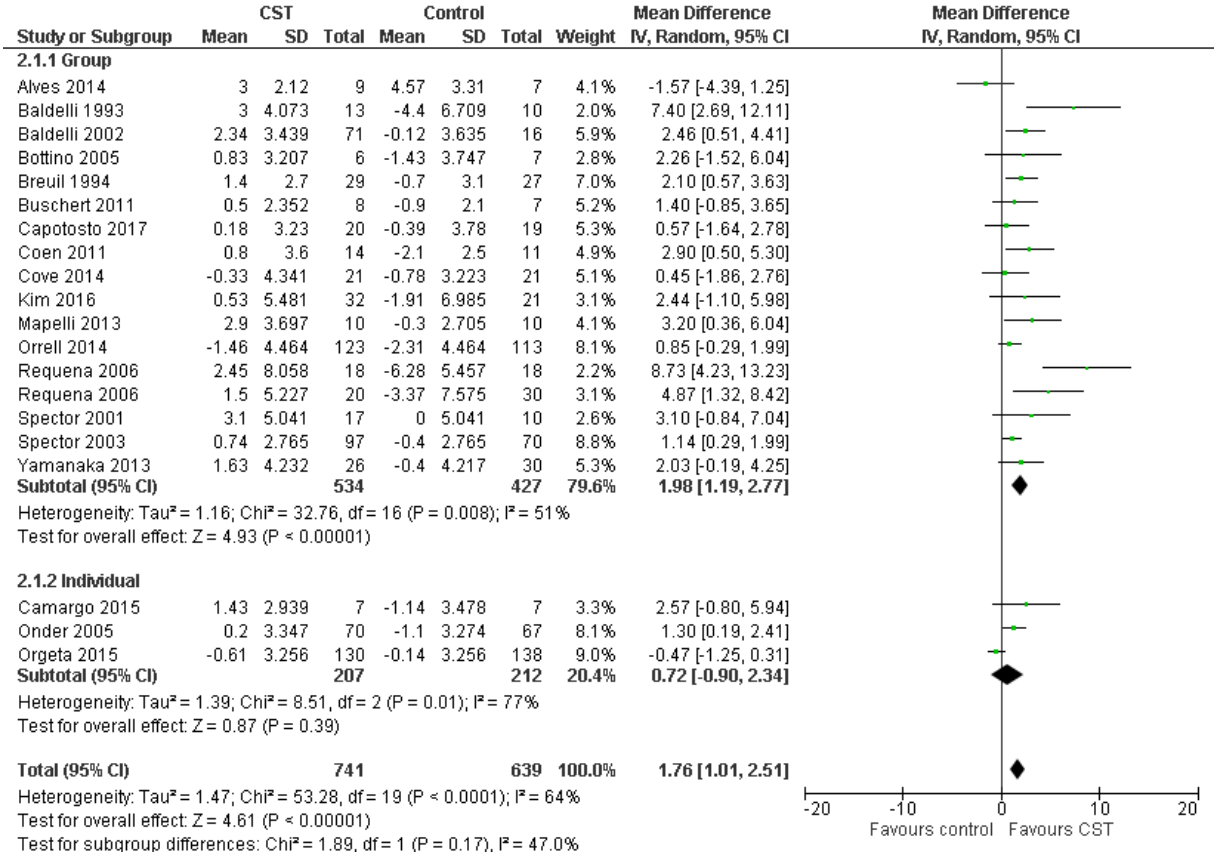
Carer burden (post-intervention)



Study or Subgroup	CST Mean	CST SD	CST Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
1.21.1 Mild								
Onder 2005	-2	11.7	70	-1.3	12.3	67	31.7%	-0.06 [-0.39, 0.28]
Orgeta 2015	0.09	1.931446	133	0	1.931446	138	62.8%	0.05 [-0.19, 0.28]
Subtotal (95% CI)			**203**			**205**	**94.5%**	**0.01 [-0.18, 0.21]**
Heterogeneity: Chi² = 0.25, df = 1 (P = 0.62); I² = 0%								
Test for overall effect: Z = 0.11 (P = 0.91)								
1.21.2 Moderate								
Alves 2014	-0.7	4.22	10	2.86	5.79	7	3.6%	-0.69 [-1.69, 0.31]
Spector 2001	3.8	2.91	5	-0.3	4.75	5	2.0%	0.94 [-0.41, 2.29]
Subtotal (95% CI)			**15**			**12**	**5.5%**	**-0.11 [-0.91, 0.69]**
Heterogeneity: Chi² = 3.61, df = 1 (P = 0.06); I² = 72%								
Test for overall effect: Z = 0.27 (P = 0.79)								
Total (95% CI)			**218**			**217**	**100.0%**	**0.00 [-0.18, 0.19]**
Heterogeneity: Chi² = 3.94, df = 3 (P = 0.27); I² = 24%								
Test for overall effect: Z = 0.05 (P = 0.96)								
Test for subgroup differences: Chi² = 0.08, df = 1 (P = 0.77), I² = 0%								

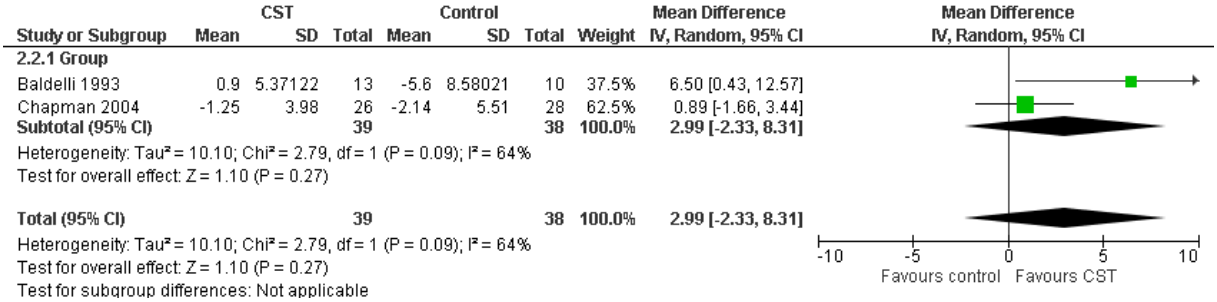
Outcomes stratified by mode of delivery

MMSE (post-intervention)

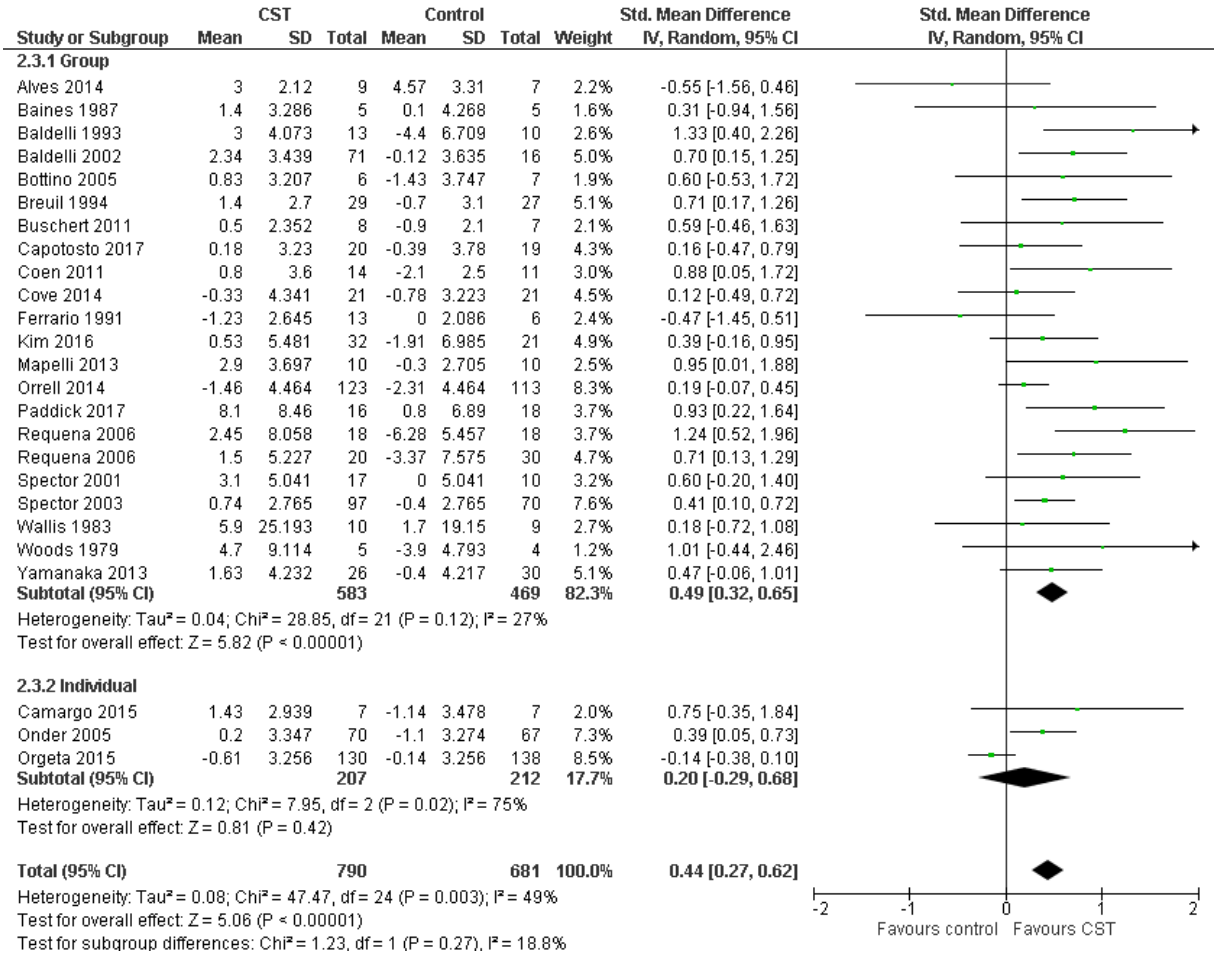


Study or Subgroup	CST Mean	CST SD	CST Total	Control Mean	Control SD	Control Total	Weight	Mean Difference IV, Random, 95% CI
2.1.1 Group								
Alves 2014	3	2.12	9	4.57	3.31	7	4.1%	-1.57 [-4.39, 1.25]
Baldelli 1993	3	4.073	13	-4.4	6.709	10	2.0%	7.40 [2.69, 12.11]
Baldelli 2002	2.34	3.439	71	-0.12	3.635	16	5.9%	2.46 [0.51, 4.41]
Bottino 2005	0.83	3.207	6	-1.43	3.747	7	2.8%	2.26 [-1.52, 6.04]
Breuil 1994	1.4	2.7	29	-0.7	3.1	27	7.0%	2.10 [0.57, 3.63]
Buschert 2011	0.5	2.352	8	-0.9	2.1	7	5.2%	1.40 [-0.85, 3.65]
Capotosto 2017	0.18	3.23	20	-0.39	3.78	19	5.3%	0.57 [-1.64, 2.78]
Coen 2011	0.8	3.6	14	-2.1	2.5	11	4.9%	2.90 [0.50, 5.30]
Cove 2014	-0.33	4.341	21	-0.78	3.223	21	5.1%	0.45 [-1.86, 2.76]
Kim 2016	0.53	5.481	32	-1.91	6.985	21	3.1%	2.44 [-1.10, 5.98]
Mapelli 2013	2.9	3.697	10	-0.3	2.705	10	4.1%	3.20 [0.36, 6.04]
Orrell 2014	-1.46	4.464	123	-2.31	4.464	113	8.1%	0.85 [-0.29, 1.99]
Requena 2006	2.45	8.058	18	-6.28	5.457	18	2.2%	8.73 [4.23, 13.23]
Requena 2006	1.5	5.227	20	-3.37	7.575	30	3.1%	4.87 [1.32, 8.42]
Spector 2001	3.1	5.041	17	0	5.041	10	2.6%	3.10 [-0.84, 7.04]
Spector 2003	0.74	2.765	97	-0.4	2.765	70	8.8%	1.14 [0.29, 1.99]
Yamanaka 2013	1.63	4.232	26	-0.4	4.217	30	5.3%	2.03 [-0.19, 4.25]
Subtotal (95% CI)			**534**			**427**	**79.6%**	**1.98 [1.19, 2.77]**
Heterogeneity: Tau² = 1.16; Chi² = 32.76, df = 16 (P = 0.008); I² = 51%								
Test for overall effect: Z = 4.93 (P < 0.00001)								
2.1.2 Individual								
Camargo 2015	1.43	2.939	7	-1.14	3.478	7	3.3%	2.57 [-0.80, 5.94]
Onder 2005	0.2	3.347	70	-1.1	3.274	67	8.1%	1.30 [0.19, 2.41]
Orgeta 2015	-0.61	3.256	130	-0.14	3.256	138	9.0%	-0.47 [-1.25, 0.31]
Subtotal (95% CI)			**207**			**212**	**20.4%**	**0.72 [-0.90, 2.34]**
Heterogeneity: Tau² = 1.39; Chi² = 8.51, df = 2 (P = 0.01); I² = 77%								
Test for overall effect: Z = 0.87 (P = 0.39)								
Total (95% CI)			**741**			**639**	**100.0%**	**1.76 [1.01, 2.51]**
Heterogeneity: Tau² = 1.47; Chi² = 53.28, df = 19 (P < 0.0001); I² = 64%								
Test for overall effect: Z = 4.61 (P < 0.00001)								
Test for subgroup differences: Chi² = 1.89, df = 1 (P = 0.17), I² = 47.0%								

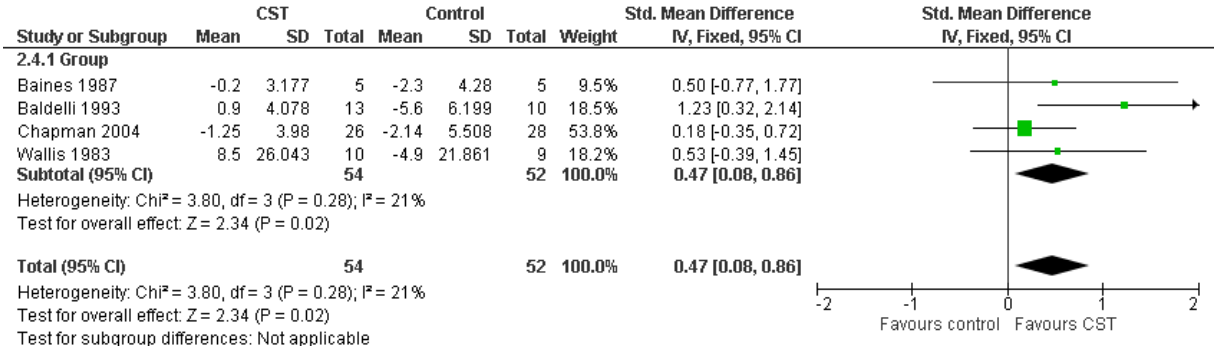
MMSE (follow-up)



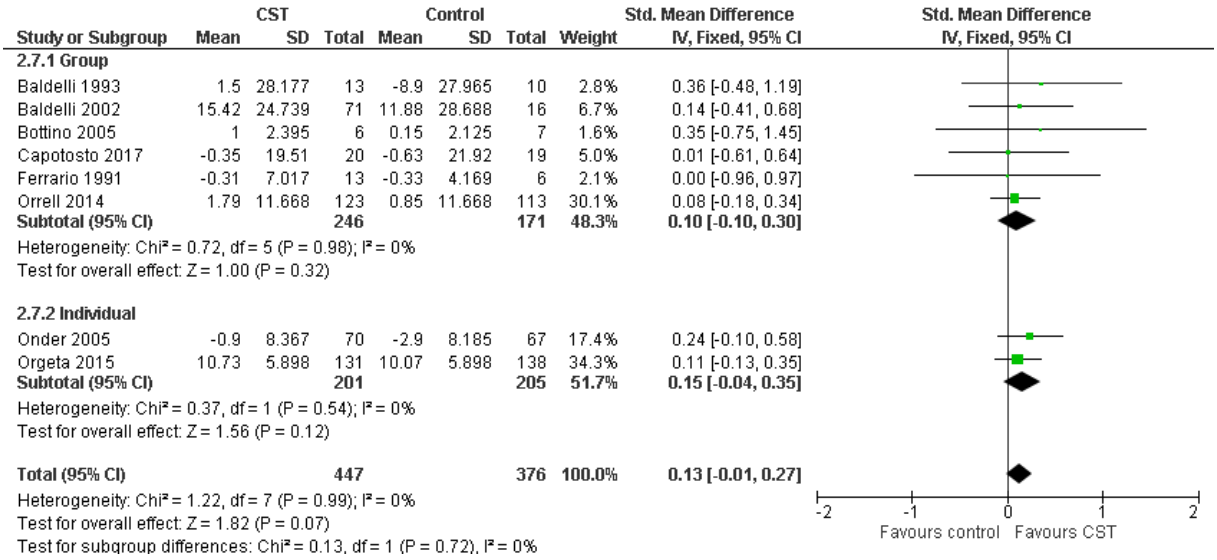
Cognition (post-intervention)



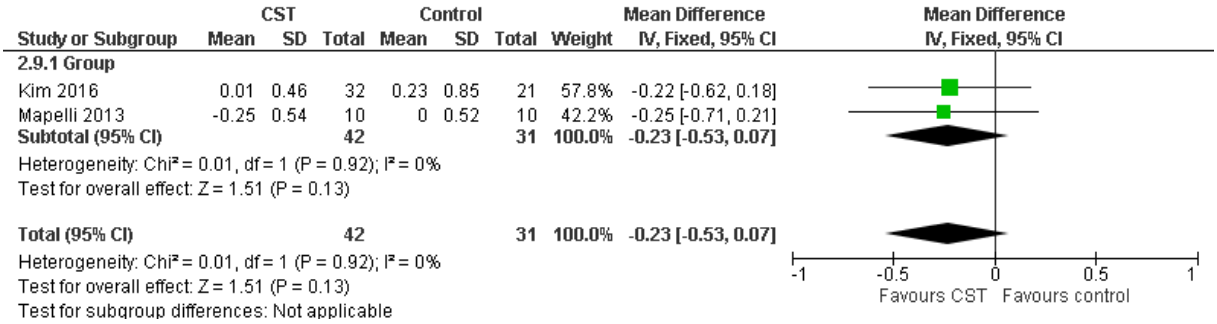
Cognition (follow-up)



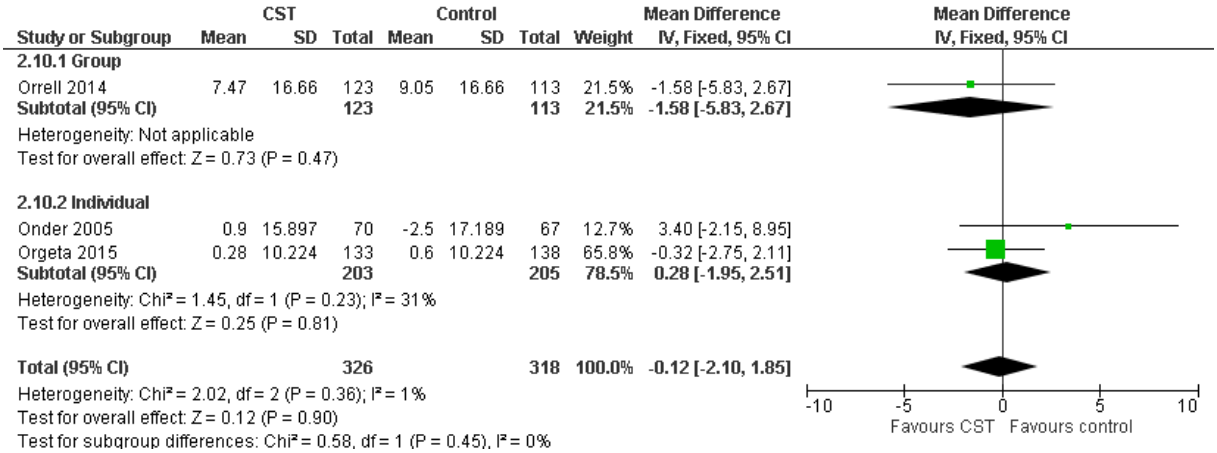
ADL (post-intervention)



CDR (post-intervention)

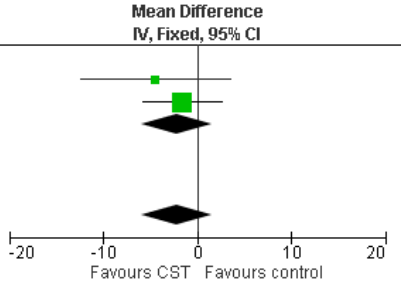


NPI (post-intervention)



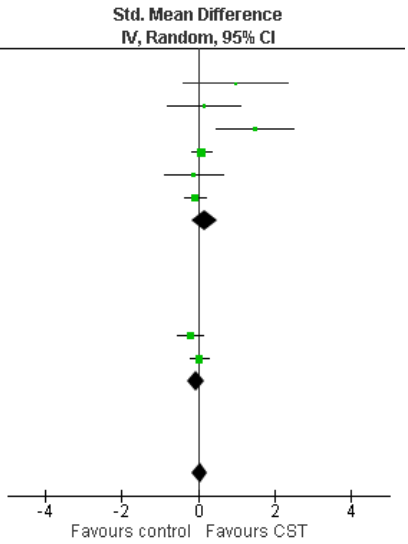
NPI (follow-up)

Study or Subgroup	CST Mean	CST SD	CST Total	Control Mean	Control SD	Control Total	Weight	Mean Difference IV, Fixed, 95% CI
2.11.1 Group								
Chapman 2004	-2.25	14.33	26	2.19	15.33	28	22.4%	-4.44 [-12.35, 3.47]
Orrell 2014	-1.58	16.66016	123	0	16.66016	113	77.6%	-1.58 [-5.83, 2.67]
Subtotal (95% CI)			**149**			**141**	**100.0%**	**-2.22 [-5.97, 1.53]**
Heterogeneity: Chi² = 0.39, df = 1 (P = 0.53); I² = 0%								
Test for overall effect: Z = 1.16 (P = 0.25)								
Total (95% CI)			**149**			**141**	**100.0%**	**-2.22 [-5.97, 1.53]**
Heterogeneity: Chi² = 0.39, df = 1 (P = 0.53); I² = 0%								
Test for overall effect: Z = 1.16 (P = 0.25)								
Test for subgroup differences: Not applicable								



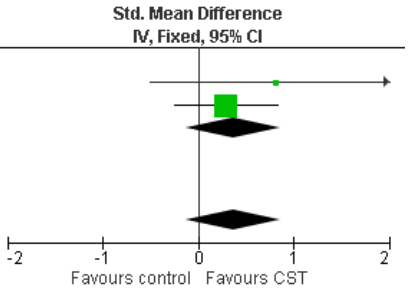
BPSD (post-intervention)

Study or Subgroup	CST Mean	CST SD	CST Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI
2.12.1 Group								
Baines 1987	4.8	2.747	5	-1.2	7.358	5	2.2%	0.98 [-0.38, 2.33]
Ferrario 1991	0.69	2.06	13	0.16	5.013	6	4.0%	0.16 [-0.81, 1.13]
Mapelli 2013	7.2	7.671	10	-2.5	4.305	10	3.7%	1.49 [0.48, 2.51]
Orrell 2014	-7.47	16.66	123	-9.05	16.66	113	22.3%	0.09 [-0.16, 0.35]
Spector 2001	-1.1	4.303	17	-0.6	5.003	10	5.8%	-0.11 [-0.89, 0.68]
Spector 2003	0.3	4.635	115	0.7	4.635	86	20.9%	-0.09 [-0.37, 0.19]
Subtotal (95% CI)			**283**			**230**	**58.8%**	**0.19 [-0.15, 0.53]**
Heterogeneity: Tau² = 0.07; Chi² = 10.69, df = 5 (P = 0.06); I² = 53%								
Test for overall effect: Z = 1.08 (P = 0.28)								
2.12.2 Individual								
Onder 2005	-0.9	15.897	70	2.5	17.189	67	17.9%	-0.20 [-0.54, 0.13]
Orgeta 2015	-0.28	10.224	133	-0.6	10.224	138	23.3%	0.03 [-0.21, 0.27]
Subtotal (95% CI)			**203**			**205**	**41.2%**	**-0.06 [-0.28, 0.17]**
Heterogeneity: Tau² = 0.01; Chi² = 1.26, df = 1 (P = 0.26); I² = 20%								
Test for overall effect: Z = 0.49 (P = 0.62)								
Total (95% CI)			**486**			**435**	**100.0%**	**0.05 [-0.16, 0.26]**
Heterogeneity: Tau² = 0.03; Chi² = 12.75, df = 7 (P = 0.08); I² = 45%								
Test for overall effect: Z = 0.48 (P = 0.63)								
Test for subgroup differences: Chi² = 1.38, df = 1 (P = 0.24), I² = 27.3%								

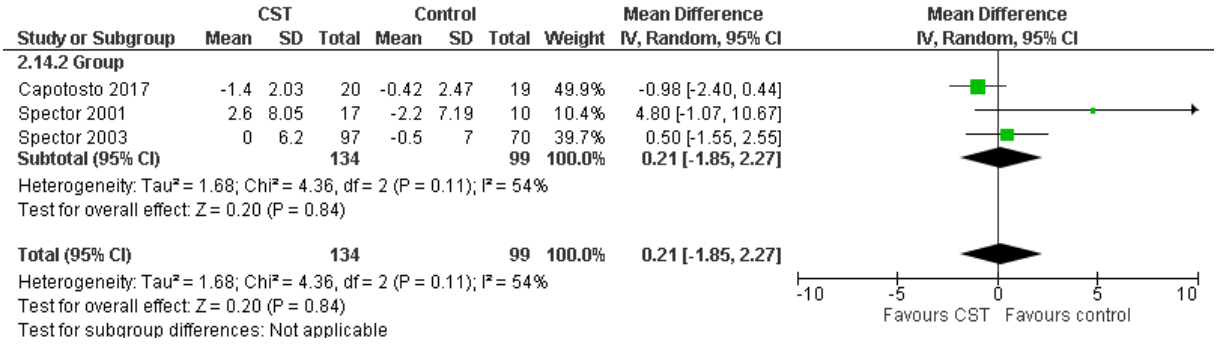


BPSD (follow-up)

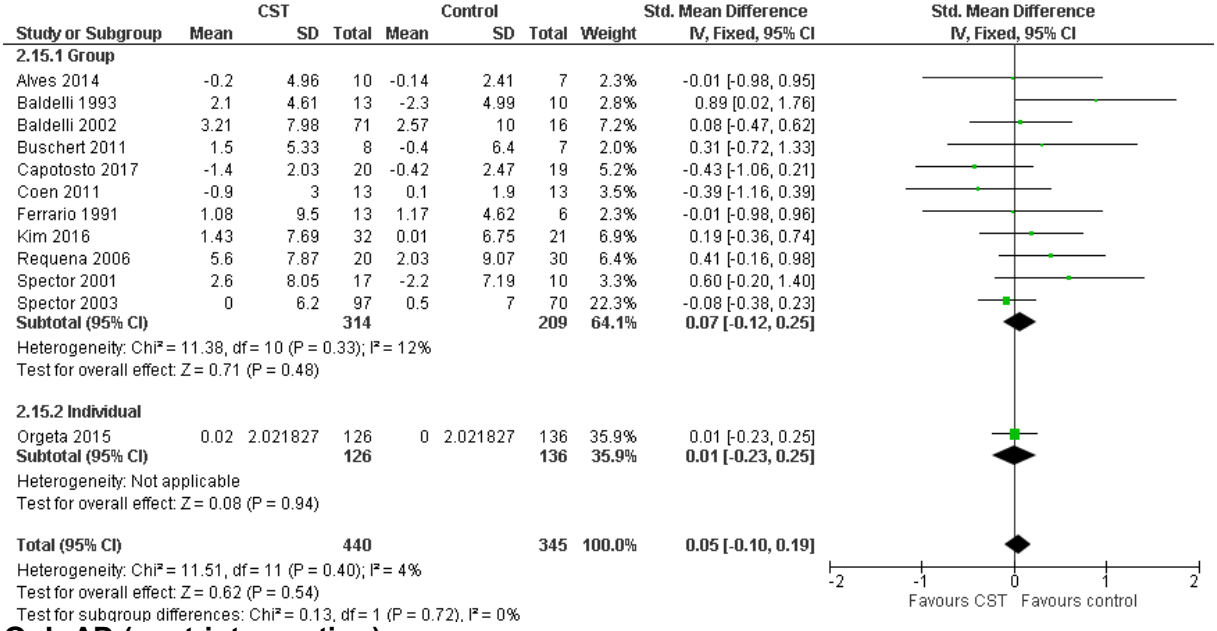
Study or Subgroup	CST Mean	CST SD	CST Total	Control Mean	Control SD	Control Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
2.13.1 Group								
Baines 1987	3.5	3.825	5	0	3.897	5	14.1%	0.82 [-0.50, 2.14]
Chapman 2004	2.25	14.335	26	-2.19	15.335	28	85.9%	0.29 [-0.24, 0.83]
Subtotal (95% CI)			**31**			**33**	**100.0%**	**0.37 [-0.13, 0.87]**
Heterogeneity: Chi² = 0.52, df = 1 (P = 0.47); I² = 0%								
Test for overall effect: Z = 1.45 (P = 0.15)								
Total (95% CI)			**31**			**33**	**100.0%**	**0.37 [-0.13, 0.87]**
Heterogeneity: Chi² = 0.52, df = 1 (P = 0.47); I² = 0%								
Test for overall effect: Z = 1.45 (P = 0.15)								
Test for subgroup differences: Not applicable								



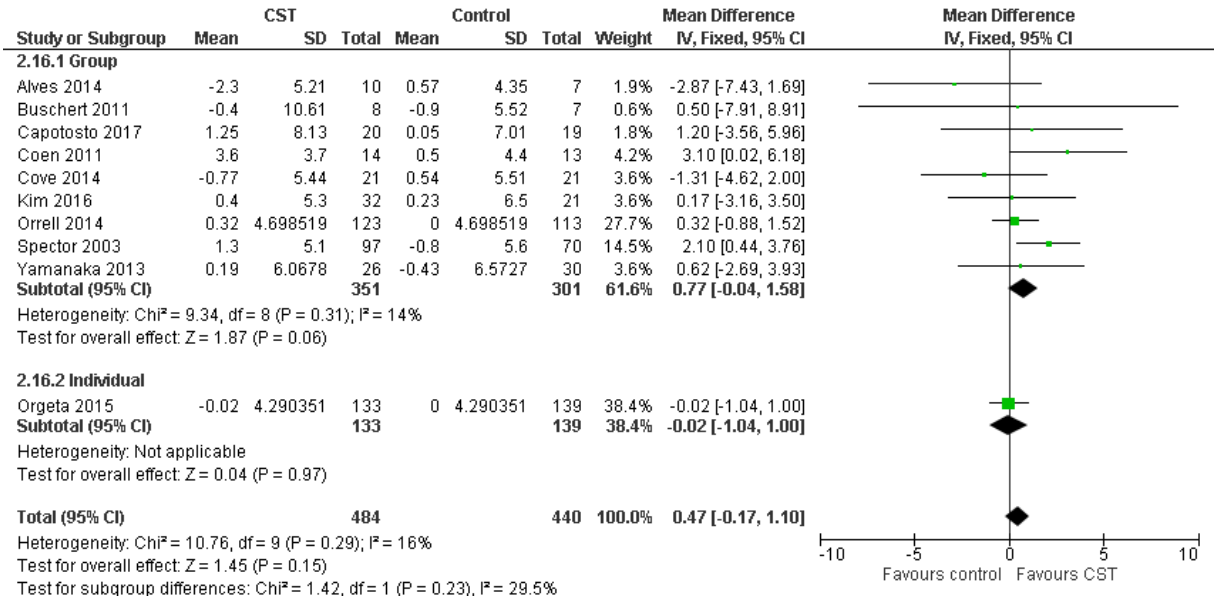
CSDD (post-intervention)



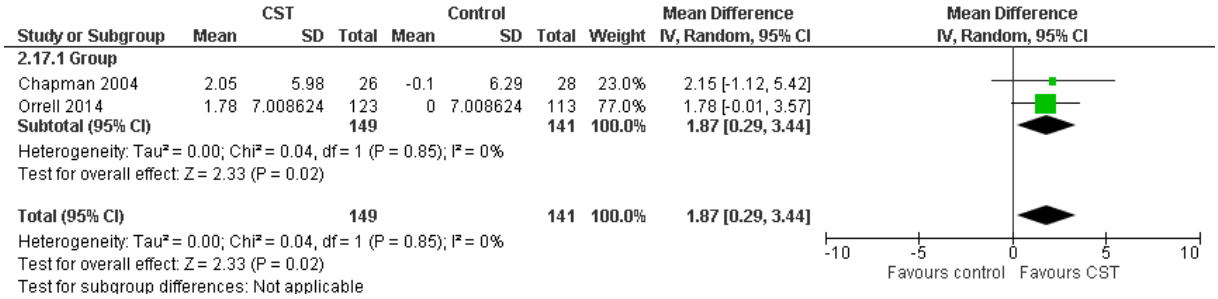
Depression (post-intervention)



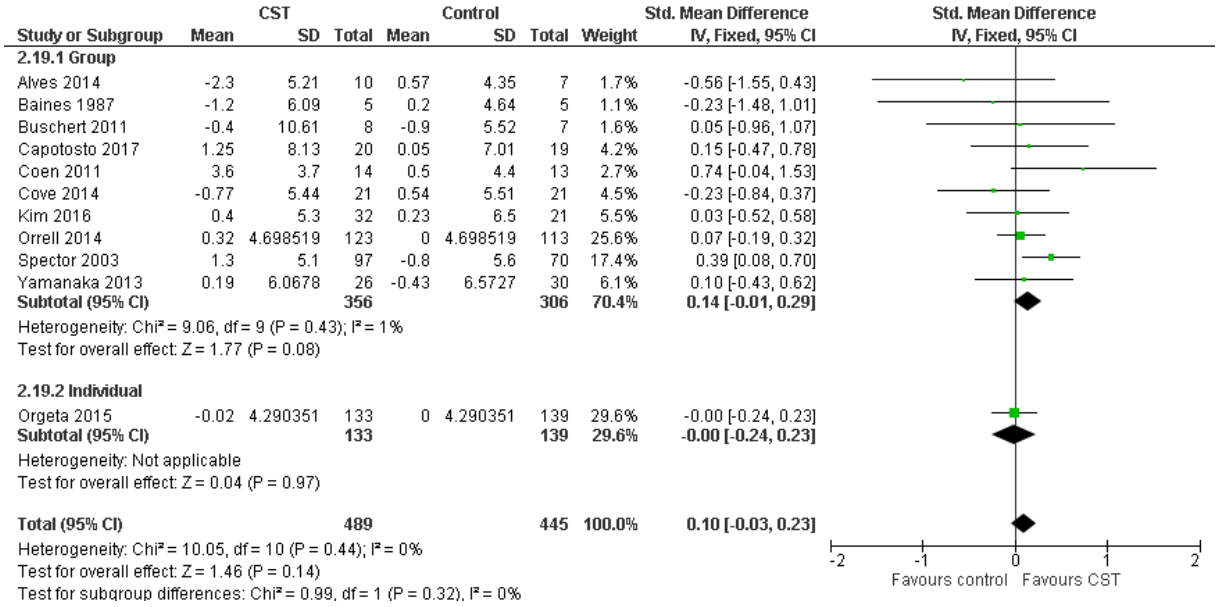
QoL-AD (post-intervention)



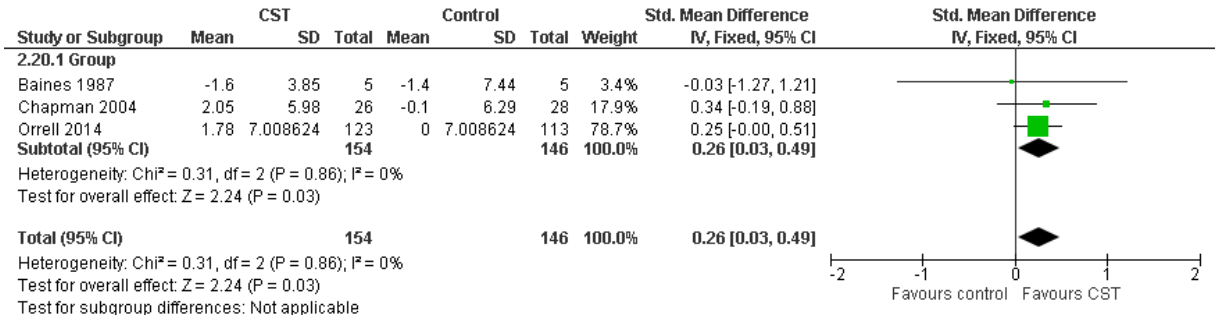
QoL-AD (follow-up)



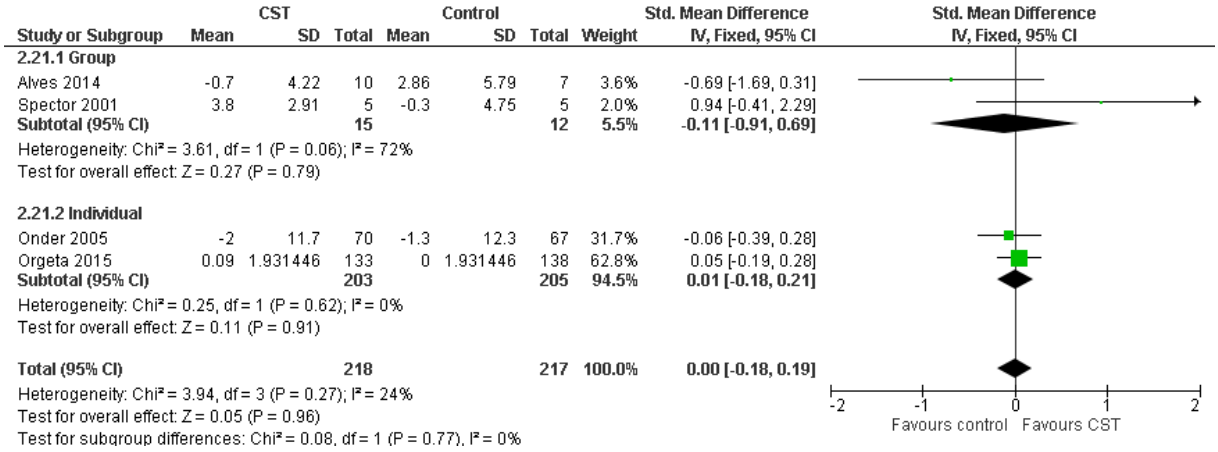
Quality of life (post-intervention)



Quality of life (follow-up)



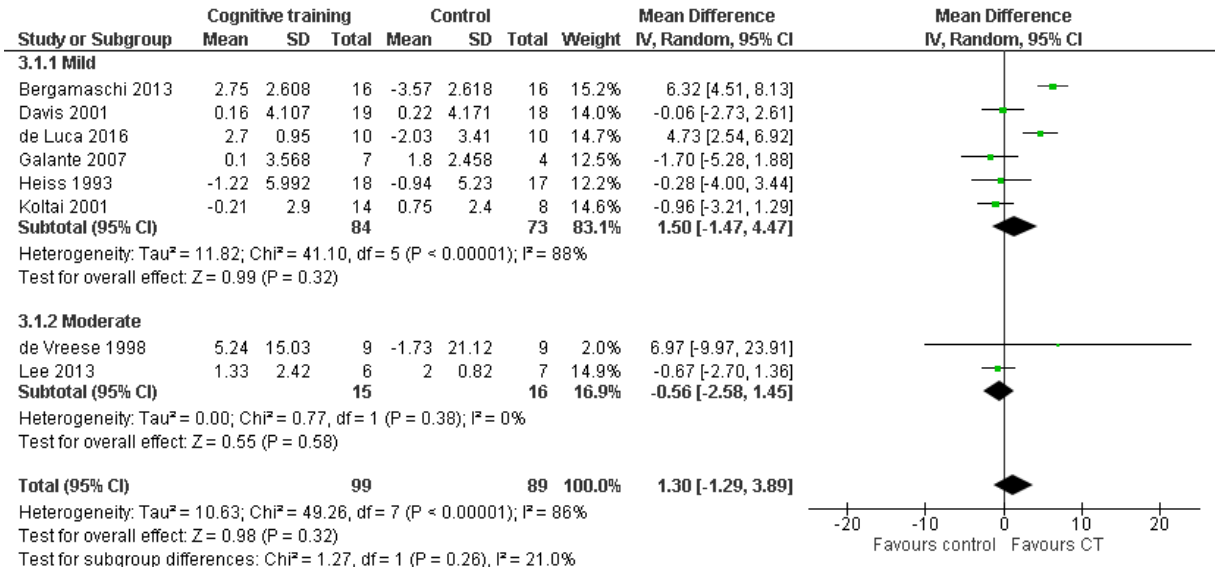
Carer burden (post-intervention)



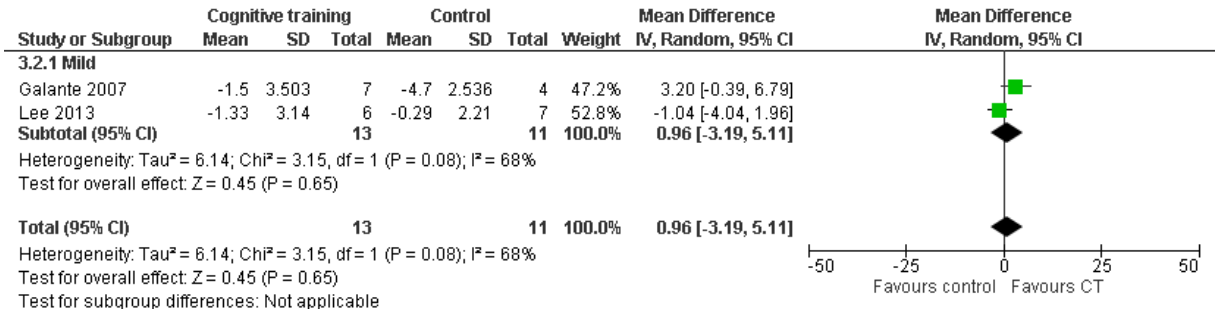
H.9.1.2 Cognitive training

Outcomes stratified by dementia severity

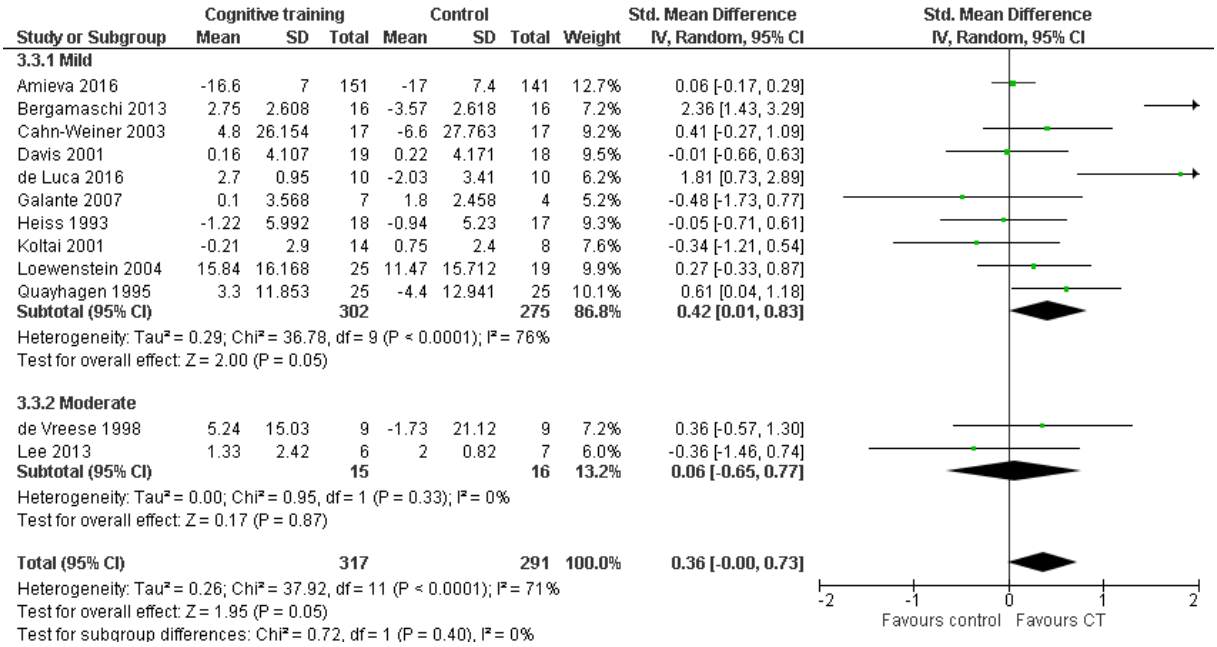
MMSE (post-intervention)



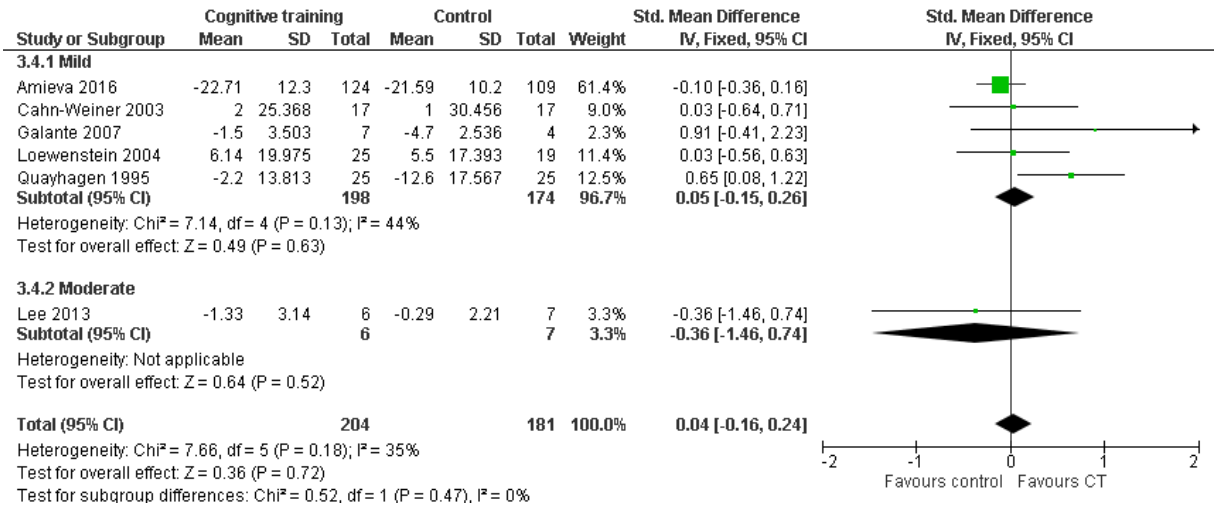
MMSE (follow-up)



Cognition (post-intervention)

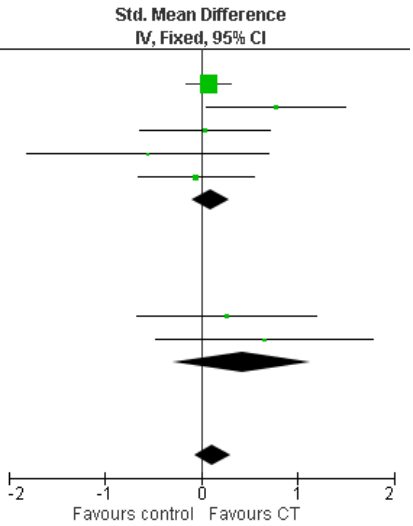


Cognition (follow-up)



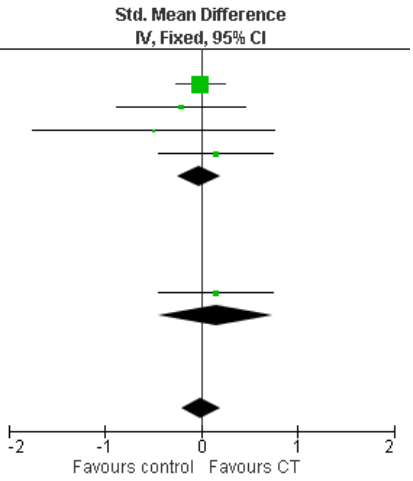
ADL (post-intervention)

Study or Subgroup	Cognitive training Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
3.5.1 Mild								
Amieva 2016	-0.63	8.307	151	-1.29	8.902	141	66.6%	0.08 [-0.15, 0.31]
Bergamaschi 2013	-0.31	1.245	16	-1.43	1.546	16	6.7%	0.78 [0.06, 1.50]
Cahn-Weiner 2003	0.2	5	17	0	4.851	17	7.8%	0.04 [-0.63, 0.71]
Galante 2007	-0.6	2.152	7	0.5	0.721	4	2.2%	-0.56 [-1.82, 0.71]
Loewenstein 2004	-0.6	1.931	25	-0.5	1.709	19	9.9%	-0.05 [-0.65, 0.54]
Subtotal (95% CI)			**216**			**197**	**93.2%**	**0.10 [-0.10, 0.29]**
Heterogeneity: Chi² = 4.75, df = 4 (P = 0.31); I² = 16%								
Test for overall effect: Z = 0.96 (P = 0.34)								
3.5.2 Moderate								
de Vreese 1998	1.33	9.78	9	-1.11	7.52	9	4.1%	0.27 [-0.66, 1.20]
Lee 2013	2.5	3.33	6	0.71	1.6	7	2.7%	0.66 [-0.48, 1.79]
Subtotal (95% CI)			**15**			**16**	**6.8%**	**0.42 [-0.29, 1.14]**
Heterogeneity: Chi² = 0.27, df = 1 (P = 0.60); I² = 0%								
Test for overall effect: Z = 1.16 (P = 0.25)								
Total (95% CI)			**231**			**213**	**100.0%**	**0.12 [-0.07, 0.31]**
Heterogeneity: Chi² = 5.77, df = 6 (P = 0.45); I² = 0%								
Test for overall effect: Z = 1.23 (P = 0.22)								
Test for subgroup differences: Chi² = 0.75, df = 1 (P = 0.39), I² = 0%								



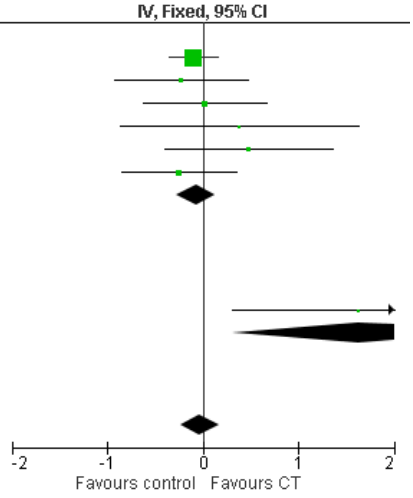
ADL (follow-up)

Study or Subgroup	Cognitive training Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
3.6.1 Mild								
Amieva 2016	-8.12	9.666	124	-8.04	9.952	109	64.2%	-0.01 [-0.27, 0.25]
Cahn-Weiner 2003	-0.6	4.903	17	0.5	5.308	17	9.3%	-0.21 [-0.88, 0.46]
Galante 2007	-0.7	2.252	7	0.3	0.557	4	2.7%	-0.49 [-1.74, 0.76]
Loewenstein 2004	-0.8	1.868	25	-1.1	2.042	19	11.9%	0.15 [-0.45, 0.75]
Subtotal (95% CI)			**173**			**149**	**88.1%**	**-0.02 [-0.24, 0.20]**
Heterogeneity: Chi² = 1.17, df = 3 (P = 0.76); I² = 0%								
Test for overall effect: Z = 0.20 (P = 0.84)								
3.6.2 Moderate								
Lee 2013	-0.8	1.868	25	-1.1	2.042	19	11.9%	0.15 [-0.45, 0.75]
Subtotal (95% CI)			**25**			**19**	**11.9%**	**0.15 [-0.45, 0.75]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.50 (P = 0.62)								
Total (95% CI)			**198**			**168**	**100.0%**	**-0.00 [-0.21, 0.20]**
Heterogeneity: Chi² = 1.46, df = 4 (P = 0.83); I² = 0%								
Test for overall effect: Z = 0.02 (P = 0.98)								
Test for subgroup differences: Chi² = 0.29, df = 1 (P = 0.59), I² = 0%								

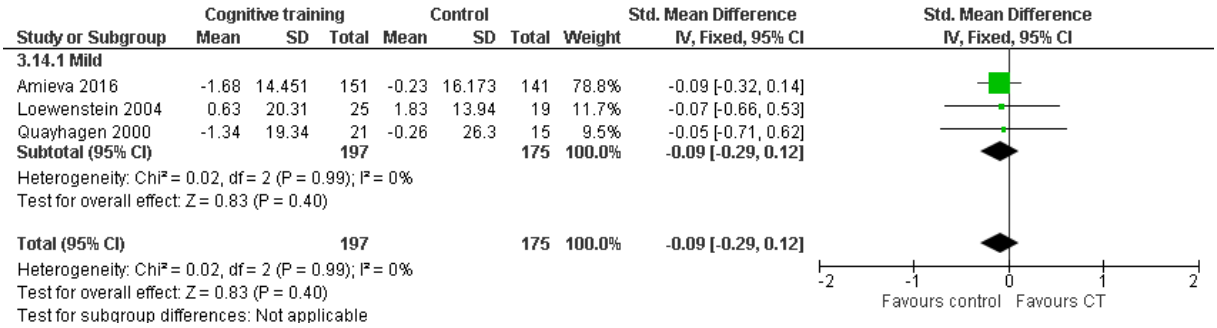


Depression (post-intervention)

Study or Subgroup	Cognitive training Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
3.10.1 Mild								
Amieva 2016	-20.21	17.2	124	-18.51	17.1	109	60.7%	-0.10 [-0.36, 0.16]
Bergamaschi 2013	-1.07	4.87	16	0.44	7.73	16	8.3%	-0.23 [-0.92, 0.47]
Davis 2001	0.32	3.36	19	0.17	9.83	18	9.7%	0.02 [-0.62, 0.66]
Galante 2007	0.5	2.05	7	-0.3	1.64	4	2.6%	0.38 [-0.86, 1.62]
Koltai 2001	1.21	2.5	14	-0.13	3	8	5.2%	0.48 [-0.40, 1.36]
Loewenstein 2004	0.96	13.27	25	4.37	13.79	19	11.2%	-0.25 [-0.85, 0.35]
Subtotal (95% CI)			**205**			**174**	**97.7%**	**-0.07 [-0.27, 0.13]**
Heterogeneity: Chi² = 2.66, df = 5 (P = 0.75); I² = 0%								
Test for overall effect: Z = 0.69 (P = 0.49)								
3.10.2 Moderate								
Lee 2013	1.5	1.05	6	-2	2.53	7	2.3%	1.63 [0.31, 2.95]
Subtotal (95% CI)			**6**			**7**	**2.3%**	**1.63 [0.31, 2.95]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 2.41 (P = 0.02)								
Total (95% CI)			**211**			**181**	**100.0%**	**-0.03 [-0.23, 0.17]**
Heterogeneity: Chi² = 8.86, df = 6 (P = 0.18); I² = 32%								
Test for overall effect: Z = 0.32 (P = 0.75)								
Test for subgroup differences: Chi² = 6.20, df = 1 (P = 0.01), I² = 83.9%								

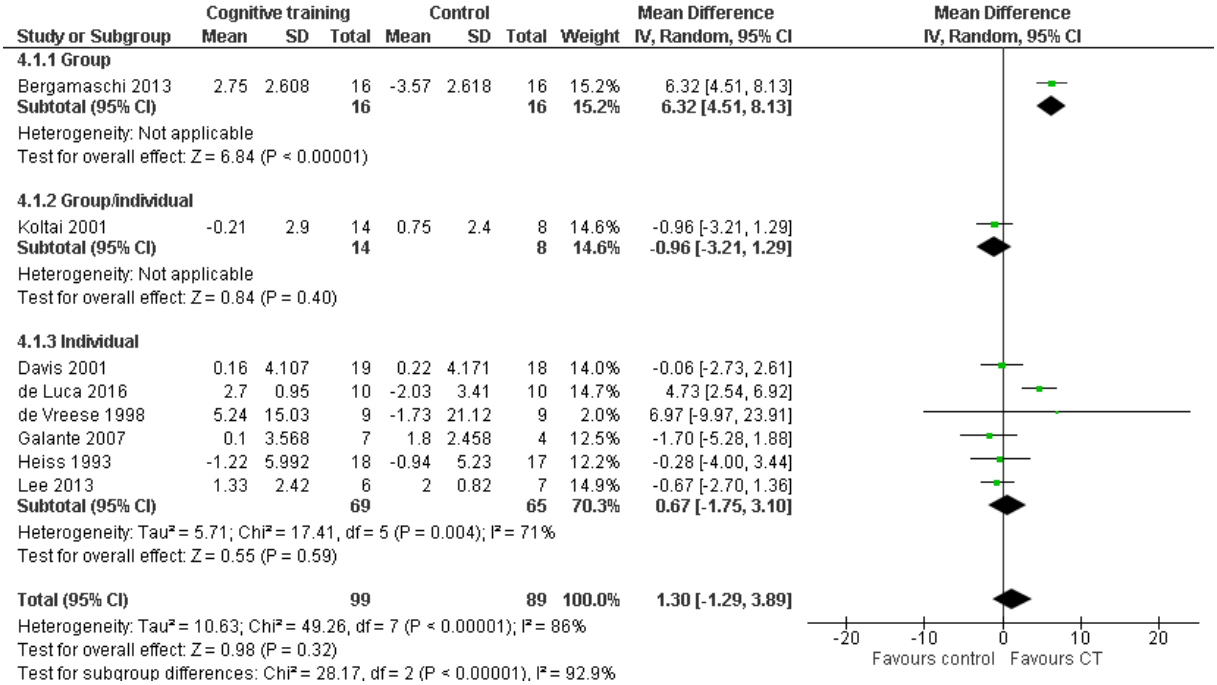


Carer burden (post-intervention)

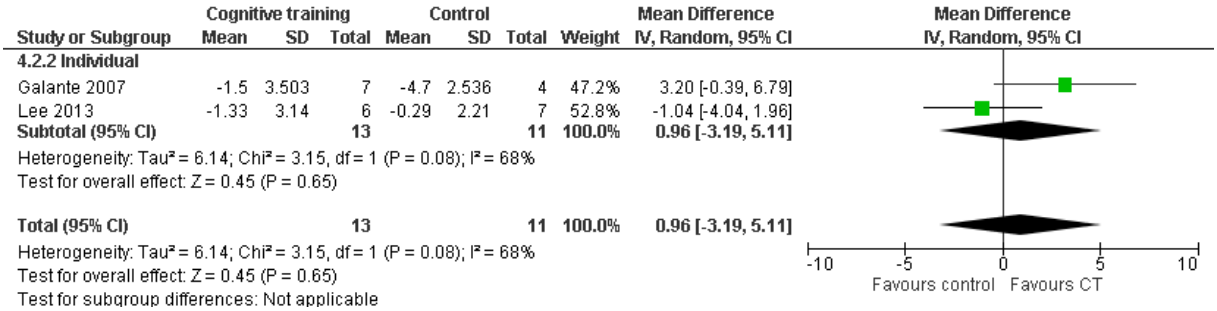


Outcomes stratified by mode of delivery

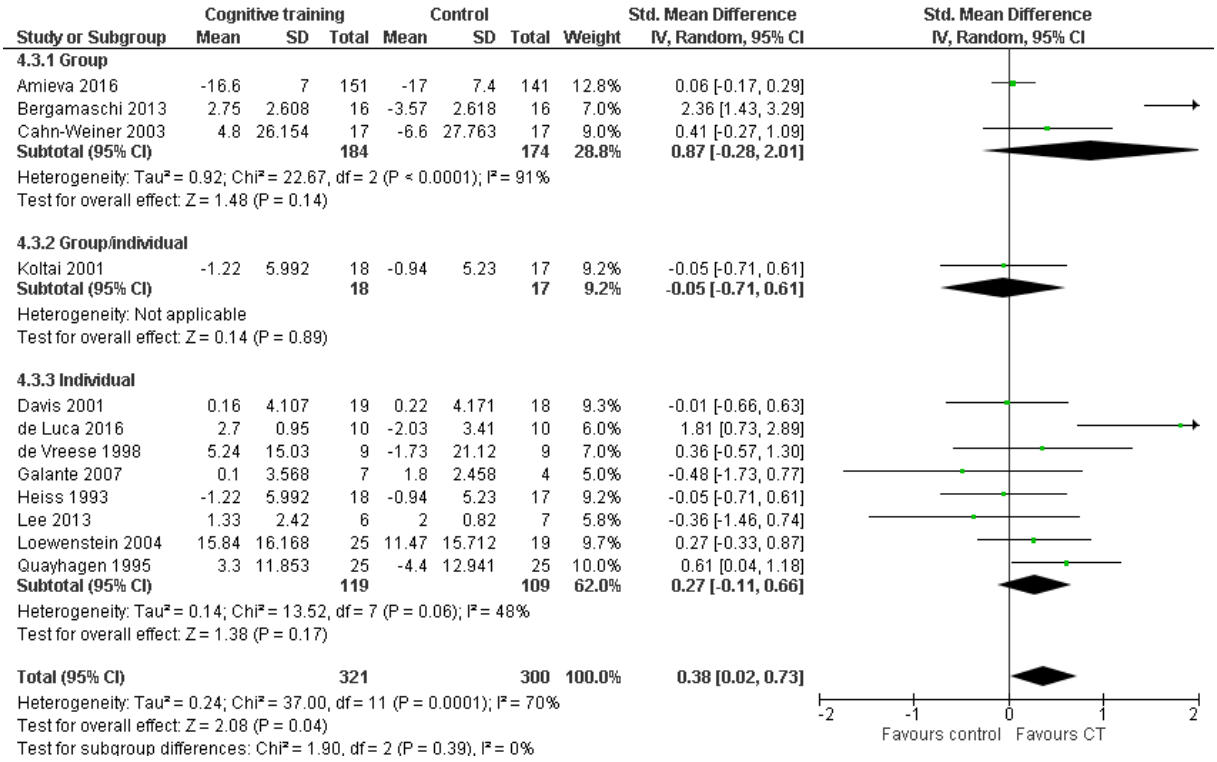
MMSE (post-intervention)



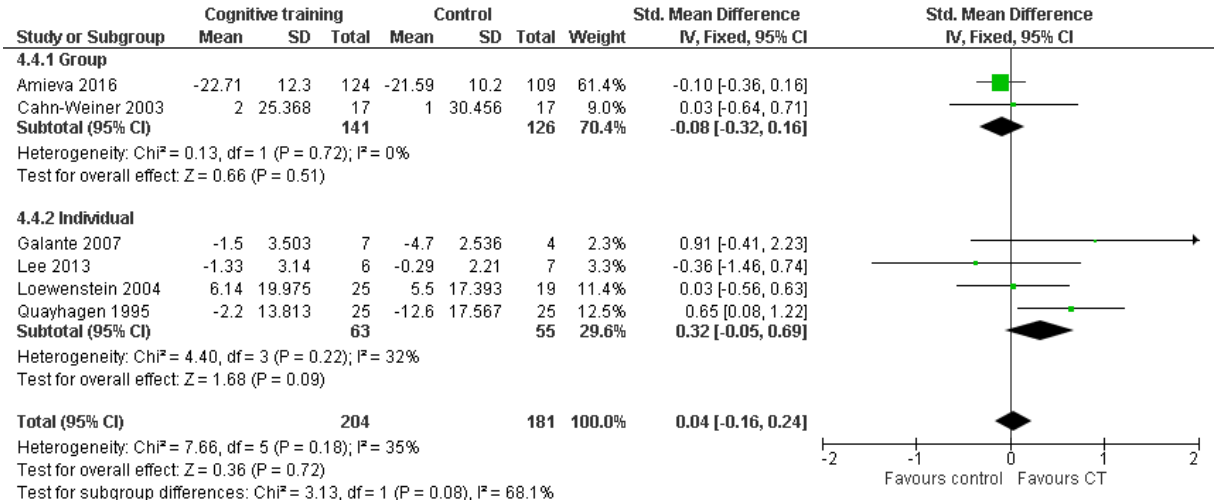
MMSE (follow-up)



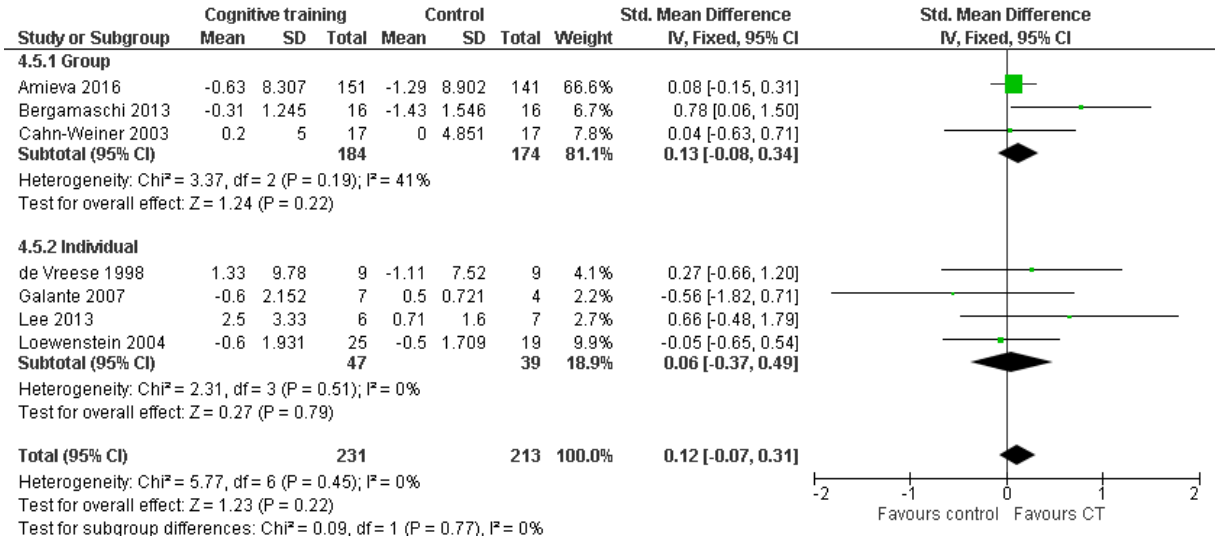
Cognition (post-intervention)



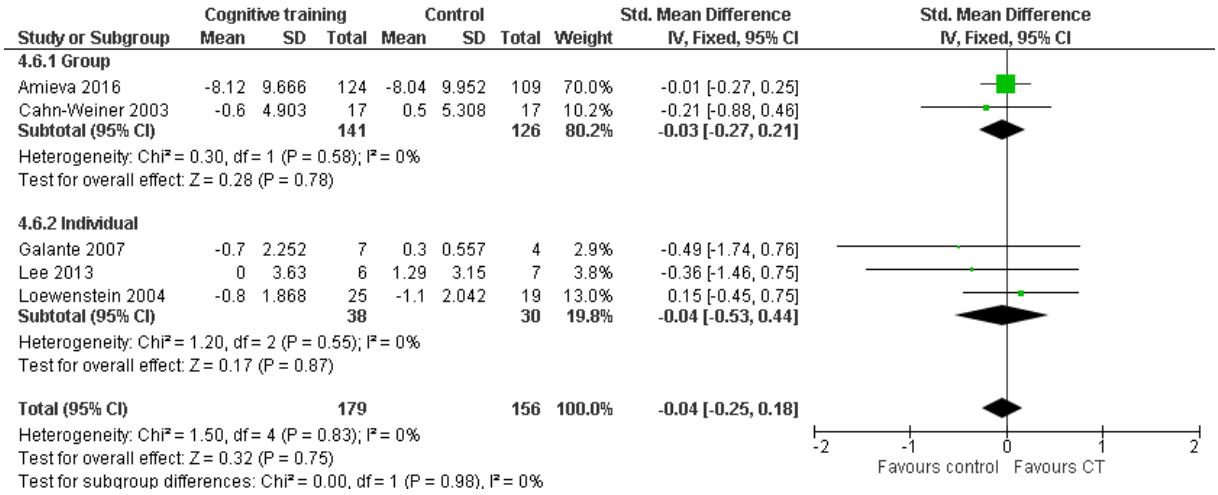
Cognition (follow-up)



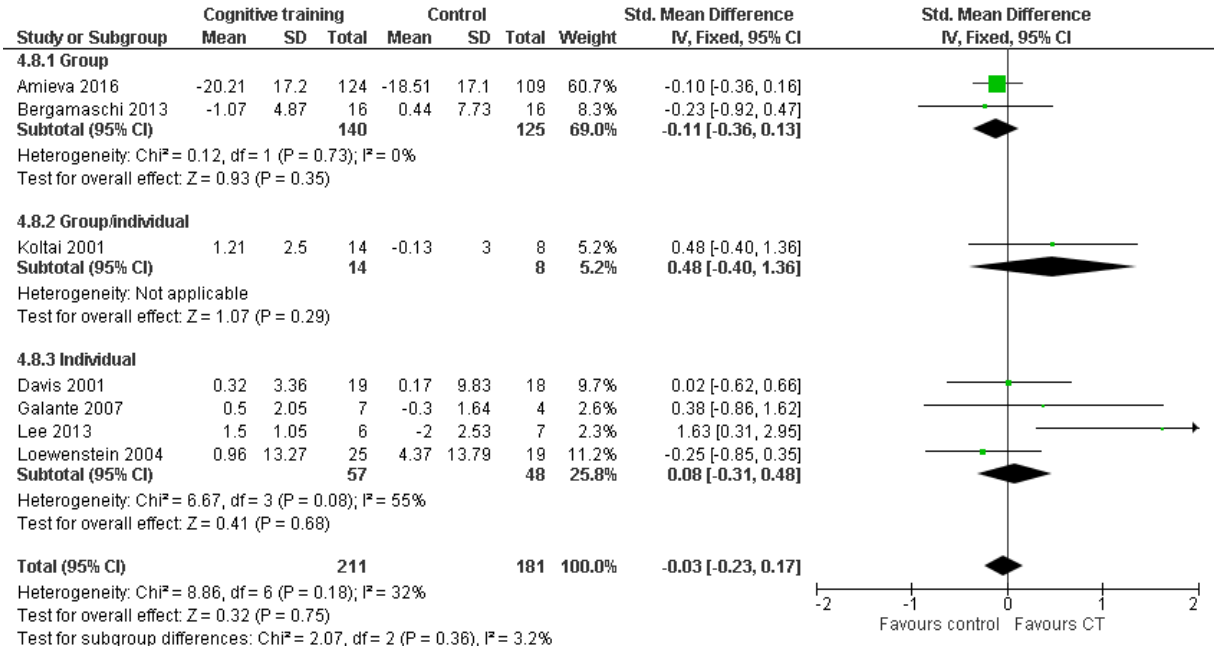
ADL (post-intervention)



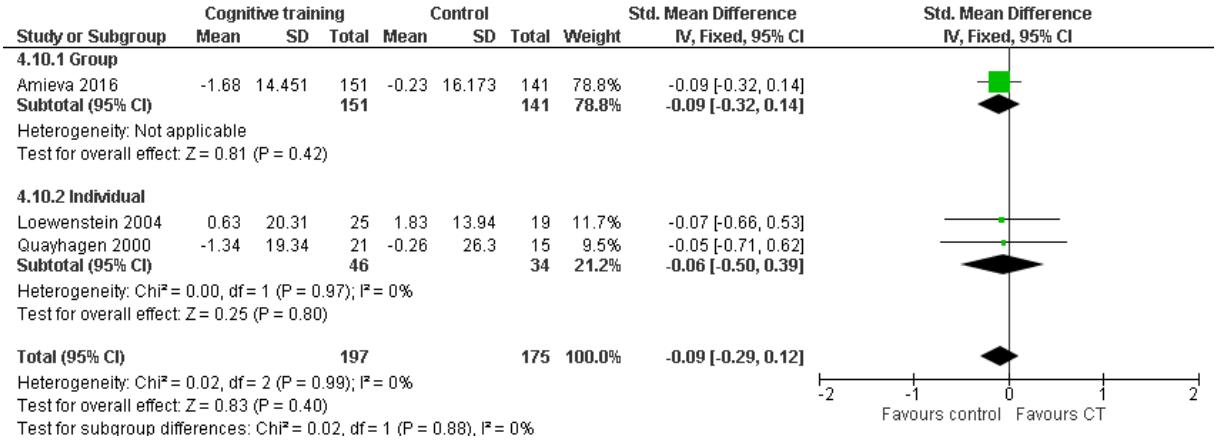
ADL (follow-up)



Depression (post-intervention)



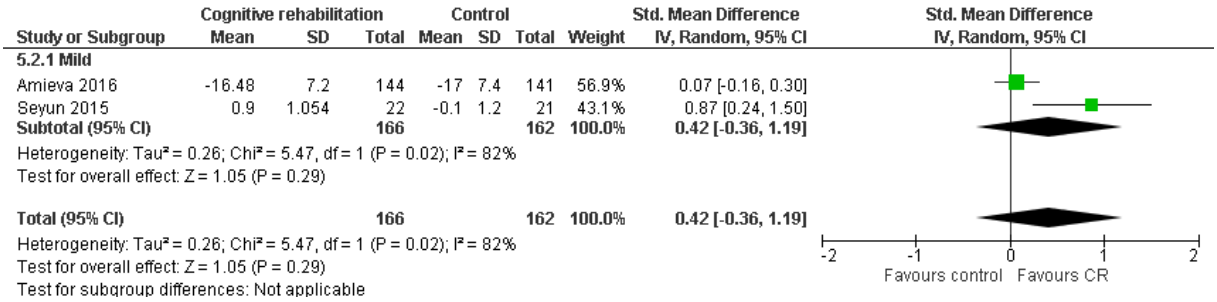
Carer burden (post-intervention)



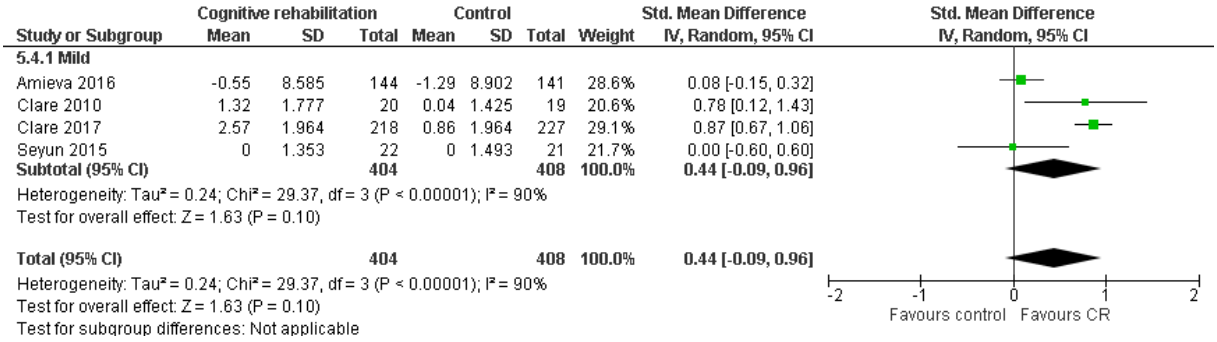
H.9.1.3 Cognitive rehabilitation

Outcomes stratified by dementia severity

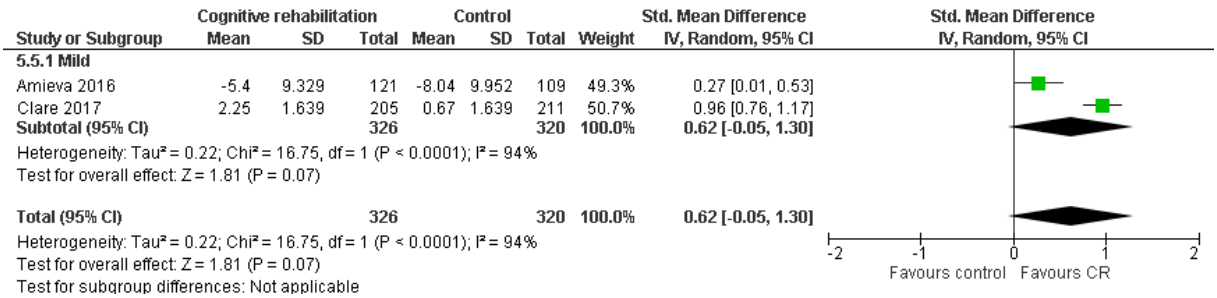
Cognition (post-intervention)



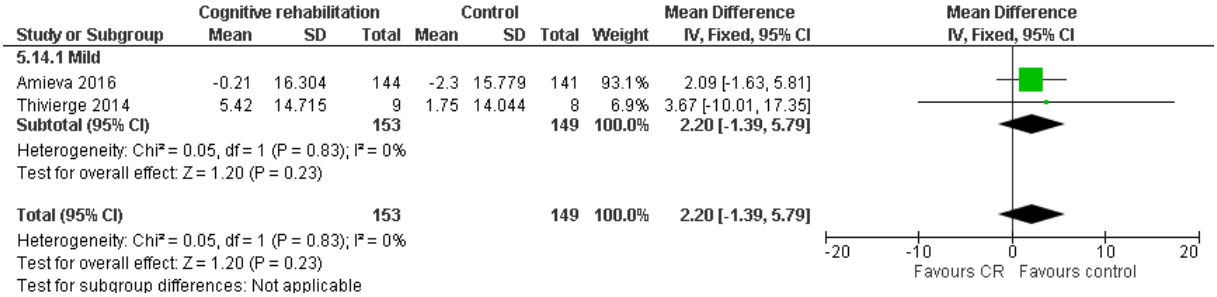
ADL (post-intervention)



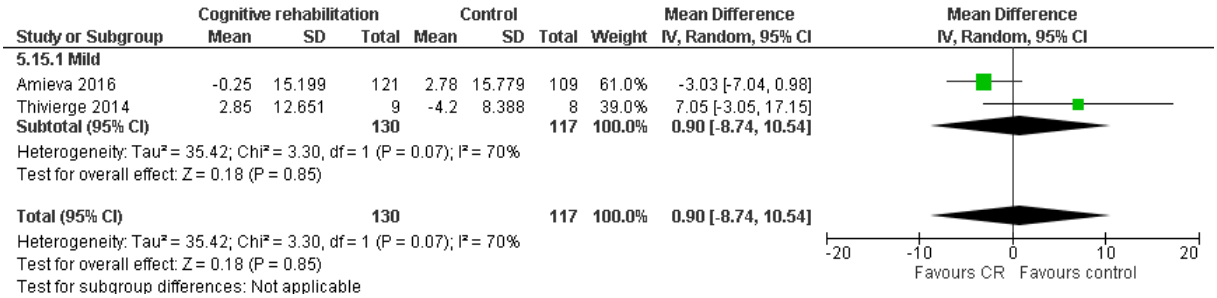
ADL (follow-up)



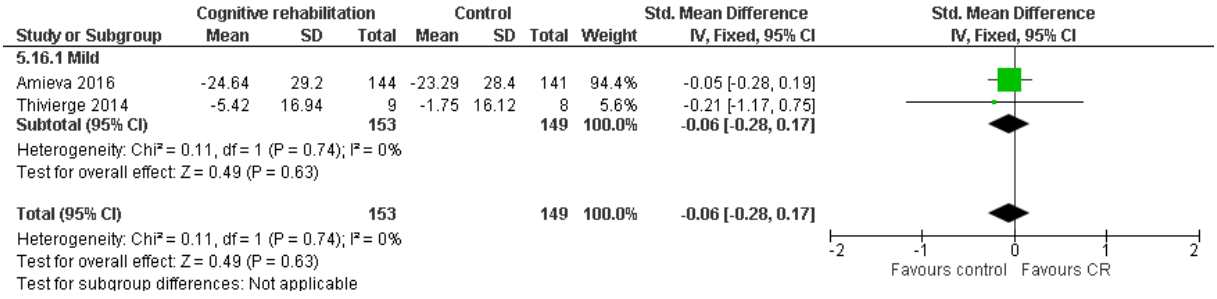
NPI (post-intervention)



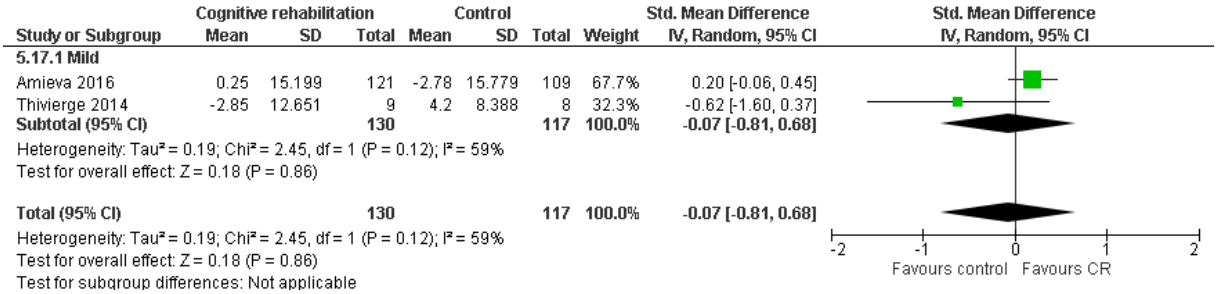
NPI (follow-up)



