

# Does Expressive Writing Reduce Stress and Improve Health for Family Caregivers of Older Adults?

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**Purpose:** We examined whether written emotional disclosure reduces stress and improves health outcomes for family caregivers of physically frail and cognitively impaired older adults, as it has been shown to do for certain student and clinical populations. **Design and Methods:** Primary caregivers of older adults attending a day program were randomly assigned to expressive-writing ( $n = 14$ ), time-management ( $n = 13$ ), or history-writing ( $n = 13$ ) conditions. Participants wrote for 20 minutes on four occasions over a 2-week period, and they completed self-report measures of caregiver burden and health prior to the intervention, immediately afterward, and at 1-month follow-up. **Results:** Contrary to expectations, expressive-writing and history-writing participants performed similarly across outcomes. Only caregiver participants in the time-management condition experienced significant mental and physical health improvements after writing. **Implications:** The results of this study add to a growing body of research demonstrating equivocal effects of expressive writing with clinical samples, and they suggest the potential benefit of written time management for stressed caregivers.

**Key Words:** *Expressive writing, Written disclosure, Caregiver stress, Time management, Randomized clinical trial*

Developments within clinical and health psychology, psychiatry, and psychoneuroimmunology are providing increasingly clear evidence of the negative impact of stress on mental and physical health (Schneiderman, Ironson, & Siegel, 2005). There has also been concurrent growth in interventions designed to reduce stress or treat stress-related conditions. Two decades ago, Pennebaker and Beall (1986) published the first study examining the impact of a brief writing intervention focusing on traumatic or stressful experiences. University students who wrote about their deepest thoughts and feelings concerning the most traumatic experience of their lives for 15 minutes on four consecutive days experienced significant reductions in health center visits. Since that landmark study, an impressive body of literature has developed with the aim of exploring the health benefits of the expressive-writing paradigm. The current study adds to this growing body of evidence by extending expressive writing to a stressed population that has been neglected in the written-disclosure literature: Family caregivers of physically frail and cognitively impaired older adults who are no longer able to care for themselves independently.

Preliminary studies supported the efficacy of expressive writing. In a meta-analysis of 13 randomized controlled trials examining its mental and physical health benefits, Smyth (1998) found an overall effect size of 0.47 (Cohen's  $d$ ) across studies and outcomes. This moderate effect size represented a 23% improvement among intervention participants compared with control subjects. Larger effects were found for studies that included greater numbers of men, when writing sessions were spaced further apart, and when participants wrote about current rather than

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past sources of stress. Although this meta-analysis suggested that written disclosure effectively reduced stress and improved health, generalizability of the results was limited because 10 of the 13 studies used student samples. The results of student-sample expressive-writing interventions published since Smyth's meta-analysis have been mixed, with certain studies showing impressive benefits (Epstein, Sloan, & Marx, 2005; Schoutrop, Lange, Hanewald, Davidovich, & Salomon, 2002), others showing null results (Kovac & Range, 2000; Range, Kovac, & Marion, 2000), and some finding that expressive writing is only effective for certain subgroups (Langens & Schuler, 2005).

More recently, the emphasis of expressive-writing research has shifted to clinical populations. The results of this shift have also been equivocal. A meta-analysis of nine randomized clinical trials found a small effect size of 0.19 (Cohen's *d*), with individual study effect sizes ranging from -0.24 to 0.49 (Frisina, Borod, & Lepore, 2004). Both this analysis and more recently published studies suggest that expressive writing is beneficial for patients with high blood pressure (McGuire, Greenberg, & Gevirtz, 2005) and fibromyalgia (Broderick, Jungbaenel, & Schwartz, 2005). In contrast, largely negative findings have been reported with abuse and trauma survivors (Batten, Follette, & Palm, 2002; Gidron et al., 2002; Koopman et al., 2005), individuals with chronic pain (Norman, Lumley, Dooley, & Diamond, 2004), and bereaved individuals (Stroebe, Stoebe, Zech, & Schut, 2002). Finally, contradictory findings have been published regarding the efficacy of expressive writing for patients with HIV (Petrie, Fontanilla, Thomas, Booth, & Pennebaker, 2004; Rivkin, Gustafson, Weingarten, & Chin, 2006), cancer (Stanton et al., 2002; Walker, Nail, & Croyle, 1999), asthma, and rheumatoid arthritis (Harris, Thoresen, Humphreys, & Faul, 2005; Smyth, Stone, Hurwitz, & Kaell, 1999).

Although findings regarding the benefits of written disclosure are mixed, expressive writing does appear to be moderately effective in reducing stress and improving health for certain clinical populations, or subsets of individuals within these populations. In the current study we examined the efficacy of this writing intervention for caregivers of physically frail and cognitively impaired older adults. Although expressive writing has been recommended as a method for helping dementia caregivers make sense of their stressful situations in order to promote health and well-being (Butcher & Buckwalter, 2002), to our knowledge it has yet to be examined in this population.

