

Can the use of writing lower rumination of negative thoughts in depressed adults?

Pauline Cooper

Background and aims: The results of James Pennebaker's 1993 study into the effect of writing on the health of college undergraduates showed significant improvements to the immune system and, subsequently, the writing model has been researched in a number of health care contexts with significant results. Pennebaker revised this model of writing (1997) and it has since been implemented by health professionals in the treatment of depression where negative, recurring thoughts are problematic, with positive outcomes. This review describes and compares two similar randomized control trials (RCTs) using the three day writing model for reducing ruminative thought in depressed adults.

Methods: A systematic literature search was undertaken to elicit RCTs measuring the effect of using writing for people presenting with rumination in depression.

Findings: Results showed that expressive writing moderated maladaptive ruminative styles of thinking and significantly reduced depressive symptoms at the follow-up assessment. The term 'rumination' is complex and relevant in the study of symptoms where depressed patients suffer with negative recurring thoughts.

Conclusion: Pennebaker's writing method may be a useful tool for practitioners working in therapy and rehabilitation for adults suffering with depression with a tendency to ruminate. Further discussion and research within a mental health context are required.

Key words: ■ writing ■ depression ■ expressive ■ rumination

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Adults prone to anxiety and worry, often cope with distress by repeatedly and passively focusing on stressful events and potential negative outcomes (Kielhofner, 2002; Sparkes, 2003). People who can think through their problems by pondering thoughtfully are more able to find solutions and reduce symptoms of worry and depression (Beck et al, 1979). Writing and exploring narratives and life stories have been found to be a means of actively thinking through problems, expressing emotive thoughts, finding new stories to tell (McLeod, 1996) and reaping subsequent benefits (Hunt and Sampson, 1998; Cooper, 2008).

James Pennebaker, a professor of psychology in the academic realm researching the use of writing stated,

"... the act of psychologically confronting emotionally upsetting events is associated with improved physical and psychological health" (Pennebaker, 1993, p.546).

His research resulted in a model of writing where people write for twenty minutes on three

consecutive days. Significant physiological benefits were noted and the writing model has gained credibility as other academics and clinicians have replicated the research in a wide variety of health care contexts.

A number of papers have replicated Pennebaker's (1997) model using a raft of different standardized assessments in different contexts. Initial studies concentrated on university undergraduates facing the stress of a new environment and high expectation of performance. New studies began to emerge using Pennebaker's (1997) model in a variety of physical health care contexts: asthma, arthritis (Smyth et al, 1999), and cancer (Bauer, 1999). The writing model, when used in mental health: Lepore (1997), Esterling et al (1999), and Van Zuuren et al (1999) also resulted in claims of significant benefit. Greenhalgh (1999), cynical of the results described, demanded that the research be replicated. Ongoing research into the writing model has continued to note benefits and a meta-analysis by Frattaroli (2006) endorsed the beneficial findings.

Initial studies, and those ongoing, are often focused on university undergraduates with assumed high stress levels at entering college.

Pauline Cooper
is Head Occupational
Therapist in adult, acute,
inpatient unit for mental
health, Woodlands Unit,
Sidcup, Kent (Oxleas
NHS Foundation Trust),
UK

Correspondence to:
Pauline Cooper
E-mail: pauline.cooper@
oxleas.nhs.uk

Table 1. Search strategy

Depression (MeSH)		Creative writing (MeSH)		Limitations
OR		OR		Randomized
Depress*		Writ*		Controlled
OR	and	OR	and	Trials
Rumin*		Expressive and writing		
OR				
Brood*				

Assessments utilized by researchers reveal high levels of anxiety that were linked to ruminative thought and identified issues such as self-judgment, poor problem-solving, and negative brooding that are common to service users in adult mental health care (see *Table 4*). The study benefits for people with post-sixth form education are unlikely to be replicated with service users with learning difficulties or reflection and processing skills. However, the benefits are pertinent to many service users in the mental health system.

