

PERSPECTIVES

The benefits of contemplating tragic drama on self-regulation and health

GUAN SOON KHOO^{1*} and JENNIFER E. GRAHAM-ENGELAND²

¹English Department, Roanoke College, 118 Miller Hall, Salem, VA 24153, USA and ²Biobehavioral Health, The Pennsylvania State University, 219 Biobehavioral Health Building, University Park, PA 16801, USA

*Corresponding author. E-mail: khoo@roanoke.edu

SUMMARY

Although drama exposure has been examined in the context of health promotion programs, the underlying mechanisms of reflecting on drama have not been established. The degree to which drama contemplation leads to cognitive changes (increased processing, self-compassion and emotional self-efficacy) and improved well-being was examined in the present research. An experiment was conducted in which young adults ($n = 148$) were randomly assigned to experience and write reflectively on (i) drama via Hollywood movie clips, (ii) drama via scripts or (iii) to perform a control task. Writing content was analyzed for word use. At baseline and 4-week follow-up measures, participants self-reported self-compassion, emotional self-efficacy, physical symptoms, general health, depressed mood and anxiety. Using structural equation modeling, indirect effects of drama contemplation were found. Tragic drama

exposure was associated with word use indicative of increased cognitive processing. The use of greater insight words was related to increased emotional self-efficacy, which in turn was associated with improved psychological and general health, whereas discrepancy word use was associated with increased self-compassion, which was in turn linked to better psychological well-being. Conversely, greater use of causation and certainty words was associated with a marginal decrease in self-compassion and psychological well-being. The persistence of drama has long been related to its capacity to enhance individuals' understanding of the human condition. This study helps explain the connection between reflecting on drama and benefits to self-regulation and health. Implications of drama processing as an inexpensive and accessible adjunct to health promotion interventions are discussed.

Key words: catharsis; cognitive word use; mood and well-being; applied media effects

INTRODUCTION

Over the centuries, from the Greeks to Shakespeare to popular cinema, viewers have voluntarily subjected themselves to tragic drama. Anecdotal evidence suggests that such exposure may improve affective self-regulation. However, there has been little if any research on how the cognitive processing of drama may be valuable to well-being. Research on emotion expression has mainly focused on autobiographical (Pennebaker and Chung, 2011) rather than imagined events, such as those available through fiction and art. In one exception, Greenberg *et al.* (Greenberg

et al., 1996) found health benefits from expressive writing using other people's trauma 'stories'. This finding suggests that the processing of the upheavals of others could be a therapeutic (and potentially safer) alternative to revisiting painful memories. Although programs centered around drama and literary fiction have been investigated as a way of improving functioning of school children (Joronen *et al.*, 2012) and mental health of adults (Dowrick *et al.*, 2012), empirical support is scant. Recently, media psychologists have begun to explore the motivations for and processes of appreciating drama and tragedy (Oliver, 2008; Oliver and Raney, 2011) with the belief that they

may leave enduring impressions by promoting contemplations of life events (Oliver and Bartsch, 2010) or by contributing to *clarification*, or catharsis through emotion processing (Khoo and Oliver, 2013). Thus, we seek to examine the health and mental benefits of processing drama and some of their underlying cognitive mechanisms.

Tragedy and health

The contemplation of drama shares much in common with emotional expression interventions. Decades of evidence indicates that individuals who think and write about their stressful life experiences show a range of objective and subjective benefits over time (Smyth, 1998; Pennebaker and Chung, 2011). In an off-shoot of one of these classic experiments, Greenberg *et al.* (Greenberg *et al.*, 1996) reported that female participants who had experienced past trauma (e.g. physical abuse) exhibited health benefits in 4 weeks after they wrote expressively on a non-autobiographical, imagined trauma compared with a control group who wrote about a non-emotional topic. In this study, the imagined-trauma group was given a bullet-point summary of a life event, then instructed to slip into the shoes of the 'protagonist' and imagine themselves in the trauma story they were assigned. To the extent that participants complied with instructions, we infer that they underwent psychological processes that closely resemble those evoked while engaging fictional drama. Thus, the potential benefits of drama contemplation through media entertainment could provide a new understanding of the value of vicarious emotional experience and its expression.

Compared with the written summary given to imagined-trauma participants in the Greenberg *et al.* (Greenberg *et al.*, 1996) study, a cinematic presentation of a trauma story may be even more engaging for an audience member. Certainly, the mass appeal of cinematic drama in the last hundred years suggests that it is valued by a wide audience. A look at best picture winners at the Academy Awards reveals the prevalence of dramas and tragic films that feature themes of human suffering: *No Country for Old Men* (2007), *The English Patient* (1996), *Ordinary People* (1980), *One Flew Over the Cuckoo's Nest* (1975) and *Midnight Cowboy* (1969); more recent and popular films also often center around themes of suffering, such as the theme of tragic loss featured prominently in the major Hollywood blockbuster

Gravity (2013). Importantly, the potential benefits of tragic cinema may be spurred by events of varying potency or acuteness, which may evoke emotions or memories, both in or outside of conscious awareness. In a Pennebaker *et al.*'s study (Pennebaker *et al.*, 1990), college freshmen were found to benefit from writing about their difficult but not necessarily traumatic transition to college life. Thus, the processing of cinematic drama and tragedy may benefit a broad audience by indirectly resonating with the individual's unique life experience, including experiences perceived as merely stressful as well as traumatic.

Potential mechanisms of health benefits from vicarious tragic exposure

Cognitive processing

Several expressive writing studies based on autobiographical events suggest that emotional expression benefits are linked at least in part to cognitive processing (Lepore and Greenberg, 2002; Ullrich and Lutgendorf, 2002; Boals and Klein, 2005). These findings are largely based on the analysis of word usage, where the percentage use of specific types of 'cognitive words' is measured, including words that imply causation (e.g. because, effect, hence), insight (e.g. think, know, consider) or discrepancy (e.g. would, should, could) (Tausczik and Pennebaker, 2010). For example, Pennebaker *et al.* (Pennebaker *et al.*, 1997) reported that participants who increased their use of insight and causation words across consecutive days of expressive writing showed improvements in coping behaviors and health. A high percentage of cognitive words is thought to be indicative of active and malleable thinking instead of ruminative thought (or thinking unproductively in circles), and increases in such words over time may indicate that individuals either have found meaning or continue to search for meaning (Park, 2010).