There are several reasons why expressive writing is a promising intervention for caregivers of older adults. First, although researchers are not yet clear about why it improves physical and emotional health, they have proposed three general theories to explain its efficacy. Expressive writing is thought to

improve health by: (a) providing a release for previously inhibited thoughts, emotions, or behaviors; (b) facilitating the development of organized, coherent narratives of stress-related thoughts and memories in order to promote cognitive adaptation to traumatic experiences; or (c) exposing individuals to aversive emotions that they had previously avoided so that they habituate to them (Sloan & Marx, 2004). Regardless of which theory or theories are correct, they all suggest that, according to the caregiver stress process model (Pearlin, Mullan, Semple, & Skaff, 1990), expressive writing should help caregivers cope with the emotional impact of the various primary stressors and secondary strains they are experiencing in order to avoid negative physical and mental health outcomes. Second, Sloan and Marx (2004) speculate that expressive writing may work best for individuals with less severe psychopathology, and caregivers have predominantly subclinical levels of distress (Schulz et al., 2002). Third, although intensive multi-component interventions are especially effective for caregivers (Schulz & Martire, 2004), they may not be available to those who do not live in large urban centers, who cannot afford the costs involved, or who will not commit to comprehensive programs as a result of time-intensive caregiving responsibilities. Because of the brevity and ease of administration of expressive writing, it has the potential to reach those care providers who might not otherwise access more intensive interventions. It could also be used as a first-line intervention within a stepped-care model, in which the least complex, expensive, and intrusive treatments are attempted before proceeding to more intensive interventions, if necessary (Haaga, 2000).

In the only examination of written disclosure with caregivers to date, it was ineffective in reducing depression, anxiety, and stress for 54 family caregivers of hospitalized children (Schwartz & Drotar, 2004). The results of that study may not generalize to caregivers of older adults, however, because care requirements for children and older individuals differ considerably, and because the writing intervention in that investigation deviated from the traditional methodology by allowing parents to write unsupervised while in their child's room rather than in a distraction-free environment for a specific length of time.

In this study, caregivers in the expressive-writing condition used methods (spaced writing sessions focusing on current rather than past sources of stress) that have been particularly effective (Smyth, 1998). Meta-analyses have reported inconsistent yet significant effects of writing across a variety of self-report physical and psychological health outcomes (Frisina et al., 2004; Smyth, 1998). As a result, we hypothesized that individuals who write emotionally about stressful caregiving experiences would experience reductions in perceived caregiver burden in comparison with caregivers in time-management and history-writing control groups. We also expected that expressive writing would improve common

Table 1. Sample Characteristics by Writing Condition

Characteristics	Expressive Writing ( <i>n</i> = 14)	Time Management ( <i>n</i> = 13)	History Writing ( <i>n</i> = 13)
Mean ( <i>SD</i> ) age: years	61.79 (13.05)	63.31 (12.38)	59.46 (13.75)
Female (%)	10 (71.4)	10 (76.9)	9 (69.2)
White race (%)	14 (100)	13 (100)	13 (100)
Marital status (%)			
Never married	0 (0.0)	2 (15.4)	1 (7.7)
Married	13 (92.9)	10 (76.9)	12 (92.3)
Separated or divorced	1 (7.1)	1 (7.7)	0 (0.0)
Mean ( <i>SD</i> ) years of education	14.29 (2.97)	14.15 (2.73)	16.00 (2.71)
Work status (%)			
Full time	6 (42.9)	4 (30.8)	6 (46.2)
Part time	4 (28.6)	2 (15.4)	3 (23.1)
Homemaker	2 (14.3)	0 (0.0)	2 (15.4)
Retired	2 (14.3)	7 (53.8)	2 (15.4)
Relationship to care recipient (%)			
Spouse	5 (35.7)	4 (30.8)	4 (30.8)
Child	9 (64.3)	7 (53.9)	9 (69.2)
Other relative	0 (0.0)	2 (15.4)	0 (0.0)
Caregiving duration			
Mean ( <i>SD</i> ) months	44.71 (32.01)	55.15 (48.20)	60.62 (71.90)
Mean ( <i>SD</i> ) hours per day	8.54 (9.79)	9.40 (10.39)	7.25 (9.77)
Care recipient has dementia (%)	8 (57)	6 (46)	8 (62)

Note: *SD* = standard deviation.

distressing reactions to stressful events, including intrusive thinking and avoidance, as well as self-reported physical health and key indicators of mental health, including depression, social dysfunction, anxiety, and sleep problems. We included the history-writing condition because of the possibility that time management, the most common control condition in the written-disclosure literature, might be beneficial for caregivers for two reasons. First, caregivers often list time pressure as a significant source of stress (Jones & Jones, 1994). Second, time management requires individuals to write about how they spend their time in an objective manner. Caregivers in this condition may experience health benefits, considering that suppressing emotional expression (e.g., writing objectively about emotional caregiving experiences) has been shown to be an adaptive and healthy coping strategy for highly stressed older adults (Consedine, Magai, & Bonanno, 2002; Leventhal, Patrick-Miller, Leventhal, & Burns, 1998).

