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ARTICLE

Personality and Dementia Caring: A Review and Commentary

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Abstract

Purpose of review: Carers of people with dementia are at increased risk of experiencing psychological distress. This article reviews recent findings on the role of personality traits for psychological outcomes for carers of people with dementia.

Recent findings: Several studies have now established that personality influences the caregiving experience, carer well-being and outcomes such as coping ability, burden and caregiving style. Several moderators of these associations have also been identified such as the effect of kinship, and type of dementia. There is consistent evidence that carer personality characteristics influence progression of the disease such as cognitive decline and severity. Most of the recent studies identified in this review are cross-sectional.

Summary: Taken together these results indicate that personality is an important psychological resource for carers. Recent findings indicate that personality traits are associated with and influence both carer and patient outcomes. Future research is necessary to guide interventions and to expand further on our understanding of how personality factors shape adjustment to the caregiving role and how these impact on the progression of the disease.

Keywords: carers; dementia; personality; neuroticism; extraversion;

Personality and the dementia caregiving experience

Dementia carers experience more psychological distress in comparison to the general population (1), they report higher levels of depression and anxiety (2,3), and are more susceptible to physical illness and cognitive decline (4,5). The most influential contemporary theoretical model, the Stress-Process Model (SPM) (6), proposes multiple stress factors contributing to negative outcomes for dementia carers. Earlier caregiving research has studied the contribution of 'primary' and 'secondary' stressors, in predicting adverse outcomes (2). The most notable primary stressors investigated are behavioral

and psychological symptoms of dementia (BPSD), whereas 'secondary stressors', or 'background factors' are gender, culture and intraindividual variables such as carers' coping style (7,8).

Later caregiving research has explored why carers under similar circumstances show such great variability in their ability to adapt to caregiving stressors. The Stress-Diathesis Model of psychopathology (9), posits that variability in outcomes for carers experiencing similar stressors is related to underlying personality dispositions making them more vulnerable towards negative outcomes. There is indeed increasing evidence that individual differences in personality may affect how carers experience and respond to the caregiving role (10).

Although personality has numerous dimensions, most consider personality as a set of traits that are consistent and enduring individual-level differences, associated with specific patterns of thoughts, feelings and actions (11). Within the context of the five-factor taxonomy of personality, neuroticism is the most extensively studied personality trait in dementia caregiving research (10). High levels of neuroticism in dementia carers predict higher perceived stress (12), limited access to social support (13), worse physical health (14), and higher depressive symptoms both cross-sectionally (15) and over time (16). On the contrary carers scoring high in extraversion and agreeableness experience lower depressive symptoms and burden (17). Research focusing on the influence of central personality traits has identified that carer extraversion and neuroticism are predictive of outcomes for the person with dementia, such as desire to institutionalise (18), and rate of functional decline (19).

This review aims to provide a summary of recent studies investigating the role of personality traits in dementia caregiving and how these influence the course of the caregiving role, by identifying possible future research directions.

Methods

We searched electronic databases (pubmed, medline, PsycInfo) within the period of April 2013 to July 2014 using the following terms: carer, dementia, personality, sense of coherence, self-efficacy, mastery, coping, resilience, sense of competence, self-esteem and optimism. We excluded studies that reported qualitative findings, those not published in English, or not reporting original investigations or the use of standardised instruments.

Results

The search revealed a total of 235 articles. Of these 43 were eligible for analysis (1 in trait emotional intelligence, 3 on personality, 2 on sense of coherence, 12 on coping, 12 on self-efficacy, 2 on optimism, 2 on generalised expectancies and locus of control, 7 on mastery, 1 in sense of competence, and 1 in self-esteem. The questionnaires that were used in these studies appear in Table 1.

The five-factor taxonomy model of personality

Two recent studies have examined the association between personality traits and carer outcomes. A study investigating the association of caregiver burden with personality traits using the NEO-FFI in 33 dementia carers, found that high neuroticism and lower levels of extraversion predicted higher burden, whereas neuroticism was positively associated with depression and both trait and state anxiety (20) *. These findings indicate that proneness toward negative emotionality manifested by high neuroticism affects both burden and psychological morbidity in carers, whereas being highly extroverted may act as a protective factor.

In a cross-sectional mail survey of 148 family carers, personality traits measured by the BFI were correlated with caregiving style adopted. Carers being more respectful, supportive and personalised in their care (high quality care) had higher levels of agreeableness, conscientiousness, openness, and neuroticism, whereas greater levels of extraversion were associated with more controlling and withdrawing styles of caring (low quality care) (21) **. These results suggest that although extraversion is linked to positive experiences in caring, this specific trait may also be predictive of difficulties with the caregiving role (22), whereas traits such as agreeableness may make carers more responsive, and respectful of their relative's autonomy. Conscientiousness on the other hand reflecting the extent to which a person is well-organised, possesses a strong sense of purpose, and openness for new experiences, may promote a more stimulating caregiving environment.

Trait emotional intelligence

A study of 203 family carers in the UK, exploring the association between anxiety symptoms and trait EI measured by the TEIQue-SF, found that carers reporting low levels of trait EI were more likely to experience anxiety symptoms, and higher burden. Trait EI was a significant predictor of anxiety symptoms after controlling for levels of burden, depression, and coping style, indicating that differences found even at lower levels of personality hierarchies can differentiate carers vulnerable to negative outcomes (23) **.