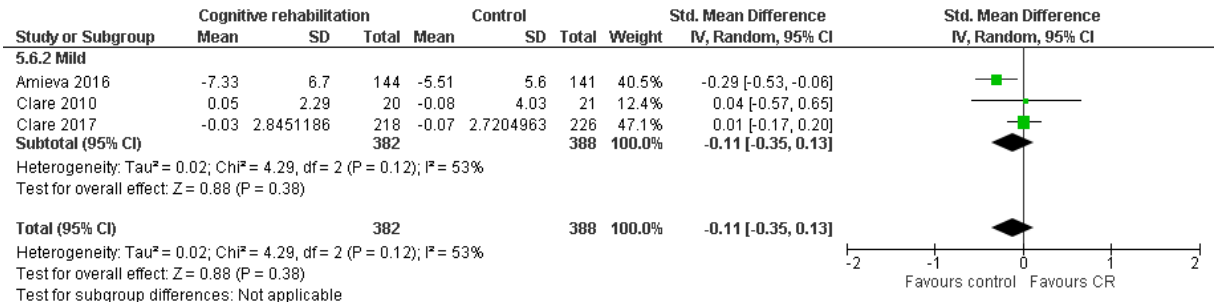
BPSD (post-intervention)



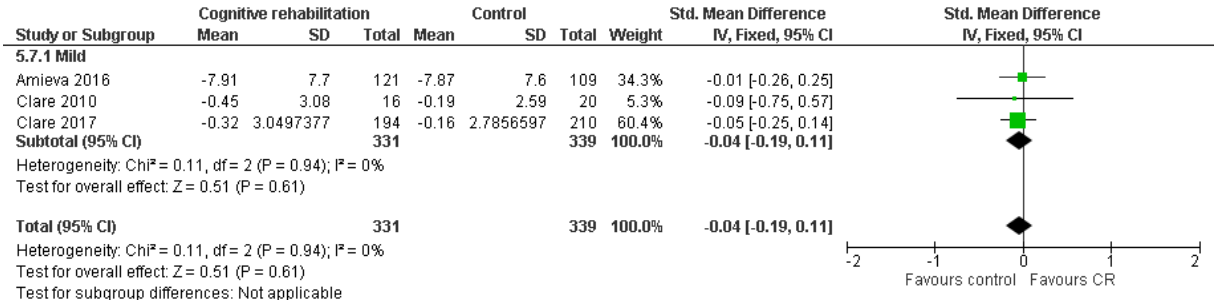
BPSD (follow-up)



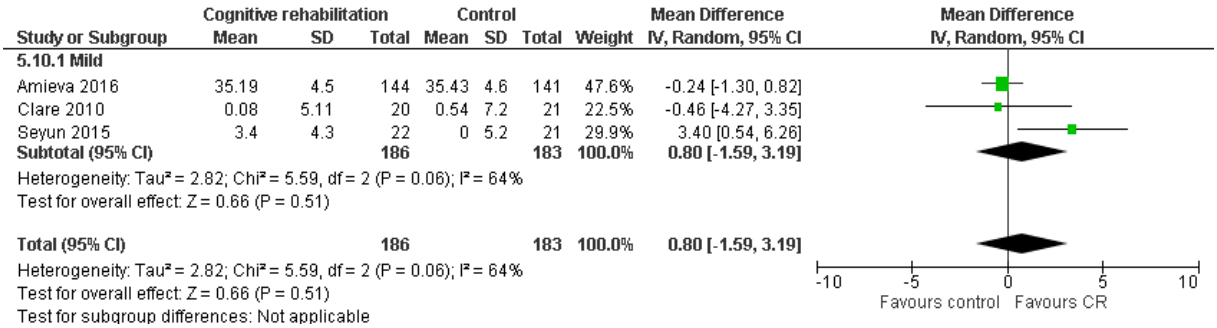
Depression (post-intervention)



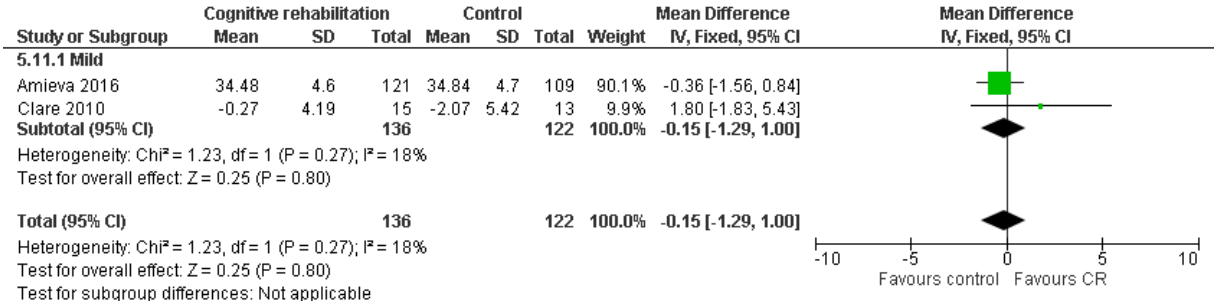
Depression (follow-up)



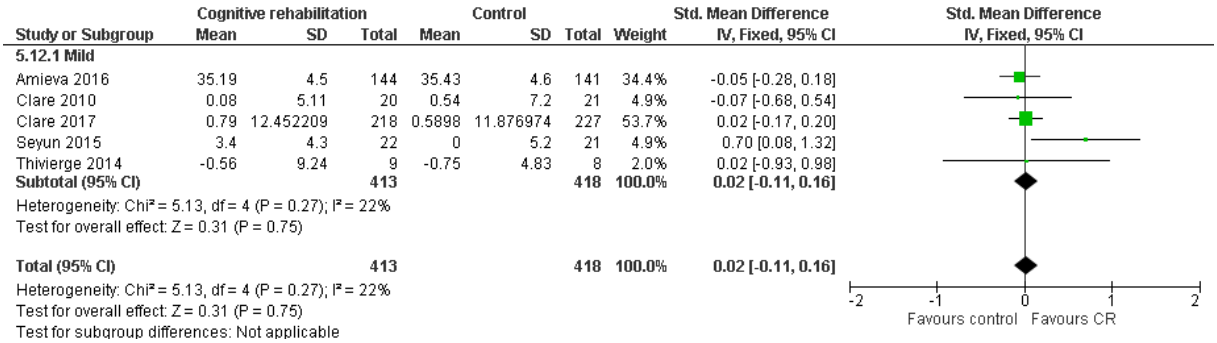
QoL-AD (post-intervention)



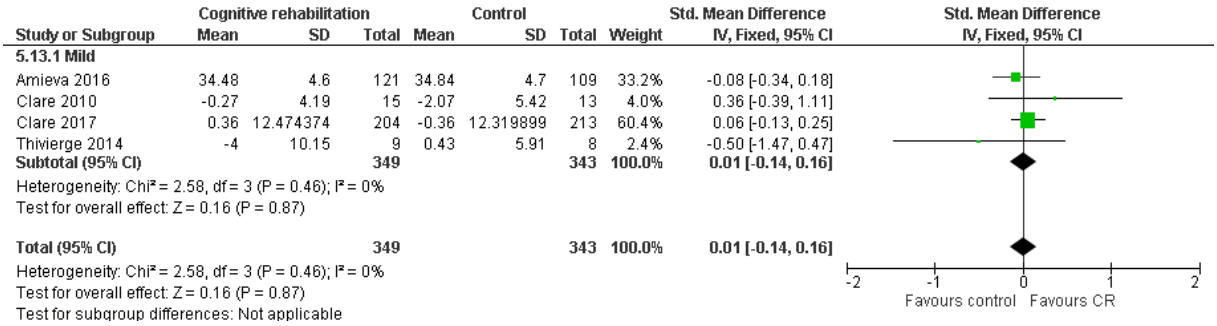
QoL-AD (follow-up)



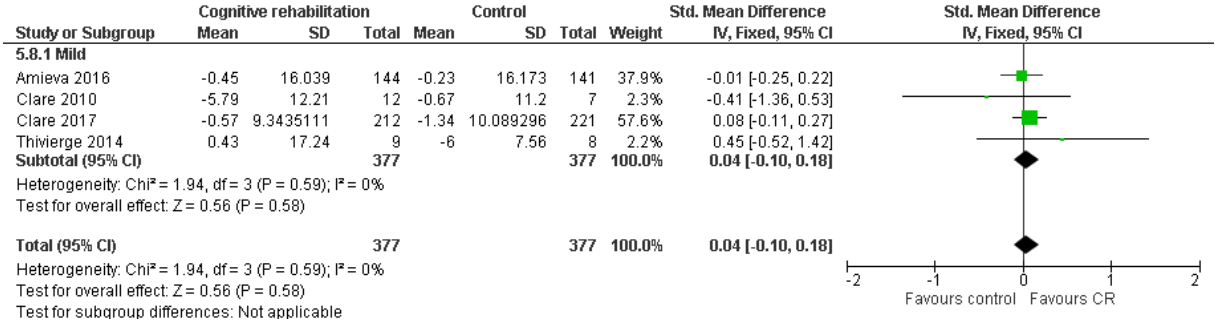
Quality of life (post-intervention)



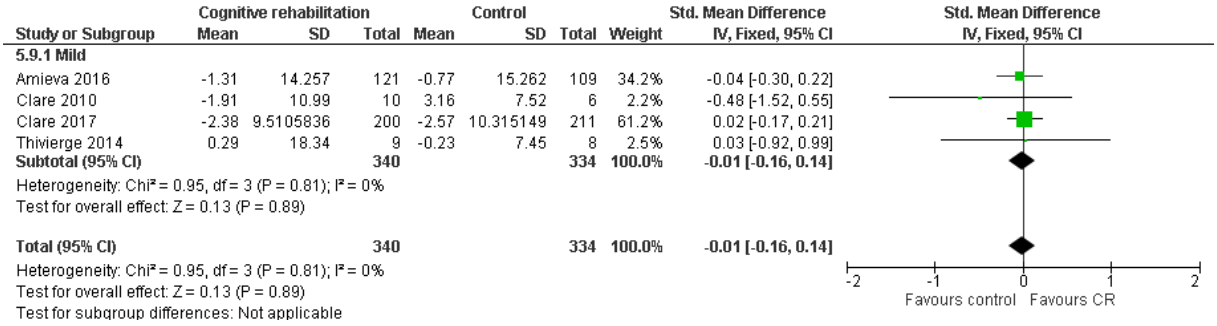
Quality of life (follow-up)



Carer burden (post-intervention)

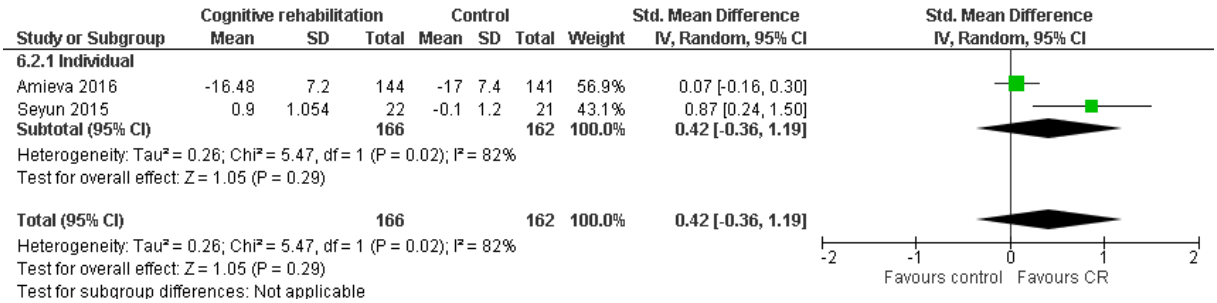


Carer burden (follow-up)

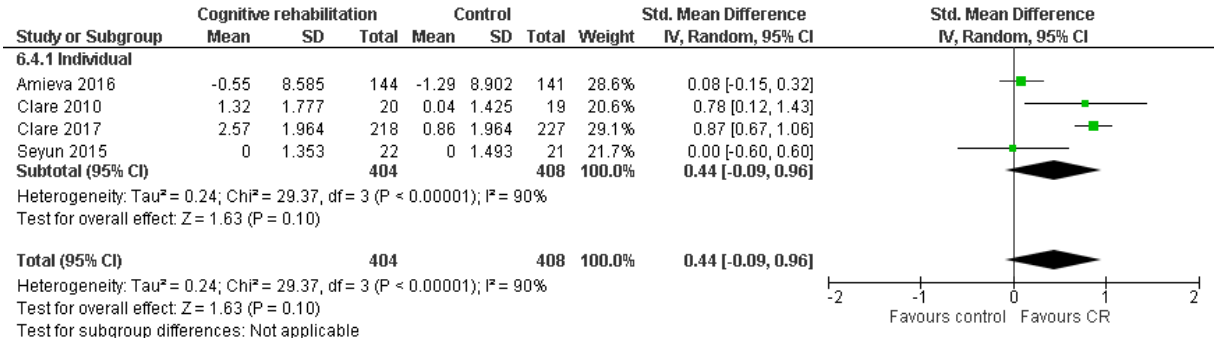


Outcomes stratified by mode of delivery

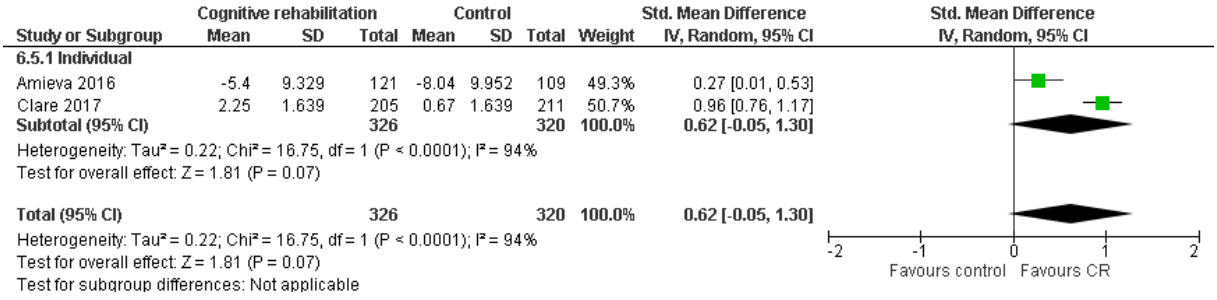
Cognition (post-intervention)



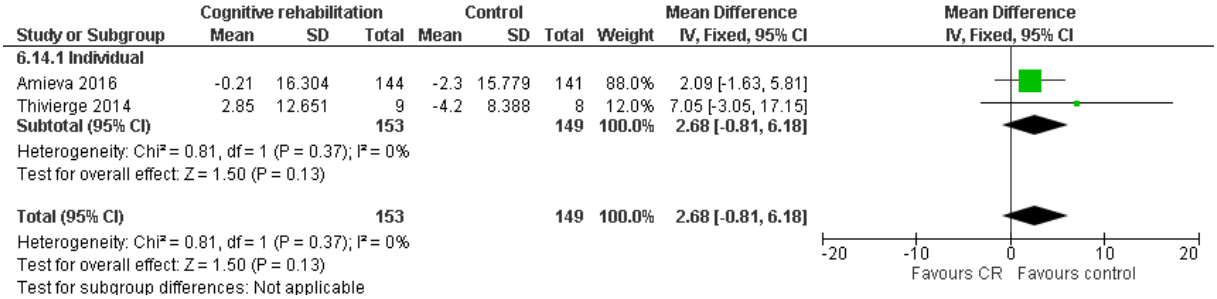
ADL (post-intervention)



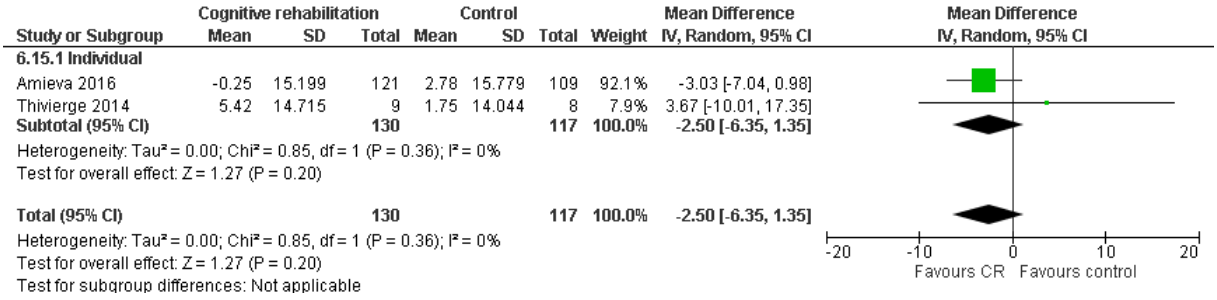
ADL (follow-up)



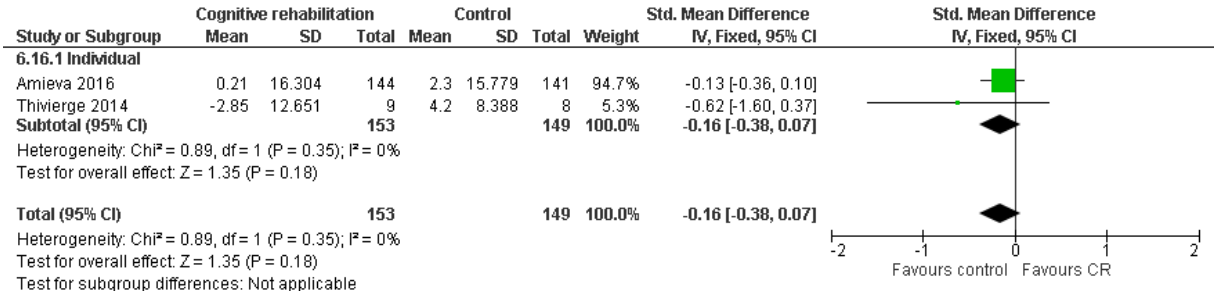
NPI (post-intervention)



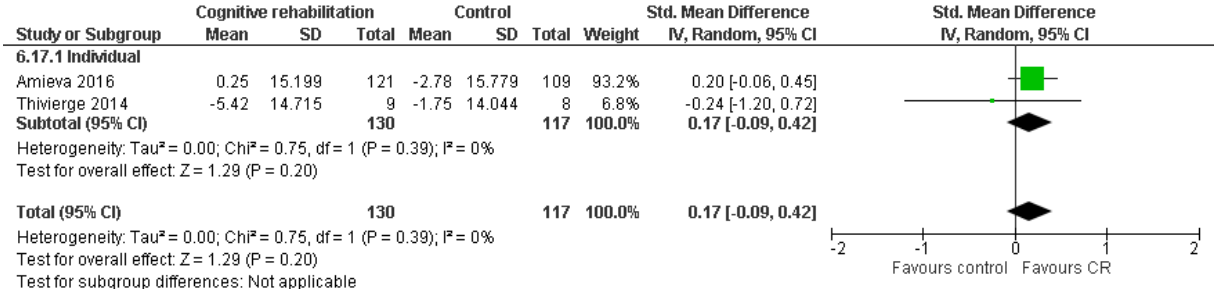
NPI (follow-up)



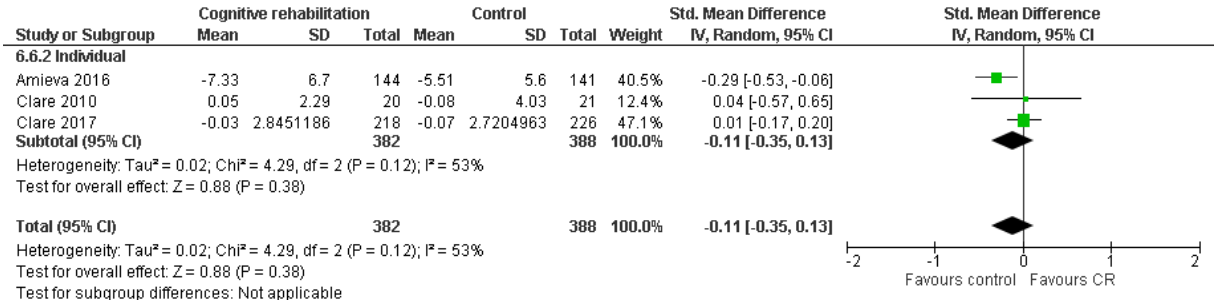
BPSD (post-intervention)



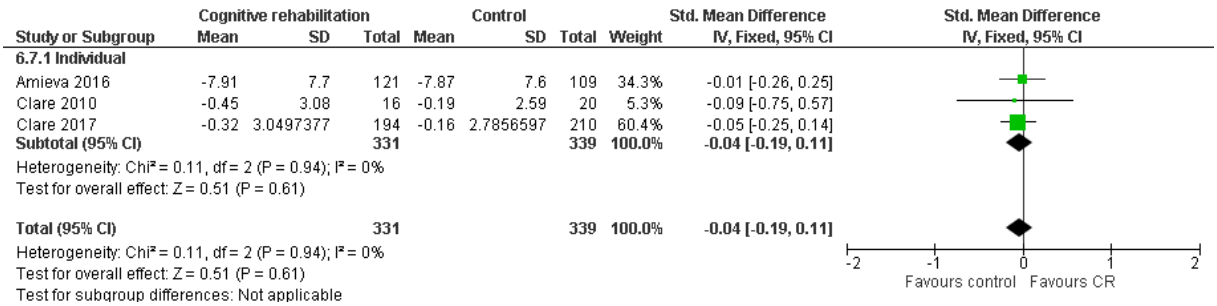
BPSD (follow-up)



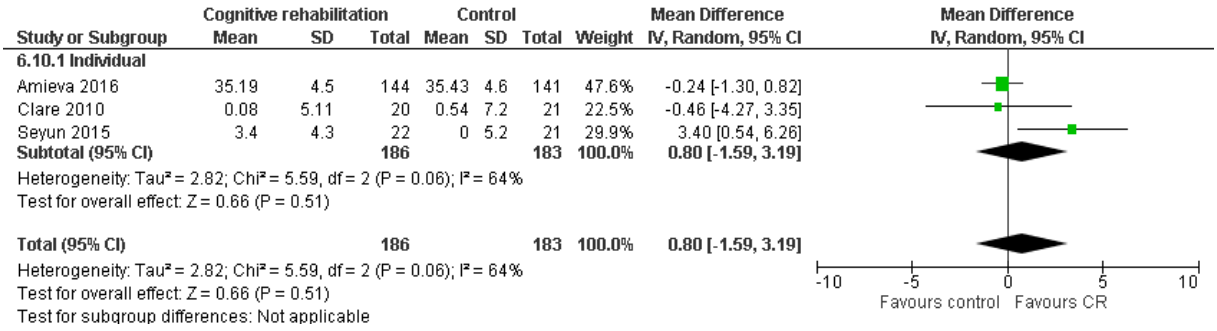
Depression (post-intervention)



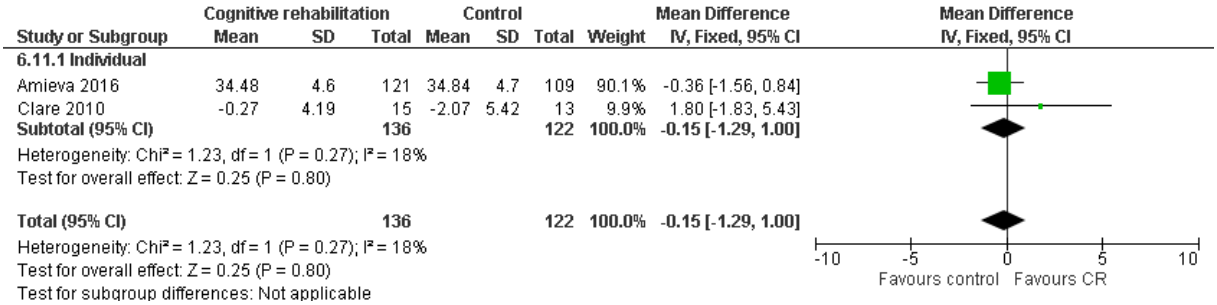
Depression (follow-up)



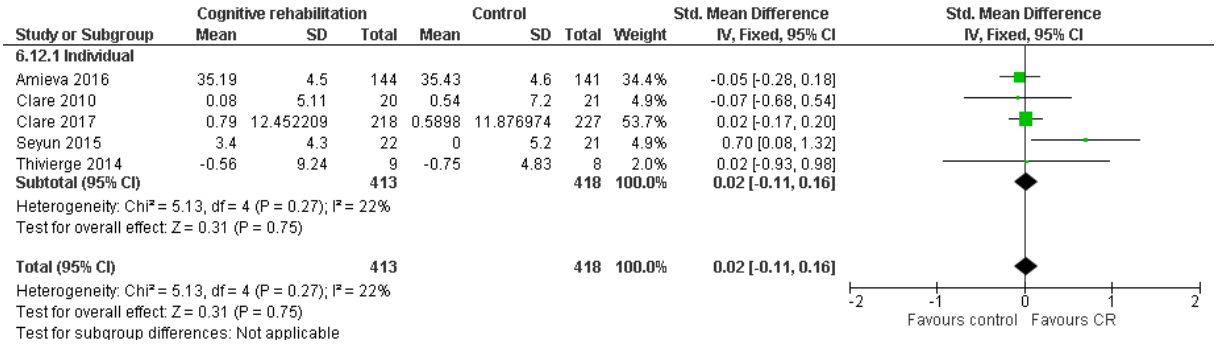
QoL-AD (post-intervention)



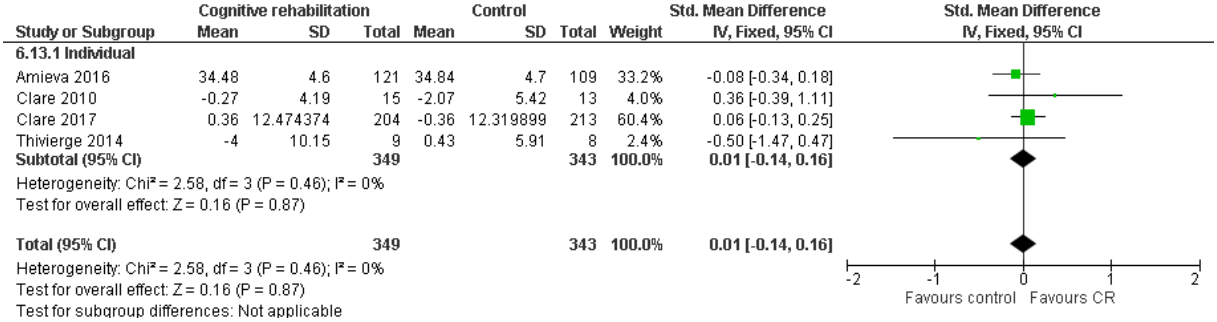
QoL-AD (follow-up)



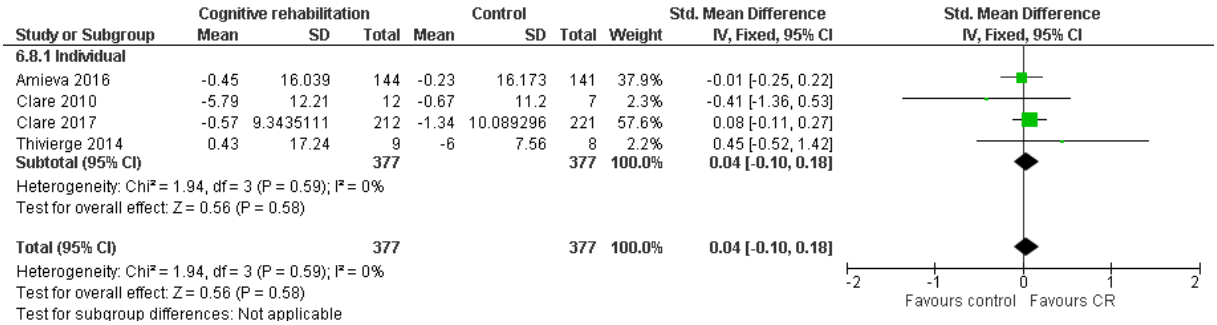
Quality of life (post-intervention)



Quality of life (follow-up)

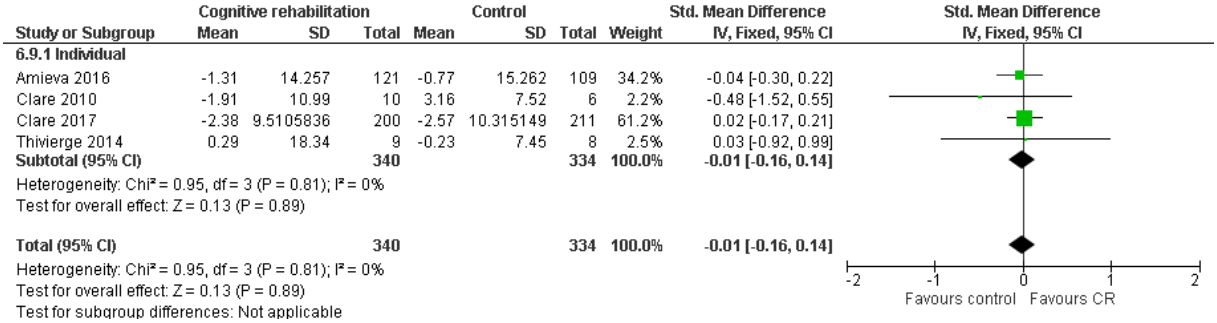


Carer burden (post-intervention)



Study or Subgroup	Cognitive rehabilitation Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
6.8.1 Individual								
Amieva 2016	-0.45	16.039	144	-0.23	16.173	141	37.9%	-0.01 [-0.25, 0.22]
Clare 2010	-5.79	12.21	12	-0.67	11.2	7	2.3%	-0.41 [-1.36, 0.53]
Clare 2017	-0.57	9.3435111	212	-1.34	10.089296	221	57.6%	0.08 [-0.11, 0.27]
Thivierge 2014	0.43	17.24	9	-6	7.56	8	2.2%	0.45 [-0.52, 1.42]
Subtotal (95% CI)			**377**			**377**	**100.0%**	**0.04 [-0.10, 0.18]**
Heterogeneity: Chi² = 1.94, df = 3 (P = 0.59); I² = 0%								
Test for overall effect: Z = 0.56 (P = 0.58)								
Total (95% CI)			**377**			**377**	**100.0%**	**0.04 [-0.10, 0.18]**
Heterogeneity: Chi² = 1.94, df = 3 (P = 0.59); I² = 0%								
Test for overall effect: Z = 0.56 (P = 0.58)								
Test for subgroup differences: Not applicable								

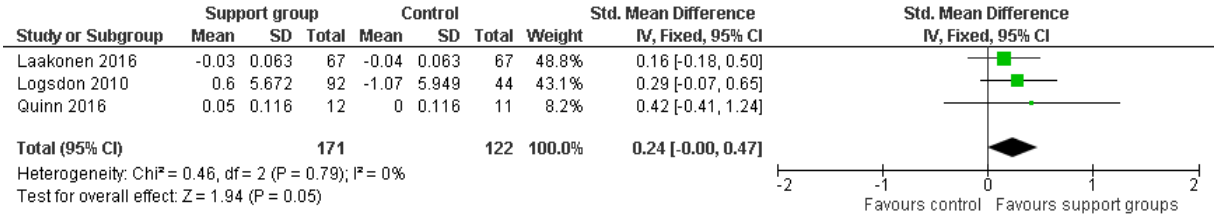
Carer burden (follow-up)



Study or Subgroup	Cognitive rehabilitation Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
6.9.1 Individual								
Amieva 2016	-1.31	14.257	121	-0.77	15.262	109	34.2%	-0.04 [-0.30, 0.22]
Clare 2010	-1.91	10.99	10	3.16	7.52	6	2.2%	-0.48 [-1.52, 0.55]
Clare 2017	-2.38	9.5105836	200	-2.57	10.315149	211	61.2%	0.02 [-0.17, 0.21]
Thivierge 2014	0.29	18.34	9	-0.23	7.45	8	2.5%	0.03 [-0.92, 0.99]
Subtotal (95% CI)			**340**			**334**	**100.0%**	**-0.01 [-0.16, 0.14]**
Heterogeneity: Chi² = 0.95, df = 3 (P = 0.81); I² = 0%								
Test for overall effect: Z = 0.13 (P = 0.89)								
Total (95% CI)			**340**			**334**	**100.0%**	**-0.01 [-0.16, 0.14]**
Heterogeneity: Chi² = 0.95, df = 3 (P = 0.81); I² = 0%								
Test for overall effect: Z = 0.13 (P = 0.89)								
Test for subgroup differences: Not applicable								

H.9.1.4 Self-management groups

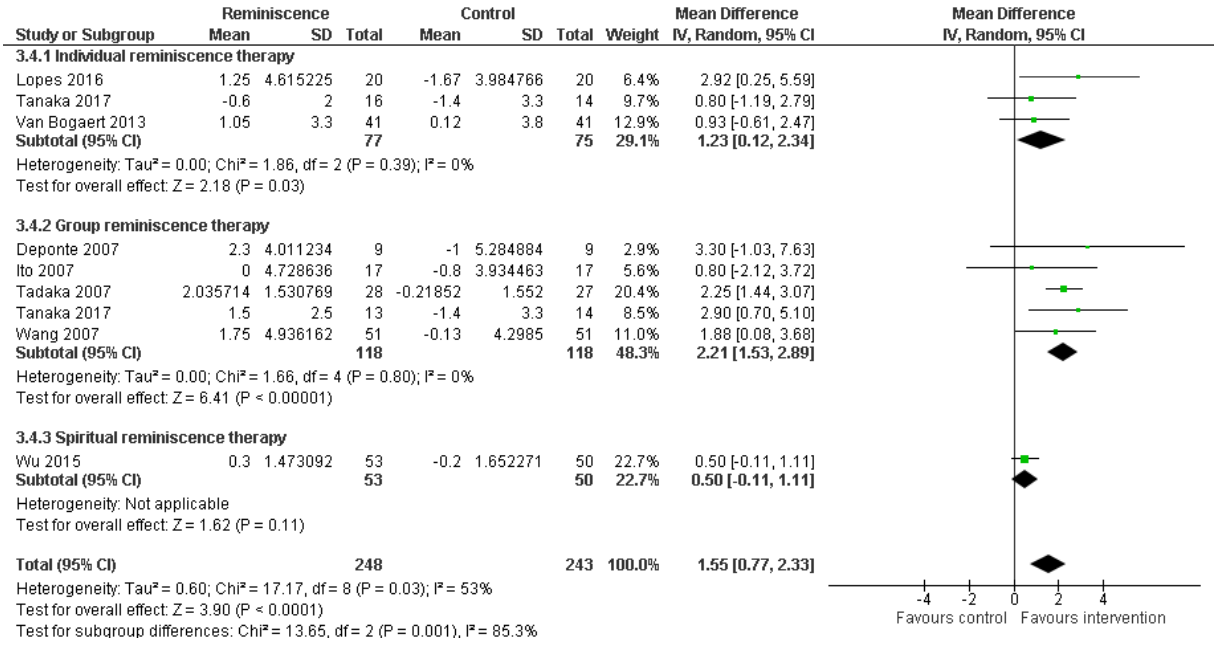
Quality of life (post-intervention)



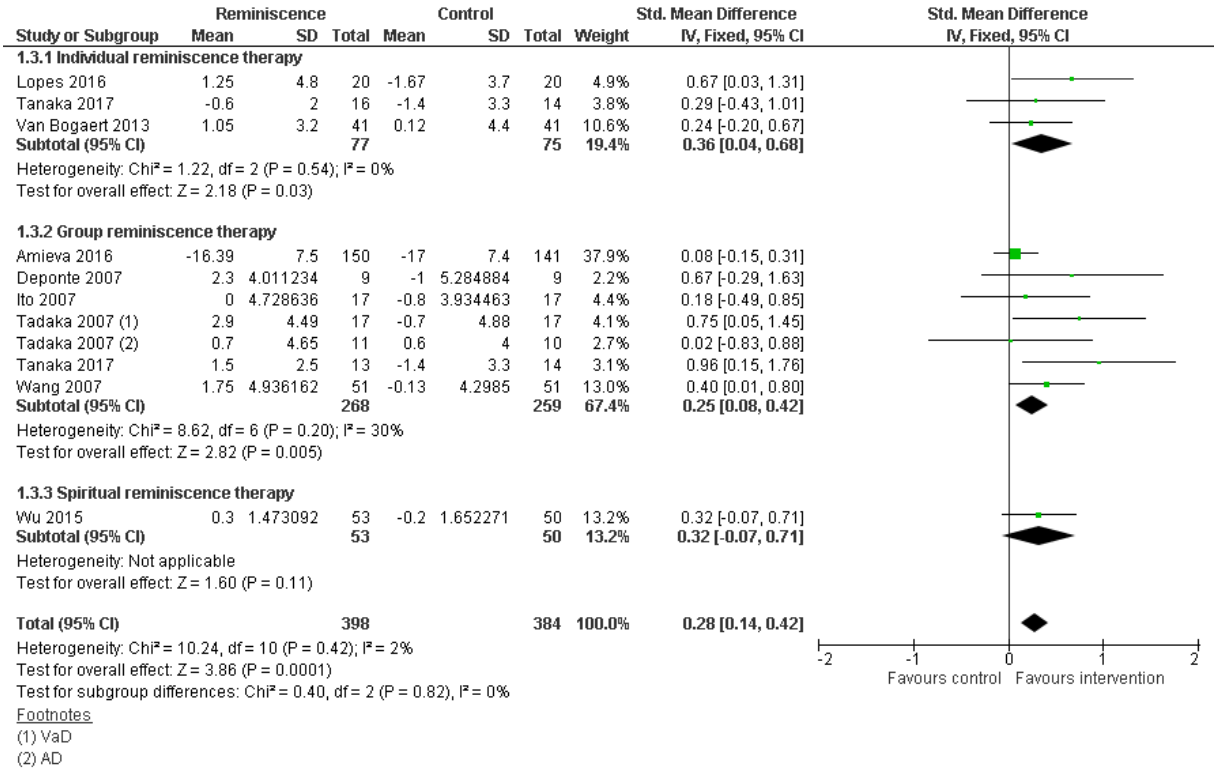
Study or Subgroup	Support group Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Laakonen 2016	-0.03	0.063	67	-0.04	0.063	67	48.8%	0.16 [-0.18, 0.50]
Logsdon 2010	0.6	5.672	92	-1.07	5.949	44	43.1%	0.29 [-0.07, 0.65]
Quinn 2016	0.05	0.116	12	0	0.116	11	8.2%	0.42 [-0.41, 1.24]
Total (95% CI)			**171**			**122**	**100.0%**	**0.24 [-0.00, 0.47]**
Heterogeneity: Chi² = 0.46, df = 2 (P = 0.79); I² = 0%								
Test for overall effect: Z = 1.94 (P = 0.05)								

H.9.1.5 Reminiscence therapy

MMSE (post-intervention)

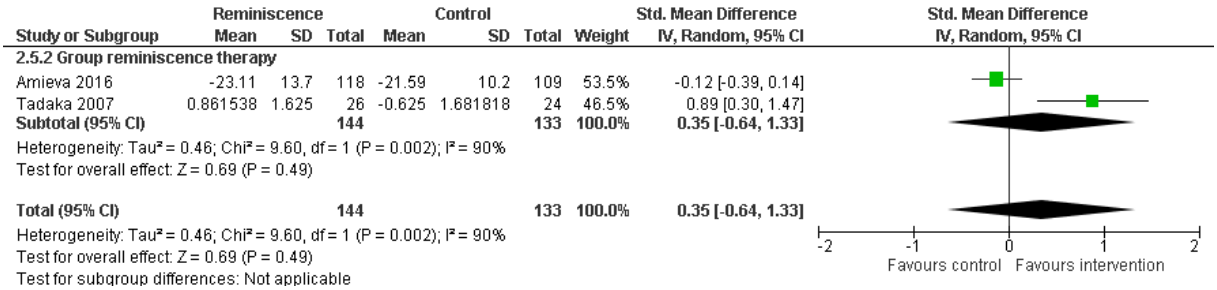


Cognition (post-intervention)

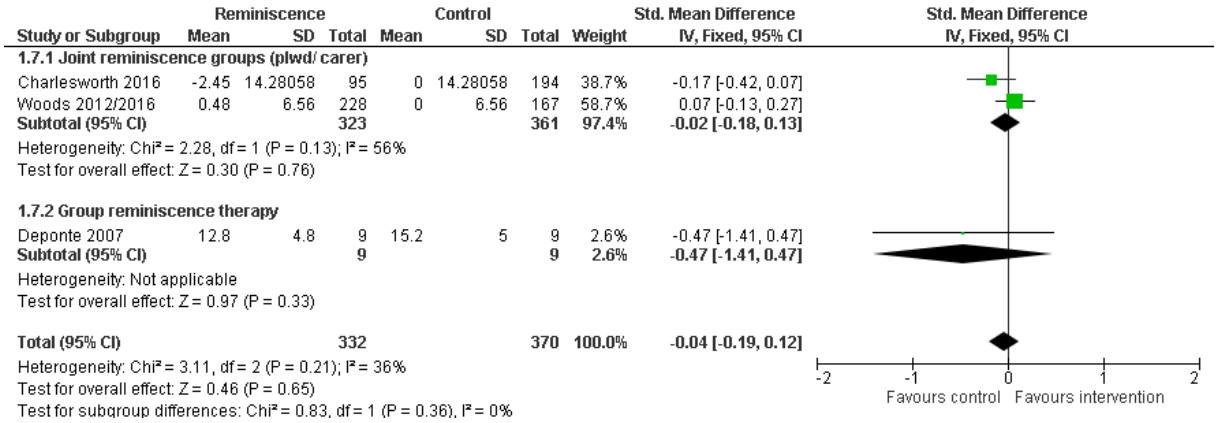


Footnotes
(1) VaD
(2) AD

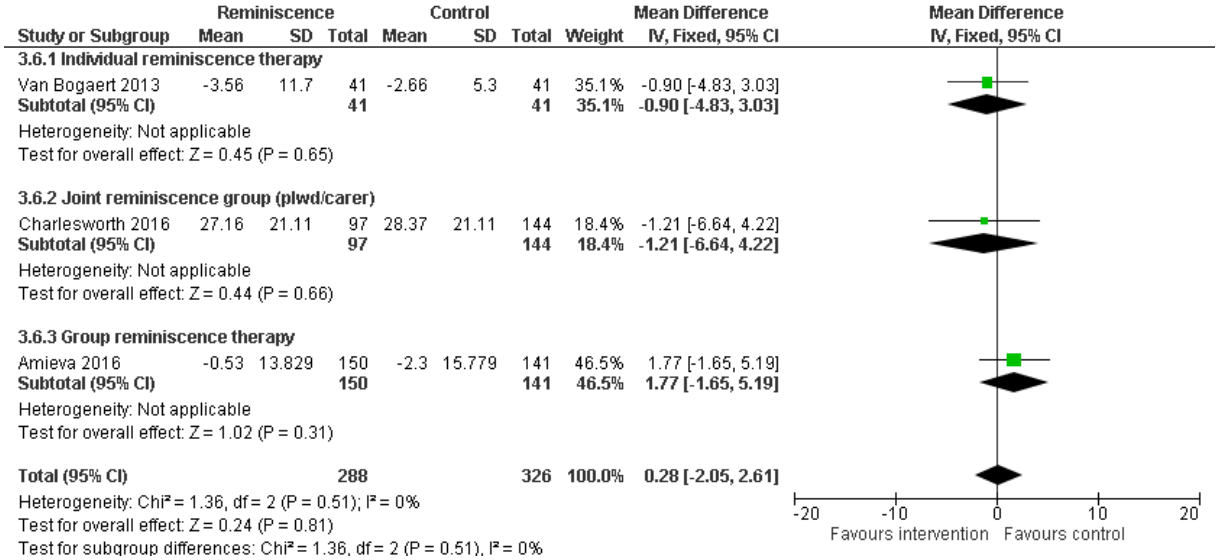
Cognition (follow-up)



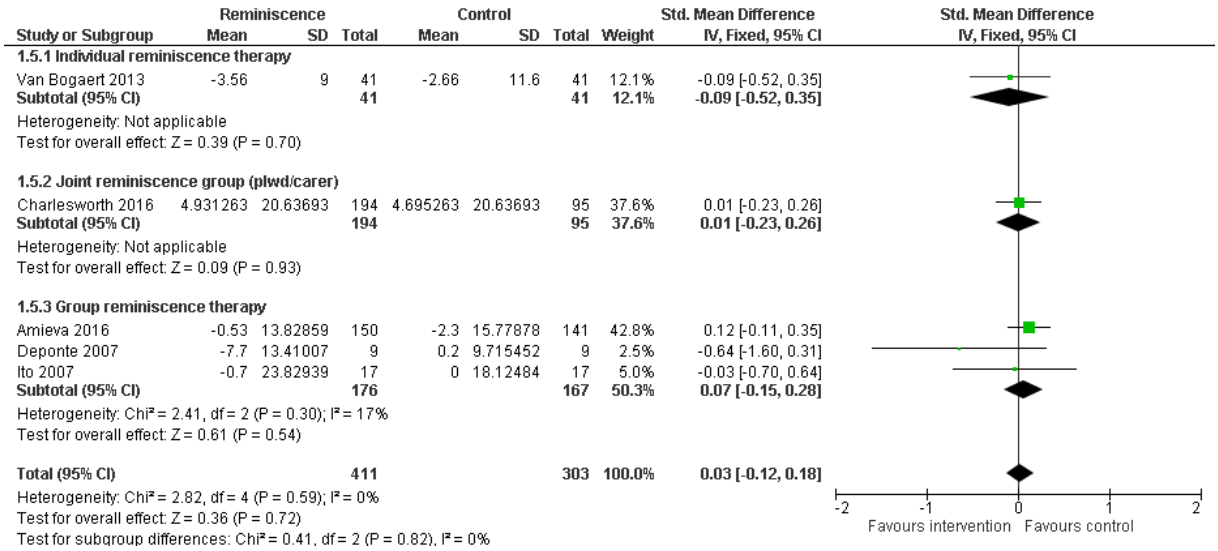
ADL (post-intervention)



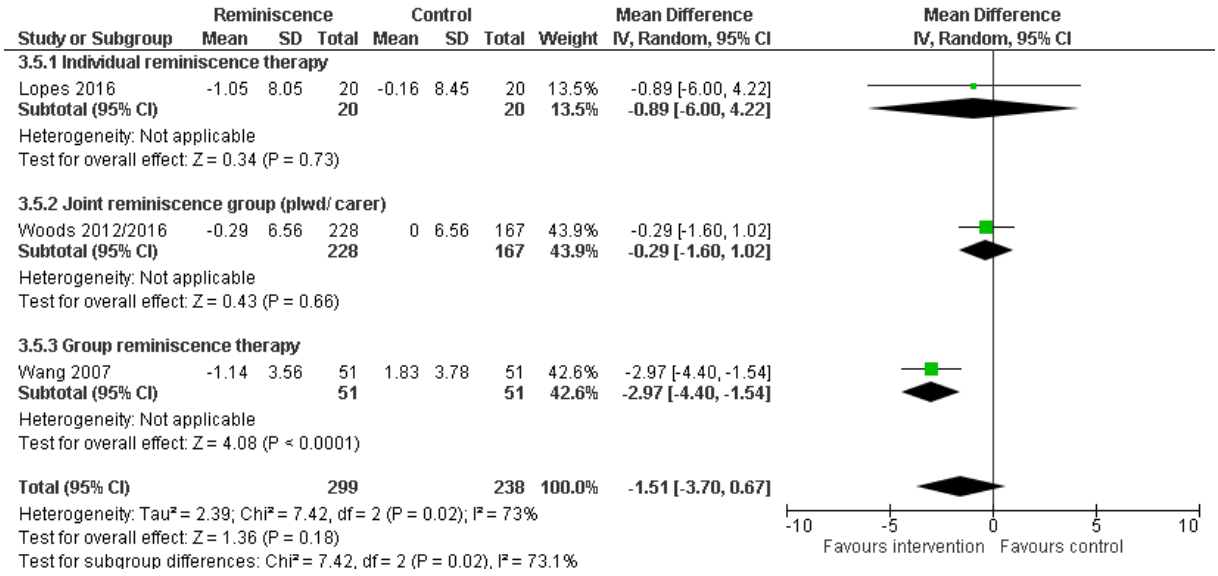
NPI (post-intervention)



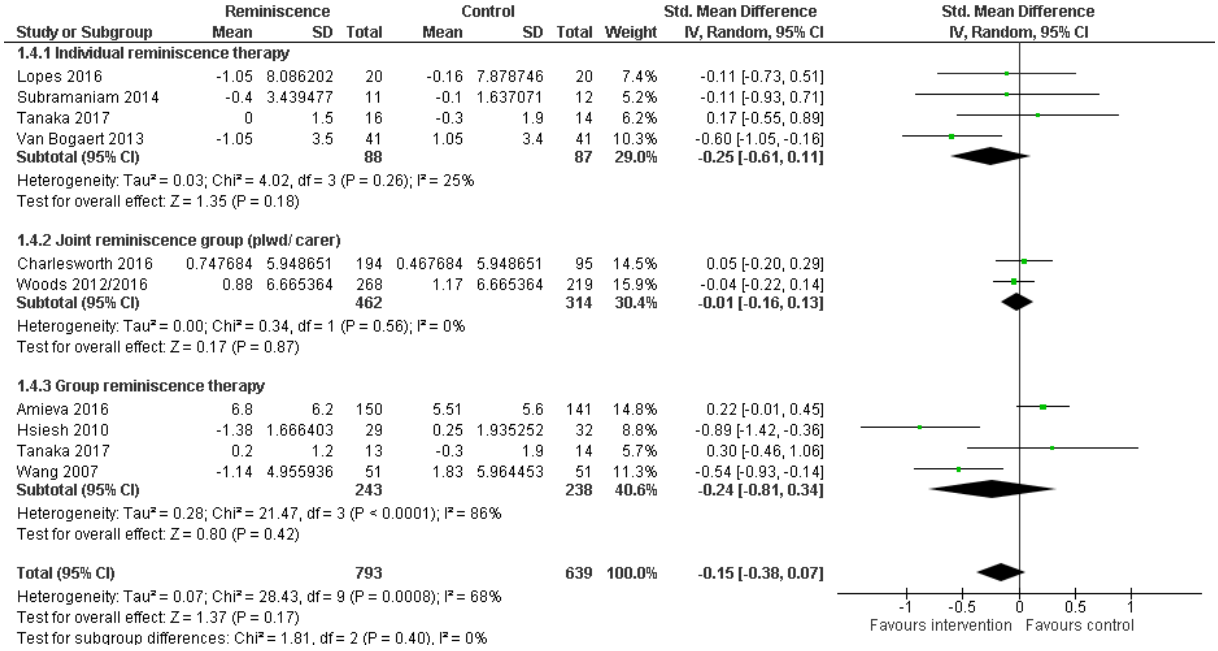
BPSD (post-intervention)



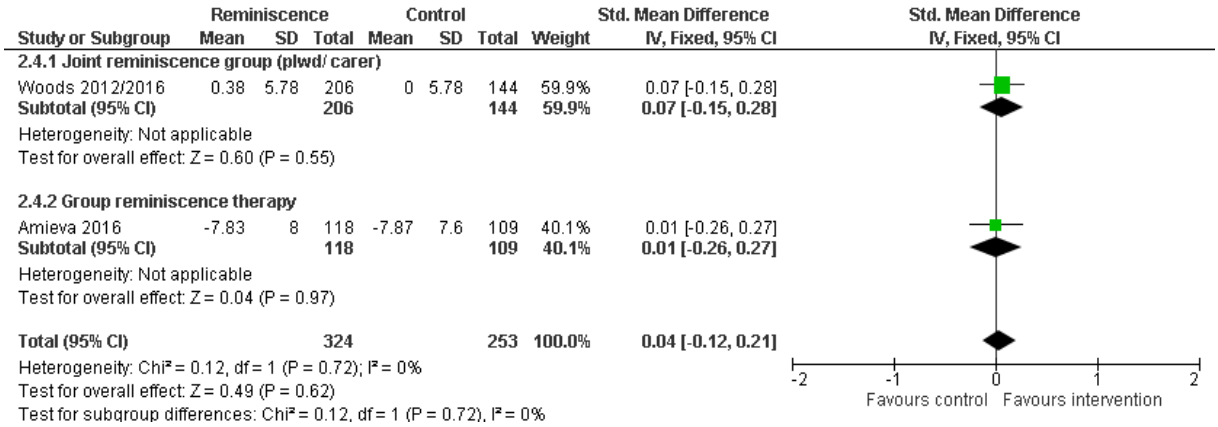
CSDD (post-intervention)



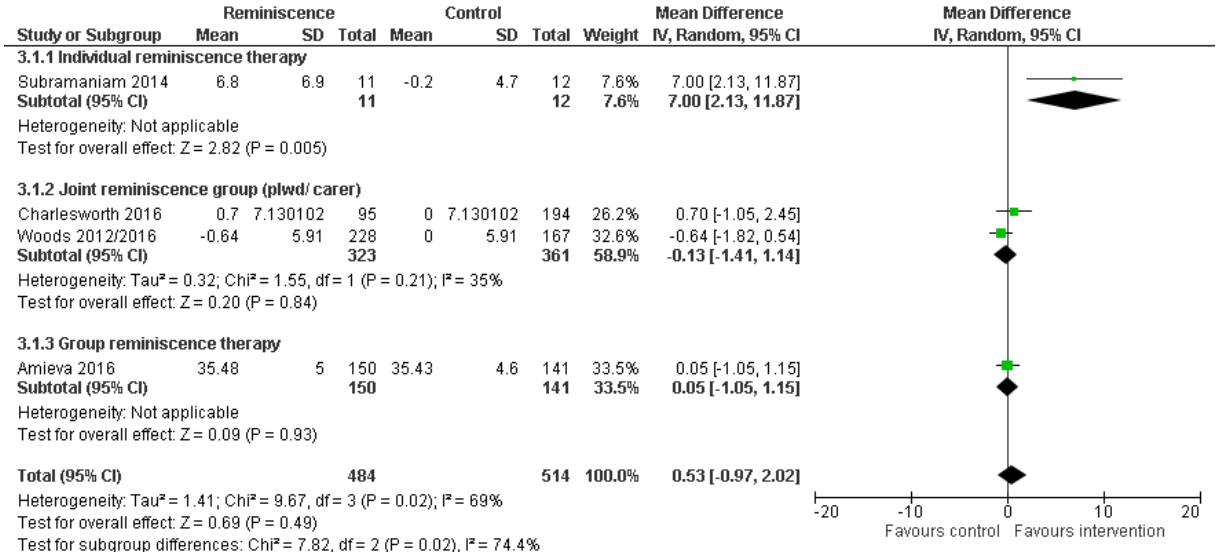
Depression (post-intervention)



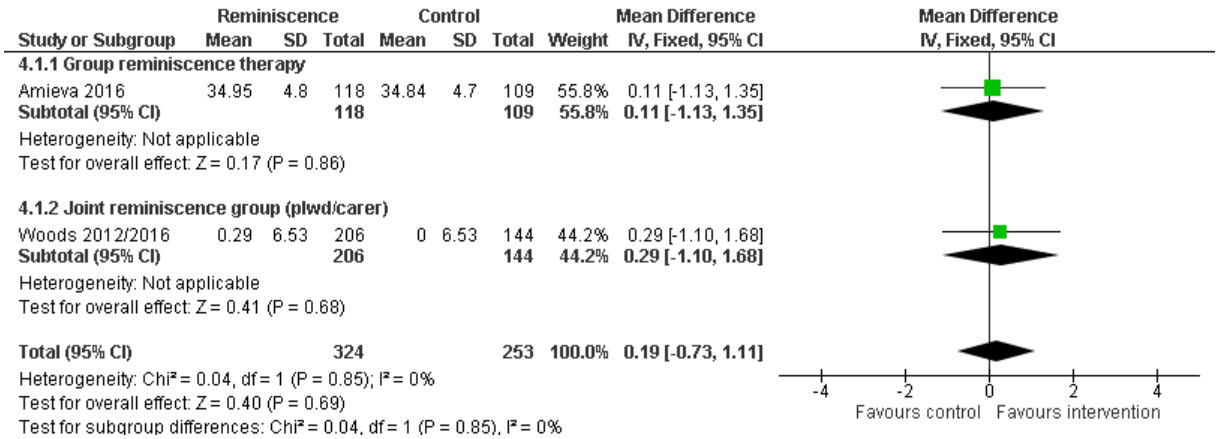
Depression (follow-up)



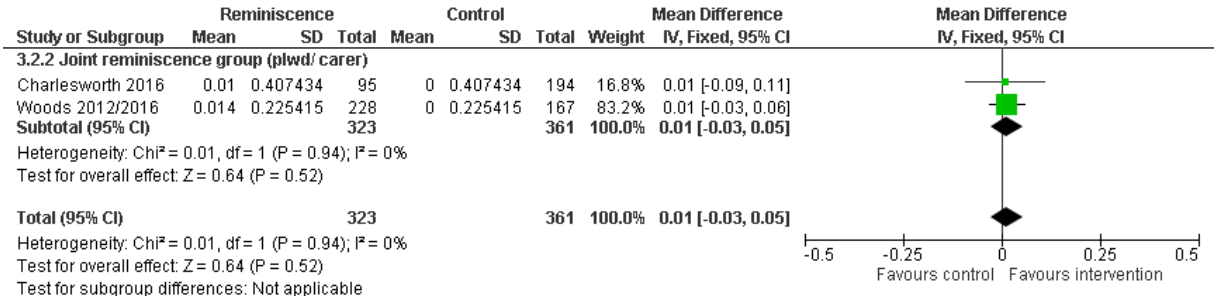
QoL-AD (post-intervention)



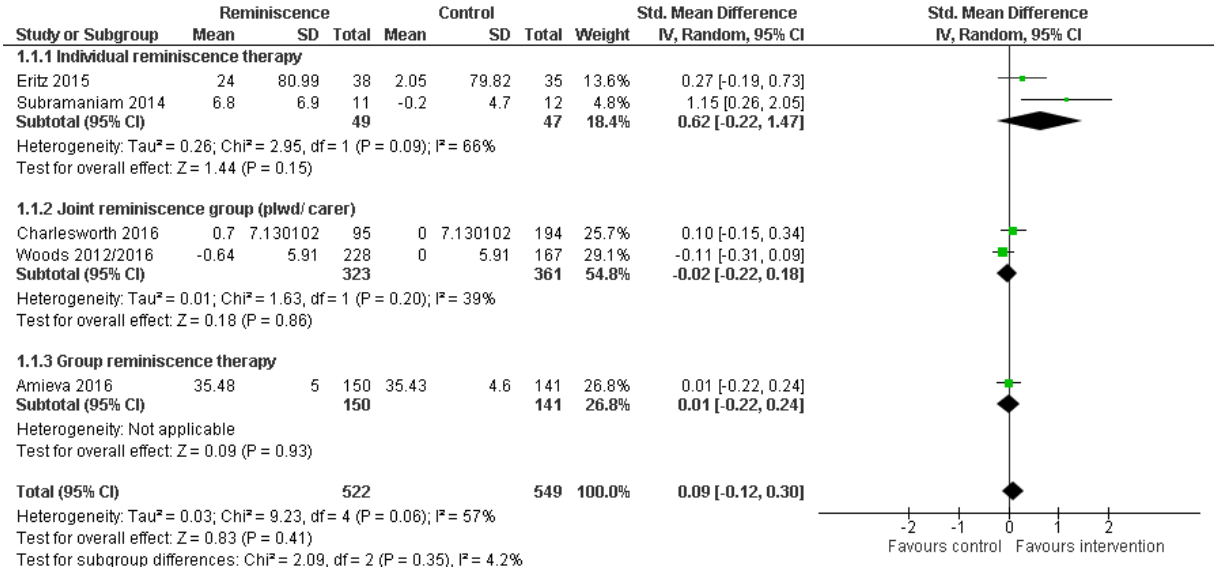
QoL-AD (follow-up)



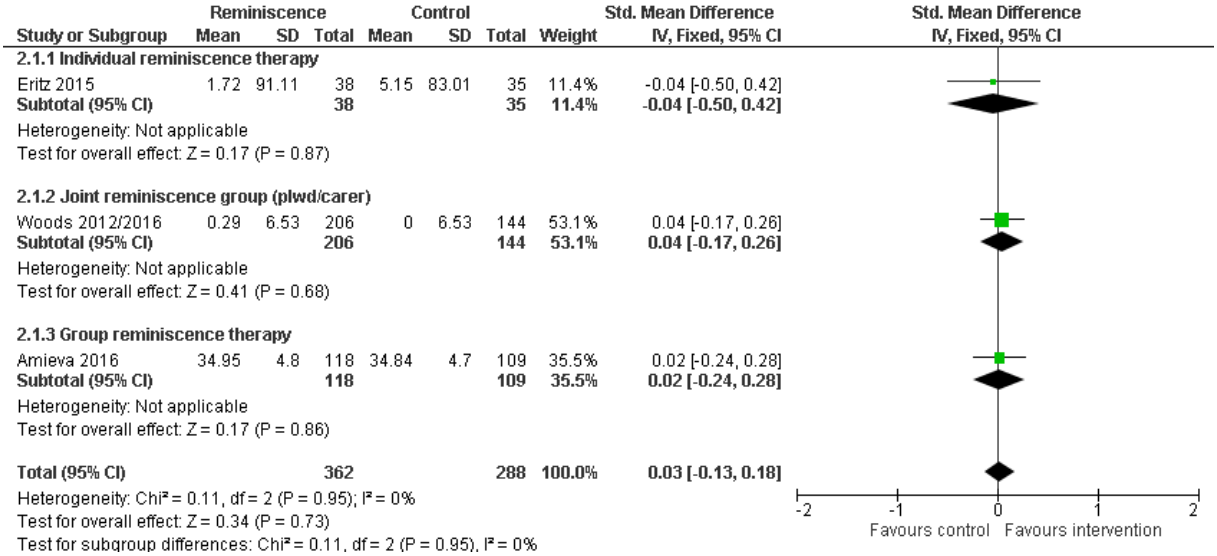
EQ-5D (post-intervention)



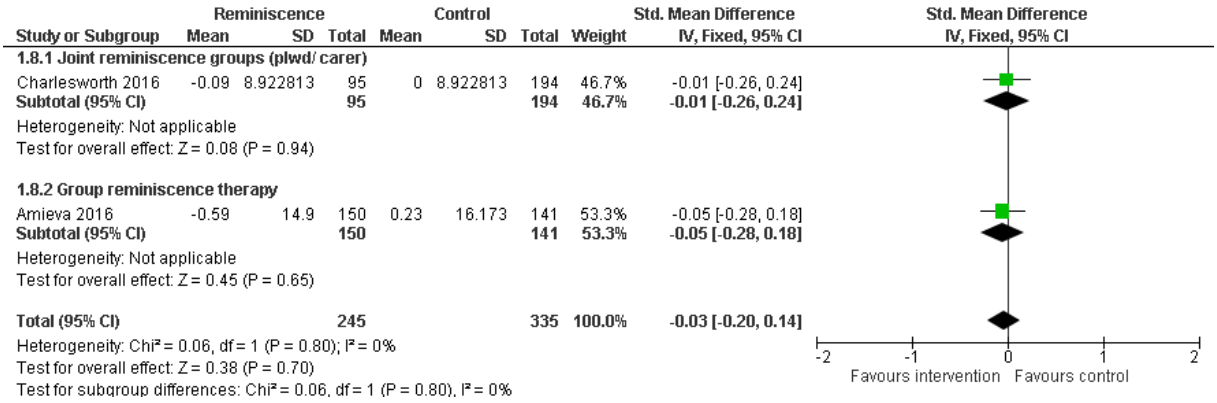
Quality of life (post-intervention)



Quality of life (follow-up)



Carer burden (post-intervention)

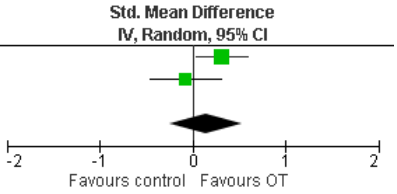


H.9.1.6 Occupational therapy

ADL (post-intervention)

Study or Subgroup	Occupational therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Gitlin 2010	0.74	0.756	102	0.5	0.756	107	56.1%	0.32 [0.04, 0.59]
Voigt Radlof 2011	-1.4	10.009	54	-0.6	10.009	50	43.9%	-0.08 [-0.46, 0.31]
Total (95% CI)			**156**			**157**	**100.0%**	**0.14 [-0.24, 0.53]**

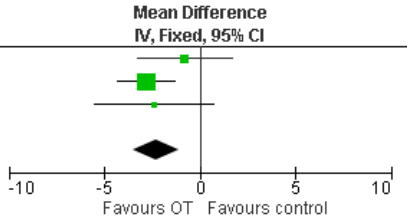
Heterogeneity: Tau² = 0.05; Chi² = 2.70, df = 1 (P = 0.10); I² = 63%
Test for overall effect: Z = 0.73 (P = 0.47)



CSDD (post-intervention)

Study or Subgroup	Occupational therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Gitlin 2008	-0.2	4.869	27	0.6	4.603	29	22.9%	-0.80 [-3.29, 1.69]
Graff 2007	-1.7	4.396	67	1.1	4.396	65	62.9%	-2.80 [-4.30, -1.30]
Voigt Radlof 2011	-2.5	7.088	41	-0.1	7.088	37	14.3%	-2.40 [-5.55, 0.75]
Total (95% CI)			**135**			**131**	**100.0%**	**-2.29 [-3.47, -1.10]**

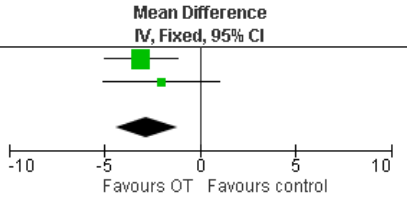
Heterogeneity: Chi² = 1.83, df = 2 (P = 0.40); I² = 0%
Test for overall effect: Z = 3.77 (P = 0.0002)



CSDD (follow-up)

Study or Subgroup	Occupational therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Graff 2007	-5	5.568	67	-1.9	5.568	65	72.0%	-3.10 [-5.00, -1.20]
Voigt Radlof 2011	-0.7	6.863	41	1.3	6.863	37	28.0%	-2.00 [-5.05, 1.05]
Total (95% CI)			**108**			**102**	**100.0%**	**-2.79 [-4.41, -1.18]**

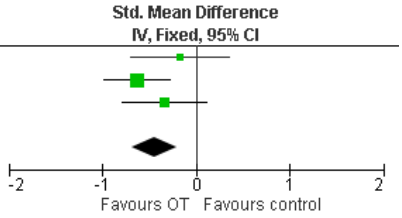
Heterogeneity: Chi² = 0.36, df = 1 (P = 0.55); I² = 0%
Test for overall effect: Z = 3.39 (P = 0.0007)



Depression (post-intervention)

Study or Subgroup	Occupational therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Gitlin 2008	-0.2	4.869	27	0.6	4.603	29	21.6%	-0.17 [-0.69, 0.36]
Graff 2007	-1.7	4.396	67	1.1	4.396	65	48.7%	-0.63 [-0.98, -0.28]
Voigt Radlof 2011	-2.5	7.088	41	-0.1	7.088	37	29.7%	-0.34 [-0.78, 0.11]
Total (95% CI)			**135**			**131**	**100.0%**	**-0.44 [-0.69, -0.20]**

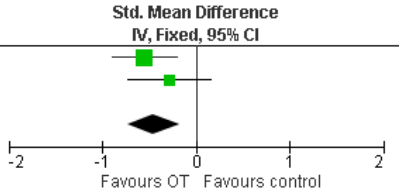
Heterogeneity: Chi² = 2.42, df = 2 (P = 0.30); I² = 17%
Test for overall effect: Z = 3.56 (P = 0.0004)



Depression (follow-up)

Study or Subgroup	Occupational therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Voigt Radlof 2011	-5	5.568	67	-1.9	5.568	65	62.3%	-0.55 [-0.90, -0.21]
Graff 2007	-0.7	6.863	41	1.3	6.863	37	37.7%	-0.29 [-0.74, 0.16]
Total (95% CI)			**108**			**102**	**100.0%**	**-0.45 [-0.73, -0.18]**

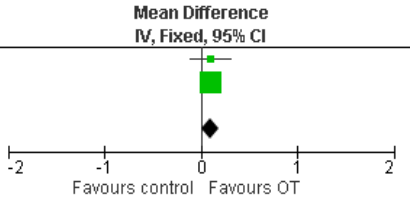
Heterogeneity: Chi² = 0.84, df = 1 (P = 0.36); I² = 0%
Test for overall effect: Z = 3.24 (P = 0.001)



QoL-AD (post-intervention)

Study or Subgroup	Occupational therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Gitlin 2008	0.2	0.361	27	0.1	0.458	29	17.8%	0.10 [-0.12, 0.32]
Gitlin 2010	0.1	0.369	102	0	0.369	107	82.2%	0.10 [-0.00, 0.20]
Total (95% CI)			**129**			**136**	**100.0%**	**0.10 [0.01, 0.19]**

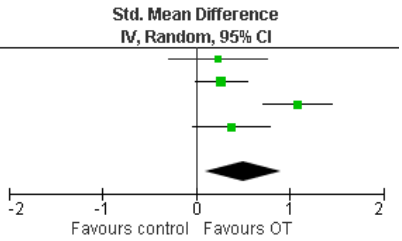
Heterogeneity: Chi² = 0.00, df = 1 (P = 1.00); I² = 0%
Test for overall effect: Z = 2.16 (P = 0.03)



Quality of life (post-intervention)

Study or Subgroup	Occupational therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Gitlin 2008	0.2	0.361	27	0.1	0.458	29	21.1%	0.24 [-0.29, 0.76]
Gitlin 2010	0.1	0.369	102	0	0.369	107	28.5%	0.27 [-0.00, 0.54]
Graff 2007	0.6	0.733	67	-0.2	0.733	65	25.8%	1.09 [0.72, 1.45]
Voigt Radlof 2011	0.3	0.791	49	0	0.791	45	24.6%	0.38 [-0.03, 0.78]
Total (95% CI)			**245**			**246**	**100.0%**	**0.50 [0.09, 0.91]**

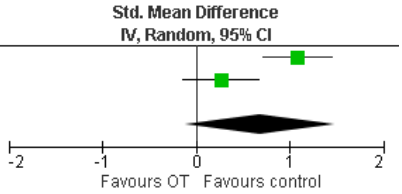
Heterogeneity: Tau² = 0.13; Chi² = 13.83, df = 3 (P = 0.003); I² = 78%
Test for overall effect: Z = 2.40 (P = 0.02)



Quality of life (follow-up)

Study or Subgroup	Occupational therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Graff 2007	0.6	0.733	67	-0.2	0.733	65	50.6%	1.09 [0.72, 1.45]
Voigt Radlof 2011	0.1	0.741	49	-0.1	0.741	45	49.4%	0.27 [-0.14, 0.67]
Total (95% CI)			**116**			**110**	**100.0%**	**0.68 [-0.12, 1.48]**

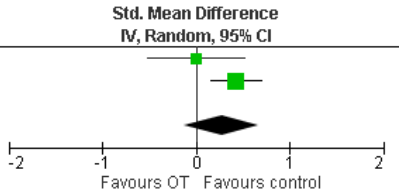
Heterogeneity: Tau² = 0.30; Chi² = 8.57, df = 1 (P = 0.003); I² = 88%
Test for overall effect: Z = 1.67 (P = 0.10)



Carer burden (post-intervention)

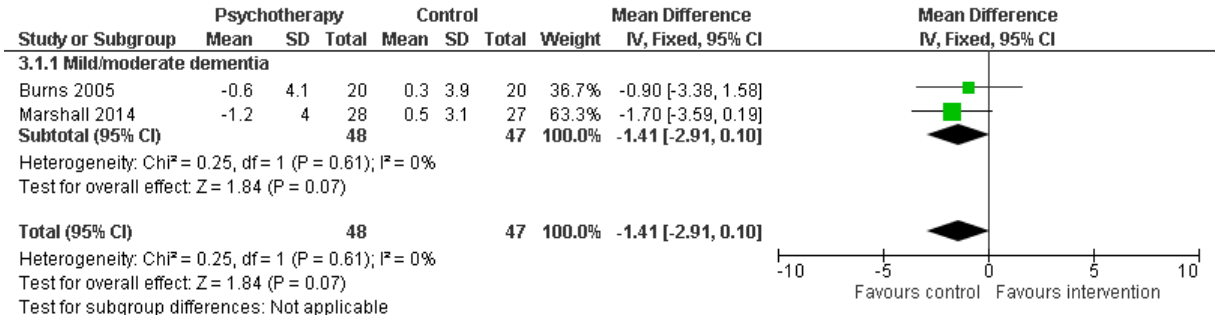
Study or Subgroup	Occupational therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Gitlin 2008	-0.7	8.902	27	-0.7	9.855	29	35.6%	0.00 [-0.52, 0.52]
Gitlin 2010	0.32	0.516	102	0.1	0.516	107	64.4%	0.42 [0.15, 0.70]
Total (95% CI)			**129**			**136**	**100.0%**	**0.27 [-0.13, 0.67]**

Heterogeneity: Tau² = 0.04; Chi² = 1.98, df = 1 (P = 0.16); I² = 50%
Test for overall effect: Z = 1.34 (P = 0.18)

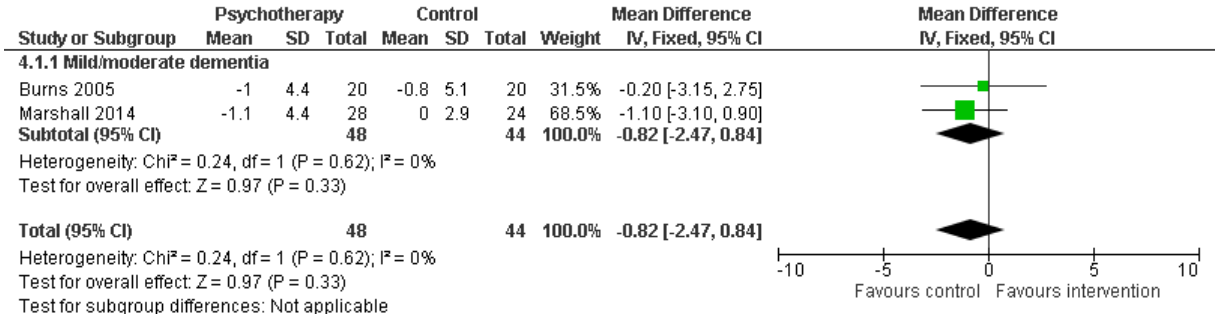


H.9.1.7 Psychotherapy

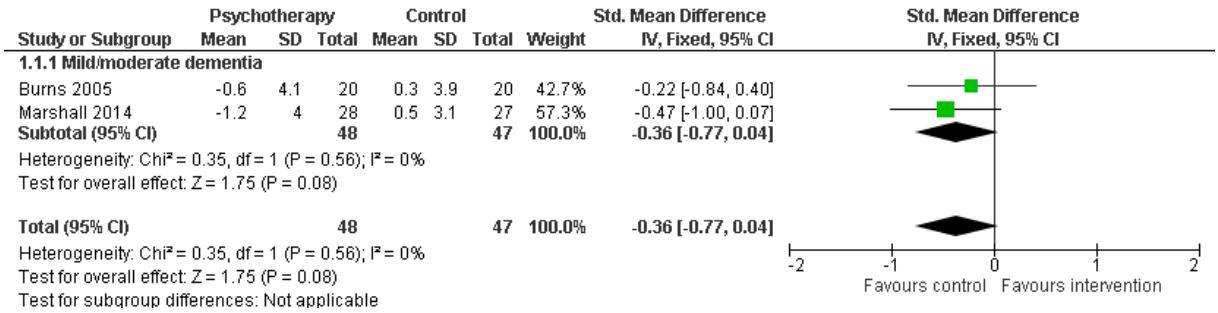
MMSE (post-intervention)



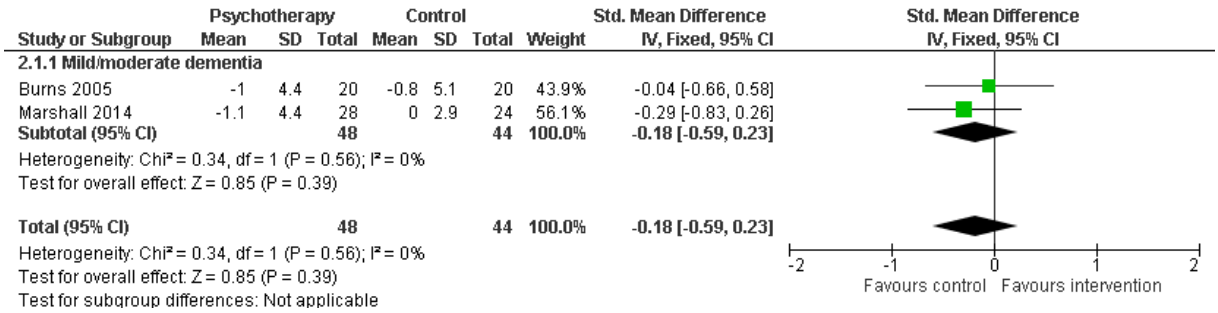
MMSE (follow-up)



Cognition (post-intervention)

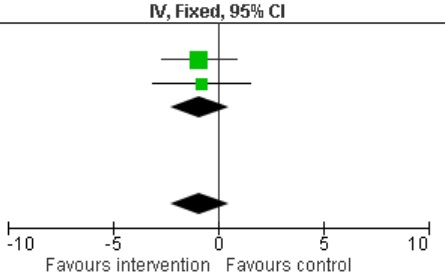


Cognition (follow-up)



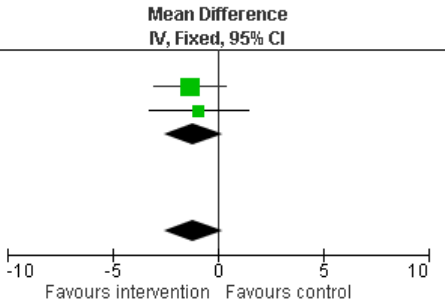
CSDD (post-intervention)

Study or Subgroup	Psychotherapy Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
3.3.1 Mild/moderate dementia								
Burns 2005	-0.5	2.6	20	0.4	3.1	20	62.8%	-0.90 [-2.67, 0.87]
Marshall 2014	-0.8	4.2	28	0	4.5	27	37.2%	-0.80 [-3.10, 1.50]
Subtotal (95% CI)			**48**			**47**	**100.0%**	**-0.86 [-2.27, 0.54]**
Heterogeneity: Chi² = 0.00, df = 1 (P = 0.95); I² = 0%								
Test for overall effect: Z = 1.20 (P = 0.23)								
Total (95% CI)			**48**			**47**	**100.0%**	**-0.86 [-2.27, 0.54]**
Heterogeneity: Chi² = 0.00, df = 1 (P = 0.95); I² = 0%								
Test for overall effect: Z = 1.20 (P = 0.23)								
Test for subgroup differences: Not applicable								



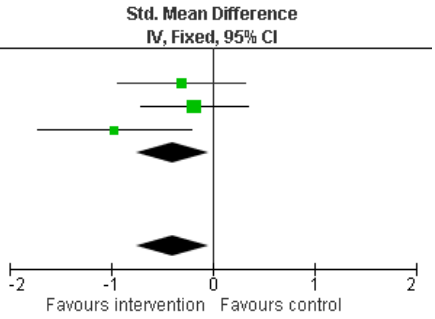
CSDD (follow-up)

Study or Subgroup	Psychotherapy Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
4.3.1 Mild/moderate dementia								
Burns 2005	-0.8	2.5	20	0.5	3	20	65.1%	-1.30 [-3.01, 0.41]
Marshall 2014	-0.5	4.6	28	0.4	4	24	34.9%	-0.90 [-3.24, 1.44]
Subtotal (95% CI)			**48**			**44**	**100.0%**	**-1.16 [-2.54, 0.22]**
Heterogeneity: Chi² = 0.07, df = 1 (P = 0.79); I² = 0%								
Test for overall effect: Z = 1.65 (P = 0.10)								
Total (95% CI)			**48**			**44**	**100.0%**	**-1.16 [-2.54, 0.22]**
Heterogeneity: Chi² = 0.07, df = 1 (P = 0.79); I² = 0%								
Test for overall effect: Z = 1.65 (P = 0.10)								
Test for subgroup differences: Not applicable								



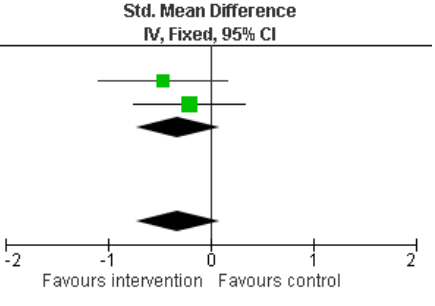
Depression (post-intervention)

