A Meta-Analysis of Expressive Writing on Positive Psychology Variables

Emotional expression, especially focusing on negative emotions or trauma, has been shown to increase both mental and physical health (Rachman, 1980; Scheff, 1979; Esterling, Antoni, Kumar, & Schneiderman, 1990; Fawzy et al., 1993; Lieberman & Goldstein, 2006). Inhibiting repressive thoughts or emotions can be can be detrimental to both physical and psychological health (Gross & Levenson, 1997, Goldstein, Edelberg, Meier, & Davis,

1988; Larson, 1990). Furthermore, individuals experiencing traumatic events are more likely to repress thoughts and feelings about a given traumatic experience. Generally, preventing the disclosure of harmful thoughts and feelings can be harmful to individuals, while disclosing these events can reduce stress and lead to various positive health outcomes, such as with diabetes (Bodor, 2002) and breast cancer related illnesses (Stanton et al., 2002). These repressive maneuvers have the capability to lead to social concerns and overall psychological dysfunction (Pennebaker, 1989; Pennebaker & Beall, 1986). Psychological dysfunction can have detrimental effects on an individual’s health, including unhealthy everyday life habits such as low activity levels, lower quality of life, and inability to progress after a traumatic event. These effects on health could lead to biological problems, especially immune system and neurotransmitter deficiencies (Pennebaker & Beall, 1986). Therefore, it is important to identify ways in which individuals can effectively expressive emotion, thereby improving both physical and psychological health.

Pennebaker and Beall (1986) first showed that emotional expression can be both experimentally manipulated and have positive benefits to participants. In their seminal study, they randomly assigned participants to several writing groups including writing about an experienced trauma or a neutral event. The group that disclosed both about their trauma and the emotions surrounding that trauma later showed a reduction in health visits. Pennebaker has replicated the use of expressive writing (i.e., a written paradigm in which one writes about emotions) across a number of studies ranging from improving health (Pennebaker, Kiecolt-Glaser, & Glaser, 1988; Pennebaker, Colder, & Sharp, 1990) to improvements in school (Pennebaker & Francis, 1996) and work (Francis & Pennebaker, 1992). Others have expanded this work to show positive effects on mood (Schoutrop et al., 2002) and asthma (Smyth et al., 1999); however, several controlled studies have shown to not replicate (Harris, Thoresen, Humphreys, & Faul, 2005) or null effects (Gidron et al., 1996, Walker et al., 1999).

The idea that a brief, controlled writing intervention can have numerous positive health and psychological benefits can certainly be controversial, especially when recent studies show contradicting results. For example, Henry, Schlegel, Talley, Molix, and Bettencourt (2010) found that expressive writing only benefited a rural population for those individuals surviving breast cancer, while Lancaster, Klein, and Heifner (2015) found no significant evidence that expressive writing can be considered an effective approach. However, the concept remains interesting due to the nature and inexpensive implementation of expressive writing. Many individuals who have experienced traumatic events do not wish to disclose their feelings regarding the events with others. However, by utilizing expressive writing as a personal method of treatment, individuals are able to effectively express their emotions while avoiding talking to another individual about the traumatic event (Smith, 1998?). Pennebaker (1993) found that experimental conditions assigned to participate in an expressive writing task generally report more positive changes than those in control conditions. Some controversy has been observed over whether or not writing about a formerly disclosed event is more effective than writing about an undisclosed event. Greenberg and Stone (1992) conducted an experiment where they separated participants into three groups: writing about a formerly disclosed trauma, writing about an undisclosed trauma, and a control group. They found no difference between groups in effectiveness.

In order to understand why expressive writing is considered to be effective, one must examine how the intervention allows an individual to process information. Pennebaker (1990) discovered that individuals who had benefited from expressive writing attributed their success due to ways in which the intervention allowed them to understand what had happened to them. Furthermore, in an additional study, Pennebaker (1993) conducted a textual analysis on expressive writing content and found that those who were more successful during the intervention used words that can be categorized as causation words. Pennebaker attributed this as an individual effectively processing the event in their own mind. Aside from cognitive-processing and inhibition theories, there are a number of other theories that researchers have used to explain emotional disclosure. The first theory that warrants explanation is the social integration model (Pennebaker & Graybeal, 2001). This model discusses how emotional disclosure can have a positive impact on how people interact in their environment. This increased environmental interaction can then have positive health benefits on health (Frattaroli, 2006). Finally, exposure theory parallels exposure therapy for a variety of phobias and posttraumatic stress disorder, which suggests that repeatedly exposing oneself to the seemingly anxious thought or trauma can reduce the anxiety, fear, or stress associated with that event.