We propose that exposure to somber film drama is also likely to lead to greater cognitive processing compared with reading the movie script, especially in light of recent evidence linking film drama-induced emotions with increased self-reflection (Bartsch, 2013). Moreover, the processing of drama may be indicated by the use of certain cognitive words, which may lead to health and well-being. First, use of causation words may reflect the degree to which media users are organizing their thoughts about the movie plot. The use

of certainty words (e.g. always, never, very) may accompany thoughts on a drama involving irreversible, tragic events. Further, for audiences who contemplate the drama in the light of their life experiences, discrepancy words may be employed to ponder the ‘what if’ questions regarding the fiction, whereas insight words may be used to express their understanding of lived experience, self-awareness or related epiphanies. Use of cognitive words in the context of drama contemplation may be indicators of either on-going processing or the initiation of deeper reflections to follow.

Self-regulation

Two aspects of affect regulation—emotional self-efficacy and self-compassion—are potentially critical in helping to link cognitive processing with health benefits. Processing indirect trauma may lead to the development of self-efficacy in controlling aversive emotional arousals, which, over several weeks, may improve an individual’s self-regulation capabilities (Greenberg *et al.*, 1996). Self-efficacy has often been demonstrated to relate to emotional health benefits. For example, Bandura *et al.* (Bandura *et al.*, 2003) showed that greater self-efficacy at regulating negative affect led to lower depression. Vicarious trauma exposure may also enable individuals to reflect on their emotional responses for others and develop self-compassion (Greenberg *et al.*, 1996). Less well studied, the notion of self-compassion in health research stems from the assumption that ‘it is as essential to feel compassion for oneself as it is for others’ [(Neff, 2003a), p. 224]. Neff *et al.* [(Neff *et al.*, 2007), p. 149] found that increased self-compassion was associated with lower ‘self-criticism, depression, rumination, thought suppression and anxiety’.

The present research

The goal of this study is to explore the direct and indirect health benefits of a manipulated exposure to scenes from a Hollywood drama—either via a short movie that included those scenes or via a detailed written script of the same movie scenes—that was paired with an opportunity for contemplation using expressive writing. This manipulation was labeled *tragic reflection*. We hypothesized that exposure to human drama would lead to cognitive processing (both of the events depicted and of the viewer’s own life experiences); in turn, we expected that such

processing at the time of drama exposure would lead to changes in affect regulation, specifically via emotional self-efficacy and self-compassion, that positively predict well-being. Both directly and particularly via those cognitive changes we expected to see greater improvement in well-being for both experimental groups compared with the control group across a 4-week period, as determined by self-reported physical symptoms, general health, depressed mood and anxiety. We predicted that changes in self-regulation and health would be greater among those exposed to cinematic drama compared with those who read the movie script, on the basis that we expected cinematic drama exposure to be more engaging and, in turn, facilitate a greater degree of cognitive processing.

METHOD

Study design

An experiment was conducted with *tragic reflection* as the between-subjects factor; participants were randomly assigned to one of three conditions: (i) watch one short movie followed by expressive writing (Movie+writing), (ii) read a detailed movie script followed by expressive writing (Script+writing) and (iii) a non-expressive writing control group (writing only). The first two experimental conditions were designed to enable the examination of two modes of tragic drama exposure: cinematic and reading based. Movie scripts were used for the reading mode of drama exposure to control for similar content, while providing a close comparison with the Movie+writing condition.

Overview and participants

Participants were college students recruited from two large undergraduate courses at a university in the Eastern USA in exchange for course credit. Recruitment was accomplished through brief verbal announcements by the first author about a study on the ‘effects of entertainment media’, followed by an email containing participation instructions. Data collection involved three parts. First, a self-administered online questionnaire collected baseline measures (time 1). Next, a 30–60-min laboratory experiment was conducted ~1 week later (time 2). Finally, another online questionnaire collected

the follow-up measures ~4 weeks after the experiment (time 3).

From the beginning to the end of the study, 67% of participants were retained; 22% of participants ($n = 49$) dropped out between baseline measures and the experiment and an additional 13% ($n = 23$) dropped out between the experimental session and the follow-up measures. The greater attrition between baseline and experiment was expected as it required more effort to sign up for a session and arrive at a laboratory compared with filling out a short online questionnaire. The final sample comprised 48 participants. The final sample was 84% female and 81% Caucasian, and the average age was 19.4 years ($SD = 1.2$). There was no statistically significant difference in gender and age between all three conditions.

Procedure

The questionnaires at all three time points were administered online using the Qualtrics software. The experimental data were collected in a media research laboratory in sessions of up to nine participants at a time. Upon arrival, participants signed in and were each escorted to a workstation fitted with a headphone. Random assignment to groups was implemented by randomly designating one condition to each session; participants signed up for their session without knowledge of condition. A questionnaire was administered following the task. After completing their session, participants were thanked and told to expect a follow-up email in 4 weeks. After participants completed the follow-up questionnaire about a month later, they were sent a debriefing video.

Stimulus material

Two movies were selected to rule out the unique effects of a single film. Award-winning Hollywood films, *In the Bedroom* (2001) and *Mystic River* (2003) were chosen after they were pre-tested as high on levels of tragedy; the Movie+writing group watched a 15-min version of one of the films, whereas the Script+writing group read a movie script based on the shortened films (average reading time was 11 min). Both films are similar in their depiction of a deeply traumatic event in their characters' lives (the loss of a teenage child to violence), followed by an intensely emotional aftermath; the stimuli are

described in greater detail in Khoo and Oliver (Khoo and Oliver, 2013).

Instructions for reflection

Participants in each condition were given specific instructions to write for ~20 min on the movie (Movie+writing), the script (Script+writing) or their college campus (writing only). For the two experimental conditions, nearly identical instructions were given to guide participants to first express their most intense emotions associated with the stimuli, then *clarify* their thoughts and feelings associated with these emotions, and, thirdly, make an interpretation of the drama's final scene; each set of instructions was followed by ~7 min of writing, yielding the 20-min total. Excerpts from the first set of instructions for the Movie+writing condition show our emphasis on emotion expression:

Please write about your thoughts and feelings, including those that may have been brought up by the movie ... Do not write about your emotions in general, but rather about how you responded emotionally to the particular events depicted in the movie scenes.

An excerpt of the second set of instructions below show our emphasis on cognitive processing:

We would also like you to try to clarify your thoughts and feelings. Try to write about how you make sense of your thoughts and feelings, where you think they come from, and what they mean for you.

The third set of instructions promotes further processing and interpretation of the drama:

We would also like you to try to write your interpretation of the meaning of the final scene or moment in the movie ... Consider this scene in relation to the entire story and tell us what you think it means to you as a viewer.

