**Supplementary Material**

**Supplementary Appendix A1.** Search strategy for PubMed, Embase and PsycINFO in our umbrella systematic review

**PubMed**

1. dementia[MeSH]

2. "Alzheimer Disease"[MeSH]

3. dementia[title/abstract])

4. 1 or 2 or 3

5. caregiver[MeSH]

6. caregiv\*[title/abstract]

7. carer\*[title/abstract])

8. 5 or 6 or 7

9. "Adaptation, Psychological"[MeSH]

10. cope[title/abstract]

11. coping[title/abstract]

12. adapt\*[title/abstract])

13. 9 or 10 or 11 or 12

14. advance\*[title/abstract]

15. severe[title/abstract]

16. late[title/abstract]

17. later[title/abstract]

18. 14 or 15 or 16 or 17

19. stage[title/abstract])

20. 18 and 19

21. behavio\*[title/abstract]

22. problem\*[title/abstract])

23. 21 and 22

24. primary[title/abstract]

25. education\*[title/abstract]

26. spous\*[title/abstract])

27. 20 or 23 or 24 or 25 or 26

28. systematic[sb]

29. 4 and 8 and 13 and 27 and 28

**Embase**

1. 'dementia'/exp

2. 'alzheimer disease'/exp

3. dementia:ab,ti

4. alzheimer\*:ab,ti

5. 1 or 2 or 3 or 4

6. 'caregiver'/exp

7. caregiv\*:ab,ti

8. carer\*:ab,ti

9. 6 or 7 or 8

10. 'adaptive behavior'/exp

11. 'coping behavior'/exp

12. cope:ab,ti

13. coping:ab,ti

14. adapt\*:ab,ti

15. 12 or 13 or 14

16. 10 or 11 or 15

17. ((advance\* OR severe OR late\*) NEAR/5 stage):ab,ti

18. (behavio\* NEAR/5 problem\*):ab,ti

19. primary:ab,ti

20. education\*:ab,ti

21. spous\*:ab,ti

22. 17 or 18 or 19 or 20 or 21

23. 'systematic review'/exp

24. 5 and 9 and 16 and 22 and 23

**PsycINFO**

1. exp DEMENTIA/

2. exp ALZHEIMER'S DISEASE/

3. dementia.ab,ti

4. Alzheimer\*.ab,ti

5. 3 or 4

6. 1 or 2 or 5

7. exp CAREGIVERS/

8. caregiv\*.ab,ti

9. carer\*.ab,ti

10. 8 or 9

11. 7 or 10

12. exp COPING BEHAVIOR/

13. exp Adaptive Behavior/

14. cope.ab,ti

15. coping.ab,ti

16. adapt\*.ab,ti

17. 14 or 15 or 16

18. 12 or 13 or 17

19. ((advance\* OR severe OR late\*) adj5 stage).ab,ti

20. (behavio\* adj5 problem\*).ab,ti

21. primary .ab,ti

22. education\*.ab,ti

23. spous\*.ab,ti

24. 19 or 20 or 21 or 22 or 23

25. exp "Literature Review"/

26. 6 and 11 and 18 and 24 and 25

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| **Supplementary Appendix A2** Individual components of interventions for caregiver depression in dementia, using the 33 randomized controlled trials identified by a recent systematic review [[1](#_ENREF_1)] | | | | | | | | | | | | | | | |
| Randomized controlled trial (First author and year) | Interventions | | | | | | | | | | | | | | |
| Environmental modification | Strategies to compensate for cognitive deficits and maintain the well-being of persons with dementia | Access to community resources | Coordinated care management | Appropriate use of cholinesterase inhibitors and psycho-active drugs | Basic education about dementia | Communication skills with persons with dementia | Behavioral management techniques | Problem solving techniques | Stress management techniques | Cognitive restructuring techniques | Training on nursing care | Future care planning | Support group | Individual counseling to provide emotional support |
| Beauchamp 2005 [[2](#_ENREF_2)] |  |  |  |  |  |  | ● | ● | ● | ● |  |  |  |  |  |
| Belle 2006 [[3](#_ENREF_3)] |  |  | ● |  |  |  |  | ● |  | ● | ● |  |  | ● |  |
| Bruvik 2013 [[4](#_ENREF_4)] |  |  |  |  |  | ● |  |  | ● | ● |  |  |  |  |  |
| Callahan 2006 [[5](#_ENREF_5)] |  | ● |  | ● | ● | ● | ● | ● |  | ● |  |  | ● |  |  |
| Charlesworth 2008 [[6](#_ENREF_6)] |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ● |
| Chu 2011 [[7](#_ENREF_7)] |  |  | ● |  |  |  | ● | ● |  | ● |  |  | ● | ● |  |
| Czaja 2013 [[8](#_ENREF_8)] |  |  | ● |  |  | ● | ● | ● |  | ● |  |  |  | ● |  |
| DeRotrou 2011 [[9](#_ENREF_9)] |  |  | ● |  |  |  | ● | ● | ● | ● |  |  |  |  |  |
| Dias 2008 [[10](#_ENREF_10)] |  |  | ● | ● | ● | ● |  | ● |  | ● |  |  |  | ● | ● |
| Fortinsky 2009 [[11](#_ENREF_11)] |  |  | ● | ● |  | ● |  | ● | ● | ● |  |  | ● | ● |  |
| Gallagher- Thompson 2008 [[12](#_ENREF_12)] |  |  | ● |  |  | ● | ● | ● |  | ● | ● |  | ● |  |  |
| Gallagher Thompson 2010 [[13](#_ENREF_13)] |  |  | ● |  |  | ● |  | ● |  | ● |  |  | ● |  |  |
| Garand 2014 [[14](#_ENREF_14)] |  |  |  |  |  |  |  |  | ● |  |  |  |  |  |  |
| Graff 2007 [[15](#_ENREF_15)] | ● | ● |  |  |  |  |  |  | ● | ● |  |  |  |  |  |
| Jansen 2011 [[16](#_ENREF_16)] |  |  | ● | ● |  |  | ● | ● |  | ● |  | ● |  |  |  |