Self-efficacy

Self-efficacy beliefs representing carer's views of their ability to successfully master caregiving tasks, have long been considered an important resource in dementia caregiving research. Recent studies have examined the association of general and domain-specific self-efficacy with several carer outcomes cross-sectionally and within the context of interventions. In a study examining self-efficacy beliefs in 99 Chinese carers of people with Alzheimer's disease, **self-efficacy for controlling upsetting thoughts was inversely associated with the prediction of burden and positively with experiencing positive gains**, indicative of the predictive value of domain specific versus general self-efficacy beliefs (24) *.

The potential mediating role of self-efficacy in caregiver distress was examined in a

study of 196 Chinese carers. Self-efficacy in gathering information and managing caregiver distress partially mediated the effect of positive social interaction support on carer mental health. Self-efficacy beliefs specific to managing caregiver distress were also found to partially mediate the relationship between carer's mental health and frequency of BPSD (25) *. In a similar study investigating the moderating and mediating role of self-efficacy between the relation of subjective burden and BPSD and that of burden and accessing social support, self-efficacy beliefs moderated the relationship between subjective burden and both BPSD and social support, whereas self-efficacy fully mediated the effect of social support on carer burden (26) *.

In a study investigating determinants of burden in 465 carers of older adults with cognitive impairment, **higher self-efficacy for managing behavioral symptoms was associated with less burden experienced by carers at time of hospitalization (27) ***. A community-based study exploring determinants of suicidal ideation in dementia carers **found that lower levels of self-efficacy beliefs in the use of community resources predicted an increase in the experience of suicidal thoughts (28) ****, whereas higher general perceived self-efficacy, was associated with increasing age, better psychological health and greater use of positive reframing in 84 carers of people with dementia in Singapore (29) *. Given that self-efficacy is based on experiences about the effects of one's actions in specific situations, domain-specific beliefs may be more predictive of carer behaviors and emotional states compared to general beliefs of agency (30).

Interventions targeting self-efficacy

Several studies have incorporated self-efficacy as an outcome measure of evaluation of psychosocial interventions supporting carers of people with dementia. These range from pilot studies testing the feasibility of web-based on-line support groups (31) *, or specific models of nursing care (32) *. A pilot study involving 38 dementia carers investigated the effectiveness of an online CBT-based intervention in improving self-efficacy using a pre-post evaluation design. Although self-efficacy did not improve, those caring for people with moderate to severe dementia, experienced higher self-efficacy in controlling upsetting thoughts (33) *.

In two recent Randomised Controlled Trials (RCTs), a telephone CBT-based psychoeducational intervention (34) ** and an individualised home-based training program for managing behavioral symptoms (35) **, improved self-efficacy for gaining respite and general self-efficacy beliefs respectively, in comparison to usual care. Self-efficacy is currently being tested as an outcome in an ongoing trial examining the effectiveness of a telephone-based psychoeducational intervention for highly distressed carers (36) **. These findings on the whole indicate the importance of distinguishing between specific domains of self-efficacy in predicting carer outcomes.

Sense of coherence

Sense of coherence (SOC) is considered an important psychological resource reflecting individuals' capacity to respond to stressful situations (37). A cross-sectional study examining whether sense of coherence mediates the relationship between burden and affective symptoms in a sample of 170 dementia carers, found that carers endorsing high levels of SOC reported lower levels of anxiety and depressive symptoms, whereas SOC mediated the relationship between caregiver burden and experience of distress (38) *. SOC may also be a strong predictor of personal (personal strain) as opposed to role overload (role strain) aspects of burden (39) *.

Mastery

Two studies have recently examined whether perceptions of mastery are influenced by the different stages of the caregiving process. In a longitudinal investigation of placement-related changes in global personal mastery appraisals in 271 dementia carers, placement of the person with dementia was associated with decreases in mastery immediately after placement but increases during the first year of nursing care, indicating that psychological resources change even in the period of post-caring (40) **. Short term changes in perceived mastery and their association to depressive symptoms and physical health was examined in a cross-sectional study of 74 dementia carers. Mastery specific to the caregiving role as opposed to global perceptions increased over a period of 8-weeks and was a significant predictor of physical health at baseline (41) *. These studies provide further support for the independence and differential contribution of global versus caregiving-specific perceptions of mastery.

Interventions targeting mastery

Mastery has been examined as an outcome in recent studies evaluating psychosocial support interventions for dementia carers, such as testing the feasibility of online community support groups (42) *, and interventions targeting problem-solving skills (43) *. In a recent RCT, an integrated educational-based skills intervention incorporating cognitive rehabilitation for the person with dementia, significantly increased carer mastery, in comparison to usual care (44) **. Personal mastery is currently studied as a modifying variable in an RCT investigating the effectiveness of an online psychoeducational intervention aimed at reducing carer depressive symptoms (45) **.

