

SURVIVING AND THRIVING: EVALUATIONS OF THREE INTERVENTIONS  
FOSTERING WELL BEING AND GROWTH IN THE FACE OF ADVERSITY

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A DISSERTATION

in

Psychology

Presented to the Faculties of the University of Pennsylvania

in

Partial Fulfillment of the Requirements for the

Degree of Doctor of Philosophy

2016

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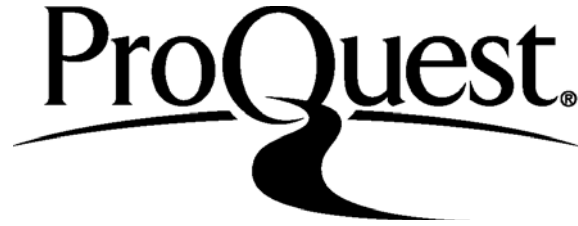
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## ACKNOWLEDGMENT

I am deeply grateful to all those who have supported my professional development and graduate research. I greatly appreciate my advisor, Martin Seligman, for offering me countless opportunities, trusting and supporting my intellectual independence, and helping me to think more deeply and more broadly about our work. I am extremely grateful to the members of my dissertation committee, Dianne Chambless and Angela Duckworth, for their invaluable advice and guidance. Sara Jaffee deserves my heartfelt thanks for her expert guidance and support of the randomized controlled trial of SuperBetter.

This research was made possible through the support of a grant from the John Templeton Foundation, through the Judith Rodin Fellowship, and through the generous donation of Ms. Elizabeth F. Silverman. I greatly appreciate these donors' financial support as well as their enthusiasm for my work. The opinions expressed in this dissertation are mine and do not necessarily reflect the views of the funders.

I have been privileged to work with collaborators who are not only accomplished experts but also wonderful people and dear friends. Marie Forgeard has been my mentor and big sister, and I am deeply grateful for her guidance and her friendship. Eli Tsukayama has been extremely generous in sharing his valuable expertise on statistical analysis. Eranda Jayawickreme and Laura Blackie have enriched my thinking about posttraumatic growth and have been insightful and supportive collaborators. I have been honored to work on the SecondStory intervention with Moriah Brier and Kelly Allred,

brilliant clinicians and cherished friends whose warmth and insight have made a difference to me and to our participants. Judy Saltzberg-Levick's wise guidance of the SecondStory evaluation has been much appreciated. I could not have asked for better collaborators on the SuperBetter study than the creative, brilliant, and passionate team at SuperBetter Labs: Jane McGonigal, Rose Broome, and Bez Maxwell. I also deeply appreciate James Pawelski for the many insightful and supportive conversations that have advanced my work. Olivia Riffle, Lizbeth Benson, and David Yaden have also been superb collaborators and I look forward to following their contributions to our field as they advance in their own studies.

I have been fortunate to train with talented clinicians and facilitators who have shaped my professional development over the years: Melissa Hunt, Alan Goldstein, David Yusko, Elna Yadin, Virginia O'Hayer, Thomas Litwicki, Barbara Bixby, Patricia Manning, and Robert Rhodes. These insightful, intelligent, compassionate people have helped me to understand and appreciate people's potential for positive change and have inspired me to seek new ways to catalyze that change.

I deeply appreciate all the others who have supported and influenced my work. Jeanette Elstein, Phoebe Wang, Farah Albreiki, Samarth Shrivastava, and Kerry Traub have been my #PrettyTerrificGroup and I could not have hoped for a better PTG research support team. Elizabeth Hyde, Elana Furman, and Liwei Xu were great assets to earlier studies. Margaret (Peggy) Kern was a kind and instrumental mentor in my first years in this field. Rob DeRubeis, Karen Reivich, William Fleeson, and Marc Schulz contributed