Recent studies have incorporated additional relevant mental health aspects such as social support (Pachankis and Goldfried, 2010; Low et al, 2010), and Post Traumatic Stress Disorder (van Emmerik et al, 2008; Sloan et al, 2011), which has elements of ruminative thought and brooding relevant to this paper. Results have been varied from benefit to no benefit, which has been analyzed and discussed, such as Sloan et al (2011) and, as Greenhalgh (1999) suggested, more research needs to be done.

RELEVANCE TO PRACTICE

If it is true, as Pennebaker theorises, that

“... many people, perhaps most, are able to guide their own therapy” (Esterling et al, 1999, p.94)

the writing model has great potential for

Box 1. Studies excluded from the review

Soliday et al (2004) The students in this study are young adolescents. Issues around puberty and emotional change are likely to affect results relating to rumination and depression.

Kovac and Range (2002) The students are screened for suicidality and standardized tests measured suicide behaviours rather than rumination or brooding.

Lepore (1997) This study concentrates on the relationship between intrusive thoughts and depressive symptoms. Although the paper had a similar writing method and appeared to be looking at ruminative thoughts, the standardized tests applied were used to measure outcomes that were not homogenous; they focused on occurrence of meaningfulness, and counts of positive and negative words, emotions and insights. In addition, the time scales were one month prior to an exam, three days before the exam and one week after the exam.

recovery for patients suffering with significant symptoms of depression. Significant symptoms: DSM-IV(American Psychiatric Association (APA)) would be those that are categorized as moderate to severe depression that would require hospital care and/or medication due to ‘functional impairment’ with or without additional symptoms of depression (NICE, 2009). Those with depression are characterized by depressed mood and loss of interest in life. Additional diagnostic signs are sleep disturbance, appetite and weight gain or loss, fatigue, affectation of movement, poor concentration or indecisiveness, low self-esteem, poor self identity, often accompanied by suicidal thoughts.

Gortner et al (2006) and Sloan et al (2008), like Pennebaker, focus on university undergraduates that are unlikely to be suffering functional impairment, though may experience other diagnostic symptoms of mild depression not requiring referral to mental health professionals.

STUDY AIMS

Inspired by a desire to relieve depression symptoms related to negative perseveration the author of this mini-review asks the question: Can the use of writing lower rumination of negative thoughts in depressed adults with a tendency to brood? The findings will be of particular interest to those working in therapy and rehabilitation services hoping to improve mood and positive thought processes with service users suffering with depression that are looking for new, inexpensive, evidence-based interventions.

METHODS

Literature review

A scoping exercise was carried out using the Medline database, with ‘depression’ and ‘writing’ as MeSH terms, and ‘rumination’ as a key word, which elicited that there were articles to be found relating to the question. Therefore, Medline, PsycINFO, CINAHL, and Amed were searched from 1993, using the Population Intervention Comparison Outcome (PICO) method (Sackett et al, 1997) as recommended in the NICE guidelines (2007). Due to the specific nature of the intervention only P and I were entered; C was used as a limit to RCTs. Specific search terms (see *Table 1*) were entered using words with and without truncation symbols to improve scope.

It is unlikely that all research on the subject has been elicited as a) it is difficult in the time span of this review to elucidate all studies, and b) writing is not a therapy in some countries

e.g. England, so the use of writing in therapy is referred to by a plethora of terms some of which may not have been included.

Initial criteria for inclusion was that studies must be RCTs related to adults, using the same model of writing, relevant to rumination in the context of depression, with similar time intervals and use of outcome measures, and follow-up at completion of six months with texts in English. The search elicited 116 initial papers of which 111 were unrelated to the question and excluded as they were a) a different population, b) not the same intervention model, c) not utilizing standardized tests relating to depression, d) not focusing on perseveration/rumination, or e) did not meet timescale criteria. Five papers were chosen meeting the criteria and relevant to the question; of these three were further excluded and are shown in *Box 1*.

The two studies to be compared in this paper (Gortner et al, 2006; Sloan et al, 2008) research the symptom of ruminative thought, which can considerably impact mood and impair function in adults with a diagnosis of depression, and are not constrained to other health factors.