Measures

Overview

There were a total of six proposed mediating variables: four related to cognitive processing (as determined by word usage, described below) and two related to affect regulation (self-efficacy and self-compassion). The former were expected to temporally precede the latter. Hence, 4-week change scores were generated for self-efficacy and self-compassion by subtracting each participant's

score at baseline from the corresponding fourth week follow-up measure. Similarly, the dependent measures were 4-week changes in four measures of health: physical symptoms, general health, depression and anxiety. Additionally, narrative engagement was measured to test the comparison between the two modes of drama. Measurement reliabilities for the change scores were calculated at baseline and follow-up. All measurement scales were constructed by averaging item responses, unless otherwise noted. Further, single-item manipulation checks of the drama were measured for participants' sad mood and perceived level of story tragedy, and overall narrative coherence.

Cognitive processing word use

The word usage variables were generated using the Linguistic Inquiry and Word Count (LIWC) software version 2007, a text-analysis computer program that counts the percentage of English words belonging to specific word categories and other quantitative metrics such as word count (Pennebaker *et al.*, 2007). The essays generated by each participant during their reflection task were analyzed using LIWC to produce quantitative measures of the types of words used. The following cognitive word categories were measured to facilitate mediation analyses: causation, certainty, discrepancy and insight words.

Change in self-compassion

Self-compassion, a psychological construct related to having kindness and empathy for oneself in the face of difficulties (Neff, 2003b), was measured using 12 items from the short form of Neff's (Neff, 2003a) self-compassion scale. Participants indicated how often they acted with self-compassion via a seven-point Likert-type scale from 1 (*almost never or never*) to 7 (*almost always or always*) on questions such as 'In the past 2 weeks, I try to see my failing as a part of the human condition' (p. 231). The Cronbach's alpha reliabilities were good at both time points: baseline ($\alpha = 0.73$) and follow-up ($\alpha = 0.82$).

Change in emotional self-efficacy

Because the stimulus drama tells a story of loss and grief, affective self-efficacy was measured via a subscale called 'self-efficacy in regulating despondency' (RESE-DES) (Bandura *et al.*, 2003). This four item subscale focuses on the perceived ability to regulate sadness with such items as

'In the past 2 weeks, how well can you keep from getting dejected when you are lonely?' The reliabilities were good at both time points: baseline ($\alpha = 0.75$) and follow-up ($\alpha = 0.84$).

Change in physical symptoms

Physical symptoms were measured using a 10-item version of the Wahler Physical Symptoms Inventory (WPSI) (Chandler, 2002; Swanbon *et al.*, 2008). Participants rated the presence and frequency of physical symptoms, e.g. headache and backache, on an anchored six-point rating scale. The physical symptom scores were constructed by taking the arithmetic average and converting them into percentages. The reliabilities of this measure were good at both time points: baseline ($\alpha = 0.82$) and follow-up ($\alpha = 0.83$).

Change in general health

The second dependent variable of perceived general health was measured using questions on both physical and mental health. The 8-item short-form health survey (Turner-Bowker *et al.*, 2003) is widely used to measure overall health via such questions as 'Overall, how would you rate your health during the past 4 weeks?' In this study, the temporal phrase in these questions was changed to 'during the past 2 weeks' for consistency across all variables. The reliabilities were good at both time points: baseline ($\alpha = 0.80$) and follow-up ($\alpha = 0.85$).

Change in depression

Depressed mood was assessed with the well-established 10-item Center for Epidemiologic Studies Depression scale (Andresen *et al.*, 1994). Participants rated the extent to which they had felt an experience related to depression in the past week (e.g. 'I was bothered by things that don't usually bother me') using an anchored four-point rating scale from 1 (*Rarely or none of the time*) to 4 (*Most of the time*). The reliabilities for the depression items were good at both time points: baseline ($\alpha = 0.77$) and follow-up ($\alpha = 0.84$).

Change in anxiety

A six-item state scale of the Spielberger State-Trait Anxiety Inventory (STAI6) (Marteanu and Bekker, 1992) measured anxiety by asking participants to indicate how they feel (e.g. 'I feel tense') at the present moment on an anchored

four-point Likert-type scale from 1 (*Not at all*) to 4 (*Very much*). The STAI6 is a reliable and valid substitute for the original scale (Marteau and Bekker, 1992). The STAI6 scale for each time point was calculated by summing item scores after reversing negatively worded statements (Perpiñá-Galvañ *et al.*, 2011). The Cronbach's alpha reliabilities were good at both time points: baseline ($\alpha = 0.86$) and follow-up ($\alpha = 0.85$).

Narrative engagement

The 12-item engagement scale by Busselle and Bilandzic (Busselle and Bilandzic, 2009) was slightly modified to ask participants to rate their experience of the story in the movie or movie script on a seven-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Some example items for this scale are, 'the story affected me emotionally' and 'at times during the movie, the story world was closer to me than the real world'. The reliability for these narrative engagement items was good: $\alpha = 0.81$.

Data analytic strategy

The descriptive statistics for the variables of interest arranged by condition are shown in Table 1. To test the main effects of condition, a series of analysis of variance (ANOVA) was conducted. Next, the dependent variables and proposed mediators were examined for normality and outliers. After inspecting for skewness, kurtosis and univariate, and multivariate outliers,

the data were found to be acceptable for structural equation modeling (SEM), which was used to examine hypotheses related to the potential cognitive mechanisms underlying beneficial drama processing. SEM is a well-established statistical technique (Bentler and Stein, 1992) that offers the ability to examine several multiple regression equations simultaneously, identifying the unique associations between multiple variables while taking into account the degree to which they are intercorrelated (Byrne, 2001); SEM also enables the specification of the error inevitable in measured variables. Measurement error was accounted for through the use of latent composite variables. The error variance for every endogenous variable was tabulated as $\sigma^2(1 - \alpha)$, where σ^2 is the variance and α is Cronbach's alpha reliability.

SEM analyses were performed with AMOS 18 (Arbuckle, 2009). One final model is reported in this paper, with all changes made to hypothesized paths noted below. In evaluating adequacy of all models, in addition to the chi-square statistic we primarily considered two fit indices: the comparative fit index (CFI) and the root-mean-square error of approximation (RMSEA). Based on stringent recommendations (Hu and Bentler, 1998), a CFI value of 0.90 or greater is considered to indicate good fit and values of 0.95 or greater to represent excellent fit. The RMSEA point estimate is considered to indicate good fit to the data at values of 0.10 or less, with values <0.06 representing excellent fit (Hu and Bentler, 1998; Byrne, 2001).