Study or Subgroup	Psychotherapy Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
1.3.1 Mild/moderate dementia								
Burns 2005	-0.5	2.6	20	0.4	3.1	20	32.7%	-0.31 [-0.93, 0.32]
Marshall 2014	-0.8	4.2	28	0	4.5	27	45.4%	-0.18 [-0.71, 0.35]
Tappen 2009	-4.47	9.54	15	3.99	7.37	15	21.9%	-0.97 [-1.73, -0.20]
Subtotal (95% CI)			**63**			**62**	**100.0%**	**-0.39 [-0.75, -0.04]**
Heterogeneity: Chi² = 2.85, df = 2 (P = 0.24); I² = 30%								
Test for overall effect: Z = 2.17 (P = 0.03)								
Total (95% CI)			**63**			**62**	**100.0%**	**-0.39 [-0.75, -0.04]**
Heterogeneity: Chi² = 2.85, df = 2 (P = 0.24); I² = 30%								
Test for overall effect: Z = 2.17 (P = 0.03)								
Test for subgroup differences: Not applicable								



Depression (follow-up)

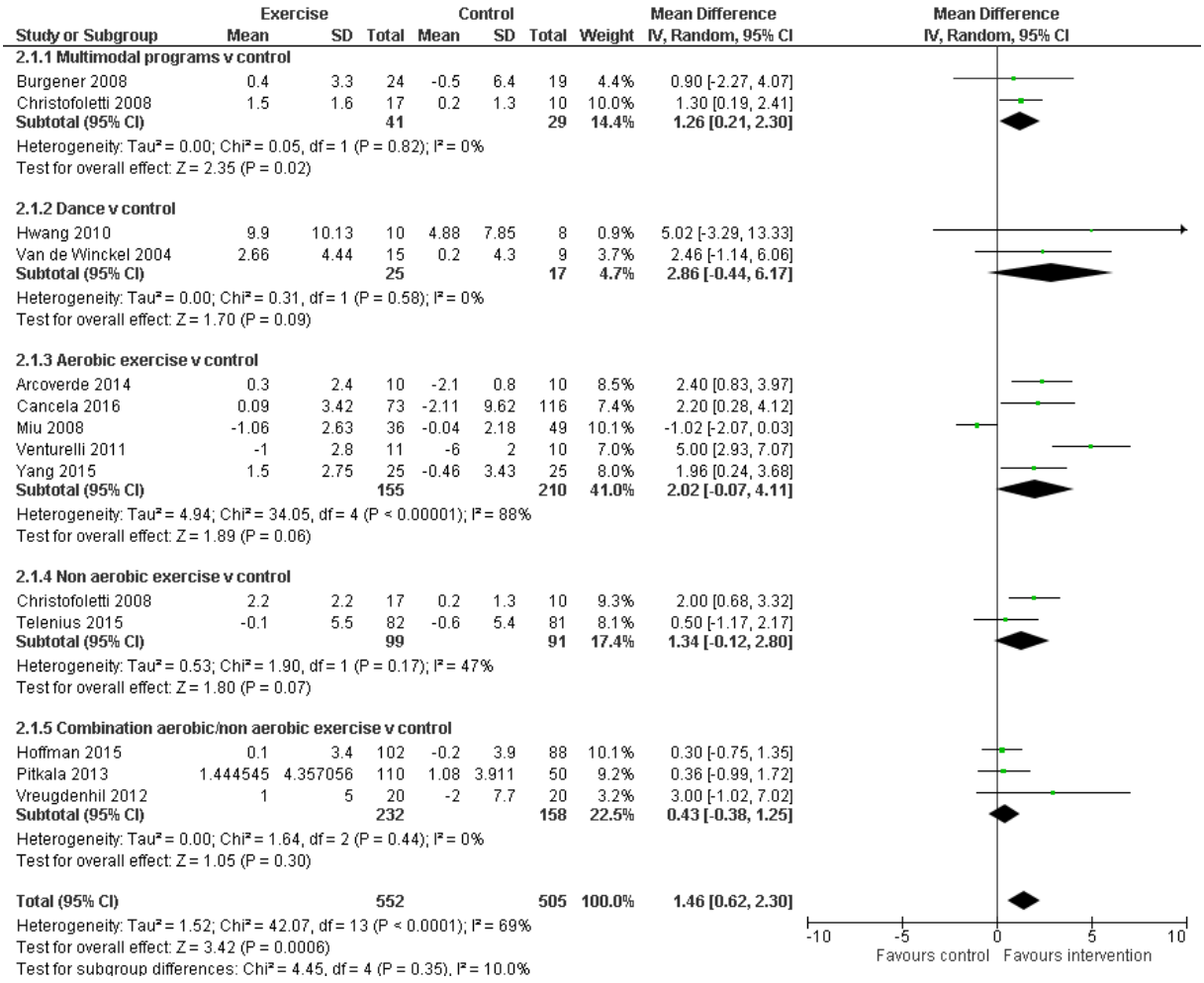
Study or Subgroup	Psychotherapy Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
2.3.1 Mild/moderate dementia								
Burns 2005	-0.8	2.5	20	0.5	3	20	43.0%	-0.46 [-1.09, 0.17]
Marshall 2014	-0.5	4.6	28	0.4	4	24	57.0%	-0.20 [-0.75, 0.34]
Subtotal (95% CI)			**48**			**44**	**100.0%**	**-0.32 [-0.73, 0.10]**
Heterogeneity: Chi² = 0.37, df = 1 (P = 0.55); I² = 0%								
Test for overall effect: Z = 1.50 (P = 0.13)								
Total (95% CI)			**48**			**44**	**100.0%**	**-0.32 [-0.73, 0.10]**
Heterogeneity: Chi² = 0.37, df = 1 (P = 0.55); I² = 0%								
Test for overall effect: Z = 1.50 (P = 0.13)								
Test for subgroup differences: Not applicable								



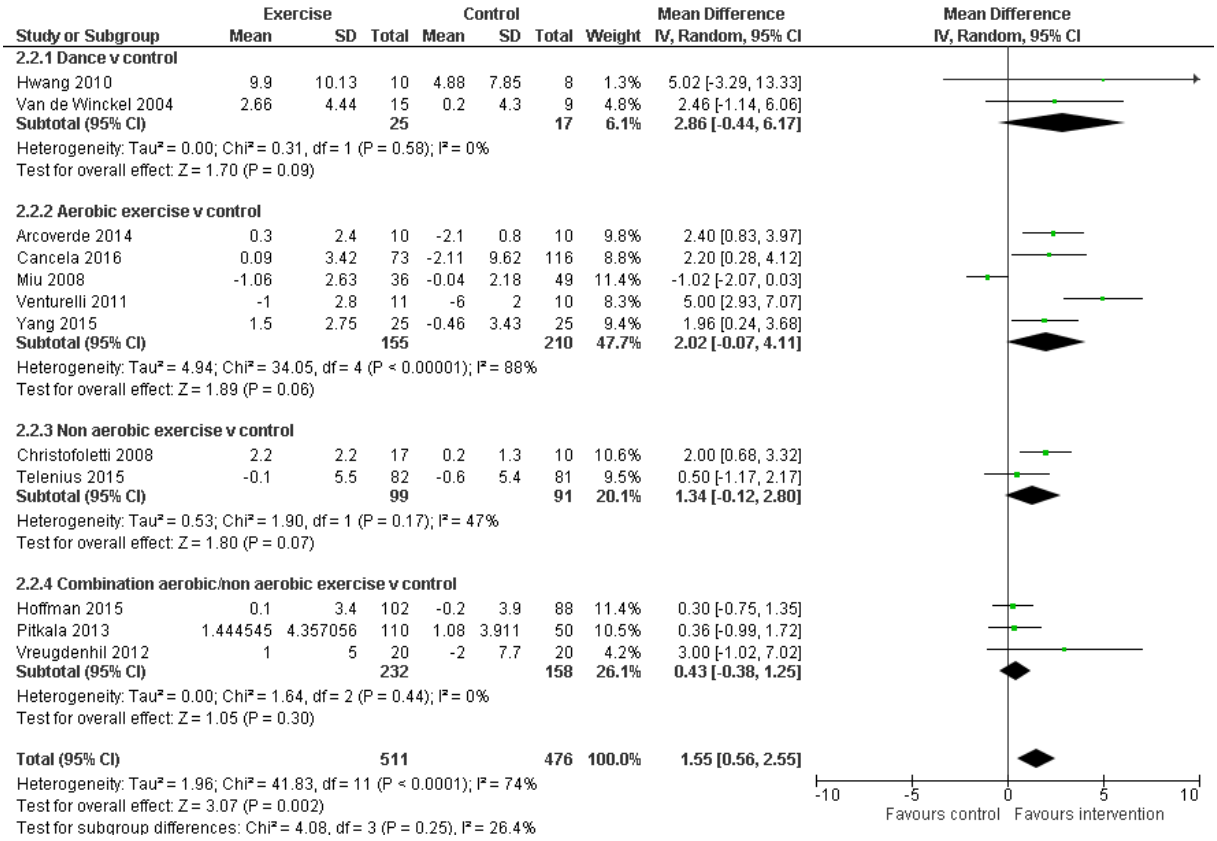
H.9.1.8 Exercise

Outcomes stratified by type of exercise

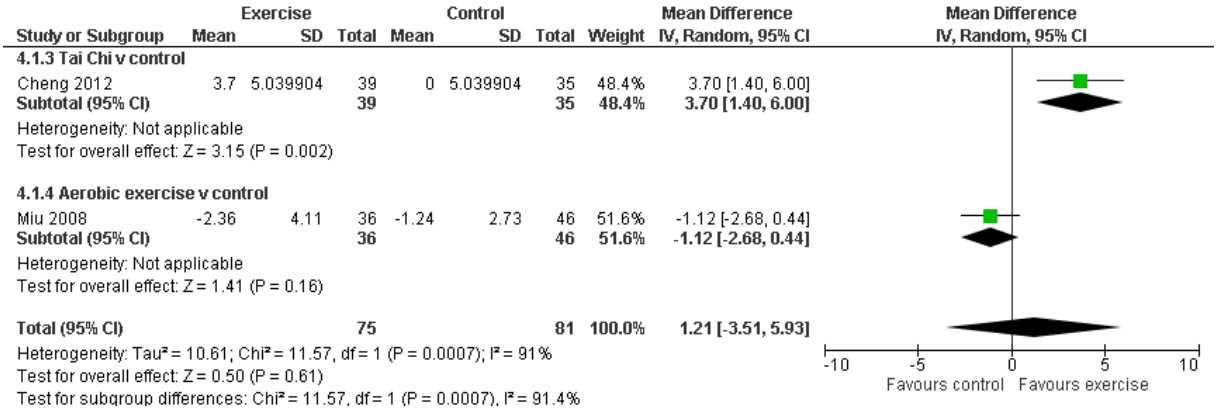
MMSE (post-intervention)



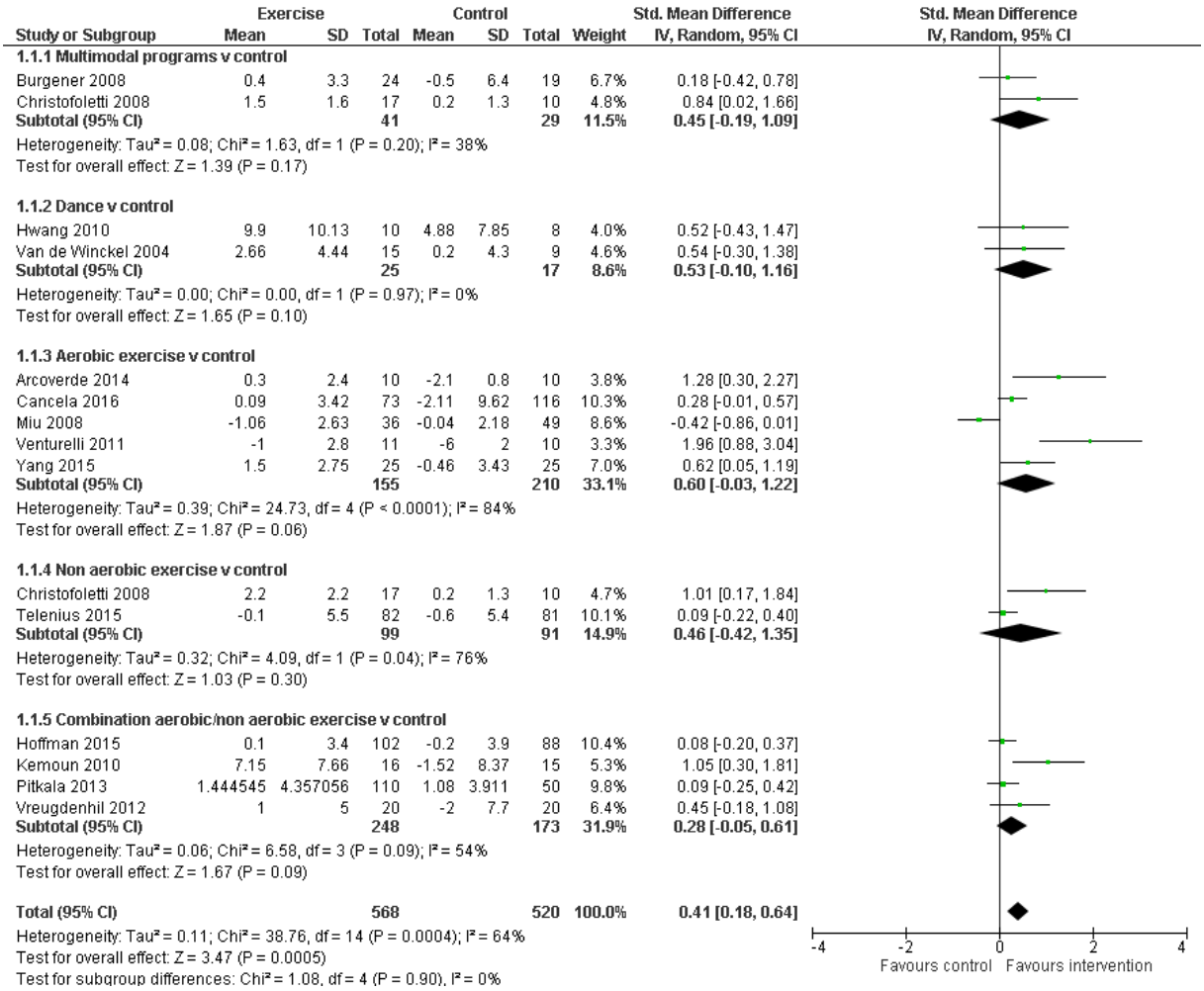
MMSE (post-intervention) – sensitivity analysis excluding multimodal interventions



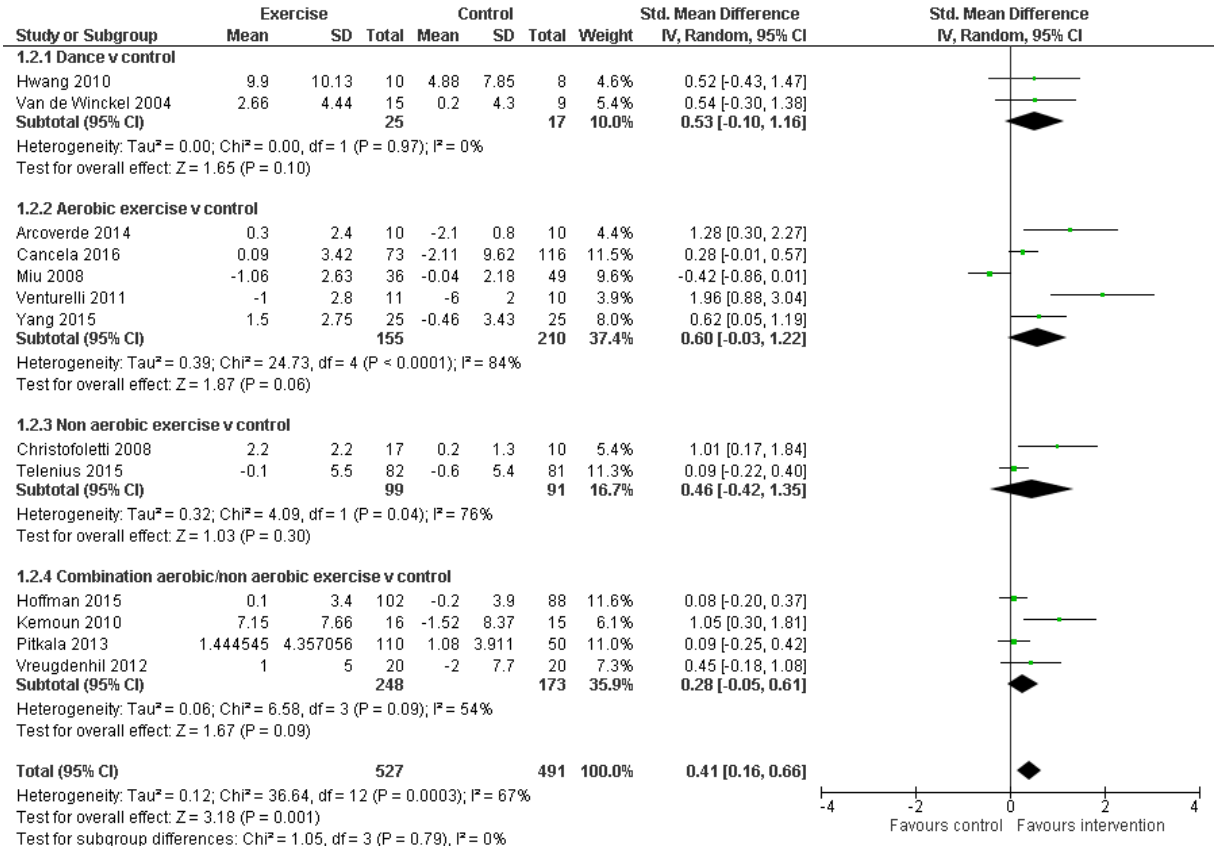
MMSE (follow-up)



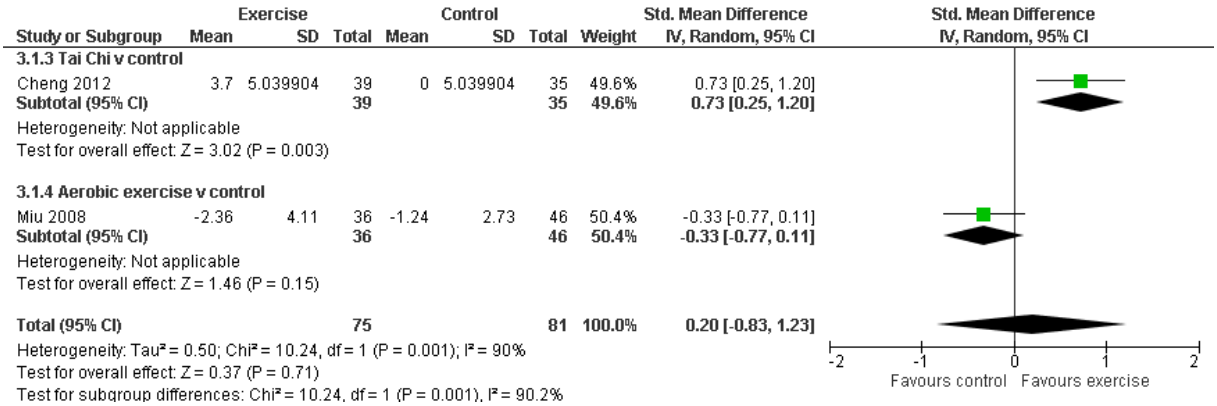
Cognition (post-intervention)



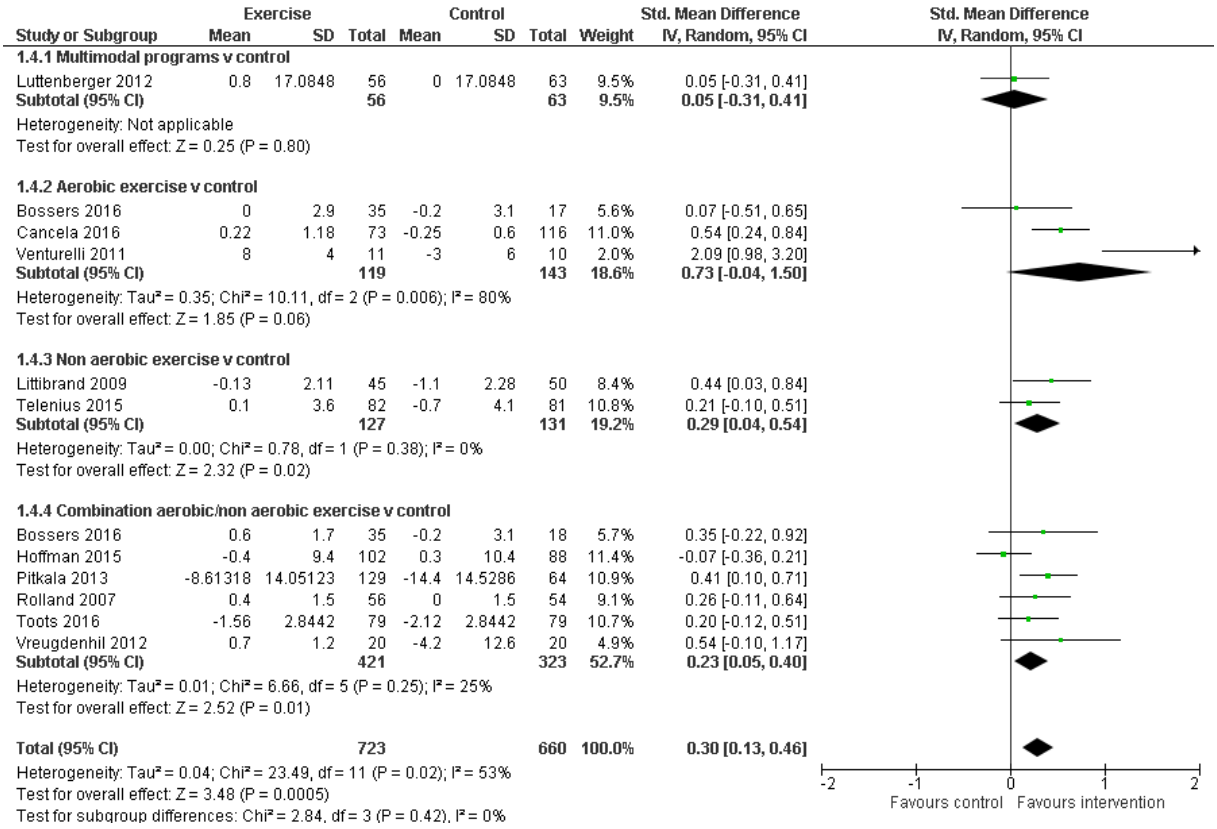
Cognition (post-intervention) – sensitivity analysis excluding multimodal interventions



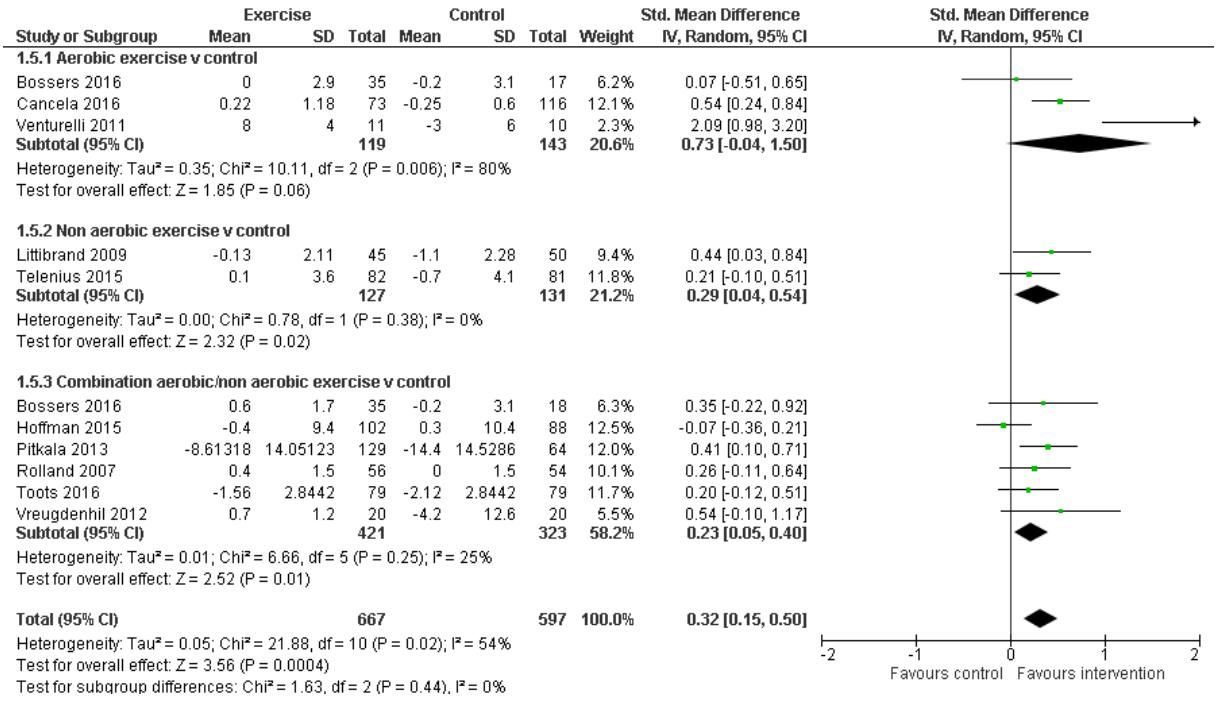
Cognition (follow-up)



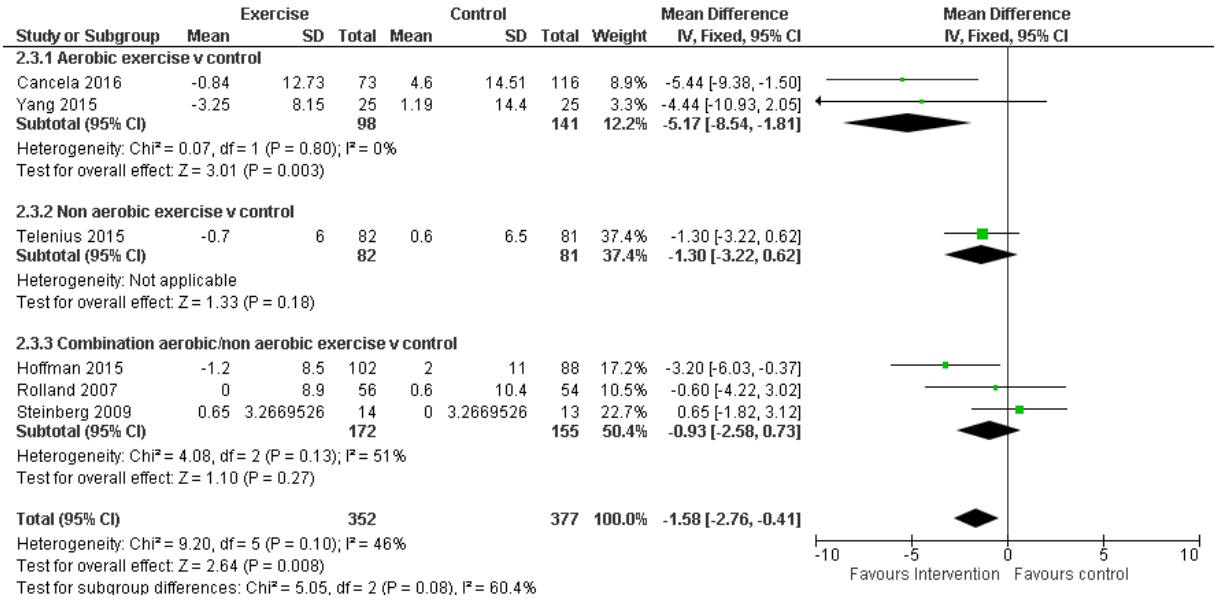
ADL (post-intervention)



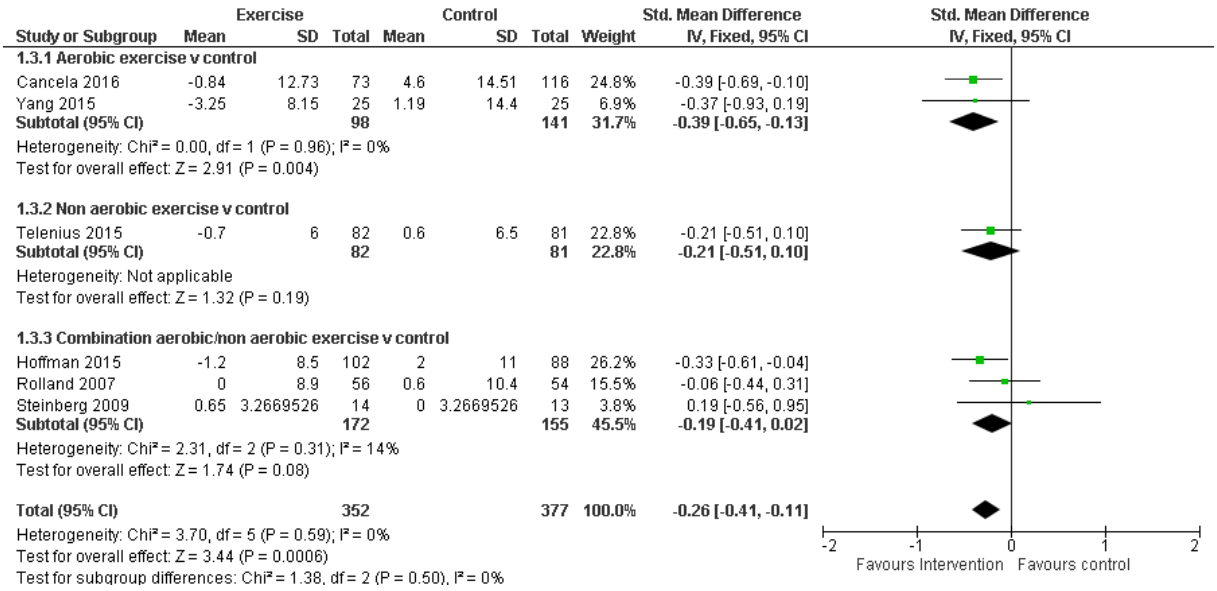
ADL (post-intervention) – sensitivity analysis excluding multimodal interventions



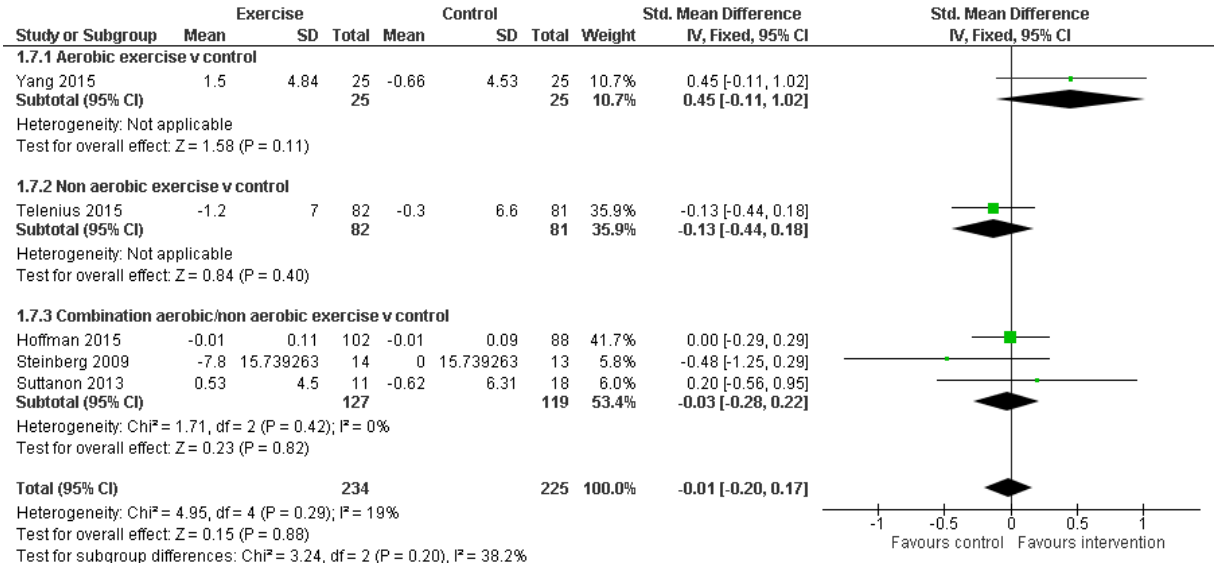
NPI (post-intervention)



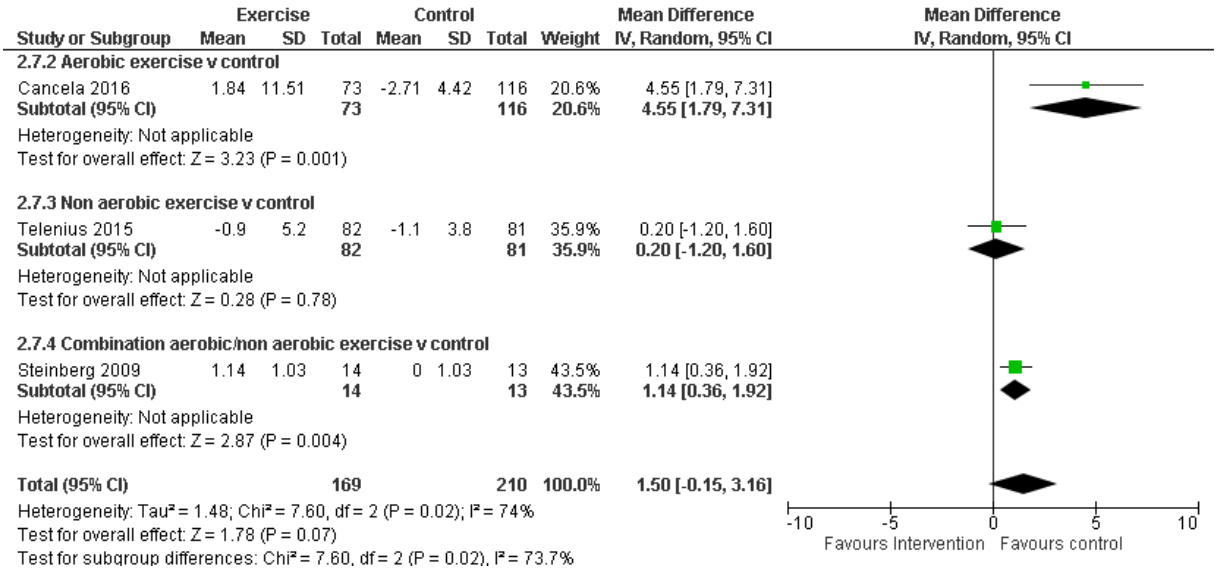
BPSD (post-intervention)



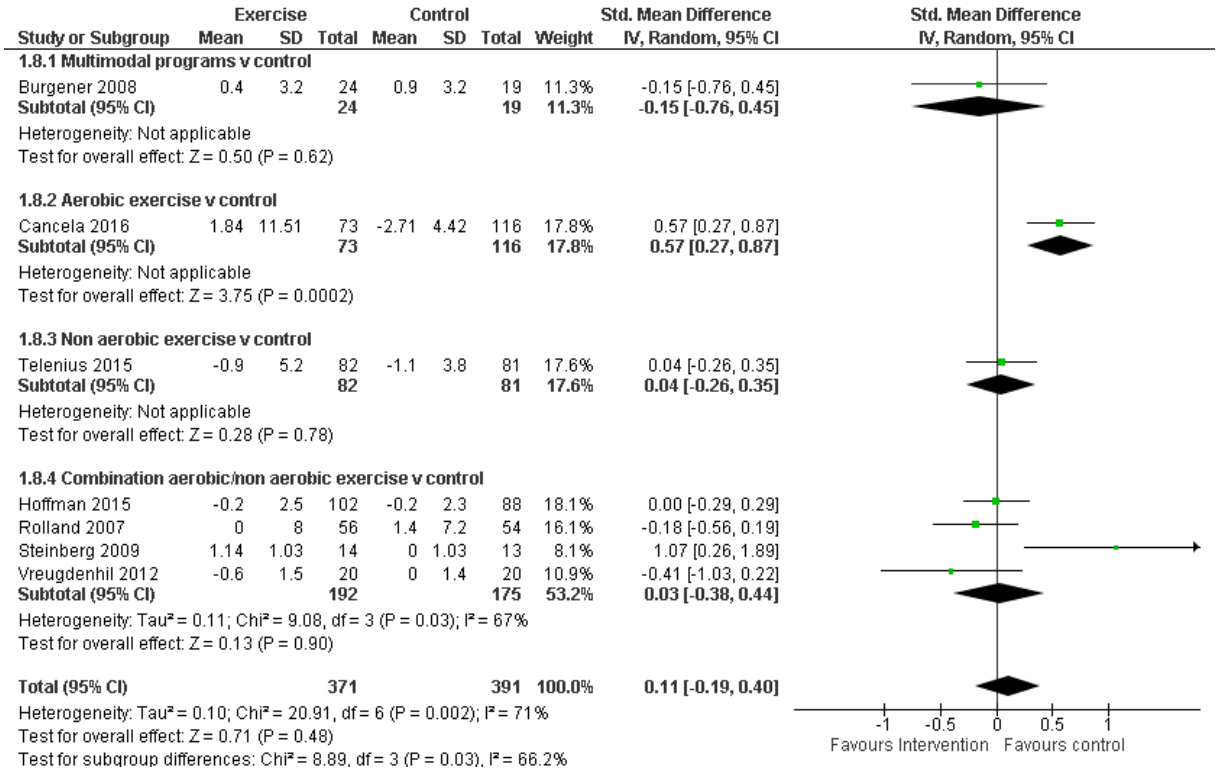
Quality of life (post-intervention)



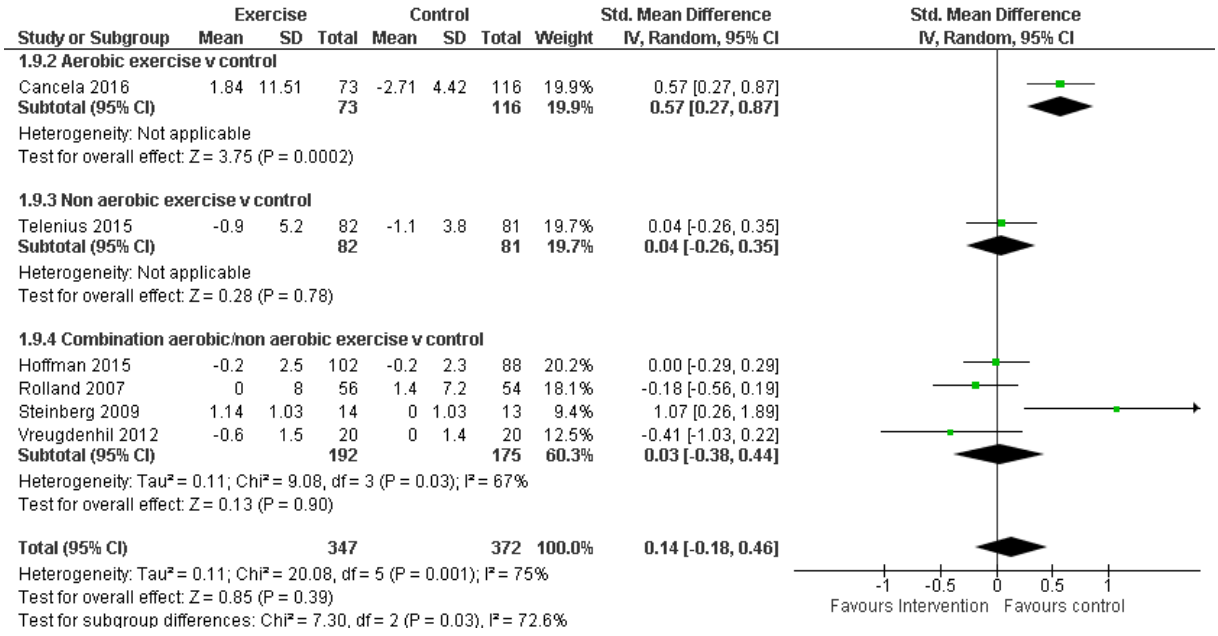
CSDD (post-intervention)



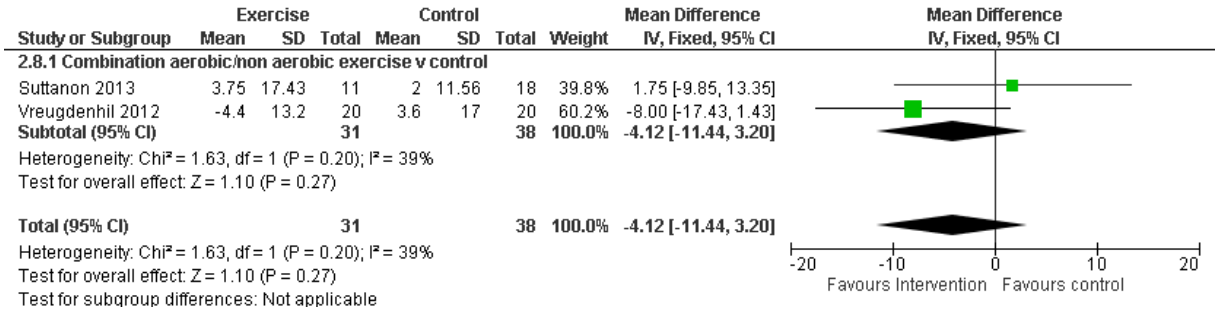
Depression (post-intervention)



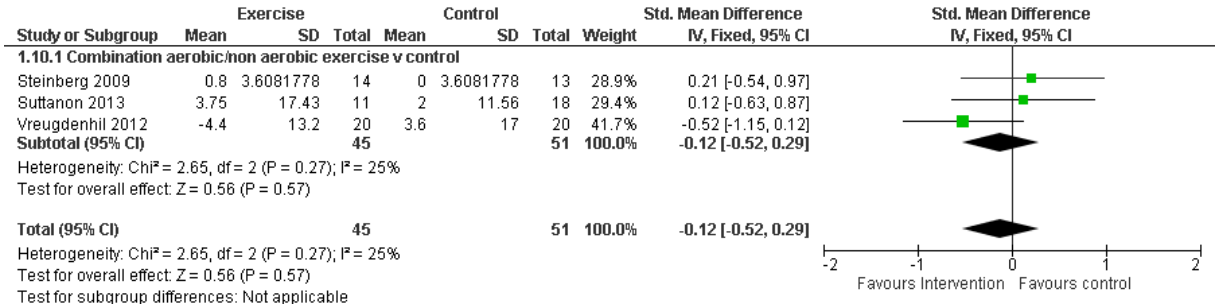
Depression (post-intervention) – sensitivity analysis excluding multimodal interventions



ZBI (post-intervention)

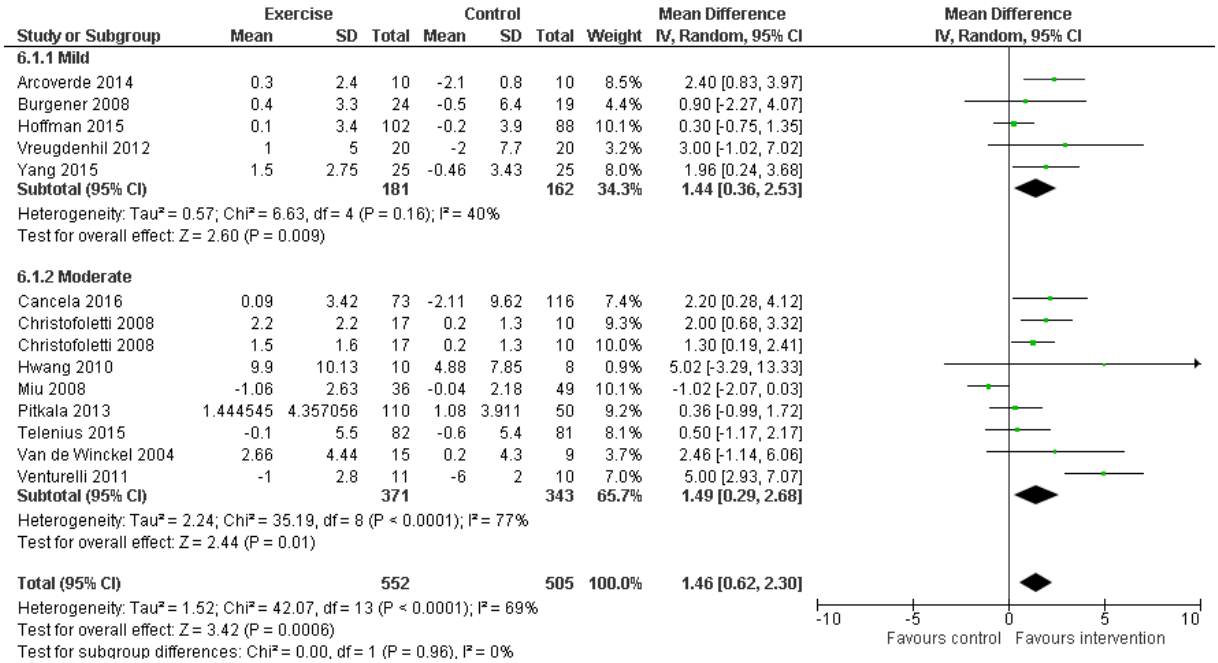


Carer burden (post-intervention)

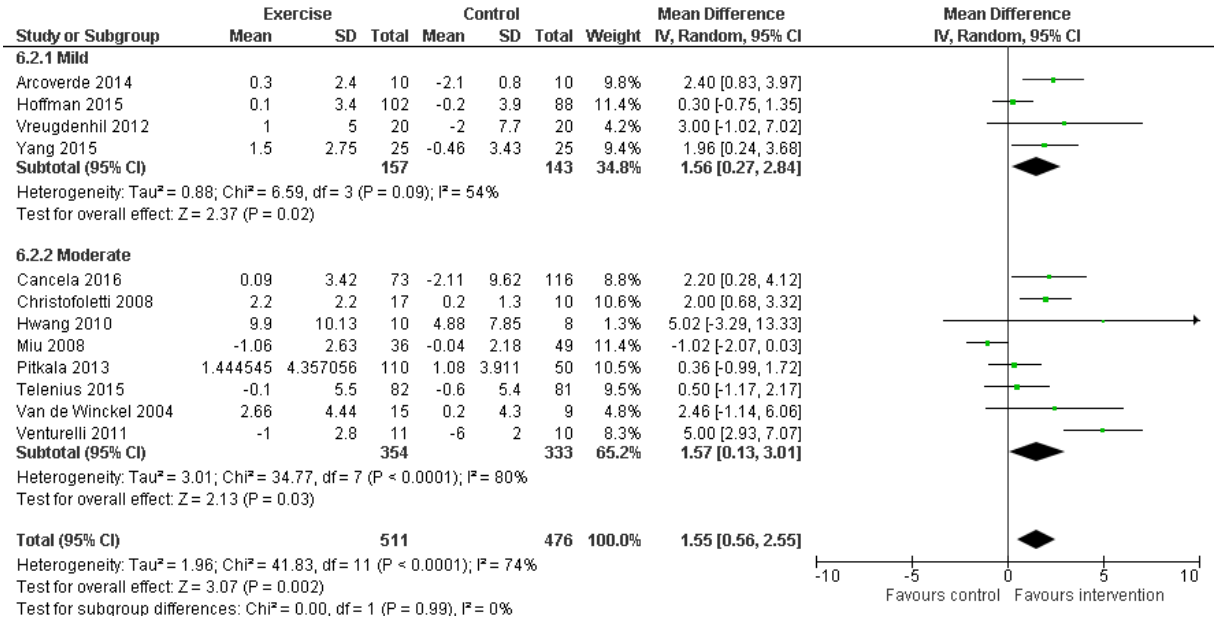


Outcomes stratified by dementia severity

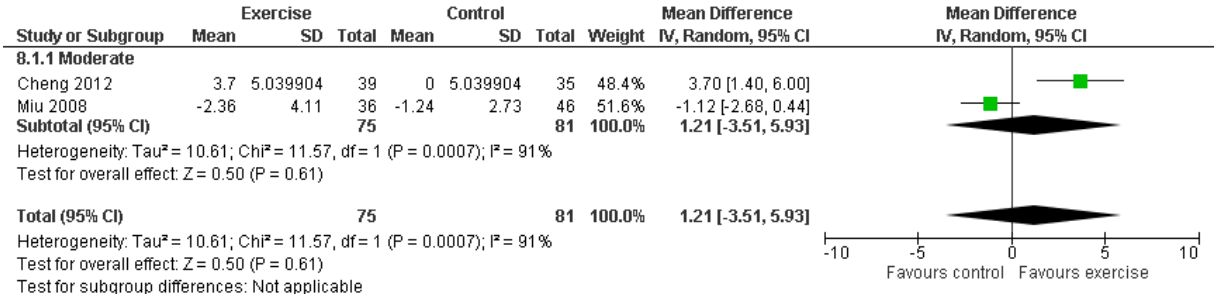
MMSE (post-intervention)



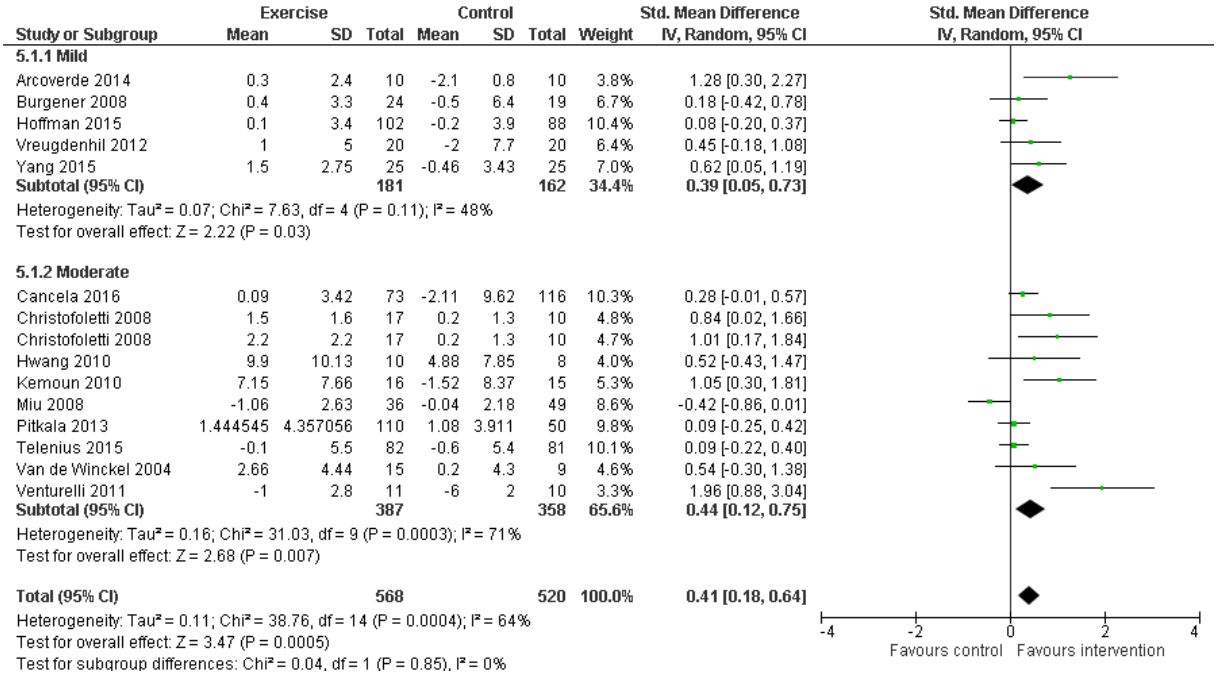
MMSE (post-intervention) – sensitivity analysis excluding multimodal interventions



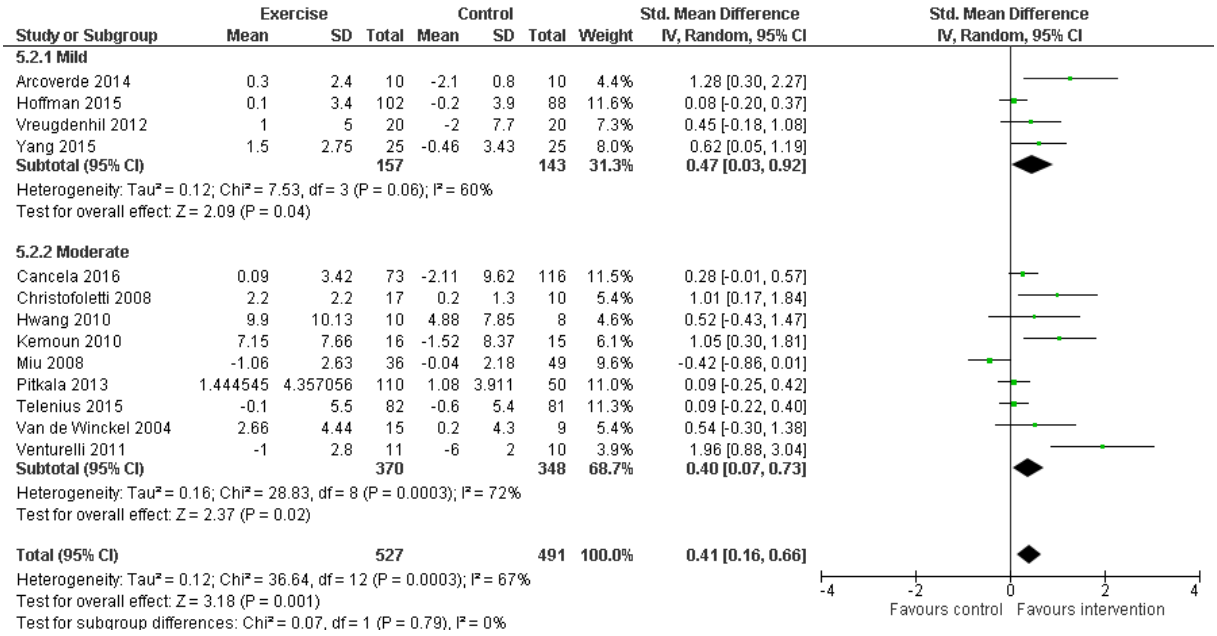
MMSE (follow-up)



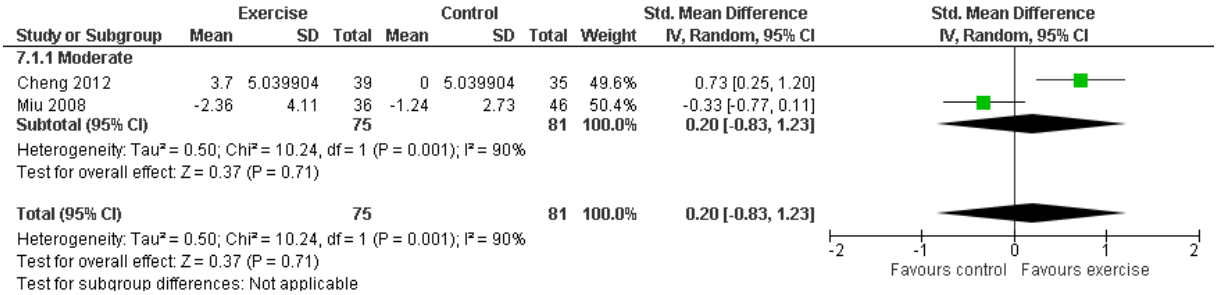
Cognition (post-intervention)



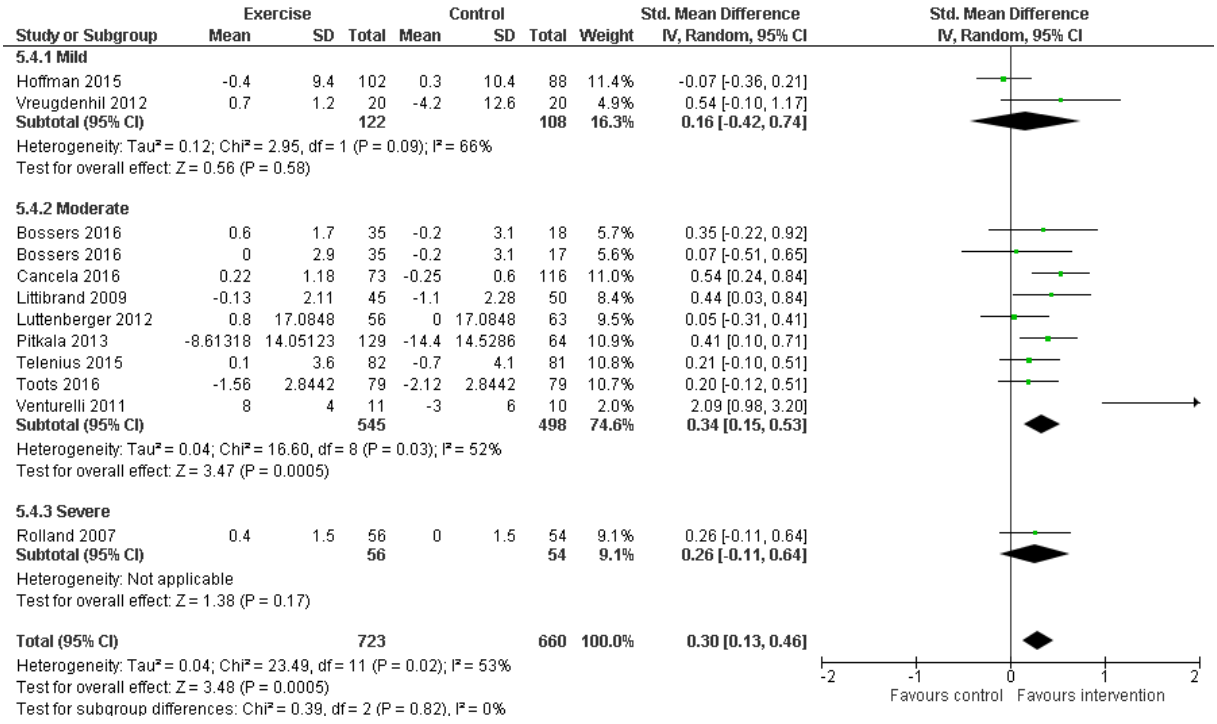
Cognition (post-intervention) – sensitivity analysis excluding multimodal interventions



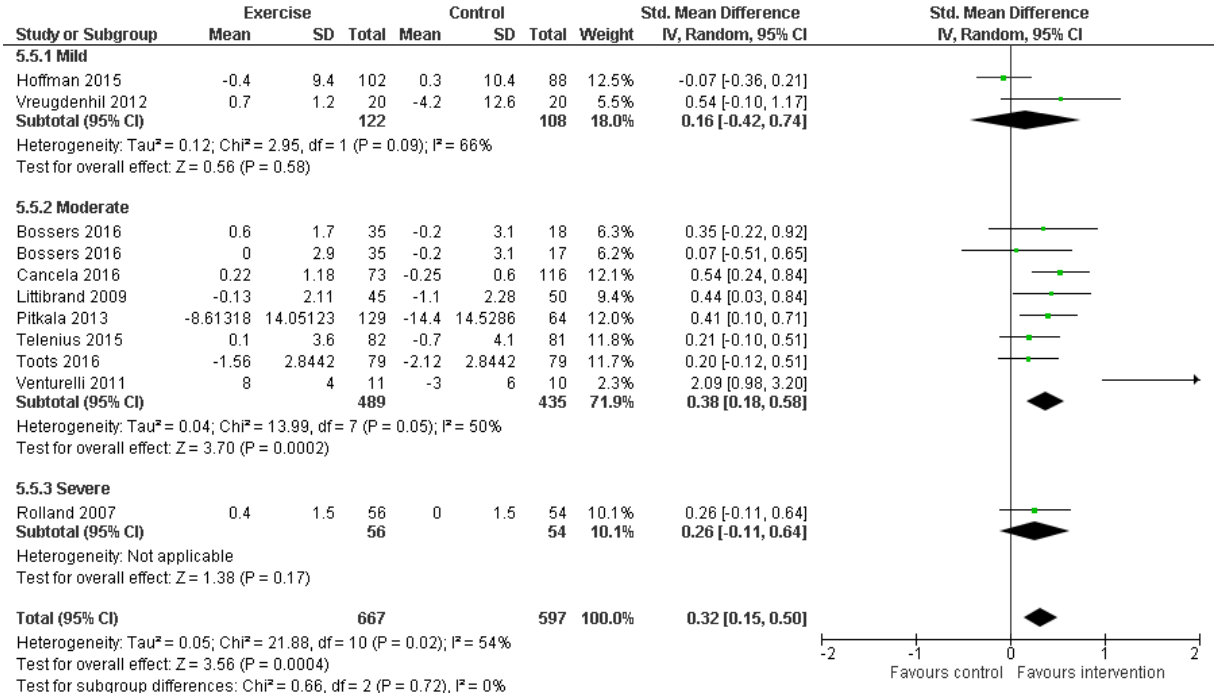
Cognition (follow-up)



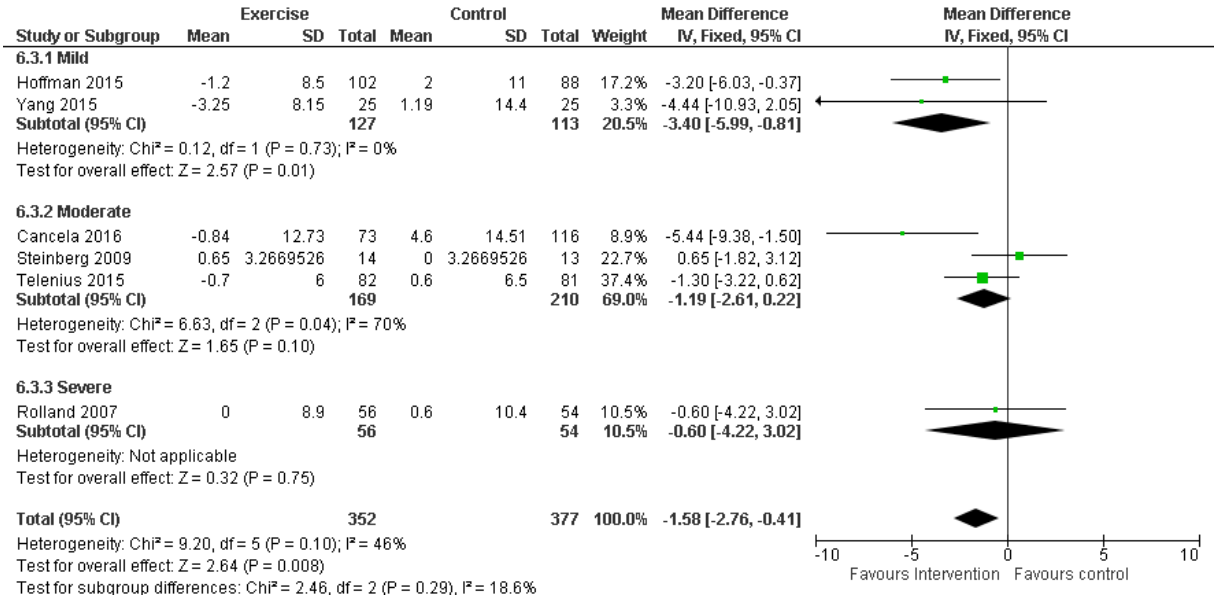
ADL (post-intervention)



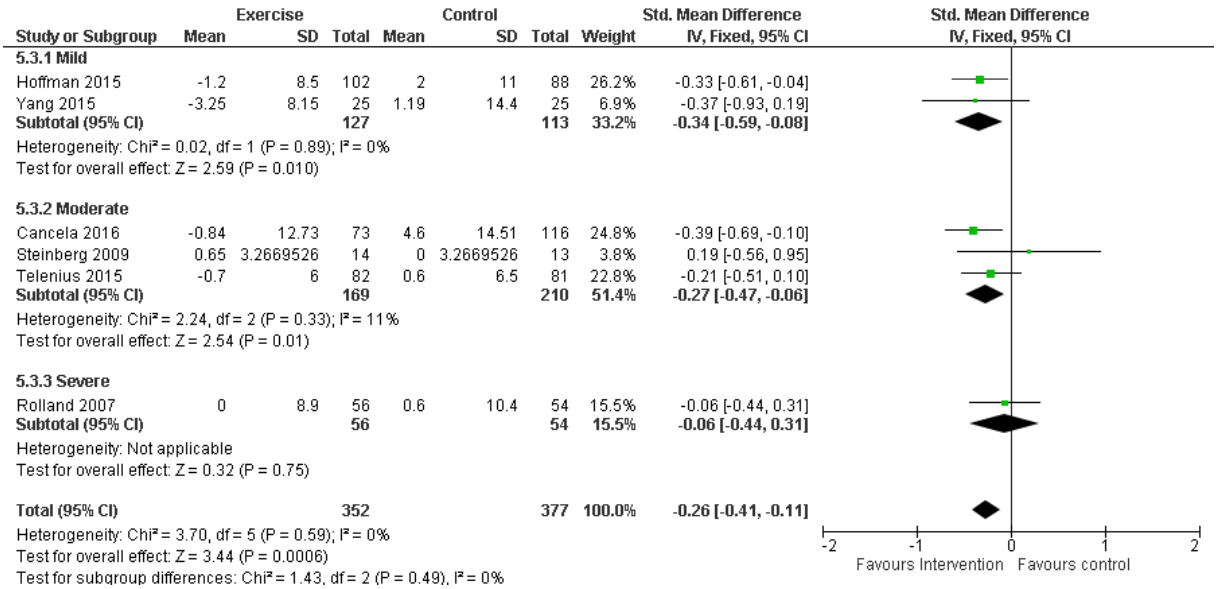
ADL (post-intervention) – sensitivity analysis excluding multimodal interventions



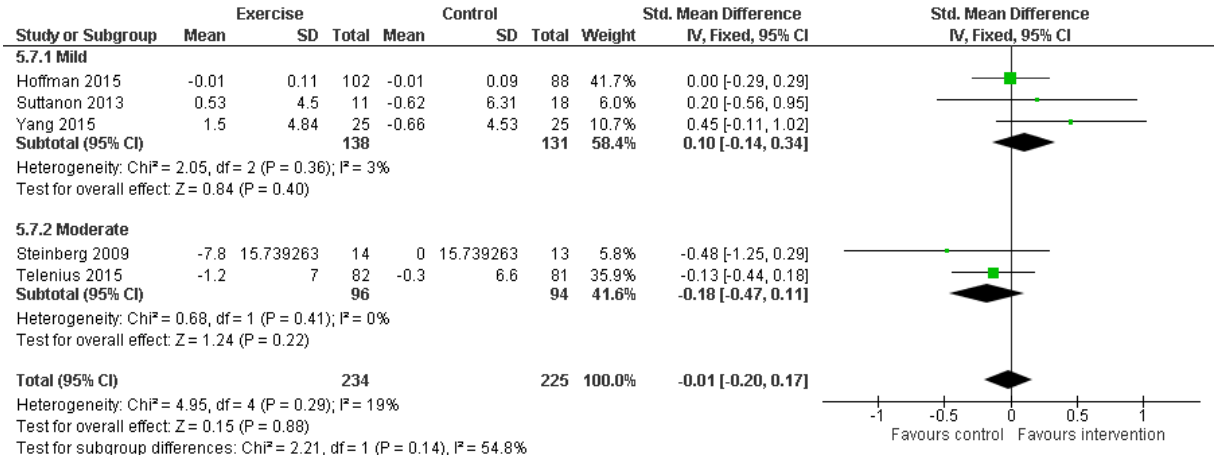
NPI (post-intervention)



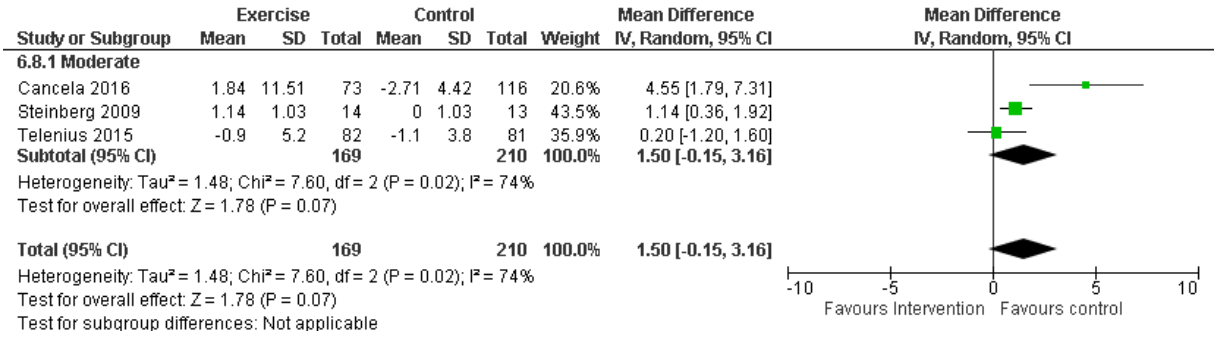
BPSD (post-intervention)



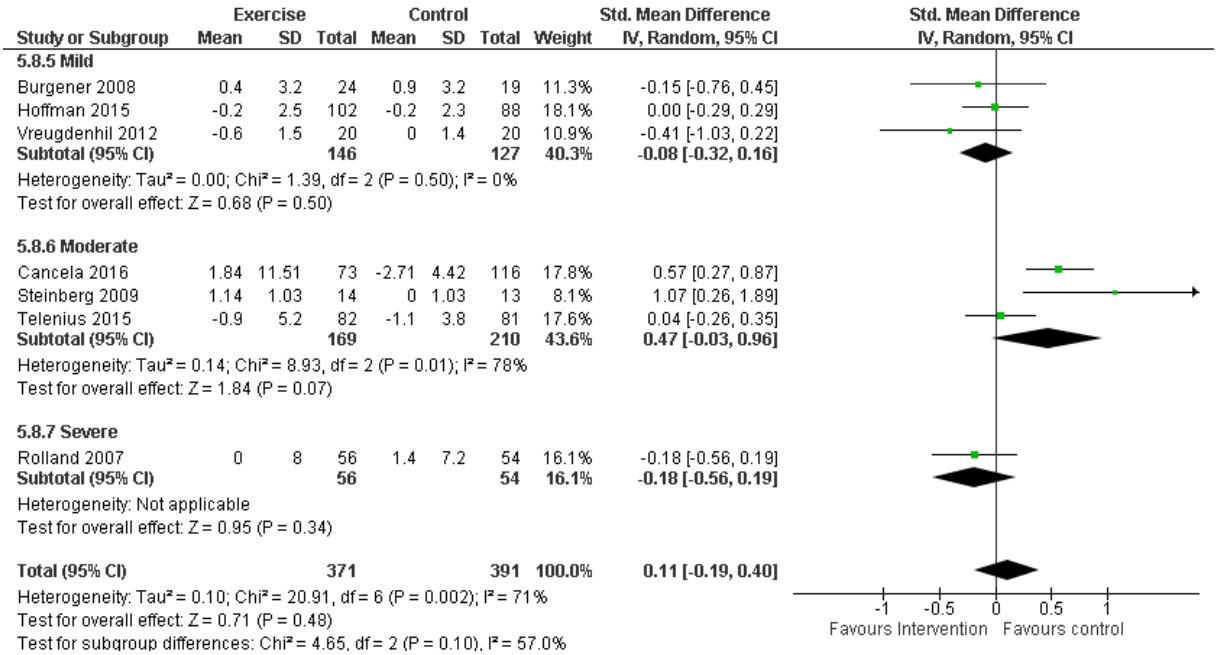
Quality of life (post-intervention)



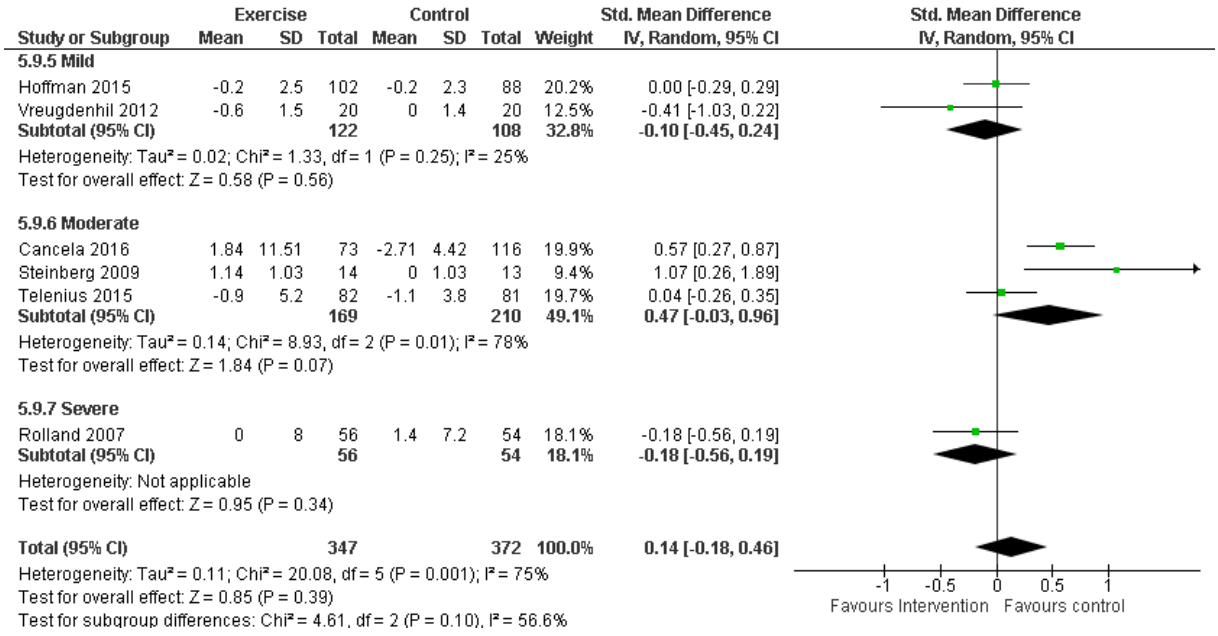
CSDD (post-intervention)



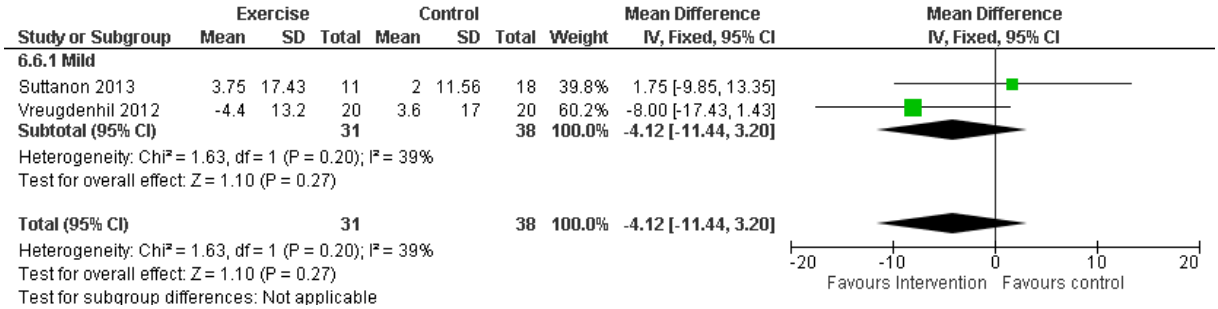
Depression (post-intervention)



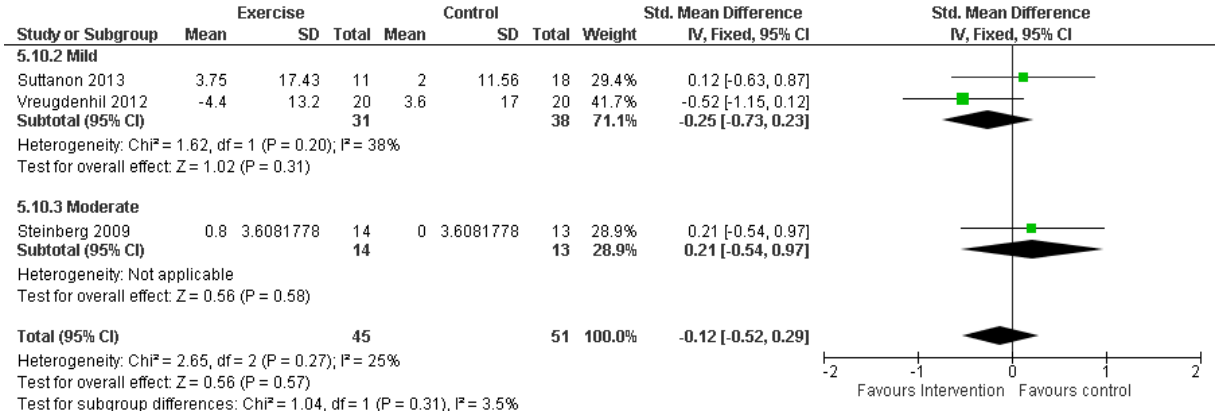
Depression (post-intervention) – sensitivity analysis excluding multimodal interventions



ZBI (post-intervention)



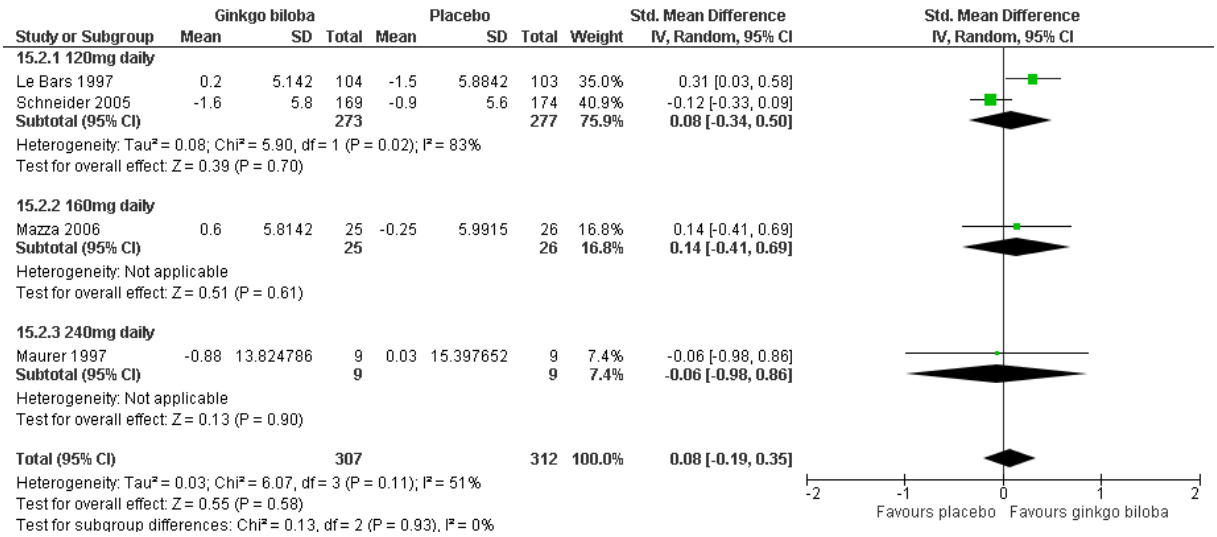
Carer burden (post-intervention)



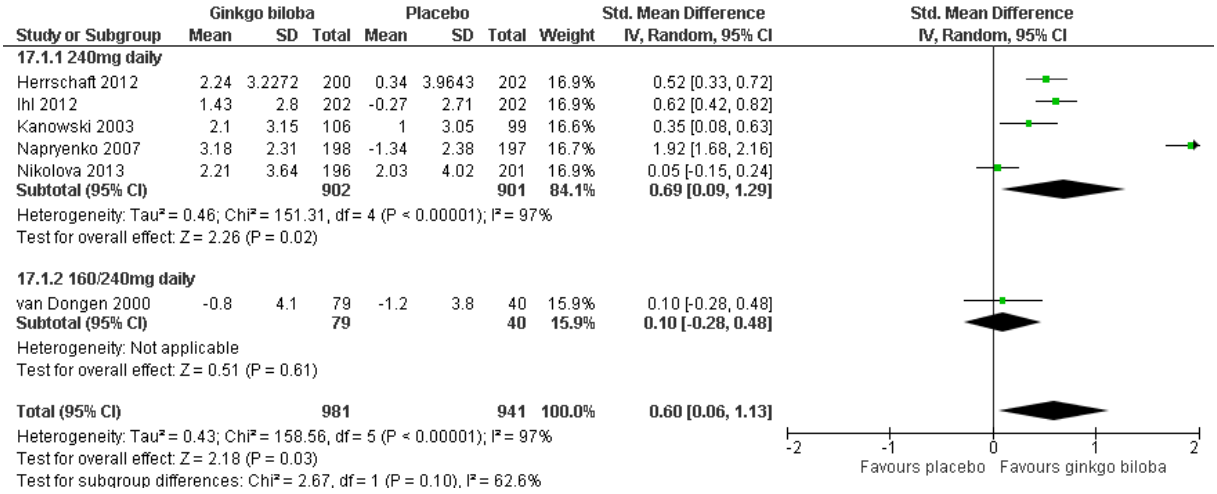
H.9.1.9 Nutrition

Ginkgo biloba

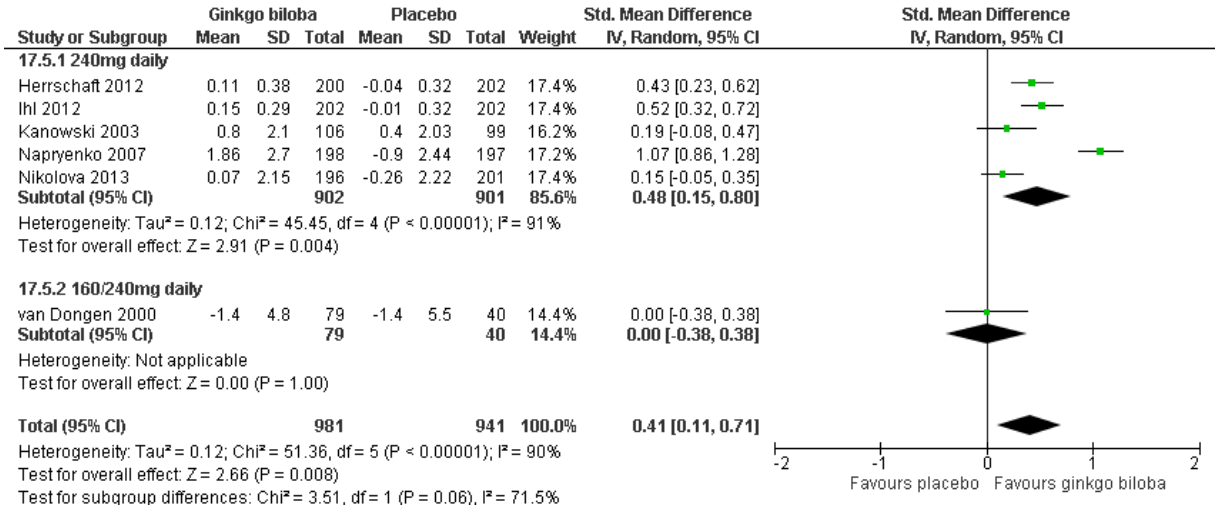
Cognition (post-intervention): Alzheimer's disease