RESULTS

General comparison of the studies

Both studies use Nolen-Hoeksema's (1998) definition of 'rumination': Sloan et al (2008) provide a summarized version and Gortner et al (2006) cite a direct quote (see *Table 2*). In practice a number of words are used to describe recurring thought: brooding, rumination, pondering, reflection, worry, perseveration, and meditation. In these studies Sloan et al investigated positive problem-solving. Gortner et al explored reduction of negative thought suppression with the additional interest to disprove Nolen-Hoeksema's (1998) theory: distraction is more beneficial than writing (see *Table 2*).

Writing method

Both studies followed the instructions for expressive writing only (see *Table 3*) by Pennebaker (1997) as his research provides no specific instructions for the control group other than writing about superficial topics and use of time. In the two chosen studies that focus on mental health, two ruminations were explored: a) brooding, which focuses on obstacles and negative self-blame (expectancy is that more depression is experienced over time), and b) reflective pondering or problem solving (expectancy is that less depression is experienced over time). The common hypothesis was stated that depressive

Table 2. Definitions of rumination

Sloan et al, 2008	Gortner et al, 2006
Rumination summarized from Nolen-Hoeksema, (1998): 'a mode of coping with distress in which the individual repeatedly and passively focuses on distress and its possible causes and consequences.' (Sloan et al, 2008)	Rumination defined by quote: 'cognitions and behaviours that repetitively focus the depressed individual's attention on his or her symptoms and the possible causes and consequences of those symptoms.' (Nolen-Hoeksema, 1998, p.404).
Aim: To examine the effects on brooding and reflective pondering during times of stress using expressive writing.	Aim: To explore the benefits of an expressive writing intervention in reducing the recurrence of depression symptoms among formerly depressed individuals during a time of stress.
Hypothesis: Expressive writing has potential to explore and challenge negative experiences and facilitate active analysis and processing of incidents.	Hypothesis: Depressive schemas are dormant and emerge in times of stress or negative life events. Additional hypothesis: Conscious writing about events will reduce rumination, contrary to Nolen-Hoeksema's (1998) suggestion that distraction from negative thought is preferable.
Posit 2 ruminative styles: 1) Brooding: 'what have I done to deserve this?' resulting in greater depression over time and negative thought bias: maladaptive ruminative style. 2) Reflective pondering: a process of initiating inner resources of adaptive problem-solving, resulting in lesser depression over time: adaptive ruminative style.	Posit: 20% of individuals will experience depression at some time. 75% are likely to have repeat episodes that can be predicted. Formerly depressed individuals are prone to thought suppression and rumination. People actively suppress negative thoughts as a coping strategy; times of stress compete against the strategy and cognitive resources may fail.
Objective: To help people use positive problem-solving and avoid repetitive negative thinking.	Objective: To reduce negative thought suppression and maladaptive emotion-regulation strategies by promoting the processing of adverse events.

symptoms would be mediated by improvements in brooding scores; in confronting distressing thoughts through the independent variable of writing.

Gortner et al's (2006) additional hypothesis posited expressive writing would counter inhibiting self judgements. This idea lacks clarity; either a level of insight may be required to discern these self-identity issues from the writing, or the writing is being used as a form of distraction from ruminative thoughts. Sloan et al (2008) hypothesized: writing helps people organize their thoughts and this may affect rumination which had lead to depressive thoughts. In both cases (see *Table 1*) brooding or ruminating is seen as a maladaptive coping strategy, whereas reflective pondering is viewed as an adaptive strategy for problem-solving (Nolen-Hoeksema, 1998).

For the purposes of this review, only initial baseline, and six month results will be compared due to the addition of the booster session in Gortner's study, which will not be discussed