to my understanding of intervention design and evaluation. I am also gratefully indebted to my labmates, friends, and fellow graduate students and psychologists, among them: Allison Nahmias, Isaac Schamberg, Betty Kim, Jack Keefe, Lorenzo Lorenzo-Luaces, Gwen Lawson, Lauren Brumley, Lauren Eskreis-Winkler, Johannes Eichstaedt, Pavel Atanasov, Marina Dimova, Maarten Sap, Laura Smith, Gordon Bermant, and Rebecca Woo. I also gratefully acknowledge Michael Callahan, for contributing his creative thinking and artistic talent to the SecondStory project, and Ryan Miller, for magically helping me to fit impossibly large amounts of work into impossibly small blocks of time. I also appreciate the team working behind the scenes at the Positive Psychology Center and making our research possible, among them: Peter Schulman, Linda Newsted, Sam Buchl, and Jill Chivers.

With love, I thank my mother, Judie Travers. With love, I thank my father, Kenneth Roepke, and dedicate this work to him.

**ABSTRACT****SURVIVING AND THRIVING: EVALUATIONS OF THREE INTERVENTIONS  
FOSTERING WELL BEING AND GROWTH IN THE FACE OF ADVERSITY**

Ann Marie Roepke

Martin E. P. Seligman

It is easy to imagine how positive psychology (the science of human flourishing) applies to people who are already doing well and wish to do better. It is less obvious how to apply positive psychology in negative contexts: Can positive psychology concepts and strategies help people flourish in the face of mental illness, trauma, and loss? The current investigation presents findings from three randomized trials of interventions informed by positive and clinical psychology, which aim to help people survive and thrive in the face of highly challenging circumstances: depression, mixed traumatic and adverse events, and bereavement. Chapter 1 summarizes the findings of a randomized controlled trial evaluating a smartphone-based/web-based application (*app*) that integrates clinical and positive psychology strategies with game mechanics in order to alleviate depression symptoms. Results indicated that the app reduced symptoms of depression (in comparison to a waiting list control) and that there were no significant differences between two versions of the app. Chapter 2 summarizes the findings of a randomized controlled trial evaluating an online writing-based intervention aimed at fostering posttraumatic growth (PTG) after adverse events. This intervention, called prospective writing, prompts participants to seek new doors opening in their lives in the wake of loss

and trauma. Results indicated that prospective writing fostered PTG for people with recent and long-ago trauma/loss, and mediation analyses suggested that attending to new possibilities was indeed the mechanism for this change. Chapter 3 describes the creation and initial testing of a group-format psychosocial intervention aimed at fostering PTG. Acceptability and feasibility analyses of the data (from an ongoing randomized trial) indicated that bereaved adult participants found this intervention helpful, engaging, inoffensive, and not overly upsetting; that they appreciated diverse intervention modules; and that they would recommend the intervention to other bereaved people. Collectively, these findings underscore the usefulness of positive psychology in negative contexts and suggest further research into intervention strategies that can help suffering people to not only survive but also thrive in the wake of adversity.



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### CHAPTER 3

Appendix A: Coding Guidelines for Participants' Open-Ended Responses (Study 2)

**CHAPTER 1****Randomized Controlled Trial of SuperBetter, a Smartphone-based/Internet-based  
Self-Help Tool to Reduce Depressive Symptoms**

## Abstract

Technological advances have sparked the development of computer- and smartphone-based self-help programs for depressed people, but these programs' efficacy is uncertain. This randomized controlled trial evaluated an intervention called SuperBetter (SB), which is accessed via smartphone and/or the SB website. Online, we recruited 283 adult iPhone users with significant depression symptoms according to the Center for Epidemiological Studies Depression questionnaire (CES-D). They were randomly assigned to one of three conditions: (a) a SB version employing cognitive-behavioral therapy and positive psychotherapy strategies to target depression (CBT-PPT SB); (b) a general SB version focused on self-esteem and acceptance (General SB); or (c) a waiting list control group (WL). The two SB groups were instructed to use SB for ten minutes daily for one month. All participants completed psychological distress and well-being measures online every two weeks through follow-up. An intent-to-treat analysis was conducted using hierarchical linear modeling. As hypothesized, SB participants achieved greater reductions in CES-D scores than WL participants by posttest (Cohen's  $d = 0.67$ ) and by follow-up ( $d = 1.05$ ). Contrary to prediction, CBT-PPT SB did not perform better than General SB; both versions of SB were more effective than the WL control. Differences between SB versions favored General SB but were not statistically significant. These large effect sizes should be interpreted cautiously in light of high attrition rates and the motivated, self-selected sample. Nonetheless, smartphone-based/Internet-based self-help may play an important role in treating depression.