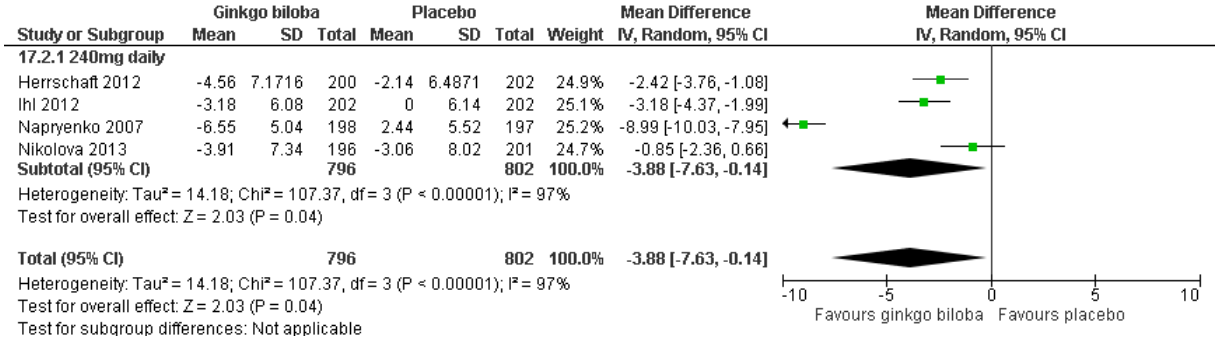
Cognition (post-intervention): Alzheimer's disease and vascular dementia



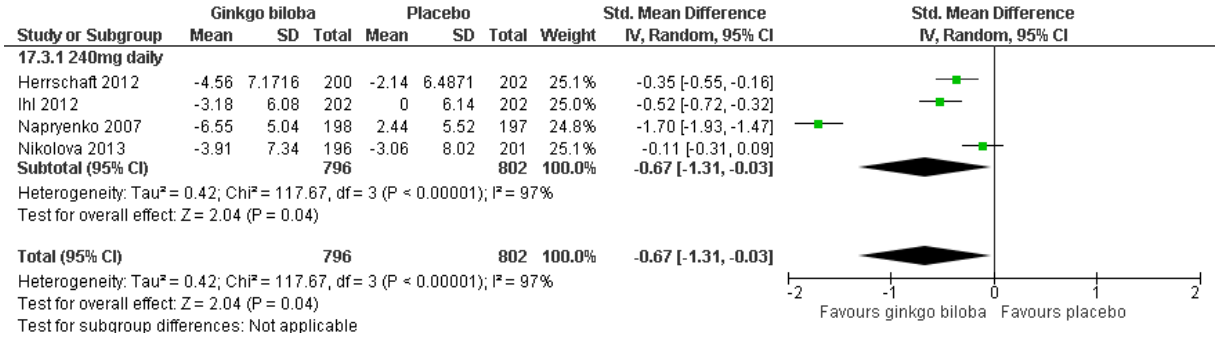
ADL (post-intervention): Alzheimer's disease and vascular dementia



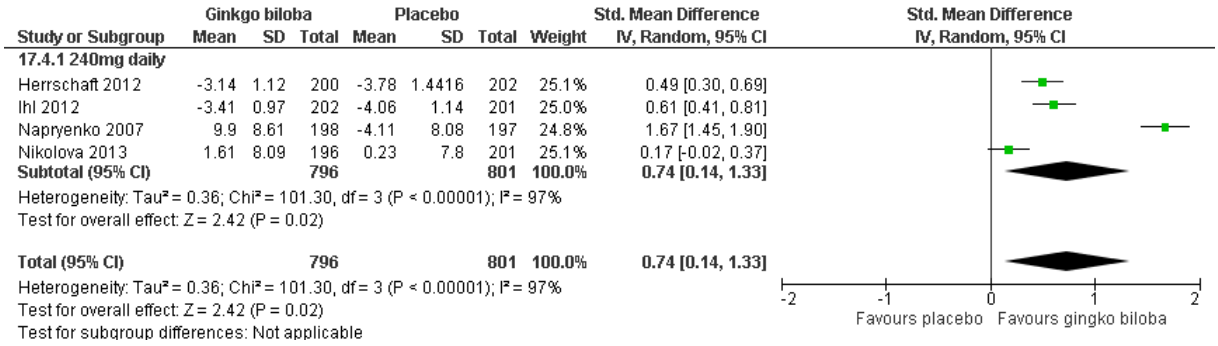
NPI (post-intervention): Alzheimer's disease and vascular dementia



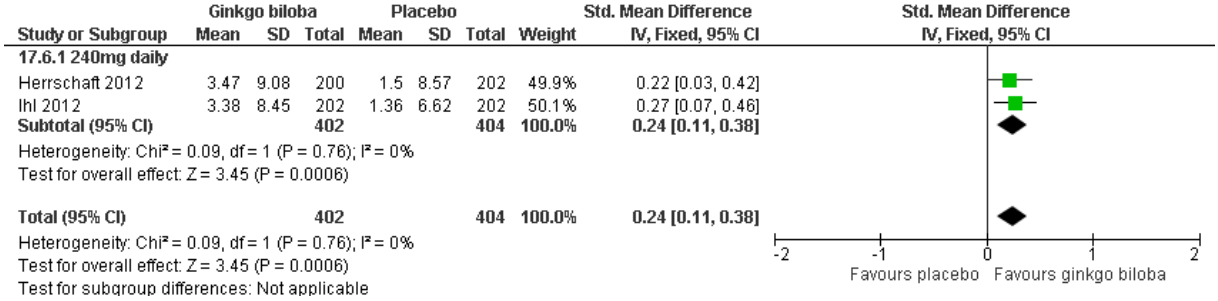
BPSD (post-intervention): Alzheimer's disease and vascular dementia



Global assessment (post-intervention): Alzheimer's disease and vascular dementia

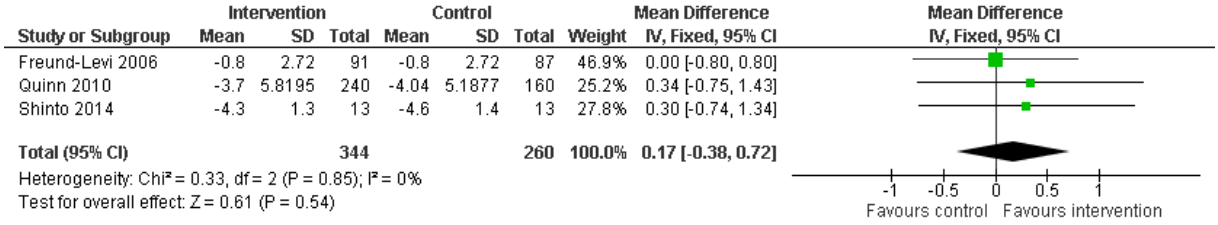


Quality of life (post-intervention): Alzheimer's disease and vascular dementia

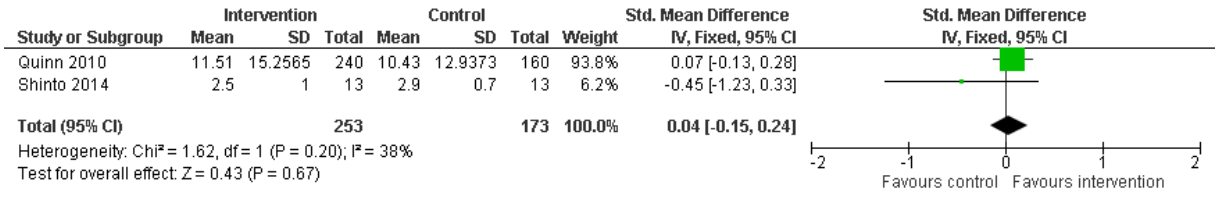


Omega-3 fatty acids

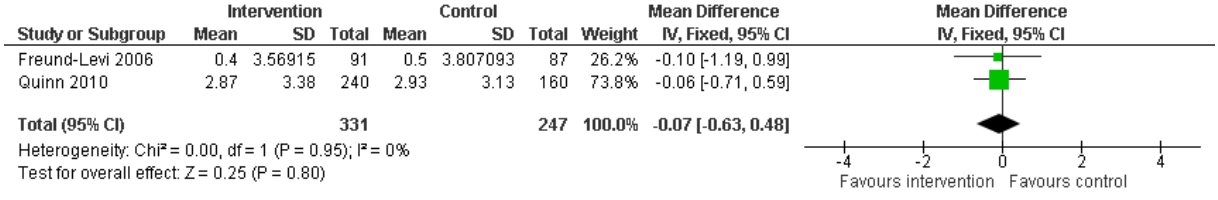
MMSE (post-intervention)



ADL (post-intervention)



CDR (post-intervention)

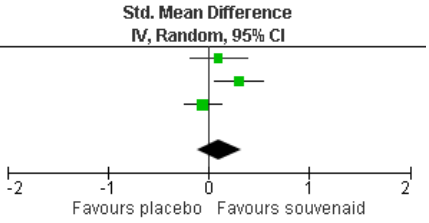


Souvenaid

Cognition (post-intervention)

Study or Subgroup	Souvenaid Mean	SD	Total	Placebo Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Scheltens 2010	0.3	3.1	99	0	3.05	96	28.8%	0.10 [-0.18, 0.38]
Scheltens 2012	0.12	0.278	130	0.035	0.286	129	32.5%	0.30 [0.06, 0.55]
Shah 2013	-1.88	6.44	218	-1.53	5.63	207	38.7%	-0.06 [-0.25, 0.13]
Total (95% CI)			**447**			**432**	**100.0%**	**0.10 [-0.12, 0.32]**

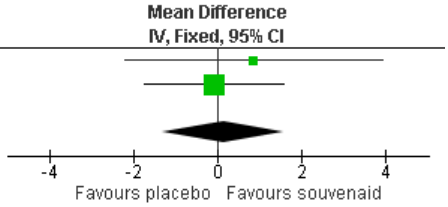
Heterogeneity: Tau² = 0.02; Chi² = 5.14, df = 2 (P = 0.08); I² = 61%
Test for overall effect: Z = 0.92 (P = 0.36)



ADCS-ADL (post-intervention)

Study or Subgroup	Souvenaid Mean	SD	Total	Placebo Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Scheltens 2010	1.2	10.6	101	0.35	11.4	99	22.6%	0.85 [-2.20, 3.90]
Shah 2013	-3.74	9.76	228	-3.66	8.03	223	77.4%	-0.08 [-1.73, 1.57]
Total (95% CI)			**329**			**322**	**100.0%**	**0.13 [-1.32, 1.58]**

Heterogeneity: Chi² = 0.28, df = 1 (P = 0.60); I² = 0%
Test for overall effect: Z = 0.18 (P = 0.86)

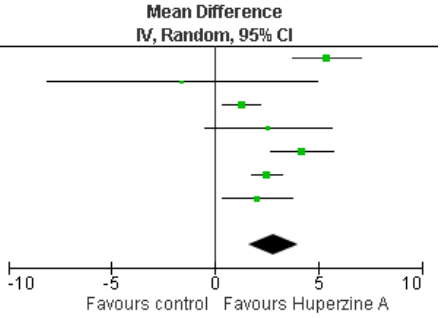


Huperzine A

MMSE (post-intervention)

Study or Subgroup	Huperzine A Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Dong 2012	4.2	2.35	10	-1.18	1.33	11	15.7%	5.38 [3.72, 7.04]
Liu 1995	0.4	10.22	14	2	7.16	14	2.9%	-1.60 [-8.14, 4.94]
Rafii 2011	0.875	2.845	140	-0.4	3.31	70	19.9%	1.27 [0.37, 2.18]
Xu 1997	2.98	7.93	50	0.43	7.98	53	9.0%	2.55 [-0.52, 5.62]
Yang 2003	4.3	3.05	35	0.1	3.28	30	16.3%	4.20 [2.65, 5.75]
Zhang 2002	2.7	2.85	98	0.19	2.66	99	20.6%	2.51 [1.74, 3.28]
Zhou 2004	1.58	2.8	12	-0.45	1.03	12	15.5%	2.03 [0.34, 3.72]
Total (95% CI)			**359**			**289**	**100.0%**	**2.80 [1.61, 3.99]**

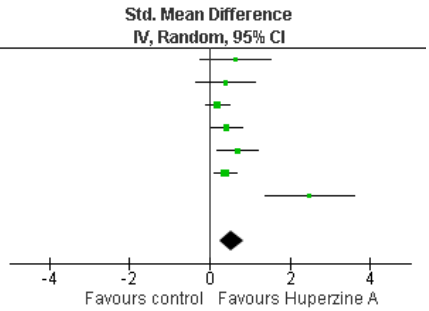
Heterogeneity: Tau² = 1.64; Chi² = 25.07, df = 6 (P = 0.0003); I² = 76%
Test for overall effect: Z = 4.60 (P < 0.00001)



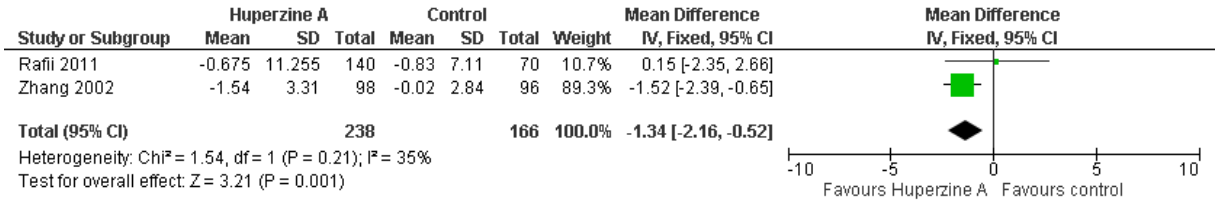
ADL (post-intervention)

Study or Subgroup	Huperzine A Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Dong 2012	-34.9	11.06	10	-45.45	19.25	11	8.3%	0.64 [-0.25, 1.52]
Liu 1995	3.6	14.84	14	-2.6	15.77	14	10.2%	0.39 [-0.36, 1.14]
Rafii 2011	-1.015	8.47	140	-2.64	8.66	70	20.9%	0.19 [-0.10, 0.48]
Xu 1997	3.58	13.41	50	-1.25	9.36	53	18.2%	0.42 [0.03, 0.81]
Yang 2003	6.6	10.19	35	0	8.56	30	15.3%	0.69 [0.19, 1.19]
Zhang 2002	2.39	4.88	98	0.48	5.01	99	21.1%	0.38 [0.10, 0.67]
Zhou 2004	5.9	3.35	12	-2.25	2.98	12	6.0%	2.48 [1.37, 3.59]
Total (95% CI)			**359**			**289**	**100.0%**	**0.54 [0.23, 0.85]**

Heterogeneity: Tau² = 0.10; Chi² = 17.13, df = 6 (P = 0.009); I² = 65%
Test for overall effect: Z = 3.44 (P = 0.0006)

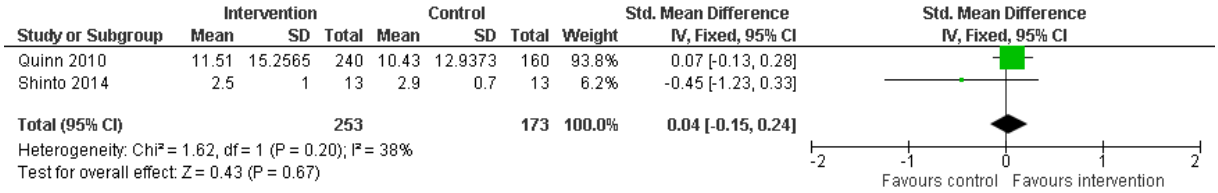


BPSD (post-intervention)

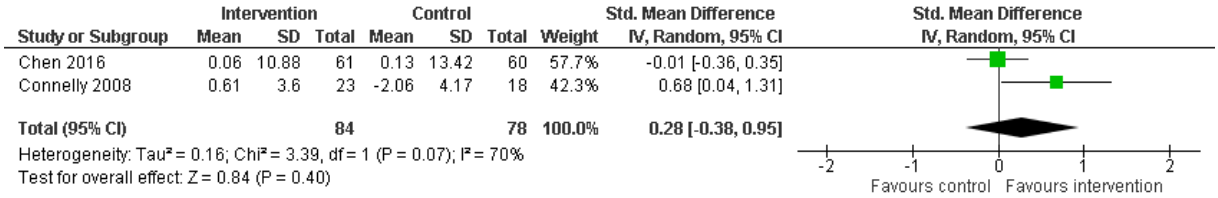


Folic acid

MMSE (post-intervention)

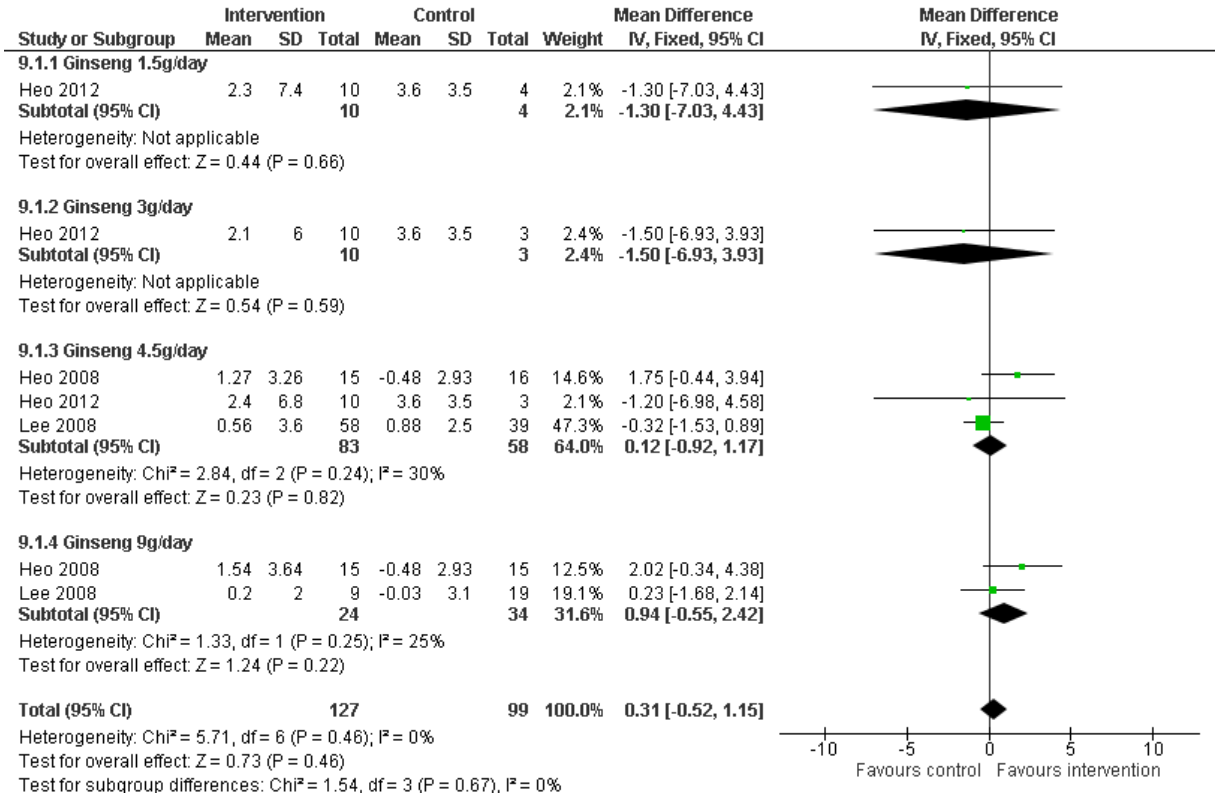


ADL (post-intervention)



Ginseng

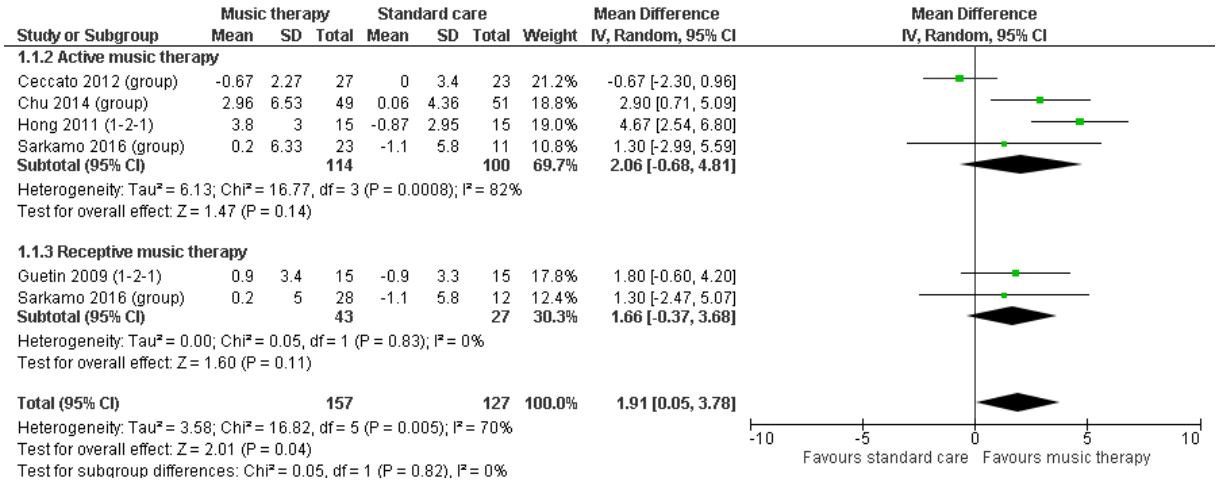
MMSE (post-intervention)



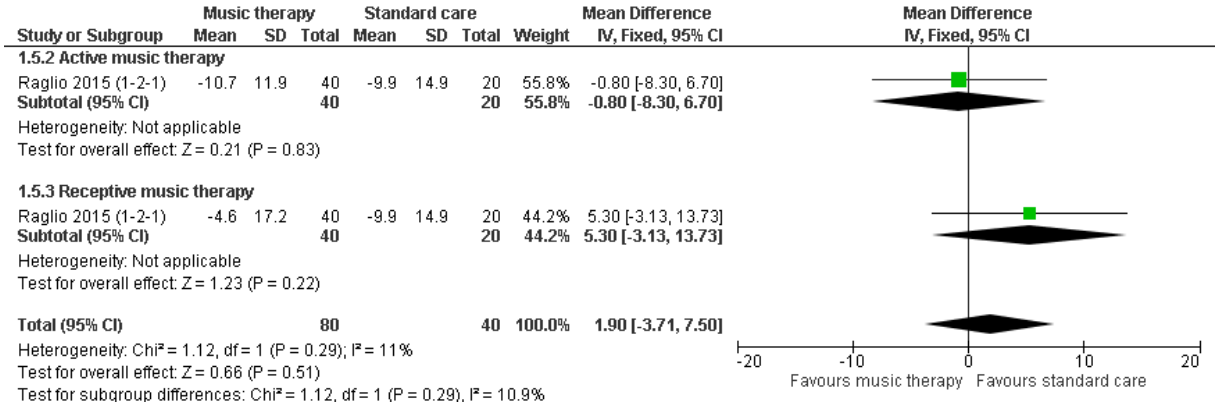
H.9.1.10 Music therapy

Music therapy versus standard care in people with dementia (post-intervention)

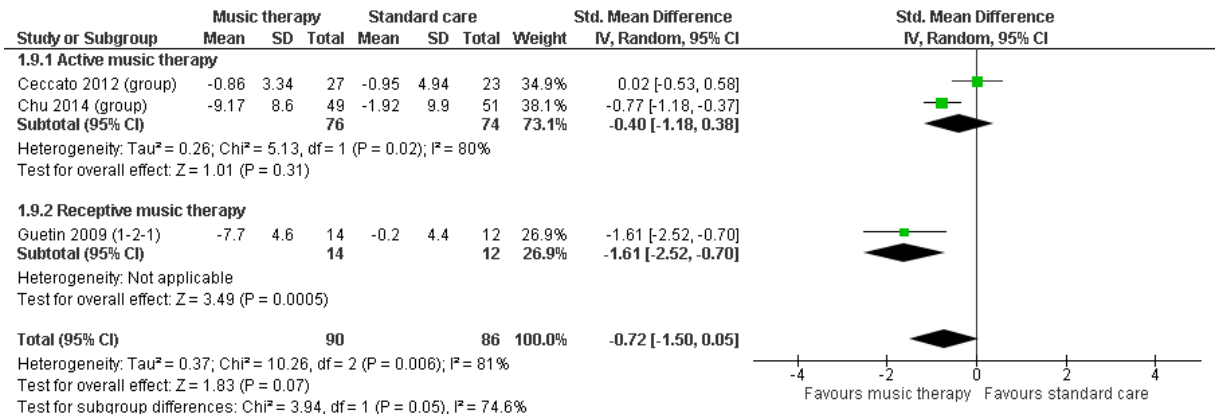
MMSE



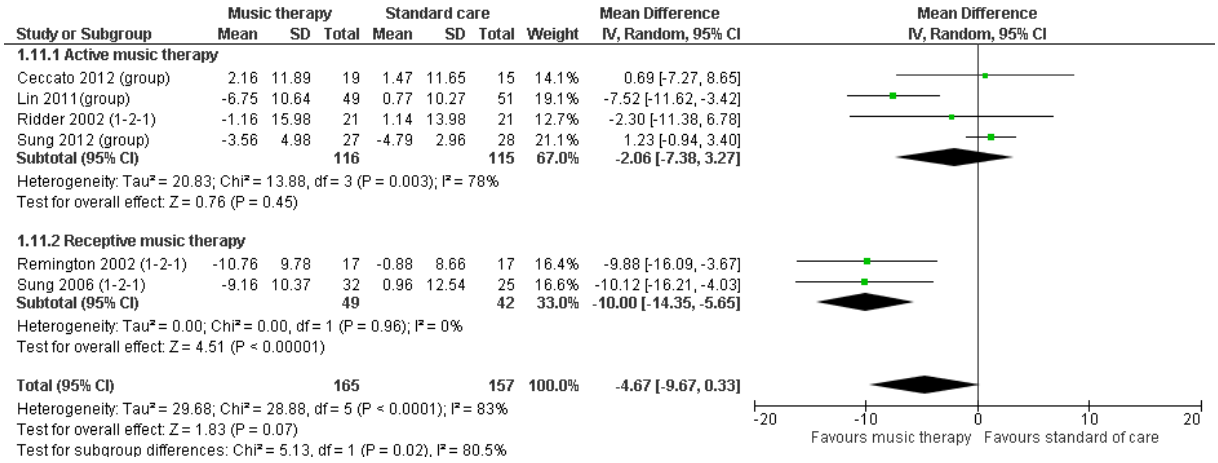
NPI



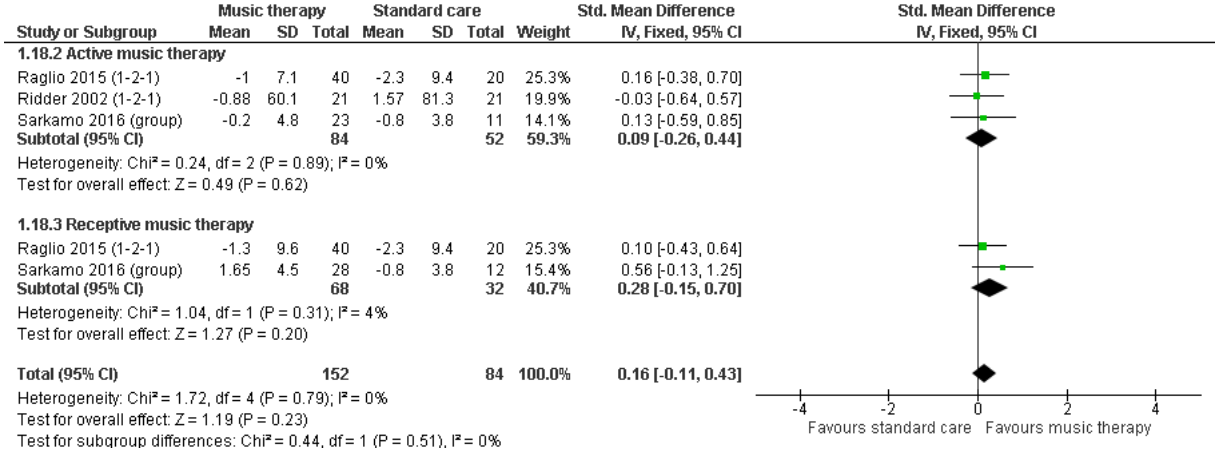
Depression



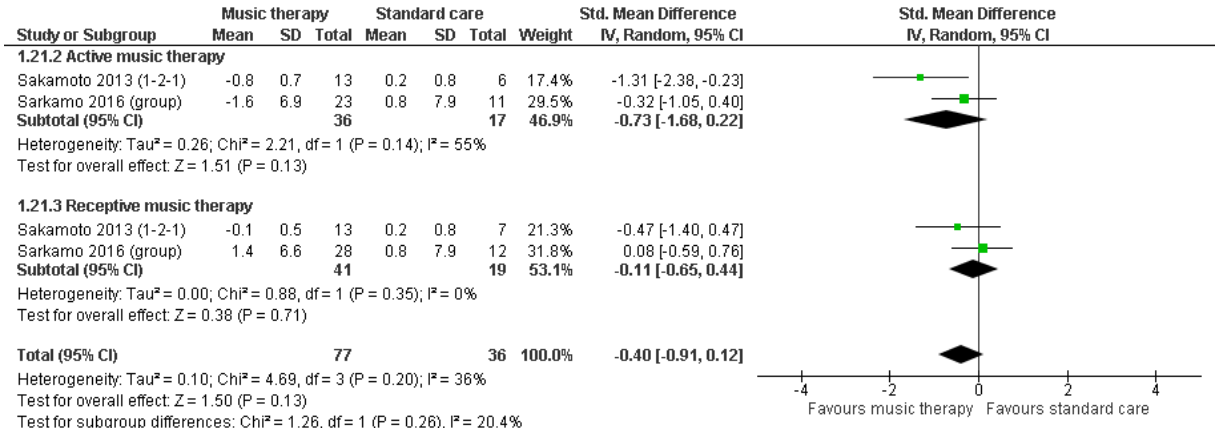
Agitation



Quality of life

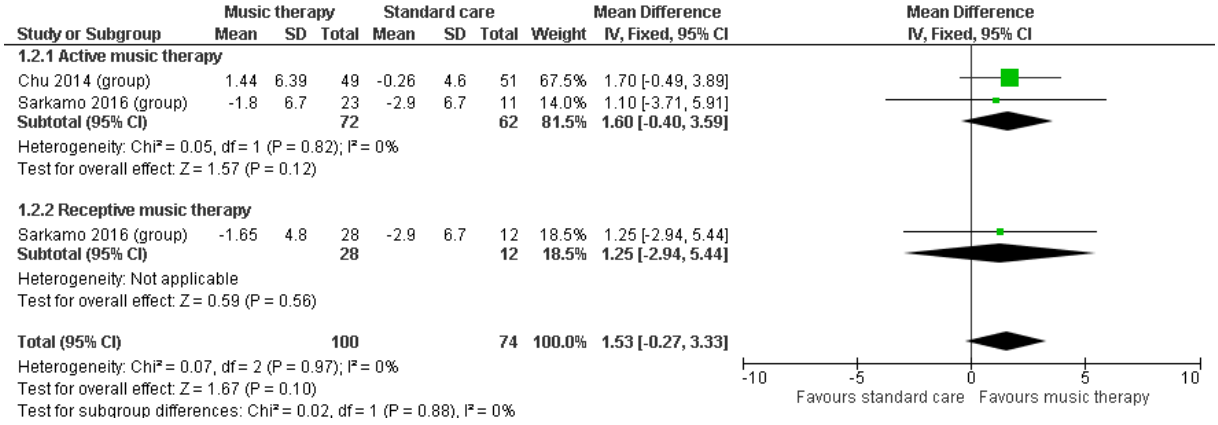


Carer burden

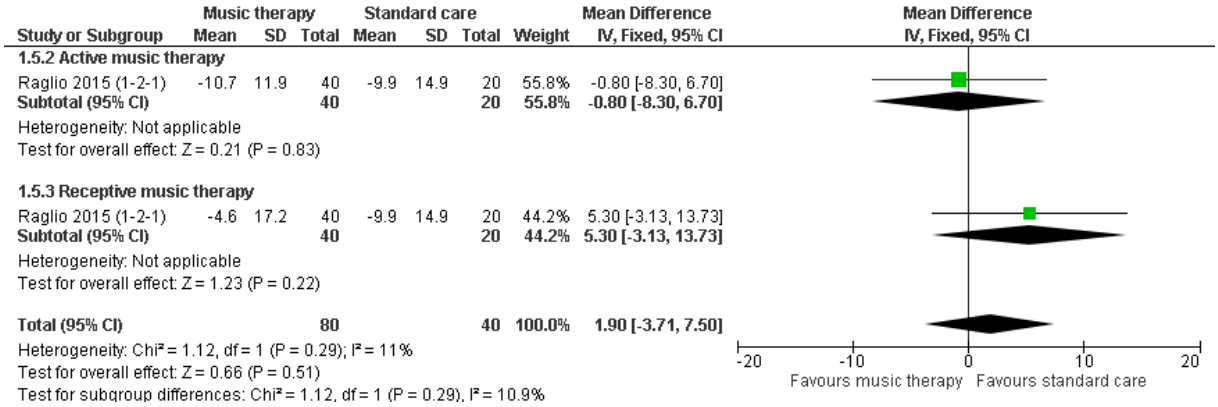


Music therapy versus standard care in people with dementia (follow-up)

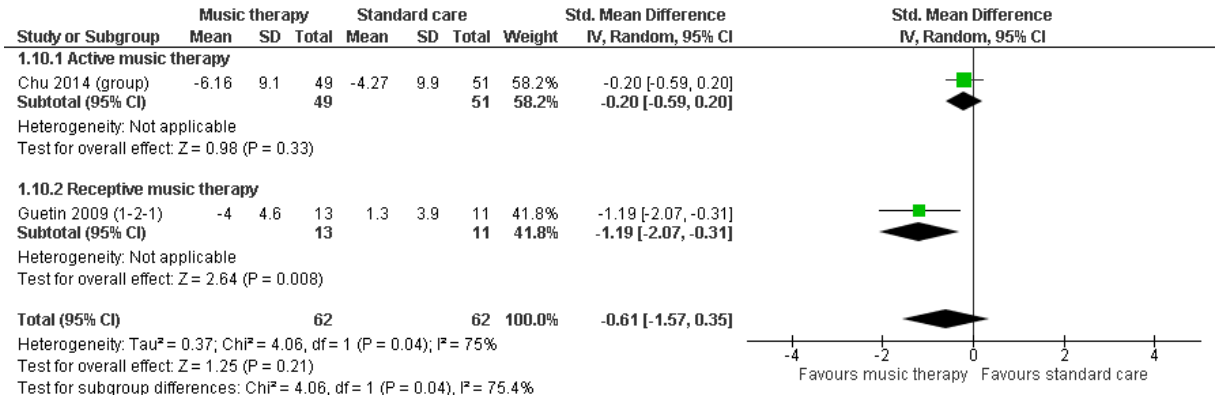
MMSE



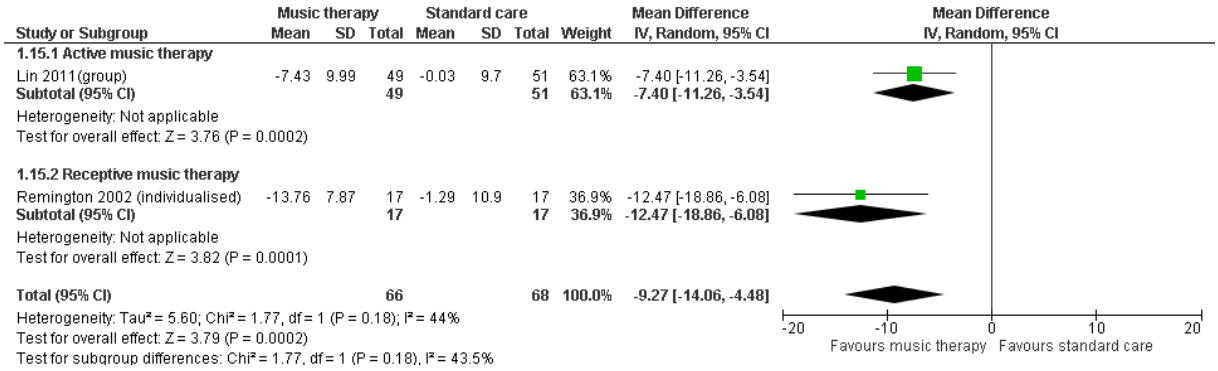
NPI



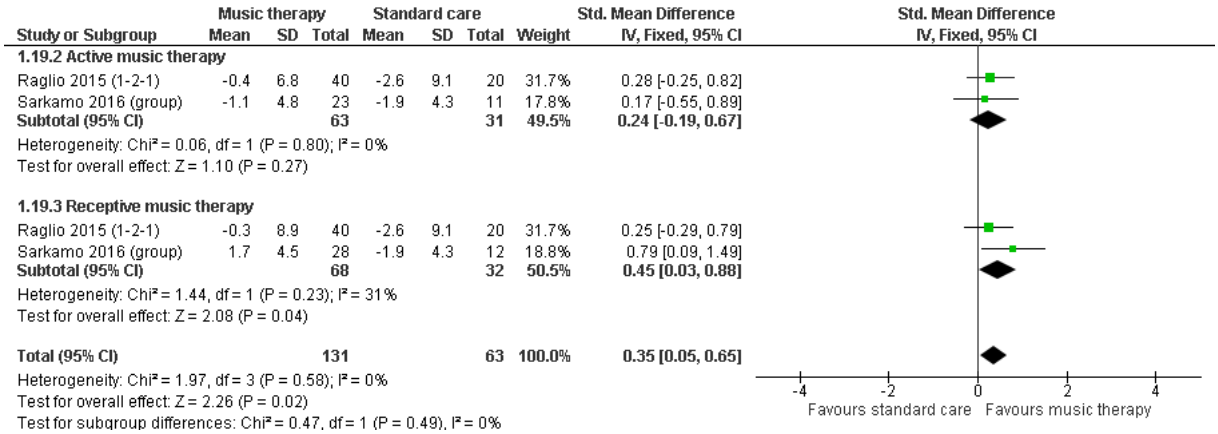
Depression



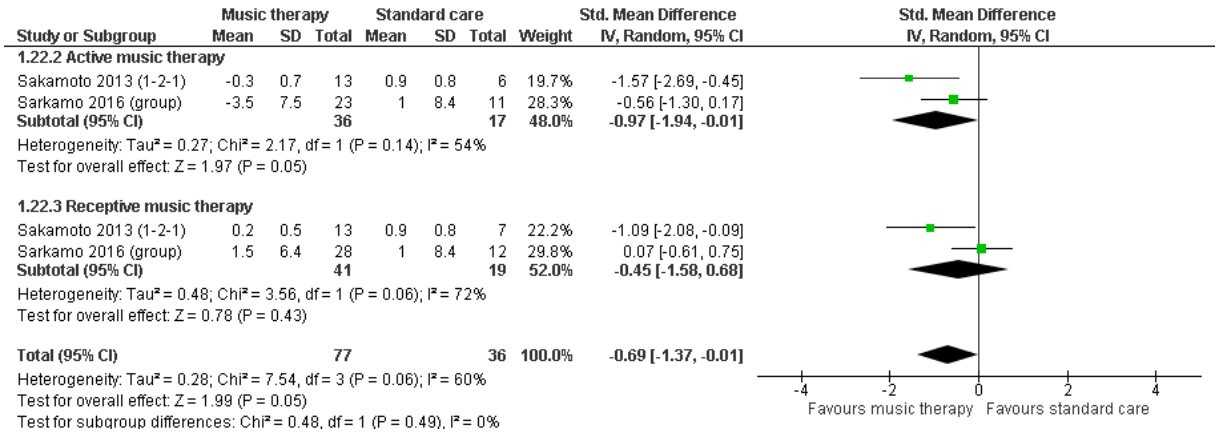
Cohen-Mansfield Agitation Inventory



Quality of life

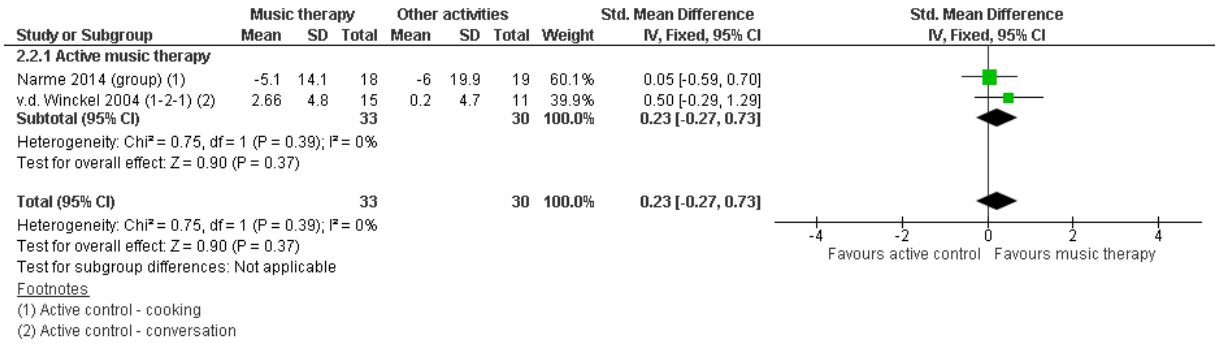


Carer burden



Music therapy versus active control (post-intervention)

Cognition

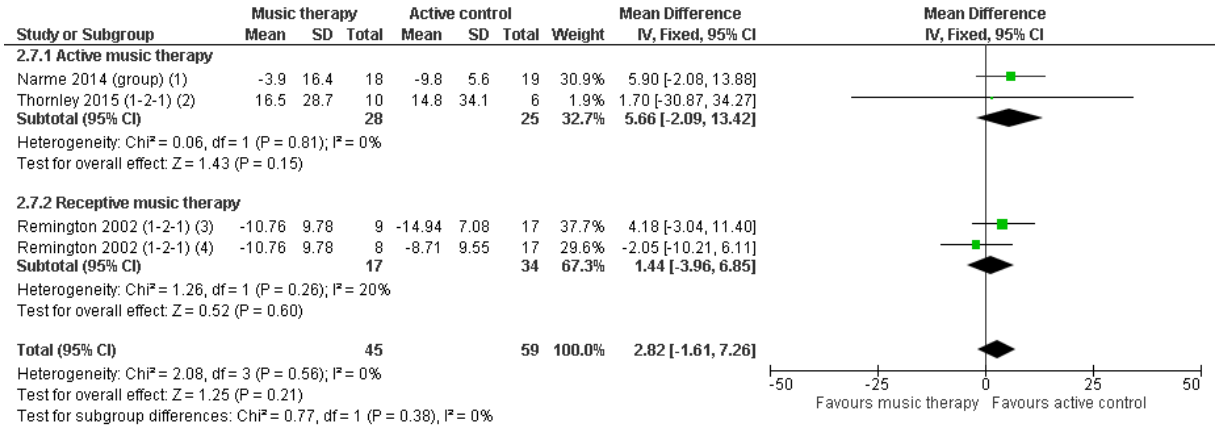


Footnotes

(1) Active control - cooking

(2) Active control - conversation

Cohen-Mansfield Agitation Inventory



Footnotes

(1) Active control - cooking

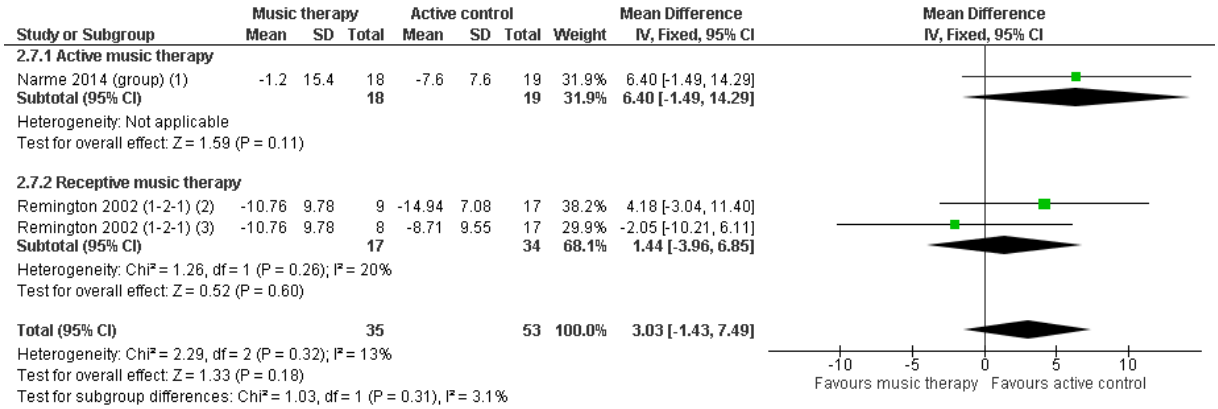
(2) Active control - engagement therapy

(3) Active control - hand massage and calming music

(4) Active control - hand massage

Music therapy versus active control (follow-up)

Cohen-Mansfield Agitation Inventory



Footnotes

(1) Active control - cooking

(2) Active control - hand massage and calming music

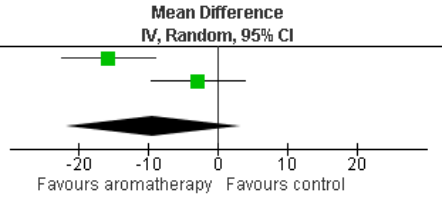
(3) Active control - hand massage

H.9.1.11 Aromatherapy

CMAI (post-intervention)

Study or Subgroup	Aromatherapy Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Ballard 2002	-23.1	10.4	35	-7.3	17.6	36	50.1%	-15.80 [-22.50, -9.10]
Yang 2016	-6.3	13.62	27	-3.41	12.18	29	49.9%	-2.89 [-9.68, 3.90]
Total (95% CI)			**62**			**65**	**100.0%**	**-9.36 [-22.01, 3.30]**

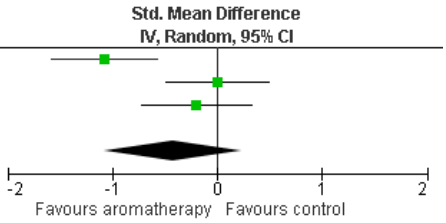
Heterogeneity: Tau² = 71.49; Chi² = 7.04, df = 1 (P = 0.008); I² = 86%
Test for overall effect: Z = 1.45 (P = 0.15)



Agitation (post-intervention)

Study or Subgroup	Aromatherapy Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Ballard 2002	-23.1	10.4	35	-7.3	17.6	36	33.5%	-1.08 [-1.58, -0.58]
Burns 2011	-0.7	2.5	32	-0.7	2.4	31	33.7%	0.00 [-0.49, 0.49]
Yang 2016	-6.3	15.4	27	-3.41	12.9	29	32.8%	-0.20 [-0.73, 0.32]
Total (95% CI)			**94**			**96**	**100.0%**	**-0.43 [-1.08, 0.23]**

Heterogeneity: Tau² = 0.27; Chi² = 10.09, df = 2 (P = 0.006); I² = 80%
Test for overall effect: Z = 1.28 (P = 0.20)

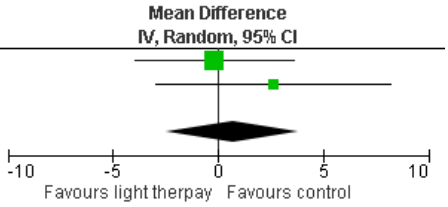


H.9.1.12 Light therapy

MMSE (post-intervention)

Study or Subgroup	Light therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Burns 2009	-0.3	7	22	-0.1	6	24	68.7%	-0.20 [-3.98, 3.58]
Graf 2001	2.9	4.5	9	0.3	7.3	9	31.3%	2.60 [-3.00, 8.20]
Total (95% CI)			**31**			**33**	**100.0%**	**0.68 [-2.46, 3.81]**

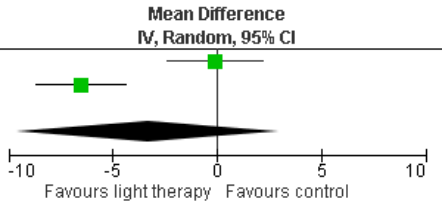
Heterogeneity: Tau² = 0.00; Chi² = 0.66, df = 1 (P = 0.42); I² = 0%
Test for overall effect: Z = 0.42 (P = 0.67)



CSDD (post-intervention)

Study or Subgroup	Light therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Burns 2009	-4.9	4.3	21	-4.8	3.4	25	49.8%	-0.10 [-2.37, 2.17]
Onega 2016	-7.43	3.76	30	-0.9	4.71	30	50.2%	-6.53 [-8.69, -4.37]
Total (95% CI)			**51**			**55**	**100.0%**	**-3.33 [-9.63, 2.98]**

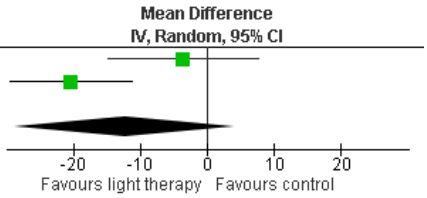
Heterogeneity: Tau² = 19.40; Chi² = 16.19, df = 1 (P < 0.0001); I² = 94%
Test for overall effect: Z = 1.03 (P = 0.30)



CMAI (post-intervention)

Study or Subgroup	Light therapy Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Burns 2009	-10.2	22.8	22	-6.6	15.6	26	48.0%	-3.60 [-14.86, 7.66]
Onega 2016	-12.83	13.78	30	7.56	21.65	30	52.0%	-20.39 [-29.57, -11.21]
Total (95% CI)			**52**			**56**	**100.0%**	**-12.32 [-28.76, 4.12]**

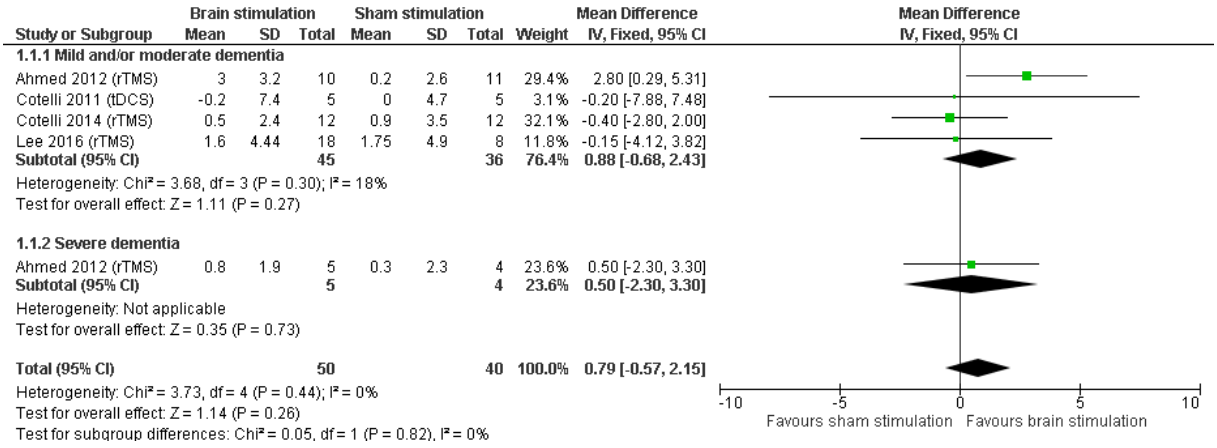
Heterogeneity: Tau² = 113.48; Chi² = 5.13, df = 1 (P = 0.02); I² = 81%
Test for overall effect: Z = 1.47 (P = 0.14)



H.9.1.13 Non-invasive brain stimulation

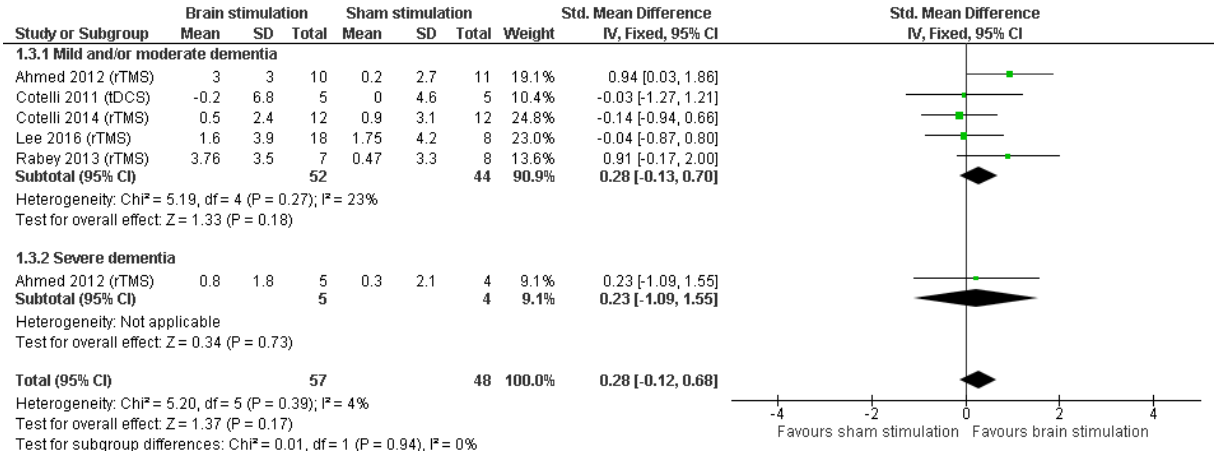
Non-invasive brain stimulation people with Alzheimer's disease (post-intervention)

Cognition (MMSE) – higher values favour intervention



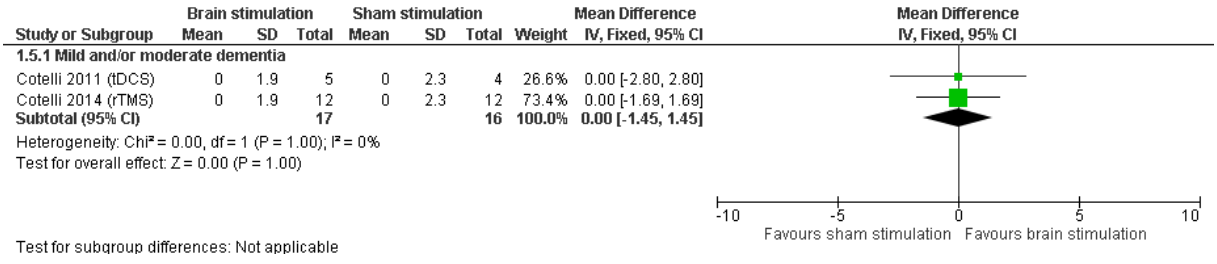
tDCS: transcranial direct current stimulation; rTMS: transcranial magnetic stimulation

Cognition (MMSE or ADAS-cog) – higher values favour intervention



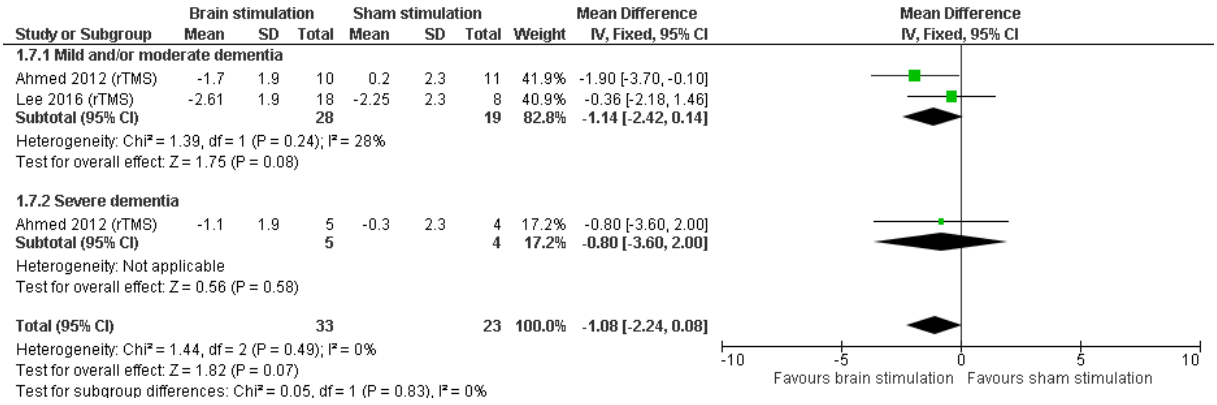
tDCS: transcranial direct current stimulation; rTMS: transcranial magnetic stimulation

Activities of daily living (Instrumental Activities of Daily Living – IADL) – higher values favour intervention



tDCS: transcranial direct current stimulation; rTMS: transcranial magnetic stimulation

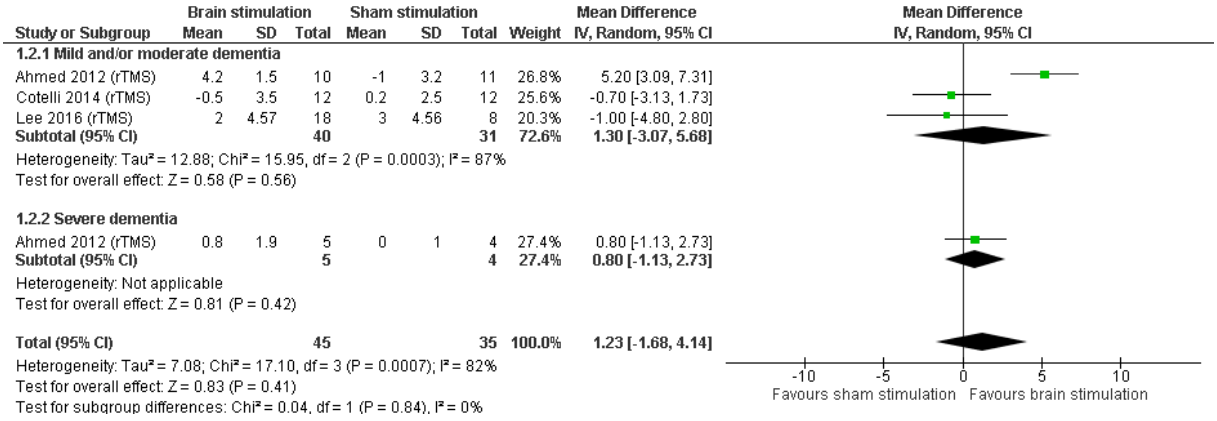
Depression (using Geriatric Depression Scale – GDS) – lower values favour intervention



tDCS: transcranial direct current stimulation; rTMS: transcranial magnetic stimulation

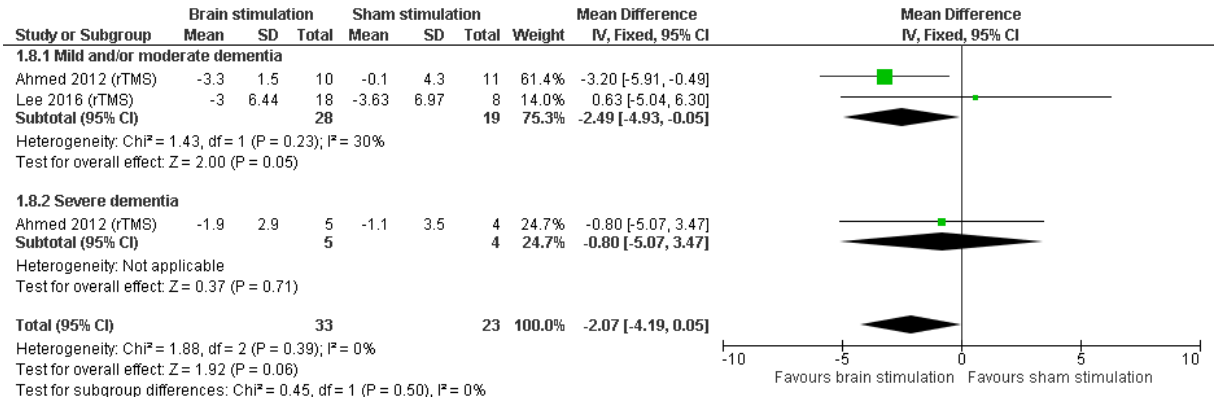
Non-invasive brain stimulation in people with Alzheimer's disease (follow-up)

Cognition (using Mini Mental State Examinations – MMSE) – higher values favour intervention



tDCS: transcranial direct current stimulation; rTMS: transcranial magnetic stimulation

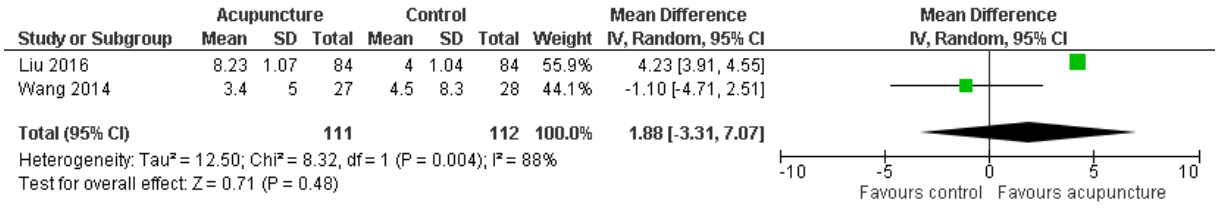
Depression (using Geriatric Depression Scale – GDS) – lower values favour intervention



tDCS: transcranial direct current stimulation; rTMS: transcranial magnetic stimulation

H.9.1.14 Acupuncture

MMSE (post-intervention)



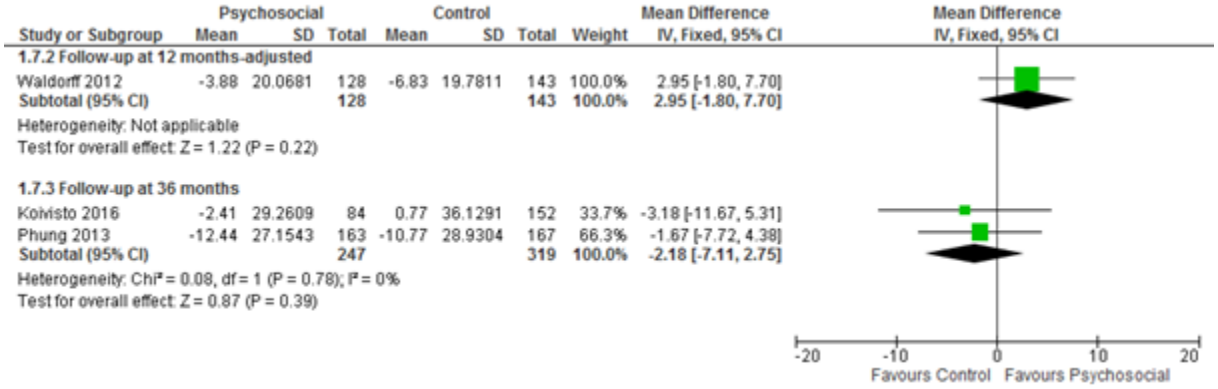
H.9.2 Pre, peri and post-diagnostic counselling and support for people living with dementia and their families

- How effective are pre, peri & post-diagnostic counselling and support on outcomes for people living with dementia and their families?

H.9.2.1 Psychosocial interventions

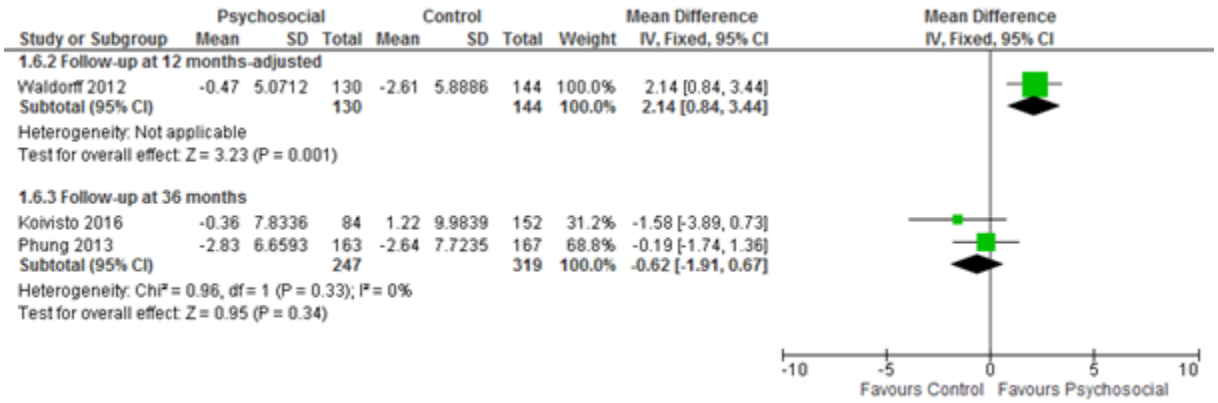
Outcomes in person living with dementia

Quality of life (QoL-VAS)



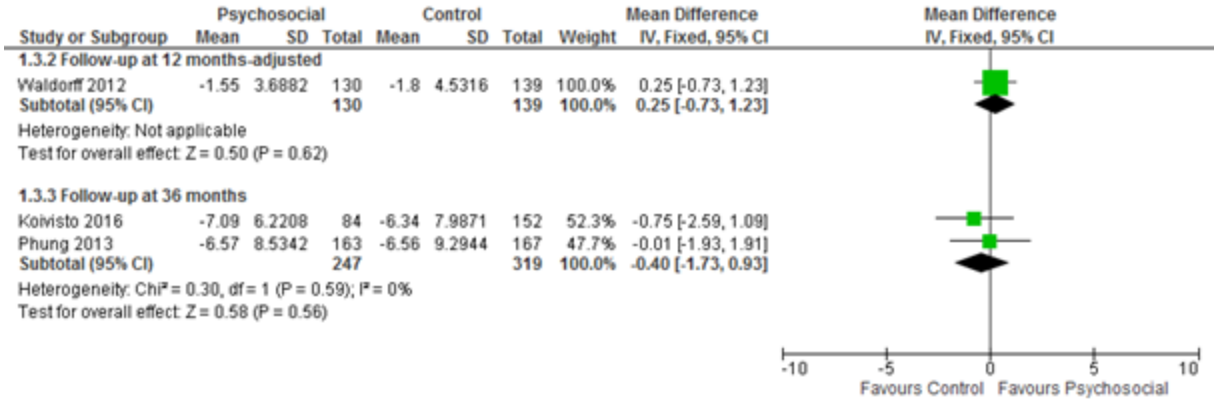
Source/Note: Standard deviations for individual studies were calculated from confidence intervals reported in papers. Waldorff 2012 and Phung 2013 are the 12-month and 36-month follow-up of the same RCT.

Quality of life (QoL-AD)



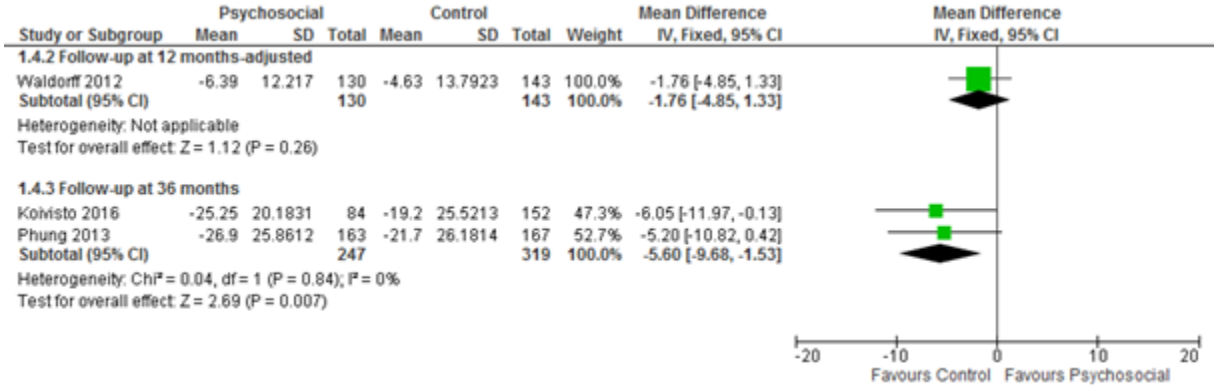
Source/Note: Standard deviations for individual studies were calculated from confidence intervals reported in papers. Waldorff 2012 and Phung 2013 are the 12-month and 36-month follow-up of the same RCT.

Cognitive impairment (MMSE)



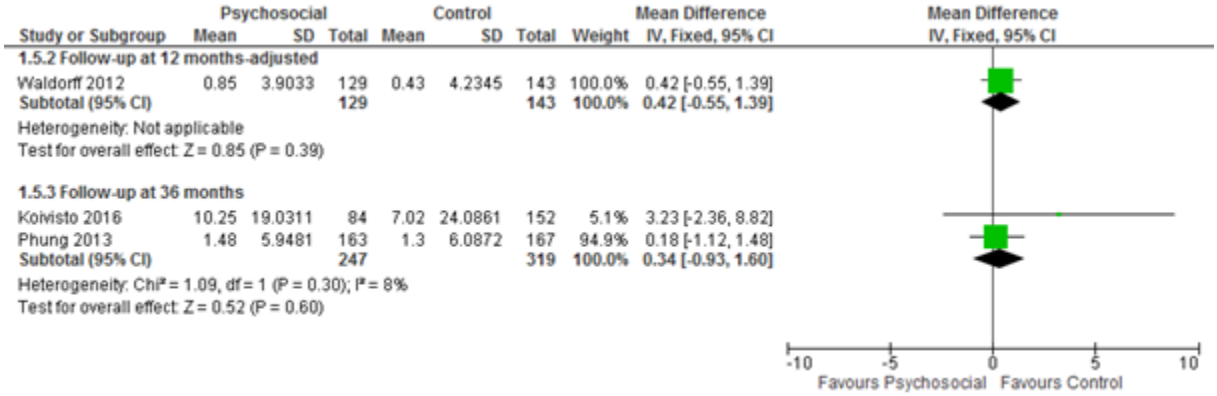
Source/Note: Standard deviations for individual studies were calculated from confidence intervals reported in papers. Waldorff 2012 and Phung 2013 are the 12-month and 36-month follow-up of the same RCT.

Activities of daily living (ADSC-ADL)



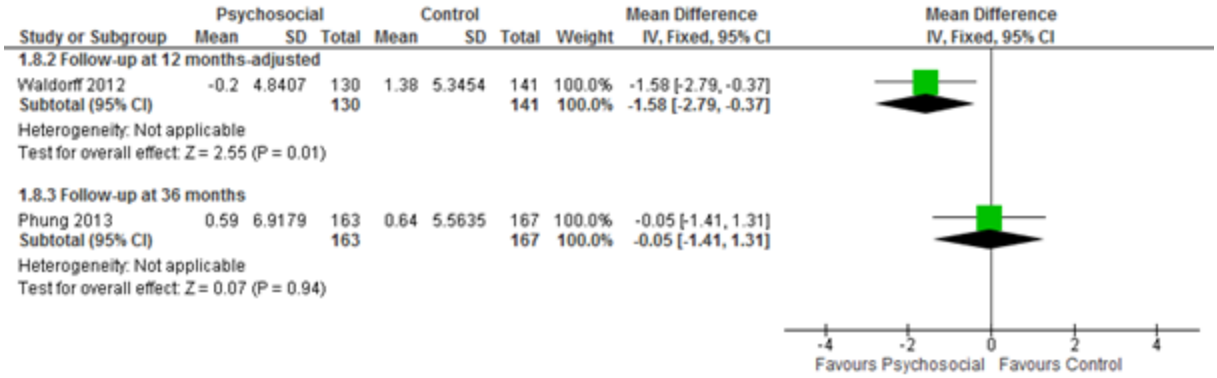
Source/Note: Standard deviations for individual studies were calculated from confidence intervals reported in papers. Waldorff 2012 and Phung 2013 are the 12-month and 36-month follow-up of the same RCT.

Behavioural disturbances (NPI or NPI-Q)



Source/Note: Standard deviations for individual studies were calculated from confidence intervals reported in papers. Waldorff 2012 and Phung 2013 are the 12-month and 36-month follow-up of the same RCT.

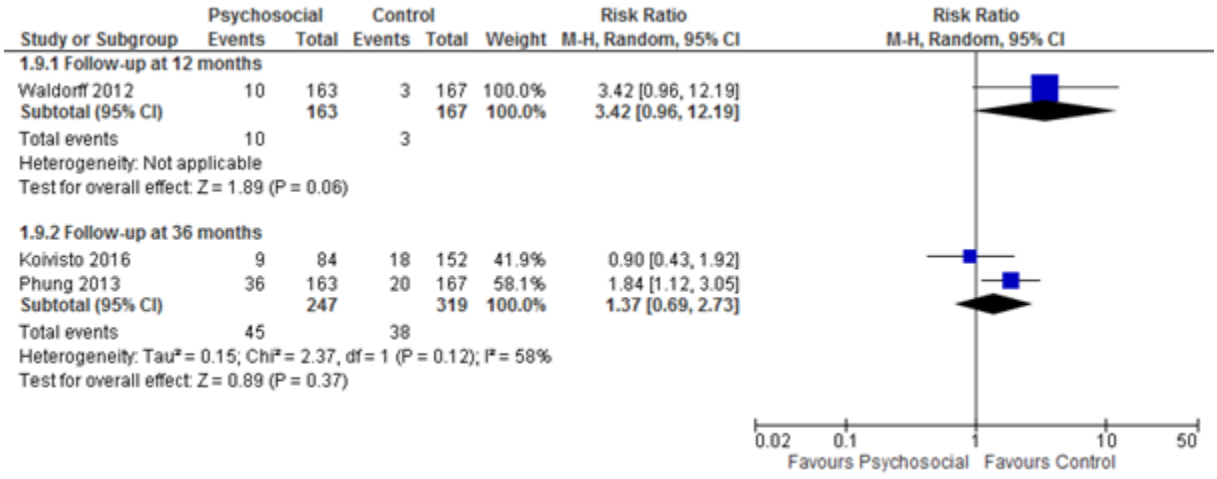
Depressive symptoms (CDS)



Source/Note: *Standard deviations for individual studies were calculated from confidence intervals reported in papers. Waldorff 2012 and Phung 2013 are the 12-month and 36-month follow-up of the same RCT.*

Nursing home placement

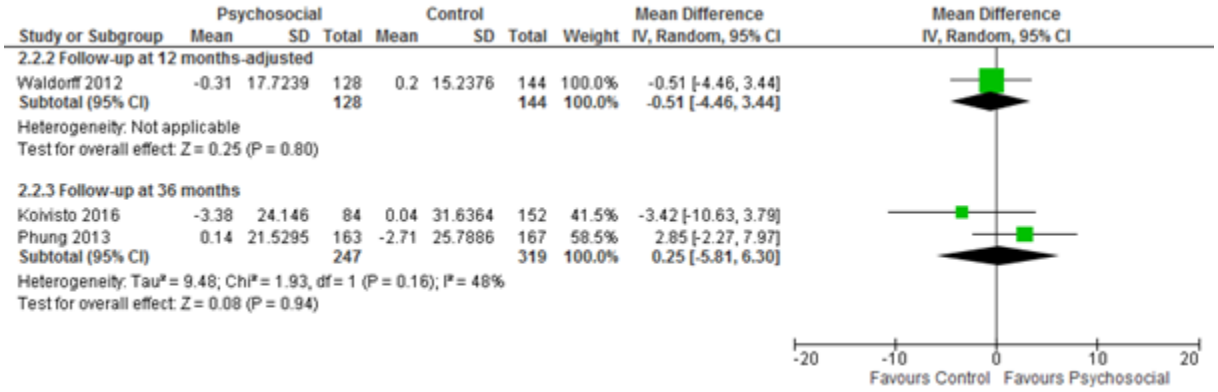
Mortality



Source/Note: *Waldorff 2012 and Phung 2013 are the 12-month and 36-month follow-up of the same RCT.*

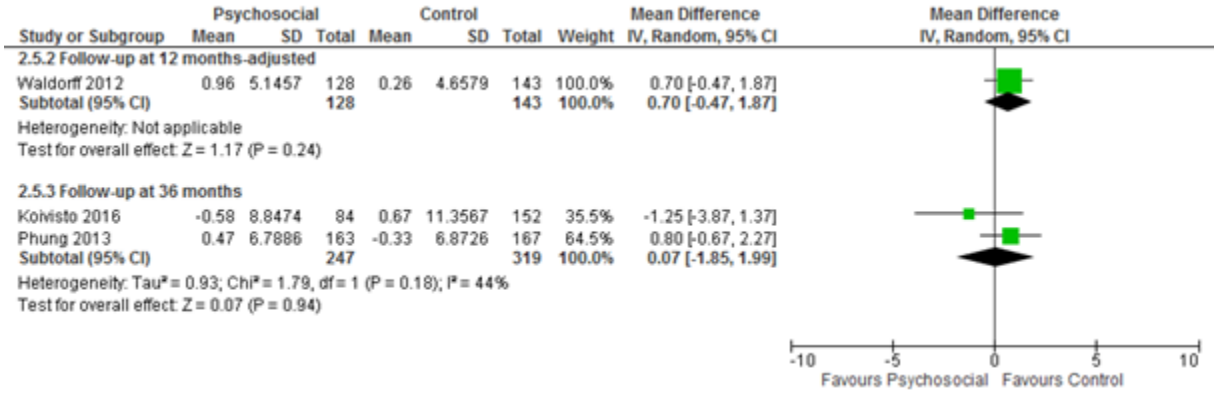
Outcomes in caregivers

Quality of life (QoL-VAS)



Source/Note: Standard deviations for individual studies were calculated from confidence intervals reported in papers. Waldorff 2012 and Phung 2013 are the 12-month and 36-month follow-up of the same RCT.

Depression (BDI or GDS)

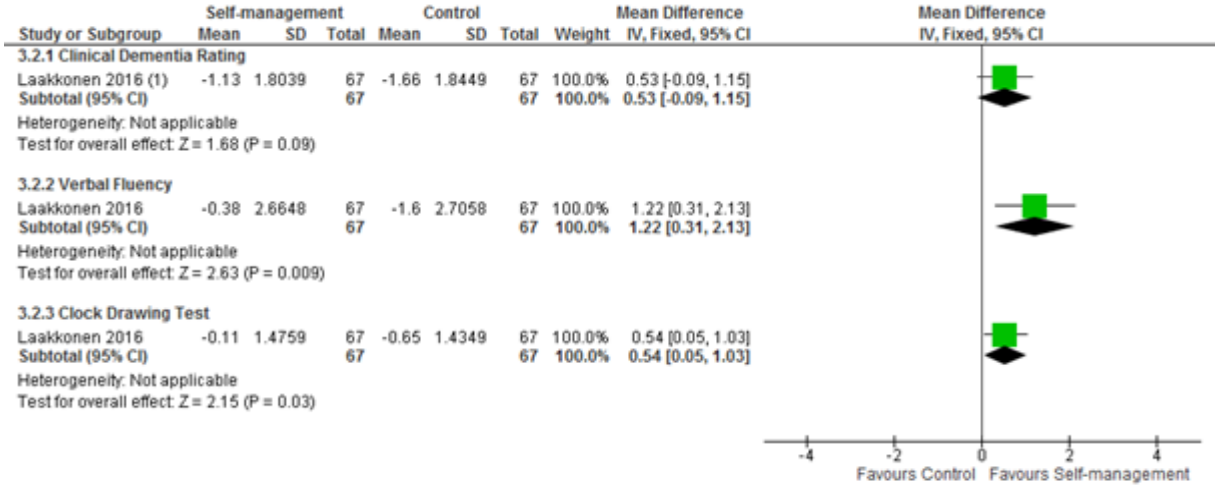


Source/Note: Standard deviations for individual studies were calculated from confidence intervals reported in papers. Waldorff 2012 and Phung 2013 are the 12-month and 36-month follow-up of the same RCT.