Table 3. Instructions to writing and control groups

Gortner et al, 2006 Expressive writing	Sloan et al, 2008 Expressive writing
<p>'For the next three days, I would like you to write about your deepest thoughts and feelings about any difficult or emotionally disturbing events you are experiencing in your life right now. You may also tie your topic in with any past stressful or traumatic experiences you've had. In your writing, I'd like you to really let go and explore your very deepest emotions and thoughts. You might link your topic to your relationship with others, including parents, lovers, friends or relatives. You may also want to link your experience to your past, your present, or your future, or to who you have been, who you would like to be, or who you are now. You may write about the same general issues or experiences in all days of writing, or on different experiences each day. Don't worry about grammar or spelling—that is not important. All of your writing will be completely confidential.'</p>	<p>Replicated from Pennebaker (1997) 'For the next 3 days, I would like for you to write about your very deepest thoughts and feelings about an extremely important emotional issue that has affected you and your life. In your writing, I'd like you to really let go and explore your very deepest emotions and thoughts. You might tie your topic to your relationships with others, including parents, lovers, friends, or relatives; to your past, your present, or your future; or to who you have been, who you would like to be, or who you are now. You may write about the same general issues or experiences on all days of writing or on different topics each day. All of your writing will be completely confidential. Don't worry about spelling, sentence structure, or grammar. The only rule is that once you begin writing, continue to do so until your time is up..' (Pennebaker, 1997). There was the addition that participants were encouraged to 'wrap up their writing by describing how the experience was related to their current lives or futures.' (Sloan et al, 2008).</p>
Control group	Control group
<p>'For the next 20 minutes, I would like you to write about how you have used your time over the past 2 weeks. In your writing, please go into as much detail as possible in how you have spent your days and managed your time. In your account of your activities, please be as objective as possible. You should describe your activities in detail without discussing any of your own thoughts or feelings related to the topic.'</p>	<p>'Participants were asked to write about how they spent their time each day without any emotions or opinions.'</p>

and because time intervals vary. The researchers report that the booster session was found to have no increased benefit or effect on the six month results.

Data collection

In each study, high functioning students entering university were offered the opportunity of participating (see *Table 4*). Gortner et al (2006) invited 1 900 first year psychology students, who were pre-screened by on-line psychology measures for the research pool. The criteria regarding previous symptoms was not specified but students needed a Beck's Depression Inventory (BDI) (1979) score below 13 (threshold for mild depression) and IDD-L above 25 one month prior to study and depression symptoms remitted for at least two months, to be eligible.

Two hundred and three pre-screened, eligible students were invited and 108 agreed. A further 18 exclusions were made overall where participants did not meet the criteria. The final 90 undergraduates had a mean age of 19 years.

Sloan et al (2008) students were taken from a summer student fair of incoming students asked

to give names and contact information if interested in volunteering; no other criteria are mentioned. Students were contacted in the first two weeks of the autumn semester and all participants, entered the study in the third to sixth week of that semester, were tested to check baseline tendencies towards brooding or pondering, using standardized tests. Sixty-nine students volunteered: 45 females and 24 males, with one leaving the study after the first writing session. The 68 students had a mean age of 18 years.

All participants were adults who were deemed 'high functioning' as they had reached a high level of education and were motivated to attend further training. As a population they are representative of adult mental health populations with similar levels of education and comparative with populations relating to the review question. The reasons for non-completion of the study by some participants are reported fully by the researchers.

Procedure of the studies

All students attended the laboratory, gave written consent, with baseline depression levels and rumination/pondering scores assessed (see

Table 4). As a manipulation check (Greenhalgh, 1997), Gortner et al (2006) told students that the research focused on the effects of writing and would include on-line portions. Sloan et al (2008), as a distracter task, stated the study aimed to see how writing affects academic performance and asked for consent to obtain academic data, which was not used. Participants were informed that they might have to write about stressful experiences.

Both studies report randomization of students to control and expressive writing groups where they wrote in private, but did not record how randomization was achieved. Gortner et al (2006) randomized more to the experimental group than

control (to facilitate the booster writing session). Sloan et al (2008) randomized ‘within gender’ but provided no further specific information.

Both groups were instructed by experimenters to begin writing immediately after randomization. In the Sloan et al (2008) study it is not clear whether experimenters were blinded. The Gortner et al (2006) psychology students completed 5 weeks of writing sessions online away from the laboratory, using computers on campus that were programmed to set time limits automatically. This was followed up six months later. The Sloan et al (2008) group wrote by hand into a notebook, in the laboratory in private, all three times. Although the students typing online were