Table 1: Descriptive statistics for variables by study condition

Variables	Study conditions			F-ratio
	Movie+writing	Script+writing	Writing only	
Change in self-compassion	0.02 (0.86)	0.04 (0.72)	0.06 (0.96)	$F(2, 145) = 0.03$, n.s.
Change in self-efficacy (RESE-DES)	0.21 (1.16)	0.09 (1.33)	-0.25 (1.16)	$F(2, 145) = 1.82$, n.s.
Change in physical symptoms	-2.44 (13.29)	-5.16 (12.18)	-2.25 (14.71)	$F(2, 145) = 0.73$, n.s.
Change in general health	-0.07 (0.68)	-0.15 (0.64)	-0.24 (0.67)	$F(2, 145) = 0.82$, n.s.
Change in depression	0.44 (5.18)	0.36 (4.96)	0.75 (6.07)	$F(2, 145) = 0.07$, n.s.
Change in anxiety	0.68 (4.86)	-0.44 (4.05)	0.88 (4.47)	$F(2, 145) = 1.25$, n.s.
Causation words	2.00 ^a (0.64)	2.24 ^a (0.76)	0.94 ^b (0.64)	$F(2, 145) = 50.02$, $p < 0.001$
Certainty words	1.71 ^a (0.68)	1.82 ^a (0.71)	0.98 ^b (0.61)	$F(2, 145) = 22.41$, $p < 0.001$
Discrepancy words	2.79 ^a (1.16)	2.62 ^a (1.16)	0.44 ^b (0.43)	$F(2, 145) = 86.01$, $p < 0.001$
Insight words	4.30 ^a (0.88)	4.45 ^a (1.18)	0.60 ^b (0.52)	$F(2, 145) = 283.17$, $p < 0.001$

Notes: Means are listed first followed by standard deviations in parentheses. For each variable (row), means with no superscript in common differ at $p < 0.01$ using Holm's sequential Bonferroni *post hoc* comparisons. Change in self-compassion and change in self-efficacy (RESE-DES) had a possible range of -6 to $+6$; change in physical symptoms -100% to $+100\%$; change in general health -4 to $+4$; change in depression -30 to $+30$ and change in anxiety had a possible range of -18 to $+18$; the word-use variables represent the percentage of specific word-category used in participant essays.

RESULTS

Preliminary analysis

Manipulation check for drama

The movie and script stimuli were highly rated on level of tragedy ($M = 6.45$, $SD = 0.88$) on a seven-point scale. Further, as a check for the stimuli's capacity to induce negative affect, an affect adjective item of 'sad mood' was compared between all conditions: As expected, the Movie+writing ($M = 3.80$, $SD = 1.86$) and Script+writing conditions ($M = 2.88$, $SD = 1.62$) induced greater sadness after drama exposure compared with the control group ($M = 1.87$, $SD = 1.30$). In addition, the rating of narrative coherence ($M = 5.66$, $SD = 1.02$) was also fairly high. Thus, the drama manipulations were deemed sufficiently tragic, relatively sad and fairly coherent.

Manipulation check for reflection

The written essays were checked using objective word-use measures generated by the LIWC software: word count and the four cognitive word categories. All three groups did not differ in their amount of written words. Compared with the control group, the Movie+writing and Script+writing groups used significantly greater causation, certainty, discrepancy and insight words. The means and standard deviations of the four cognitive word-use categories by experimental condition are reported in Table 1. The manipulation for reflection appeared successful.

Analyzing direct and indirect experimental effects

There was no main effect of Movie+writing or Script+writing on change in self-regulation or health-related outcomes; the three conditions did not differ on these outcomes. These ANOVAs are reported in the right-most column of Table 1; for each ANOVA reported, the assumptions of homogenous variance were not violated. Additionally, we compared the narrative engagement for the two modes of drama exposure using a *t*-test to find no statistical difference between Movie+script ($M = 5.39$, $SD = 0.84$) and Script+writing ($M = 5.20$, $SD = 0.81$), $t(98) = 1.21$, *n.s.* Further, these two drama conditions were no different in encouraging reflection through the use of causation, certainty, discrepancy and insight words (see Table 1). Thus, contrary to expectation, participants in both

experimental conditions were equally engaged and did not differ in their degree of cognitive processing.

Using SEM, we next examined the degree to which the six proposed mediating variables explained any changes due to the experimental manipulations and the extent to which those changes were linked to health outcomes. The first four proposed mediators—causation, certainty, discrepancy and insight word use—were tested as predictors of change in self-compassion and change in self-efficacy in regulating despondency, which in turn were examined for links to the four health outcomes—change in physical symptoms, change in general health, change in depression and change in anxiety. In this analysis, the independent variable was dummy coded and the comparison category was the writing-only group. The overall model fit was good: $\chi^2 = 49.90$, $df = 34$, $p = 0.04$, $CFI = 0.98$, $RMSEA = 0.06$ (90% confidence interval: 0.01–0.09). Next, bootstrapping procedures using 2000 bootstrap samples and bias-corrected confidence intervals were employed to test the influence of the six proposed mediators on the health outcomes. This analysis revealed significant and marginally significant indirect mediation effects for the Movie+writing and Script+writing conditions on several health outcomes. Moreover, since some of the paths from the first four proposed mediators (word use) to the two self-regulation variables were not significant, they were dropped from the final model (Figure 1) without significantly affecting model fit.