## Methods

### Participants

Participants were family caregivers of older adult members of the Community Day Centre for Seniors at Baycrest, a geriatric teaching hospital affiliated with the University of Toronto. The Day Centre has two programs that provide supportive and recreational services to older adults 2 days per week. One program is located in a locked area designated for members diagnosed with dementia, and the other is located in

an open area designated for physically frail or mildly cognitively impaired members. We recruited participants from both programs because caregiver stress is associated with caring for both physically frail and cognitively impaired older adults (Pinquart & Sorensen, 2003). Criteria for entrance into the study included the following: (a) the participant was identified as a primary family caregiver of a day program member for at least 6 months; (b) the participant was fluent in written and spoken English; (c) the participant had not used a personal diary for the past 12 months; and (d) the participant had no known neurological or incapacitating health problems. Of the 209 participants contacted to participate in the study, 69 did not meet inclusion criteria and 94 declined participation. Six participants dropped out of the study, resulting in a final sample of 40 caregivers. Overall, these participants were 61.53 years of age (*SD* = 12.83), with an average of 14.80 years of education (*SD* = 2.87). The majority were female (72.5%) and working full or part time (62.5%). Most caregivers were either children of the care recipient (62.5%) or spouses of the care recipient (32.5%), and 87.5% were married. Just over half of the participants (55%) were caring for family members with diagnosed dementia. Table 1 provides demographic information for caregivers assigned to the three experimental groups.

### Measures

**Demographic Questionnaire.**—Participants provided basic demographic information about their age, gender, marital status, education, occupation,

and race or ethnicity. They also indicated their relationship to the care recipient, number of months as a caregiver, and the average daily hours spent caregiving.

**Manipulation Check Questionnaire.**—At the follow-up assessment, participants rated their essays on a 7-point scale ranging from 1 (not at all) to 7 (a great deal) in terms of how emotional and personal they were, as well as the extent to which the writing was difficult to do, had a lasting positive effect, had a lasting negative effect, and was valuable.

**Essay Characteristics.**—We analyzed participants' transcribed essays with the Linguistic Inquiry and Word Count Program (Pennebaker & Francis, 1999), which reliably searches text for over 2,300 words or word stems and converts them to a percentage of total words to correct for differences in text length. We compared participants' use of first person words (e.g., *I, me*), positive and negative affect words (e.g., *love, sad, afraid*), and cognitive words (e.g., *think, know, because*), because these categories are thought to distinguish expressive and control writing (Pennebaker, 1997) and should therefore vary in expected ways across the three writing conditions (e.g., expressive writing should include first person, affective, and cognitive language).

**Caregiver Burden.**—The short form of the Zarit Burden Interview (ZBI; Bedard et al., 2001) is a 12-item questionnaire measuring perceived burden associated with caring for individuals with dementia. Participants rate each item on a 5-point scale ranging from 0 (never) to 4 (nearly always) so that the range of possible scores is 0 to 48. According to Bedard and colleagues, scores above 16 suggest clinically significant burden, although lower cut scores might be more appropriate (O'Rourke & Tuokko, 2003). A great deal of support exists for the reliability and validity of the original 22- and 29-item versions of the questionnaire (Hebert, Bravo, & Preville, 2000). The short form used in this study correlates between .92 and .97 with the 22-item ZBI, and it exhibits similarly strong psychometric properties.

**Intrusive Thinking and Avoidance.**—The 15-item Impact of Events Scale (IES; Horowitz, Wilner, & Alvarez, 1979) is frequently used in expressive-writing studies to assess the impact of writing on psychological distress caused by stressful events. It consists of 7 items measuring intrusive symptoms (thoughts, nightmares, feelings, and imagery) and 8 items measuring avoidance symptoms (numbing of responsiveness, and avoidance of feelings, situations, ideas) related to stressful events. Participants rate items on a 4-point scale scored as 0 (not at all), 1 (rarely), 3 (sometimes), or 5 (often). Total scores can range from 0 to 75, with 8.5 and below representing

low levels of clinical concern, 8.6 to 19 representing medium levels, and above 19 representing high levels of distress. Support exists for the reliability, validity, and factor structure of the IES in general (Joseph, 2000), and for both chronic and acute stressful events (Thewes, Meiser, & Hickie, 2001). As is commonly done in studies of chronic stress, we modified the IES to refer to current caregiver stress rather than a prior traumatic event.

**Caregiver Health.**—The 28-item General Health Questionnaire (GHQ; Goldberg & Williams, 1988) is a self-report measure of mental and physical health that is composed of four subscales: Anxiety and Insomnia, Somatic Complaints, Social Dysfunction, and Severe Depression. Participants rate each item on a 4-point scale ranging from 0 (e.g., not at all) to 3 (e.g., much more than usual). Total scores can range from 0 to 84, and subtest scores can range from 0 to 21. The GHQ has proven to be a reliable and valid measure, with full-scale values of 24 or higher indicating clinically significant levels of distress (Goldberg et al., 1997).

### Procedures

Participants identified by day program social workers as primary caregivers were recruited by telephone, matched according to age and gender, and randomly assigned to one of the three writing groups. We replaced participants who dropped out of the study with the next available participant.