## Randomized Controlled Trial of SuperBetter, a Smartphone-based/Internet-based Self-Help Tool to Reduce Depressive Symptoms

Technological advances have sparked the development of computer- and smartphone-based tools aimed at promoting mental health (Barak & Grohol, 2011; Jorm, Morgan, & Malhi, 2013). These tools can augment conventional depression treatment (Jorm et al., 2013; Meglic, Ivanovski, & Marusic, 2008) by making therapy homework more convenient and engaging, by serving as a minimally invasive intervention for people with mild symptoms (Jorm et al., 2013; Espie, 2009), and by offering treatment where it has been unavailable. 350 million people suffer from depression, yet fewer than half are treated, and about 30% of those treated do not fully recover (World Health Organization, 2012; Rupp, Gause, & Regier, 1998). High-tech tools present exciting opportunities to address these problems, but do they work?

### **Efficacy of Computer- and Smartphone-Based Interventions**

Online cognitive-behavioral therapy programs can alleviate depression (Spek et al., 2007; Andersson & Cuijpers, 2009; Richards & Richardson, 2012), whether they are self-directed (e.g., Powell, Hamborg, Stallard, Burls, & McSorley, 2013), therapist-guided (e.g., Kenter, Warmerdam, Brouwer-Dudokdewit, Cuijpers, & van Straten, 2013), or video chat-based (Santhiveeran & Grant, 2005). These programs' effect sizes are small to moderate for self-reported depression, with Cohen's  $d$  ranging from 0.20 - 0.37 (Andersson & Cuijpers, 2009; Richards & Richardson, 2012). Their efficacy is perhaps unsurprising, as these programs closely follow traditional therapy, psychoeducation, and/or bibliotherapy models.



Mobile platforms have enabled novel, creative applications of traditional treatment strategies. Mobile applications (apps) have multiple advantages: they are convenient, engaging, user-friendly, personalized, and self-paced. Framed as games, apps become potentially powerful tools to promote well-being. *Serious games* are games designed to achieve goals beyond entertainment, such as improved health, cognition, and education (Michael & Chen, 2005). Indeed, playing games is associated with improved mood and decreased physical stress (Russoniello, O'Brien, & Parks, 2009) and improved knowledge, attitudes, and behaviors toward health and exercise (Papastergiou, 2009). Additionally, games can build supportive communities through chatrooms, forums, and social networking (Schott & Hodgetts, 2006).

Although well-being apps and serious games have proliferated, their impact is unclear as few have been rigorously evaluated (see Burns, Webb, Durkin, & Hickie, 2010; Merry et al., 2012). Researchers and app developers can collaborate to identify and evaluate apps with potential to relieve depression and enhance well-being.

### **The Present Study**

SuperBetter (SB) is an innovative smartphone- and Internet-based tool that uses game mechanics to increase users' drive to accomplish challenging goals, and to build social support through online discussion forums and Facebook integration. The University of Pennsylvania and SuperBetter Labs, LLC, collaborated to conduct a randomized controlled trial of SB's ability to relieve depression. A version of SB was developed to specifically target depressive symptoms using principles from successful established therapies, namely, cognitive-behavioral therapy (CBT; Beck, 2005; Hollon &

Ponniah, 2010) and positive psychotherapy (PPT; Seligman, Rashid, & Parks, 2006).

This version (“CBT-PPT SB”) was evaluated alongside an existing version of SB (“General SB”), not specifically designed for depression. General SB includes activities aimed at self-esteem and acceptance of the present. Both SB versions were compared to each other and to a waiting list control group.