Coping

There is now consistent evidence that use of specific coping strategies predicts psychological morbidity in dementia carers, with greater use of dysfunctional coping and less use of acceptance and emotional support being strong predictors of both anxiety and depressive symptoms at least cross-sectionally (46) **. Use of dysfunctional coping is predictive of presence of suicidal thoughts in dementia carers (28) **, whereas several studies emphasise the importance of wishful thinking, an avoidance based coping strategy that predicts poor quality of care (21) **. For example, self-reported use of wishful thinking predicts carers' depressive affect (47) *, frequency of care recipient disruptive behaviors such as aggression, and carers' ability to cope with depressive symptoms experienced by the person with dementia (48) *. A study involving 61 carers

of people with frontotemporal dementia exhibiting BPSD, found that emotion-focused coping was a significant predictor of carer mental health (49) *.

Interventions targeting coping

Coping strategies have recently been examined as a potential mediator of effectiveness of a coping strategies-based intervention, shown to be effective in decreasing carer depressive symptoms (50) **. In a follow-up study of this RCT the authors examined whether emotion-focused coping mediated the relationship between intervention effects and carer psychological morbidity. Reductions in depressive symptoms were mediated by increased use of emotion-focused coping only in carers meeting diagnostic criteria for depression at baseline, indicating that coping mechanisms are important determinants of treatment efficacy and their use may depend on carer baseline psychological distress (51) *.

Optimism, generalised expectancies of control and self-esteem

Two recent studies have examined the influence of optimism, in predicting carer outcomes. A study examining whether optimism mediates the relationship between carers' physical health and experience of anger in a sample of 108 dementia carers, showed that optimism predicted levels of vitality and angry reactions, and partially mediated the relationship between anger and vitality (52) *, indicating that holding a general expectation of favorable outcomes for the future may protect carers from the effects of anger on physical health. In a cross-sectional survey of suicidal ideation in 120 family carers living in Australia and the USA, self-reported optimism differentiated carers who have contemplated suicide versus those who have never experienced suicidal thoughts (28) **.

A recent study investigating the association between grounded optimism and external locus of control in the context of decision to use dementia care services in a Spanish sample of 130 family carers, found that those with higher levels of expectancies for success, combined with high self-efficacy and an internal locus of control, were more likely to report use of these services (53) *. These findings suggest that carers' optimism may protect them from the negative effects of stress related to caregiving and therefore more likely to maintain home care. In a Norwegian study of 230 dementia carers locus of control was the strongest predictor of burden after controlling for frequency of BPSD (54) *. A community-based study conducted in the USA, investigating predictors of physical violence in dementia caregiving dyads, found that carers reporting higher levels of self-esteem were less likely to engage in violent behaviour towards their relative (55) **.

Outcomes for the person with dementia

Recent studies have examined whether caregiver personality traits could be predictive of outcomes in the person with dementia. In a cross-sectional study of 80 primary carers of people with dementia examining whether specific coping strategies are independently associated with BPSD, use of disengagement coping was independently contributing to the prediction of both frequency and severity of BPSD, providing further support for the

notion that carer psychological resources such as coping influence outcomes for people with dementia and specifically BPSD pathology (56) *.

Further evidence for the influence of personality traits for care recipient outcomes comes from the longitudinal prospective cohort Cache County Dementia progression study. In this population-based sample, carer neuroticism, measured by the NEO-FFI, predicted faster cognitive decline in the person with dementia, specifically for adult-child carers, whereas higher levels of extraversion were predictive of slower decline in this subgroup (57) **. A study using data from the same sample showed that greater use of problem-focused coping and counting blessings in carers, predicted slower cognitive decline in the person with dementia, whereas seeking social support was predictive of slower dementia severity (58) **.

In line with transitive theoretical models on dyadic influences of caregiving (59), these results indicate that personality traits in family carers can modify the progression of the disease. In a recent longitudinal study, sense of competence in carers but not BPSD-related distress, was the strongest predictor of institutionalisation for both late and young onset dementia (60) *, indicating that targeting psychological resources is valuable and can decrease risk of institutionalisation for people with dementia.

Moderator variables

The effects of neuroticism and extraversion on the person's with dementia cognitive decline are moderated by kinship relationship, with effects reported for adult child carers but not spousal caregivers (57) **. An effect of kinship status has also been found to moderate levels of SOC with spousal carers endorsing higher levels compared to adult children (38) *. These findings suggest that adult children may be at more risk of experiencing negative outcomes.

A cross-sectional study of 67 dementia carers, found that although global mastery was associated with depressive symptoms in both wives and daughter caregivers, caregiving mastery was a significant predictor of depressive symptoms only in wife caregivers, indicative that personal resources related to caregiving may be experienced differently in wives versus daughters (61) *. In at least one study, type of dementia, has been found to moderate self-efficacy for managing behavioural symptoms, whereby carers of people with vascular dementia (VaD) exhibit greater self-efficacy in handling verbally aggressive and non-aggressive behaviours compared to those caring for someone with Alzheimer's disease. Higher self-efficacy in managing behavioural problems was also a strong predictor of mental health in carers of VaD patients but not in carers of people with Alzheimer's disease (62) *. Furthermore, carer personality characteristics may influence the success of intervention programs with the role of various facets of personality being complex. A recent systematic review of interventions targeting coping and affective symptoms in dementia carers has shown that these simultaneously increase the use of both positive and dysfunctional coping strategies immediately post intervention whilst reducing depressive symptoms at follow-up (63) *.

