



# Does written emotional disclosure improve the psychological and physical health of caregivers? A systematic review and meta-analysis



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## ABSTRACT

There are 5.8 million caregivers providing support to the infirm, disabled or elderly in the United Kingdom. Caregivers experience adverse physical and mental health outcomes and increased mortality. Low cost, effective interventions are needed to increase the wellbeing of caregivers. Written emotional disclosure (WED) has been shown to improve health in a range of populations. This systematic review and meta-analysis aimed to establish whether WED improves the psychological and physical health of caregivers. Searches were conducted in Medline, EMBASE, CINAHL, BNI, PsycINFO, Cochrane Library from 1986 to 2015. Ten trials investigating WED (625 participants) met the inclusion criteria. Results from four studies ( $n = 118$ ) indicated that WED reduces trauma ( $SMD = -0.46$ , 95% CI  $-0.82$ ,  $-0.09$ ). Data from three studies ( $n = 102$ ) suggest that WED improves general psychological health ( $SMD = -0.46$ , 95% CI  $-0.86$ ,  $-0.06$ ). There was no evidence that WED improves depression, anxiety, physical symptoms, quality of life or burden. Observations suggest WED may be more effective for caregivers of less than 5 years. Studies were highly heterogeneous in regards to caregiver age, relationship to care recipient, impairment of care recipient, follow up period and outcome measures, with high or unclear bias often observed. More rigorous RCTs, with clearly described interventions and standardised outcome measures, are needed to confirm these findings.

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## 1. Background

A caregiver is an unpaid individual who assists another person with day-to-day activities including eating, personal hygiene and other essential tasks (Care Act, 2014). In the United Kingdom (UK), there are approximately 5.8 million caregivers (1 in 10 adults) providing support to the infirm, disabled or very elderly (Office for

National Statistics, 2013). The caregiving role can lead to increased depression, anxiety, burden, post-traumatic stress and decreased self-efficacy (Bandeira et al., 2007; Obeidat, Bond, & Callister, 2009; Ory, Hoffman, Yee, Tennstedt, & Schulz, 1999; Pinquart & Sorensen, 2007; Raina et al., 2005; Schulz et al., 2003; Schulz & Sherwood, 2008). Caregivers are more likely than non-caregivers to neglect their own physical health and to have poorer health, including higher blood pressure, impaired immune responses and increased mortality (Kiecolt-Glaser, Glaser, Gravenstein, Malarkey, & Sheridan, 1996; Schulz & Beach, 1999; Schulz & Sherwood, 2008; Shaw et al., 1999).

Various interventions to support caregivers have been evaluated. Short courses of combined cognitive behavioural and family therapy have been trialled with caregivers of children with cancer, with resultant improvement of post-traumatic stress symptoms (Kazak et al., 2004). Counselling, support groups, combined educational and psychological support sessions and family meetings have been shown to help caregivers of people with dementia, but these interventions have to be time intensive and multi-dimensional to be effective (Pinquart & Sorensen, 2006; Zarit & Elia, 2008; Zarit & Zarit, 1982). Such interventions are costly,

*Abbreviations:* UK, United Kingdom; WED, written emotional disclosure; PRISMA, preferred reporting items of systematic reviews and meta-analyses; SMD, standardised mean difference; RCT, randomised controlled trial; CI, confidence interval; US, United States; ADHD, attention deficit hyperactivity disorder; ADD, attention deficit disorder; SQ, symptom questionnaire; BSI, brief symptom inventory; GHQ, general health questionnaire; MASQ, mood and anxiety symptom questionnaire; PHQ-9, patient health questionnaire; IES-R, impact of events scale-revised; IES, impact of events; PTSD, posttraumatic diagnostic scale; ZBI, zarit burden interview; ECI, experiences of caregiving inventory; SCL-90-R, symptom checklist 90-R; HADS, hospital anxiety and depression scale; CES-D, center for epidemiological studies depression scale.

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requiring intensive support from highly trained professionals. Caregivers, who often find it difficult to attend support sessions because of caregiving commitments, would benefit from an intervention which can be easily accessed, not time intensive and one that can be undertaken at or close to home.

An example of a potentially appropriate intervention is written emotional disclosure (WED), a form of writing therapy first described by James Pennebaker and Sandra Beall in 1986 (Pennebaker & Beall, 1986). WED usually involves participants writing about a traumatic experience for 15–30 min a day for three to five days (Pennebaker & Beall, 1986). Individuals are instructed to write continuously and freely about their deepest feelings, without concern for spelling and grammar (Pennebaker & Beall, 1986; Pennebaker, 1997). In a large meta-analysis of a highly heterogeneous sample, WED appears to have psychological and physical health benefits (Frattaroli, 2006). Individual studies have shown a range of positive effects, such as reduced symptoms in patients with rheumatoid arthritis, improved lung function in patients with asthma and fewer health centre visits among first year university students (Smyth, Stone, Hurewitz, & Kaell, 1999; Smith et al., 2015; Pennebaker, Colder, & Sharp, 1990). However the impact of WED is not universally positive: in some groups a null effect has been found (e.g. WED had no effect on suicidal ideation or feelings of bereavement) (Kovac & Range, 2011; Stroebe, Stroebe, Schut, Zech, & van den Bout, 2002) suggesting that it may be an effective therapy for some sub-groups but not for all. Given there is evidence that intensive psychological interventions are beneficial but impractical for caregivers, we conducted a systematic review and meta-analysis to determine if WED, a brief, easily accessible and low cost alternative intervention, can improve caregivers' psychological and physical health.