Table 4. Details of studies

	n.	Study design	Writing time	Tests
Gortner et al (2006)	90	Randomly assigned Double blinded	Write continuously for 20 minutes on 3 consecutive days (Pennebaker, 1997).	Baseline questionnaires: online pretesting *BDI (21 item). Threshold of below 13. *IDD-L Threshold of above 25. Baseline: at consent/start of writing
Statement of study purpose: Research into the effect of writing		Writing assignment completed using computers on campus for online assessment.		5 weeks (with booster session for half expressive writing group)
				6 month follow-up *BDI, *RRS & Manipulation check: *FQPSE. Mediation model (Baron and Kenny, 1986) used to assess causal relationships between variables, and effect size.
Sloan et al (2008)	68	Randomly assigned within gender. Chi squares (gender and race) and t tests (age, depression symptom severity, brooding and pondering) to investigate adequacy of randomization.	Write continuously for 20 minutes on 3 consecutive days (Pennebaker, 1997).	Baseline questionnaire *DASS21 Depression and anxiety scale (Lovibond et al, 1995). Likert-type scale 0–3 (4point scale) and *RRS. DASS21 Scores: Mild 10–13 Moderate 14–20 Severe 21–27
Statement of study purpose: To improve academic writing		Blinding not clear. Writing assessment in a laboratory by hand into a notebook.		2 months *DASS21 4 months *DASS21
				6 months *DASS21 Standard multiple regression model (West et al, 1996) used to assess causal relationships between variables, and effect size. Manipulation check question.
<p>*BDI=Beck's Depression Inventory: 21 items (Beck et al, 1979) to assess depression level (current). *DASS 21=Depression and anxiety scale: 21 item (Lovibond et al, 1995) to assess depression level. *FQPSE=Follow-up Questionnaire on Participants' Subjective Experience (Pennebaker et al, 1990) Likert scale (7 point) *IDD-L=Inventory to diagnose Depression: Lifetime Version (Zimmerman and Coryell, 1987) 22 items—baseline screening test. *RRS=Ruminative Response scale (Nolen-Hoeksema and Morrow, 1991) 22 item questionnaire to assess brooding/pondering, high/low suppression scales.</p>				

Table 5. Direction of scores

Study	Test	Expressive writing		Control	
		Low suppression	High suppression	Low suppression	High suppression
Gortner	BDI Baseline	5.63 (3.25)	6.58 (2.92)	4.57 (2.95)	5.13 (2.63)
Gortner	6 month BDI follow-up	7.00 (6.30)	4.46 (2.98)	4.21 (4.71)	6.25 (4.78)
	Change score	1.37	-2.12	-0.36	1.22
		Control group		Expressive writing	
Sloan	DASS 21 Baseline	8.4 (7.9)	9.5 (8.3)		
Sloan	6 month DASS 21 follow-up	8.1 (8.3)	9.3 (8.6)		
	Change score	-0.3	-0.2		

on their own premises, Gortner et al (2006) do not state whether they were alone. It is assumed all the participants adhered to the instructions and wrote while alone for the duration of the allotted time.

Outcomes of the writing task

At completion of the study at six months, all participants were debriefed, re-assessed (see *Table 4*), paid, and participated in the manipulation check. The manipulation check by Gortner et al (2006) was assessed using questionnaire FQPSE (see *Table 4*) (Pennebaker et al, 1990) and reported that students had privately reflected, and discussed their writing with other people. These outcomes may have affected psychological benefit and helped with problem-solving (Frattaroli, 2006; Department of Health (DH), 2007).

Sloan et al (2008) checked what participants thought the study was 'trying to prove'. Participants stated that they thought their academic writing had improved. The idea of the examiner as the 'intended reader' is likely to have affected the quality and content of their writing (Hunt, 2004). It is not clear whether this might increase or decrease rumination but, ethically, seems unkind that students expected improvement in their academic writing.

Methodological differences

The papers are complex, dense with statistics and difficult to review but findings are clinically significant and relevant to the review question. In both studies, researchers collected data about Pennebaker's (1997) writing intervention, with a similar population, using similar, standardized measures of depression and rumination scales that relate to the similar hypotheses. However,

the depression scales are composite measures of qualitative data, and both studies use different methods of mediation and reduction of covariates (Coe, 2002).