Comparison with other caregivers

A study comparing carers of people with and without dementia has found that those caring for older people with physical dependence are more likely to use coping strategies associated with provision of care, cognitive reappraise the situation, and more likely to perceive strategies used as effective in comparison to dementia carers (64) *. A recent study examined the moderating role of use of religious coping in the association between care recipient functional status and diurnal cortisol salivary responses in African American dementia carers in comparison to controls. The study found that caring for patients with a higher number of BPSD was associated with greater use of positive coping, with the later a strong predictor of higher cortisol responses (65) *, suggestive of potential negative effects of spirituality on carer well-being.

In a study comparing carers of people with dementia with a demographically similar non carer sample in use of coping, dementia carers used less positive coping overall, exhibited lower levels of self-efficacy for problem solving, greater use of negative coping and higher levels of activity restriction (66) *. These findings suggest that these differences may place dementia carers more vulnerable and less able to cope with psychological distress.

Discussion

Recent research aimed towards examining the contribution of personality traits in predicting carer outcomes has provided us with a broader understanding of the “caregiving environment” and its variability. This review allows us to conclude that personality variables are consistently associated and predictive of a range of outcomes in dementia carers and that they are of important predictive value in terms of outcomes for people with dementia. The available evidence overall suggests that carers’ personality, is meaningfully, and modestly related to caregiver outcomes, with evidence of generally small to moderate effects of personality factors on both carer and person with dementia outcomes.

Although research has grown, most studies still remain correlational in nature, with very few longitudinal data available. Given evidence that longitudinal research reveals stronger personality links with several life outcomes than do cross-sectional studies, future long-term, prospective longitudinal research is needed to understand further the role of personality in influencing outcomes for carers and people with dementia. As personality variables have been consistently associated with affective states, it will be important for future research to take into account such variables. For example state anxiety and depression could be a possible confounder in personality measurement, alongside variability in relation to caregiving relationship, such as caring for a spouse versus caring for a parent with dementia.

The findings of this review suggest that personality traits influence interpersonal behaviours in carers, and may undermine their ability to cope with the caregiving role,

such as maintaining positive affective interactions, and less likely to be able to respond to care recipient needs. Facets of personality such as coping and self-efficacy have been the targets of psychosocial interventions on recent trials demonstrating that these mediate reductions in psychological distress for carers who are at increased risk of psychiatric morbidity. Enhancing our understanding of personality determinants will need to inform the development, evaluation and potential effectiveness of psychosocial interventions to benefit both carers and people with dementia.

Conclusion

This article has summarised recent research on how personality traits relate to carer outcomes, and has reviewed recent studies demonstrating direct, indirect and interactive effects of these factors on carer well-being. An important contribution of recent research relates to findings that carer personality characteristics can also influence outcomes for the person with dementia thereby moderating the progression and pathobiology of the disease. Future research using multivariate analyses, and longitudinal designs should be important objectives for future research.

Key points

- Personality traits influence carer outcomes such as emotional well-being and coping
- There is consistent evidence that carer personality characteristics influence the progression and pathology of dementia
- Further research using longitudinal designs will be useful in increasing our understanding of the effects of personality traits on carer and person with dementia outcomes and the most important moderators of these effects

Conflicts of Interest: None

Papers of particular interest, published within the annual period of the review, have been highlighted as:

of special interest *

of outstanding interest **

References

(1) Pinquart M, Sorensen S. Differences between caregivers and noncaregivers in psychological health and physical health: a meta-analysis. *Psychol Aging* 2003 Jun;18(2):250-267.

- (2) Pinquart M, Sorensen S. Associations of caregiver stressors and uplifts with subjective well-being and depressive mood: a meta-analytic comparison. *Aging Ment Health* 2004 Sep;8(5):438-449.
- (3) Cooper C, Balamurali TB, Livingston G. A systematic review of the prevalence and covariates of anxiety in caregivers of people with dementia. *Int Psychogeriatr* 2007 Apr;19(2):175-195.
- (4) Vitaliano PP, Young HM, Zhang J. Is caregiving a risk factor for illness? *Current Directions in Psychological Sciences* 2004;13:13-16.
- (5) Vitaliano PP, Zhang J, Young HM, Caswell LW, Scanlan JM, Echeverria D. Depressed mood mediates decline in cognitive processing speed in caregivers. *Gerontologist* 2009 Feb;49(1):12-22.
- (6) Pearlin LI, Mullan JT, Semple SJ, Skaff MM. Caregiving and the stress process: an overview of concepts and their measures. *Gerontologist* 1990 Oct;30(5):583-594.
- (7) Pinquart M, Sorensen S. Gender differences in caregiver stressors, social resources, and health: an updated meta-analysis. *J Gerontol B Psychol Sci Soc Sci* 2006 Jan;61(1):P33-45.
- (8) Li R, Cooper C, Bradley J, Shulman A, Livingston G. Coping strategies and psychological morbidity in family carers of people with dementia: a systematic review and meta-analysis. *J Affect Disord* 2012 Jun;139(1):1-11.
- (9) Vitaliano PP, Young HM, Russo J. Burden: a review of measures used among caregivers of individuals with dementia. *Gerontologist* 1991 Feb;31(1):67-75.
- (10) Lautenschlager NT, Kurz AF, Loi S, Cramer B. Personality of mental health caregivers. *Curr Opin Psychiatry* 2013 Jan;26(1):97-101.
- (11) McCrae RR, Costa PT, Jr, Ostendorf F, Angleitner A, Hrebickova M, Avia MD, et al. Nature over nurture: temperament, personality, and life span development. *J Pers Soc Psychol* 2000 Jan; 78(1):173-186.
- (12) Hooker K, Monahan DJ, Bowman SR, Frazier LD, Shifren K. Personality counts for a lot: predictors of mental and physical health of spouse caregivers in two disease groups. *J Gerontol B Psychol Sci Soc Sci* 1998 Mar;53(2):P73-85.
- (13) Shurgot GR, Knight BG. Influence of neuroticism, ethnicity, familism, and social support on perceived burden in dementia caregivers: pilot test of the transactional stress and social support model. *J Gerontol B Psychol Sci Soc Sci* 2005 Nov;60(6):P331-P334.