We anticipated that SB use would result in decreased depression. We expected CBT-PPT SB to provide the greatest benefit, given its basis in established interventions for depression. According to the cognitive theory of depression (Beck, 1979), participants should benefit from learning cognitive restructuring techniques that help them identify and correct distorted, negative thoughts about the self, world, and future. In addition, participants should benefit from behavioral activation, a well-established technique that alleviates depression by increasing daily experiences of pleasure and mastery (Cuijpers, Van Straten, & Warmerdam, 2007). Finally, PPT has been found to alleviate depression symptoms by increasing positive emotions, meaning, and engagement (Seligman, Rashid, & Park, 2006).

We expected General SB to confer a more modest benefit. First, it should benefit participants by facilitating so-called *common factors* such as positive expectancy and social support (Asay & Lambert, 1999). Second, activities focused on self-esteem should benefit participants by addressing depressive self-devaluation (Beck, 1979). Finally, third-wave CBT approaches have recently highlighted the value of acceptance-based treatment strategies (Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

In addition, we expected that SB use would impact secondary outcomes. We anticipated that SB would diminish participants' anxiety, given the comorbidity of depression and anxiety as well as the commonalities in treatment approaches for depression and anxiety symptoms. We also anticipated that SB would raise participants' overall life satisfaction, self-efficacy, and perceived social support, as SB was designed to empower participants to make positive changes in their lives and to connect with others. We did not hypothesize that either version of SB would prove superior with regard to these secondary outcomes.

Thus, we tested three hypotheses: (a) Participants using SB will experience greater improvements in depression symptoms compared to waiting list participants (WL); (b) Participants using CBT-PPT SB will experience greater improvements in depression symptoms compared to those using General SB; (c) Participants using SB will experience greater improvements in secondary outcomes (anxiety, life satisfaction, self-efficacy, and social support) compared to WL participants.

## **Method**

### **Participants**

Eligible participants were iPhone owners (as SB was available only on iOS) aged 18 or over, meeting the criterion score for clinically significant depression (16 or higher) on the CES-D (Radloff, 1977; see Table 1). A priori power analyses, completed using the software G\*Power, indicated that at least 207 participants would be needed to detect a small effect in a repeated-measures design testing a within-between interaction (e.g., a

*time X condition* interaction)<sup>1</sup>. Participants ( $N = 283$ ) were recruited online between November, 2012 and March, 2013 through announcements on the Penn Authentic Happiness website and the Craigslist.org community bulletin board. The announcement guided potential participants to Qualtrics.com where they completed a CES-D screening and baseline assessment.

Enrollment and random assignment were completed in an automated fashion on the Qualtrics website. After completing the baseline assessment, participants were randomly assigned to one of three conditions (using the automated Block Randomizer in Qualtrics): CBT-PPT SB, General SB, or WL. Participants were aware of whether they were assigned to SB or WL, but SB participants were not aware of the version they received, or of our specific hypotheses. (Astute participants with knowledge of existing therapies may have recognized the CBT and PPT components of the CBT-PPT version.) Information on participant flow is provided in Figure 1.

## **Procedure**

This protocol was approved by the Institutional Review Board (i.e., human ethics committee) at the University of Pennsylvania (protocol #816882).

**Intervention content.** CBT-PPT SB targeted depression with two sets of activities. These participants first downloaded content adapted from PPT (Seligman et al., 2006): (a) the 3 Good Things intervention, (b) identification of personal strengths with the Values in Action Inventory (Park, Peterson, & Seligman, 2004), and (c) guidance on using strengths in new ways. Upon completion, they were then asked to

<sup>1</sup> Assuming  $\alpha$  error probability = 0.05 and power ( $1 - \beta$  error probability) = 0.80, with a correlation of 0.40 among repeated measures.

download content adapted from two classic CBT interventions: (a) cognitive restructuring (replacing depressive thoughts with adaptive ones) and (b) behavioral activation (planning and carrying out activities that provide pleasure and mastery).