This study followed standard procedures for writing interventions (Pennebaker, 1997). Briefly, participants wrote about an assigned topic for 20 minutes on four occasions within a 2-week period. We used spaced, rather than consecutive, writing sessions because they are associated with larger effect sizes (Smyth, 1998). For each writing session, research assistants provided participants with an envelope containing the writing instructions and paper. The assistants instructed the participants to begin writing once they were alone in a small, quiet, laboratory room. Twenty minutes later, participants finished writing and sealed their essays in an envelope to emphasize the confidential nature of the study.

In addition to four writing sessions, participants completed a battery of questionnaires immediately prior to the first writing session, immediately following the fourth writing session, and 1 month later. During the follow-up assessment, participants also completed the manipulation check questionnaire and received information about the study and a package of caregiving material.

**Writing Conditions and Instructions.**—Participants in the expressive-writing condition wrote about caregiver stress and burden because current, rather than past, stressors are associated with larger effect

sizes (Smyth, 1998). As is the norm in the written-disclosure literature, time-management participants wrote objectively about how they spend their time. Because of our concerns that doing so might benefit caregivers, we developed a history-writing condition, in which participants wrote objectively about significant 20th-century Canadian or world events that did not affect them personally. Session 1 instructions for each writing condition are provided in Appendix A; instructions for the three remaining sessions are available from us upon request.

## Analyses

We compared participants' demographic and health characteristics at baseline using analyses of variance (ANOVAs) with continuous variables and Pearson chi-square analyses with categorical variables. We then examined the validity of the experimental manipulation by comparing the three experimental groups' essay ratings and linguistic indicators using ANOVAs. As is typically done in the written-expression literature, our examination of the efficacy of expressive writing focused on change from preintervention to follow-up because short-term worsening of symptoms is often found immediately after writing (Smyth, 1998). We examined changes in perceived caregiver burden, mental health, and physical health from before to 1 month following writing by using 3 (groups: expressive writing, time management, and history writing)  $\times$  2 (times: pretest, follow-up) repeated measures ANOVAs with follow-up pairwise comparisons. To indicate effect sizes, we report partial eta squared ( $\eta_p^2$ ) for the overall group by time interactions, and Cohen's *d* for specific comparisons within group across time (with pretest standard deviations as the standardizer) and between two groups at follow-up (with pooled pretest standard deviations as the standardizer). Small, medium, and large effect sizes are associated with  $\eta_p^2$  values of 0.01, 0.06, and 0.14, respectively, and with Cohen's *d* values of 0.20, 0.50, and 0.80, respectively (Olejnik & Algina, 2000). We analyzed the data by using SPSS 14.0.1 software (SPSS, 2005).

## Results

### Participant Attrition and Baseline Characteristics

Of the 46 caregivers who began the study, 6 dropped out, all from the expressive-writing group: 1 dropped out prior to beginning the intervention during the baseline assessment, 2 dropped out during the intervention, and 3 dropped out after the intervention but prior to the 1-month follow-up. According to the clinical cutoff information provided in the Measures section, at baseline caregivers met or exceeded the rounded ZBI criterion for clinically significant burden, they had medium to high levels of

intrusive and avoidant symptoms, and their GHQ total scores fell just below the clinical cutpoint, indicating subclinical physical and mental health problems. The only significant difference between dropouts and completers was that prior to beginning the intervention, participants who dropped out exhibited higher levels of intrusive and avoidant thinking than did participants who remained in the study; this is according to the IES total score,  $t(43) = -2.30$ ,  $p = .03$ , and the IES Avoidance subscale,  $t(43) = -2.40$ ,  $p = .02$ . We also compared the baseline demographic characteristics and health of expressive-writing, time-management, and history-writing participants to determine the success of randomization. The groups did not differ significantly on any demographic (all  $ps > .19$ ) or preintervention health outcomes (all  $ps > .10$ ).

### Manipulation Checks

Participants' responses to the manipulation check questionnaire provided a first test of the experimental manipulation. Only expressive-writing participants were instructed to write emotionally; Table 2 shows the anticipated group differences in the emotion category. Follow-up pairwise comparisons demonstrated that ratings of emotion were higher for the expressive-writing group than for the time-management and history-writing groups ( $ps < .01$ ). They were also higher for the time-management group than for the history-writing group ( $p = .03$ ). As we expected, significant differences also emerged with respect to how personal the writing was. Essays were rated as more personal by participants in both the expressive-writing and time-management groups than by participants in the history-writing group ( $ps < .01$ ), and the expressive-writing group's essays were also nearly significantly more personal than the time-management group's essays ( $p = .07$ ). Finally, although differences between the three groups' ratings of the value of the intervention only approached significance ( $p = .07$ ), exploratory follow-up tests revealed that history writing was significantly less valuable than time management ( $p = .03$ ), and nearly significantly less valuable than expressive writing ( $p = .07$ ).