H.9.2.2 Self-management intervention

Outcomes in people with dementia

Cognitive function



Footnotes
(1) Results multiplied by -1 so direction of effect consistent with other cognitive outcomes

Source/Note: Standard deviations for individual studies were calculated from confidence intervals reported in papers.

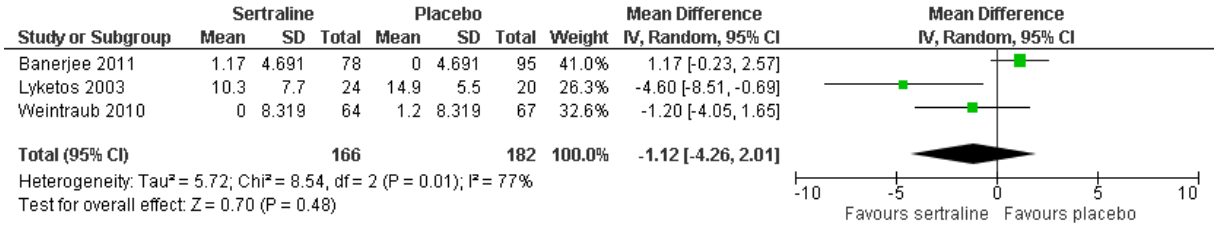
H.10 Managing non-cognitive symptoms

H.10.1.1 Interventions for treating illness emergent non-cognitive symptoms in people living with dementia

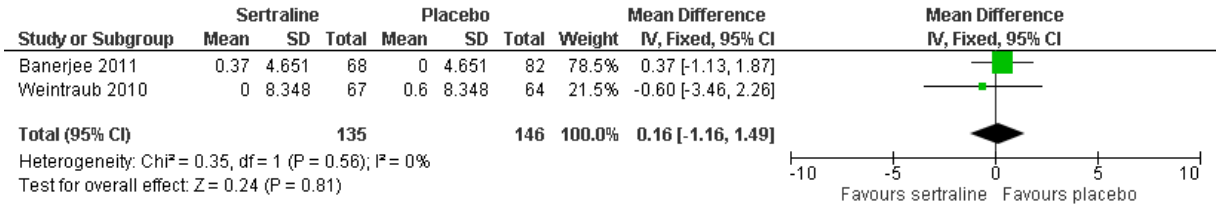
- What are the most effective pharmacological interventions for managing illness emergent non-cognitive symptoms, such as psychosis, depression, behavioural changes in people living with dementia?
- What are the most effective non-pharmacological interventions for managing illness emergent non-cognitive symptoms, such as psychosis, depression, behavioural changes in people living with dementia?

Sertraline vs placebo

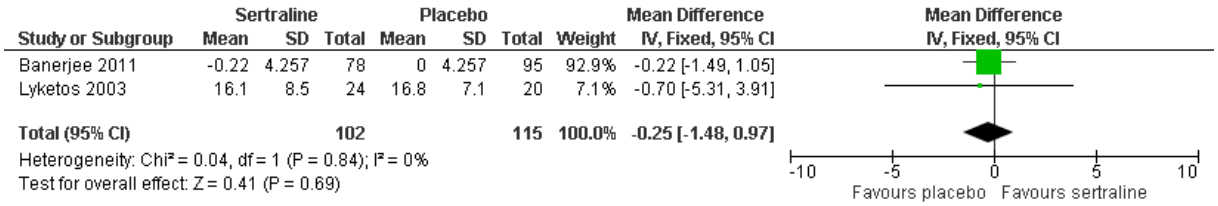
Cornell scale for depression in dementia (12-13 weeks)



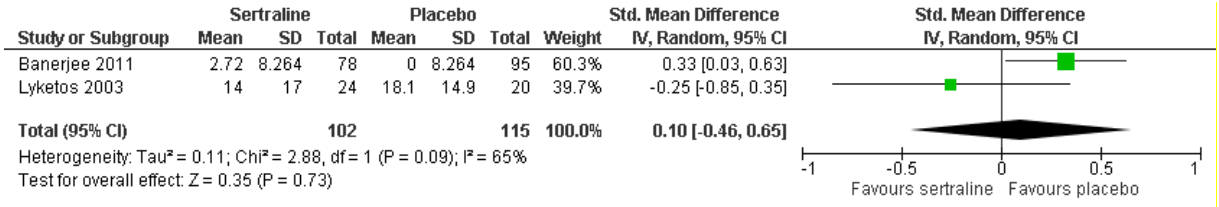
Cornell scale for depression in dementia (24-39 weeks)



MMSE (12-13 weeks)



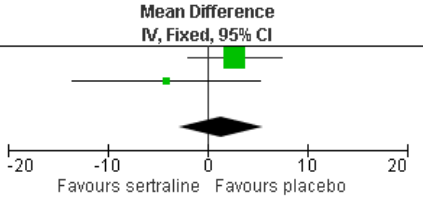
Activities of daily living (12-13 weeks)



NPI (12-13 weeks)

Study or Subgroup	Sertraline Mean	SD	Total	Placebo Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Banerjee 2011	2.72	15.794	78	0	15.794	95	79.9%	2.72 [-2.01, 7.45]
Lyketos 2003	14	17	24	18.1	14.9	20	20.1%	-4.10 [-13.53, 5.33]
Total (95% CI)			**102**			**115**	**100.0%**	**1.35 [-2.88, 5.58]**

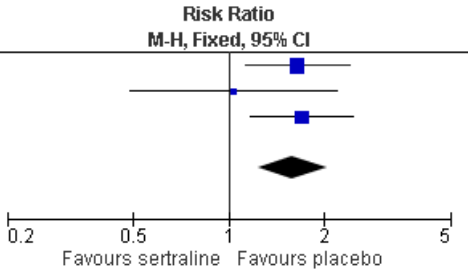
Heterogeneity: Chi² = 1.61, df = 1 (P = 0.21); I² = 38%
Test for overall effect: Z = 0.63 (P = 0.53)



Any adverse events

Study or Subgroup	Sertraline Events	Total	Placebo Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Banerjee 2011	46	107	29	111	47.7%	1.65 [1.12, 2.41]
Lyketos 2003	9	21	7	17	13.0%	1.04 [0.49, 2.21]
Weintraub 2010	39	63	24	66	39.3%	1.70 [1.17, 2.47]
Total (95% CI)		**191**		**194**	**100.0%**	**1.59 [1.24, 2.05]**
Total events	94		60			

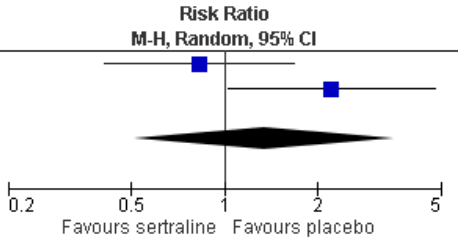
Heterogeneity: Chi² = 1.38, df = 2 (P = 0.50); I² = 0%
Test for overall effect: Z = 3.60 (P = 0.0003)



Serious adverse events

Study or Subgroup	Sertraline Events	Total	Placebo Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Banerjee 2011	12	107	15	111	51.1%	0.83 [0.41, 1.69]
Weintraub 2010	17	63	8	66	48.9%	2.23 [1.03, 4.79]
Total (95% CI)		**170**		**177**	**100.0%**	**1.34 [0.51, 3.54]**
Total events	29		23			

Heterogeneity: Tau² = 0.34; Chi² = 3.42, df = 1 (P = 0.06); I² = 71%
Test for overall effect: Z = 0.60 (P = 0.55)

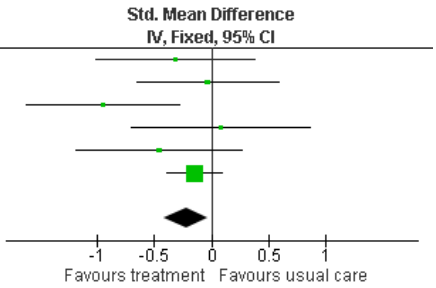


Psychological treatment vs usual care

Depression

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Burgener 2008	3.3	2.9	19	4.3	3.4	14	7.4%	-0.31 [-1.01, 0.38]
Burns 2005	5.4	2.6	20	5.5	3.1	20	9.3%	-0.03 [-0.65, 0.59]
Spector 2012	10.38	5.835	21	16.72	7.283	18	8.0%	-0.95 [-1.62, -0.28]
Stanley 2012	8.2	2.86	11	7.8	5.95	15	5.9%	0.08 [-0.70, 0.86]
Tappen 2009	15.13	9.54	15	19.13	7.37	15	6.8%	-0.46 [-1.18, 0.27]
Waldorff 2012	5.05	4.61	130	5.77	5.07	141	62.7%	-0.15 [-0.39, 0.09]
Total (95% CI)			**216**			**223**	**100.0%**	**-0.22 [-0.41, -0.03]**

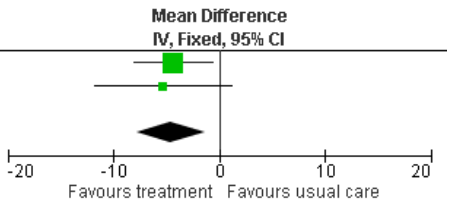
Heterogeneity: Chi² = 6.33, df = 5 (P = 0.28); I² = 21%
Test for overall effect: Z = 2.30 (P = 0.02)



Anxiety (RAID)

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Spector 2012	13.57	6.038	21	17.89	5.9	18	74.8%	-4.32 [-8.07, -0.57]
Stanley 2012	11.9	6.92	11	17.2	9.89	15	25.2%	-5.30 [-11.76, 1.16]
Total (95% CI)			**32**			**33**	**100.0%**	**-4.57 [-7.81, -1.32]**

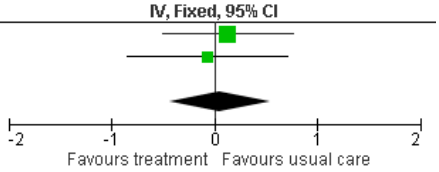
Heterogeneity: Chi² = 0.07, df = 1 (P = 0.80); I² = 0%
Test for overall effect: Z = 2.76 (P = 0.006)



Anxiety (self-ratings)

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Spector 2012	7.25	3.338	21	6.78	3.843	18	60.4%	0.13 [-0.50, 0.76]
Stanley 2012	3.9	3.57	11	4.2	5.2	15	39.6%	-0.06 [-0.84, 0.71]
Total (95% CI)			**32**			**33**	**100.0%**	**0.05 [-0.44, 0.54]**

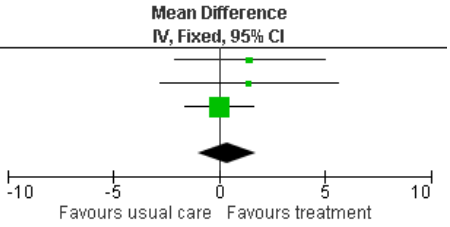
Heterogeneity: Chi² = 0.14, df = 1 (P = 0.71); I² = 0%
Test for overall effect: Z = 0.21 (P = 0.83)



Quality of life (self-rating)

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Spector 2012	34.05	5.052	21	32.61	6.118	18	15.0%	1.44 [-2.12, 5.00]
Stanley 2012	36.5	4.28	11	35.1	6.64	15	10.8%	1.40 [-2.81, 5.61]
Waldorff 2012	38.2	6.6	129	38.2	6.8	140	74.2%	0.00 [-1.60, 1.60]
Total (95% CI)			**161**			**173**	**100.0%**	**0.37 [-1.01, 1.75]**

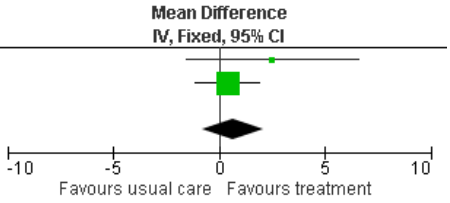
Heterogeneity: Chi² = 0.78, df = 2 (P = 0.68); I² = 0%
Test for overall effect: Z = 0.52 (P = 0.60)



Quality of life (proxy-rating)

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Spector 2012	34.25	6.086	21	31.72	6.789	18	12.3%	2.53 [-1.55, 6.61]
Waldorff 2012	32.6	6.2	130	32.2	6.7	144	87.7%	0.40 [-1.13, 1.93]
Total (95% CI)			**151**			**162**	**100.0%**	**0.66 [-0.77, 2.09]**

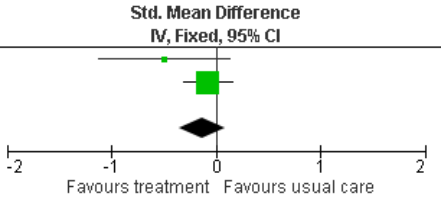
Heterogeneity: Chi² = 0.92, df = 1 (P = 0.34); I² = 0%
Test for overall effect: Z = 0.91 (P = 0.36)



Activities of daily living

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Burns 2005	7.5	4.4	20	9.9	5.1	20	12.4%	-0.49 [-1.12, 0.14]
Waldorff 2012	55.3	15.1	130	56.6	17.8	143	87.6%	-0.08 [-0.32, 0.16]
Total (95% CI)			**150**			**163**	**100.0%**	**-0.13 [-0.35, 0.09]**

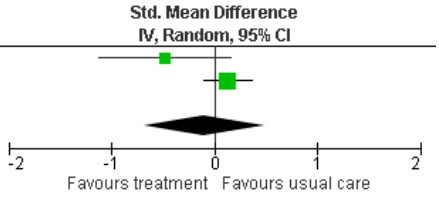
Heterogeneity: Chi² = 1.46, df = 1 (P = 0.23); I² = 32%
Test for overall effect: Z = 1.15 (P = 0.25)



Neuropsychiatric symptoms

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Spector 2012	20.71	18.03	21	28.61	13.69	18	37.7%	-0.48 [-1.12, 0.16]
Waldorff 2012	4.79	3.82	129	4.24	4.36	143	62.3%	0.13 [-0.10, 0.37]
Total (95% CI)			**150**			**161**	**100.0%**	**-0.10 [-0.68, 0.48]**

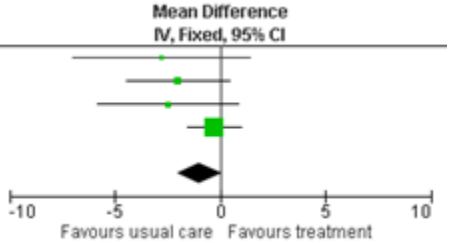
Heterogeneity: Tau² = 0.13; Chi² = 3.09, df = 1 (P = 0.08); I² = 68%
Test for overall effect: Z = 0.33 (P = 0.74)



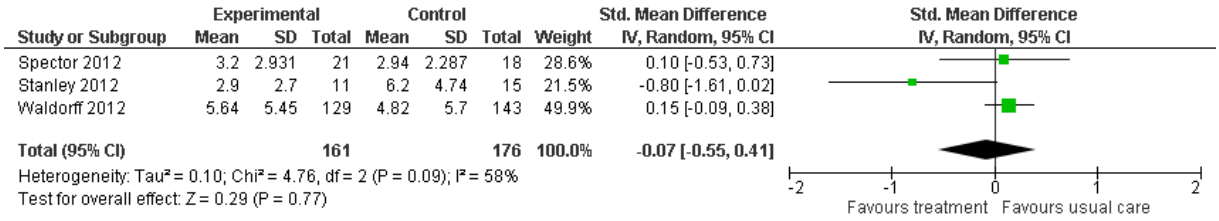
MMSE

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Burgener 2008	22.4	7.6	14	25.2	3.1	19	6.2%	-2.80 [-7.02, 1.42]
Burns 2005	21.8	3.9	20	23.8	4.1	20	17.8%	-2.00 [-4.48, 0.48]
Spector 2012	19.83	5.973	18	22.3	4.497	21	9.7%	-2.47 [-5.83, 0.89]
Waldorff 2012	22.2	6.6	139	22.5	3.9	130	66.3%	-0.30 [-1.59, 0.99]
Total (95% CI)			**191**			**190**	**100.0%**	**-0.97 [-2.01, 0.08]**

Heterogeneity: Chi² = 3.19, df = 3 (P = 0.36); I² = 6%
Test for overall effect: Z = 1.81 (P = 0.07)



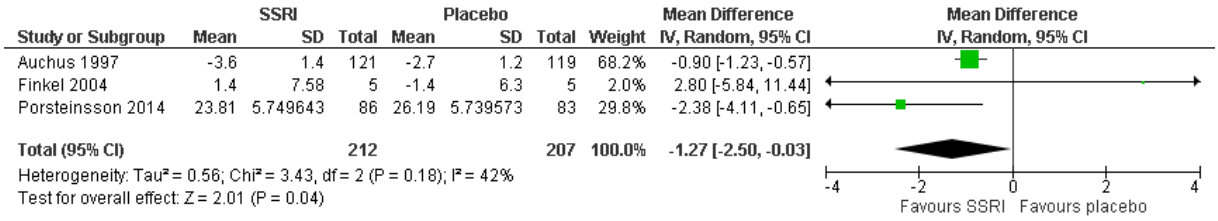
Caregiver depression



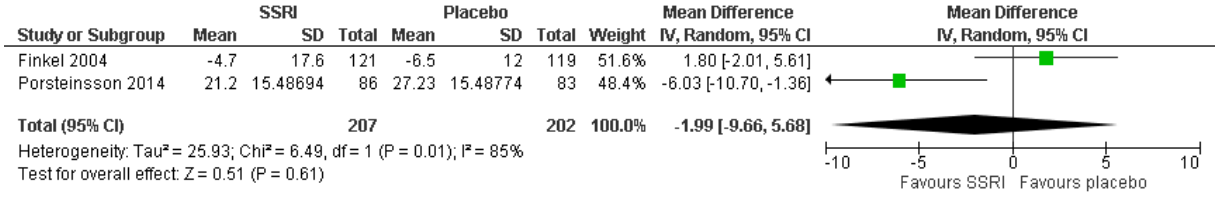
Antidepressants for other non-cognitive symptoms

SSRIs vs placebo

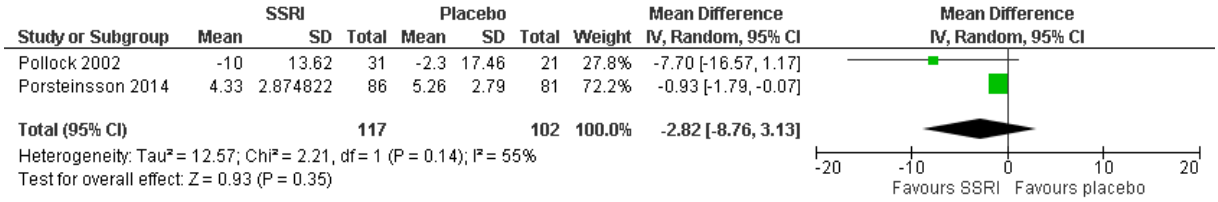
CMAI



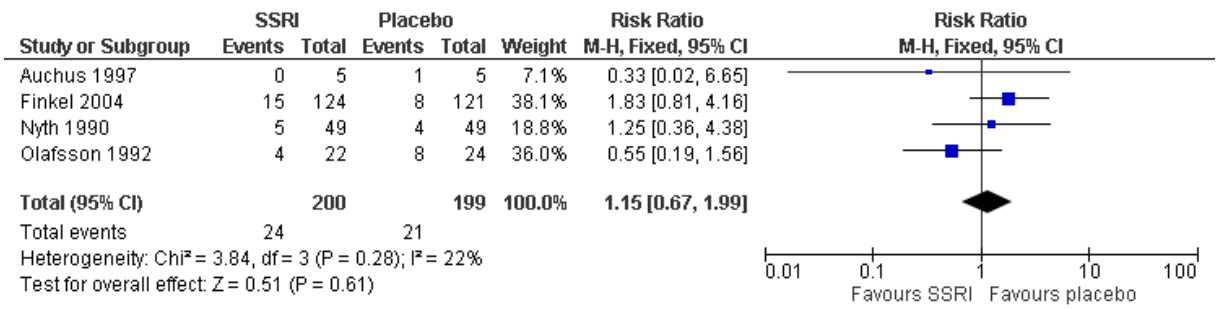
NPI



NBRS

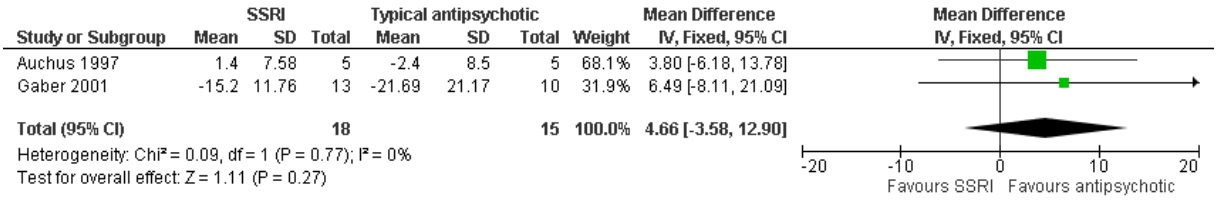


Withdrawal due to adverse events



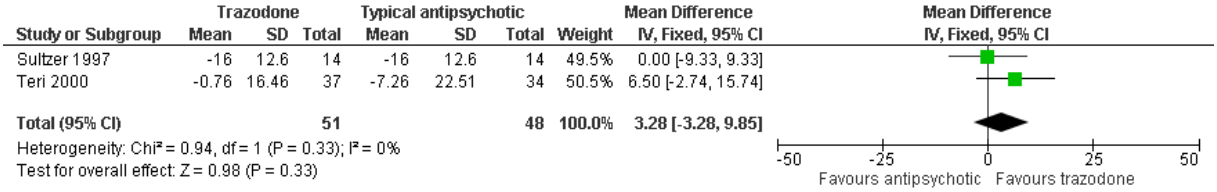
SSRIs vs typical antipsychotics

CMAI



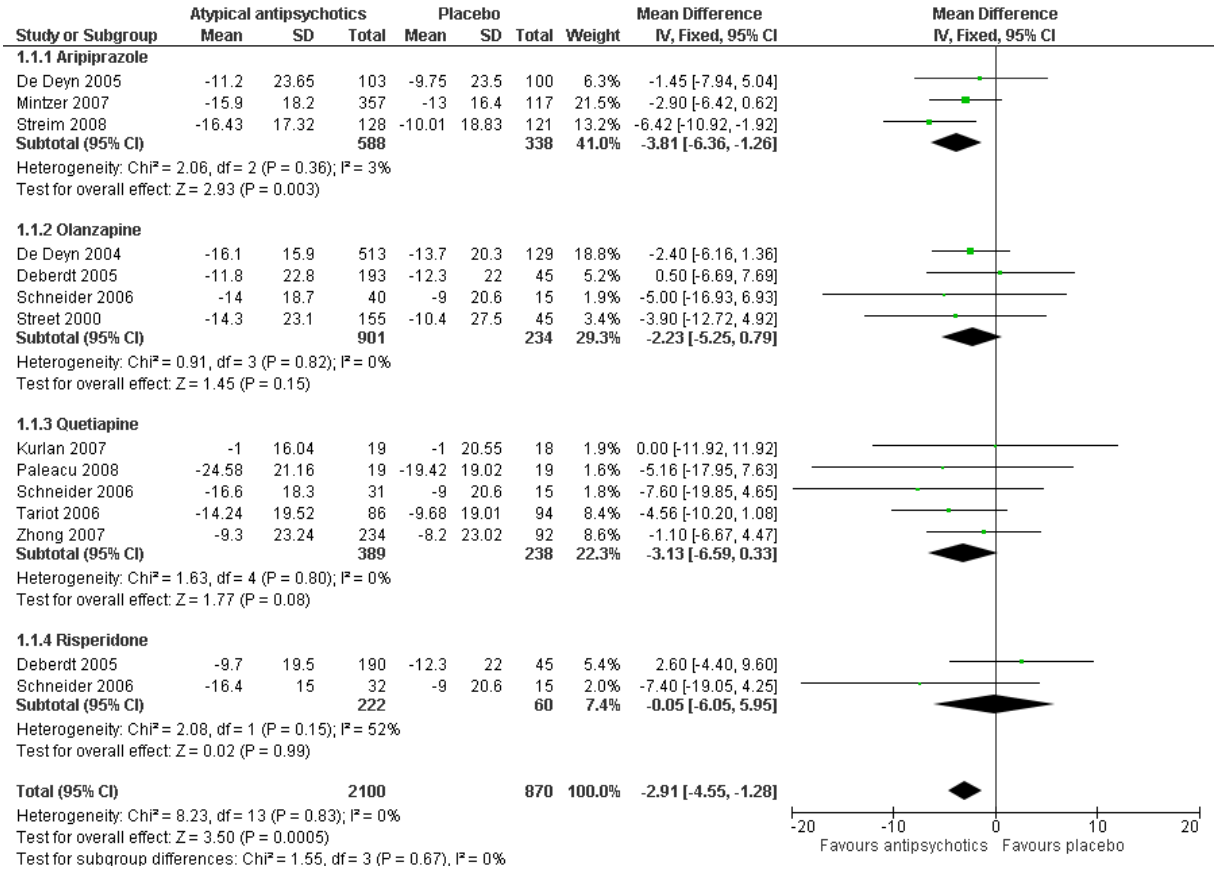
Trazodone vs typical antipsychotics

CMAI

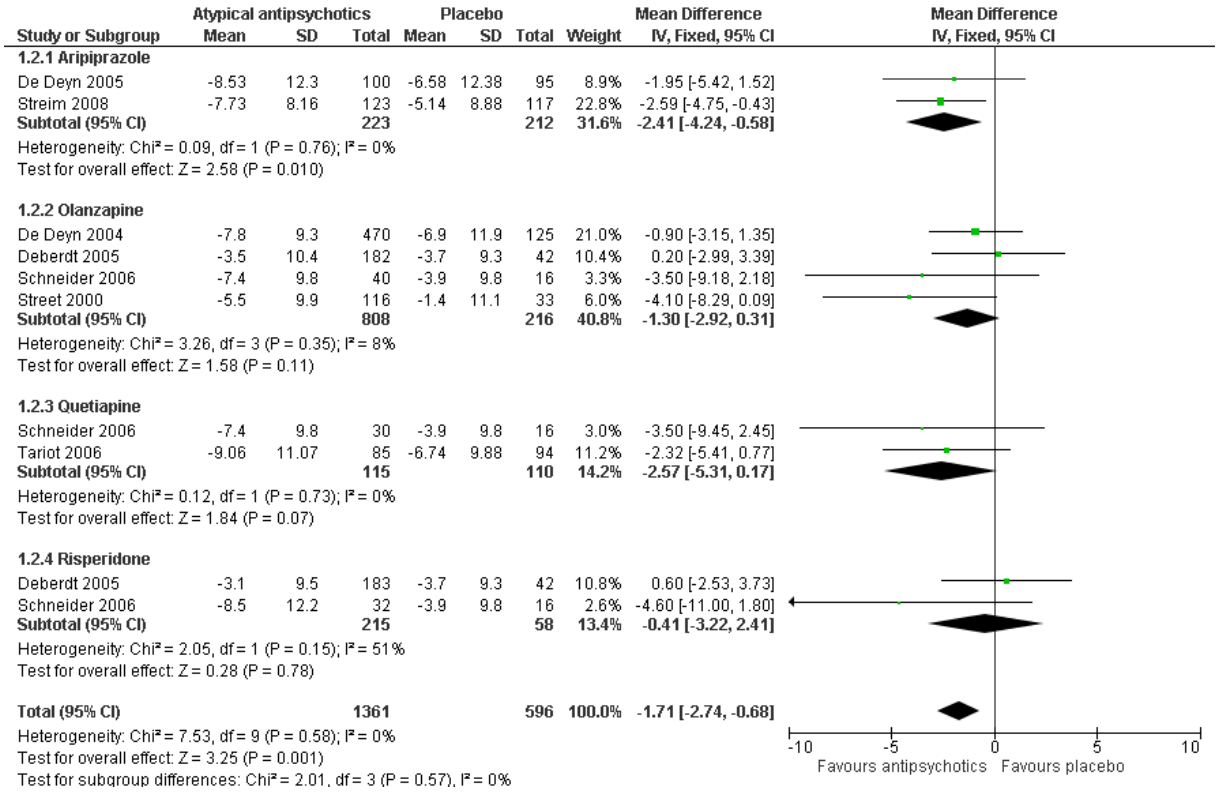


Atypical antipsychotics vs placebo

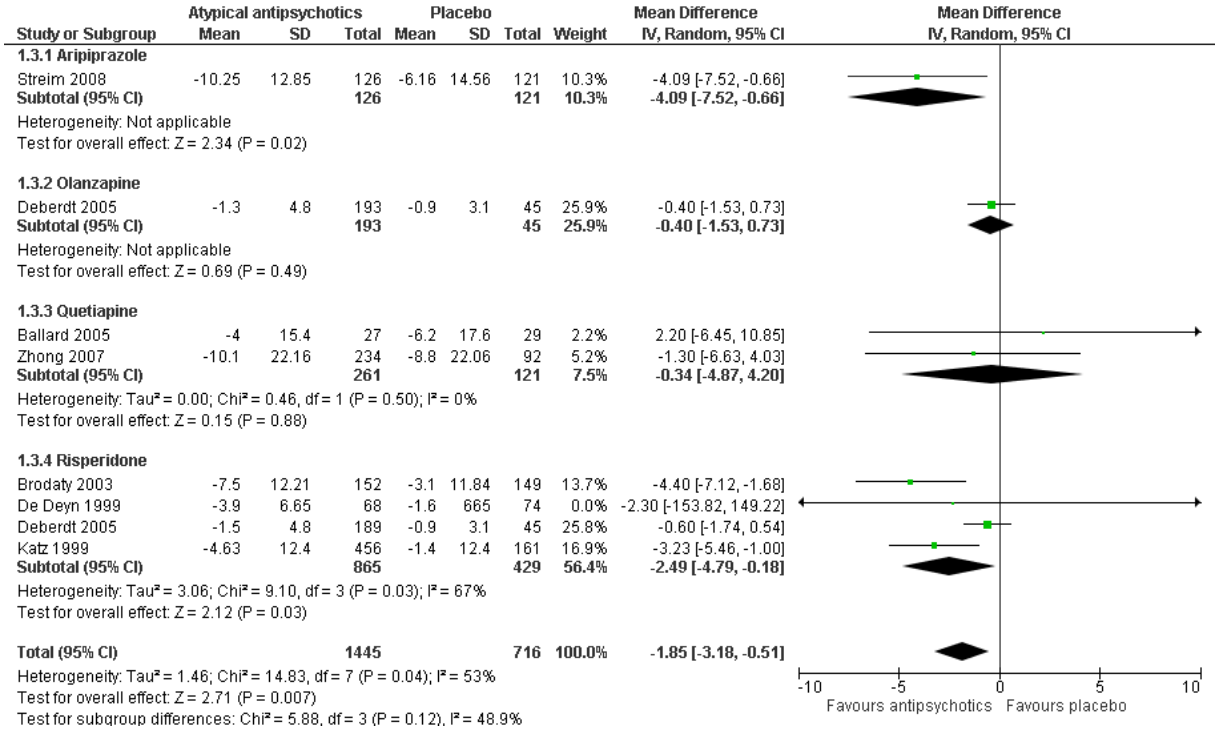
NPI



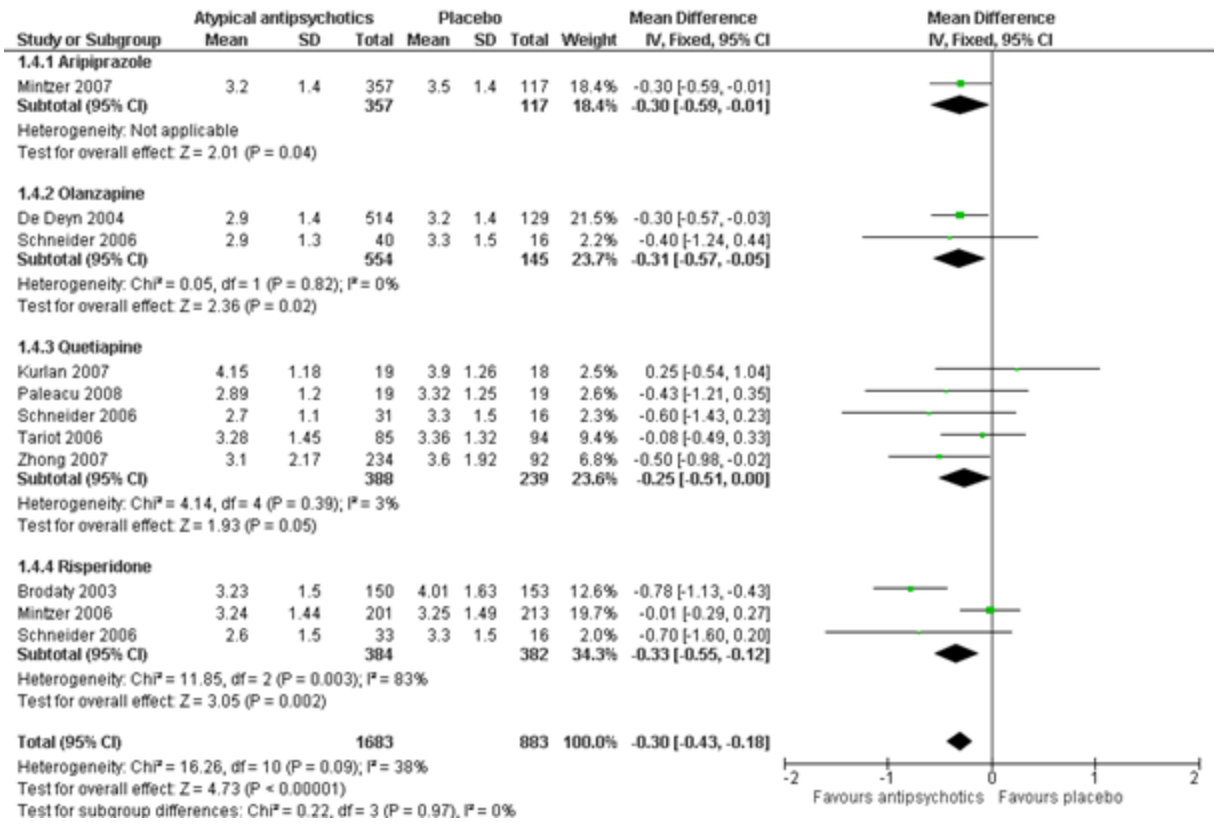
BPRS



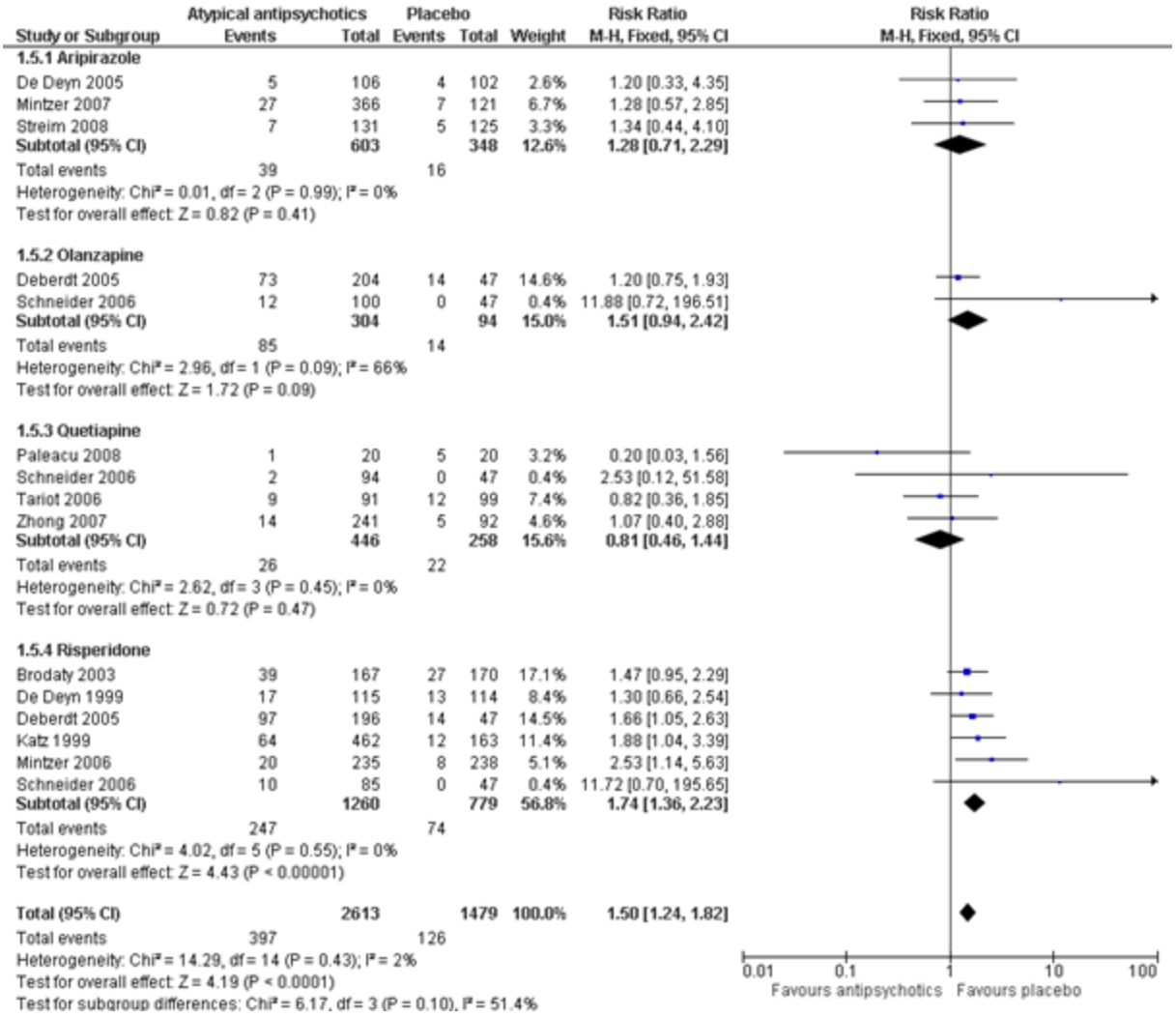
CMAI



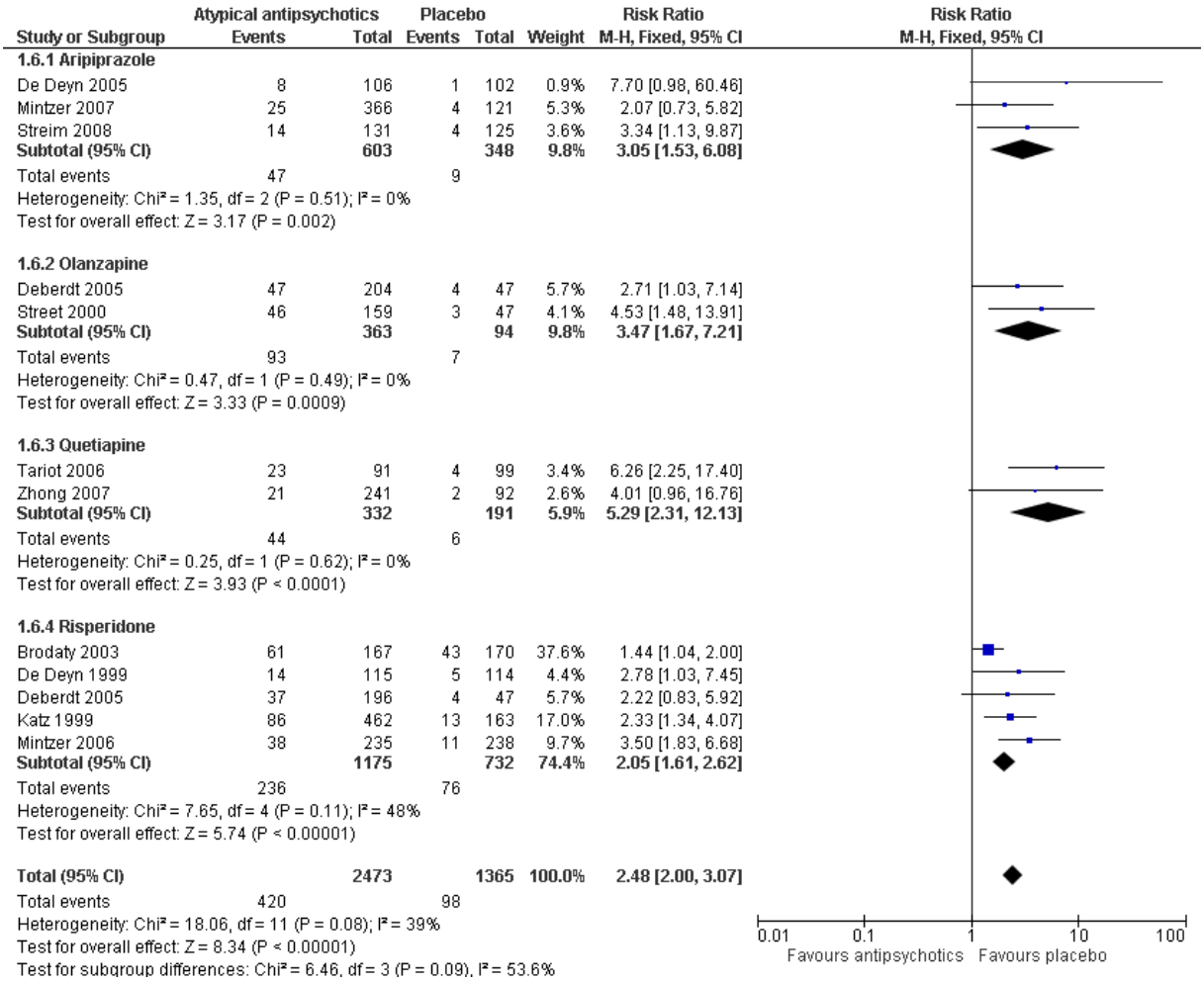
CGI-C



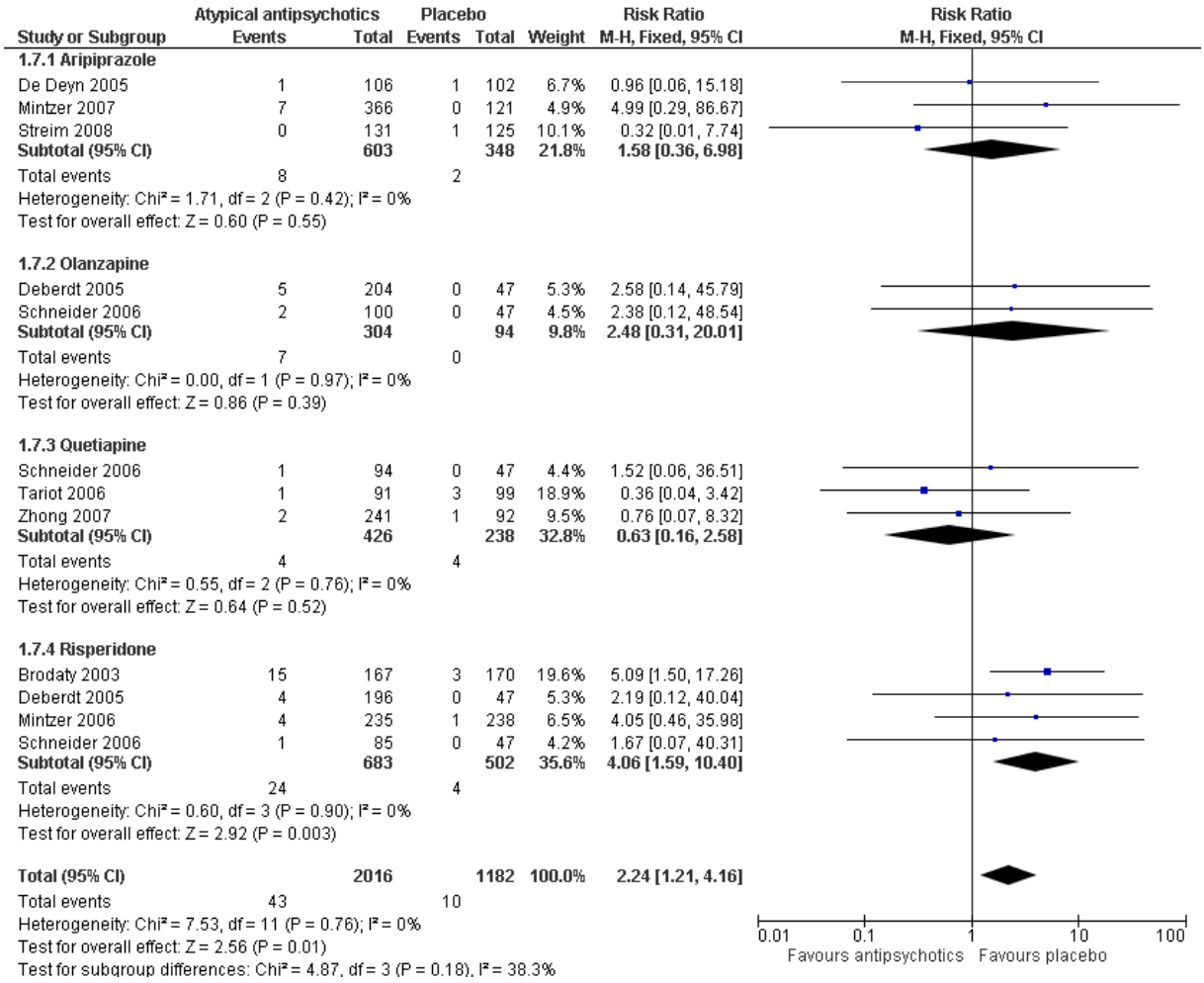
Adverse events – extrapyramidal



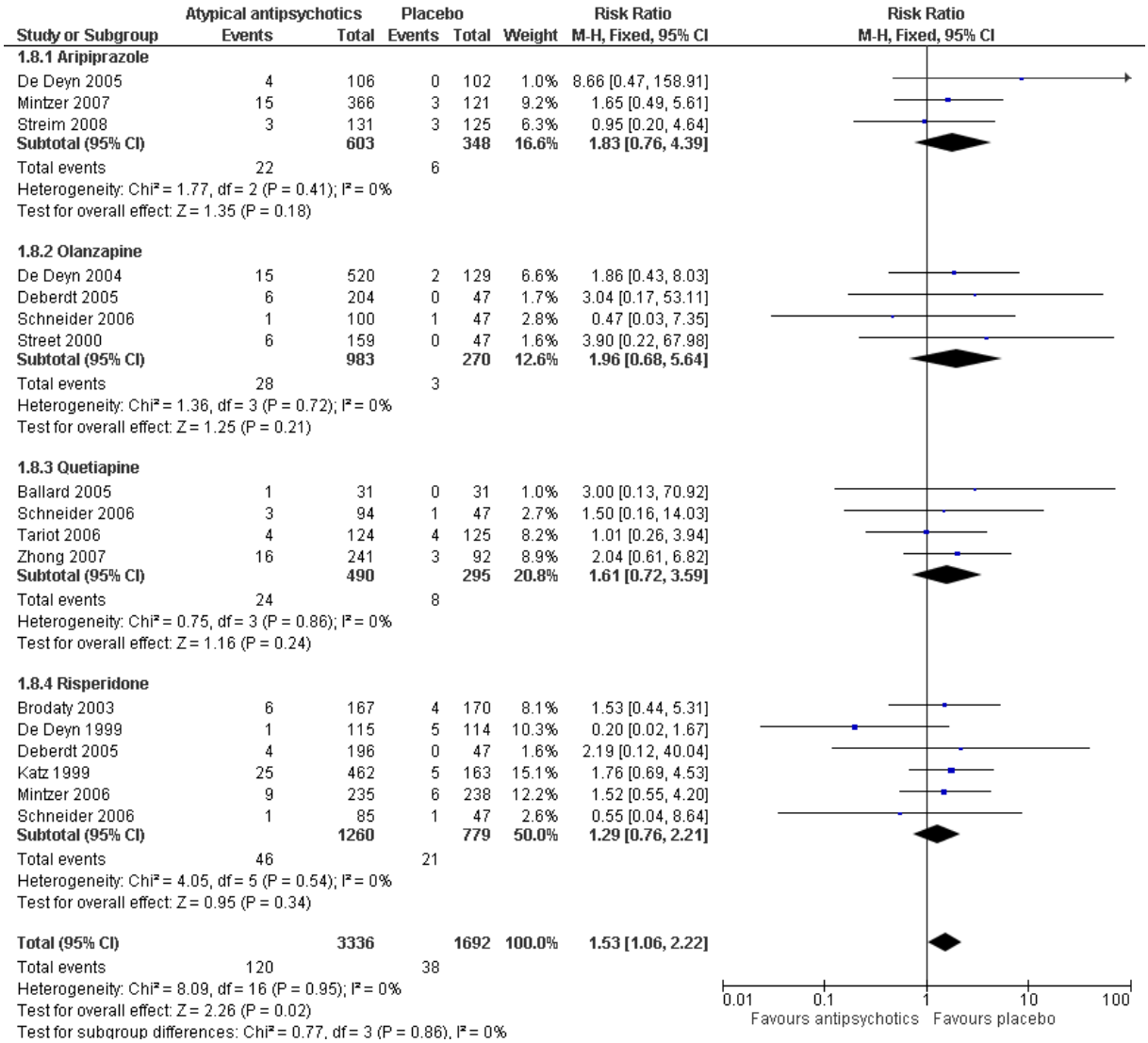
Adverse events – somnolence



Adverse events – cerebrovascular

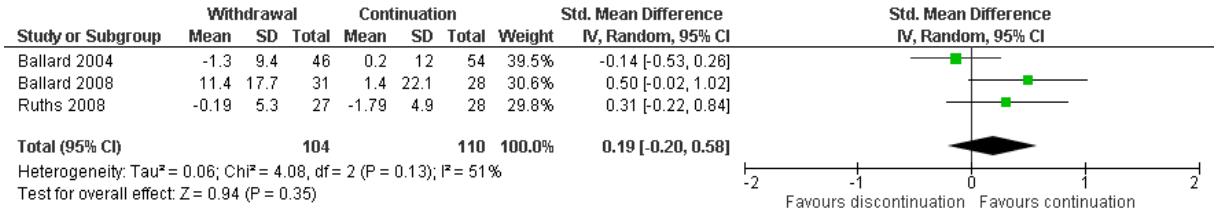


Adverse events – mortality



Antipsychotic withdrawal

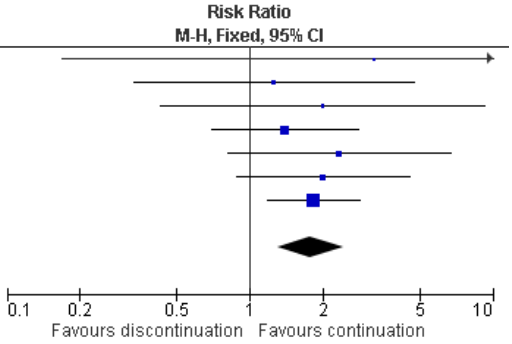
BPSD severity



BPSD worsening

Study or Subgroup	Withdrawal Events	Withdrawal Total	Continuation Events	Continuation Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Ballard 2004	2	22	0	14	1.5%	3.26 [0.17, 63.30]
Bridges-Parlet 1997	4	17	3	16	7.9%	1.25 [0.33, 4.76]
Devenand 2011	4	15	2	15	5.1%	2.00 [0.43, 9.32]
Devenand 2012	12	36	11	46	24.6%	1.39 [0.70, 2.79]
Ruths 2004	9	27	4	28	10.0%	2.33 [0.81, 6.68]
Ruths 2008	8	10	4	10	10.2%	2.00 [0.88, 4.54]
van Reekum 2002	23	40	22	70	40.7%	1.83 [1.18, 2.83]
Total (95% CI)		**167**		**199**	**100.0%**	**1.78 [1.30, 2.42]**
Total events	62		46			

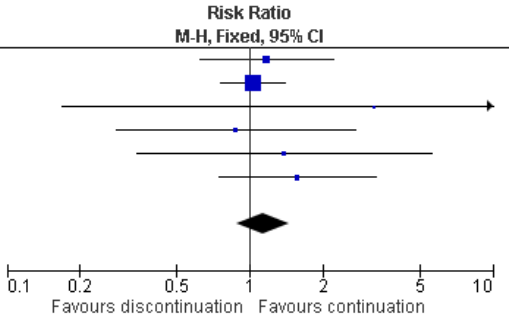
Heterogeneity: Chi² = 1.27, df = 6 (P = 0.97); I² = 0%
Test for overall effect: Z = 3.63 (P = 0.0003)



Early study terminations

Study or Subgroup	Withdrawal Events	Withdrawal Total	Continuation Events	Continuation Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Ballard 2004	14	46	14	54	20.0%	1.17 [0.63, 2.20]
Ballard 2008	37	64	36	64	55.9%	1.03 [0.76, 1.39]
Bridges-Parlet 1997	2	22	0	14	0.9%	3.26 [0.17, 63.30]
Devenand 2012	4	40	8	70	9.0%	0.88 [0.28, 2.72]
Ruths 2008	4	27	3	28	4.6%	1.38 [0.34, 5.61]
van Reekum 2002	10	17	6	16	9.6%	1.57 [0.74, 3.31]
Total (95% CI)		**216**		**246**	**100.0%**	**1.13 [0.88, 1.46]**
Total events	71		67			

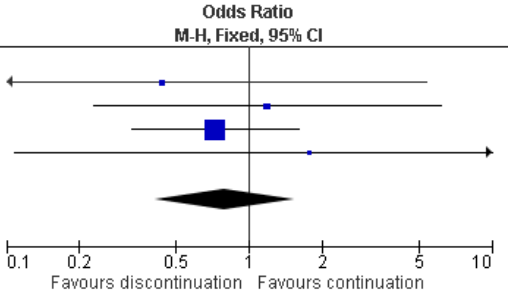
Heterogeneity: Chi² = 1.91, df = 5 (P = 0.86); I² = 0%
Test for overall effect: Z = 0.96 (P = 0.34)



Mortality

Study or Subgroup	Withdrawal Events	Withdrawal Total	Continuation Events	Continuation Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Ballard 2004	0	22	0	14		Not estimable
Ballard 2008	1	17	2	16	9.8%	0.44 [0.04, 5.36]
Bridges-Parlet 1997	3	46	3	54	13.0%	1.19 [0.23, 6.18]
Devenand 2012	15	64	19	64	73.6%	0.73 [0.33, 1.60]
van Reekum 2002	1	40	1	70	3.6%	1.77 [0.11, 29.08]
Total (95% CI)		**189**		**218**	**100.0%**	**0.79 [0.41, 1.54]**
Total events	20		25			

Heterogeneity: Chi² = 0.81, df = 3 (P = 0.85); I² = 0%
Test for overall effect: Z = 0.68 (P = 0.50)

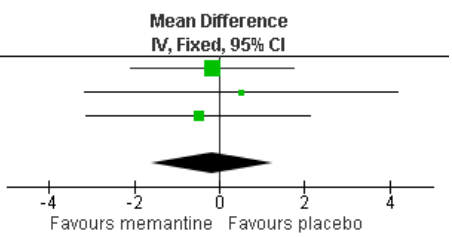


Memantine vs placebo (mild Alzheimer's disease)

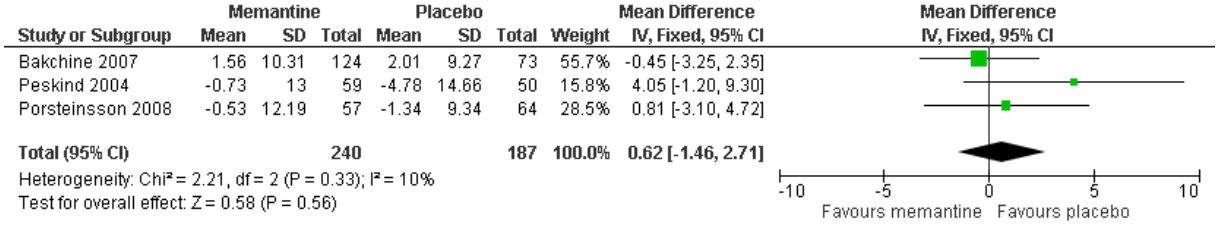
ADAS-cog

Study or Subgroup	Memantine Mean	Memantine SD	Memantine Total	Placebo Mean	Placebo SD	Placebo Total	Weight	Mean Difference IV, Fixed, 95% CI
Bakchine 2007	-2.79	7.4	125	-2.61	6.1	72	55.6%	-0.18 [-2.10, 1.74]
Peskind 2004	-1.44	10.3	59	-1.95	9.14	48	15.0%	0.51 [-3.18, 4.20]
Porsteinsson 2008	-1.98	7.66	57	-1.49	7.04	64	29.4%	-0.49 [-3.12, 2.14]
Total (95% CI)			**241**			**184**	**100.0%**	**-0.17 [-1.60, 1.26]**

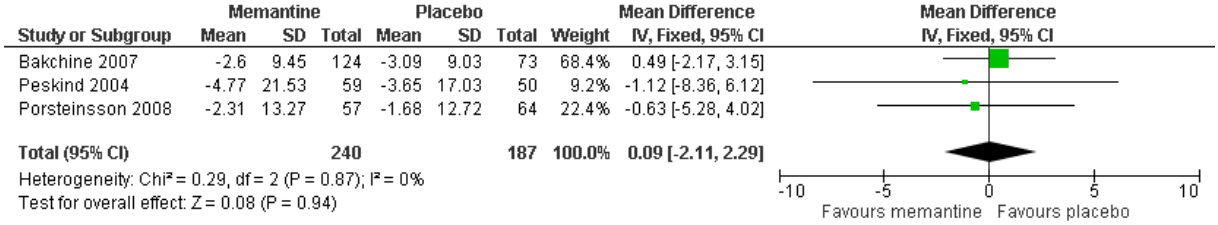
Heterogeneity: Chi² = 0.19, df = 2 (P = 0.91); I² = 0%
Test for overall effect: Z = 0.23 (P = 0.82)



ADCS-ADL



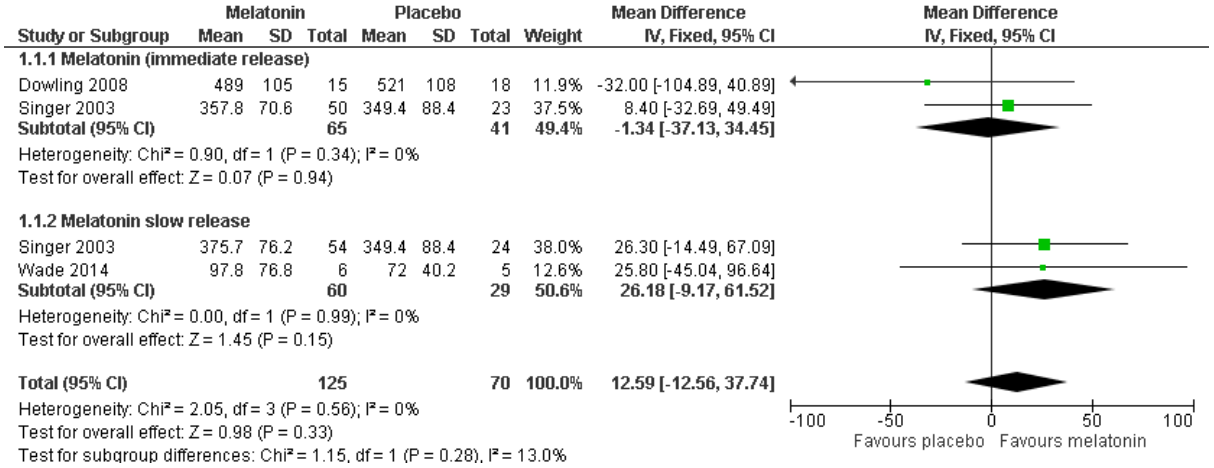
NPI



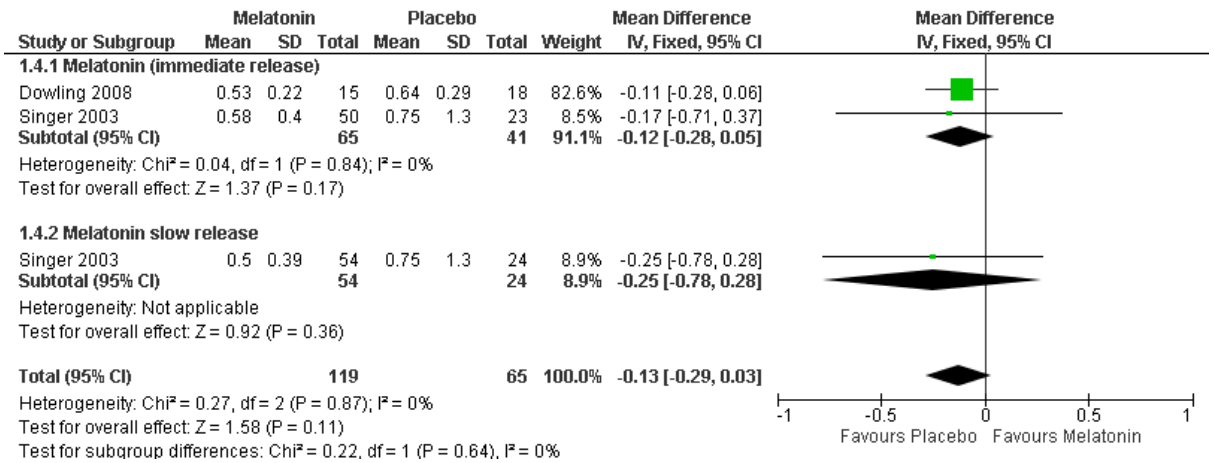
Sleep problems

Melatonin vs placebo

Total night-time sleep time (minutes)

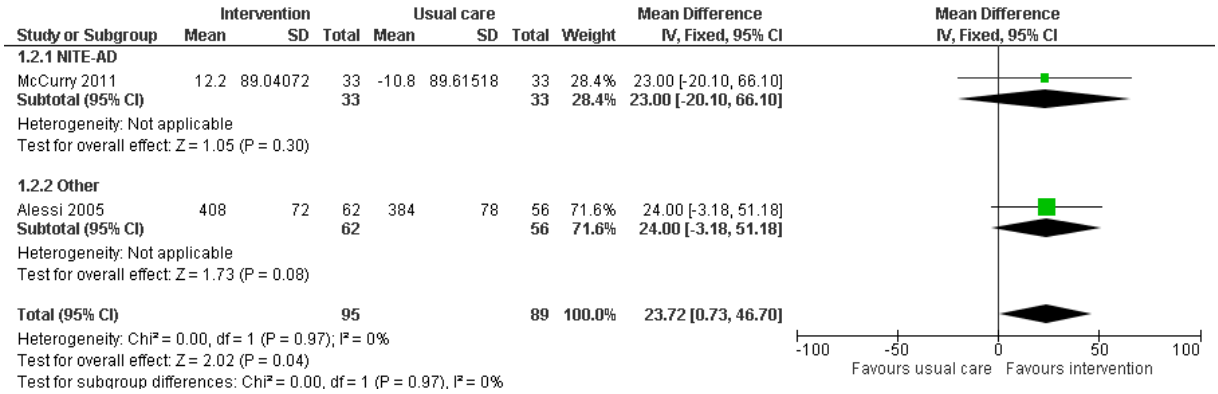


Ratio of daytime sleep to night-time sleep

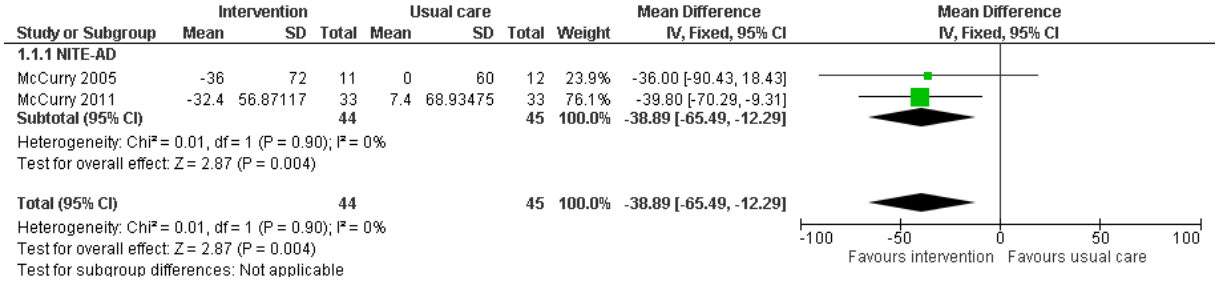


Multicomponent non-pharmacological interventions vs usual care

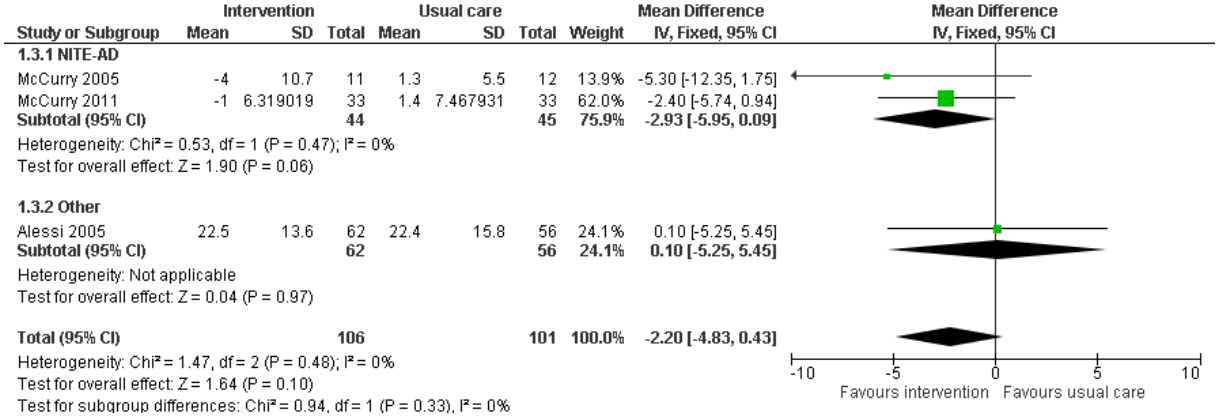
Total night-time sleep (minutes)



Total night-time awake (minutes)



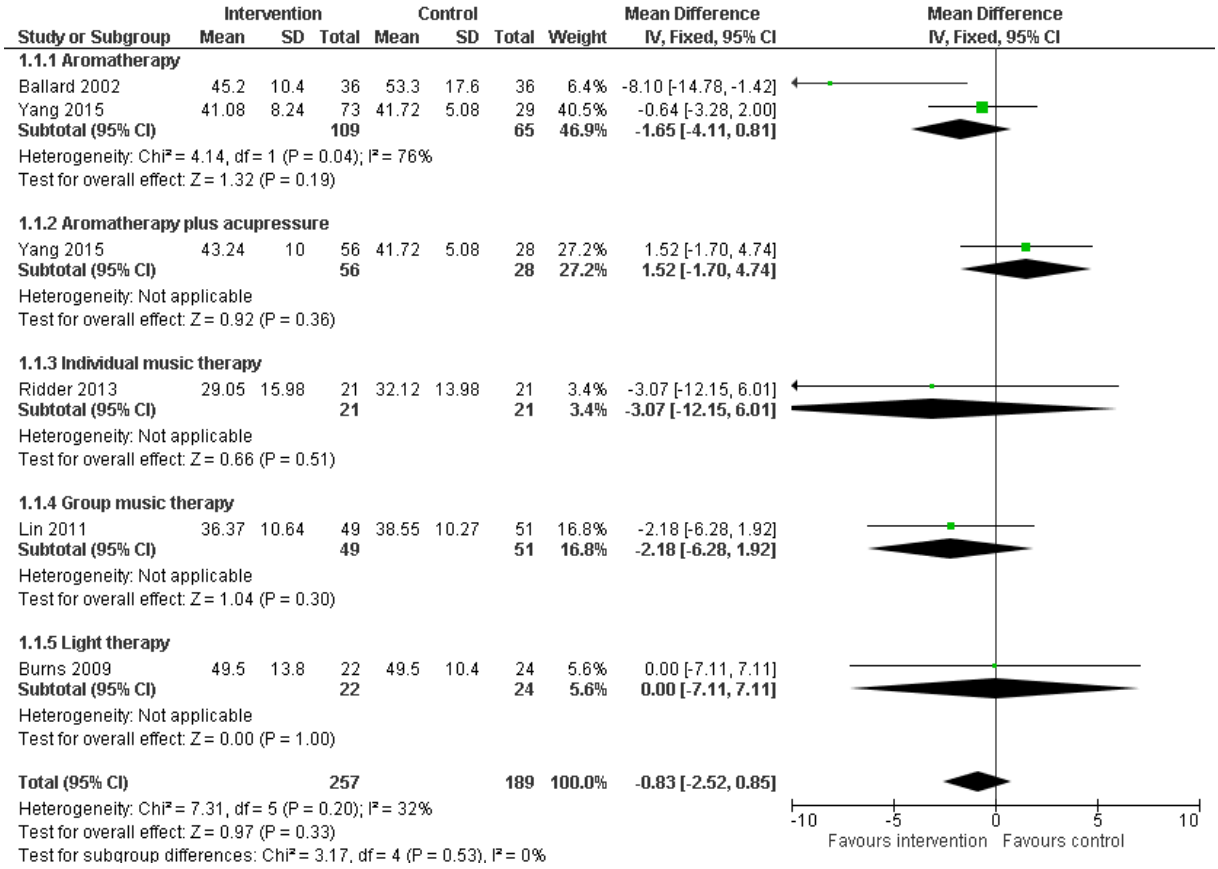
Number of night awakenings



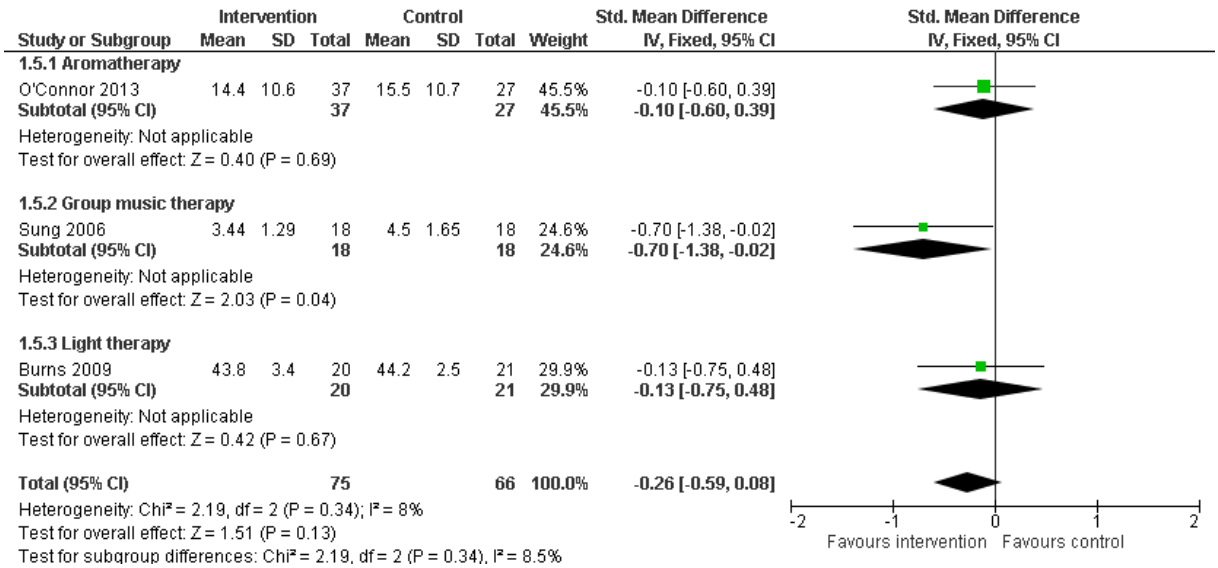
Non-pharmacological management of agitation, aggression and apathy