The General SB program focused on self-esteem and acceptance of the present. For instance, participants were asked to “practice being present” (notice surroundings, breathe deeply, etc.), collect a list of “awesome qualities” others attribute to them, or find a piece of art or music that reminds them to accept life’s ups and downs. See Figure 2 for SuperBetter screenshots.

The two versions of SB were otherwise similar. SB users interacted with a game-like platform and were invited to describe a goal (an *epic win*; here, overcoming depression), take recommended steps toward this goal (*quests*), complete recommended mood-boosting activities (*power-ups*), directly address specific obstacles (*battle bad guys*), and enlist social support if desired (invite *allies*). SB users earned points and “leveled up” as they progressed through these activities.

WL participants did not complete any prescribed intervention. They were asked only to complete surveys at two, four, and six weeks (as SB participants did also). All participants were free to concurrently use other treatment strategies (e.g., psychotherapy, coaching, and/or medication). Data about such activities were collected at each time point, and used as time-varying covariates in analyses.

**Intervention procedure.** Both SB groups were instructed to use SB for at least ten minutes per day for one month, as previous literature suggests that interventions lasting  $\leq 4$  weeks can effectively reduce depression symptoms (Sin & Lyubomirsky,

2009). The intervention was targeted to occur on the SB iPhone app but participants could also use the SB website on their personal computers.<sup>2</sup> They were encouraged to use the forum and recruit Facebook social support (“allies”), which was optional in order to protect privacy and confidentiality.

**Measurement procedure.** Data collection occurred online via Qualtrics surveys and via participants’ iPhones/computers. (SB Labs automatically logged app usage data, such as number of log-ins and what content was downloaded.) Participants engaged in the intervention and surveys in a self-directed manner at their location and time of choice. No incentives were used to increase compliance, but email reminders were sent at two-, four-and six-week assessment intervals. Data collection lasted through May 2013; the study concluded when the target enrollment was surpassed and the final wave of participants completed their six-week follow-up assessments.

### **Measures**

Participants completed a total of four online surveys, each at two-week intervals (baseline, midpoint, posttest, and follow-up). The survey contained the measures and questions detailed in Table 1. The CES-D (Radloff, 1977) was used to assess the primary outcome variable, depression at posttest. The CES-D is a valid measure of depression symptoms for both psychiatric populations and community samples (Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977) and proved reliable in this study

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<sup>2</sup> The SB app may be somewhat easier to use than the web version, mainly because participants have their mobile phones accessible when completing SB actions. Thus, they can record their actions in the app immediately. Also, fewer clicks are needed to record each action in the mobile app. On the other hand, some players prefer the accessibility of larger screens generally used with the web version. However, content and text are identical across versions, and other differences are minor.

(Cronbach's  $\alpha = 0.86$ ). Participants also reported demographic traits: race/ethnicity, gender, age, and education level.

### **Data Analysis**

**Preparatory analyses.** We first examined the data distributions and checked that the assumptions of our intended analytic methods were met. We tested for differences in demographic and/or psychosocial variables between conditions at baseline, using *t*-tests and one-way ANOVAs (for continuous variables) and chi-square tests (for categorical variables). When significant differences were detected, these variables were used as covariates in the main analyses.

We also examined whether intervention usage or fidelity differed across conditions, and discovered that it did: 54.41% of participants using CBT-PPT SB ( $n = 37$ ) downloaded only PPT content and did *not* download or use the CBT content. (Unlike CBT-PPT SB, which comprised these two separate downloads at distinct time points, the General SB condition required only one download to receive all content.)