(14) Hooker K, Monahan D, Shifren K, Hutchinson C. Mental and physical health of spouse caregivers: the role of personality. *Psychol Aging* 1992 Sep;7(3):367-375.

(15) Gallant MP, Connell CM. Neuroticism and depressive symptoms among spouse caregivers: do health behaviors mediate this relationship? *Psychol Aging* 2003 Sep;18(3):587-592.

(16) Jang Y, Clay OJ, Roth DL, Haley WE, Mittelman MS. Neuroticism and longitudinal change in caregiver depression: impact of a spouse-caregiver intervention program. *Gerontologist* 2004 Jun;44(3):311-317.

(17) Melo G, Maroco J, de Mendonca A. Influence of personality on caregiver's burden, depression and distress related to the BPSD. *Int J Geriatr Psychiatry* 2011 Dec;26(12):1275-1282.

(18) Pot AM, Deeg DJ, Knipscheer CP. Institutionalization of demented elderly: the role of caregiver characteristics. *Int J Geriatr Psychiatry* 2001 Mar;16(3):273-280.

(19) Bookwala J, Schulz R. The role of neuroticism and mastery in spouse caregivers' assessment of and response to a contextual stressor. *J Gerontol B Psychol Sci Soc Sci* 1998 May;53(3):P155-64.

(20) Gonzalez-Abraldes I, Millan-Calenti JC, Lorenzo-Lopez L, Maseda A. The influence of neuroticism and extraversion on the perceived burden of dementia caregivers: an exploratory study. *Arch Gerontol Geriatr* 2013 Jan-Feb;56(1):91-95.

*This cross-sectional study of 33 dementia carers showed that neuroticism was a strong predictor of burden, depression and both trait and state anxiety, whereas extraversion was associated with lower levels of burden.

(21) McClendon MJ, Smyth KA. Quality of informal care for persons with dementia: dimensions and correlates. *Aging Ment Health* 2013;17(8):1003-1015.

** In this cross-sectional mail survey of 148 dementia carers personality traits influenced caregiving style, with higher levels of agreeableness, conscientiousness, openness, and neuroticism associated with high quality care, whereas greater levels of extraversion predictive of more controlling and withdrawing styles of caring.

(22) Koerner SS, Kenyon DB, Shirai Y. Caregiving for elder relatives: which caregivers experience personal benefits/gains? *Arch Gerontol Geriatr* 2009 Mar-Apr;48(2):238-245.

(23) Weaving J, Orgeta V, Orrell M, Petrides KV. Predicting anxiety in carers of people with dementia: the role of trait emotional intelligence. *Int Psychogeriatr* 2014 Jul;26(7):1201-1209.

** This cross-sectional study examined associations of trait EI with several psychosocial outcomes in carers. Lower levels of trait EI predicted higher burden, and higher anxiety and depressive symptoms.

(24) Cheng ST, Lam LC, Kwok T, Ng NS, Fung AW. Self-efficacy is associated with less burden and more gains from behavioral problems of Alzheimer's disease in Hong Kong Chinese caregivers. *Gerontologist* 2013 Feb;53(1):71-80.

* This study showed that domain specific self-efficacy beliefs, specifically for controlling upsetting thoughts was associated with burden and positive gains in caregiving.

(25) Zhang S, Edwards H, Yates P, Guo Q, Li C. Partial mediation role of self-efficacy between positive social interaction and mental health in family caregivers for dementia patients in Shanghai. *PLoS One* 2013 Dec 26;8(12):e83326.

*This study showed that self-efficacy in gathering information and managing distress were partial mediators of the relationship between carer mental health and positive social interactions. Self-efficacy partially mediated the influence of frequency of BPSD on carer mental health.

(26) Zhang S, Guo Q, Edwards H, Yates P, Li C. Self-efficacy moderation and mediation roles on BPSD and social support influences on subjective caregiver burden in Chinese spouse caregivers of dementia patients. *Int Psychogeriatr* 2014 Jun 16:1-9.

* In this study self-efficacy beliefs moderated the relationship between subjective burden and both BPSD and social support, whereas self-efficacy was found to fully mediate the effect of social support on carer burden.

(27) Shankar KN, Hirschman KB, Hanlon AL, Naylor MD. Burden in caregivers of cognitively impaired elderly adults at time of hospitalization: a cross-sectional analysis. *J Am Geriatr Soc* 2014 Feb;62(2):276-284.

*This study demonstrated that self-efficacy for managing behavioural symptoms was a significant determinant of experienced burden at time of hospitalization.