A second check on the validity of the experimental manipulation involved analyses of the language that participants used in their essays (Pennebaker & Francis, 1999). Table 2 shows differences, which we expected, in the percentage of first-person words used in essays between groups, with history-writing participants using far fewer first-person words than time-management and expressive-writing participants ( $ps < .01$ ), who did not differ from each another. The number of affect words also varied by group. Expressive-writing participants wrote more affectively than did history-writing participants ( $p < .01$ ), who used more affect than time-management participants did ( $p < .01$ ). Interestingly, despite

Table 2. Mean (SD) Essay Ratings and Percentages of Words Used by Writing-Condition Groups

Outcome Measure	Expressive Writing ( <i>n</i> = 14)	Time Management ( <i>n</i> = 13)	History Writing ( <i>n</i> = 13)	Group <i>F</i>
<b>Essay ratings</b>				
Writing was emotional	5.71 (1.20)	3.62 (2.26)	2.15 (1.34)	15.79**
Writing was personal	5.86 (1.10)	4.62 (2.18)	2.62 (1.80)	11.86**
Writing was difficult to do	3.14 (1.99)	1.85 (1.46)	3.00 (2.31)	1.75
Writing had a lasting positive effect	3.28 (2.09)	3.46 (1.98)	2.54 (2.30)	0.70
Writing had a lasting negative effect	1.57 (1.40)	1.54 (1.13)	1.46 (1.66)	0.98
Writing was valuable	3.64 (1.60)	4.00 (2.24)	2.31 (1.80)	2.91
<b>Linguistic indicators</b>				
% total words that are first person	8.55 (2.42)	8.27 (3.25)	1.42 (2.09)	29.14**
% total words that are affective	4.82 (1.34)	1.56 (0.83)	3.35 (0.96)	30.75**
% affect words that are positive	55.14 (13.10)	76.45 (22.62)	54.20 (16.04)	6.60**
% total words that are cognitive	6.98 (1.79)	3.11 (0.86)	4.87 (1.57)	23.54**

Notes: Essay items are rated on a 7-point scale ranging from 1 (not at all) to 7 (a great deal). *SD* = standard deviation. \**p* < .05; \*\**p* < .01.

using the fewest affect words, the time-management group used a significantly greater proportion of positive affect words in their essays than did the other groups (*ps* < .01), who did not differ from one another. Finally, the three writing groups differed with respect to their use of cognitive words that are considered reflective of the development of meaningful narrative (Pennebaker, 1997). Expressive-writing participants used more of these words than did history-writing participants (*p* < .01), who used more cognitive words than did time-management participants (*p* < .01).

To summarize, both questionnaire responses and linguistic indicators supported the validity of the experimental manipulation. Individuals in the expressive-writing condition wrote more personally, emotionally, and cognitively than did participants in the other two conditions. We also found that time-management participants wrote more personally and emotionally than did those in the history-writing group. Finally, time-management participants judged the intervention to be more valuable than did participants in the other groups, significantly more so than the history-writing participants.

### Effects of Writing on Mental and Physical Health

Although our analyses of the efficacy of expressive writing focused on changes from preintervention to follow-up, mean scores from Table 3 (and analyses available from us upon request) indicate that only expressive-writing participants experienced nonsignificant worsening ZBI and IES total scores immediately following the intervention. At 1-month follow-up, written disclosure did not have the hypothesized effect on perceived burden. As shown in Table 3, the Group × Time interaction for the ZBI was not significant, and the groups did not improve significantly over time. Furthermore, an examination of mean scores shows that, contrary to our hypo-

thesis, participants in the expressive-writing group showed less improvement in caregiver burden than did those in the other two groups.

Written emotional disclosure was also ineffective in reducing intrusive thinking and avoidance. For the full-scale IES, as well as for the Intrusion subscale, the Group × Time interactions were not significant, although in both instances, the main effect of time was,  $F(1, 37) = 4.42, p = .04$ ,  $F(1, 37) = 9.12, p = .005$ , respectively. There were no significant main effects or interactions for the Avoidance subscale. As we can see from the mean scores in Table 3, there was no suggestion that expressive writing had a beneficial influence on this outcome measure.

With respect to the impact of the intervention on mental and physical health, our hypothesis about expressive writing was again disconfirmed. For the full-scale GHQ there was a significant effect of time,  $F(1, 37) = 10.31, p = .003$ , and a Group × Time interaction. The direction of this interaction was opposite to what we expected, with all three groups improving but only the time-management group experiencing significant benefit (*p* < .001). As shown in Table 3, the amount of change on the full-scale GHQ among expressive-writing and history-writing participants was modest and virtually identical. Because time-management participants exhibited a trend toward poorer self-rated health prior to writing, the magnitude of their improvement from preintervention to follow-up was large (Cohen's *d* = 0.89), whereas differences between time management and expressive writing (*d* = 0.17) and time management and history writing (*d* = 0.24) at follow-up were small. This large change in overall physical and mental health among time-management participants could reflect a clinically meaningful improvement, regression toward the mean, or a combination of the two. The same pattern emerged for the Anxiety and Insomnia subscale, including a main effect of time,  $F(1, 37) = 13.62, p = .001$ , and a Group × Time interaction. Follow-up comparisons

Table 3. Comparison of Writing-Condition Groups on Mental and Physical Health Outcomes