**Missing data.** We retained 41.34% of the original sample at midpoint ( $n = 117$ ), 26.15% at posttest ( $n = 74$ ), and 18.34% at follow-up ( $n = 52$ ), an attrition rate typical for Internet-based intervention research (Eysenbach, 2005). Participants who stayed in the study through posttest were more satisfied with SB ( $M = 5.26$ ,  $SD = 1.14$ ) than those who did not ( $M = 4.24$ ,  $SD = 1.79$ ),  $t(49) = -2.51$ ,  $p = .02$ ,  $d = 0.68$ . WL participants were less likely to have dropped out by posttest than either of the other groups,  $\chi^2(2, N = 283) = 11.53$ ,  $p = .003$ . Missing data were accounted for using intent-to-treat (ITT) analyses

estimated with the maximum likelihood method in a hierarchical linear modeling framework.

**Hierarchical linear modeling (HLM) of outcomes.** A series of hierarchical linear models was used to conduct an ITT analysis, modeling change in participants' depression symptoms (and in secondary outcome variables) over time. We conducted analyses using SAS Enterprise Version 9.3 software (SAS Institute Inc., 2010). The Level-1 model captures within-person change in depression (and other repeatedly measured variables) over four time points. This within-person change is referred to as the slope. The Level-2 model reflects participants' condition (CBT-PPT SB, General SB, or WL) as the between-persons predictor.

For all HLM models (unless otherwise noted in Results), continuous measures in the Level-1 model were centered at pretest (i.e., the intercept), and dichotomous variables were coded 1/0 to allow for meaningful evaluation of parameter estimates. We first tested unconstrained models to confirm that there was significant individual variation about the slope and intercept before accounting for random assignment to condition. Treatment effects were evaluated by examining the *Time\*Condition* interaction, which reflects group differences in improvement over time and is represented by the beta coefficient associated with treatment condition in the Level-2 model. The beta coefficient ( $\beta$ ) represents how much the slope of the dependent variable (e.g., depression symptoms) changes with every 1-unit change in the independent variable of interest (here, condition), controlling for any other variables in the Level-2 model. We calculated effect sizes (Cohen's *d*) for between-group changes using the procedure recommended by



Feingold (2009). In all models, we included key covariates: participants' use of other treatment (medication, therapy, and coaching) during the trial, age at baseline, and gender.

**Post-hoc analysis examining the impact of CBT content.** As noted above, 54.41% of CBT-PPT SB users downloaded only half of the intended content. We suspect that this was due not to systematic differences across individuals, but rather to confusion about how to download content: Unlike General SB participants, CBT-PPT SB participants were asked to download content on two separate occasions. To better understand the impact of PPT vs. CBT content, we conducted another HLM analysis in which we separately examined the impact of General content, PPT content, and CBT content compared to WL (a treatment-on-treated analysis).

## Results

### Participant Flow

There were 283 participants randomly assigned to the CBT-PPT SB ( $n = 93$ ), General SB ( $n = 97$ ), or waiting list control ( $n = 93$ ) groups<sup>3</sup>. Of these, 117 completed the midpoint assessment, 74 completed the posttest, and 52 completed the follow-up (see Figure 1).

### Demographics and Clinical Characteristics

The sample was primarily Caucasian ( $n = 238$ , 84.1%), female ( $n = 197$ , 69.60%), and educated at the Associate's Degree (i.e., two-year college degree) level or higher ( $n = 261$ , 92.2%). Mean age was 40.15 ( $SD = 12.40$ ). Comparing the three conditions, age

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<sup>3</sup> Three individuals were excluded from analyses because they enrolled in the study twice and were assigned to two different conditions.

differences approached conventional levels of statistical significance,  $F(2, 280) = 2.89, p = 0.06$ , as did gender differences,  $\chi^2(2, N = 280) = 5.57, p = 0.06$ . Thus, age and gender were used as covariates in subsequent analyses. Other demographic characteristics, recruitment source, and key clinical characteristics did not significantly differ across groups. Table 2 provides detailed demographic and clinical information.