## 2. Methods

This systematic review and meta-analysis follows the Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines (PRISMA) (Moher, Liberatti, Tetzlaff, & Altman, 2009).

### 2.1. Eligibility criteria

Trials were eligible for inclusion if they 1) were randomised controlled trials (RCTs) or controlled trials, 2) investigated the use of WED as described by Pennebaker and Beall (Pennebaker & Beall, 1986), 3) reported quantitative outcome measures, 4) included participants who were caregivers (defined as unpaid individuals providing care to others including, but not limited to, family members, children, parents and spouses) (Care Act, 2014). If the trial involved more than one intervention it was included if WED was a separate arm, enabling extrapolation of the effects of WED alone. Studies were excluded if they were solely qualitative. Similarly, studies that used subsets of data published in full elsewhere were not included, thus to preventing any duplication of data.

### 2.2. Search strategy

Three methods were used to search for studies testing the effects of WED in caregivers. Firstly, keyword searches were carried out in Medline, EMBASE, CINHAL, BNI, PsycINFO and the Cochrane library (Appendix 1) for the period 1986 (the year of publication of the WED paradigm) (Pennebaker & Beall, 1986) to July 2015. The language or publication type was not limited. Secondly, reference lists of all primary studies, qualitative studies and review articles on the topic were searched for additional references. Citations were screened by one reviewer (PR) and 20% were checked independently by the two other reviewers (HS & CJ). All three reviewers

confirmed the eligibility of the identified studies. Thirdly, to find studies nearing publication, experts in the field were contacted and the British Psychological Society was asked to email their members requesting details of any ongoing work that used writing therapy with caregivers.

### 2.3. Data extraction

Data extracted from each study were entered into a summary table to enable comparison of study characteristics. The table was compiled by one reviewer (PR) and checked for accuracy by the other reviewers (HS & CJ) (Table 1). Where studies were eligible but not all relevant data could be obtained from the publication, authors were contacted. As there was variation in the frequency and duration of follow-up measurement between studies, data were extracted only for the final follow-up.

### 2.4. Quality assessment of studies

Each study was analysed for bias using the Cochrane Collaboration's criteria (Higgins & Green, 2011). The risk of bias in each subcategory was classified as high, low or unclear. The assessment of bias was conducted independently by two authors (PR and CJ) and decisions were compared and discussed to achieve consensus (Table 3).

### 2.5. Data analysis

All outcomes were measured as continuous data. End point scores were expressed as mean differences (MDs) or standardised mean differences (SMDs) with 95% confidence intervals (CIs). Heterogeneity of the studies was assessed by visual inspection of the forest plots and calculation of the  $I^2$  statistic using RevMan 5.2 (RevMan, 2012). An  $I^2$  up to 25% indicates low heterogeneity; up to 50% indicates moderate heterogeneity; and 75% or greater, high heterogeneity. Investigation of heterogeneity was not performed as a minimum of 10 studies are required for subgroup analyses (Higgins & Green, 2011). We performed the meta-analysis using RevMan 5.2 software (RevMan, 2012), using random effect models if  $I^2 \geq 50\%$ , and fixed effects if  $I^2 < 50\%$ .

## 3. Results

### 3.1. Study selection

The search strategy identified 2287 studies for possible inclusion, 2267 were excluded after reading the title or abstract. The full texts of 20 studies were accessed to determine eligibility and ten met the inclusion criteria (Fig. 1). These ten were reviewed for study design, participant characteristics, intervention and outcomes and the relevant data were entered into Review Manager (RevMan, 2012).

### 3.2. Study characteristics

Eight studies measured seven outcomes and supplied data suitable for meta-analysis (Ashley, O'Connor, & Jones, 2011; Barry & Singer, 2001; Barton & Jackson, 2008; Duncan et al., 2007; Jones et al., 2015; Mackenzie, Wiprzycka, Hasher, & Goldstein, 2007; Martino, Freda, & Camera, 2013; Schwartz & Drotar, 2004). There were five studies which measured four outcomes that could not be pooled due to insufficient detail or only a single study reported on that outcome (Schwartz & Drotar, 2004; Whitney & Smith, 2015; Zauszniewski, Musil, Burant, & Au, 2014; Martino et al., 2013; Jones et al., 2015). Attempts to obtain extra information about

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