**Meta-Analytic Techniques**

Recent advancements in statistical analyses have allowed researchers the opportunity for researchers to objectively examine the effectiveness of different psychological interventions on outcome variables (Glass, 1976; Borenstein cite, Hedges cite). Although many studies produced positive outcomes associated with expressive writing, some of these studies tend to neglect important questions, the most important of which is whether or not the effect sizes are meaningful (Smyth, year). Meta-analyses are a technique that allow researchers to pool studies to examine an overall, weighted, population effect (Borenstein). Several meta-analyses of expressive writing and emotional expression have been explored: Smyth (year), Frisina et al. (year), and Frattaroli (year), which have laid a foundation for exploring the effects of writing on psychological outcomes. For our purposes, we use Cohen’s (year) standards for nomenclature for small (0.20), medium (0.50), and large (0.80), although it is important to note that Cohen himself suggested that these values should be based on the area of study.

The meta-analysis conducted by Smyth et al. (year) found an overall medium effect size, *d* = 0.47, for the experimental group compared to the control group. This particular anaylsis examined the effectiveness of expressive writing on psychological well-being, general health, and physical functioning. In 2004, Frisina et al. expanded these analyses and found that expressive writing had a small to no effect on health outcomes, weighted *d* = 0.07 to *d* = 0.21. In this study, effect sizes were averaged across each individual paper to create an overall effect size for each paper, again comparing experimental and control groups. Both of these studies were small in nature, using only 12-14 studies. Newer methods of meta-analysis, including *p*-curve (Simonsohn, Nelson, & Simmons, 2014; Simonsohn, Simmons, & Nelson, 2015), PET-PEESE (Stanley & Doucouliagos, 2014), selection models (Vevea & Hedges, 1995), and trim and fill methods (Carter & McCullough, 2014) allow for better estimation of meta-analytic effect sizes and corrections for potential publication bias. These analyses would be best performed by examining each potential effect separately, rather than averaging effects of each publication into one study effect size.

Additionally, Frattaroli (2006) also conducted a meta-analysis to examine the effects of emotional disclosure on a variety of variables such as psychological health, physiological functioning, reported health, health behaviors, subjective impact of intervention, and general functioning/life outcomes. This meta-analysis differentiates from the meta conducted by Smyth et al. (year) in that it utilizes random effects modeling in order to calculate effect sizes. The current meta-analysis includes both random and fixed effects models for comparison. Fixed effects models assume that all studies assess the same “true” population effect size, which may be an untenable assumption across different assessments and populations (Boreinstein, Hedges, Rothstein, that online paper thing). Random effects models estimate the mean of a proposed distribution of population effect sizes, which may vary by subject type or research design. Overall, Frattaroli (2006) found a weighted *r*-effect size of .08 for all outcomes combined, which would be considered small. This meta-analysis included a very large range of studies, *N* = 146, but individual studies were again collapsed into one publication effect size, although these effects were also examined separately by health outcome.

An additional criticism of the previous meta-analyses is the focus on experimental versus control group effect sizes, rather than emphasizing change for an intervention group. This focus is likely because of the analyses provided in these publications, especially when using randomized controlled trial research design. While this design is the gold standard for medicine, the effects of comparing control groups versus experimental groups may mask the usefulness of the change for the intervention group. For example, a comparison group may increase their quality of life scores by two points in a controlled study, while the experimental group increases their quality of life scores by four points; thus, creating a significant difference in change between the two groups. This information is valuable, but does not tell us the magnitude of the change for the intervention group, wherein four points might only be a small effect when examined within the group who received the intervention. This study will focus on changes across time for groups who received the expressive writing task to determine what size of effects one might expect given a specific measurement schedule (i.e. one to three months, three months to six months, etc.).

Expressive writing tasks fit well within the framework of different psychological interventions and can be adapted for treatment, which is why the literature includes many different studies looking at a multitude of variables. However, it is important to focus on individual variables in order to determine the effectiveness of expressive writing for specific diagnoses and psychopathology. As previously mentioned, some studies have found long-term benefits of expressive writing on psychological well-being (Park & Blumberg, 2002). However, other studies, such as the research completed by Lancaster et al. (2015), have found no evidence supporting the utilization of expressive writing as an effective therapeutic approach. Thus, it is necessary to evaluate the effectiveness of expressive writing on specific outcome variables, and we chose to focus specifically on posttraumatic stress, posttraumatic growth, and quality of life, in line with the current positive psychology trend. By focusing on specific outcome variables, rather than specific patient or study characteristics (which are covered extensively in Frattaroli), we can examine how effective writing can be for changing stress and positive psychology phenonemena as described below.