In each of the studies, results (see *Table 4*) were analyzed adopting similar but different methodology. Gortner et al's (2006) highly complex research, using multiple questionnaires and exploring a number of variables, needed first to understand the relationship between participants' BDI and Ruminative Response scale (RRS) questionnaire scores in relation to predictor variables. Residual change scores were created, using residual depression scores as the dependent variable, to reduce the number of covariates (Coe, 2002). The researchers focus on high and low suppression of emotions, adding brooding change scores as a covariate in the analysis of the effect of the writing condition on the dependent residual depression. In addition, they use a complex method of mediation and multiple regressions (Baron and Kenny, 1986) to calculate effect sizes.

Sloan et al (2008), use an alternative complex methodology (West et al, 1996), to search for similar effects and relationships. The rating scale Sloan et al (2008) use is the DASS21 residual depression score as the dependent variable (Coe, 2002), and perform standard multiple regressions separately for each time of follow-up assessment, thereby adjusting outcome means with standardized residuals (Coe, 2002).

Although both studies are measuring and exploring similar dependent variables to find causal links (Stewart, 2002), they are approaching their data from different angles, thus making comparative tabling difficult (see *Table 5*). In both cases researchers were searching for correlations

between variables (Coe, 2002): between writing and residual depression, and residual depression and brooding.

In addition, the fidelity (Carroll et al, 2007) of the writing model is in question as the instructions are different enough to affect the outcome, particularly to keep writing and generate more text (van Zuuren et al, 1999), and securing an ending (McLeod, 1996) that would enable closure to the story or experience and reduce the likelihood of continuing rumination or brooding. Unrelated experiences or situations occurring during the study may also affect the participants' scores.

Sloane et al (2008) hypothesized that ruminative style would moderate the effects of expressive writing. They found that expressive writing can be used to reduce effects of ruminative thought and the effects of brooding/rumination can be 'undone' using expressive writing thus predicting a decrease in depression symptom severity, an effect not observed in the control group. In both studies, the control group did not show any significant changes in depression scores (see *Table 5*).

Replication of the studies would be necessary to verify results.

DISCUSSION

Depression is linked to recurrent negative thinking and rumination of events or symptom causality. Throughout both papers a number of terms relating to this thought process are used: brooding, rumination, pondering, reflection, and worry. Sloan et al (2008) posit expressive writing may be a tool by which those who brood, or negatively ruminate, can be helped to 'confront their negative thoughts and feelings' (p.305), and develop strategies for problem-solving and restructuring maladaptive cognitions. Gortner et al (2006), recognizing brooding as a form of 'judgmental self-focus' (p.301), emphasize the lowering of a recurrence in depression symptoms for people who have difficulty with self expression.

Gortner et al (2006) report that expressive writing was beneficial in reducing depressive symptoms in participants with high suppression of emotion scores. They were surprised to find that these benefits of expressive writing were limited to those participants who suppress their feelings, yet they cite previous research a) Paez et al, 1999; Solano et al, 2003) that bears out these findings, and b) Langens and Schuler (2005) who also found expressive writing to be beneficial, but only to participants with a high fear of social rejection. All these findings are clinically highly significant and relevant to mental health practice where social inclusion issues are important fac-

tors regarding depression (DH, 2004).

Gortner et al (2006) highlighted that assessment or interview by clinicians may have strengthened the study. Research that focuses on undergraduates that are functioning and motivated to participate is difficult to translate into real clinical practice where patients are unmotivated, have low mood and are plagued by endogenous or reactive depressive symptoms linked to worry, rumination, negative constructs, perseveration, or brooding. It is interesting to note that, in the Sloan et al (2008) study, participants in the expressive writing group with a greater tendency to brood, reported a significant decrease in the severity of depression symptoms, which was not found in the control writing group. The negative element of brooding was an expected predictor of depressive symptoms. Researchers found no correlations between expressive writing, the ability to problem-solve beneficially by pondering, and a decrease in depressive symptoms, at the six month conclusion. These are important findings for clinicians searching for inexpensive means of improving mood and increasing positive problem-solving in adults with depression. Although the studies incorporate young undergraduates it is likely that service users keen to recover, and others, such as carers and staff, that are able to write and with the potential for insight, may benefit from writing as an intervention in depression where rumination is a problem.