Outcome Measure	Expressive Writing ( <i>n</i> = 14)	Time Management ( <i>n</i> = 13)	History Writing ( <i>n</i> = 13)	Group × Time <i>F</i>	Effect Size ( $\eta_p^2$ )
<b>ZBI total</b>					
Pretest	15.50 (9.55)	18.77 (8.01)	19.55 (9.13)		
Post-test	16.86 (8.71)	18.62 (6.36)	18.46 (9.54)		
Follow-up	15.21 (7.63)	16.38 (7.18)	17.31 (9.60)	0.41	0.02
<b>IES total</b>					
Pretest	14.79 (14.11)	18.85 (9.73)	20.92 (19.89)		
Post-test	16.86 (15.36)	17.46 (10.02)	19.46 (15.32)		
Follow-up	13.93 (14.57)	12.08 (10.07)	17.38 (15.13)	0.94	0.05
<b>IES intrusions</b>					
Pretest	8.21 (8.82)	10.15 (6.45)	9.85 (10.09)		
Post-test	7.93 (7.83)	10.31 (7.66)	10.31 (7.89)		
Follow-up	6.00 (6.62)	4.77 (4.06)	7.54 (7.07)	0.90	0.05
<b>IES avoidance</b>					
Pretest	6.57 (7.77)	8.69 (5.71)	11.08 (10.92)		
Post-test	8.93 (8.32)	7.15 (3.91)	9.15 (7.98)		
Follow-up	7.93 (8.38)	7.31 (6.92)	9.85 (8.48)	0.41	0.05
<b>GHQ total</b>					
Pretest	20.14 (11.42)	24.85 (9.81)	19.46 (5.42)		
Post-test	20.07 (9.55)	20.31 (9.30)	18.38 (7.16)		
Follow-up	17.93 (8.50)	16.08 (8.39)	18.00 (7.11)	3.18*	0.15
<b>GHQ anxiety and insomnia</b>					
Pretest	6.64 (5.21)	8.23 (2.74)	6.38 (2.99)		
Post-test	6.36 (4.25)	6.38 (3.30)	6.00 (3.49)		
Follow-up	5.64 (5.05)	4.31 (2.14)	5.38 (3.50)	3.28*	0.15
<b>GHQ somatic complaints</b>					
Pretest	4.29 (3.47)	6.92 (3.71)	4.54 (2.85)		
Post-test	4.79 (2.78)	4.54 (2.82)	4.46 (3.04)		
Follow-up	3.86 (2.63)	4.62 (2.72)	4.85 (3.08)	1.56	0.08
<b>GHQ social dysfunction</b>					
Pretest	7.86 (2.18)	7.77 (3.19)	7.38 (1.76)		
Post-test	7.50 (1.70)	7.23 (1.74)	7.15 (1.68)		
Follow-up	7.14 (2.14)	6.15 (3.39)	7.23 (1.59)	0.94	0.05
<b>GHQ severe depression</b>					
Pretest	1.36 (2.65)	1.92 (3.04)	1.15 (1.68)		
Post-test	1.43 (2.77)	2.15 (4.26)	0.77 (1.09)		
Follow-up	1.29 (3.29)	1.00 (2.27)	0.54 (0.88)	1.40	0.07

Notes: ZBI = Zarit Burden Interview; IES = Impact of Events Scale; GHQ = General Health Questionnaire. Higher outcome scores represent poorer functioning.

\**p* < .05.

revealed significant improvement for time-management participants (*p* < .001) but not for participants in the other groups (*ps* = .28–.29). Once again, the magnitude of improvement for time management was very large (*d* = 1.43), whereas differences between time management and expressive writing (*d* = 0.32) and time management and history writing (*d* = 0.37) at follow-up were small. No other significant differences emerged for the remaining three GHQ subscales with the exception of a main effect of time on the Severe Depression subscale, *F*(1, 37) = 6.36, *p* = .02.

We examined whether the results of the analyses in this section reflected general trends, or the influence of outliers, by identifying dependent variable scores, at pretest and follow-up, that were greater

than 3 *SD* from their scale mean. Only three scores met this criterion, and analysis results were similar with them included and removed.

### Follow-Up Exploratory Analyses

Contrary to our a priori hypotheses that expressive writing would result in significantly greater improvement in outcomes compared with the other groups, time management significantly outperformed the other two conditions on the overall GHQ and its Anxiety and Insomnia subscale. Further, although we found main effects of time but not Group × Time interactions for the IES total score, IES Intrusion subscale, and GHQ Depression subscale, mean scores from Table 3 suggested that time management

was outperforming the other groups on these outcomes as well. We examined whether this was true by conducting additional post hoc pairwise comparisons of change across time for each group on the IES total score, the IES Intrusion subscale, and the GHQ Depression subscale. Using this liberal exploratory approach, we found that caregivers who wrote about time management improved significantly from pretest to 1 month after writing on each of these outcomes ( $ps < .04$ ), whereas caregivers in the other groups did not ( $ps > .10$ ). The magnitude of change for time-management participants was large for the IES total score ( $d = 0.70$ ) and Intrusion subscale ( $d = 0.83$ ), and small for the Depression subscale ( $d = 0.30$ ). These exploratory analyses suggest that, with additional statistical power, Group  $\times$  Time interactions favoring time management would also likely have emerged for intrusive thinking and depression.