Indirect effects

In the final model, significant indirect effects on mental health outcomes were found in the anticipated direction through two categories of words used in the writing task: discrepancy and insight words. When discrepancy word use and change in self-compassion were tested as mediators, the indirect paths from the independent variables to depression and anxiety were significant: for Movie+writing to change in depression, $\beta = -0.08$, $p < 0.01$ and for Movie+writing to change in anxiety, $\beta = -0.08$, $p < 0.01$; for Script+writing to change in depression, $\beta = -0.07$, $p < 0.01$ and for Script+writing to change in anxiety, $\beta = -0.08$, $p < 0.05$. Moreover, when insight word use and change in emotional self-efficacy were examined as mediators, the indirect effects of the independent variables on depression and anxiety

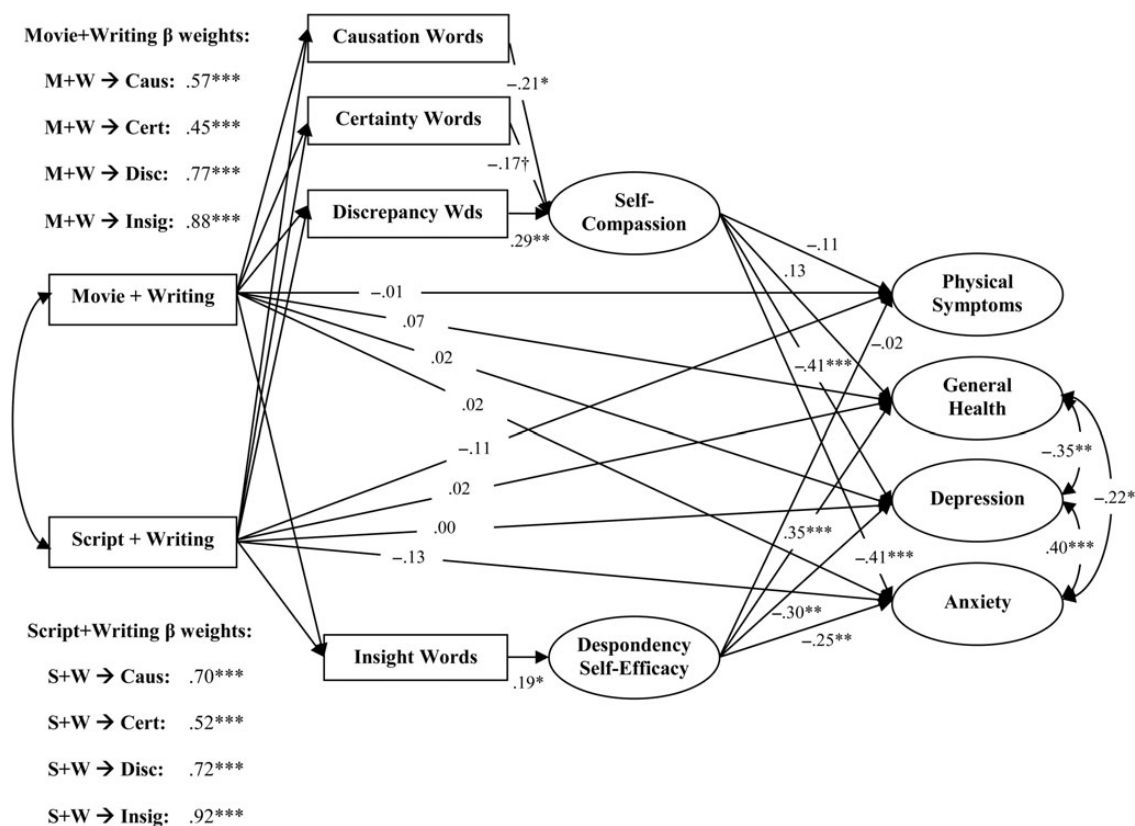


Fig. 1: Final model featuring standardized coefficients. Note: † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Movie+writing and Script+writing were dummy coded as dichotomous variables, respectively: 1 = experimental condition, 0 = all other conditions. Writing only was the omitted category. Measurement error was also corrected in this model.

were significant and marginal, respectively: for Movie+writing to change in depression, $\beta = -0.05$, $p < 0.05$ and for Movie+writing to change in anxiety, $\beta = -0.04$, $p = 0.06$; for Script+writing to change in depression, $\beta = -0.05$, $p < 0.05$ and for Script+writing to change in anxiety, $\beta = -0.04$, $p = 0.06$. Additionally, there were also significant indirect paths to general health via insight word use and change in self-efficacy: for Movie+writing to change in general health, $\beta = 0.06$, $p < 0.05$ and for Script+writing to change in general health, $\beta = 0.07$, $p < 0.05$. In short, the use of greater discrepancy and insight words when reflecting on drama was associated with improvements in self-regulation, which in turn were mainly linked to improved mental health.

The other indirect paths that examined the mediating variables causation word use and certainty word use were marginally significant, but,

unexpectedly, indicated negative indirect effects on health outcomes. When certainty word use and change in self-compassion were inspected as mediators, the indirect effects from the independent variables to depression and anxiety showed slight but not significant declines in mental health: for Movie+writing to change in depression, $\beta = 0.03$, $p = 0.07$ and for Movie+writing to change in anxiety, $\beta = 0.03$, $p = 0.07$; for Script+writing to change in depression, $\beta = 0.03$, $p = 0.07$ and for Script+writing to change in anxiety, $\beta = 0.03$, $p = 0.07$. Further, when causation word use and change in self-compassion were tested as mediators, the indirect effects of the independent variables on depression and anxiety also displayed a similar, non-significant downtrend in mental health: for Movie+writing to change in depression, $\beta = 0.03$, $p = 0.06$ and for Movie+writing to change in

anxiety, $\beta = 0.04$, $p = 0.07$; for Script+writing to change in depression, $\beta = 0.04$, $p = 0.06$ and for Script+writing to change in anxiety, $\beta = 0.04$, $p = 0.07$. In brief, greater causation and certainty word use was associated with declines in self-regulation, which in turn was linked to marginally diminished mental health.

In the final model, the overall amount of variance explained in terms of depression, anxiety and general health was 30, 28 and 17%, respectively. As for specific physical symptoms, we did not find any significant indirect effects through the mediators tested.

DISCUSSION

Though direct effects of the experimental manipulation on health outcomes were not detected, our analyses of potential mediators revealed linkages between tragic drama and health. Indirect benefits of drama exposure on well-being were found via cognitive processing and subsequent changes in self-regulation. More specifically, compared with the control group, both modes of drama exposure (cinematic and reading-based) similarly and indirectly lowered anxiety and depressed mood when individuals processed the drama with greater discrepancy and insight-related reflections. Moreover, insight-related contemplations also indirectly facilitated improved general health. In contrast, slightly poorer mental health was indirectly associated with a greater use of words linked to certainty and causality. Conversely, no changes in physical symptoms were detected across all analyses. Thus, the manner of drama processing could either indirectly improve health and well-being or slightly diminish psychological well-being over a short period.