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| Randomized controlled trial (First author and year)  First author and year | Interventions | | | | | | | | | | | | | | |
| Environmental modification | Strategies to compensate for cognitive deficits and maintain the well-being of persons with dementia | Access to community resources | Coordinated care management | Appropriate use of cholinesterase inhibitors and psycho-active drugs | Basic education about dementia | Communication skills with persons with dementia | Behavioral management techniques | Problem solving techniques | Stress management techniques | Cognitive restructuring techniques | Training on nursing care | Future care planning | Support group | Individual counseling to provide emotional support |
| Joling 2012 [[17](#_ENREF_17)] |  |  | ● |  |  | ● |  | ● |  | ● |  |  |  |  |  |
| Judge 2013 [[18](#_ENREF_18)] | ● | ● | ● |  |  | ● | ● | ● |  | ● | ● |  |  |  |  |
| Kajiyama 2013 [[19](#_ENREF_19)] |  |  | ● |  |  | ● | ● | ● |  | ● | ● |  | ● |  |  |
| Kuo 2013 [[20](#_ENREF_20)] |  |  | ● |  |  |  |  | ● |  |  |  |  |  |  |  |
| Kurz 2010 [[21](#_ENREF_21)] |  |  | ● |  |  | ● |  | ● |  |  |  | ● | ● |  |  |
| Kurz 2012 [[22](#_ENREF_22)] |  | ● |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lam 2010 [[23](#_ENREF_23)] | ● | ● | ● | ● |  |  | ● | ● |  |  |  |  |  |  |  |
| Livingston 2013 [[24](#_ENREF_24)] |  |  |  |  |  |  | ● | ● |  | ● | ● |  | ● |  |  |
| Logsdon 2011 [[25](#_ENREF_25)] |  |  |  |  |  |  |  |  |  |  |  |  |  | ● |  |
| Losada 2011 [[26](#_ENREF_26)] | ● | ● |  |  |  |  |  |  |  | ● | ● |  |  |  |  |
| Martin Carrasco 2009 [[27](#_ENREF_27)] |  |  |  |  |  | ● |  | ● | ● | ● | ● |  |  |  |  |
| Martin Carrasco 2014 [[28](#_ENREF_28)] |  |  |  |  |  |  | ● | ● | ● | ● | ● |  | ● |  |  |
| Spijker 2013 [[29](#_ENREF_29)] |  |  | ● |  |  |  |  | ● |  |  |  |  |  |  | ● |
| Teri 2005 [[30](#_ENREF_30)] |  |  |  |  |  |  | ● | ● |  | ● |  |  |  |  |  |
| Torkamani 2014 [[31](#_ENREF_31)] |  |  |  |  |  | ● |  |  |  | ● |  |  |  | ● |  |
| Waldorff 2012, Phung 2013 [[32](#_ENREF_32)] |  | ● | ● |  |  | ● |  |  |  | ● |  |  | ● | ● |  |
| Winter 2006 [[33](#_ENREF_33)] |  |  |  |  |  |  |  |  | ● | ● | ● |  |  | ● |  |
| Woods 2012 [[34](#_ENREF_34)] |  | ● |  |  |  |  |  |  |  |  |  |  |  |  |  |

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