## Discussion

There are two major outcomes of this caregiver intervention study. The first is a null finding: expressive writing neither reduced the subjective burden of caregivers nor improved their mental or physical health. The second is positive: time management appears to have health benefits for stressed caregivers.

With respect to the primary null outcome, the current study, together with that of Schwartz and Drotar (2004), suggests that writing emotionally about stressful caregiving experiences does not reduce this kind of stress or improve caregivers' mental or physical health. As is common in the expressive-writing literature, participants in this study experienced small, nonsignificant increases in stress and symptoms of avoidance, somatic disturbance, and depression immediately following the writing intervention. In addition to experiencing mild short-term distress, however, written-disclosure participants experienced no greater health benefits at 1-month follow-up than did participants who wrote objectively about historical events, and they often showed fewer benefits than participants in the time-management condition. The increased distress while writing and failure to improve afterward may underlie the higher likelihood of dropout associated with expressive writing.

We note that our instantiation of the written-disclosure protocol was successful. Expressive-writing participants produced essays that were more emotional, personal, and cognitive than the essays of participants in the other two conditions. The null findings regarding the impact of expressive writing also do not appear to be the result of our modest sample size. Participants in the emotional-writing condition failed to show trends toward superior performance compared with control participants on any of the study outcomes, suggesting that, if anything, larger numbers of participants would have

emphasized how poorly caregivers in the expressive-writing condition fared, at least in comparison with those in the time-management group. Finally, the lack of expected improvement for expressive-writing participants was not due to unreliable outcome measures that are often used in the written-disclosure literature, such as the frequency of physician visits. Consistent with the suggestion by Sloan and Marx (2004), we used psychometrically sound self-report health outcomes, although future studies should also consider measuring reliable objective health indicators such as cortisol levels.

It might be argued that our single 1-month follow-up assessment was insufficient to detect the long-term effects of writing given the curious finding by several groups that the physiological effects of writing do not emerge until several months following expressive writing (Petrie, Booth, Pennebaker, Davison, & Thomas, 1995; Smyth et al., 1999). Although this long-term delayed effect does not appear to hold for self-reported health (Epstein et al., 2005; McGuire et al., 2005; Petrie et al., 2004; Schoutrop et al., 2002), future research with chronically stressed populations might consider a 3 or 6-month follow-up assessment. Such research should also assess supportive interventions or major life events experienced during chronically stressful periods that may affect perceived burden and health.

There are a number of potential explanations for why caregivers in this study did not benefit from written emotional disclosure. Demographic factors may be partly responsible; roughly 70% of the participants were women, reflecting the ratio of female caregivers in the population (Montgomery & Kosloski, 2000). Smyth's (1998) meta-analysis found higher effect sizes in studies with larger numbers of male participants, although this gender effect has not been reliably replicated (Epstein et al., 2005; Koopman et al., 2005). In addition to being predominantly female, our participants were, on average, 62 years of age and therefore considerably older than those in most other written disclosure studies. Perhaps students and other younger adults are better able to perform in situations requiring emotional processing while writing under time pressure compared with older adults who are further removed from experiences at school or work that require written disclosure. Our data provide partial support for this hypothesis, with nonsignificant negative correlations between age and improvement among expressive-writing participants from preintervention to follow-up on the ZBI, IES, and GHQ ( $r = -.14, -.17, -.32$ , respectively). Alternatively, there may be developmental factors that reduce the effectiveness of this intervention for older individuals. According to socioemotional selectivity theory, as we age we are increasingly likely to regulate emotion by selectively attending to positive information (Carstensen, Mikels, & Mather, 2006). The instructions for expressive writing prevent participants from doing



so by explicitly directing them to focus on stressful, upsetting, and distressing experiences. It may be that for older caregivers, writing about positive aspects of caregiving may be more effective. This hypothesis could easily be tested by comparing the efficacy of a standard expressive-writing condition with a condition in which participants write emotionally about positive aspects of caregiving. Interestingly, this may be what caregivers in the time-management group did, given the significantly higher proportion of positive affect words they used compared with participants in the other groups.

Our suggestion that expressive-writing instructions may require modification for older adults highlights another reason why it may have been ineffective. Unfortunately, the underlying mechanism for why expressive writing improves health remains unclear (Sloan & Marx, 2004), and researchers have yet to place it within a theoretical framework. As a result, very little guidance is available for determining who might benefit from it, and how the intervention might be adapted for particular populations or subgroups within populations. We have speculated that expressive writing may be more effective for younger caregivers, and that it should perhaps focus on positive experience for older caregivers. It might also be the case that the intervention works differently for those individuals caring for family members with and without dementia. Questions such as these are best guided by theory. Within the coping literature, expressive writing would likely be considered an emotion-focused intervention, in which the aim is to regulate distress, rather than a problem-focused intervention, in which the aim is to address sources of stress directly (Lazarus & Folkman, 1984). Although both strategies are arguably important for managing the complex nature of caregiver stress, theoretically guided research suggests that emotion-focused strategies may be less effective (Mausbach et al., 2006; Penley, Tomaka, & Wiebe, 2002). A brief analysis of the content of writing sessions highlighted that caregivers in the expressive-writing condition tended to write about sadness, fear, and frustration in relation to their difficulty coping with chronic, deteriorating, and often unmanageable sources of stress. In contrast, time-management participants wrote about everyday tasks, including caregiving activities such as medication and meal preparation, using active, concrete language. It is intriguing to consider, therefore, whether time management was a form of problem-focused coping that allowed participants to view their demanding care responsibilities in a manageable way. This brings us to our primary positive finding concerning the potential effectiveness of time management for helping caregivers cope with their challenging life circumstances.