Our finding that both cinematic and reading-based modes of drama exposure had similar effects suggests that both written and cinematic drama exposure promote drama contemplation equally. This was not expected because we predicted that cinematic exposure would be more involving, and, in turn, promote greater reflective thoughts. However, our findings that both cinematic and reading-based drama exposure were equally engaging and comparably linked with indirect effects via cognitive processing is in concordance with the results of a study that compared a mainstream movie scene with an equivalent passage from the source novel, where no differences were found between film and text in

the degree to which the audience reported that they were transported by the experience (Green *et al.*, 2008); transportation and narrative engagement have been found to highly correlate (Busselle and Bilandzic, 2009). The narrative script we used in our experiment was very detailed and seems to have been very involving for participants. However, reading a passage has been reported to be more effortful than watching a movie scene (Green *et al.*, 2008). A difference in perceived effort may affect concurrent or subsequent drama contemplation. Thus, in real life there may be differences in the effects of contemplating drama through a movie versus a text-based trauma story that could not be detected in the present study.

There are at least two potential explanations for the lack of direct effects of our intervention on depression, anxiety and perceived general health, which may also be relevant to the lack of observed change in specific physical symptoms. First, the manipulation was short in both the length of drama exposure and, importantly, the expressive writing; our writing task lasted only 20 min to prevent participant dropout from prolonged sessions. There is some evidence that writing for a longer period of time or across sessions may be associated with stronger benefits, although this has not been empirically established and there are past studies that have found benefits after one time and similarly short writing sessions (Smyth and Pennebaker, 2008). The Greenberg *et al.* (Greenberg *et al.*, 1996) study, for example, used a one-time 30-min session. Similarly, it is possible that stronger effects in terms of physical symptoms would have emerged over a greater period of time; although greatest psychological effects are typically seen within a month of emotional expression (Frattaroli, 2006), some studies have seen physical health symptom changes emerge after 8 or even 16 weeks (Smyth *et al.*, 1999). It is also possible that the particular movie clips and script we used (which dealt with the loss of a teenage child) may not have resonated with our sample of college-age students. However, the manipulation check for sad mood after drama reflection suggested that the task was emotionally involving and made the experimental groups sadder compared with the control group.

In media effects research, powerful direct effects are not expected. The lack of direct effects in this study aligns with the perspective of contemporary effects research, which has largely abandoned the 'hypodermic needle model' of mass

communication. Moreover, the non-immediate, indirect effects of drama contemplation on self-regulation and health demonstrate a major strength of this study by ruling out potential alternative explanations of short-term priming effects. In short, the small, indirect effects of *tragic reflection* do not diminish their explanations of the underlying mechanisms of health benefits.

Indirect therapeutic effects

The manner of reflection after drama exposure appears to be important for improving self-regulation and may benefit both psychological health (depressed mood and anxiety) and physical health (self-reported overall health). In the case of insight-gaining cognitions, drama processing led to increased emotional self-efficacy, which in turn was linked to mental health and overall health. Insight word use likely indicated the degree to which meaning-making occurred during the writing task. In the process, participants were likely able to clarify their vicarious affective upheavals regarding the suffering protagonist and gain some understanding and acceptance of those emotions as common human experiences. One participant (ID#100148) alluded to *the human condition* and used a higher than average percent of insight words (4.83), e.g. *think*, *understand* and *reflect*, when contemplating the protagonist Jimmy in *Mystic River*: ‘I think that the way Jimmy handled the event was not just, but *human*. It is only in *human nature* to want revenge on someone who killed their own daughter... while his actions weren’t right, they were *understandable* by *human nature* – this ultimately *reflects* why I feel sympathetic and more *understanding* to Jimmy...’ (authors’ emphases). These findings are consistent with the idea that drama contemplation can elicit psychological coping that enriches audiences’ insight into *the human condition* and, eventually, deepens the understanding of their own lived experience—a process termed *clarification* (Khoo and Oliver, 2013). Thus, the gaining of insights into common humanity through drama processing may have provided this participant with the know-how and cognitive resources to handle future sadness, which was, in turn, therapeutic.

For the case of discrepancy-based contemplations, drama processing led to improved self-compassion, which in turn was also linked to mental health benefits. This finding is consistent with self-discrepancy theory (Higgins *et al.*,

1992), which links self-regulation with health outcomes (Pennebaker and King, 1999) and posits that individuals are motivated to attempt to match their self-concept with a desirable ideal state (Higgins *et al.*, 1992). In keeping with this theory, discrepancy word use during drama processing may represent an attempt to close gaps in self-beliefs by reexamining the actual versus ideal self. Media characters in tragic stories often undergo poor fortunes (e.g. loss of a loved one), punish themselves (e.g. despair or lose hope) and react with flawed choices (e.g. take revenge). In response, audiences often entertain ‘what if’ scenarios as they empathize with the characters and consider how they themselves would think and act (i.e. ideal selves). For example, in the present research, two participants explicitly expressed empathy for the protagonist and used a higher than average percent of discrepancy words (4.37 and 6.27, respectively), e.g. *would*, *should*, and *if*, to entertain ‘what if’ scenarios about how they would ideally think and behave in the shoes of the protagonist. Regarding *Mystic River*, one participant (ID#306122) wrote ‘I *would* feel incredible guilt *if* I punished the wrong person... I can *identify with* the anger that Jimmy felt... I think it is human nature to want revenge... People really just *want* to feel that they are in control of their own fate. This, of course, is impossible... I *should* clarify that this doesn’t upset me; it is comforting in a way’ (author’s emphases). Regarding *In the Bedroom*, one participant (ID#78271119) wrote ‘I know I *would want* revenge and *would* feel extremely angry at Richard, but I *would* not retaliate and murder him. I *would* wait for the court system to fairly try him... My thoughts and feelings were definitely *related to my own life*... It *would* be extremely difficult for me to be patient and wait for the court system/trial but I know that is the right thing’ (author’s emphases). These examples illustrate how participants often appeared to apply the drama to their lived experience, often working through their compassion for a movie character in ways that might translate to self-directed empathy and, with time, better mental well-being.

The downside of inflexible thinking

The use of causation and certainty words during writing predicted a slight, non-significant decrease in self-compassion and, indirectly, a decline in mental health in 4 weeks. The results for causation word use diverge from previous

findings (Pennebaker and King, 1999; Tausczik and Pennebaker, 2010), where the greater use of causal words during autobiographical disclosure was linked to health gains. Though unexpected, the uses of causal (e.g. *how* and *because*) and certainty words (e.g. *very* and *never*) to process fictional drama are likely signposts of rigid thinking and the reinforcement of prior beliefs. For example, one participant (ID# 97042) who used higher than average percentages of causal (3.80) and certainty words (2.36) wrote that aspects of the drama strengthened his/her pre-existing beliefs about injustice in the world: 'I felt extremely sad when Frank got shot. . . [it] made me realize *how* there really is crazy people out there that do dangerous things. This story was *very* sad and frightening. It *reinforced my feelings* of the legal system and *how* killers get away. . . [I] felt pain and sorrow for the characters *because* death is *so* sad and something that *cannot be changed*' (authors' emphases). These expressions are persistently unbending, compared with the more flexible cognitions of insight-gaining and discrepancy-reducing efforts. Reflecting on drama using causation and certainty words can validate one's existing beliefs about life events, but does not foster positive changes to self-regulation. Subsequently, such inflexible thinkers remained uncompassionate towards their own selves. This type of pattern may help explain why contemplating a drama without changes in self-regulation by adopting greater self-kindness was linked to a trend toward slightly decreased mental well-being in this study.