Pennebaker's (1997) writing model is seductive in terms of time and cost effectiveness. It should be noted that West et al (1996) report the inconsistency of standards for the operational constructs used in experimental psychology; there are divisions between specialist areas in the way rating scales are constructed and used despite a long tradition of research in psychology. These issues cause problems for clinicians appraising the results. West et al (1996) affirm that their methods, used in these studies, are robust.

The appraisals of these studies (Consort, 2001) indicate that the studies are of sufficient quality (Greenhalgh, 1997) to warrant serious consideration. However, there are questions to be asked about a number of variables. Factors such as fidelity, method of writing, environmental issues, and aloneness, could affect the outcome, and the effect of a student being a slow typist, poor speller, or having a disability such as dyslexia, may affect the quality and amount of words written (Van Zuuren et al, 1999). As the undergraduates were participating in the study and at college, their level of depression would be categorized as mild and appears not to have impaired function. The act of payment and assur-

ance that participation would tick a significant box to complete the research module are additional motivators that assure compliance.

Important qualitative factors affecting depressed adults such as: the ability to write for twenty minutes, poor concentration, low motivation, encouragement to overcome high suppression, and time of day (Rusting and Larsen, 1998), are not discussed. The lack of clarity in implementation suggests that clinicians may decline using an intervention that has much benefit for depressed adults. This loss of benefit includes, as the authors rightly mention, variables of social inclusion: sharing writing with, and talking to, others, that would be of significance to those in danger of social isolation (DH, 2004; DH, 2007).

Although the studies replicate the use of Pennebaker's (1997) writing model, as Greenhalgh (1999) requested, this review highlights the complexity of research of qualitative material and variables that may have confounded the results. Mays and Pope et al (2000) suggest the subtle realist approach: mixing qualitative and quantitative research methods, may improve the validity of future replication of the kinds of studies in this mini-review.

Evidence-based practice is commendable but there are concerns about how research is interpreted and used in practice (Stiwne and Dahlgren, 2004) particularly when presented in a complex fashion that is hard for non-research active clinicians to understand (Swain, 2007). Evidence-based questions asked by occupational therapists, like the one used for this review, will often be focused on the client story and qualitative issues, which do not fit well into the quantitative box. A meta-analysis is considered the 'gold standard' of research; second to these are RCTs, but RCTs are only one source of evidence.

LIMITATIONS OF THE STUDY

Gortner et al (2006), stated that their study was underpowered, which infers that the smaller

Sloan et al (2008) study, where power was not mentioned, is also likely to be underpowered affecting the effect size. The confidence intervals are large, which can be expected with small studies; and together, these issues suggest errors of decision may have occurred that can only be minimized by increasing the sample size. The use of complex methodology using mediation and regression, alongside differing rating scales, a practice found to be commonplace in current specific psychological methodologies, complicated the comparing of results.

CONCLUSION

Knowledge from previous studies of writing (Frattaroli, 2006) using Pennebaker's (1997) model, indicates a range of both physical and mental health benefits that almost seem too good to be true. The research seems to suggest that the expressive writing model provides: a) constructive opportunities to confront negative thoughts and feelings, b) the use of more problem-solving skills to restructure maladaptive cognitions regarding stressful experiences, and c) a reduction in depression. These outcomes indicate that writing can be used to lower rumination of brooding thoughts in adults. Therefore, this writing model is of clinical significance for practitioners seeking inexpensive and effective treatment interventions of literate service users with adequate reflective and processing skills.

Service users with these abilities, given the opportunity to write about their situations, are likely to develop insights similar to those recorded in the studies. However, the writing method is unlikely to be effective with service users with cognitive impairment or those with poor reflection skills and reduced potential for insight, such as those with learning difficulties or memory loss.

Greenhalgh's (1999) reticence is still valid and replications of this research, using more transparent and less complex analysis of results would be of great benefit to clinicians and therapists working in health care. [IJTR](#)

KEY POINTS

- Writing is a cost effective activity that has proven health benefits.
- Expressive writing can help reduce ruminative thoughts.
- Writing models require fidelity and clear instruction to achieve maximum benefit.
- The complexity of research papers obstructs clinician identification of relevant research and implementation into practice.