Caregivers who wrote objectively about how they spend their time experienced significant mental and physical health benefits. In contrast to expressive-writing participants, those who wrote about time

management showed immediate improvements in health. One month following the intervention, time-management participants exhibited significantly greater improvements on the full-scale GHQ and its Anxiety and Insomnia subscale than did caregivers in the expressive-writing and history-writing conditions. In addition, exploratory follow-up analyses revealed that only time-management participants also showed lasting improvement in intrusive thinking and depression. Importantly,  $\eta_p^2$  effect sizes for the Group  $\times$  Time interactions at follow-up, which provide an indication of the effectiveness of writing that is unaffected by sample size, averaged 0.07 (a medium effect) across the nine outcomes listed in Table 3. Furthermore, the magnitude of improvement in anxiety, insomnia, and intrusive thinking from before to 1 month after writing was large for time-management participants. These effect size measures suggest that additional Group  $\times$  Time interactions favoring time management would likely have emerged with a larger group of participants. The positive impact of time management was also evident in participants' feedback about the writing intervention; they rated their writing experience as being more valuable than did caregivers in the expressive-writing and history-writing groups.

The positive influence of time management for caregivers requires replication and exploration of mechanisms for its effectiveness. It is possible that busy and overloaded caregivers benefit, in a relatively straightforward way, from thinking objectively about how to make better use of their time. Alternatively, writing in a purposefully unemotional way about stressful caregiving tasks may promote health because it enables older adults to inhibit emotional expression, and this is thought to be an especially important coping mechanism for older individuals experiencing high levels of chronic stress (Leventhal et al., 1998).

In conclusion, our purpose in the present study was to address the need to reduce the emotional and physical costs associated with providing care for growing numbers of older adults with an easily implemented and inexpensive treatment that could be used as an adjunct to more intensive services. This goal may be particularly important for those caregivers who lack access to intensive interventions, or who are unwilling to use them. Although our study suggests that expressive writing, as it is traditionally provided, holds little promise for addressing this need, it does highlight the potential benefits of written time management, and of the need to consider theoretically guided modifications of expressive writing for clinical populations with complex coping needs.

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## **Appendix A: Instruction for the First Writing Session**

### *Expressive Writing*

Today and for the next four sessions we would like you to write about the most stressful, upsetting, and distressing aspect of being a caregiver and having to provide care for your elderly family member. In your writing, we want you to really let go and explore your very deepest emotions and thoughts. You can write about the same topic during each of the four sessions or about different topics each session. Whatever you choose to write, however, it is critical that you really delve into your deepest emotions and thoughts. Ideally, we would also like you to write about significant experiences or conflicts that you have not discussed in great detail with others. Remember that you have four sessions to write. You might tie your personal experiences to other parts of your life, such as how they are related to your childhood, your parents, people you love, who you are, or who you want to be. Again, in your writing, examine your deepest emotions and thoughts. Please begin writing and try not to stop until we tell you 20 minutes have passed and we knock on the door. If you run out of things to say, just repeat what you've already written. Don't worry about grammar or spelling.

### *Time Management*

Today and for the next four sessions we would like you to write about how you, as a caregiver, use your time. Each session we will give you a different writing assignment relating to the way you spend your time. In your writing, we want you to be as objective as possible. We are not interested in your emotions or opinions. Rather, we want you to try to

be completely objective. Feel free to be as detailed as possible. In today's writing session, we want you to describe what you did yesterday from the time you got up until the time you went to bed. For example, you might start when your alarm went off and you got out of bed. You could include the things you ate, where you went, and which buildings or objects you passed by as you walked from place to place. The most important thing in your writing, however, is for you to describe your days as accurately and as objectively as possible. Please begin writing and try not to stop until 20 minutes have passed and we knock on the door. If you run out of things to say, just repeat what you've already written. Don't worry about grammar or spelling.

### *History Writing*

Today and for the next four sessions we would like you to write about any significant Canadian or world event that happened prior to 2000 that affected the world in general, not you or your family in particular (e.g., either World War, the development of Universal Health Care, the Cuban Missile Crisis, invention of the World Wide Web). We want you to try to be completely objective about the topic. We are not interested in your emotions or opinions. Rather, we want you to write objectively about facts and events. Feel free to make your description of the topic as detailed as possible. You can write about the specifics of the event, the impact of the event, or whatever other aspect interests you about the event as long as your writing is objective rather than emotional. Please begin writing and try not to stop until we tell you 20 minutes have passed and we knock on the door. If you run out of things to say, just repeat what you've already written. Don't worry about grammar or spelling.