

Supplementary Table 1. Risk factors of caregiver's abusive behaviors toward dementia patients

Authors	Year	Country	Design	Sample		Risk factors of abuse			
				Number	Severity of dementia	Overall	Psychological	Physical	Neglect
Current study	-	Korea	Cross-sectional		MMSE=0–29 CDR=0.5–3	Not evaluated	Education ^P Severe dementia ^P , duration of illness ^P , BPSD ^P , low income ^C Severe care burden ^C DOCAD ^C	Non-AD ^P Severe dementia ^P , duration of illness ^P , BPSD ^P , low income ^C Severe care burden ^C Poor knowledge about dementia ^C	Not evaluated
Yan ⁶	2014	China	Prospective (Duration of follow up=6 months)	149	Not described	Not evaluated	Agitated behavior ^P , emotional exhaustion ^C , depersonalization ^C , abuse at baseline ^C Large number of co-residing days ^C	Agitated behavior ^P , emotional exhaustion ^C , depersonalization ^C , abuse at baseline ^C Lack of personal achievement ^C	Not evaluated
Cheng et al. ¹⁸	2013	China	Cross-sectional	76	Not described	Behavioral problems ^P , poor forgiveness ^C , severe care burden ^C	Not evaluated	Not evaluated	Not evaluated
Yan and Kwok ⁵	2011	China	Cross-sectional	122	Not described	Not evaluated	Large number of co-residing days ^C Young age ^P , agitated behavior ^P , high level of any care burden ^C , lack of assistance from a domestic helper ^E	Large number of co-residing days ^C	Not evaluated
Camden et al. ¹⁹	2011	UK	Prospective (Duration of follow up=1 years)	63	MMSE=0–28	Care burden ^C , anxiety and depression ^C , negative reason for caring ^C	Not evaluated	Not evaluated	Not evaluated
Cooper et al. ¹⁴	2010a	UK	Prospective (Duration of follow up=1 years)	131	Not described	No qualification ^P , shorter duration of memory problems ^P , change of anxiety and depression ^C , receiving fewer hours of in-home social care at baseline ^E	Not evaluated	Not evaluated	Not evaluated
Wiglesworth et al. ⁷	2010	USA	Cross-sectional	129	Dementia Severity Rating Scale=mild–severe	Physical assault ^P , psychological aggression ^P , care burden ^C Low income ^P , role limitations due to emotional problems ^C , low education ^C , poor emotional status ^C , depression ^C , anxiety ^C	Physical assault ^P , psychological aggression ^P , care burden ^C	Physical assault ^P , psychological aggression ^P Low income ^E , role limitations due to emotional problems ^C	Psychological aggression ^P , care burden ^C , low income ^P Low education ^P , social contacts ^C
Cooper et al. ¹¹	2010c	UK	Cross-sectional	220	MMSE=0–29	More hours of care provided ^P , living with caregiver ^P , BPSD ^P , ADL ^P , abusive behaviors towards the caregiver ^P , depression ^C , anxiety ^C , care burden ^C , dysfunctional coping ^C , fewer previous relationship rewards ^C	Not evaluated	Not evaluated	Not evaluated
Cooper et al. ¹³	2008a	UK	Cross-sectional	86	MMSE=9.4*	More cognitive impairment ^P , less ADL impairment ^P , irritability ^P , receiving 24h care ^P , men ^C , care burden ^C , anxiety ^C	Not evaluated	Not evaluated	Not evaluated
Cooney et al. ¹⁶	2006	UK	Cross-sectional	82	Not described	Current relationship ^{PC}	Current relationship ^{PC} , younger age ^P , total BPSD ^P , active-disturbed BPSD ^P , mood disturbed BPSD ^P , receiving longer breaks from caring ^C , poor social interaction between dementia patients and caregivers ^{PC} , poor prior relationship ^{PC} , history of regular arguments prior to dementia ^{PC}	Current relationship ^{PC} , better physical health ^C	Current relationship ^{PC}
Compton et al. ¹⁷	1997	UK	Cross-sectional	38	Not described	Problem behavior ^P , verbal and physical abuse by patient ^P , anxiety ^C , poor premorbid relationship ^{PC} , less happy with the help caregivers received from others ^E	Not evaluated	Not evaluated	Not evaluated
Pot et al. ⁸	1996	Netherland	Cross-sectional	169	MMSE=10.1–16.5†	Men ^P , more cognitive impairment ^P , IADL ^P , caregiving tasks ^C , living with patient ^C , spouse ^C	Men ^P , more cognitive impairment ^P , IADL ^P , caregiving tasks ^C , living with patient ^C	Men ^P , more cognitive impairment ^P , IADL ^P , living with patient ^C , spouse ^C	Not evaluated
Cooney and Mortimer ¹⁵	1995	UK	Cross-sectional	67	Not described	Not evaluated	Poor premorbid relationship ^{PC} , verbal reciprocity ^{PC} , prior frequent arguments ^{PC}	Physical reciprocity ^{PC} Psychological distress ^C , social isolation ^C , length of time caring ^C	Poor premorbid relationship ^{PC}
Coyne et al. ¹⁰	1993	USA	Cross-sectional	342(277)‡	Not described	Not evaluated	Not evaluated	Lower functioning level ^P , care for more years ^C , care for more hours per day ^C , care burden ^C , depression ^C	Not evaluated

*mean of MMSE, †mean of MMSE is 16.5 for no abuse, 12.0 for psychological abuse and 10.1 for physical abuse, ‡number in blank was actual analyzed subject number. P: patient's factor, C: caregiver's factor, E: environmental factor, AD: Alzheimer's dementia, ADL: Activities of Daily Living, IADL: Instrumental Activities of Daily Living, BPSD: Behavioral and Psychological Symptoms of Dementia, CDR: Clinical Dementia Rating, COPE: Coping Orientations to Problems Experienced scale, DOCAD: duration of care after dementia diagnosis, MMSE: Mini Mental Status Examination