Sensory interventions

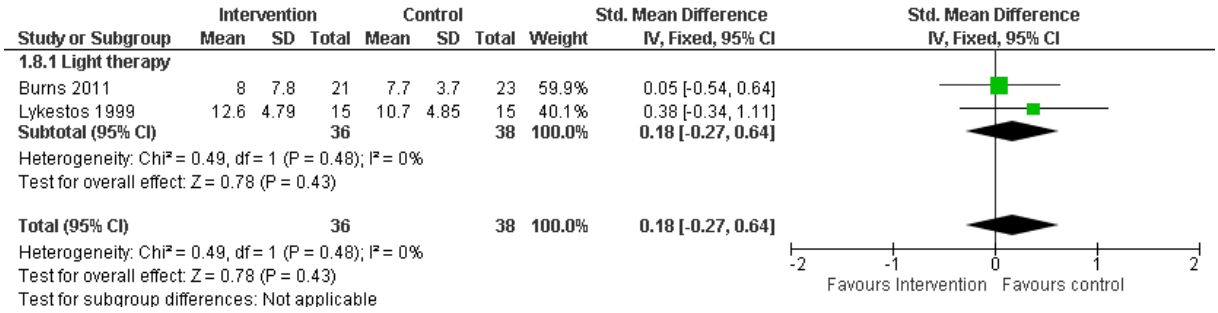
CMAI



Agitated behaviours

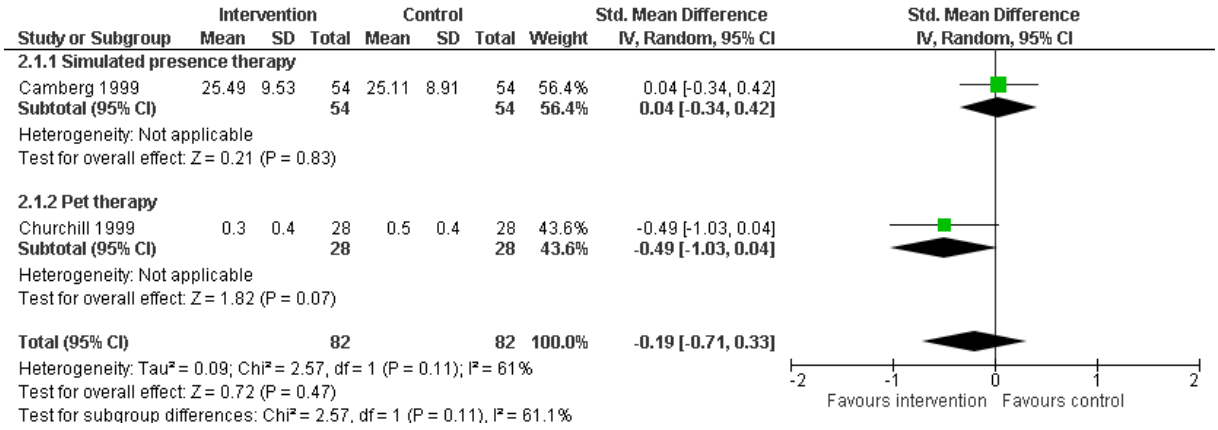


BPSD



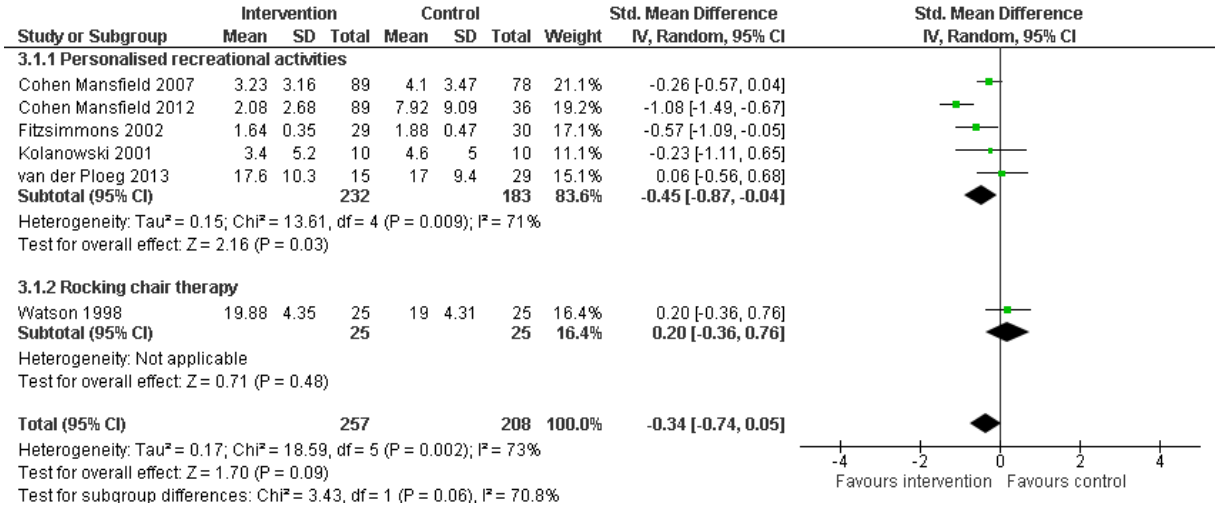
Social contact

Agitation

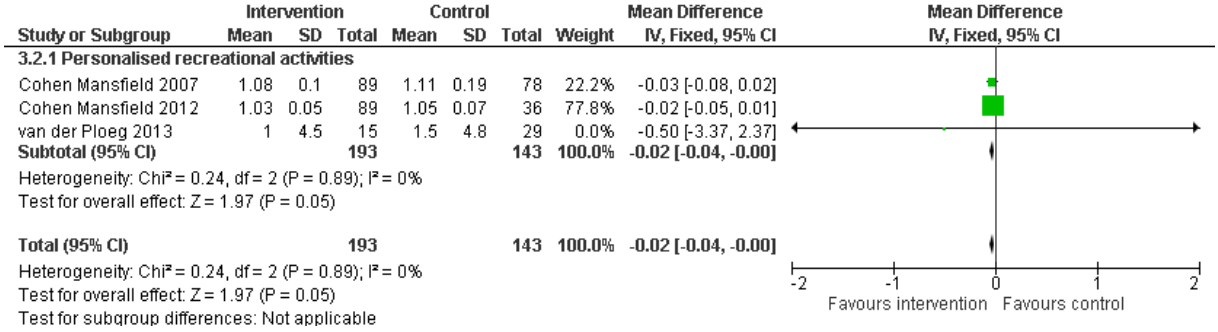


Activities

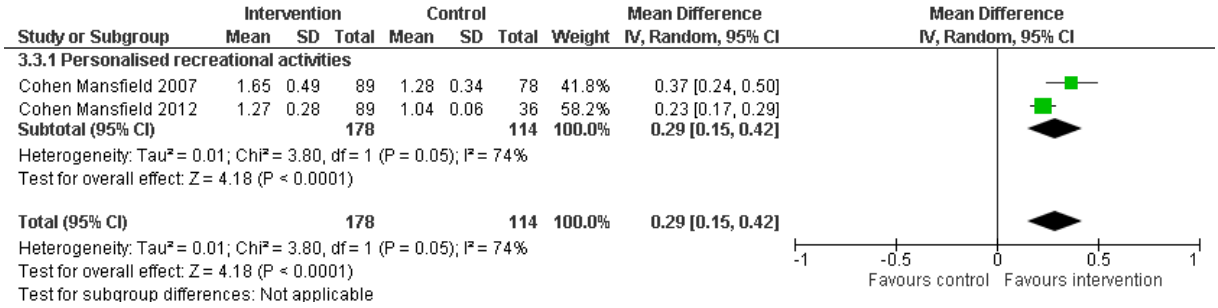
Agitation



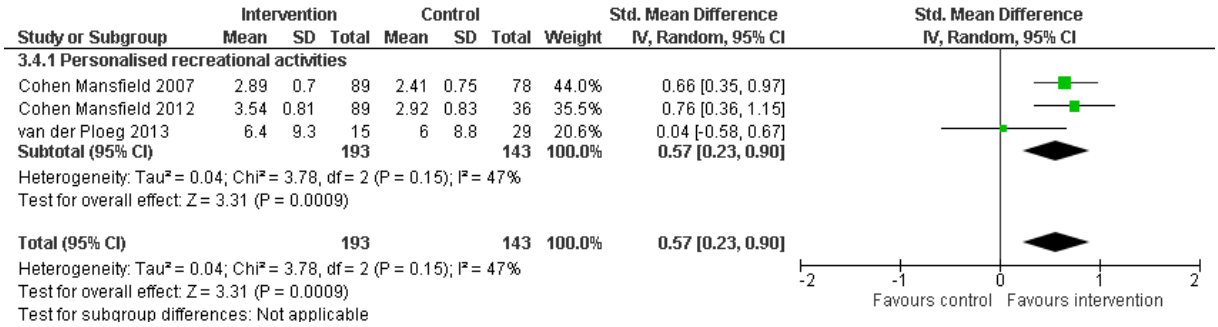
Negative affect



Pleasure

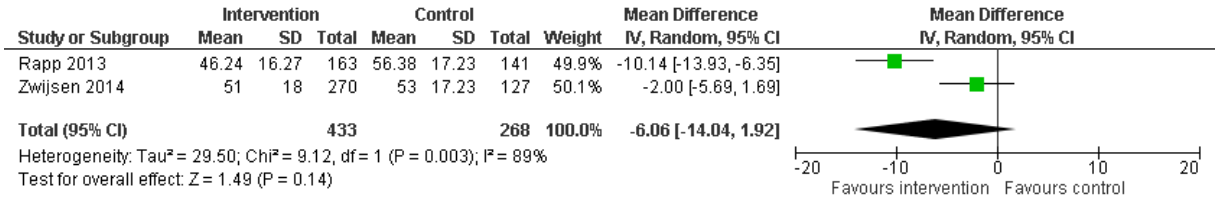


Interested affect

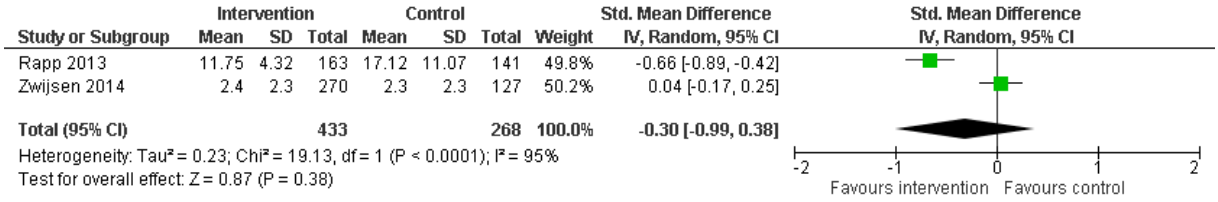


Care delivery interventions

CMAI

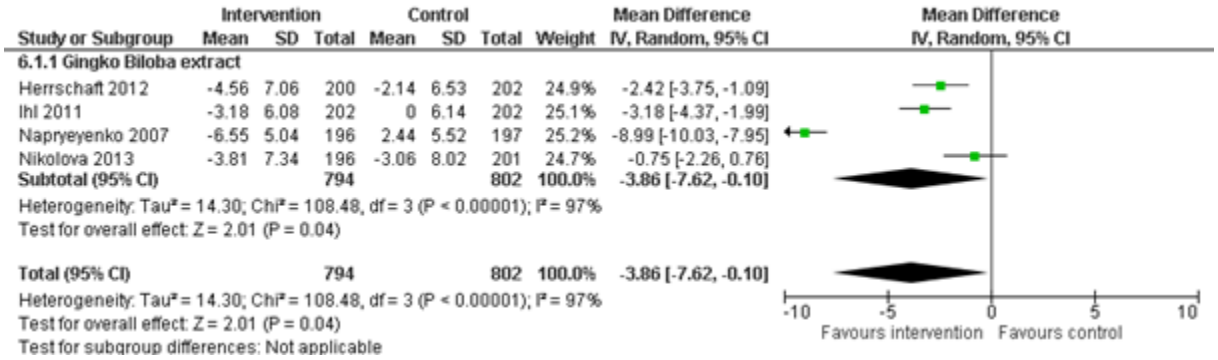


Aggressive behaviours

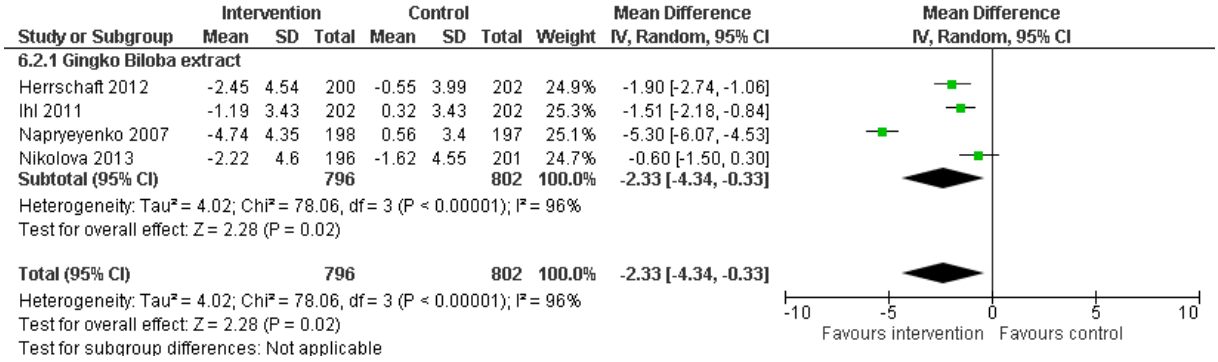


Ginkgo biloba

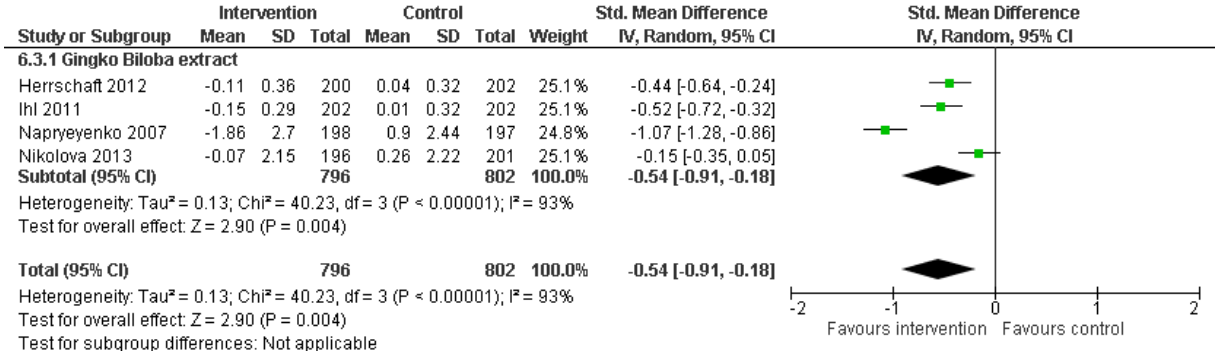
NPI total score



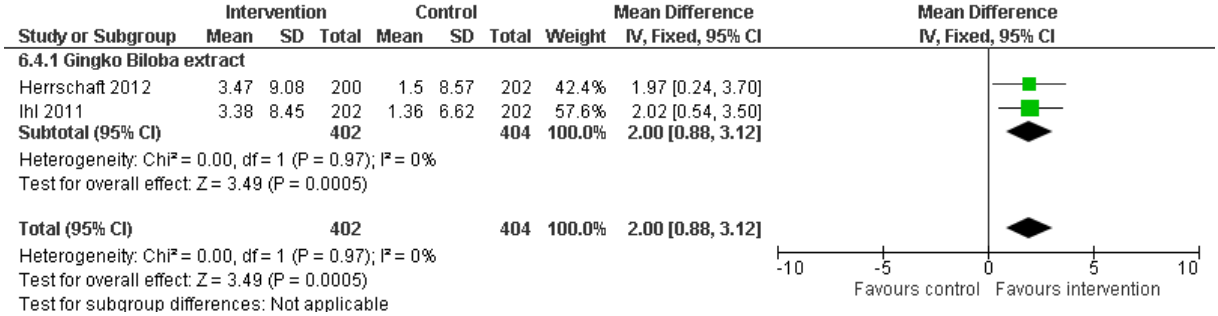
NPI distress



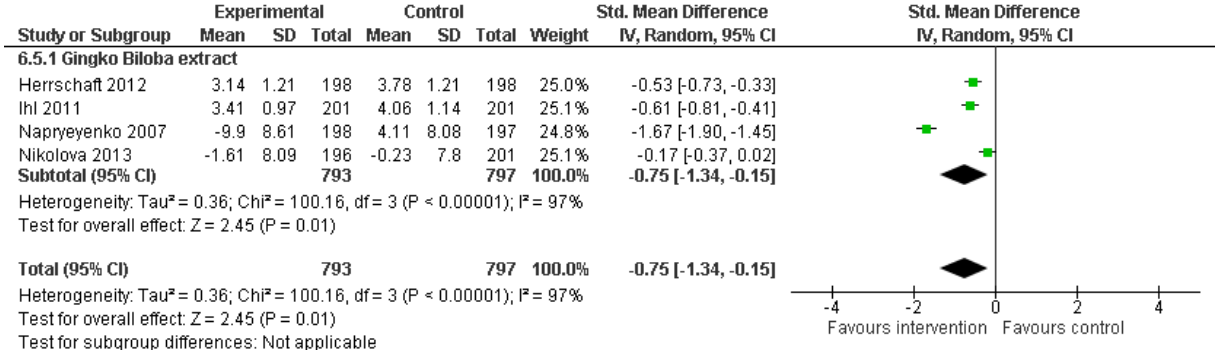
Activities of daily living



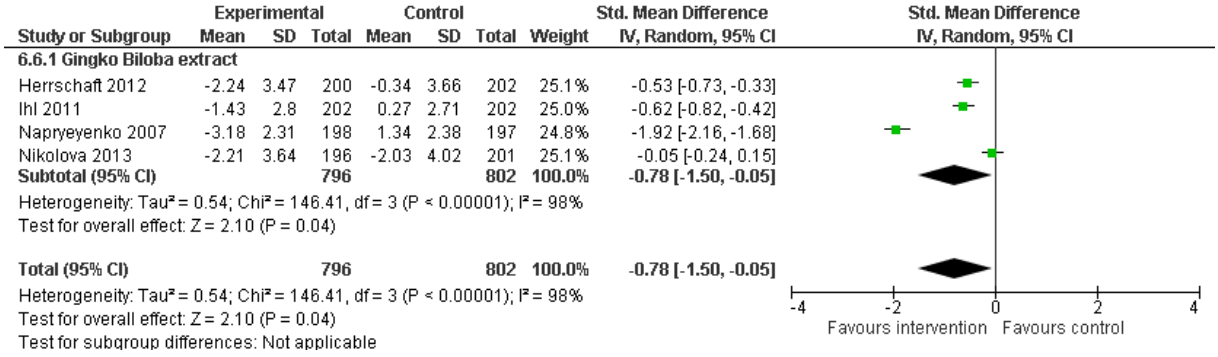
Quality of life



Clinical global assessment



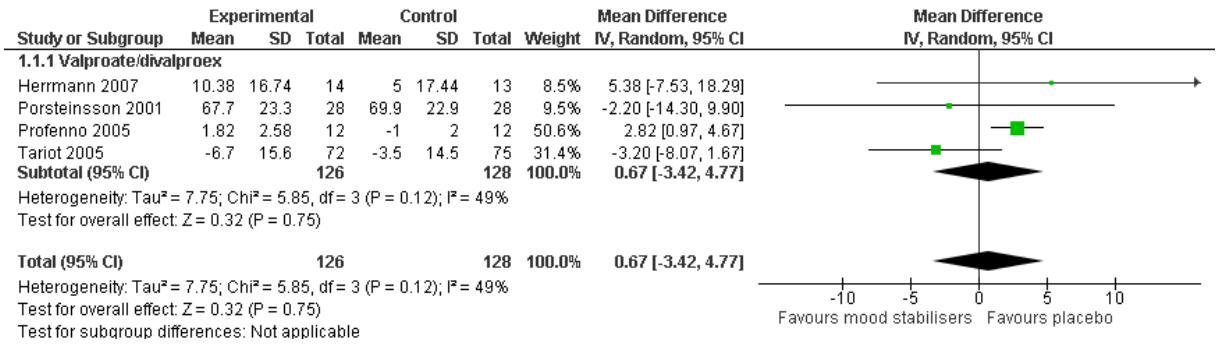
Cognition



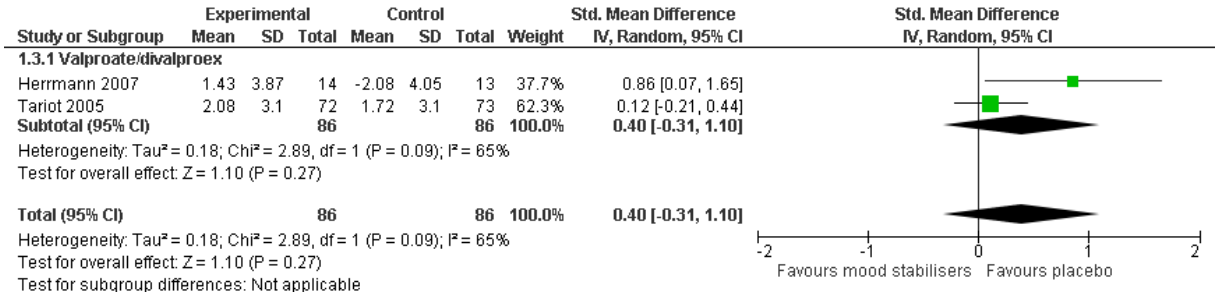
Pharmacological management of agitation, aggression and apathy

Mood stabilisers versus placebo

CMAI

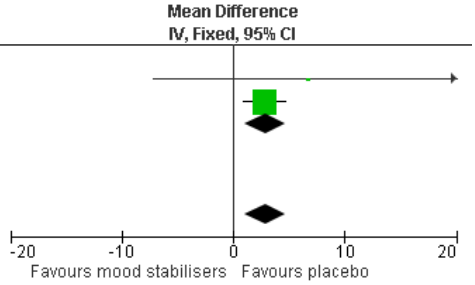


NPI/BPRS agitation/aggression subscale



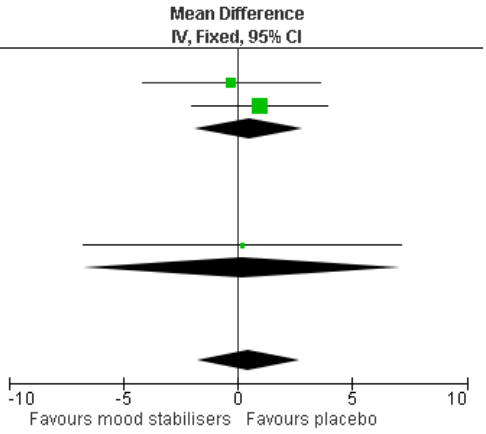
NPI total score

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
1.2.1 Valproate/divalproex								
Herrmann 2007	12.5	18.39	14	5.77	18.52	13	1.8%	6.73 [-7.20, 20.66]
Profenno 2005	1.8	2.58	16	-1	2	8	98.2%	2.80 [0.92, 4.68]
Subtotal (95% CI)			**30**			**21**	**100.0%**	**2.87 [1.01, 4.73]**
Heterogeneity: Chi² = 0.30, df = 1 (P = 0.58); I² = 0%								
Test for overall effect: Z = 3.03 (P = 0.002)								
Total (95% CI)			**30**			**21**	**100.0%**	**2.87 [1.01, 4.73]**
Heterogeneity: Chi² = 0.30, df = 1 (P = 0.58); I² = 0%								
Test for overall effect: Z = 3.03 (P = 0.002)								
Test for subgroup differences: Not applicable								



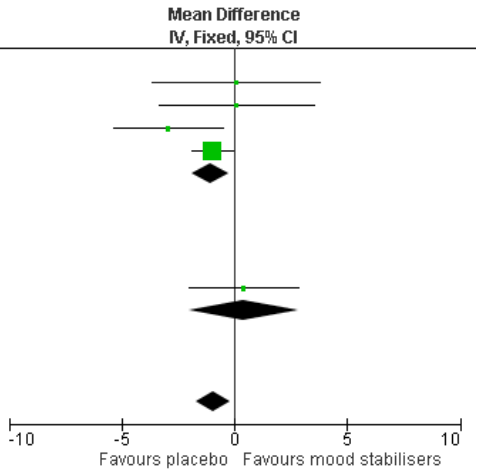
BPRS total score

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
1.5.1 Valproate/divalproex								
Porsteinsson 2001	-6.19	8.2	28	-5.9	6.6	28	33.0%	-0.29 [-4.19, 3.61]
Tariot 2005	-4.19	9.3	72	-5.13	9.1	75	56.6%	0.94 [-2.04, 3.92]
Subtotal (95% CI)			**100**			**103**	**89.6%**	**0.49 [-1.88, 2.85]**
Heterogeneity: Chi² = 0.24, df = 1 (P = 0.62); I² = 0%								
Test for overall effect: Z = 0.40 (P = 0.69)								
1.5.2 Carbamezepine								
Olin 2001	-4	7.9	9	-4.2	8.2	12	10.4%	0.20 [-6.74, 7.14]
Subtotal (95% CI)			**9**			**12**	**10.4%**	**0.20 [-6.74, 7.14]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.06 (P = 0.95)								
Total (95% CI)			**109**			**115**	**100.0%**	**0.46 [-1.78, 2.70]**
Heterogeneity: Chi² = 0.25, df = 2 (P = 0.88); I² = 0%								
Test for overall effect: Z = 0.40 (P = 0.69)								
Test for subgroup differences: Chi² = 0.01, df = 1 (P = 0.94), I² = 0%								

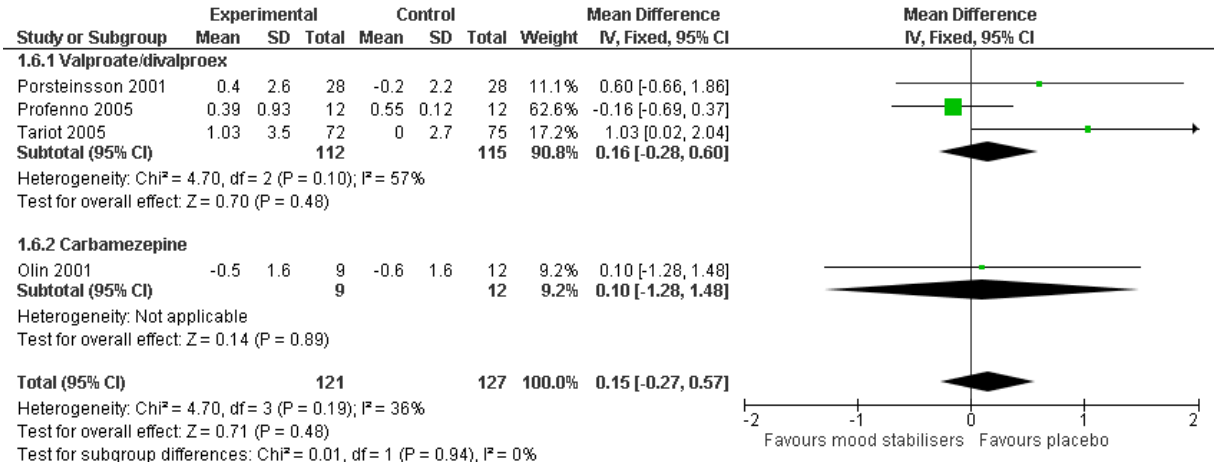


MMSE

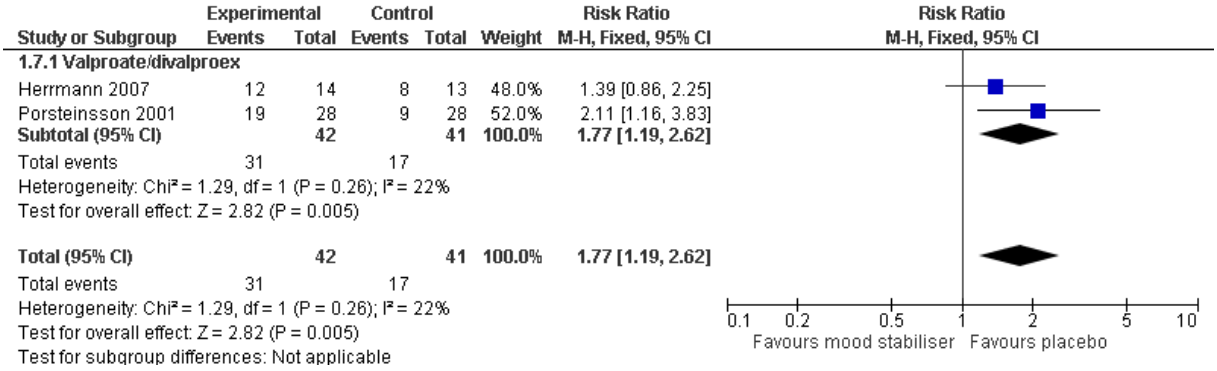
Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
1.4.1 Valproate/divalproex								
Herrmann 2007	-0.17	5.31	12	-0.23	4.11	13	4.3%	0.06 [-3.68, 3.80]
Porsteinsson 2001	5.2	6.9	28	5.1	6.2	28	5.1%	0.10 [-3.34, 3.54]
Profenno 2005	-1.71	3.49	12	1.23	2.5	12	10.1%	-2.94 [-5.37, -0.51]
Tariot 2005	-0.85	2.47	72	0.14	3.2	75	70.3%	-0.99 [-1.91, -0.07]
Subtotal (95% CI)			**124**			**128**	**89.7%**	**-1.10 [-1.91, -0.28]**
Heterogeneity: Chi² = 3.10, df = 3 (P = 0.38); I² = 3%								
Test for overall effect: Z = 2.64 (P = 0.008)								
1.4.2 Carbamezepine								
Olin 2001	-0.1	2.7	9	-0.5	2.9	12	10.3%	0.40 [-2.01, 2.81]
Subtotal (95% CI)			**9**			**12**	**10.3%**	**0.40 [-2.01, 2.81]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.33 (P = 0.74)								
Total (95% CI)			**133**			**140**	**100.0%**	**-0.94 [-1.72, -0.17]**
Heterogeneity: Chi² = 4.43, df = 4 (P = 0.35); I² = 10%								
Test for overall effect: Z = 2.40 (P = 0.02)								
Test for subgroup differences: Chi² = 1.33, df = 1 (P = 0.25), I² = 25.0%								



PSMS score

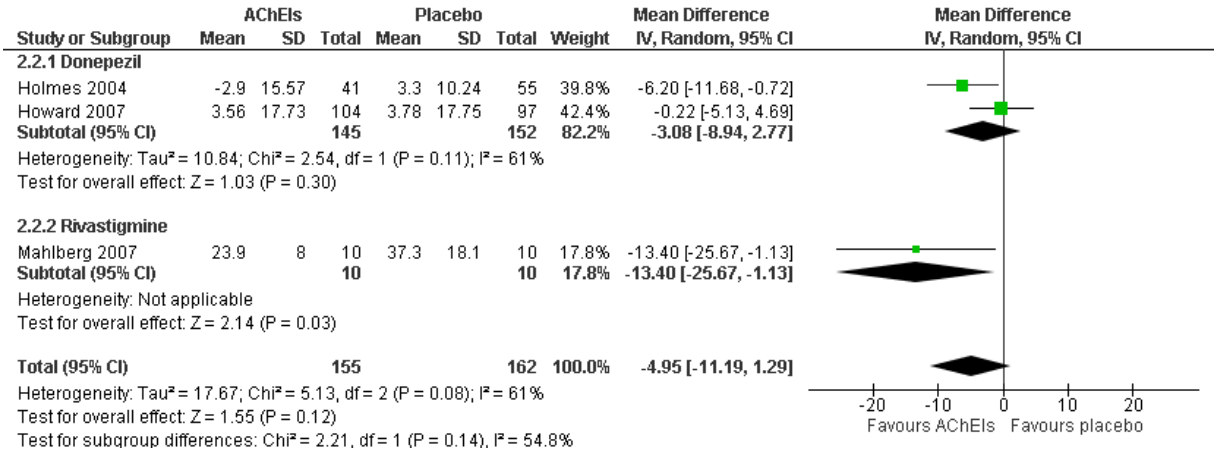


Any adverse events



Cholinesterase inhibitors versus placebo

NPI



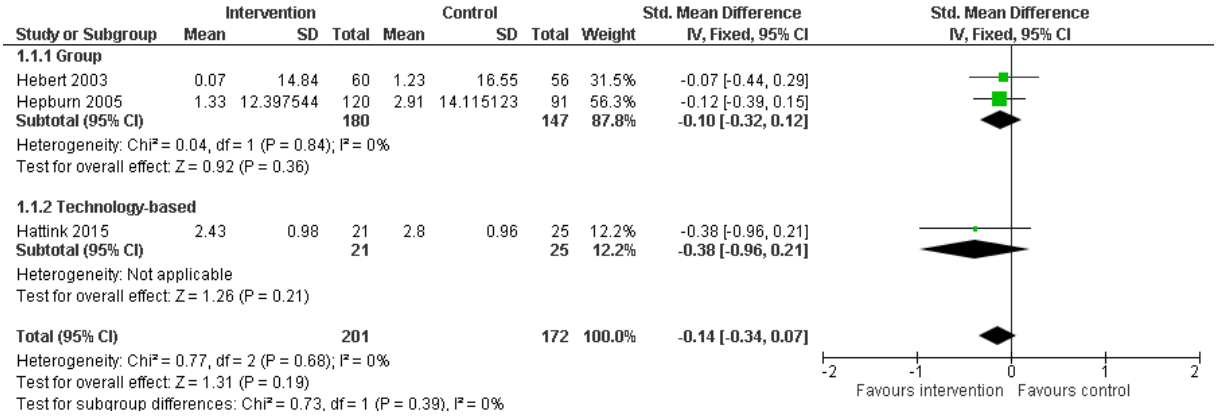
H.11 Supporting informal carers

H.11.1 Supporting informal carers of people living with dementia

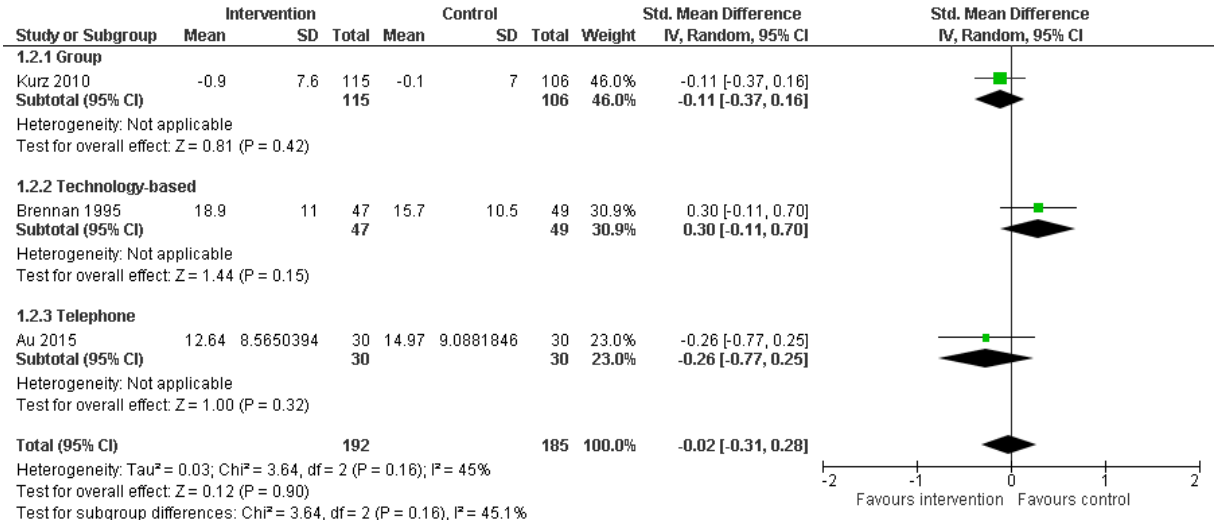
- How effective are carers' assessments in identifying the needs of informal carers of people living with dementia?
- What interventions/services are most effective for supporting the wellbeing of informal carers of people living with dementia?

H.11.1.1 Psychoeducational interventions

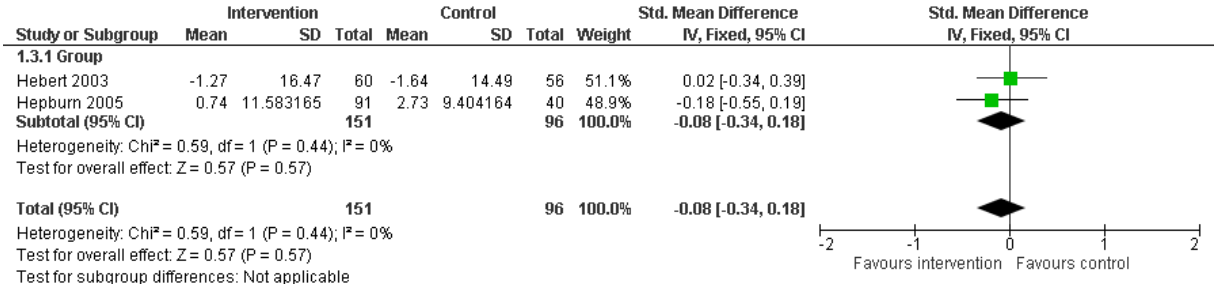
Carer burden



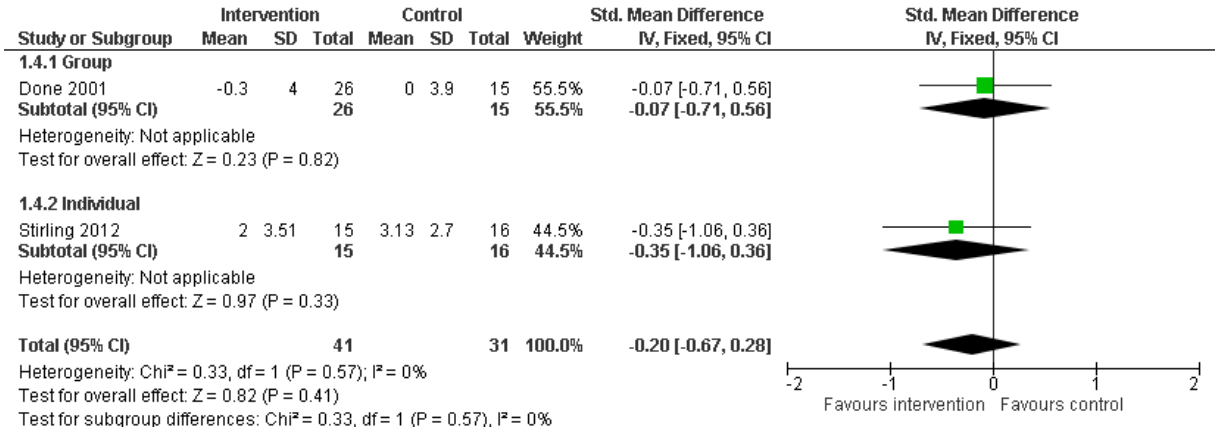
Carer depression



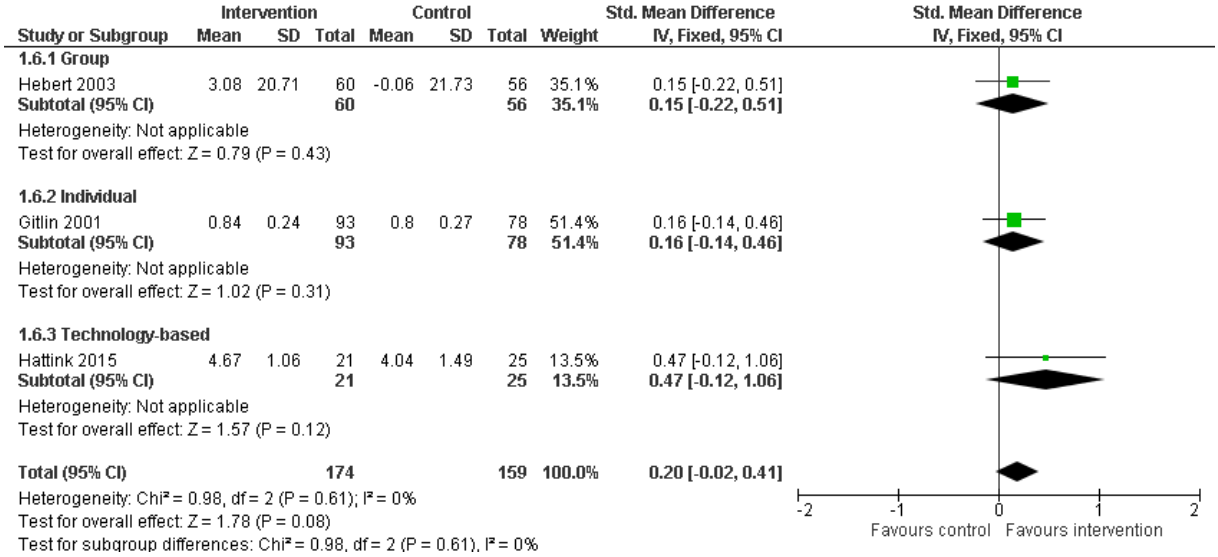
Carer anxiety



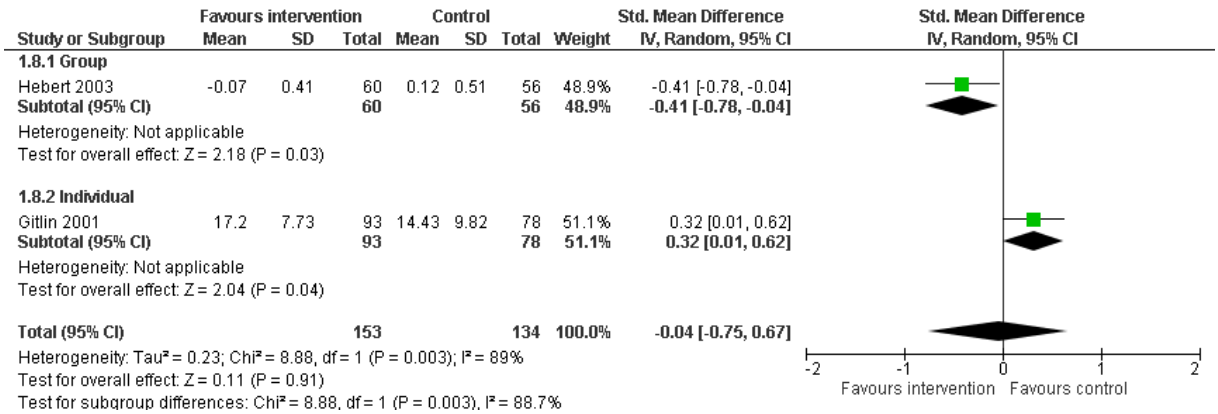
Carer stress



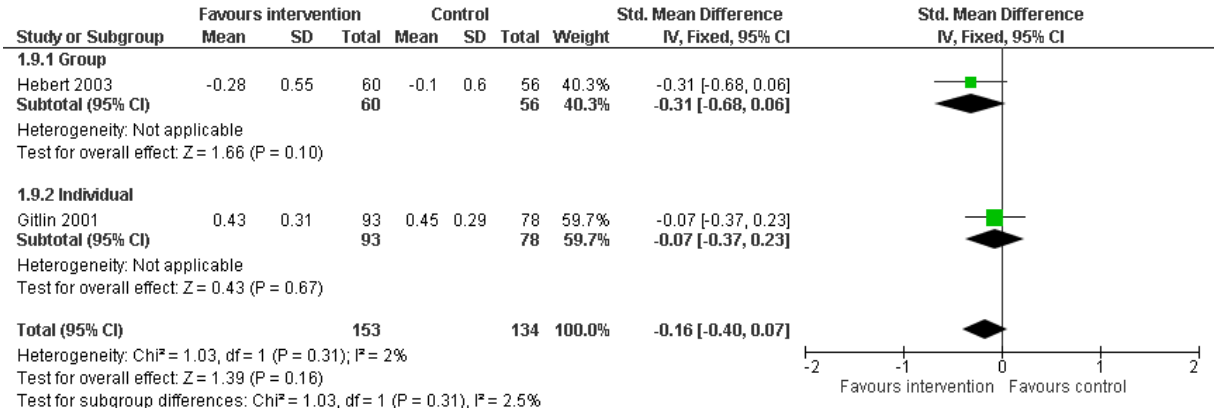
Carer self-efficacy



RMBPC-severity

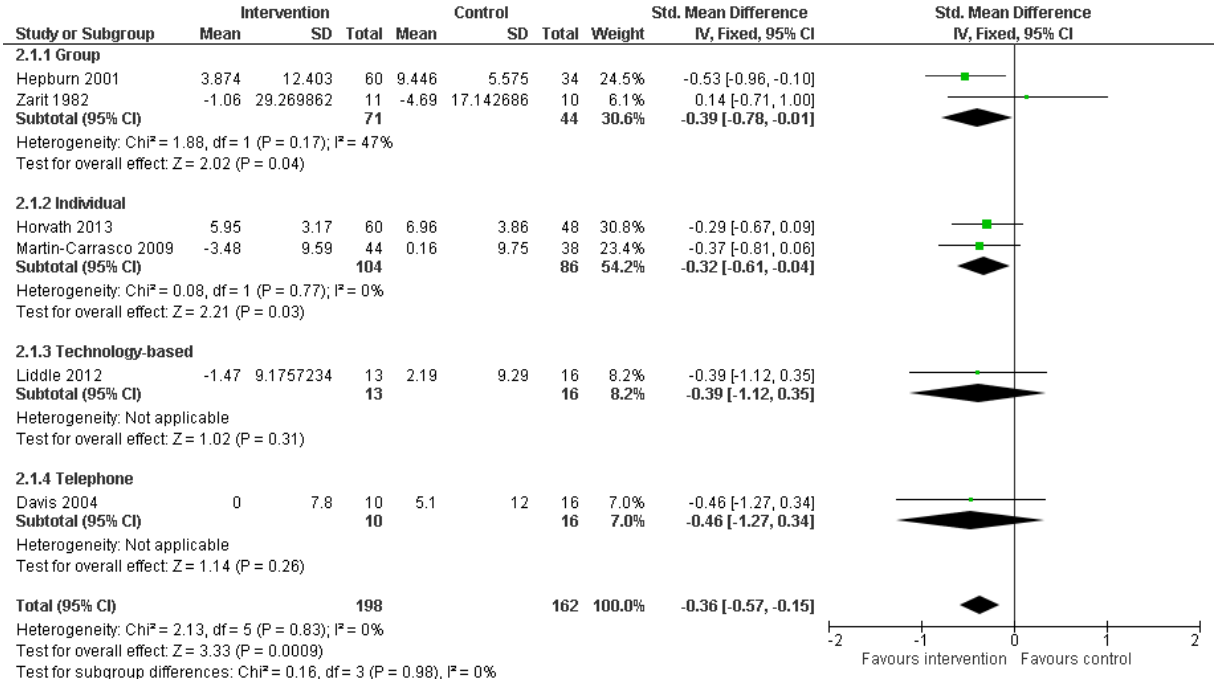


RMBPC-reaction

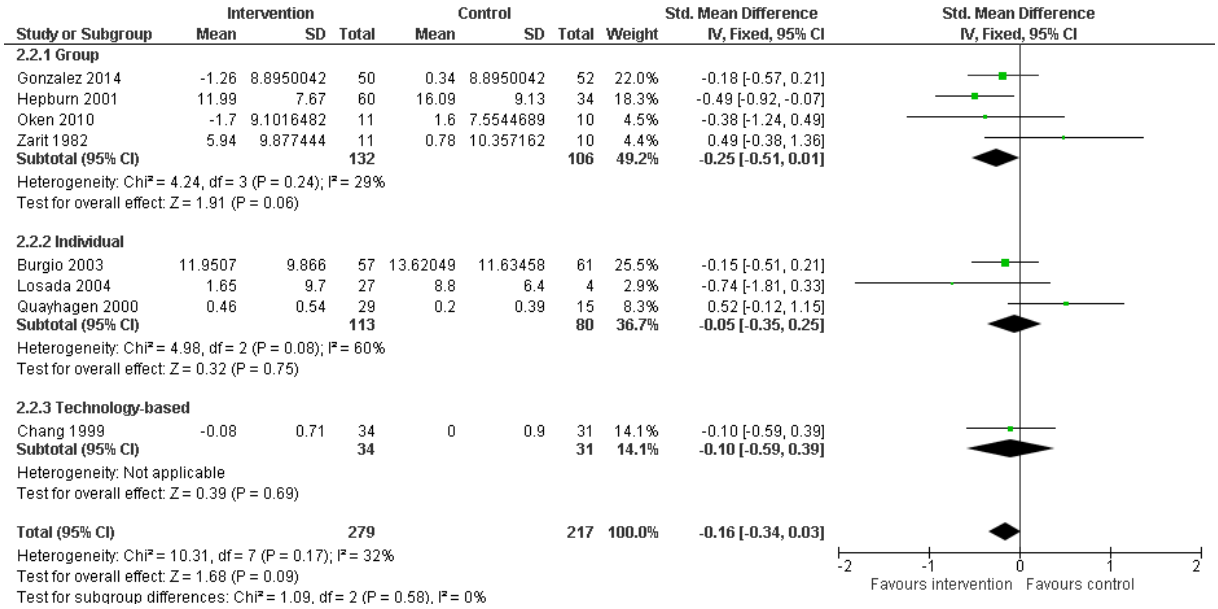


H.11.1.2 Skills training

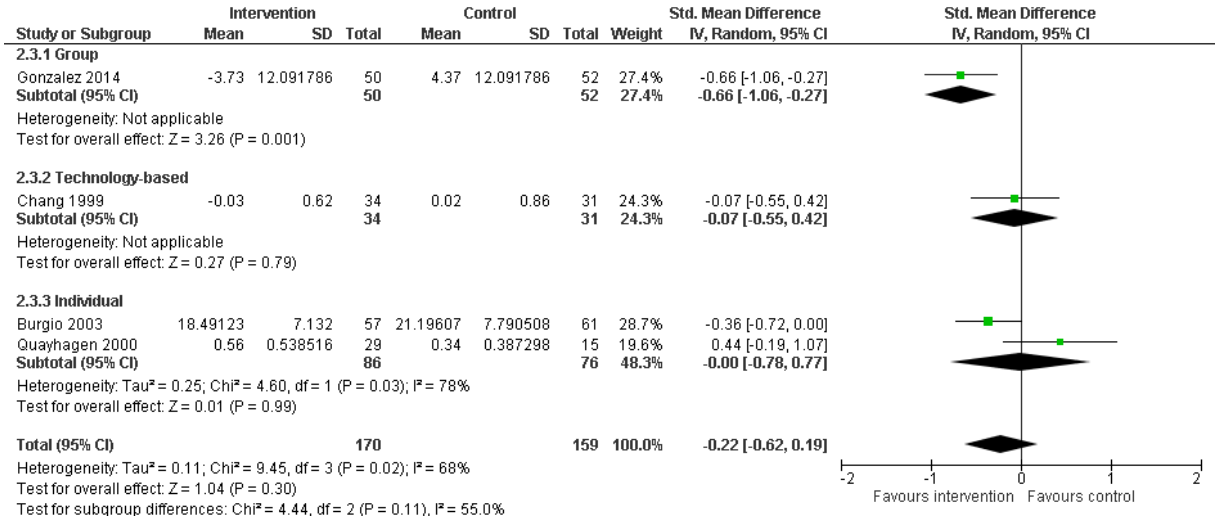
Carer burden



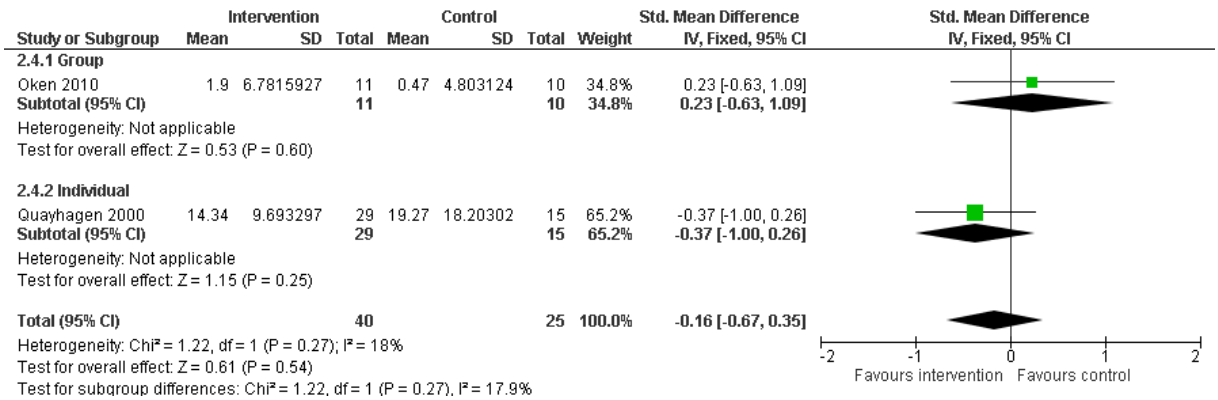
Carer depression



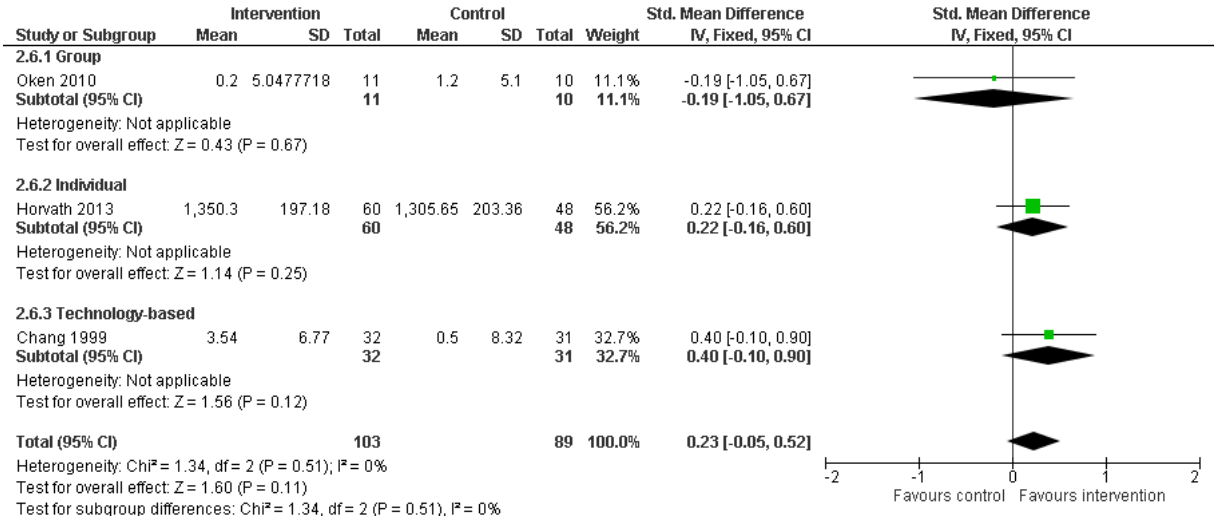
Carer anxiety



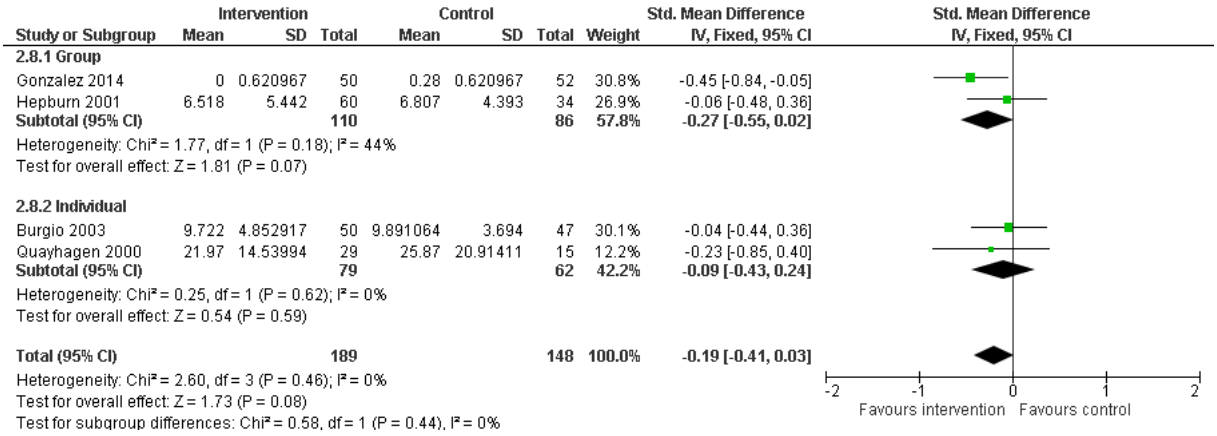
Carer stress



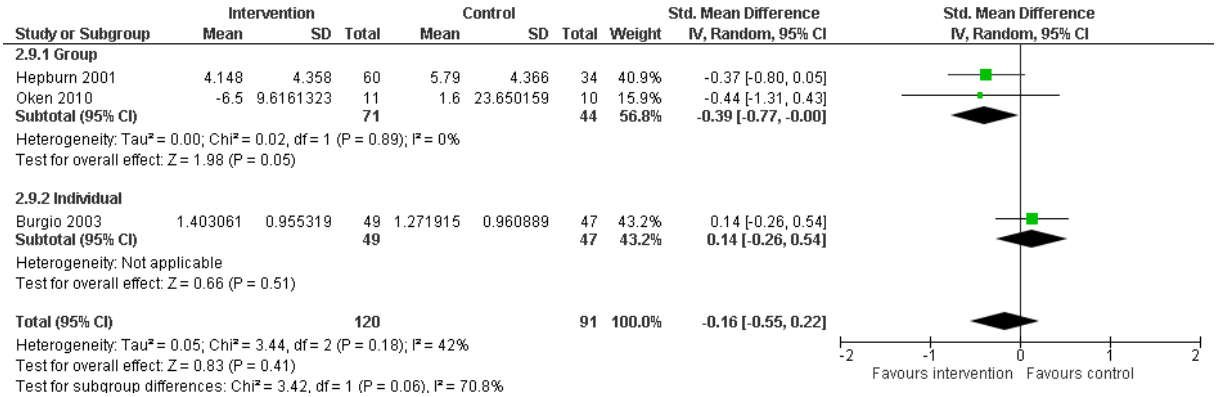
Carer self-efficacy



RMBPC-severity

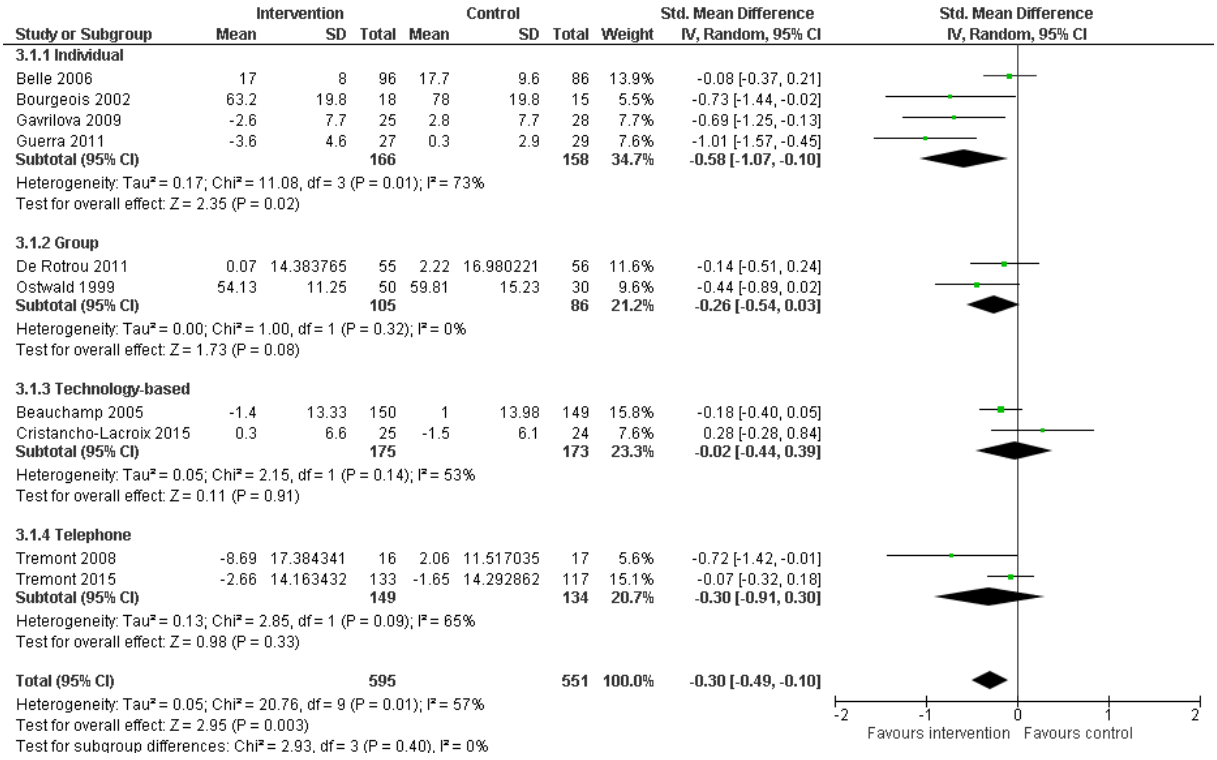


RMBPC-reaction

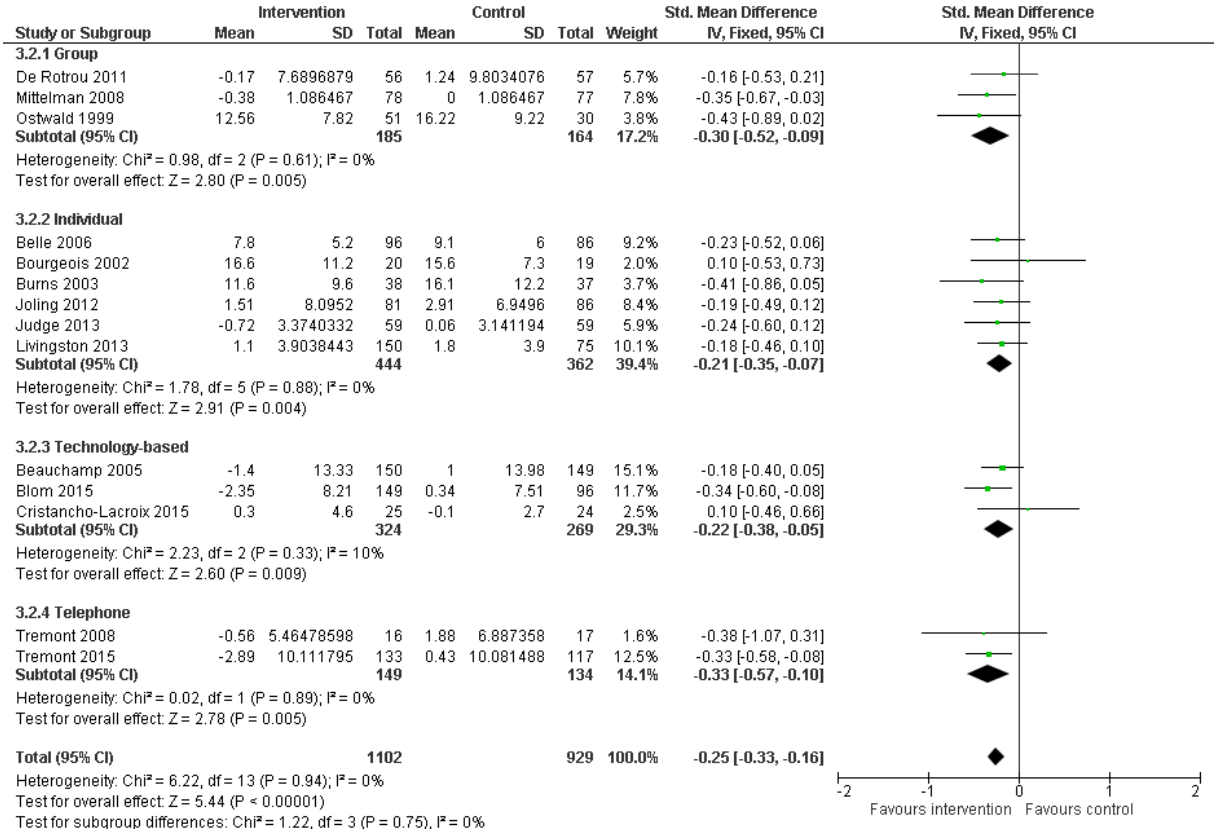


H.11.1.3 Psychoeducation and skills training

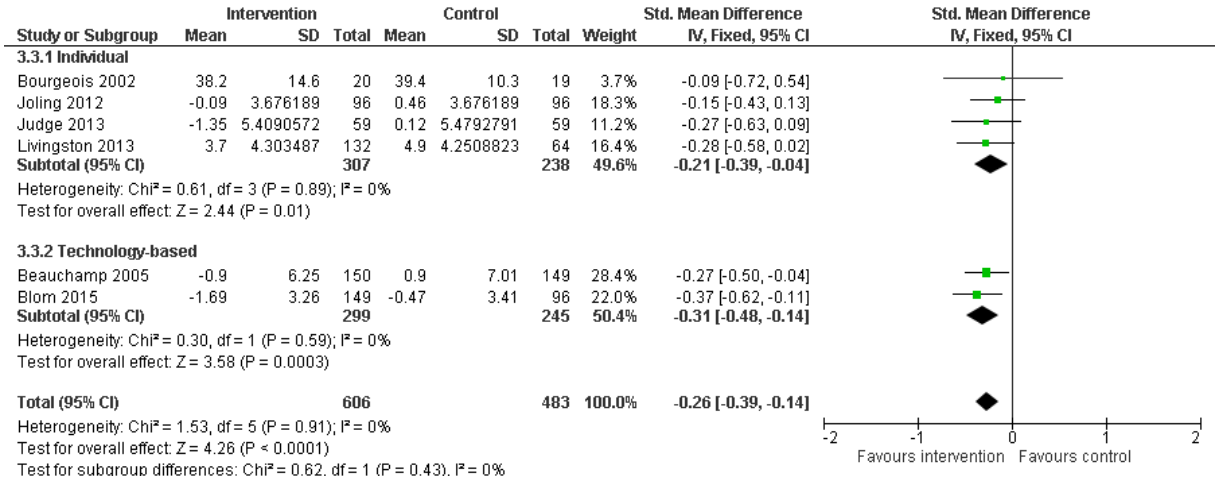
Carer burden



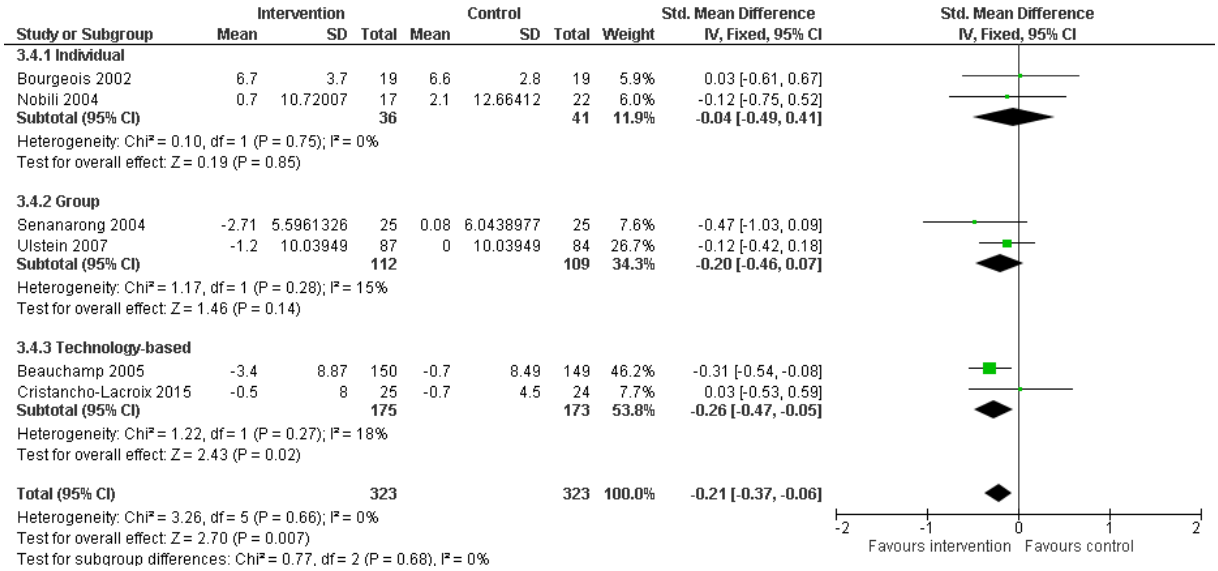
Carer depression



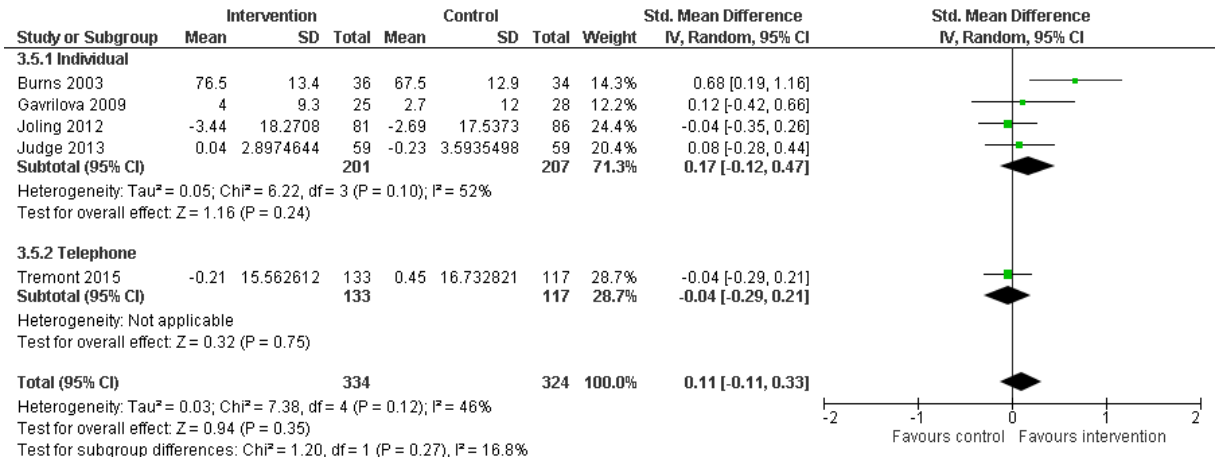
Carer anxiety



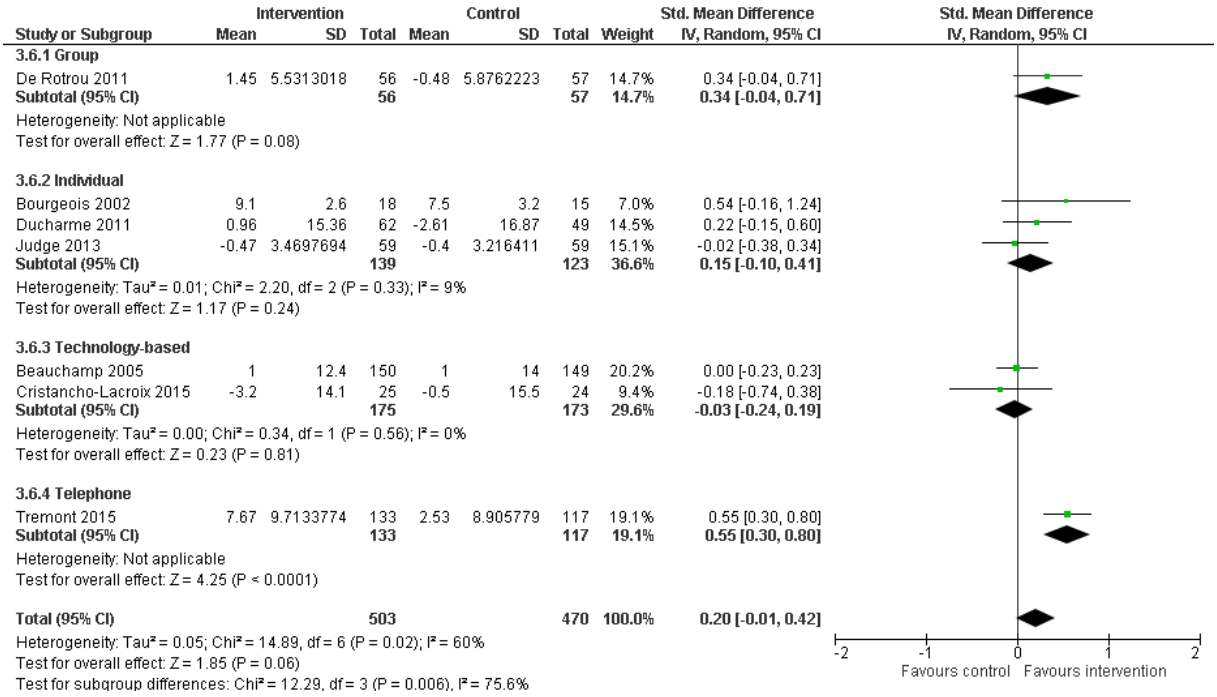
Carer stress



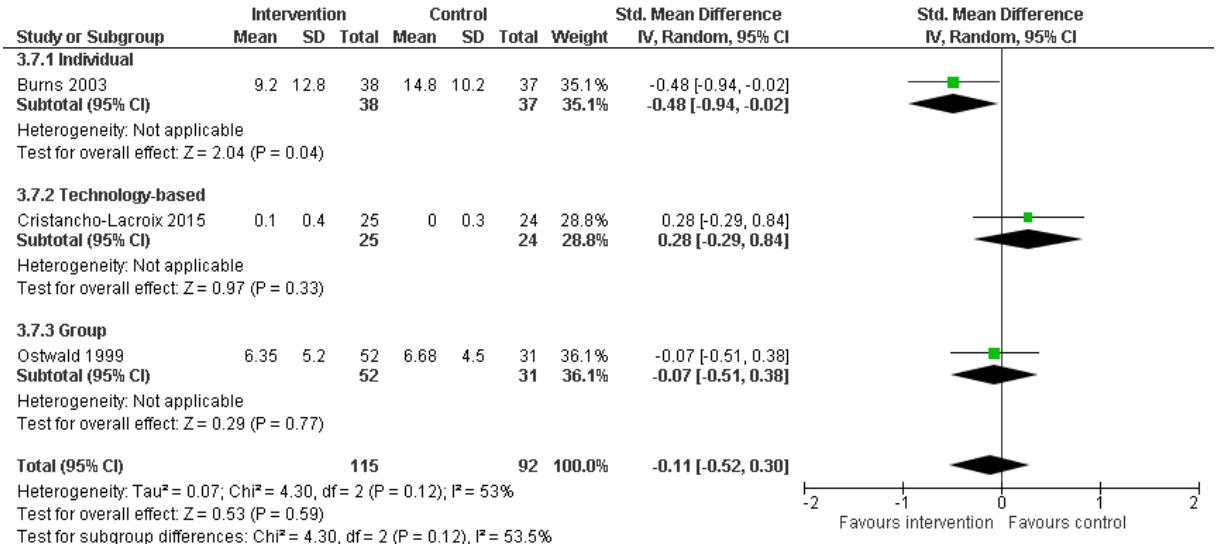
Carer quality of life



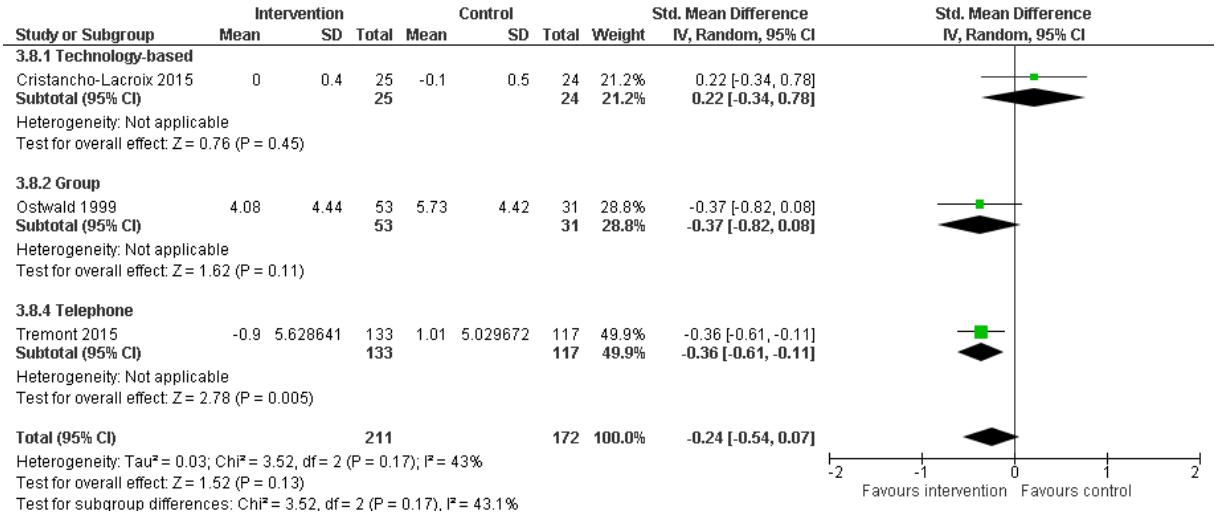
Carer self-efficacy



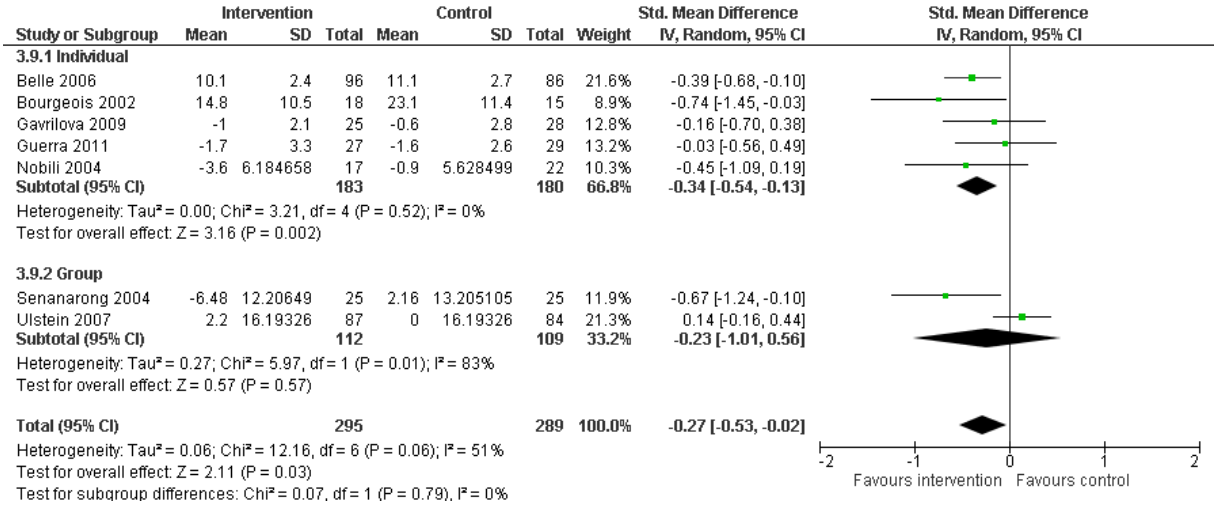
RMBPC-severity



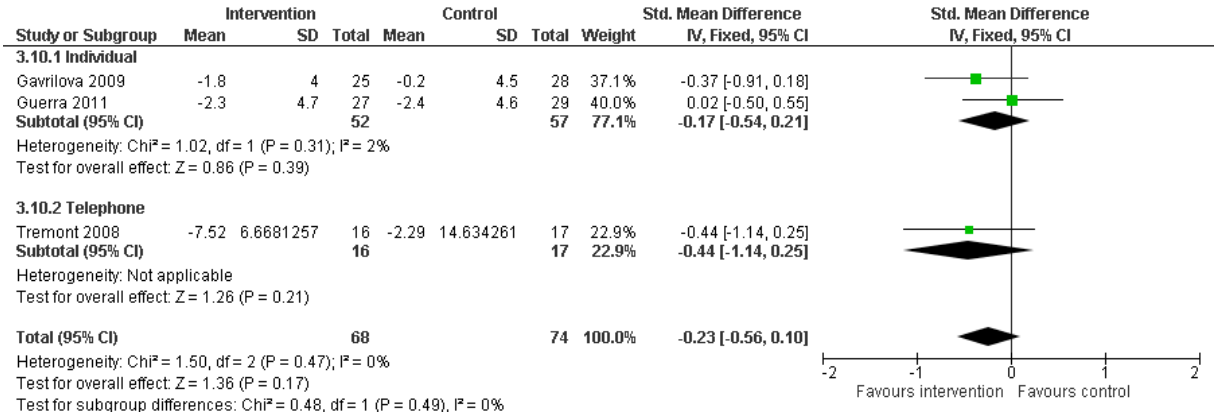
RMBPC-reaction



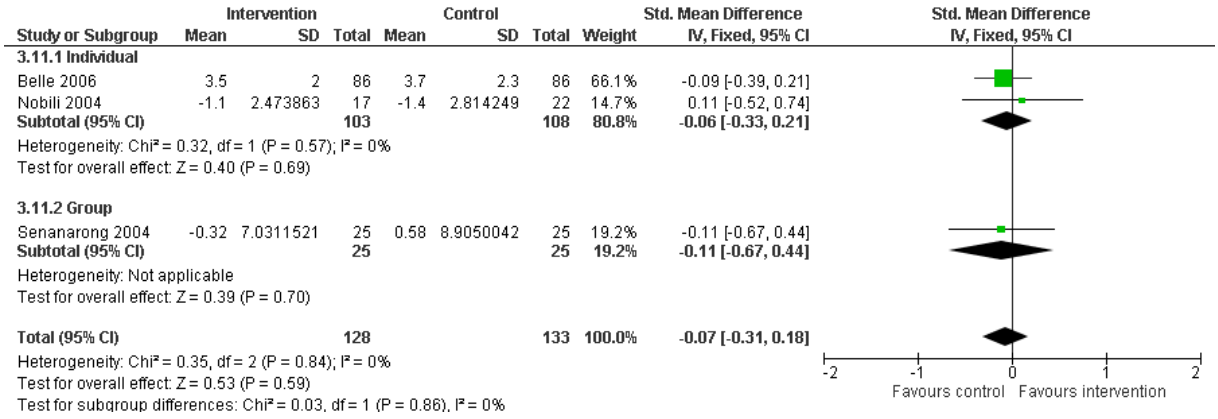
BPSD-severity



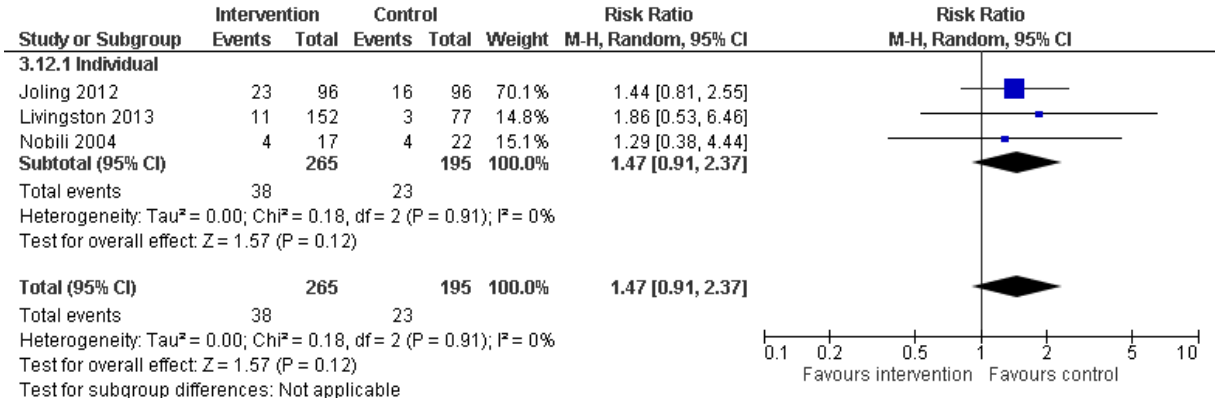
BPSD-reaction



Activities of daily living (person living with dementia)