**Posttraumatic Stress**

Posttraumatic Stress Disorder (PTSD) is a disorder involving reoccurring thoughts or experiences after a traumatic event or experience. The diagnosis is based on 20 symptoms structured into four different subsets. These subsets are as follows: re-experiencing, avoidance, negative alterations in cognition and mood, and arousal (Crespo & Gomez, 2016). PTSD is concerning disorder, specifically among Iraq and Afghanistan war veterans (Gentes et al., 2014). Research conducted on the effectiveness of expressive writing on PTSD symptoms has been less successful and shows outcomes that are not as effective as other studies (Sloan, Marx, & Greenberg, 2011). Di Blasio et al. (2015) suggested that those meeting the criteria for moderate PTSD benefit more from expressive writing interventions as opposed to those with greater PTSD symptoms.

**Posttraumatic Growth**

While the literature mostly discusses potentially harmful outcomes to traumatic events such as emotional distress, traumatic events also provide opportunities for personal growth. Models receiving empirical support within the last decade suggest that traumatic events offer opportunities for both negative and positive experiences (Tedeschi & Calhoun, 1995; Weiss, 2002). Posttraumatic growth (PTG) is a positive experience after a traumatic event (Yilmaz & Zara, 2016). Posttraumatic growth has been studied in those experiencing natural disasters, war, and other self-inclicted harms such as sexual assault. Finally, posttraumatic growth has been studied in those experiencing medical diagnoses such as different types of cancer and diseases. Expressive writing has been shown to be an effective method for reducing psychological distress among those suffering from trauma (Sloan, Marx, Epstein, & Lexington, 2007).

**Quality of Life**

Quality of Life (QOL) is another positive outcome variable that is worth examining with expressive writing interventions. QOL is described as a concept comprised of multiple domains, both subjective and objective. Objectively, QOL is a measure of the extent to which an individual’s needs are met. Subjectively, QOL measures an individual’s attitude towards their given situation (Costanza et al., 2007). Pennebaker and Graybeal (2001) suggested that expressive writing allows one to feel more connected with their surroundings. Furthermore, they explain that expressive writing allows people to see things in a different way and better understand themselves. By understanding a traumatic event, one is able to see things differently and perhaps look at the situation with a more positive mindset. The changes that occur after expressive writing may also allow one to find meaning in the traumatic event, thereby increasing the QOL of that individual (Frankl, 1984). Higher QOL may be considered a type of PTG, which is why we thought to examine the effectiveness of studies utilizing expressive writing to improve QOL and PTG in the same study.

**Current Meta-Analysis/Power Analyses**

The purpose of this meta-analysis is to examine studies utilizing expressive writing on positive outcome variables and posttraumatic stress. Due to inconsistent results in current studies published and outdated meta-analyses, it is important to clarify the effectiveness of expressive writing on promoting positive change after a traumatic event, improving overall quality of life, and reducing posttraumatic stress. This meta-analysis will provide researchers with a collected look at the use of expressive writing to promote increased posttraumatic growth, increased quality of life, and decreased posttraumatic stress. This particular meta-analysis examines studies of patients with different types of psychopathology and medical diagnoses on PTG, QOL, and PTS. The main focus of this study is to examine PTG, QOL, and PTS, by estimating effect sizes of experimental groups assigned to participate in the expressive writing intervention using newer techniques that have not been implemented in previous research.

1) Surely, there are conflicting results in some studies, but the authors need to be careful exactly what claims they are making. Also, it is important to distinguish between expressive writing as a stand alone psychological intervention vs. expressive writing as a strategy or exercise meant to facilitate emotional coping or behavior change.

2) What specific PTG variables are the authors interested in measuring? Please operationally define each of the variables that are expected to change as a result of emotional expression, what type of emotional expression is being invoked (as there are many adaptations) and what theory is believed to explain why one would expect PTG to change as a result of emotional expression. Specificity and operationalization of terms is needed.

3) Likewise clarify the distinction between objective and subjective QOL. That distinction is not clear as written in that section. The authors suggest that QOL encompasses multiple domains. Explain clearly what those domains are and how they are to be measured. For example, health-related QOL, interpersonal QOL?

4) Again, what specific PTG and QOL variables are expected to change in response to expressive writing?

5) From a theoretical perspective, why are the PTG and QOL expected to change. The authors need to provide a strong rationale for why PTG and QOL are expected to change.