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COMMENTARY

The author reviews the literature on rumination as a mediator of reductions in depression symptoms associated with expressive writing. Expressive writing is a brief and easily delivered intervention that has been associated with a wide variety of health benefits over the past 25 years (see, Frattaroli, 2006 for a review). Given the well-documented health benefits of expressive writing, investigators have turned their attention to understanding why expressive writing is associated with beneficial outcome (mediators) and for whom expressive writing is most beneficial (moderators). Thus, this review paper addresses an important and timely topic.

Although the topic of this review is important, some important points are missed. First, the review is limited in that only two studies are included. There have been only two published studies examining rumination as either a mediator or moderator of expressive writing outcome, however, there are many studies that have examined other moderators and mediators of expressive writing outcome, including a large meta-analysis study (Frattaroli, 2006). Second, the author incorrectly states that the two studies reviewed examined rumination as a mediator of expressive writing outcome. Only Gortner et al (2006) examined rumination as a mediator of expressive writing outcome. Sloan et al (2008) examined rumination as a moderator of expressive writing outcome. It is a common error to confuse mediator and moderator variables, although very different questions are addressed. As previously described, a moderator variable addresses the question for whom expressive writing is most beneficial whereas a mediator variable addresses the question of why the expressive writing intervention is beneficial. The key issue in examining whether a variable (in this case rumination) mediates changes in another variable (in this case depression symptoms) is to investigate whether changes in the mediator variable precede changes in the outcome variable. In other words, rumination would need to be assessed during the course of expressive writing sessions, and changes in rumination would need to occur prior to changes in depression symptoms. Gortner et al (2006) did not assess rumination during the course of the expressive writing sessions.

Although we do not know whether or not rumination mediates the beneficial

“The key issue in examining whether a variable (in this case rumination) mediates changes in another variable (in this case depression symptoms) is to investigate whether changes in the mediator variable precede changes in the outcome variable ”

outcome associated with expressive writing, we do know that negative affect serves as a mediator of expressive writing outcome. Specifically, initially high negative affect followed by a reduction of negative affect over the course of the expressive writing sessions mediates expressive writing outcome (e.g. Sloan et al, 2005). That is, expressive writing is beneficial because it allows a person the opportunity to express negative affect surrounding a traumatic event. Indeed, we know that people who are resilient in the face of traumatic life events are those that allow themselves to think or talk about the traumatic experience rather than actively avoid thoughts and feelings (King et al, in press).

If expressive writing is an effective intervention because it allows people to confront previously avoided negative thoughts and feelings surrounding a traumatic event, then people with a tendency to avoid thinking about negative life events should reap the greatest benefits from expressive writing. Nolen-Hoeksema et al (2008) view brooding rumination as a maladaptive coping strategy that prevents individuals from effectively confronting painful images and emotions. These researchers proposed that any intervention that encourages the confrontation of painful images and emotions would be beneficial for people with a tendency to brood. Supporting this speculation, Sloan and colleagues (2008) found that individuals who had a brooding rumination coping style reaped greater benefits from expressive writing relative to participants who did not display a brooding coping style. Sloan and colleagues reported a moderately large effect size for this finding (r effect size=0.26, p .305).

Conclusion

The studies reviewed by the author of this study represent a small portion of the studies that have addressed why expressive writing is beneficial and for whom it is most beneficial. These are complex questions

that require substantial research focus with systematic and well-designed studies. As the author points out, the majority of the expressive writing research has focused on college students who are sometimes selected based on the presence of clinical symptoms (e.g. posttraumatic stress symptom severity, depression symptom severity). Although this work has been informative, the focus should begin to shift attention toward clinical populations. This shift is underway (e.g. Sloan et al, 2011). Overall, the expressive writing intervention holds much appeal given its brevity and accessibility. The findings obtained over the past 25 years clearly document the effectiveness of the intervention. What is now needed is a greater understanding of why expressive writing is beneficial and for whom it is most beneficial.

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Denise M. Sloan PhD

National Center for PTSD

VA Boston Healthcare System & Boston

University School of Medicine

Denise.Sloan@va.gov

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