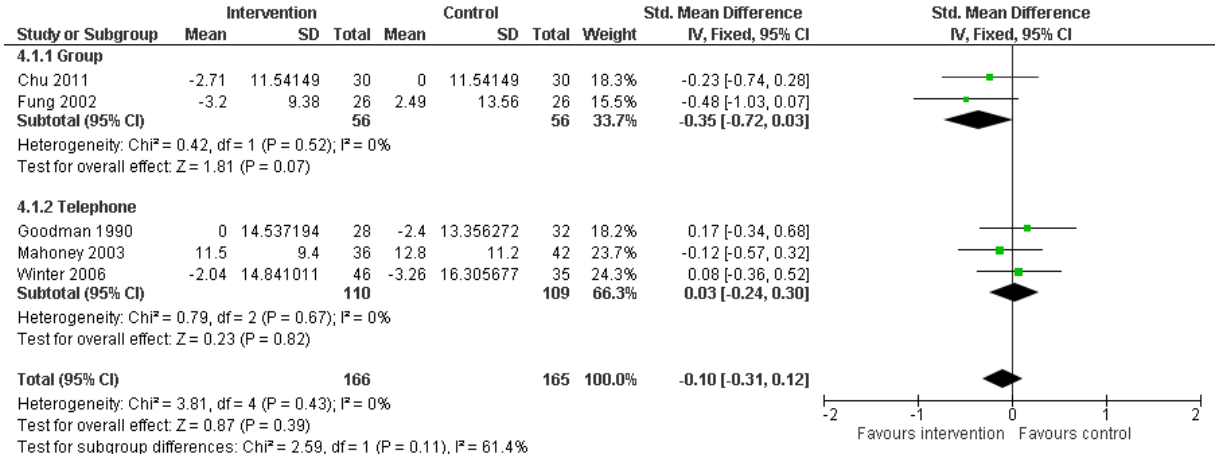


Proportion entering long stay care

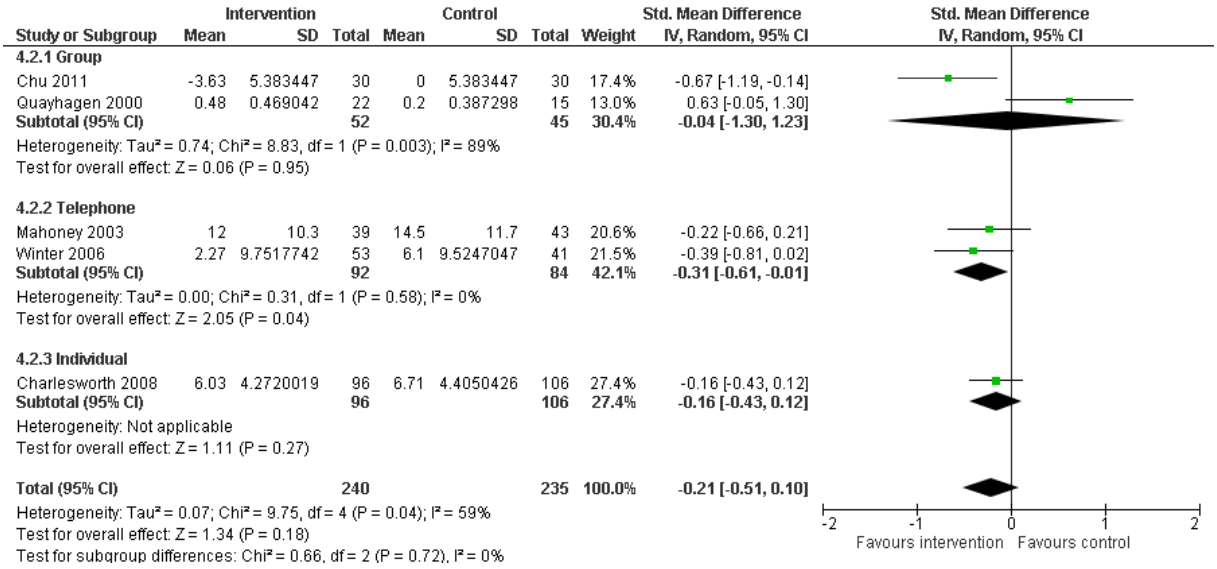


H.11.1.4 Supportive interventions

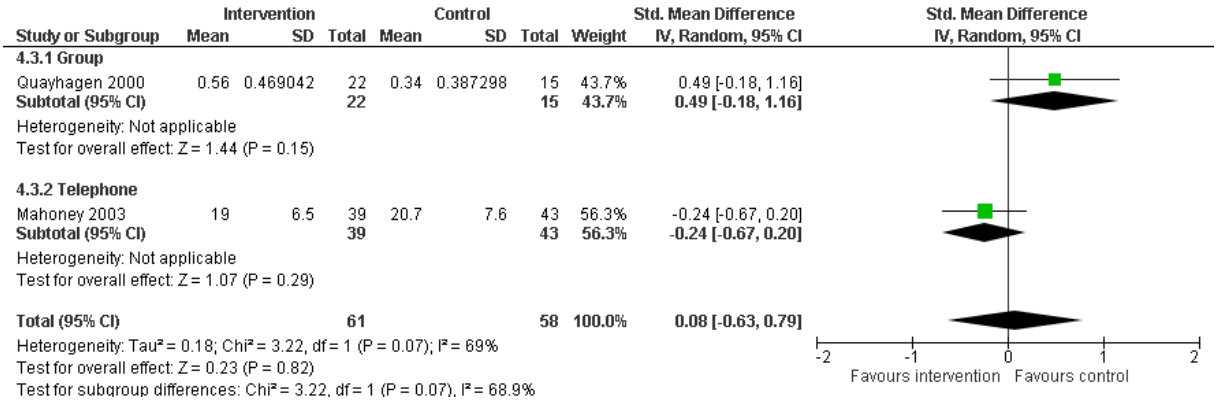
Carer burden



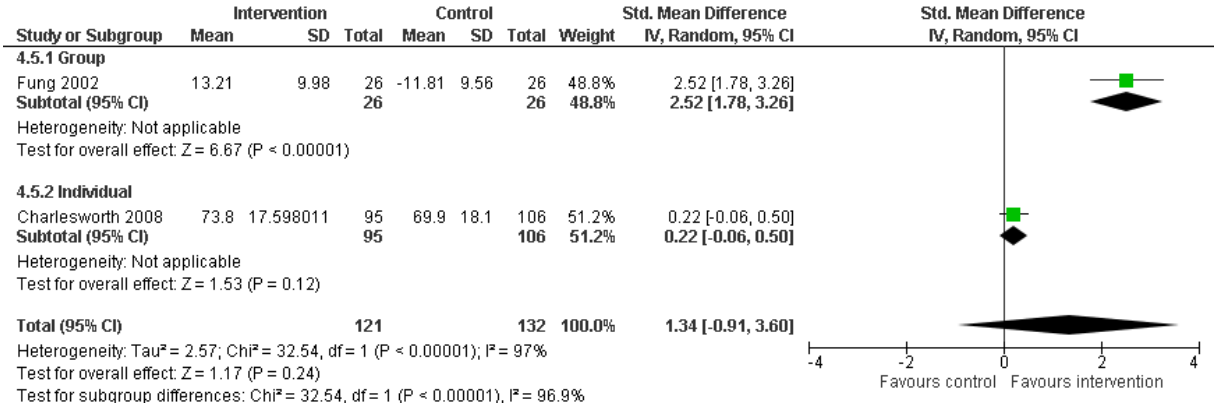
Carer depression



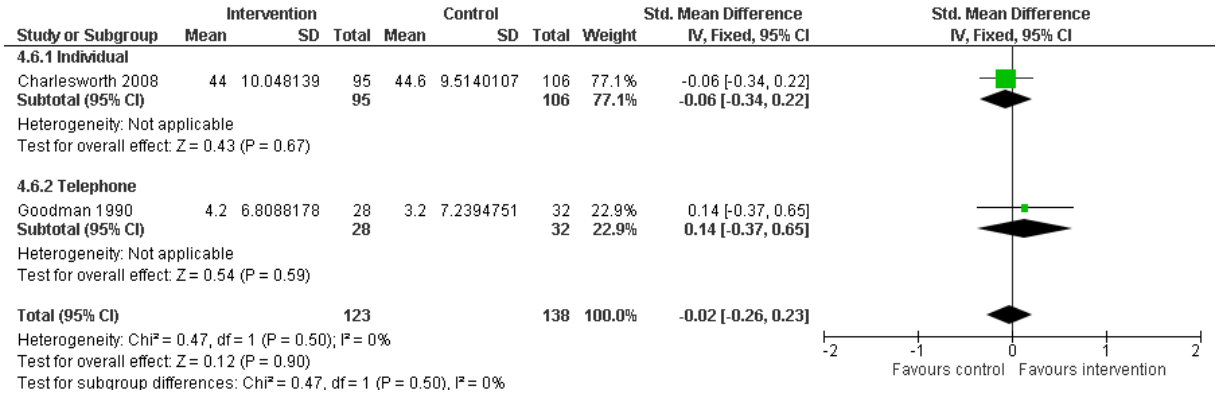
Carer anxiety



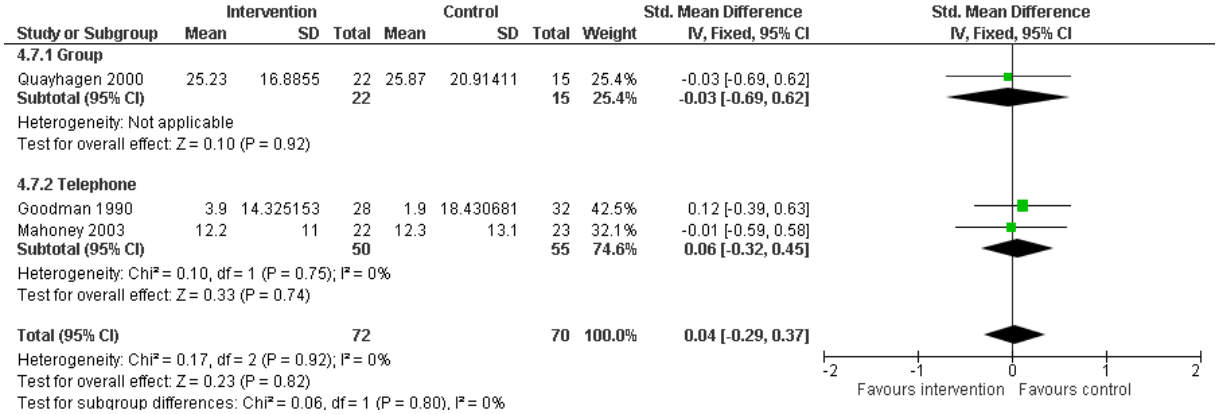
Carer quality of life



Carer social support

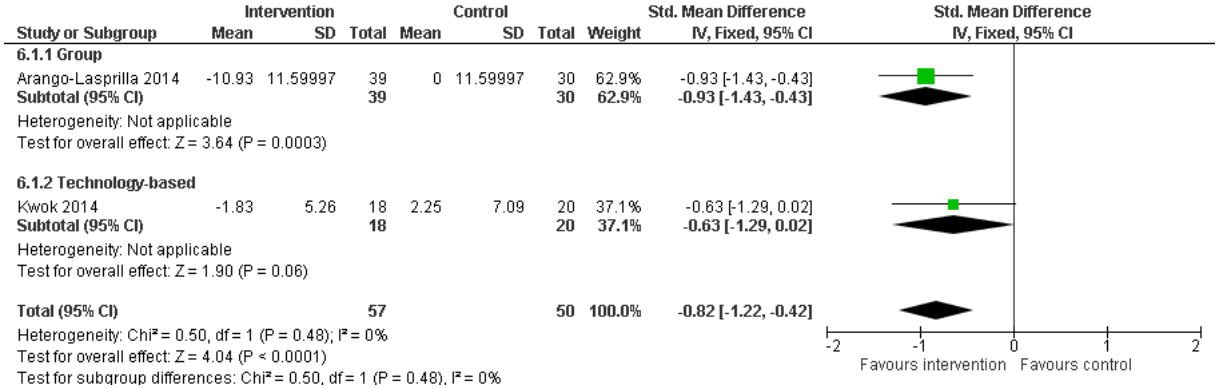


RMBPC-severity

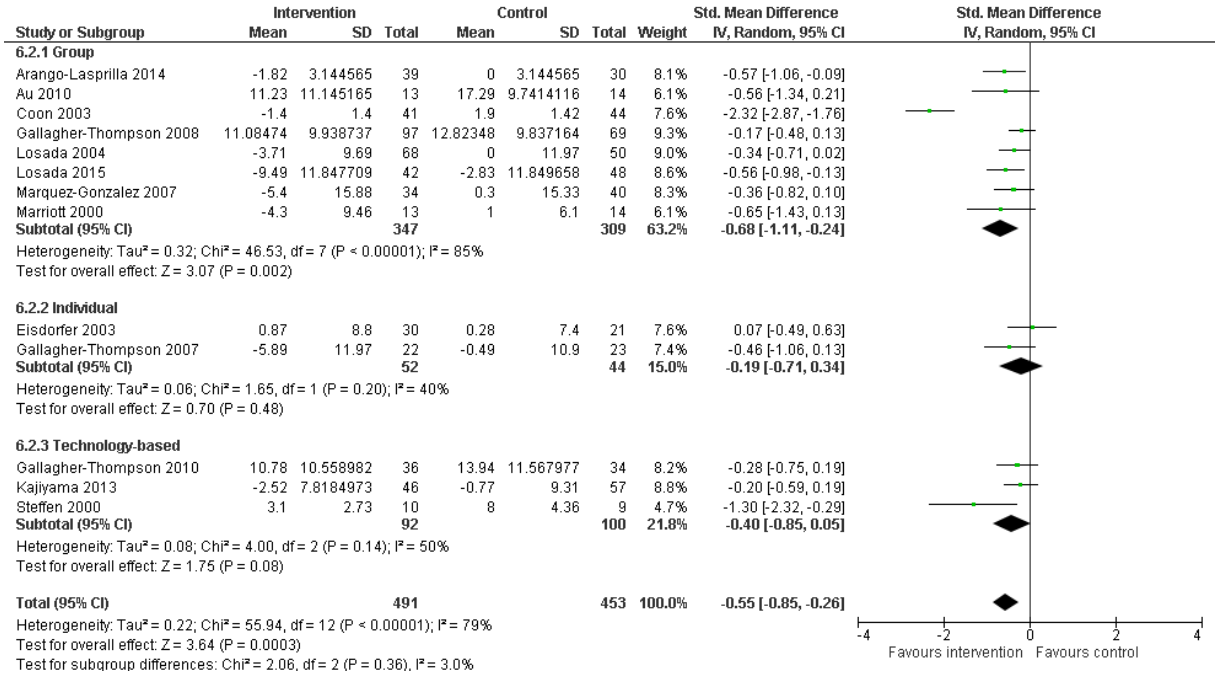


H.11.1.5 Psychotherapy

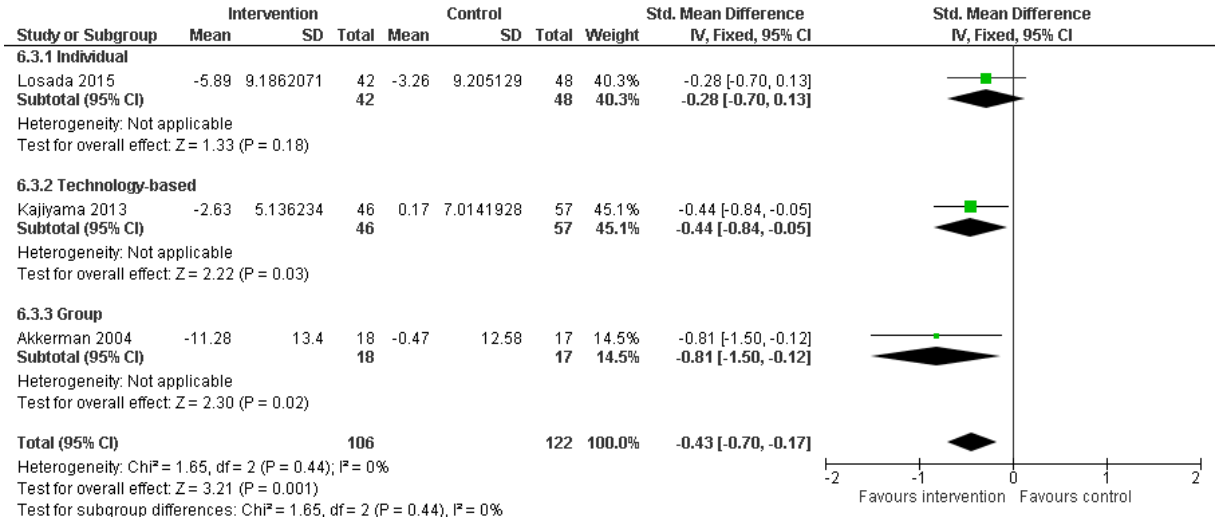
Carer burden



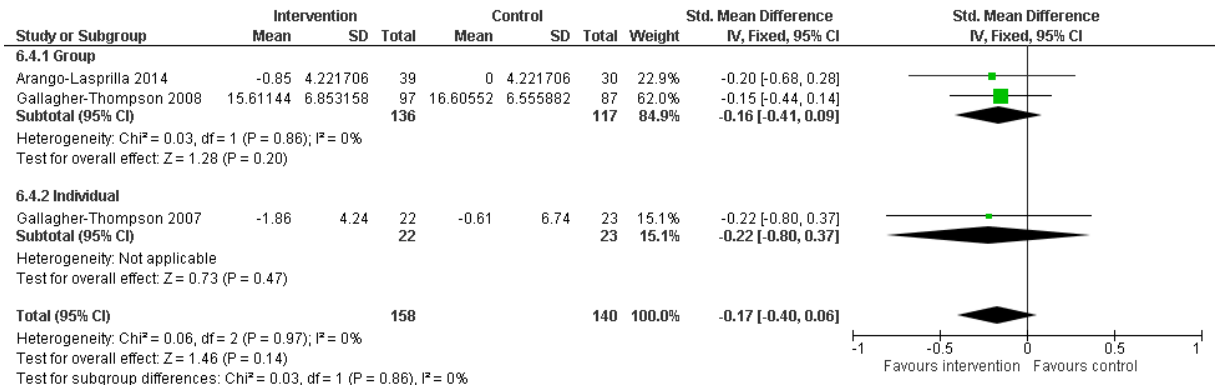
Carer depression



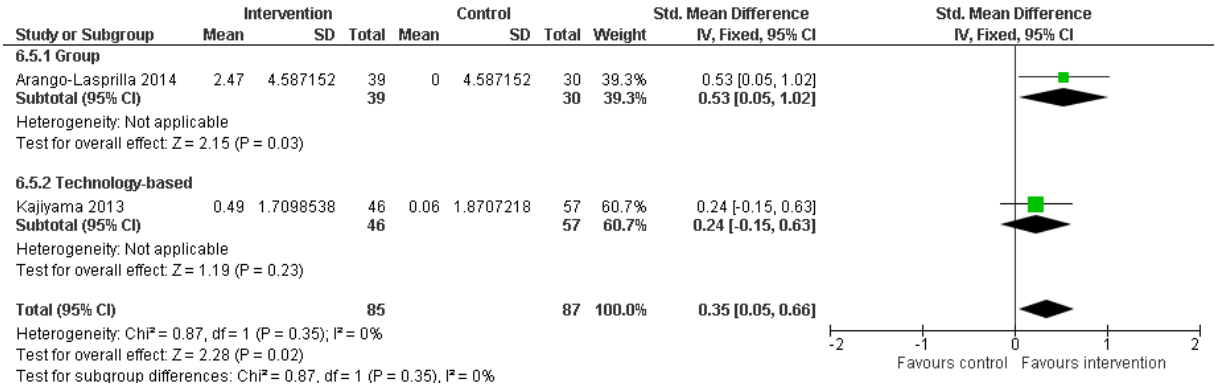
Carer anxiety



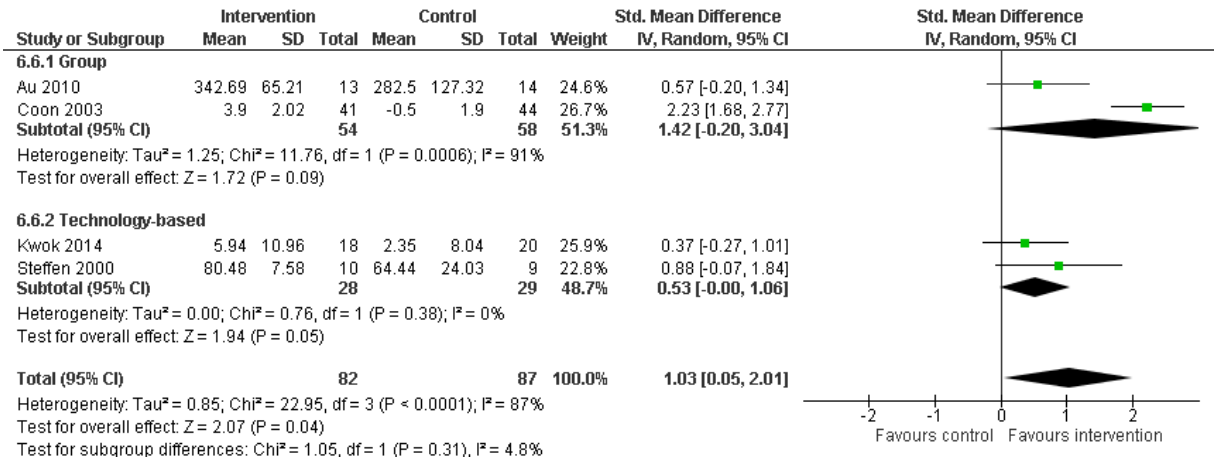
Carer stress



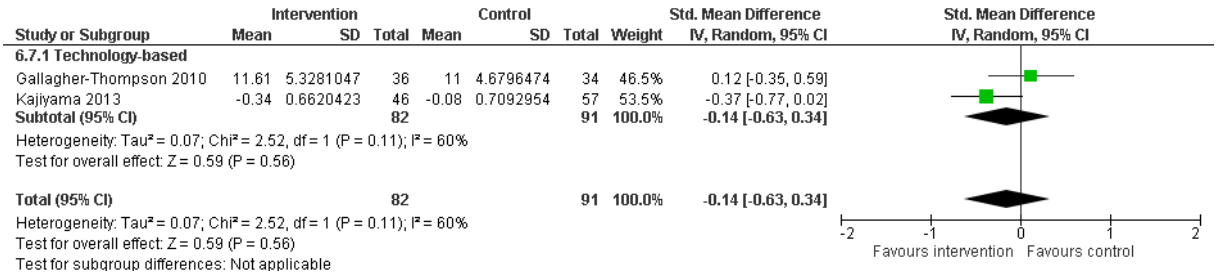
Carer quality of life



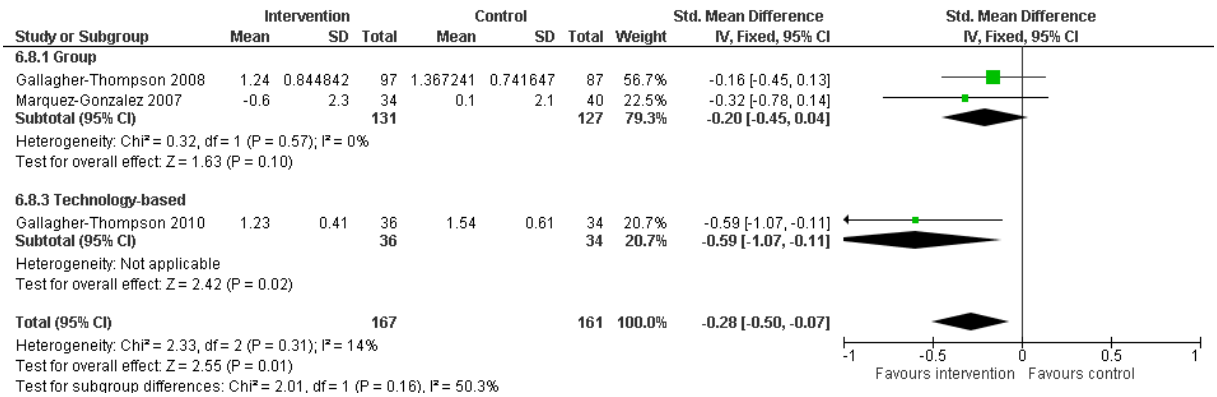
Carer self-efficacy



RMBPC-severity

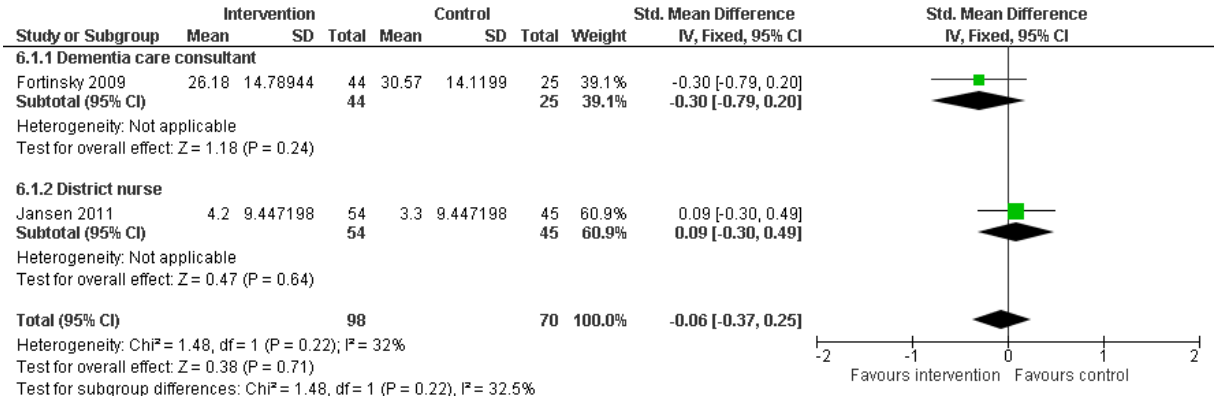


RMBPC-reaction

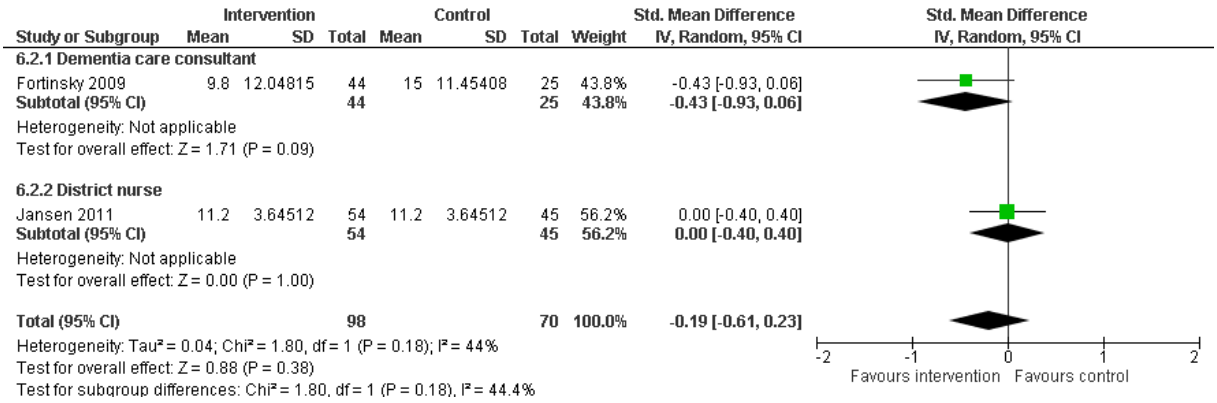


H.11.1.6 Case management

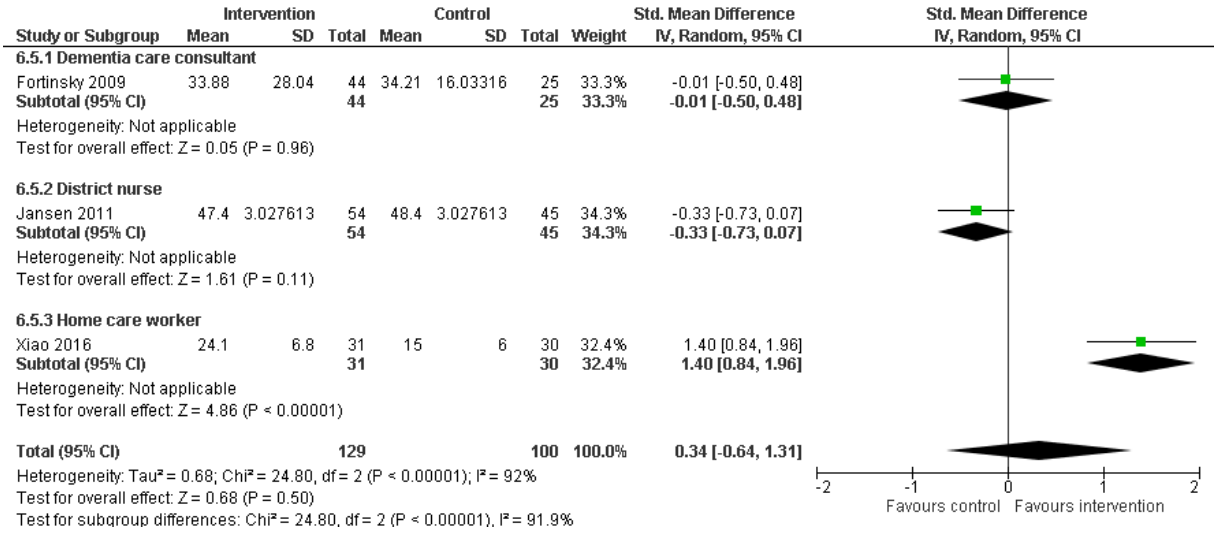
Carer burden



Carer depression

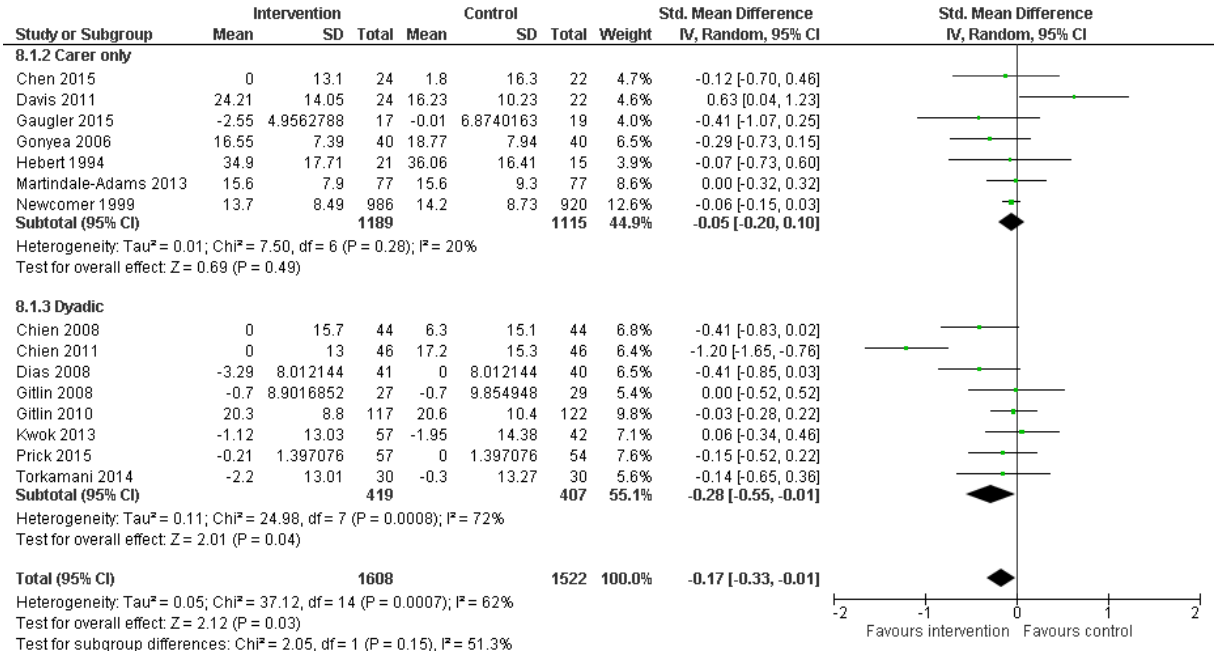


Carer self-efficacy

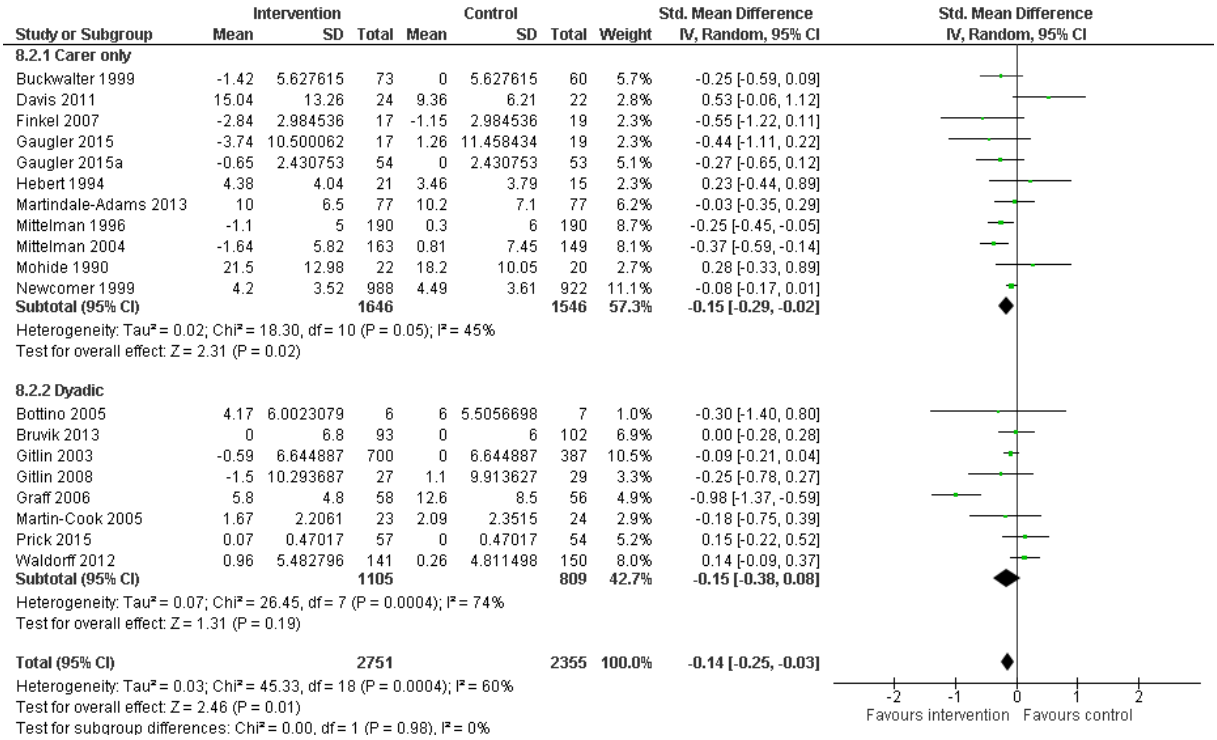


H.11.1.7 Multicomponent interventions

Carer burden

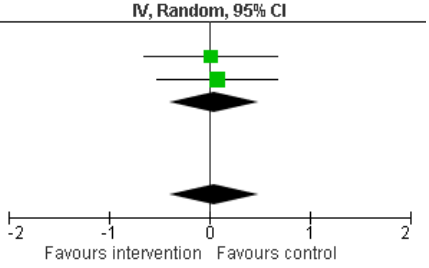


Carer depression



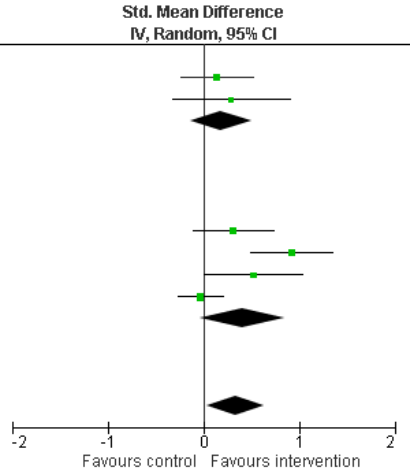
Carer anxiety

Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
8.3.1 Carer only								
Hebert 1994	4.47	4.21	21	4.4	4.29	15	45.5%	0.02 [-0.65, 0.68]
Mohide 1990	49.64	14.48	22	48.5	14.38	20	54.5%	0.08 [-0.53, 0.68]
Subtotal (95% CI)			**43**			**35**	**100.0%**	**0.05 [-0.40, 0.50]**
Heterogeneity: Tau² = 0.00; Chi² = 0.02, df = 1 (P = 0.89); I² = 0%								
Test for overall effect: Z = 0.22 (P = 0.83)								
Total (95% CI)			**43**			**35**	**100.0%**	**0.05 [-0.40, 0.50]**
Heterogeneity: Tau² = 0.00; Chi² = 0.02, df = 1 (P = 0.89); I² = 0%								
Test for overall effect: Z = 0.22 (P = 0.83)								
Test for subgroup differences: Not applicable								



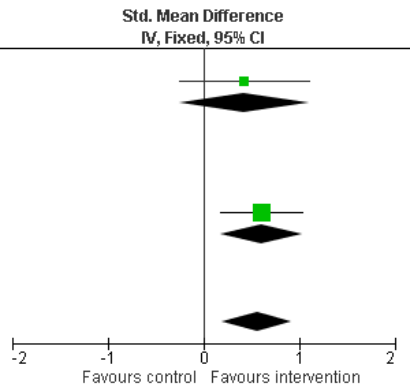
Carer quality of life

Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
8.4.1 Carer only								
Gaugler 2015a	1.49	10.29191	54	0	10.29191	53	17.9%	0.14 [-0.24, 0.52]
Mohide 1990	64	33	22	53	41	20	12.4%	0.29 [-0.32, 0.90]
Subtotal (95% CI)			**76**			**73**	**30.3%**	**0.19 [-0.14, 0.51]**
Heterogeneity: Tau² = 0.00; Chi² = 0.16, df = 1 (P = 0.69); I² = 0%								
Test for overall effect: Z = 1.13 (P = 0.26)								
8.4.2 Dyadic								
Chien 2008	0	16.8	44	-5.3	16.7	44	16.8%	0.31 [-0.11, 0.73]
Chien 2011	0	15	46	-15.2	17.5	46	16.6%	0.92 [0.49, 1.36]
Torkamani 2014	4	9.40528	30	-1	9.40528	30	14.4%	0.52 [0.01, 1.04]
Waldorff 2012	-0.31	18.78085	141	0.2	15.68423	150	21.9%	-0.03 [-0.26, 0.20]
Subtotal (95% CI)			**261**			**270**	**69.7%**	**0.41 [-0.04, 0.86]**
Heterogeneity: Tau² = 0.17; Chi² = 16.27, df = 3 (P = 0.0010); I² = 82%								
Test for overall effect: Z = 1.80 (P = 0.07)								
Total (95% CI)			**337**			**343**	**100.0%**	**0.34 [0.04, 0.64]**
Heterogeneity: Tau² = 0.09; Chi² = 16.53, df = 5 (P = 0.005); I² = 70%								
Test for overall effect: Z = 2.20 (P = 0.03)								
Test for subgroup differences: Chi² = 0.64, df = 1 (P = 0.42), I² = 0%								

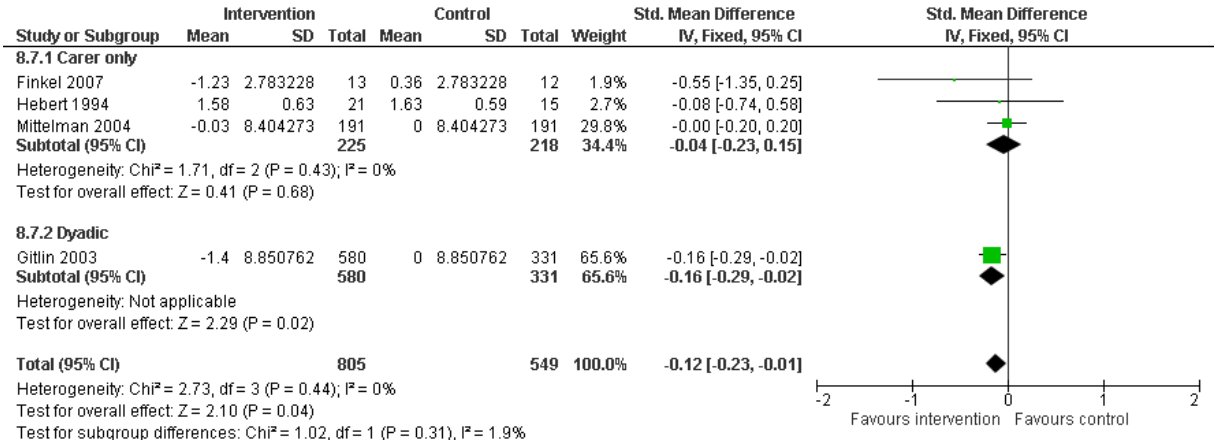


Carer social support

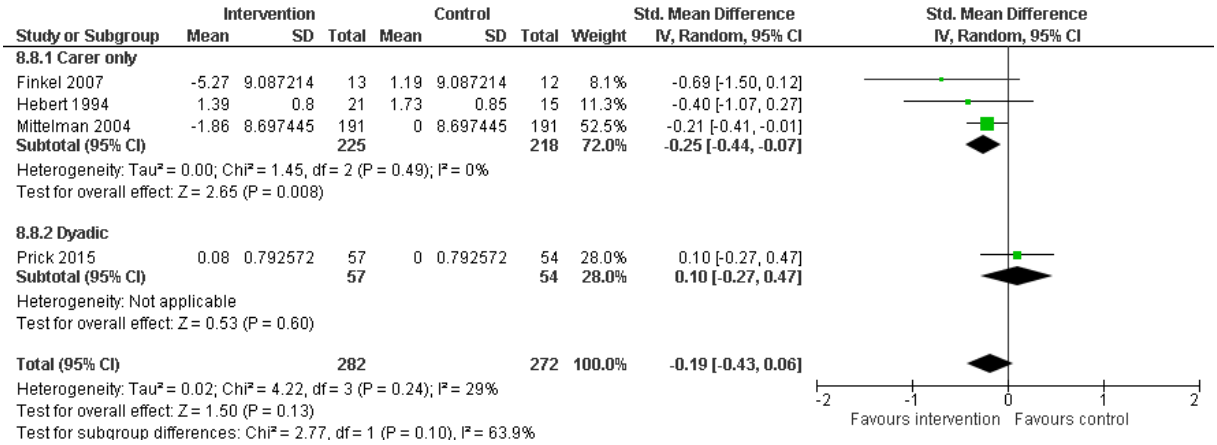
Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
8.6.1 Carer only								
Finkel 2007	0.72	1.515073	16	0.06	1.515073	18	28.3%	0.43 [-0.26, 1.11]
Subtotal (95% CI)			**16**			**18**	**28.3%**	**0.43 [-0.26, 1.11]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 1.22 (P = 0.22)								
8.6.2 Dyadic								
Chien 2008	0	2.1	44	-1.3	2.1	44	71.7%	0.61 [0.19, 1.04]
Subtotal (95% CI)			**44**			**44**	**71.7%**	**0.61 [0.19, 1.04]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 2.81 (P = 0.005)								
Total (95% CI)			**60**			**62**	**100.0%**	**0.56 [0.20, 0.92]**
Heterogeneity: Chi² = 0.21, df = 1 (P = 0.65); I² = 0%								
Test for overall effect: Z = 3.03 (P = 0.002)								
Test for subgroup differences: Chi² = 0.21, df = 1 (P = 0.65), I² = 0%								



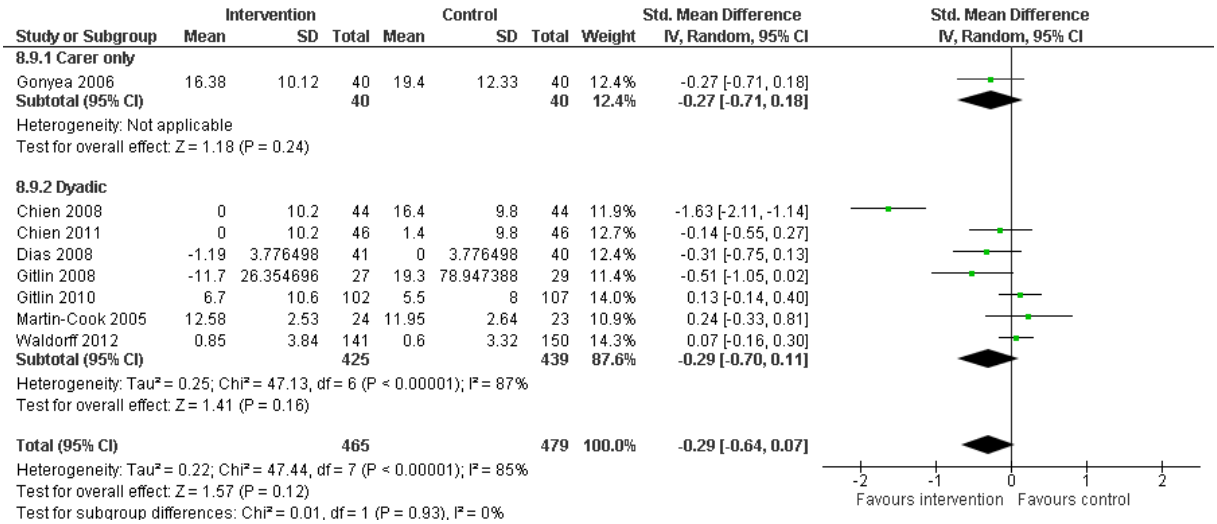
RMBPC-severity



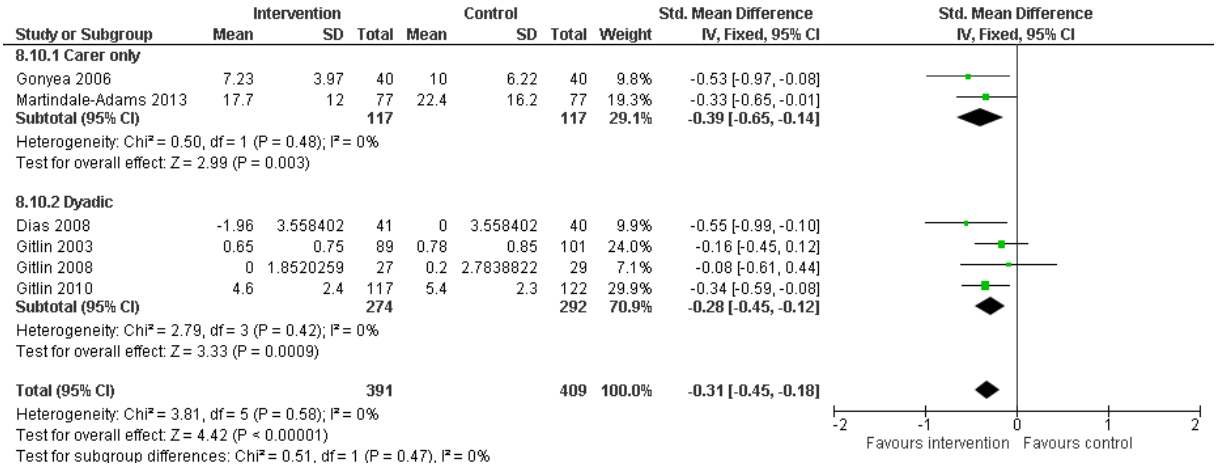
RMBPC-reaction



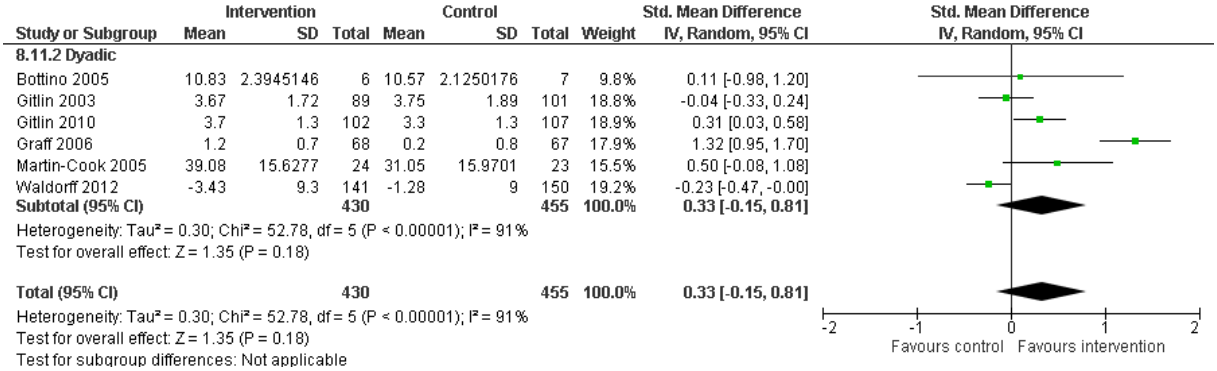
BPSD-severity



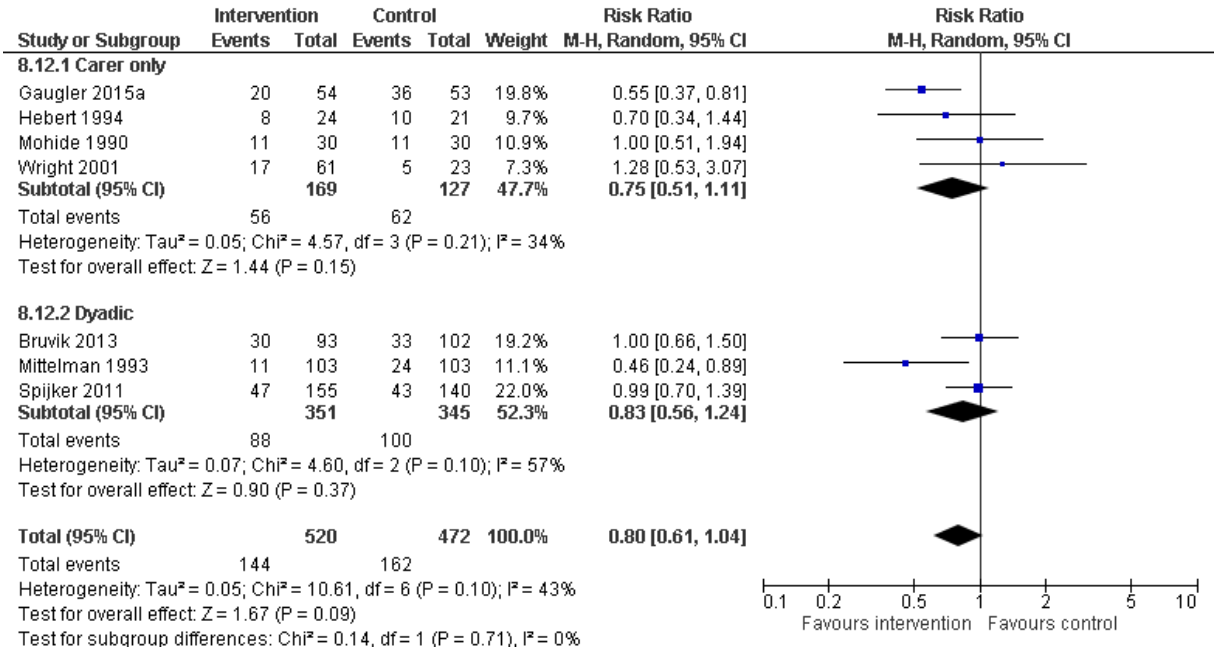
BPSD-reaction



Activities of daily living (person living with dementia)

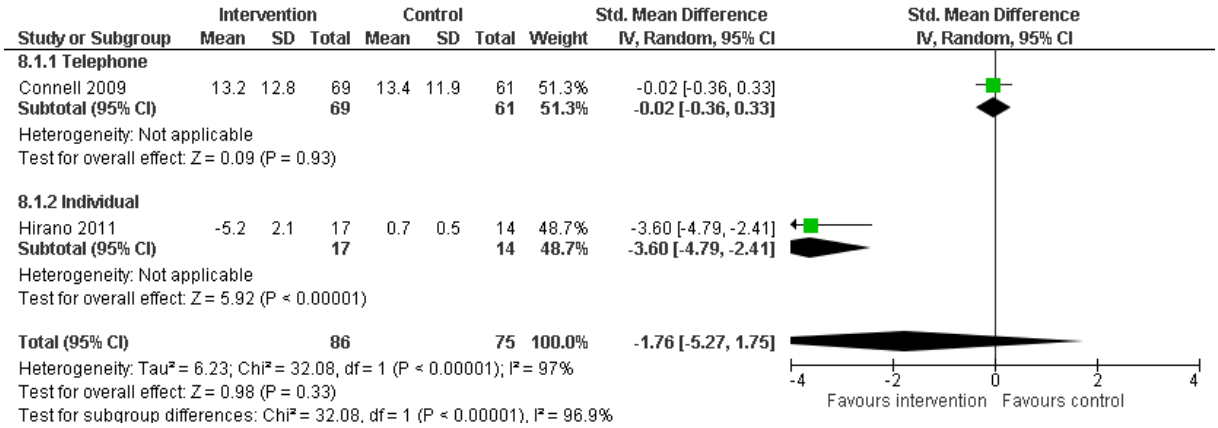


Proportion entering long stay care

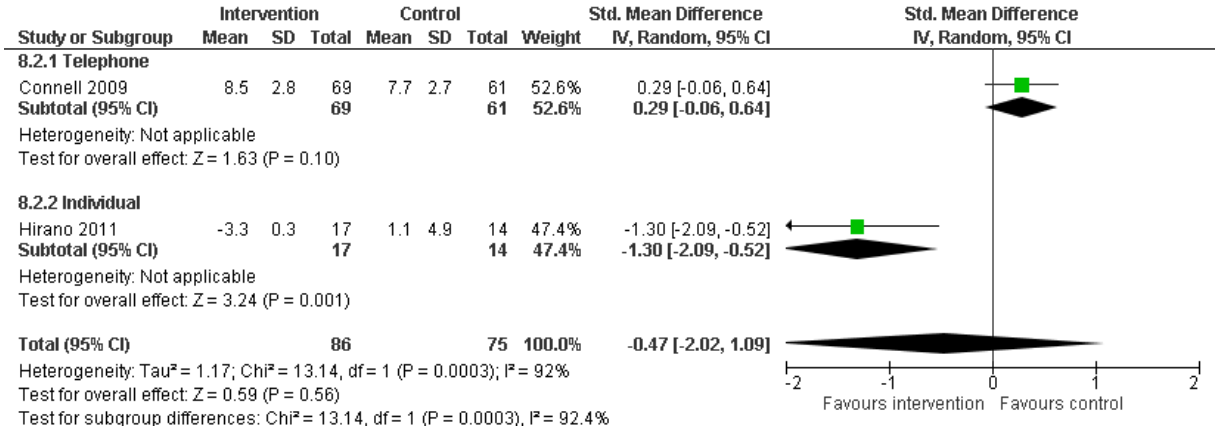


H.11.1.8 Exercise

Carer burden

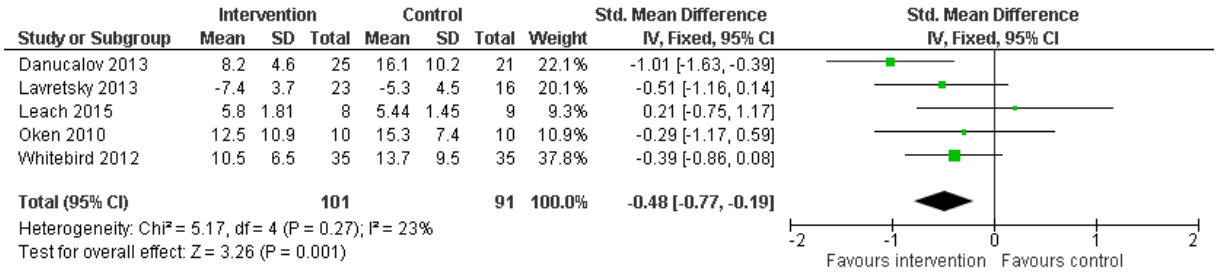


Carer depression

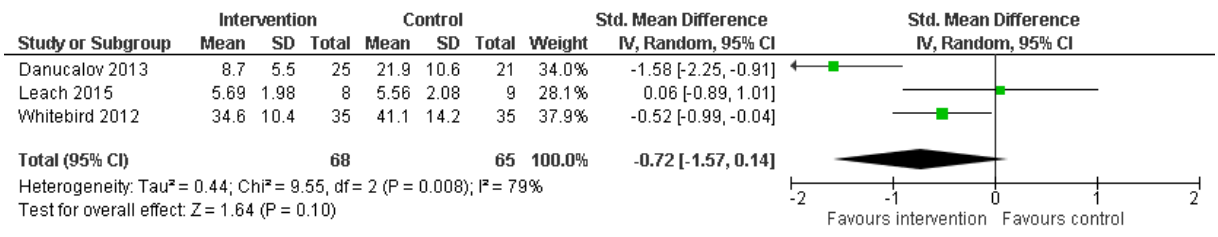


H.11.1.9 Meditation/mindfulness

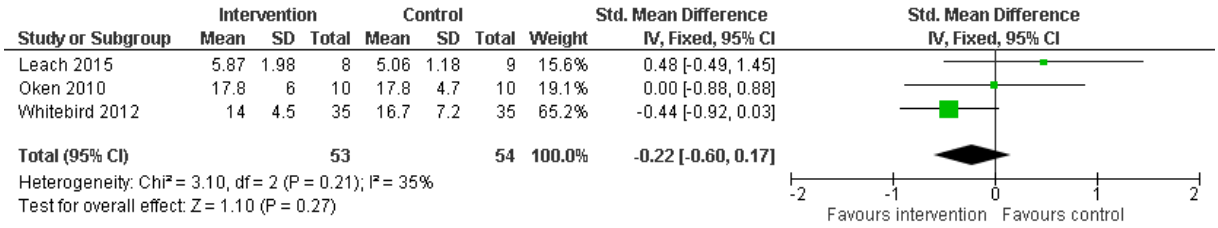
Carer depression



Carer anxiety

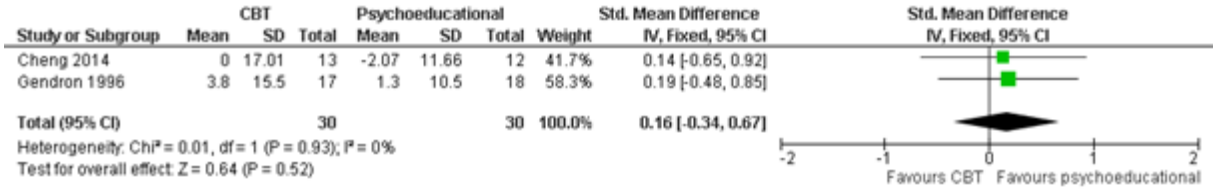


Carer stress

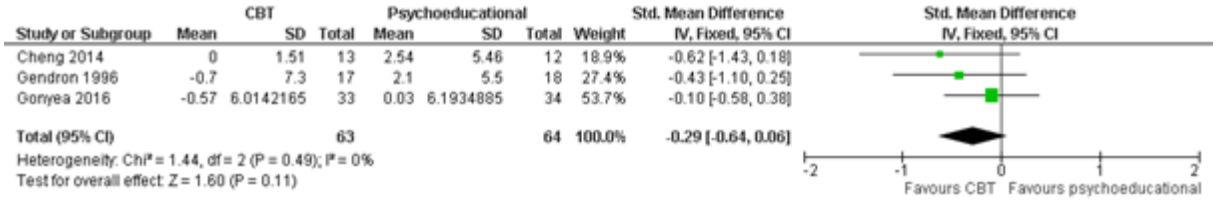


H.11.1.10 Psychotherapy versus psychoeducational interventions

Carer burden



Carer depression



H.11.1.11 Meta-regression

For the purposes of the meta-regression analysis, each study was categorised using the following variables:

- Components of intervention – unlike in the pairwise meta-analyses, a study intervention in this analysis could consist of multiple elements.
- Mode of delivery – the predominant mode of delivery in the study, either individual, group, telephone or technology-based.
- Target of intervention – either carer only or carer and person living with dementia dyads.

The categorisation of each study within this scheme is given in the table below. Sufficient data were only available to run the meta-regression analysis for the outcome of carer depression, with the same input data used as reported for the pairwise meta-analyses above. Carer depression was modelled on a standardised mean difference scale, using a pooled standard deviation across the arms within a study. The following analyses were conducted:

- An analysis containing the full list of all components included within any intervention.
- A restricted analysis, only including those intervention components included in enough studies to provide reliable estimates of effect.
- An analysis of the effect of the mode of intervention delivery (individual, group, telephone, technology-based).
- An analysis of the effect of the target of an intervention (carer only, or dyadic for the person living with dementia and their carer).
- An analysis including both intervention components and mode of delivery.
- An analysis including both intervention components and the target of an intervention.

- Two analyses looking at intervention components, and also including specific parameters for the numbers of components in an intervention, to test for either an additive effect of multiple interventions, or for a diminution of effect, where the overall effectiveness of a multicomponent intervention is less than the sum of its components. One of these used a single covariate for whether an intervention was multicomponent or not, the other used terms for the specific number of components within an intervention.

Sample WinBUGS code for the first analysis listed (full list of intervention components) is given below. Other analyses used the same substantive code, but modified to include the relevant predictor variables for the model under consideration.

An extension to this approach is to fit models including interaction terms between the parameters in the model. This was considered to be inappropriate here due to the lack of information available about the support provided in the control arms of trials. Many trials reported people in the control arm received 'services as usual' with the intervention arm receiving this plus the structured intervention. This is not a problem in the models fitted, as the effect of these standard services can be assumed to cancel out between the intervention and control arms. However, this assumption cannot be made in model with interaction terms as different interactions would be estimated for the intervention and control arms. Additionally, the DICs of the models fitted do not suggest that more complex models (those including more parameters) provide a better fit to the data than more simple models, and therefore it is unlikely a more complex interaction model would provide a substantially better fit to the data.

Sample WinBUGS code

```
model {

for (i in 1:ndata) {

        prec[i]<- n[i]/(sd[i]*sd[i])

        diff[i]~dnorm(meand[i],prec[i])

        meand[i]<- theta[i]*sqrt(var[i])

        theta[i]<- mu[s[i]] + delta[i]*(1-equals(trt[i],1))

        delta[i]~dnorm(md[i],tau)

        c1[i]<- d[2]*(1-equals(PE[i],0)) + d[3]*(1-equals(ST[i],0)) + d[4]*(1-equals(Support[i],0))
        + d[5]*(1-equals(Psychotherapy[i],0)) + d[6]*(1-equals(Counselling[i],0)) + d[7]*(1-
        equals(CM[i],0))

        c2[i] <- d[8]*(1-equals(Meditation[i],0)) + d[9]*(1-equals(Exercise[i],0)) + d[10]*(1-
        equals(SA[i],0)) + d[11]*(1-equals(SM[i],0)) + d[12]*(1-equals(HA[i],0)) + d[13]*(1-
        equals(Information[i],0)) + d[14]*(1-equals(EM[i],0))

        md[i]<- c1[i] + c2[i]

        dev[i] <- (diff[i]-meand[i])* (diff[i]-meand[i])*prec[i]

}

resdev<- sum(dev[])

for (j in 1:nstudy) {

        mu[j]~dnorm(0,.001)

}
```

```
d[1]<-0
for (k in 2:ntrt) {
        d[k]~dnorm(0,.001)
}
tau<- 1/(sd.d*sd.d)
sd.d~dunif(0,50)
for (k in 1:ntrt) {
        pbest[k]<- equals(rank(d[],k),1)}
        dum1<- Individual[1]
        dum2<- Group[1]
        dum3<- Telephone[1]
        dum4<- Technology[1]
        dum5<- Carer[1]
        dum6<- Dyadic[1]
}
```

Model results

The results from the various meta-regression analyses conducted provided results qualitatively similar to those from the pairwise analyses (i.e. decomposing the multicomponent interventions did not change the results found). Specifically:

- Skills training and psychotherapy were both associated with significant reductions in depressive symptoms.
- Interventions conducted in groups provided the largest effect sizes.
- Interventions targeted at carers alone were more effective than those targeting both the person living with dementia and their carer.
- Additionally, the meta-regression model did find there was a loss of effectiveness associated with adding additional components to an intervention, meaning an intervention with a small number of effective components is likely to be more effective than one containing a larger number of components.

As the results from the meta-regression models fitted supported the conclusions reached from the pairwise meta-analyses and the health economic evidence, it was agreed there would be unlikely to be substantial value from further exploring more complex models to fit to the data. The results of all the models fitted are given below, after the table describing the studies in the analysis.

Meta-regression data

Reference	Intervention description	Meta-regression covariates			
	As reported in paper	Mode of delivery (choose 1): Individual Group Telephone Technology-based	Elements of intervention (choose 1+): Psychoeducation Skills training Supportive interventions Respite Psychotherapy Counselling Case management Meditation/mindfulness Exercise Structured assessment Stress management Own health advice Information Environmental modification	Target of intervention (choose 1): Carer only Dyadic	Intensity of intervention: Number of hours
Bourgeois 2002	Described as 'skills training'. Two groups: Patient change group: focused on teaching caregivers to change patient behaviour. Self-change group: to teach caregivers to change their own coping behaviours. Didactic presentations of either general behavioural principles as they relate to the symptoms of dementia (patient change group) or a didactic presentation of three self-change strategies (Increasing Pleasant Events, Problem Solving, and Relaxation Techniques) (self-change group) Individual home visits focused on problem solving and feedback and individualised instruction based on group assignment	Individual	Psychoeducation Skills training	Carer only	14 hours (3hr group workshop 11*1hr individual)

Reference	Intervention description	Meta-regression covariates			
Gendron 1996	Two groups: Cognitive behavioural: led by clinicians trained in cognitive-behavioural therapy. Aimed at enhancing caregivers' coping skills and focused particularly on participants' difficulties in dealing with the affected spouse and on personal problems encountered in fulfilling the caregiving role. Included coping skills training and brief discussion of same topics covered by information support group. Information support: live or video presentation of different topics dealing with health and aging, dementia, community resources, social and leisure activities, nutrition, respite services and legal issues Both groups included an extended non-structured discussion (peer support element)	Group	Group one: Psychotherapy Psychoeducation Skills training Supportive interventions Group two: Psychoeducation Information Supportive interventions	Carer only	12 hours (8*90 minute group sessions)
Hebert 2003	Described as 'psychoeducative'. Aim to improve the caregiver's ability to cope with the numerous daily sources of stress associated with caring for a person with dementia. It comprised two components: cognitive appraisal and coping strategies.	Group	Psychoeducation	Carer only	30 hours (15 *2 hour group sessions)
Hepburn 2005	The PIC psychoeducation approach was designed to provide caregivers with something akin to clinical training. The curriculum emphasized mastery of the practice of daily caregiving and development of a confident caregiving attitude	Group	Psychoeducation	Carer only	Not reported
Ostwald 1999	Described as psychoeducation. Programme delivered as group workshops which aimed to: Provide information about dementia Develop practical skills for dealing with care giving tasks Strengthen confidence and improve	Group	Psychoeducation Skills training Information	Dyadic	14 hours (7*2hour group workshops)

Reference	Intervention description	Meta-regression covariates			
	communication and understanding People with dementia invited to attend concurrent group providing day-care like activities				
Cristancho-Lacroix 2015	Web based programme described as 'psychoeducation'. Included education on dementia, understanding people with dementia and their behaviour, skills to cope with behavioural and emotional troubles, practical skills (e.g. medication, preventing falls, social and financial support), relaxation training. Also included a forum for peer support	Technology-based	Psychoeducation Skills training Information Supportive interventions	Carer	4 hours (estimated based on 12 15-30 minute sessions)
Kwok 2014	Online cognitive behavioural therapy delivered by counsellors with training in CBT. Aimed to develop ability to deal with behavioural and psychological symptoms of dementia. Individualised therapy based on problematic symptoms. Participants also had access to psychoeducation component of the website.	Technology-based	Psychotherapy Psychoeducation	Carer	9 week intervention (total hours not reported or possible to estimate)
Tremont 2015	Caregivers received 16 telephone contacts distributed over 6 months that focused on providing dementia education, emotional support, directing caregivers to appropriate resources, encouraging caregivers to attend to their physical, emotional, and social needs, and teaching caregivers strategies to cope with ongoing problems.	Telephone based	Psychoeducation Skills training Counselling	Carer	8 hours (estimated from 16 telephone contacts, estimated as 30 mins each)
Burns 2003	Intervention was focused around 25 written information pamphlets on management of behavioural problems, and an additional 12 pamphlets focusing on carer wellbeing. Included specific advice on dealing with problem behaviour. The written material guided the structure of	Individual	Psychoeducation Skills training Information	Carer	9 hours (3-monthly 30 minute individual sessions and twice monthly telephone contact in first 6 months,

Reference	Intervention description	Meta-regression covariates			
	the face –to-face sessions. Information on dementia, and the work of dementia-focused groups and organisations was also provided				monthly for remaining intervention period)
Losada 2004	Psychotherapy: Cognitive behavioural intervention aimed at the modification of dysfunctional thoughts about caregiving Skills training: Problem-solving skills training (PSP) for caregivers, with the aim of modifying the behavioural problems of their relative	Individual	Group 1: Psychotherapy Group 2: Skills training	Carer	Not reported
Zarit 1982	Problem-solving training comprising practical steps to manage day-to-day problems caused by the memory loss. Participants, including both the individuals with dementia and the caregivers, were asked to talk about specific instances of forgetting that were troublesome. Suggestions for managing these problems were made by group leaders or other participants, taking into account an individual's severity of memory loss, living arrangements, and personal resources.	Group	Skills training	Dyadic	10.5 hours (7 sessions, 1.5 hours per session)
Blom 2015	Internet-based course with 9 lessons. Each lesson had information, exercises and homework, and included: coping with behavioural problems (problem solving); relaxation; arranging help from others; changing non-helping thoughts into helping thoughts (cognitive restructuring); and communication with others (assertiveness training)	Technology-based	Psychoeducation Skills training	Carer	8 lessons + booster session with individual feedback from a coach on homework
Brennan 1995	Received a computer terminal and modem, which was installed in participant's home, which provided access to information	Technology-based	Psychoeducation Information Supportive interventions	Carer	Not reported (access to system throughout 1 year

Reference	Intervention description	Meta-regression covariates			
	(electronic encyclopaedia with information on dementia), decision support algorithm and communication (access to forum of other care givers and ability to send private messages to other care givers).				study)
Eisdorfer 2003	Two intervention groups: Family therapy: Intervention provided by a family therapist to the caregiver and other family members. The aim was to identify problematic family interactions and to modify them. Family therapy + computer telephone system: As above, but care givers were also provided with a computer-telephone system to enhance therapy – the aim was to allow enhanced contact with the therapist and other family members outside of the home	Individual	Psychotherapy	Carer	14 hours (mean contact time per caregiver reported)
Finkel 2007	Primary component of intervention delivery was the 'computer telephone integration system'. Carers could (a) place and receive calls, (b) send and retrieve messages, (c) access information and services, and (d) conference with several people simultaneously. Intervention was provided over 6 months and included 2 in-home sessions and 12 sessions conducted over the CTIS. Eight individual educational skill-building sessions and six support group sessions were interspersed	Technology-based	Skills training Psychoeducation Supportive intervention	Carer	Not reported (2 in-home sessions, 12 sessions via CTIS, 8 individual, 6 support group)
Done 2001	A specialist speech and language therapist facilitated a group discussion about the causes of communication breakdown in various video scene. This was followed by the presentation of a training video in which the same script was used but a successful communication strategy adopted.	Group	Psychoeducation	Carer	2 hours (2 sessions, each 1 hour long)

Reference	Intervention description	Meta-regression covariates			
Nobili 2004	Described as a 'structured intervention'. The caregiver was visited by a psychologist who discussed and advised on family dynamics, caregiver stress, changes in personality, communication between the care giver and recipient and how problematic behaviour was managed. The care giver was also visited by an occupational therapist who gave practical advice on strategies to prevent and manage problem behaviour, how to retain or improve functional ability, and modifications to the home to prevent dangerous situations.	Individual	Psychoeducation Skills training Stress management Environmental modification	Carer	2.5 hours (60 minute visit by a psychologist and 90 minute visit by an occupational therapist)
Oken 2010	Psychoeducation group: In the classes, caregivers developed self-care tools to reduce personal stress, change negative self-talk, communicate their needs to family members and health care and service providers, communicate more effectively in challenging situations, and make tough caregiving decisions Mindfulness: The meditation intervention was based on Mindfulness-Based Stress Reduction. The objectives of the intervention were to (1) help participants understand their personal reactions to stress, (2) teach skills that provide means to modify stress reactions, and (3) promote self-care and feelings of competence and mastery.	Group	Group 1: Skills training Stress management Group 2: Mindfulness/meditation	Carer	9 hours (6 session, each 90 minutes long)
Ducharme 2011	The intervention was provided by nurses during a 4 day individual training course. The aims of the intervention were: to develop skills adapted to the relative's present situation, such as communication skills; to discuss responsibility for care among family members; to become familiar with formal services	Individual	Psychoeducation Skills training Information	Carer	24 hours (estimated based on 6 hours per day for 4 day course)

Reference	Intervention description	Meta-regression covariates			
	available; and to plan for the future. Details of how these aims were delivered is not reported.				
Gitlin 2001	Described as a 'home environmental intervention'. Delivered by an occupational therapist. Involved educating caregivers about the impact of the environment on dementia-helping caregivers simplify objects in the home (e.g., remove clutter), break down tasks (e.g. one- or two-step commands, lay out clothing in the order in which it is to be donned),and involve other members of the family network or formal supports in daily caregiving tasks.	Individual	Psychoeducation Environmental modification	Carer	7.5 hours (5*90 minute sessions)
De Rotrou 2011	In every session, experienced health professionals (geriatrician, psychiatrist, psychologist, social worker, speech therapist, occupational therapist) provided caregivers with detailed information on specific aspects of the disease. The PEP was focused on education, problem-solving techniques and emotion-centred coping strategies, management of patient's behaviour, communication skills, crisis management, resource information and practical advice.	Group	Psychoeducation Skills training	Carer	24 hours (12 weeks, a 2-hour session each week)
Hepburn 2001	A community-based 14-h training program over 7 weeks designed to provide the caregiver with the knowledge, skills and beliefs required to function effectively in their caregiving role. The training had five components – information provision, concept development, role clarification, belief clarification and mastery-focused coaching. Information provided on an ongoing basis, including specific information about services and coaching regarding their new role.	Group	Skills training Information	Carer	14 hours (7 weeks, with 2 hours per week)

Reference	Intervention description	Meta-regression covariates			
Gavrilova 2009	Assessment—1 session. (a) cognitive and functional impairments; (b) carer's knowledge and understanding of dementia; (c) care arrangements Basic education—2 sessions. (a) general introduction to the illness; (b) what to expect in the future; (c) what causes and what does not cause dementia?; (d) locally available care and treatment. Training on problem behaviours—2 sessions. Up to eight problem behaviours identified in the assessment are addressed (personal hygiene, dressing, incontinence, repeated questioning, clinging, aggression, wandering, apathy).	Individual	Psychoeducation Skills training Structured assessment	Carer	2.5 hours (5 sessions, each 30 minutes long)
Guerra 2011	Assessment—1 session. (a) cognitive and functional impairments; (b) carer's knowledge and understanding of dementia; (c) care arrangements Basic education—2 sessions. (a) general introduction to the illness; (b) what to expect in the future; (c) what causes and what does not cause dementia?; (d) locally available care and treatment. Training on problem behaviours—2 sessions. Up to eight problem behaviours identified in the assessment are addressed (personal hygiene, dressing, incontinence, repeated questioning, clinging, aggression, wandering, apathy).	Individual	Psychoeducation Skills training Structured assessment	Carer	2.5 hours (5 sessions, each 30 minutes long)
Horvath 2013	Received a home safety toolkit, which included a booklet (keep the home safe for a person with memory loss) and bag of samples of products which aimed to reduce risky behaviours and accidents (e.g. motion sensor, stove knob covers). Care givers were given	Individual	Skills training Information	Carer	0.3 hours (15-20 minutes to review material and ask questions)

Reference	Intervention description	Meta-regression covariates			
	15-20 minutes to review the material and ask questions.				
Martin-Carrasco 2009	A skills training/educational activity, which involved regularly and periodically attending a course and included the following objectives: (a) to help the caregiver control tension and stress deriving from caregiving; (b) to teach the caregiver different strategies for handling their relative's behavioural problems; and (c) to increase their satisfaction with life	Individual	Skills training Stress management	Carer	12 hours (8 sessions, each of 90 minutes)
Hattink 2015	Online course, which aimed to provide information on dementia symptoms and diagnosis, functional consequences of dementia on daily life and compensating for psychosocial consequences of dementia. Also provided access to facebook and linked in communities for peer support	Technology based	Psychoeducation Supportive interventions	Carer	Not reported (had access to system throughout study)
Liddle 2012	Training sessions on memory support and communication strategies delivered by DVD, with research staff present to encourage discussion and answer questions. Care givers kept the DVDs and were also given a booklet and reminder card listing strategies.	Technology based	Skills training	Carer	1.5 hours (2*45 minute sessions)
Davis 2004	Telephone-based skills training plus conversation about finding and using local community resources: Thinking constructively about caregiving problems (primary appraisal), acquiring an increased sense of self-efficacy around personal caregiving abilities (secondary appraisal), being more resourceful in managing (coping with) caregiving situations	Telephone	Skills training Counselling Information	Carer	Not reported
Burgio 2003	Described as 'skills training'. Attended workshop and were provided with notebook and videotapes demonstrating critical skills.	Individual	Skills training	Carer	Total contact time=11.5

Reference	Intervention description	Meta-regression covariates			
	Also visited individually to assist with application of skills. Provided information and support on behaviour management techniques and frequently used strategies including communication skills, memory aids, and reinforcement techniques. The interventionist encouraged application of these skills to increase pleasant events, social support, and exercise or to improve diet. Also included cognitive restructuring, to encourage more realistic beliefs and goals.				3hr group workshop, 8 1hr individual sessions and 2 phone calls (estimated at 15 minutes each)
Kurz 2010	Therapists were experienced psychologists or social workers who received a study-specific training prior to the onset of the trial. The educational program focuses on information about Alzheimer's disease and is structured along the different stages of dementia severity	Group	Psychoeducation	Carer	10.5 hours (7 sessions, each of 90 minutes)
Ulstein 2007	3hr educational programme about dementia run by physicians on symptoms, treatment and the normal course of dementia, followed by 6 group meetings on communication technics and problem solving.	Group	Psychoeducation Skills training	Carer	15 hours (3hr workshop, 6*2hr meetings)
Chu 2011	12 week structured group support programme. Care givers were encouraged to share their experiences. Sessions were structured around sharing emotions, experiences of behaviour problems, carer needs, communication problems, future care plans.	Group	Supportive interventions	Carer	12 hours (12 sessions, estimated at 1hr each)
Fung 2002	Group sessions consisted of education, sharing and discussion, psychological support, problem solving.	Group	Supportive interventions	Carer	12 hours (12*1hr sessions)
Hebert 1994	Group sessions facilitated by a nurse. Each session included information on dementia (symptoms, diagnosis, prognosis, treatment,	Group	Psychoeducation Supportive interventions	Carer	24 hours (8 session, each of 3 hours)

Reference	Intervention description	Meta-regression covariates			
	legal and ethical issues, and resources), role playing techniques to explore behavioural or emotional problems, the opportunity to share personal experiences, and an introduction to relaxation techniques.				
Senanarong 2004	Nurses provided information on dementia course and prognosis, management of abnormal behaviours especially agitation and aggression, environmental adaptation and recreation strategies to cope with disturbed behaviours, identification of underlying needs which can cause maladaptive behaviours, appropriate communication techniques and tactics for provision of basic personal care to patients with dementia.	Group	Psychoeducation Skills training	Carer	3.75 hours (5 sessions, ech of 45 minutes)
Goodman 1990	A model telephone program with two components: peer telephone networks and telephone accessed informational lectures on Alzheimer's disease. The program components were separated to enable a randomized comparison, although caregivers in both groups received bimonthly follow-up by staff for crisis intervention and case management.	Telephone	Supportive interventions	Carer	Not reported (12 telephone calls, but length unclear)
Mahoney 2003	Intervention included access to an automatic telephone-based system. Included automated 'conversation' with a pre-recorded computer-mediated script. 'Yes' and 'no' responses could be inputted using a touch tone phone. The system delivered information strategies to deal with problem behaviours. The system monitored response to problem-solving strategies and alerted a system manager. The system also included the facility to send voice mail messages to a nurse specialist and a telephone support group. There was also a	Telephone	Supportive interventions	Carer	Not reported (participants had access to system throughout trial)

Reference	Intervention description	Meta-regression covariates			
	care recipient distraction module that offered the care recipient a pleasant conversation to provide the care giver with respite time.				
Winter 2006	Telephone based support group linking 5 caregivers per group for an hour weekly using teleconferencing. Groups were facilitated to encourage group cohesion and to encourage sharing of experiences.	Telephone	Supportive interventions	Carer	14.8 hours (caregivers participated in a mean of 14.8 1hour sessions)
Mittelman 2008	Counselling: 2 individual sessions, 3 sessions including family members and ad hoc telephone counselling. Counselling was individually tailored, but could include information on dementia, information about resources available, help with problem behaviour and emotional support.	Group	Psychoeducation Skills training Counselling	Carer	5 hours (estimated based on 5 individual sessions, of estimated 1hr each)
Quayhagen 2000	Skills training: Problem (conflict) identification, stress reduction, anger/frustration management, communication enhancement, and conflict resolution. Focused on problems and/or conflicts that reduced their ability to interact effectively, accompanied by tasks oriented to increasing communication and problem-solving skills Support: Seminars provided a forum for information exchange, support, discussion, and problem solving. Attention was given to establishing a format that was conducive to enhancing communication between patients and caregivers.	Group 1: Individual Group 2: Group	Group 1: Skills training Group 2: Supportive interventions	Dyadic	Not reported
Charlesworth 2008	Access to a befriending scheme based in a voluntary organisation with experience of supporting befriending volunteers. Each scheme had a facilitator who was responsible	Individual	Supportive interventions	Carer	Total contact time=26 hrs Weekly home

Reference	Intervention description	Meta-regression covariates			
	for recruitment, selectin, screening, training and matching volunteers. Befrienders provided emotional support and companionship.				visits for at least 6 months (assumed 26 1hr visits)
Stirling 2012	Participants were provided with and asked to work through a decision aid, which had been developed as part of the study. The decision aid contained information on community services available, decision tools on selecting respite care, description of carer's experiences and information on dementia.	Individual	Psychoeducation Information	Carer	Not reported (intervention was simply access to written material)
Wishart 2000	Weekly 2-hour visit by trained volunteers taking the person with dementia out of the house on a walk or another activity.	Individual	Respite care	Carer	12 hours (6*2hours)
Grant 2003	The intervention group were entitled to up to 60 hours of respite care over a two-week period. The respite intervention was care of the person with dementia in the home of the caregiver and person with dementia, provided by professionals who were trained in the care of people with Alzheimer's disease. Respite care could total no more than six hours per day. The actual amount of respite care used was up to the discretion of the care giver.	Individual	Respite care	Carer	Up to 60 hours
Korn 2009	Respite care: trained companion to stay at home with the care recipient for eight sessions, and lasted for three hours. The caregivers were encouraged to participate in activities and were given transportation, admission costs and supplies for the activities they chose, which included music therapy, yoga, swimming and basket-making, activities with friends and gardening,	Individual	Respite care	Carer	24 hours (8*3 hours)
Arango-Lasprilla 2014	Cognitive behavioural intervention through a 'coping with frustration' class. 8 weeks	Group	Psychotherapy Stress management	Carer	16 hours (8 weeks, a 2-

Reference	Intervention description	Meta-regression covariates			
	intervention to introduce strategies to manage negative feelings. Interventions included relaxation; identifying and challenging negative thoughts; use of self-positive statements. Taught in a classroom format in small groups plus practical application				hour session each week)
Beauchamp 2005	Wed-based intervention (text and video) modelling positive caregiving and providing information. The programme was personalised by a questionnaire completed by the caregiver (e.g. spouses received information on finances, socialising and losing a companion, children received information on long distance care giving). Included problem solving techniques and information on handling behavioural difficulties.	Technology-based	Psychoeducation Skills training Information	Carer	0.5 hours (mean time spent using the programme was 32.2 minutes)
Au 2010	CBT group intervention conducted by two clinical psychologists-in-training. CBT classes were conducted in small groups with 5–8 people in a 2-h workshop format for 13 consecutive weeks.	Group	Psychotherapy Information	Carer	26 hours (13 weeks, a 2 hour workshop each week)
Coon 2003	Two intervention groups: Anger management: Early sessions presented the cognitive-behavioural model and treatment rationale, discussed sources of caregiver frustration, and taught basic relaxation skills and specific cognitive skills: how to generate positive self-talk and how to monitor dysfunctional or unhelpful thoughts that preceded feelings of frustration. Depression management: based on social learning theory and followed cognitive-behavioural principles. Goal was to increase life satisfaction. Emphasised the importance of engaging in pleasant activities.	Group	Psychotherapy	Carer	20 hours (10 2-hour workshops)

Reference	Intervention description	Meta-regression covariates			
Gallagher-Thompson 2008	Group sessions based on cognitive-behavioural principles. Discussion and teaching of problem-solving strategies. Included practice of a 5-10 minute relaxation technique that participants were encouraged to use at home. Home-based exercises were used to reinforce the techniques learnt. Topic covered included education on dementia, manging problem behaviour, taking care of the care giver, and planning for the future.	Group	Psychotherapy Psychoeducation Stress management	Carer	29 hours (Weekly 2hr sessions for 13 to 16 weeks)
Marriott 2000	Described as a cognitive behavioural family intervention. Included carer education on dementia, coping skills training (addressing problematic behaviours) and stress management. Written information on the same topics was also provided	Group	Psychotherapy Psychoeducation Stress management	Dyadic	14 hours (estimated based on 14 sessions – assumed 1hr per session)
Gallagher-Thompson 2007	Individual sessions based on cognitive-behavioural principles. Discussion and teaching of problem-solving strategies. Included practice of a 5-10 minute relaxation technique that participants were encouraged to use at home. Home-based exercises were used to reinforce the techniques learnt. Topic covered included education on dementia, manging problem behaviour, taking care of the care giver, and planning for the future.	Individual	Psychotherapy Psychoeducation Stress management	Carer	29 hours (Weekly 2hr sessions for 13 to 16 weeks)
Losada 2015	CBT: Developed according to a cognitive–behavioural model of caregiver distress. Included modules on cognitive restructuring, assertiveness skills, relaxation and increasing pleasant activities. Acceptance commitment therapy: based on: (1) acceptance of aversive internal events and the circumstances activating them, (2) choosing meaningful courses of action consistent with one's personal values, and (3)	Individual	Psychotherapy	Carer	12 hours (8*90 minute sessions)