(28) O'Dwyer ST, Moyle W, Zimmer-Gembeck M, De Leo D. Suicidal ideation in family carers of people with dementia: a pilot study. *Int J Geriatr Psychiatry* 2013 Nov;28(11):1182-1188.

**In this cross-sectional survey, self-reported optimism differentiated between carers who have contemplated suicide versus non suicidal carers.

(29) Tay KC, Seow CC, Xiao C, Lee HM, Chiu HF, Chan SW. Structured interviews examining the burden, coping, self-efficacy and quality of life among family caregivers of persons with dementia in Singapore. *Dementia (London)* 2014 Feb 17.

*This study shows that higher general perceived self-efficacy, is associated with increasing age, better psychological health and greater use of positive reframing.

(30) Bandura A editor. *Self-efficacy: The exercise of control*. New York: Freeman; 1997.

(31) Austrom MG, Geros KN, Hemmerlein K, McGuire SM, Gao S, Brown SA, et al. Use of a multiparty web based videoconference support group for family caregivers. *Dementia (London)* 2014 Jul 25.

*This pilot study tested the feasibility of web-based on-line support group for dementia carers.

(32) Fortinsky RH, Delaney C, Harel O, Pasquale K, Schjavadland E, Lynch J, et al. Results and lessons learned from a nurse practitioner-guided dementia care intervention for primary care patients and their family caregivers. *Res Gerontol Nurs* 2014 May-Jun;7(3):126-137.

* This pilot study tested the feasibility of a nursing care intervention.

(33) Kwok T, Au A, Wong B, Mak V, Ho F. Effectiveness of online cognitive behavioral therapy on family caregivers of people with dementia. *Clin Interv Aging*. 2014;9:631-6.

* This pilot study investigated the feasibility of an online CBT-based intervention in improving the self-efficacy in dementia carers using a pre-post evaluation design.

(34) Kwok T, Wong B, Ip I, Chui K, Young D, Ho F. Telephone-delivered psychoeducational intervention for Hong Kong Chinese dementia caregivers: a single-blinded randomized controlled trial. *Clin Interv Aging* 2013;8:1191-1197.

** This pilot RCT investigating the effectiveness of a telephone CBT-based psychoeducational intervention improved self-efficacy for gaining respite.

(35) Huang HL, Kuo LM, Chen YS, Liang J, Huang HL, Chiu YC, et al. A home-based training program improves caregivers' skills and dementia patients' aggressive behaviors: a randomized controlled trial. *Am J Geriatr Psychiatry* 2013 Nov;21(11):1060-1070.

**In this pilot RCT individualised home-based training for managing behavioural symptoms improved general carer self-efficacy.

(36) Tremont G, Davis J, Papandonatos GD, Grover C, Ott BR, Fortinsky RH, et al. A telephone intervention for dementia caregivers: background, design, and baseline characteristics. *Contemp Clin Trials* 2013 Nov;36(2):338-347.

** This ongoing RCT is testing the effectiveness of a telephone-based psychoeducational intervention in improving self-efficacy in highly distressed caregivers.

(37) Antonovsky A. The structure and properties of the sense of coherence scale. *Soc Sci Med* 1993 Mar;36(6):725-733.

(38) Orgeta V, Sterzo EL. Sense of coherence, burden, and affective symptoms in family carers of people with dementia. *Int Psychogeriatr* 2013 Jun;25(6):973-980.

* In this cross-sectional study carers with high levels of SOC reported lower levels of anxiety and depressive symptoms, whereas SOC mediated the relationship between caregiver burden and psychological distress.

(39) Matsushita M, Ishikawa T, Koyama A, Hasegawa N, Ichimi N, Yano H, et al. Is sense of coherence helpful in coping with caregiver burden for dementia? *Psychogeriatrics* 2014 Jun;14(2):87-92.

* This study shows that SOC is a strong predictor of personal (personal strain) as opposed to role overload (role strain) aspects of burden.

(40) Infurna FJ, Gerstorf D, Zarit SH. Substantial changes in mastery perceptions of dementia caregivers with the placement of a care recipient. *J Gerontol B Psychol Sci Soc Sci* 2013 Mar;68(2):202-214.

** In this longitudinal study placement of the person with dementia was associated with decreases in mastery immediately after placement but increased during the first year of nursing care.

(41) Simpson C, Carter P. Short-term changes in sleep, mastery & stress: impacts on depression and health in dementia caregivers. *Geriatr Nurs* 2013 Nov-Dec;34(6):509-516.

* In this cross-sectional study mastery specific to the caregiving role as opposed to global perceived mastery increased over time and was a significant predictor of physical health at baseline.

(42) Pagan-Ortiz ME, Cortes DE, Rudloff N, Weitzman P, Levkoff S. Use of an Online Community to Provide Support to Caregivers of People With Dementia. *J Gerontol Soc Work* 2014 Apr 1:1-16.

* This pilot study tested the feasibility of a community on-line support group for dementia carers.

(43) Chiu M, Wesson V, Sadavoy J. Improving caregiving competence, stress coping, and mental well-being in informal dementia carers. *World J Psychiatry* 2013 Sep 22;3(3):65-73.

* This pilot study tested the feasibility of a psychosocial intervention targeting problem-solving skills.

(44) Judge KS, Yarry SJ, Looman WJ, Bass DM. Improved Strain and Psychosocial Outcomes for Caregivers of Individuals with Dementia: Findings from Project ANSWERS. *Gerontologist* 2013 Apr;53(2):280-292.