Taken together, these results suggest that the benefits of drama processing could be optimized by promoting the gaining of insights into lived experience and discrepancy reductions in self-beliefs, while minimizing rigid, inflexible thoughts about life events. These findings should be interpreted with caution since our word-use analyses were based on automated counts of the various word categories outside of sentence context. Nevertheless, the strength of these findings are bolstered by the opposing set of results, i.e. benefits on the one hand and slight negative effects on the other, as a function of the category of words used during contemplation. Further, supporting excerpts from participant essays reinforce these findings.

Practical implications

The cognitive strategies for cathartic reflection that are supported by our results may be

applicable to health promotion interventions and everyday coping needs. Joronen *et al.* (Joronen *et al.*, 2012) reported that participation in a high-intensity drama class led to some improvement in social relationship functioning in an education context, and others have incorporated drama or literature into mental health promotion interventions for adults (Dowrick *et al.*, 2012). Moreover, clinical psychologists have been known to use popular films in clinical practice as tools of therapy (Lampropoulos *et al.*, 2004). However, the mechanisms behind the benefits of drama exposure are not well understood. Based on our results, benefits from the therapeutic use of cinematic drama are more likely to arise if adult viewers process the narrative with an openness and willingness to reevaluate their beliefs and, at the same time, avoid the kinds of cognitions that merely deepen pre-existing beliefs about the immutable aspects of human suffering. These beneficial reflections may be accomplished by encouraging viewers to place a greater focus on the human insights and self-questioning that could be gained from the drama and lesser emphasis on perceived certainties and rigid beliefs about *the human condition*.

The enduring popularity of drama at the movies increases its potential utility as everyday coping through entertainment media, especially when social others are absent. Harber and Pennebaker (Harber and Pennebaker, 1992) pointed out that trauma processing can be challenging due to social impediments, such as confidants' inability or unwillingness to listen extensively, and potentially negative effects on listeners who feel powerless to help the victim. Applied to daily coping with life events, an individual may benefit from drama reflection as a mild form of self-therapy when confidants are unavailable. Further, engaging in tragic drama may feel safer than processing autobiographical events, and thus might benefit the individual with a lower cost in psychological distress. Indeed, the benefits of expressive writing may be limited to certain individuals (Frattaroli, 2006), such as people who are more comfortable with writing or conscious emotion expression; in contrast, the popularity of film may make it a more readily accessible treatment strategy for some individuals.

Limitations

Several caveats must be acknowledged. Participants' awareness of the repeated measures of the

dependent variables could not be avoided. Thus, demand characteristics are a possible threat to internal validity. However, a number of health outcome variables were measured, including physical and respiratory symptoms, which did not capture positive changes in health, suggesting that demand characteristics may not have been a problem. Further, as noted above, direct effects of the intervention were not found, perhaps due to limitations in the strength of the manipulation or the sample. In addition to the young age of the present participants, our sample was relatively well functioning as evidenced by the mere 5% presence of self-reported users of mental health drugs, e.g. anti-depressants. A previous study found that direct effects of vicarious processing used only participants who had past trauma (Greenberg *et al.*, 1996).

CONCLUSIONS

The present study helps explain the age-old appeal of tragic drama. Our findings suggest that cognitively processing fictional drama in an experimental intervention (drama exposure plus writing) appeared to promote insight-gaining and critical thinking on complex social issues related to human suffering. Drawing greater insights from drama was associated with increased self-efficacy in handling sadness, which in turn was associated with improved depressed mood, anxiety and perceived overall health. Similarly, greater efforts at questioning life issues depicted in a drama were associated with greater self-compassion, which in turn was also associated with improved depressed mood and anxiety. Thus, our research findings support the importance of emotional self-efficacy and self-compassion in terms of their influence on both mental and overall physical health. More broadly, our results also support the concept of *clarification* in catharsis, whereby drama exposure can indirectly enrich an individual's understanding of *the human condition* and, as a result, his or her own social and emotional life. Tragic drama contemplation is thus a technique worthy of future study that may prove to be an appealing and relatively safe way of stimulating cognitive processing, and, thereby, benefitting self-regulation and well-being.