Reference	Intervention description	Meta-regression covariates			
	action oriented toward those values.				
Marquez-Gonzalez 2007	Focus on dysfunctional thoughts: This module focused on the management of dysfunctional thoughts and cognitive distortions. Its main objective was to train caregivers in the detection and modification of specific dysfunctional thoughts about caregiving that may act as barriers and obstacles for an appropriate coping response in the caregiving situation. Focus on behavioural skills: In accordance with CBT procedures, the cognitive component of this intervention was complemented with a behavioural one. Specifically, this second module was aimed at training caregivers in specific coping skills so that they would be able to cope more effectively with caregiving demand	Group	Psychotherapy	Carer	Not reported
Chang 1999	Cognitive-behavioural intervention consisting of two parts. 1) Videotapes demonstrating assisted modelling behaviour (eating and dressing). 2) A Nurseline support program to reinforce the video information and assist the caregiver to explore coping strategies	Technology-based	Counselling Skills training	Carer	Not reported
Gallagher-Thompson 2010	12-week CBT skill training program delivered on a DVD. The DVD contains several sections: (a) information about dementia and caregiver stress; (b) how to recognize and change stressful behaviours of the CR (and/or learning to change CG reactions to these behaviors); (c) how to communicate more effectively with other family members about caregiving issues and how to obtain assistance if needed; (d) how to talk with health care providers about the CR's	Technology-based	Psychotherapy Psychoeducation Skills training Stress management	Carer	2.5 hours (DVD play length)

Reference	Intervention description	Meta-regression covariates			
	health issues and problematic behaviors; (e) how to access community resources along the ‘‘continuum of care’’ to obtain appropriate services when needed; and (f) how to deal with legal issues and prepare for placement or other problems near end-of-life. The narrator explains what is happening in each scene and why certain responses are ‘‘better’’ or ‘‘not so good’’ to facilitate understanding and CG effectiveness in dealing with problems that produce stress.				
Kajiyama 2013	Online programme which included information on dementia, common problems, stress management, behavioural activation (increasing pleasurable activities), communication skills and healthy lifestyle habits. A workbook was also included to reinforce online activities.	Technology based	Psychotherapy Information Skills training Stress management	Carer	Not reported (8 online modules + workbook)
Steffen 2000	Anger management video series and workbook. Included instruction and examples of female carers utilizing strategies for increasing behavioural activation for both the carer and care recipient, and improving relaxation and self-efficacy during caregiving situations	Technology based	Psychotherapy	Carer	Not reported
Akkerman 2004	CBT, conducted in small groups comprised of four to eight caregivers. Nine weeks of didactic skills training using a multidimensional model to address the physical, cognitive and behavioural components associated with caregiver anxiety	Group	Psychotherapy Information	Carer	18 hours (9 weeks, a 2 hour session each week)
Fortinsky 2009	Contact with a dementia care consultant monthly for 12 months with each family caregiver. Each contact including discussing concerns about symptoms and care responsibilities and formulation of a written	Individual	Case management	Carer	12 hours (estimated based on 12 monthly visits and estimated 1 hour

Reference	Intervention description	Meta-regression covariates			
	care plan. Care plans were faxed to the patient's physician.				per visit)
Jansen 2011	12 months of case management by a district nurse. Nurses had a co-ordinating role including assessment, giving advice and information, planning, organising collaboration and monitoring of care. Formulated a care plan.	Individual	Case management	Carer	Variable, depending on needs (typically 2 home visits then 3 monthly telephone contact up to 12 months)
Xiao 2016	Case management intervention delivered in the caregiver's home by a home care worker. Case managers (home care workers) trained to use a personal caregiving support plan and caregiving diary	Individual	Case management	Carer	Not reported
Belle 2006	The intervention addressed caregiver depression, burden, self-care, and social support and care recipient problem behaviours through 12 in-home and telephone sessions over 6 months. Key strategies for intervention included education about pleasant events and well-being, stress management techniques, importance of looking after own health, social support, and the symptoms of dementia.	Individual	Psychoeducation Skills training Stress management	Carer	12 hours (based on12 sessions, estimated 1hr per session)
Chen 2015	Study nurses provided the intervention of six sessions over 3 months. Sessions included improving knowledge of dementia, providing information regarding support services, techniques to manage behavioural and psychological symptoms or cognitive difficulties, support in relaxation and coping, and establishing a caregiver self-support system.	Group	Psychoeducation Skills training Supportive intervention	Carer	Total hours=6 (based on 6 sessions, estimated 1hr per session)
Davis 2011	Intervention strategies were based on assessment of caregiver emotional adjustment, family functioning, staff-caregiver	Telephone	Structured assessment Psychoeducation Supportive intervention	Carer	Not reported (10 contacts over 3 months)

Reference	Intervention description	Meta-regression covariates			
	interactions, health, and social support. Treatment strategies are based on models of stress and coping process and family functioning. Include referral to appropriate community-based mental health or support resources				
Gaugler 2015	Residential Care Transition Module to help families manage their emotional and psychological distress following residential care placement of a cognitively impaired relative. Intervention included psychoeducation, communication, problem solving, behaviour management strategies, concrete planning, and counselling.	Individual	Psychoeducation Skills training Counselling	Carer	9 hours (6 session, each 60-120 minutes long)
Gonyea 2006	Intervention was based on cognitive behavioural therapy and behavioural activation, and was designed to teach caregivers behavioural techniques to management neuropsychiatric symptoms and increase participation in pleasant activities.	Group	Psychotherapy Skills training	Carer	7.5 hours (5*90 minutes over 5 weeks)
Martindale-Adams 2013	Telephone support groups involving 5 to 6 families and carers and a group leader. The group met for 14 sessions over 1 year. Families and carers were provided with written materials on managing behaviours of concern and coping with stress. The intervention focused on education, skills building, and support.	Telephone based	Psychoeducation Skills training Supportive intervention	Carer	14 hours (estimated based on 14 sessions, 1hr per session)
Newcomer 1999	Case management and community care programme. Caregivers were given training on Alzheimer's disease individually and through support groups. Support groups were provided for peer support. Case managers provided information on care services, designed tailored care packages and co-ordinated assistance in caregiving tasks.	Individual	Case management Supportive interventions Information	Carer	Not reported (participants had access to services throughout trial, which was up to 36 months duration)

Reference	Intervention description	Meta-regression covariates			
Tremont 2008	Psychosocial intervention delivered by telephone by trained therapists. The calls focused on providing emotional support, directing caregivers to appropriate resources, encouraging caregivers to attend to their own physical, emotional, and social needs, and teaching caregivers strategies to cope with ongoing problems. Included an initial psychoeducation component and a follow up component where problems were identified and discussed and psychoeducation material was reviewed.	Telephone	Psychoeducation Skills training Counselling	Carer	12 hours (23 telephone calls over 1 year)
Au 2015	Standard psychoeducation plus a behavioural activation programme. Used the 'pleasant event schedule' where pleasant activities were rated for frequency and pleasure. Also provided information on access to social and psychological services. Participants received regular telephone contact where participants were taught to schedule pleasant activities according to the principles of behavioural activation.	Telephone	Psychoeducation Information	Carer	Total hours=2 (8, 15-20 minutes per phone call)
Buckwalter 1999	Progressively lowered stress threshold model training. An initial interview were carers were given an individualised needs assessment, followed by the provision of support, information and referrals to other services to support implementation of that plan	Individual	Structured assessment Information Skills training	Carer	16 hours (4 hours individual + biweekly telephone calls for 6 months
Gaugler 2015a	Residential Care Transition Module to help families manage their emotional and psychological distress following residential care placement of a cognitively impaired relative. Intervention included psychoeducation, communication, problem solving, behaviour management strategies, concrete planning, and counselling.	Individual	Psychoeducation Skills training Counselling	Carer	9 hours (6 session, each 60-120 minutes long)

Reference	Intervention description	Meta-regression covariates			
Gonzalez 2014	Six group sessions on resourcefulness training in groups of 5 to 7 carers who met for 2 hr weekly. The training taught and reinforced cognitive behavioural skills, coping strategies, problem solving, priority setting, and decision making.	Group	Skills training	Carer	12 hours (6 sessions, each of 2 hours)
Joling 2012	Intervention was a mix of individual and family sessions. Included psychoeducation and problem solving techniques, including encouragement to delegate tasks among family members. Telephone counselling was available outside of scheduled sessions if needed.	Individual	Psychoeducation Skills training	Carer	6 hours (6 sessions over 1 year, estimated 1 hour sessions)
Livingston 2013	A manual-based coping intervention comprising eight sessions (START). The program consisted of psychoeducation about dementia, carers' stress, and where to get emotional support; understanding behaviours of the family member being cared for and behavioural management techniques; changing unhelpful thoughts; promoting acceptance; assertive communication; relaxation; planning for the future; increasing pleasant activities; and maintaining skills learnt. Carers practiced these techniques at home, using the manual and relaxation CDs.	Individual	Psychoeducation Skills training	Carer	8 hours (8 sessions, each of 1 hour)
Mittelman 1996	Individual and family counselling sessions (promoting communication, teaching problem solving, managing behaviour, providing emotional support). Also provided information on dementia and resource information. Also included attendance at weekly support groups and the continuous availability of	Individual	Psychoeducation Psychotherapy Supportive interventions Skills training	Carer	Not reported (6 scheduled 1.5 hour sessions plus attendance at weekly support group indefinitely, plus access to

Reference	Intervention description	Meta-regression covariates			
	counsellors to caregivers and families to deal with crises and for advice (e.g. access to services, assistance with nursing home placement).				counsellors on an ad hoc basis.
Mittelman 2004	Individual and family counselling sessions (promoting communication, teaching problem solving, managing behaviour, providing emotional support). Also provided information on dementia and resource information. Also included attendance at weekly support groups and the continuous availability of counsellors to caregivers and families to deal with crises and for advice (e.g. access to services, assistance with nursing home placement).	Individual	Psychoeducation Psychotherapy Supportive interventions Skills training	Carer	Not reported (6 scheduled 1.5 hour sessions plus attendance at weekly support group indefinitely, plus access to counsellors on an ad hoc basis.
Mohide 1990	The aim of intervention was to enhance carer competence and achieve a sense of control. Caregiver support nurses scheduled home visits, which were initially weekly. Carers undertook a health assessment, were provided with education, a copy of “The 36-Hour Day,” problem solved strategies to reduce excessive disability, and enhance functional capacity in the PWD. Carers were offered a 4-hr block of in-home respite weekly. Carers were encouraged to attend a monthly 2-hr support group.	Individual	Psychoeducation Skills training Supportive interventions	Carer	Not reported
Wright 2001	Intervention was provided by a nurse specialist. Problem behaviours were identified and discussed, and strategies for copying were formulated. Medications were monitored and adjusted in discussion with the care recipient’s physician. Supportive counselling was also provided and referrals were made to support groups and intensive psychotherapy or medical referrals if needed.	Individual	Skills training Counselling	Carer	4 hours (1 year programme including 3 home visits and 2 phone calls. Estimated 1hr per home visit and 30 minutes per phone call)

Reference	Intervention description	Meta-regression covariates			
Chien 2008	Dementia care management programme. Education and support group for family members of people with dementia. Each family had a case manager who, in collaboration with the care givers, prioritised problem areas, summarised assessment data and formulated a multidisciplinary programme for each family. Intervention also provided information on dementia and dementia care and support resources, and included a family needs assessment. Conducted home visits each week and family health assessments each month. Provided groups with routine dementia care for the patients (e.g. pharmacotherapy and social activities) and written material for the carers.	Individual	Psychoeducation Skills training Case management	Dyadic	24 hours (12 * 2hrs over 6 months)
Chien 2011	Dementia care management programme. Education and support group for family members of people with dementia. Each family had a case manager who, in collaboration with the care givers, prioritised problem areas, summarised assessment data and formulated a multidisciplinary programme for each family. Intervention also provided information on dementia and dementia care and support resources, and included a family needs assessment. Conducted home visits each week and family health assessments each month. Provided groups with routine dementia care for the patients (e.g. pharmacotherapy and social activities) and written material for the carers.	Individual	Psychoeducation Skills training Case management	Dyadic	24 hours (12 * 2hrs over 6 months)
Dias 2008	Dyadic intervention, which Included: Basic education about dementia Education about common behaviour problems and how they can be managed	Individual	Psychoeducation Skills training Supportive intervention Information	Dyadic	13 hours (estimated based on minimum of fortnightly visits,

Reference	Intervention description	Meta-regression covariates			
	Support to the caregiver in activities of daily living Referral to psychiatrists or the family doctor when behaviour problems are severe and warrant medication intervention. Networking of families to enable the formation of support groups. Advice on government schemes Included a minimum of fortnightly visits for 6 months. Each person with dementia was seen by a psychiatrist at least once for advice on medication and common medical problems. The home care worker also met with the psychiatrist each month to provide feedback.				estimated at 1 hour each)
Gitlin 2008	Tailored Activity Program: 6 × 90-min home visits and two 15-min telephone contacts by occupational therapists over 4 months. Three activities per patient were developed based on assessments that identified the person's capacities. The interventionist developed a brief written activity prescription. Carers were instructed in how to facilitate the activity and also in stress reducing techniques to establish a calm emotional tone. As activities were mastered, interventionists generalized strategies to care problems and instructed them on how to downgrade activities for future declines.	Individual	Skills training Structured assessment Stress management Environmental modification	Dyadic	12.5 hours (8 session, each of 90 minutes, plus two 15 minute telephone calls)
Gitlin 2010	"COPE" intervention: Assessment (patient capability, medical testing, home environment, family carer communication, concerns), family carer education (patient capabilities, potential effects of medications, pain, constipation, dehydration), and family carer training to address concerns and help reduce stress.	Individual	Psychoeducation Skills training Structured assessment Stress management	Dyadic	10 hours (10 sessions estimated at 1 hr each)

Reference	Intervention description	Meta-regression covariates			
	Training in problem solving, communication, engaging patients in activities, and simplifying tasks was tailored to the needs of the dyad. Dyads received up to 10 sessions over 4 months with an occupational therapist				
Kwok 2013	Support from case manager via home visits and phone calls, home-based cognitive stimulation activities for the person with dementia and a telephone hotline to access the case manager. An occupational therapist advised on coping strategies, skills training, and behavioural management and linked the person with local services.	Individual	Case management Skills training Information	Dyadic	Not reported
Prick 2015	Eight home visits during three months, combining physical exercise and support (psychoeducation, communication skills training, and planning of pleasant activities). Both the physical exercise and support component were directed at both the person with dementia and the caregiver.	Individual	Psychoeducation Exercise	Dyadic	Not reported
Torkamani 2014	Computer system for information and support and to provide information about the person with dementia and the carer to clinicians (distance monitoring). Includes information and educational material about dementia and musical entertainment, relaxation and exercise techniques. Also allows access to other carers with a social networking function, and the ability to contact health professionals through the system.	Technology based	Psychoeducation Information Exercise Supportive intervention	Dyadic	Not reported (had access to system through the 6 month trial)
Bottino 2005	Caregivers (either a familiar or a professional caregiver) were fiven psychoeducational advice and attended support group sessions. This group aimed to offer support and to prevent early stress caused by the strain and burden of dementia caregiving, sharing	Group	Psychoeducation Supportive intervention	Dyadic	Not reported

Reference	Intervention description	Meta-regression covariates			
	information about the disease, and how to take care of the patient. Caregivers were always instructed to repeat some exercises at home in between the group sessions at least 3 times a week.				
Bruvik 2013	Included individual counselling using a problem solving method to address unmet needs. One session included the wider family and 2 sessions included the person with dementia. Also included education on dementia and written information. Carer and person with dementia also attended group meetings (separately). For the carer group, the focus was structured problem solving and coping strategies. The group with people with dementia included education about dementia and 'pleasant events'.	Individual	Psychoeducation Supportive intervention Skills training	Dyadic	22 hours (5*1hr individual counselling, 2*half day seminars, 6*2hr group sessions)
Gitlin 2003	Home and telephone contact by occupational therapists to provide education on dementia, the impact of the home environment on behavioural problems, problem solving and adaptive equipment. The programme focussed on manipulating the physical and social environment (e.g. installation of grab rails, removing or labelling of objects, short verbal instructions). Involved help with practical skills and communication with care recipients and medical professionals.	Individual	Psychoeducation Skills training Environmental modification	Dyadic	8 hours (5*90 minute home visits, 1 30 minute telephone contact over 6 months)
Graff 2006	Delivered by occupational therapists. Included home observation to identify problematic activities and a structured interview. Patients and carers were asked to prioritise areas to improve and the occupational therapist suggested modifications to the environment and skills. Included cognitive and behavioural interventions, problem solving and coping	Individual	Skills training Environmental modification Structured assessment	Dyadic	10 hours (10 session, each of 1 hour)

Reference	Intervention description	Meta-regression covariates			
	strategies.				
Judge 2013	Dyads were taught a core set of evidence-based techniques for managing dementia-related issues across the following areas: (1) education on dementia and memory loss, (2) effective communication, (3) managing memory, (4) staying active, and (5) recognizing emotions and behaviours.	Individual	Psychoeducation Skills training	Dyadic	9 hours (6*90 minute sessions)
Martin-Cook 2005	Intervention involved four weekly skills-training sessions. In Session 1, the Texas Functional Living Scale (TFLS) was administered to the patient while observed by the caregiver. In Session 2, the TFLS was re-administered with the addition of breaking tasks into smaller steps, as well as other visual, auditory, tactile, or multimodal cues and prompts to facilitate improved performance. Caregivers were told that the goal was for patients to complete as many of the IADL tasks as independently as possible, but that assistance should be rendered when patients seemed unable to proceed on their own. In Session 3, the caregiver administered the TFLS, using facilitative prompts and cues as appropriate. The study coordinator offered suggestions and input as needed to assist caregivers in cueing specific tasks. Session 4 integrated the experience of the previous three sessions. Individualized suggestions to enhance communication and specific strategies to facilitate cueing on ADL were reviewed. Practical advice regarding home safety and information about community resources, companion service agencies, and other home health services was offered.	Individual	Skills training Environmental modification Information	Dyadic	Not reported
Waldorff 2012	“DAISY” intervention. A multifaceted and semi	Individual	Psychoeducation	Dyadic	14 hours

Reference	Intervention description	Meta-regression covariates			
	tailored psychosocial intervention programme to provide counselling, information and support to patients with mild dementia and their caregivers. The intervention included up to 7 counselling sessions: 2 sessions with both patient and caregiver; 2 sessions with the patient alone; 2 sessions with the caregiver alone; and an optional network session with the patient, caregiver, and family network.		Counselling		(7 sessions, each of 2 hours)
Mittelman 1993	Caregivers in the treatment group received a comprehensive intervention that was designed to maximize the support provided to them. They agreed to participate in individual and family counselling sessions and to join and regularly attend an AD-caregiver support group. They and their families could request additional help, advice, or counselling at any time. Education was a key element of all components of the intervention. There was no predefined endpoint to the treatment.	Individual	Psychoeducation Supportive interventions Counselling	Dyadic	Not reported
Spijker 2011	The health care professionals giving care were randomised, rather than participants directly. They were trained to assess caregiver's sense of competence and depressive symptoms and provide supportive interventions to deal with deficiencies. The supportive interventions could include one or more of 60 supportive actions, in the following categories: intake, diagnostics, psychosocial care, medical care, handover care, legal care, case management, crises management.	individual	Structured assessment	Dyadic	Not reported
Connell 2009	Participants received phone calls from behaviour change counsellors. Phone calls included direction to complete daily activity logs and set long term goals. Problem solving techniques were used to overcome barriers.	Telephone based	Exercise	Carer	Not reported (14 telephone calls over 6 months)

Reference	Intervention description	Meta-regression covariates			
	Goals were regularly reviewed. Participants were also provided with a video and booklet on fitting physical activity into their daily routine.				
Hirano 2011	Participants were prescribed regular exercise of moderate intensity (3 metabolic equivalents) 3 times per week for 12 weeks. Participants carried pedometers to record step counts, and reported exercise in a journal.	Individual	Exercise	Carer	Not reported
Danucalov 2013	Stress reduction programme. Included teaching of yoga poses, breathing exercises and meditation. Participants were also encouraged to undertake 2 sessions per week at home with a DVD.	Group	Meditation/mindfulness	Carer	10 hours (8*75 mins)
Lavretsky 2013	Participants were introduced to meditation in a baseline visit and provided with a cd. They were asked to practice meditation at home each day. The meditation included chanting, deep breathing and visualisation of light.	Technology based	Meditation/mindfulness	Carer	12 hours (Participants were provided with a cd and asked to do the meditation for 12 minutes per day for 8 weeks
Leach 2015	Transcendental meditation delivered face to face by an experienced instructor (further details not provided)	Individual	Meditation/mindfulness	Carer	14 (hours)
Whitebird 2012	Received instruction on mindfulness and practiced meditation and yoga each week. Written material and CDs were provided	Group	Meditation/mindfulness	Carer	25 hours (8*2.5 hours + 1*5 hours)
Gonyea 2016	CBT: Used the antecedents-behaviour-consequence problem-solving approach to behaviour change. Aimed to increase engagement with pleasant activities. Included problem solving techniques and activities. Psychoeducation:	Group	Group 1: Psychotherapy Group 2: Psychoeducation	Carer	7.5 hours (5*90 minute weekly sessions)

Reference	Intervention description	Meta-regression covariates			
	Education on member loss and the progression of Alzheimer's disease, community resources, working with doctors, home safety and communication				
Cheng 2014	CBT: Benefit-finding intervention designed under a cognitive behavioural framework. Includes positive reappraisal coping that is intended to help caregivers construe the demands of caregiving in more positive ways Psychoeducation: A "standard" psychoeducational intervention (same topical coverage as in the benefit-finding intervention but without the positive reappraisal component)	Group	Group 1: Psychotherapy Group 2: Psychoeducation	Carer	Not reported

Meta-regression results

Depression - intervention component (full list of components)

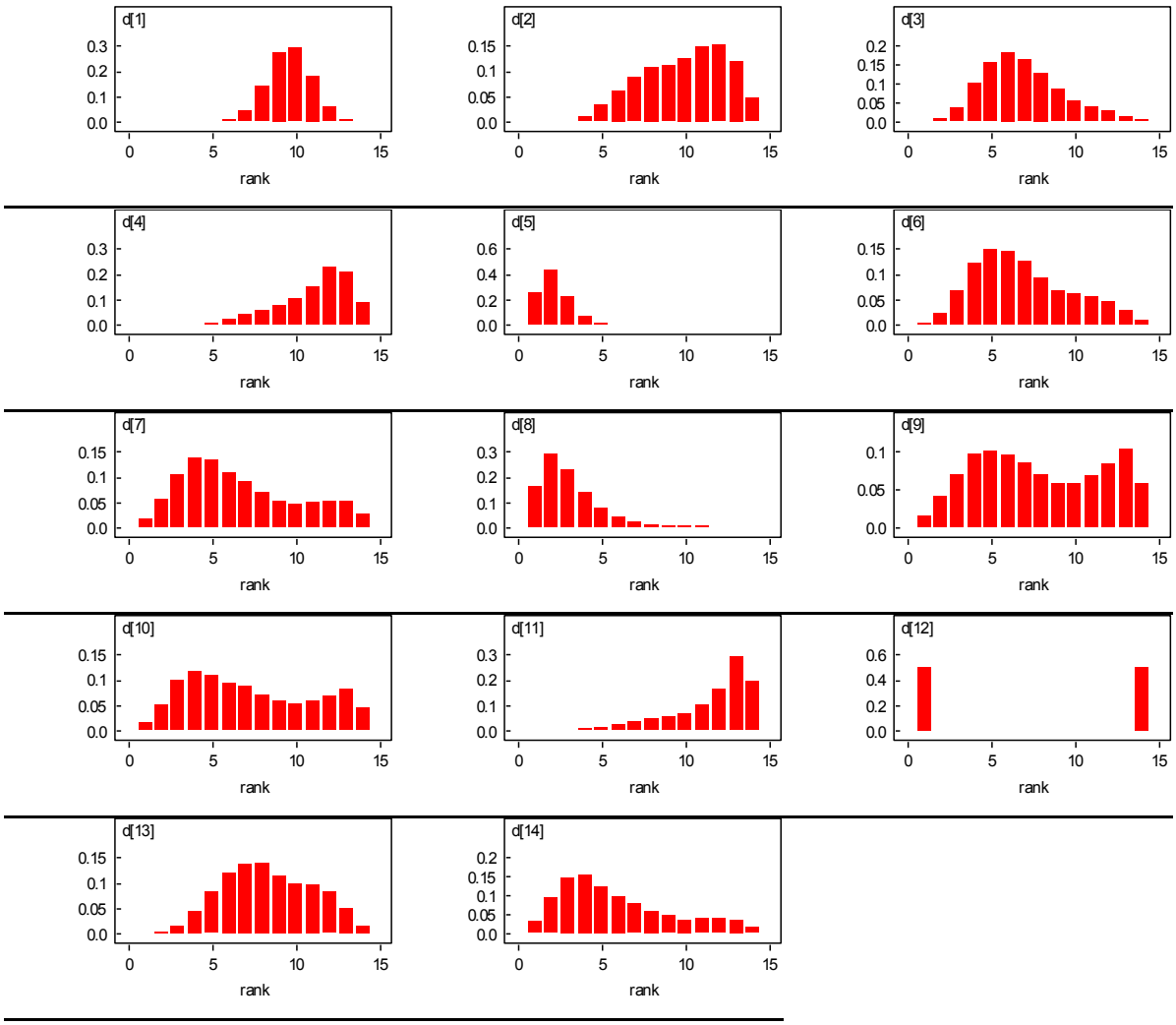
Regression results

node	mean	sd	MC error	2.5%	median	97.5%	start	sample
d[2]	0.0216	0.1073	0.00105	-0.1902	0.02166	0.2327	50001	50000
d[3]	-0.1282	0.1059	8.814E-4	-0.335	-0.1286	0.08283	50001	50000
d[4]	0.08707	0.1185	9.711E-4	-0.1473	0.08789	0.3183	50001	50000
d[5]	-0.5465	0.1176	0.001125	-0.7822	-0.5455	-0.3167	50001	50000
d[6]	-0.1407	0.1755	0.001328	-0.4876	-0.1396	0.2014	50001	50000
d[7]	-0.1661	0.2307	0.001563	-0.6201	-0.1654	0.2885	50001	50000
d[8]	-0.4597	0.2204	0.002354	-0.896	-0.4594	-0.02692	50001	50000
d[9]	-0.09056	0.2581	0.007658	-0.6133	-0.08504	0.405	50001	50000
d[10]	-0.1241	0.2443	0.00177	-0.5984	-0.1249	0.3609	50001	50000
d[11]	0.1423	0.1729	0.001501	-0.1935	0.1412	0.4846	50001	50000
d[12]	-0.04942	31.68	0.1459	-61.72	-0.2202	62.23	50001	50000
d[13]	-0.05383	0.128	9.628E-4	-0.3034	-0.05402	0.1999	50001	50000
d[14]	-0.224	0.2401	0.001738	-0.6995	-0.2217	0.2494	50001	50000
pbest[1]	0.0	0.0	4.47E-13	0.0	0.0	0.0	50001	50000
pbest[2]	0.0	0.0	4.47E-13	0.0	0.0	0.0	50001	50000
pbest[3]	3.8E-4	0.01949	8.825E-5	0.0	0.0	0.0	50001	50000
pbest[4]	0.0	0.0	4.47E-13	0.0	0.0	0.0	50001	50000
pbest[5]	0.2566	0.4368	0.002783	0.0	0.0	1.0	50001	50000
pbest[6]	0.00494	0.07011	3.416E-4	0.0	0.0	0.0	50001	50000
pbest[7]	0.01818	0.1336	6.631E-4	0.0	0.0	0.0	50001	50000
pbest[8]	0.1608	0.3673	0.002403	0.0	0.0	1.0	50001	50000
pbest[9]	0.01522	0.1224	0.001402	0.0	0.0	0.0	50001	50000
pbest[10]	0.01512	0.122	6.009E-4	0.0	0.0	0.0	50001	50000
pbest[11]	2.6E-4	0.01612	7.565E-5	0.0	0.0	0.0	50001	50000
pbest[12]	0.4948	0.5	0.002312	0.0	0.0	1.0	50001	50000
pbest[13]	2.6E-4	0.01612	7.008E-5	0.0	0.0	0.0	50001	50000
pbest[14]	0.03346	0.1798	8.939E-4	0.0	0.0	1.0	50001	50000

d[1]-No intervention d[2]-Psychoeducation, d[3]-Skills training, d[4]-Support, d[5]-Psychotherapy, d[6]-Counselling, d[7]-Case management, d[8]-Meditation/mindfulness, d[9]-Exercise, d[10]-Structured assessment, d[11]-Stress management, d[12]-Health advice, d[13]-Information, d[14]-Environmental assessment

DIC: 505.180

Probability intervention component most effective



Intervention component (reduced list of intervention components)

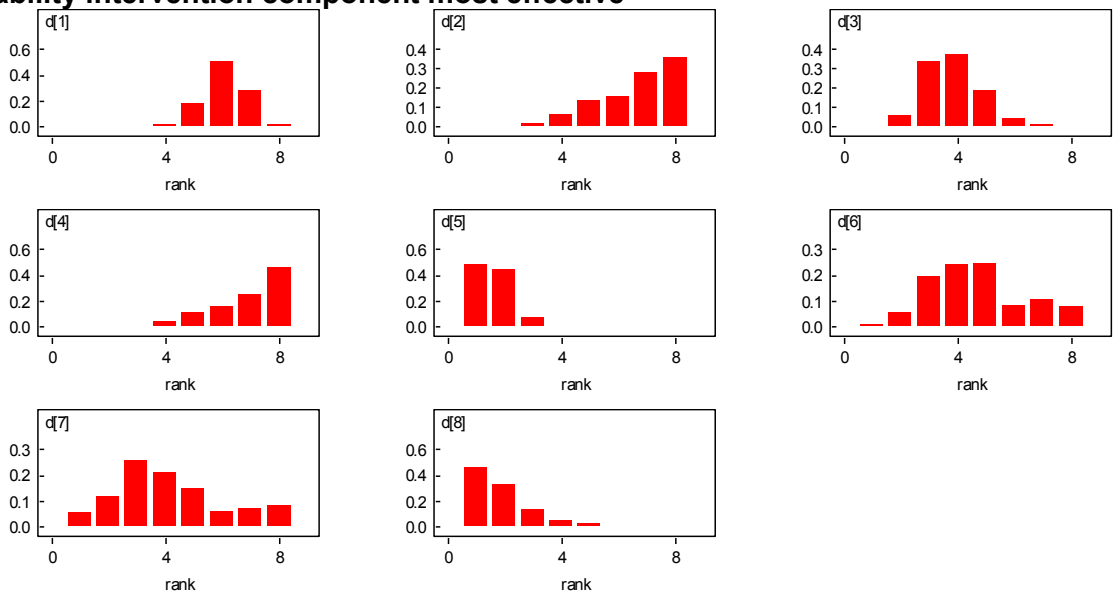
Regression results

node	mean	sd	MC error	2.5%	median	97.5%	start	sample
d[2]	0.04732	0.09572	7.578E-4	-0.1415	0.04742	0.2346	50001	50000
d[3]	-0.1839	0.08856	7.329E-4	-0.3558	-0.1851	-0.00814	50001	50000
d[4]	0.07022	0.1082	7.498E-4	-0.1429	0.07078	0.2825	50001	50000
d[5]	-0.4831	0.09906	9.083E-4	-0.6806	-0.4817	-0.2907	50001	50000
d[6]	-0.1174	0.1606	0.001051	-0.433	-0.1172	0.1977	50001	50000
d[7]	-0.1799	0.2115	0.001489	-0.6007	-0.1794	0.2355	50001	50000
d[8]	-0.4686	0.213	0.002305	-0.8855	-0.4687	-0.04955	50001	50000
pbest[1]	0.0	0.0	4.47E-13	0.0	0.0	0.0	50001	50000
pbest[2]	2.0E-5	0.004472	2.001E-5	0.0	0.0	0.0	50001	50000
pbest[3]	0.00362	0.06006	2.708E-4	0.0	0.0	0.0	50001	50000
pbest[4]	0.0	0.0	4.47E-13	0.0	0.0	0.0	50001	50000
pbest[5]	0.4787	0.4995	0.004209	0.0	0.0	1.0	50001	50000
pbest[6]	0.00878	0.09329	4.742E-4	0.0	0.0	0.0	50001	50000
pbest[7]	0.05252	0.2231	0.001227	0.0	0.0	1.0	50001	50000
pbest[8]	0.4563	0.4981	0.004443	0.0	0.0	1.0	50001	50000

d[1]-No intervention, d[2]-Psychoeducation, d[3]-Skills training, d[4]-Support, d[5]-Psychotherapy, d[6]-Case management, d[7]-Exercise, d[8]-Mindfulness/meditation

DIC: 508.938

Probability intervention component most effective



Mode of delivery

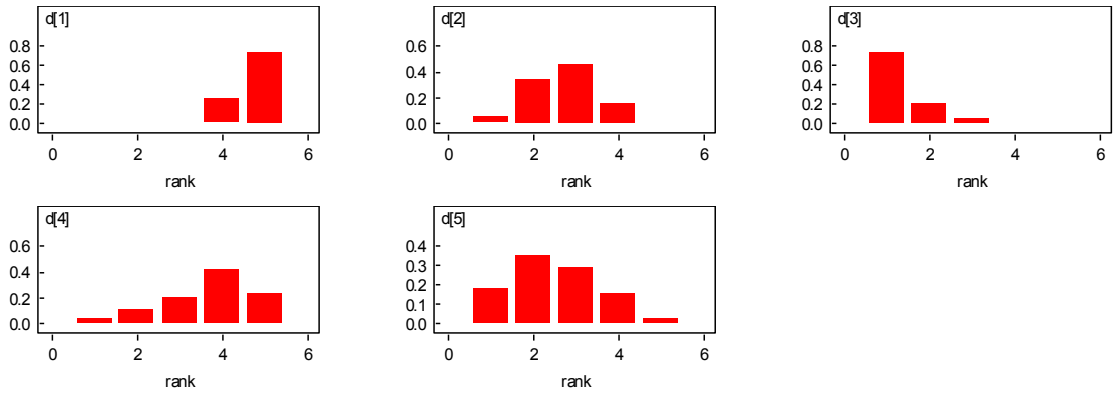
Regression results

node	mean	sd	MC error	2.5%	median	97.5%	start	sample
d[2]	-0.2186	0.07543	8.459E-4	-0.368	-0.2183	-0.0708	50001	50000
d[3]	-0.3815	0.09161	7.791E-4	-0.5627	-0.3813	-0.2004	50001	50000
d[4]	-0.1025	0.1456	0.001029	-0.3885	-0.1024	0.1833	50001	50000
d[5]	-0.2447	0.1357	0.001037	-0.5156	-0.244	0.02119	50001	50000
pbest[1]	0.0	0.0	4.47E-13	0.0	0.0	0.0	50001	50000
pbest[2]	0.04954	0.217	0.001437	0.0	0.0	1.0	50001	50000
pbest[3]	0.7337	0.442	0.002937	0.0	1.0	1.0	50001	50000
pbest[4]	0.036	0.1863	9.369E-4	0.0	0.0	1.0	50001	50000
pbest[5]	0.1807	0.3848	0.002284	0.0	0.0	1.0	50001	50000

d[1]- No intervention, d[2]-Individual, d[3]-Group, d[4]-Telephone, d[5]-Technology-based

DIC: 504.645

Probability intervention component most effective



Target of intervention

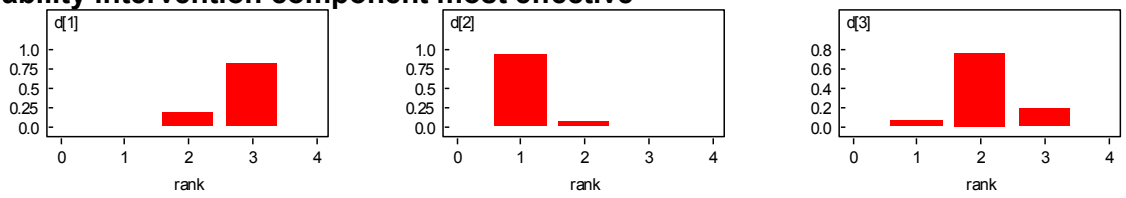
Regression results

node	mean	sd	MC error	2.5%	median	97.5%	start	sample
d[2]	-0.2942	0.056	6.16E-4	-0.4046	-0.2937	-0.1855	50001	50000
d[3]	-0.101	0.1145	9.275E-4	-0.326	-0.1013	0.1261	50001	50000
pbest[1]	0.0	0.0	4.47E-13	0.0	0.0	0.0	50001	50000
pbest[2]	0.9367	0.2435	0.001539	0.0	1.0	1.0	50001	50000
pbest[3]	0.06328	0.2435	0.001539	0.0	0.0	1.0	50001	50000

d[1]-No intervention, d[2]-Carer only, d[3]-Dyadic

DIC: 503.460

Probability intervention component most effective



Intervention component and target of intervention

Regression results

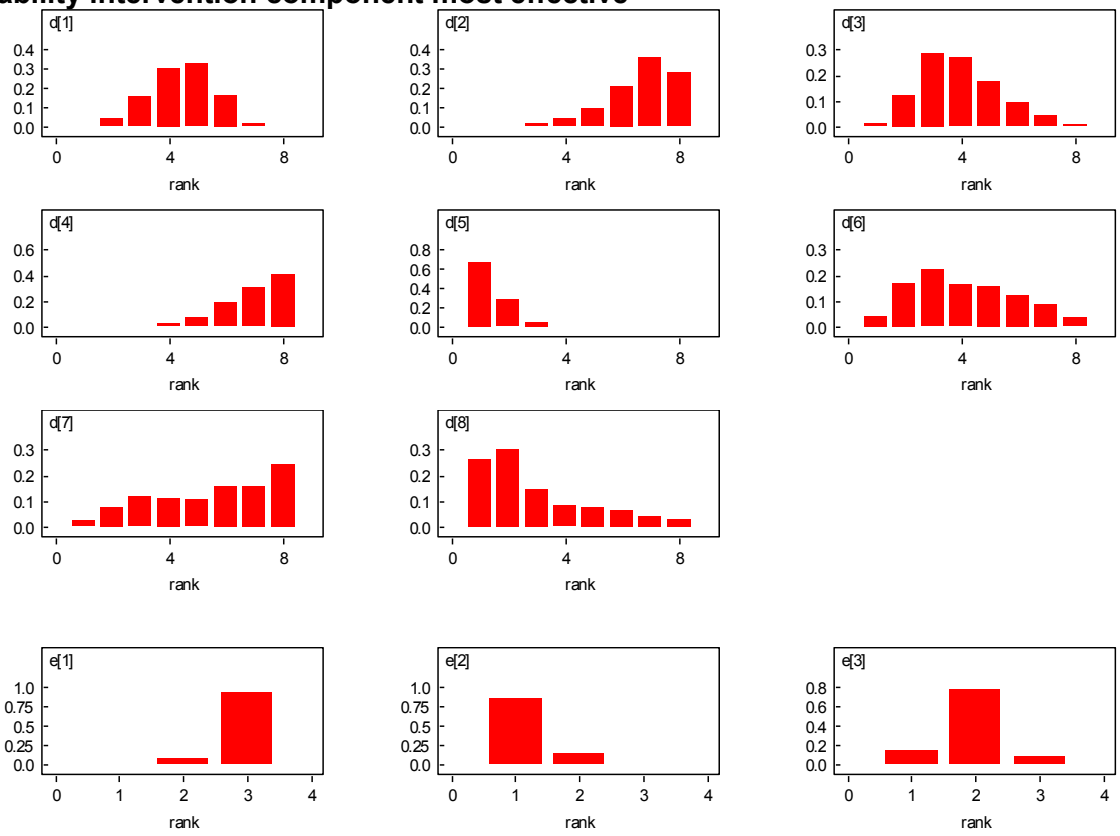
node	mean	sd	MC error	2.5%	median	97.5%	start	sample
d[2]	0.1565	0.1004	9.352E-4	-0.04342	0.157	0.3524	50001	50000
d[3]	-0.04162	0.1022	8.54E-4	-0.2413	-0.04217	0.1617	50001	50000
d[4]	0.1846	0.1106	8.3E-4	-0.03126	0.1849	0.4022	50001	50000
d[5]	-0.3023	0.1148	0.001163	-0.5337	-0.3015	-0.07842	50001	50000
d[6]	-0.03526	0.154	0.001113	-0.3383	-0.03509	0.2694	50001	50000
d[7]	0.08373	0.2218	0.001926	-0.3525	0.08354	0.5226	50001	50000
d[8]	-0.1633	0.2329	0.002622	-0.6209	-0.1641	0.294	50001	50000
e[2]	-0.3149	0.1176	0.001143	-0.5464	-0.3158	-0.08263	50001	50000
e[3]	-0.1906	0.1354	0.001237	-0.4553	-0.1916	0.07684	50001	50000
pbest1[1]	8.2E-4	0.02862	1.352E-4	0.0	0.0	0.0	50001	50000
pbest1[2]	2.0E-4	0.01414	6.814E-5	0.0	0.0	0.0	50001	50000
pbest1[3]	0.01172	0.1076	5.768E-4	0.0	0.0	0.0	50001	50000
pbest1[4]	4.0E-5	0.006324	2.817E-5	0.0	0.0	0.0	50001	50000
pbest1[5]	0.6606	0.4735	0.004219	0.0	1.0	1.0	50001	50000
pbest1[6]	0.04182	0.2002	0.001123	0.0	0.0	1.0	50001	50000
pbest1[7]	0.0263	0.16	8.972E-4	0.0	0.0	1.0	50001	50000
pbest1[8]	0.2585	0.4378	0.004191	0.0	0.0	1.0	50001	50000
pbest2[1]	0.00274	0.05227	2.591E-4	0.0	0.0	0.0	50001	50000
pbest2[2]	0.8513	0.3558	0.002347	0.0	1.0	1.0	50001	50000
pbest2[3]	0.146	0.3531	0.002285	0.0	0.0	1.0	50001	50000

d[1]-No intervention, d[2]-Psychoeducation, d[3]-Skills training, d[4]-Support, d[5]-Psychotherapy, d[6]-Case management, d[7]-Exercise, d[8]-Mindfulness/meditation

e[1]-No intervention, e[2]-Carer only, e[3]-Dyadic

DIC: 508.817

Probability intervention component most effective



Intervention component and mode of delivery

Regression results

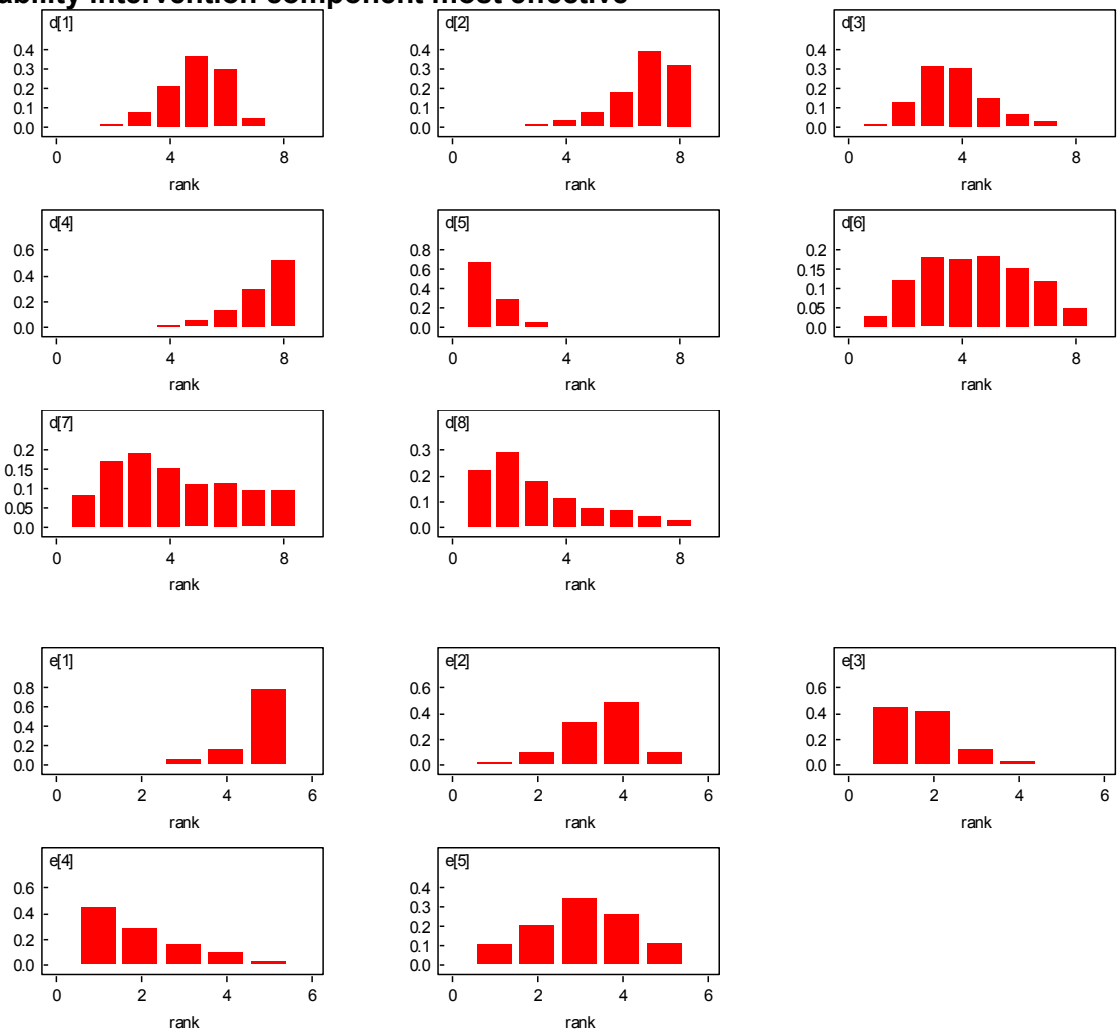
node	mean	sd	MC error	2.5%	median	97.5%	start	sample
d[2]	0.1422	0.1012	8.89E-4	-0.05764	0.1436	0.339	50001	50000
d[3]	-0.0966	0.1098	9.106E-4	-0.3112	-0.09757	0.1235	50001	50000
d[4]	0.183	0.1148	8.484E-4	-0.04273	0.1825	0.4109	50001	50000
d[5]	-0.3619	0.114	0.001133	-0.5864	-0.3605	-0.1394	50001	50000
d[6]	-0.03987	0.1581	0.001187	-0.3551	-0.03868	0.2682	50001	50000
d[7]	-0.07838	0.2335	0.002202	-0.5432	-0.07784	0.3814	50001	50000
d[8]	-0.2003	0.2339	0.002473	-0.6641	-0.1997	0.2582	50001	50000
e[2]	-0.15	0.1346	0.001431	-0.4149	-0.149	0.1156	50001	50000
e[3]	-0.3261	0.1208	0.001067	-0.5629	-0.3264	-0.08628	50001	50000
e[4]	-0.3197	0.1809	0.001397	-0.6775	-0.3201	0.03718	50001	50000
e[5]	-0.193	0.1753	0.001709	-0.5396	-0.1921	0.1519	50001	50000
pbest1[1]	6.0E-5	0.007746	3.45E-5	0.0	0.0	0.0	50001	50000
pbest1[2]	6.0E-5	0.007746	3.45E-5	0.0	0.0	0.0	50001	50000
pbest1[3]	0.0094	0.0965	5.193E-4	0.0	0.0	0.0	50001	50000
pbest1[4]	2.0E-5	0.004472	2.001E-5	0.0	0.0	0.0	50001	50000
pbest1[5]	0.66	0.4737	0.003518	0.0	1.0	1.0	50001	50000
pbest1[6]	0.02728	0.1629	8.936E-4	0.0	0.0	1.0	50001	50000
pbest1[7]	0.08116	0.2731	0.001674	0.0	0.0	1.0	50001	50000
pbest1[8]	0.222	0.4156	0.003403	0.0	0.0	1.0	50001	50000
pbest2[1]	9.8E-4	0.03129	1.392E-4	0.0	0.0	0.0	50001	50000
pbest2[2]	0.01508	0.1219	6.598E-4	0.0	0.0	0.0	50001	50000
pbest2[3]	0.4373	0.4961	0.003502	0.0	0.0	1.0	50001	50000
pbest2[4]	0.4455	0.497	0.003498	0.0	0.0	1.0	50001	50000
pbest2[5]	0.1012	0.3015	0.001801	0.0	0.0	1.0	50001	50000

d[1]-No intervention, d[2]-Psychoeducation, d[3]-Skills training, d[4]-Support, d[5]-Psychotherapy, d[6]-Case management, d[7]-Exercise, d[8]-Mindfulness/meditation

e[1]-No intervention, e[2]-Individual, e[3]-Group, e[4]-Telephone, e[5]-Technology-based

DIC: 510.138

Probability intervention component most effective



Intervention component and parameter for whether the intervention is multicomponent or not

Regression results

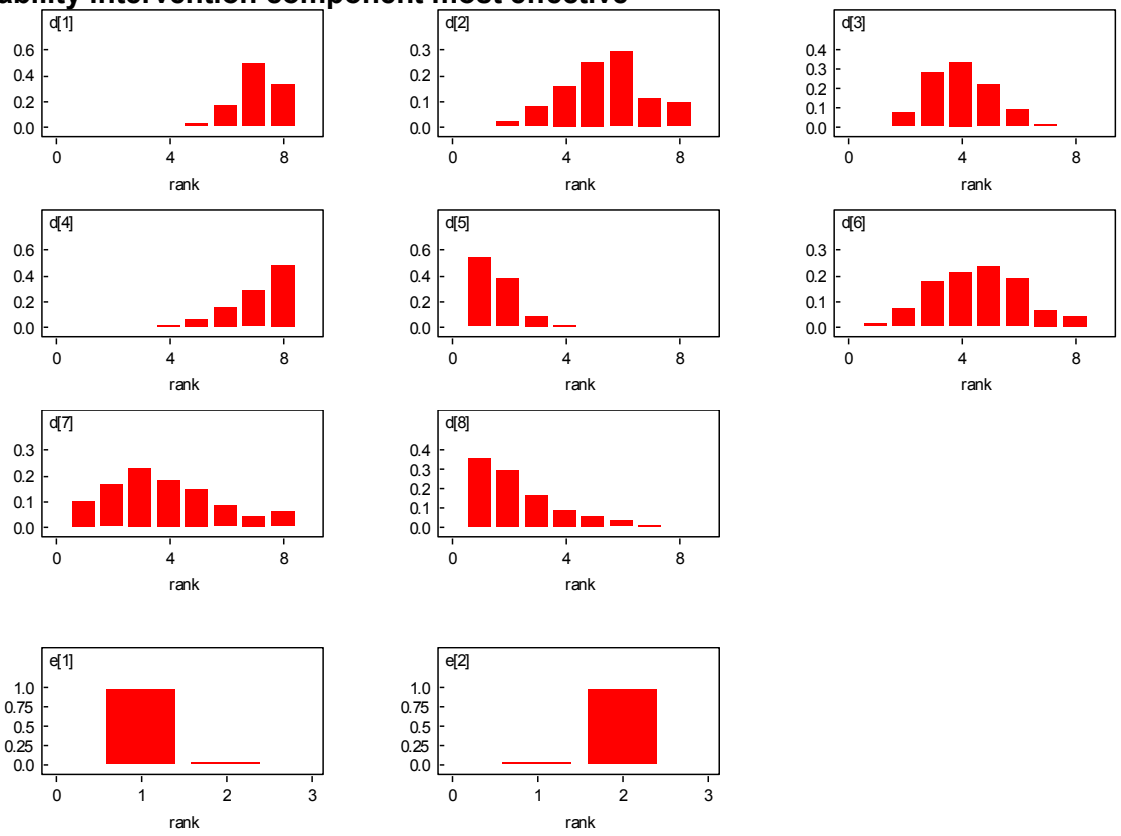
node	mean	sd	MC error	2.5%	median	97.5%	start	sample
d[2]	-0.1397	0.1412	0.001364	-0.4188	-0.1389	0.1355	50001	50000
d[3]	-0.2666	0.09753	8.496E-4	-0.4567	-0.2675	-0.07252	50001	50000
d[4]	0.01345	0.1106	7.881E-4	-0.2036	0.01342	0.2315	50001	50000
d[5]	-0.5412	0.102	0.001009	-0.7439	-0.5403	-0.3436	50001	50000
d[6]	-0.2099	0.1631	0.001271	-0.5301	-0.2098	0.1074	50001	50000
d[7]	-0.2965	0.2173	0.001564	-0.7289	-0.2953	0.1305	50001	50000
d[8]	-0.4707	0.2065	0.002294	-0.8786	-0.4708	-0.06612	50001	50000
e[2]	0.3227	0.1785	0.001672	-0.02544	0.322	0.6773	50001	50000
pbest1[1]	0.0	0.0	4.47E-13	0.0	0.0	0.0	50001	50000
pbest1[2]	0.00194	0.044	2.053E-4	0.0	0.0	0.0	50001	50000
pbest1[3]	0.00614	0.07812	4.108E-4	0.0	0.0	0.0	50001	50000
pbest1[4]	0.0	0.0	4.47E-13	0.0	0.0	0.0	50001	50000
pbest1[5]	0.5285	0.4992	0.003963	0.0	1.0	1.0	50001	50000
pbest1[6]	0.01404	0.1177	5.728E-4	0.0	0.0	0.0	50001	50000
pbest1[7]	0.097	0.296	0.001875	0.0	0.0	1.0	50001	50000
pbest1[8]	0.3523	0.4777	0.004219	0.0	0.0	1.0	50001	50000
pbest2[1]	0.9656	0.1822	0.00108	0.0	1.0	1.0	50001	50000
pbest2[2]	0.03438	0.1822	0.00108	0.0	0.0	1.0	50001	50000

d[1]-No intervention, d[2]-Psychoeducation, d[3]-Skills training, d[4]-Support, d[5]-Psychotherapy, d[6]-Case management, d[7]-Exercise, d[8]-Mindfulness/meditation

e[1]-No intervention, e[2]-Multicomponent intervention

DIC: 508.628

Probability intervention component most effective



Intervention component and number of components in intervention

Regression results

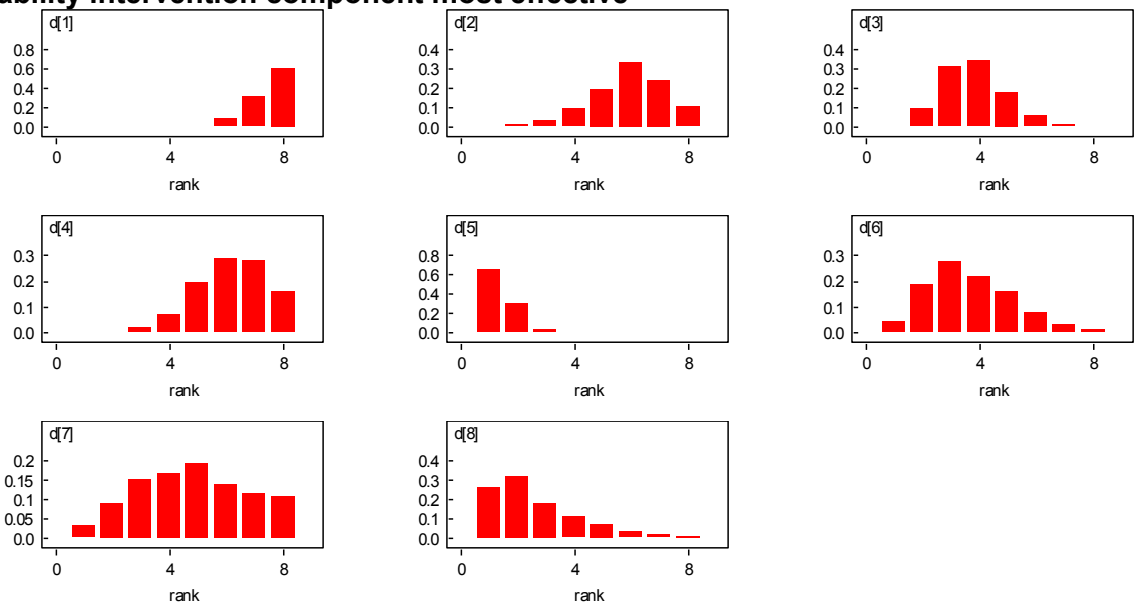
node	mean	sd	MC error	2.5%	median	97.5%	start	sample
d[2]	-0.1293	0.1169	0.001154	-0.3587	-0.1292	0.1001	50001	50000
d[3]	-0.3112	0.09817	7.835E-4	-0.5013	-0.3122	-0.1165	50001	50000
d[4]	-0.1101	0.1265	0.001022	-0.3586	-0.1106	0.1407	50001	50000
d[5]	-0.6008	0.1063	0.001192	-0.8096	-0.6007	-0.392	50001	50000
d[6]	-0.3345	0.1746	0.001351	-0.6758	-0.3349	0.009922	50001	50000
d[7]	-0.2271	0.1995	0.001395	-0.6226	-0.2264	0.1646	50001	50000
d[8]	-0.4679	0.2041	0.002247	-0.866	-0.4691	-0.06594	50001	50000
e[2]	0.2815	0.1158	0.00107	0.05129	0.2819	0.5091	50001	50000
pbest1[1]	0.0	0.0	4.472E-13	0.0	0.0	0.0	50001	50000
pbest1[2]	1.0E-4	0.009999	4.434E-5	0.0	0.0	0.0	50001	50000
pbest1[3]	0.00456	0.06737	3.205E-4	0.0	0.0	0.0	50001	50000
pbest1[4]	4.0E-5	0.006324	2.823E-5	0.0	0.0	0.0	50001	50000
pbest1[5]	0.6535	0.4758	0.004002	0.0	1.0	1.0	50001	50000
pbest1[6]	0.04448	0.2062	0.00105	0.0	0.0	1.0	50001	50000
pbest1[7]	0.03118	0.1738	8.308E-4	0.0	0.0	1.0	50001	50000
pbest1[8]	0.2661	0.4419	0.00392	0.0	0.0	1.0	50001	50000
pbest2[1]	0.9916	0.09148	4.636E-4	1.0	1.0	1.0	50001	50000
pbest2[2]	0.00844	0.09148	4.636E-4	0.0	0.0	0.0	50001	50000

d[1]-No intervention, d[2]-Psychoeducation, d[3]-Skills training, d[4]-Support, d[5]-Psychotherapy, d[6]-Case management, d[7]-Exercise, d[8]-Mindfulness/meditation

e[1]-No intervention e[2+]-Number of components in intervention is one lower than numer in brackets

DIC: 508.500

Probability intervention component most effective



H.12 Staff training

H.12.1 Staff training

Review question

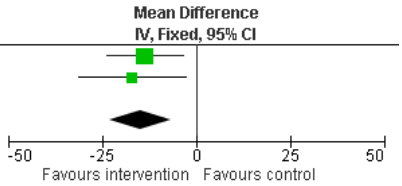
- What effect does training for staff working with people living with dementia have upon the experiences of people living with dementia in their care?

H.12.1.1 Residential care staff training: person-centred care

Agitation (CMAI)

Study or Subgroup	Person-centred care Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Chenoweth 2009	-13.6	31.0676	77	0	31.0676	64	65.4%	-13.60 [-23.90, -3.30]
Chenoweth 2014	-17	38.77551	64	0	42.85714	64	34.6%	-17.00 [-31.16, -2.84]
Total (95% CI)			**141**			**128**	**100.0%**	**-14.78 [-23.11, -6.45]**

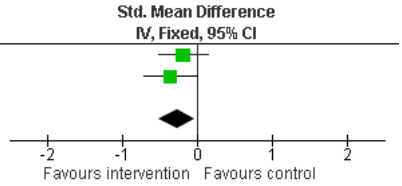
Heterogeneity: Chi² = 0.14, df = 1 (P = 0.70); I² = 0%
Test for overall effect: Z = 3.48 (P = 0.0005)



Quality of life (QUALID and DemQOL)

Study or Subgroup	Person-centred care Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Chenoweth 2009	-3.1	19.305	77	0	13.6	64	52.5%	-0.18 [-0.51, 0.15]
Chenoweth 2014	-5	14.28571	64	0	14.28571	64	47.5%	-0.35 [-0.70, 0.00]
Total (95% CI)			**141**			**128**	**100.0%**	**-0.26 [-0.50, -0.02]**

Heterogeneity: Chi² = 0.46, df = 1 (P = 0.50); I² = 0%
Test for overall effect: Z = 2.12 (P = 0.03)

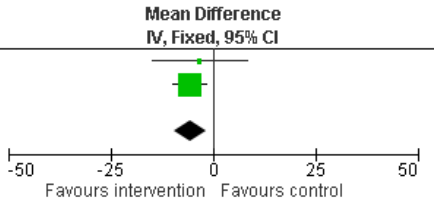


H.12.1.2 Residential care staff training: challenging behaviours

Agitation (CMAI)

Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Davison 2007	-2.73	18.15	46	0.59	29.88	32	11.4%	-3.32 [-14.93, 8.29]
Deudon 2009	-6.52	16.8	158	-0.83	17.6	114	88.6%	-5.69 [-9.85, -1.53]
Total (95% CI)			**204**			**146**	**100.0%**	**-5.42 [-9.34, -1.50]**

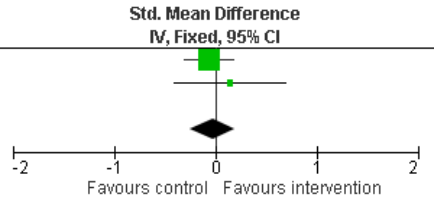
Heterogeneity: Chi² = 0.14, df = 1 (P = 0.71); I² = 0%
Test for overall effect: Z = 2.71 (P = 0.007)



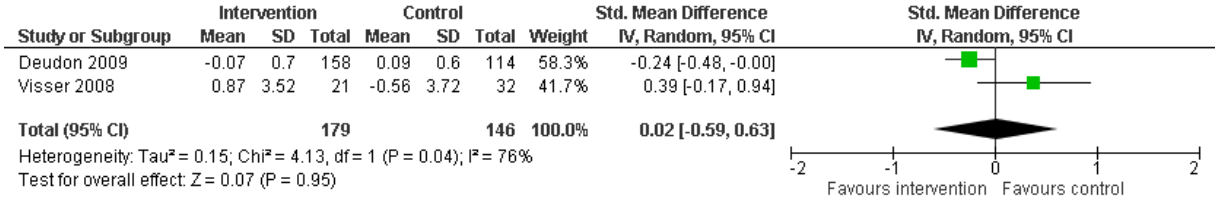
Physically aggressive behaviour

Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Deudon 2009	-0.15	1.4	158	-0.07	1.2	114	84.0%	-0.06 [-0.30, 0.18]
Visser 2008	3.81	6.02	21	1.29	21.42	32	16.0%	0.15 [-0.41, 0.70]
Total (95% CI)			**179**			**146**	**100.0%**	**-0.03 [-0.25, 0.19]**

Heterogeneity: Chi² = 0.45, df = 1 (P = 0.50); I² = 0%
Test for overall effect: Z = 0.24 (P = 0.81)



Verbally aggressive behaviour

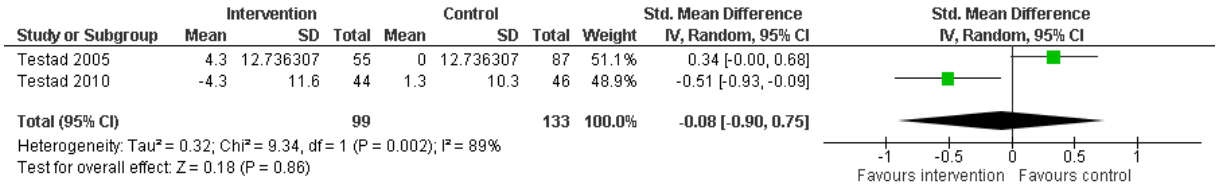


Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Deudon 2009	-0.07	0.7	158	0.09	0.6	114	58.3%	-0.24 [-0.48, -0.00]
Visser 2008	0.87	3.52	21	-0.56	3.72	32	41.7%	0.39 [-0.17, 0.94]
Total (95% CI)			**179**			**146**	**100.0%**	**0.02 [-0.59, 0.63]**

Heterogeneity: Tau² = 0.15; Chi² = 4.13, df = 1 (P = 0.04); I² = 76%
Test for overall effect: Z = 0.07 (P = 0.95)

H.12.1.3 Residential care staff and nurse training: restraint use reduction

Agitation (CMAI and BARS)

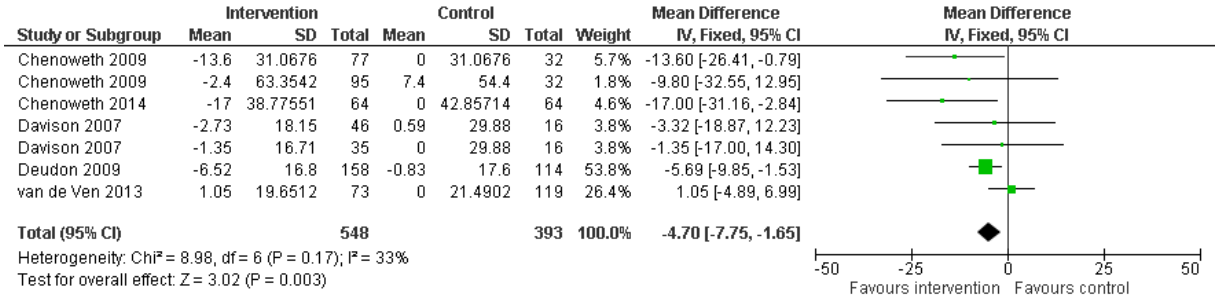


Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
Testad 2005	4.3	12.736307	55	0	12.736307	87	51.1%	0.34 [-0.00, 0.68]
Testad 2010	-4.3	11.6	44	1.3	10.3	46	48.9%	-0.51 [-0.93, -0.09]
Total (95% CI)			**99**			**133**	**100.0%**	**-0.08 [-0.90, 0.75]**

Heterogeneity: Tau² = 0.32; Chi² = 9.34, df = 1 (P = 0.002); I² = 89%
Test for overall effect: Z = 0.18 (P = 0.86)

H.12.1.4 Pooled analysis – person centre-care versus control

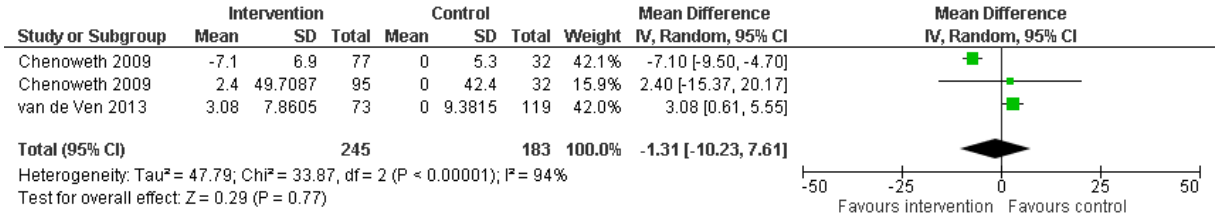
Agitation (CMAI)



Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Chenoweth 2009	-13.6	31.0676	77	0	31.0676	32	5.7%	-13.60 [-26.41, -0.79]
Chenoweth 2009	-2.4	63.3542	95	7.4	54.4	32	1.8%	-9.80 [-32.55, 12.95]
Chenoweth 2014	-17	38.77551	64	0	42.85714	64	4.6%	-17.00 [-31.16, -2.84]
Davison 2007	-2.73	18.15	46	0.59	29.88	16	3.8%	-3.32 [-18.87, 12.23]
Davison 2007	-1.35	16.71	35	0	29.88	16	3.8%	-1.35 [-17.00, 14.30]
Deudon 2009	-6.52	16.8	158	-0.83	17.6	114	53.8%	-5.69 [-9.85, -1.53]
van de Ven 2013	1.05	19.6512	73	0	21.4902	119	26.4%	1.05 [-4.89, 6.99]
Total (95% CI)			**548**			**393**	**100.0%**	**-4.70 [-7.75, -1.65]**

Heterogeneity: Chi² = 8.98, df = 6 (P = 0.17); I² = 33%
Test for overall effect: Z = 3.02 (P = 0.003)

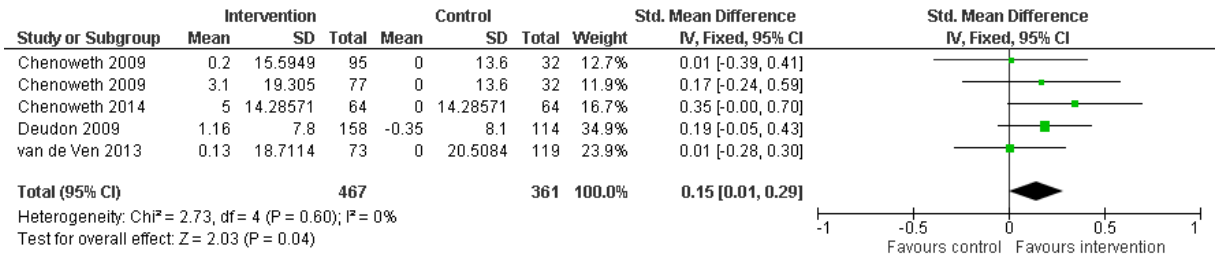
NPI



Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Chenoweth 2009	-7.1	6.9	77	0	5.3	32	42.1%	-7.10 [-9.50, -4.70]
Chenoweth 2009	2.4	49.7087	95	0	42.4	32	15.9%	2.40 [-15.37, 20.17]
van de Ven 2013	3.08	7.8605	73	0	9.3815	119	42.0%	3.08 [0.61, 5.55]
Total (95% CI)			**245**			**183**	**100.0%**	**-1.31 [-10.23, 7.61]**

Heterogeneity: Tau² = 47.79; Chi² = 33.87, df = 2 (P < 0.00001); I² = 94%
Test for overall effect: Z = 0.29 (P = 0.77)

Quality of life



Study or Subgroup	Intervention Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Chenoweth 2009	0.2	15.5949	95	0	13.6	32	12.7%	0.01 [-0.39, 0.41]
Chenoweth 2009	3.1	19.305	77	0	13.6	32	11.9%	0.17 [-0.24, 0.59]
Chenoweth 2014	5	14.28571	64	0	14.28571	64	16.7%	0.35 [-0.00, 0.70]
Deudon 2009	1.16	7.8	158	-0.35	8.1	114	34.9%	0.19 [-0.05, 0.43]
van de Ven 2013	0.13	18.7114	73	0	20.5084	119	23.9%	0.01 [-0.28, 0.30]
Total (95% CI)			**467**			**361**	**100.0%**	**0.15 [0.01, 0.29]**

Heterogeneity: Chi² = 2.73, df = 4 (P = 0.60); I² = 0%
Test for overall effect: Z = 2.03 (P = 0.04)

H.13 Needs of younger people living with dementia

H.13.1 The specific needs of younger people living with dementia

- What are the specific needs of younger people living with dementia?

No meta-analyses were performed

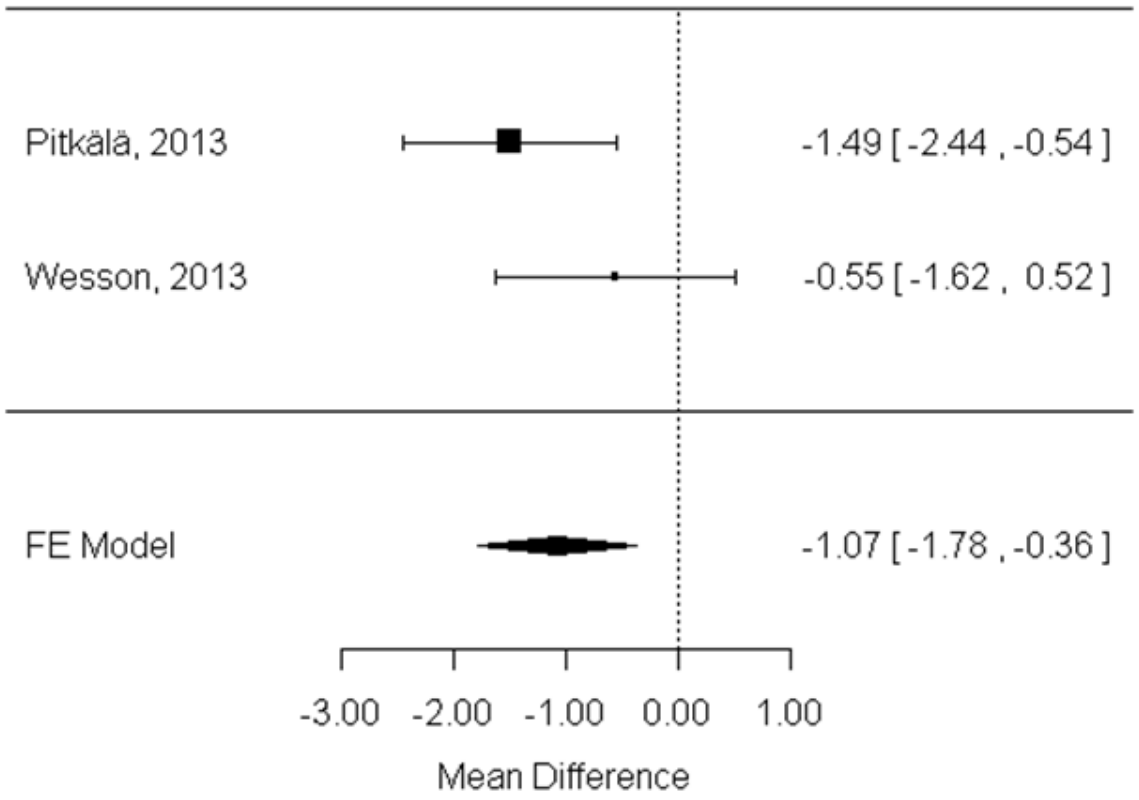
H.14 Assessing and managing comorbidities

H.14.1 Assessing and treating intercurrent illness in people living with dementia

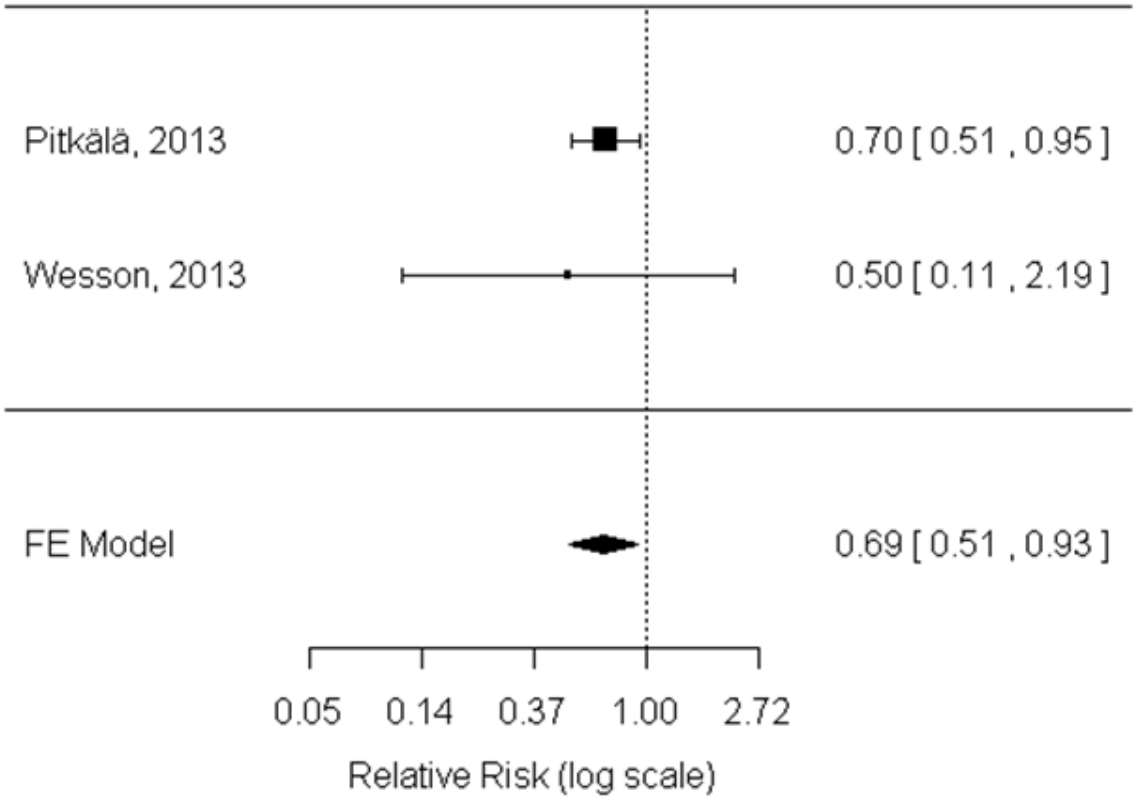
- Are there effective methods for assessing intercurrent illness in people living with dementia that are different from those already in use for people who do not have dementia?
- Are there effective methods for treating intercurrent illness in people living with dementia that are different from those already in use for people who do not have dementia?

H.14.1.1 Exercise programs for people with dementia living in the community

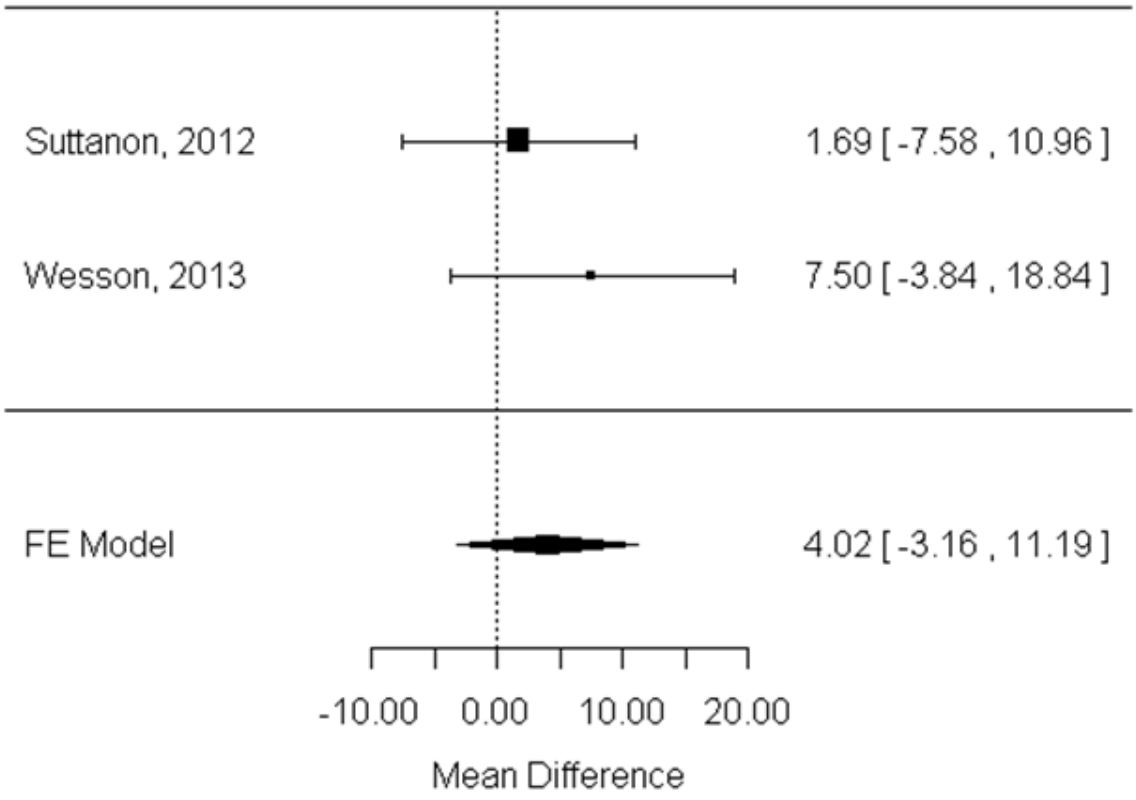
Home-based exercise program versus control – mean number of falls



Home-based exercise program versus control – proportional falling



Home-based exercise program versus control – Zarit carer burden



H.14.2 Managing mental health conditions alongside dementia

- What are the optimal management strategies (including treatments) for people with dementia and an enduring mental health condition?

No meta-analyses were performed

H.15 Palliative care

H.15.1 Palliative care

- What models of palliative care are effective for people with dementia?

No meta-analyses were performed