** In this RCT, an integrated educational-based skills intervention incorporating cognitive rehabilitation for the person with dementia, significantly increased carer mastery.

(45) Blom MM, Bosmans JE, Cuijpers P, Zarit SH, Pot AM. Effectiveness and cost-effectiveness of an internet intervention for family caregivers of people with dementia: design of a randomized controlled trial. *BMC Psychiatry* 2013 Jan 10;13:17-244X-13-17.

** This ongoing RCT is currently investigating personal mastery as a modifying variable in an online psycho-educational intervention aimed at reducing carer depressive symptoms.

(46) Li R, Cooper C, Livingston G. Relationship of coping style to mood and anxiety disorders in dementia carers. *Curr Opin Psychiatry* 2014 Jan;27(1):52-56.

**This systematic review showed that greater use of dysfunctional coping and less use of acceptance and emotional support are strong predictors of both anxiety and depressive symptoms in dementia carers.

(47) Piercy KW, Fauth EB, Norton MC, Pfister R, Corcoran CD, Rabins PV, et al. Predictors of dementia caregiver depressive symptoms in a population: the Cache County dementia progression study. *J Gerontol B Psychol Sci Soc Sci* 2013 Nov;68(6):921-926.

* This study showed that carers who are more likely to use wishful thinking experience higher depressive symptoms.

(48) Huang MF, Huang WH, Su YC, Hou SY, Chen HM, Yeh YC, et al. Coping Strategy and Caregiver Burden Among Caregivers of Patients With Dementia. *Am J Alzheimers Dis Other Demen* 2013 Jun 29.

* In this study wishful thinking was a strong predictor of frequency of disruptive behaviours such as aggression, and ability to cope with depressive symptoms experienced by the person with dementia.

(49) Wong CC, Wallhagen MI. Family caregivers of individuals with frontotemporal dementia: examining the relationship between coping and caregiver physical and mental health. *J Gerontol Nurs* 2014 Jan;40(1):30-40.

*In this study emotion-focused coping was a significant predictor of caregiver mental health in carers of people with frontotemporal dementia experiencing BPSD.

(50) Livingston G, Barber J, Rapaport P, Knapp M, Griffin M, King D, et al. Clinical effectiveness of a manual based coping strategy programme (START, STRategies for RelaTives) in promoting the mental health of carers of family members with dementia: pragmatic randomised controlled trial. *BMJ* 2013 Oct 25;347:f6276.

**In this RCT, a coping strategies-based intervention, was effective in decreasing carer depressive symptoms and depression caseness.

(51) Li R, Cooper C, Barber J, Rapaport P, Griffin M, Livingston G. Coping strategies as mediators of the effect of the START (strategies for RelaTives) intervention on psychological morbidity for family carers of people with dementia in a randomised controlled trial. *J Affect Disord* 2014 Jul 17;168C:298-305.

* In this study reductions in depressive symptoms were mediated by increased use of emotion-focused coping only in carers meeting diagnostic criteria for depression at baseline.

(52) Lopez J, Romero-Moreno R, Marquez-Gonzalez M, Losada A. Anger and Health in Dementia Caregivers: Exploring the Mediation Effect of Optimism. *Stress Health* 2013 Oct 10.

*In this study optimism predicted levels of vitality and angry reactions, and partially mediated the relationship between anger and vitality in dementia carers.

(53) Contador I, Fernandez-Calvo B, Palenzuela DL, Campos FR, Rivera-Navarro J, Lucena VM. A Control-Based Multidimensional Approach to the Role of Optimism in the Use of Dementia Day Care Services. *Am J Alzheimers Dis Other Demen* 2013 Jul 9.

* This study showed that carers with higher levels of expectancies for success, combined with high self-efficacy and an internal locus of control, were more likely to report use of dementia care services.

(54) Bruvik FK, Ulstein ID, Ranhoff AH, Engedal K. The effect of coping on the burden in family carers of persons with dementia. *Aging Ment Health* 2013;17(8):973-978.

*This study showed that locus of control was the strongest predictor of burden after controlling for frequency of BPSD.

(55) Vandeweerd C, Paveza GJ, Walsh M, Corvin J. Physical mistreatment in persons with Alzheimer's disease. *J Aging Res* 2013;2013:920324.

**This study showed that carers reporting higher levels of self-esteem were less likely to engage in violent behaviour towards their relative.

(56) Garcia-Alberca JM, Cruz B, Lara JP, Garrido V, Lara A, Gris E, et al. The experience of caregiving: the influence of coping strategies on behavioral and psychological symptoms in patients with Alzheimer's disease. *Aging Ment Health* 2013;17(5):615-622.

* In this study use of disengagement coping independently contributed to the prediction of both frequency and severity of BPSD.

(57) Norton MC, Clark C, Fauth EB, Piercy KW, Pfister R, Green RC, et al. Caregiver personality predicts rate of cognitive decline in a community sample of persons with Alzheimer's disease. The Cache County Dementia Progression Study. *Int Psychogeriatr* 2013 Oct;25(10):1629-1637.

** In this study carer neuroticism, measured by the NEO-FFI, predicted faster cognitive decline in the person with dementia, specifically for adult-child caregivers, whereas higher levels of extraversion were predictive of slower decline in this subgroup.