REFERENCES

- Andresen, E. M., Malmgren, J. A., Carter, W. B. and Patrick, D. L. (1994) Screening for depression in well older adults: evaluation of a short form of the CES-D. *American Journal of Preventive Medicine*, **10**, 77–84.
- Arbuckle, J. L. (2009) *AMOS User's Guide: Version 18.0*. SPSS, Chicago, IL.
- Bandura, A., Caprara, G. V., Barbaranelli, C., Gerbino, M. and Pastorelli, C. (2003) Role of affective self-regulatory efficacy in diverse spheres of psychosocial functioning. *Child Development*, **74**, 769–782.
- Bartsch, A. (2013) Moved to think: the role of emotional movie experiences in stimulating reflective thoughts. In Monika, Suckfüll (Chair) (eds), SCMSI Berlin 2013. Paper Presented at the Conference of the Society for Cognitive Studies of the Moving Image (SCSMI), Berlin, Germany.
- Bentler, P. M. and Stein, J. A. (1992) Structural equation models in medical research. *Statistical Methods in Medical Research*, **1**, 159–181.
- Boals, A. and Klein, K. (2005) Word use in emotional narratives about failed romantic relationships and subsequent mental health. *Journal of Language and Social Psychology*, **24**, 252–268.
- Busselle, R. and Bilandzic, H. (2009) Measuring narrative engagement. *Media Psychology*, **12**, 321–347.
- Byrne, B. M. (2001) *Structural Equation Modeling with AMOS*. Erlbaum, Mahwah, NJ.
- Chandler, H. K. (2002) Factors affecting the relationship between trauma and illness behavior (Dissertation). Virginia Polytechnic Institute and State University, Blacksburg, VA. <http://scholar.lib.vt.edu/theses/available/etd-05102002-083741>. (last accessed 9 June 2011).
- Dowrick, C., Billington, J., Robinson, J., Hamer, A. and Williams, C. (2012) Get into reading as an intervention for common mental health problems. *Medical Humanities*, **38**, 15–20.
- Frattaroli, J. (2006) Experimental disclosure and its moderators: a meta-analysis. *Psychological Bulletin*, **132**, 823–865.
- Green, M. C., Kass, S., Carrey, J., Herzig, B., Feeney, R. and Sabini, J. (2008) Transportation across media: repeated exposure to print and film. *Media Psychology*, **11**, 512–539.
- Greenberg, M. A., Wortman, C. B. and Stone, A. A. (1996) Emotional expression and physical health: revising traumatic memories or fostering self-regulation? *Journal of Personality and Social Psychology*, **71**, 588–602.
- Harber, K. D. and Pennebaker, J. W. (1992) Overcoming traumatic memories. In Christianson, S. (eds), *The Handbook of Emotion and Memory: Research and Theory*. Erlbaum, Hillsdale, NJ, pp. 359–387.
- Higgins, E. T., Vookles, J. and Tykocinski, O. (1992) Self and health: how 'patterns' of self-beliefs predict types of emotional and physical problems. *Social Cognition*, **10**, 125–150.
- Hu, L. T. and Bentler, P. M. (1998) Fit indices in covariance structure modeling: sensitivity to underparameterized model misspecification. *Psychological Methods*, **3**, 424–453.
- Joronen, K., Konu, A., Rankin, H. S. and Åstedt-Kurki, P. (2012) An evaluation of a drama program to enhance social relationships and anti-bullying at elementary school: a controlled study. *Health Promotion International*, **27**, 5–14.
- Khoo, G. S. and Oliver, M. B. (2013) The therapeutic effects of narrative cinema through clarification: reexamining catharsis. *Scientific Study of Literature*, **3**, 266–293.

- Lampropoulos, G. K., Kazantzis, N. and Deane, F. P. (2004) Psychologists' use of motion pictures in clinical practice. *Professional Psychology: Research and Practice*, **35**, 535–541.
- Lepore, S. J. and Greenberg, M. A. (2002) Mending broken hearts: effects of expressive writing on mood, cognitive processing, social adjustment and health following a relationship breakup. *Psychology and Health*, **17**, 547–560.
- Marteau, T. M. and Bekker, H. (1992) The development of a six-item short-form of the state scale of the Spielberger State-Trait Anxiety Inventory (STAI). *The British Journal of Clinical Psychology*, **31**, 301–305.
- Neff, K. D. (2003a) The development and validation of a scale to measure self-compassion. *Self and Identity*, **2**, 223–250.
- Neff, K. D. (2003b) Self-compassion: an alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, **2**, 85–101.
- Neff, K. D., Kirkpatrick, K. L. and Rude, S. S. (2007) Self-compassion and adaptive psychological functioning. *Journal of Research in Personality*, **41**, 139–154.
- Oliver, M. B. (2008) Tender affective states as predictors of entertainment preference. *Journal of Communication*, **58**, 40–61.
- Oliver, M. B. and Bartsch, A. (2010) Appreciation as audience response: exploring entertainment gratifications beyond hedonism. *Human Communication Research*, **36**, 53–81.
- Oliver, M. B. and Raney, A. A. (2011) Entertainment as pleasurable and meaningful: differentiating hedonic and eudaimonic motivations for entertainment consumption. *Journal of Communication*, **61**, 984–1004.
- Park, C. L. (2010) Making sense of the meaning literature: an integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, **136**, 257–301.
- Pennebaker, J. W. and Chung, C. K. (2011) Expressive writing: connections to physical and mental health. In Friedman, H. S. (eds), *Oxford Handbook of Health Psychology*. Oxford University Press, New York, NY, pp. 417–437.
- Pennebaker, J. W. and King, L. A. (1999) Linguistic styles: language use as an individual difference. *Journal of Personality and Social Psychology*, **77**, 1296–1312.
- Pennebaker, J. W., Colder, M. and Sharp, L. K. (1990) Accelerating the coping process. *Journal of Personality and Social Psychology*, **58**, 528–537.
- Pennebaker, J. W., Mayne, T. J. and Francis, M. E. (1997) Linguistic predictors of adaptive bereavement. *Journal of Personality and Social Psychology*, **72**, 863–871.
- Pennebaker, J. W., Booth, R. J. and Francis, M. E. (2007) *Linguistic Inquiry and Word Count: LIWC2007—Operator's Manual*. LIWC.net. http://homepage.psy.utexas.edu/homepage/faculty/Pennebaker/reprints/LIWC2007_OperatorManual.pdf. (last accessed 3 March 2012).
- Perpiñá-Galvañ, J., Richart-Martínez, M. and Cabañero-Martínez, M. J. (2011) Reliability and validity of a short version of the STAI anxiety measurement scale in respiratory patients. *Archivos de Bronconeumología*, **47**, 184–189.
- Smyth, J. M. (1998) Written emotional expression: effect sizes, outcome types, and moderating variables. *Journal of Consulting and Clinical Psychology*, **66**, 174–184.
- Smyth, J. M. and Pennebaker, J. W. (2008) Exploring the boundary conditions of expressive writing: in search of the right recipe. *British Journal of Health Psychology*, **13**, 1–7.
- Smyth, J. M., Stone, A. A., Hurewitz, A. and Kaell, A. (1999) Effects of writing about stressful experiences on symptom reduction in patients with asthma or rheumatoid arthritis. *JAMA: The Journal of the American Medical Association*, **281**, 1304–1309.
- Swanbon, T., Boyce, L. and Greenberg, M. A. (2008) Expressive writing reduces avoidance and somatic complaints in a community sample with constraints on expression. *British Journal of Health Psychology*, **13**, 53–56.
- Tausczik, Y. R. and Pennebaker, J. W. (2010) The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology*, **29**, 24–54.
- Turner-Bowker, D. M., Bayliss, M. S., Ware, J. E. and Kosinski, M. (2003) Usefulness of the SF-8 health survey for comparing the impact of migraine and other conditions. *Quality of Life Research*, **12**, 1003–1012.
- Ullrich, P. M. and Lutgendorf, S. K. (2002) Journaling about stressful events: effects of cognitive processing and emotional expression. *Annals of Behavioral Medicine*, **24**, 244–250.