(58) Tschanz JT, Piercy K, Corcoran CD, Fauth E, Norton MC, Rabins PV, et al. Caregiver coping strategies predict cognitive and functional decline in dementia: the Cache County Dementia Progression Study. *Am J Geriatr Psychiatry* 2013 Jan;21(1):57-66.

** In this study greater use of problem-focused coping and counting blessings, predicted slower cognitive decline in the person with dementia, whereas seeking social support was predictive of slower dementia severity.

(59) Ruiz JM, Matthews KA, Scheier MF, Schulz R. Does who you marry matter for your health? Influence of patients' and spouses' personality on their partners' psychological well-being following coronary artery bypass surgery. *J Pers Soc Psychol* 2006 Aug;91(2):255-267.

(60) Bakker C, de Vugt ME, van Vliet D, Verhey FR, Pijnenburg YA, Vernooij-Dassen MJ, et al. Predictors of the time to institutionalization in young- versus late-onset dementia: results from the Needs in Young Onset Dementia (NeedYD) study. *J Am Med Dir Assoc* 2013 Apr;14(4):248-253.

*In this study sense of competence in carers but not BPSD-related distress, was the strongest predictor of institutionalisation for both late and young onset dementia.

(61) Simpson C, Carter P. Mastery: a comparison of wife and daughter caregivers of a person with dementia. *Journal of Holistic Nursing* 2013;31:113-120.

* In this study caregiving mastery was a significant predictor of depressive symptoms only in wife caregivers.

(62) Kuo LM, Huang HL, Hsu WC, Shyu YI. Health-Related Quality of Life and Self-Efficacy of Managing Behavior Problems for Family Caregivers of Vascular Dementia and Alzheimer's Disease Patients. *Dement Geriatr Cogn Disord* 2014 Jul 9;38(5-6):310-320.

* This study showed that carers of people with VaD exhibited greater self-efficacy in handling verbally aggressive and non-aggressive behaviours, whereas higher self-efficacy in managing behavioural problems was a strong predictor of mental health in this subgroup.

(63) Li R, Cooper C, Austin A, Livingston G. Do changes in coping style explain the effectiveness of interventions for psychological morbidity in family carers of people with dementia? A systematic review and meta-analysis. *Int Psychogeriatr* 2013 Feb;25(2):204-214.

* This systematic review found that interventions targeting coping and affective symptoms in dementia carers increase the use of both positive and dysfunctional coping strategies immediately post intervention.

(64) Sequeira C. Difficulties, coping strategies, satisfaction and burden in informal Portuguese caregivers. *J Clin Nurs* 2013 Feb;22(3-4):491-500.

* This study showed that carers of older people with physical dependence were more likely to use coping strategies associated with provision of care, and reappraising the situation in comparison to carers of people with Alzheimer's disease.

(65) Merritt MM, McCallum TJ. Too much of a good thing?: Positive religious coping predicts worse diurnal salivary cortisol patterns for overwhelmed African American female dementia family caregivers. *Am J Geriatr Psychiatry* 2013 Jan;21(1):46-56.

* In this study caring for patients with a higher number of BPSD was associated with greater use of positive religious coping, with the later a strong predictor of higher cortisol responses.

(66) Mausbach BT, Chattillion EA, Roepke SK, Patterson TL, Grant I. A comparison of psychosocial outcomes in elderly Alzheimer caregivers and noncaregivers. *Am J Geriatr Psychiatry* 2013 Jan;21(1):5-13.

* This study showed that dementia carers use less positive coping overall and exhibit lower levels of self-efficacy for problem solving in comparison to non-carers.

Table 1

Personality construct	Questionnaire	Study
<i>Trait Emotional Intelligence (trait EI)</i>	Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF)	
<i>Personality</i>	NEO Personality Inventory – Revised (NEO-PIR)	
	NEO Five Factor Inventory (NEO-FFI),	
	Big Five Inventory (BFI)	
<i>Sense of coherence</i>	Sense of Coherence Scale (SOC)	
<i>Coping</i>	Brief Coping Orientation to Problems Experienced inventory (Brief COPE)	
	Coping Strategies Inventory (CSI)	
	Caregiver Assessment of Managing Index (CAMI)	
	Religious Coping scale (RCOPE)	
<i>Self-efficacy</i>	Coping Self-Efficacy Scale (CSES)	
	Ways of Coping Checklist Revised (WCCL-R)	
	Revised Scale for Caregiving Self-Efficacy (RSCSE)	
	Agitation Management Self-Efficacy Scale (AMSS)	
	Self-Efficacy Questionnaire for Chinese Family Caregivers (SEQCFC)	
	General Perceived Self-Efficacy Scale (GPSE)	
<i>Optimism</i>	Life Orientation Test Revised (LOT-R)	
<i>Generalised expectancies of control (Grounded Optimism)</i>	Battery of Generalized Expectancies of Control Scales (BEEGC-20)	
<i>Locus of control</i>	Locus of Control Behaviour Scale (LCBS)	
<i>Mastery</i>	Personal Mastery Scale (PMS)	
	Caregiving Mastery Scale (CMS)	

Sense of competence

Short Sense of Competence Questionnaire (SSCQ)

Self-esteem

Rosenberg Self Esteem Scale (RSES)