At baseline, participants' mean CES-D score of 33.39 ( $SD = 9.41$ ) reflected clinically significant levels of depression symptoms. At baseline, 35.7% ( $n = 101$ ) of participants were using therapy as a strategy to treat depression and/or another condition, 43.8% ( $n = 124$ ) were using medication, and 7.4% ( $n = 21$ ) were using life coaching. Overall, 61.1% of participants ( $n = 173$ ) were using one or more of these strategies. Depression symptoms and other psychosocial variables did not significantly differ across groups (see Table 2).

### **Treatment Fidelity**

This study prioritized external validity and made SB usage as naturalistic as possible. Treatment adherence was lower than might be expected in traditional clinical RCTs, likely due to the absence of incentives. Of 190 participants assigned to use SB, 75.80% ( $n = 144$ ) logged in at least once. Number of log-ins ranged from 1 - 274 total, with a mean of 21.53 ( $SD = 34.27$ ) and median of 9.50. Relatively few participants used the optional forum ( $n = 21$ ) or invited allies via Facebook ( $n = 6$ ), and this did not significantly differ across the two SB conditions. Similarly, the two SB conditions did not significantly differ in the number of times they signed in or used various SB features (power-ups, quests, battles, and extra powerpacks).

Some CBT-PPT SB participants did not receive all intended SB content, perhaps due to confusion about technical aspects of the app. Of the 93 participants assigned to CBT-PPT SB, 72 (77.4%) logged in to SB. Of the 68 (73.12%) who downloaded content, 37 (54.41%) downloaded PPT content only, whereas 31 (45.59%) downloaded both PPT and CBT as intended. (In contrast, of the 97 participants assigned to General SB, 72 [74.23%] logged in and 64 of these [88.89%] downloaded all the intended content for this group.) We further examine this issue below.

### **Primary Outcome: Changes in Depression by Posttest**

SB's effects were evaluated by examining the significance of the difference between the rates of change (slopes) in CES-D scores for the CBT-PPT SB, General SB, and WL conditions. All models controlled for participants' age, gender, and use of other treatment (medication, therapy, and coaching).<sup>4</sup> See Table 3 for means and *SDs* and Tables 4 and 5 for HLM parameter estimates and significance tests. Generally, participants became less depressed over time (i.e., the main effect of time was significant). SB users achieved greater relief from depression symptoms than WL participants (see Table 4 for Time\*Condition interaction coefficients), with an effect size (Cohen's *d*) of 0.67 by posttest. The difference between SB and WL groups was statistically significant at posttest (*Condition* coefficient = -6.13,  $t(276) = -3.90$ ,  $p < .001$ ).<sup>5</sup>

Participants using CBT-PPT SB did *not* achieve greater relief from symptoms than participants using General SB, contrary to prediction (see Figure 3). Both groups

<sup>4</sup>Medication, therapy/coaching, and gender did not predict change in depression. Older participants showed slightly greater decreases in depression (*Age* coefficient = -0.13,  $t(276) = -2.83$ ,  $p < 0.01$ ).

<sup>5</sup>Condition coefficient estimated in model using scores centered at posttest.

showed significantly faster rates of improvement than WL (see Table 5). CBT-PPT SB participants were less depressed than WL participants at posttest (*Condition* coefficient = -3.92,  $t(275) = -2.06, p = .04$ ), as were General SB participants (*Condition* coefficient = -8.37,  $t(275) = -4.37, p < .001$ ).<sup>6</sup> Neither version of SB proved superior; the estimated difference between the two SB groups' rates of change (1.06), favoring General SB, was not significant,  $t(237) = 0.82, p = 0.41$ . CBT-PPT SB yielded an effect size of  $d = 0.43$  and General SB yielded an effect size of  $d = 0.92$  by posttest, in comparison to WL.

### Secondary Outcomes

**Depression by follow-up.** By the follow-up assessment, SB users again reported significantly greater changes in depression than WL participants ( $d = 1.05$ ); see Table 4 for Time\*Condition interaction coefficients. Again, both CBT-PPT SB ( $d = 0.76$ ) and General SB ( $d = 1.36$ ) participants improved more rapidly than WL participants (see Table 5 for Time\*Condition interaction coefficients). Both CBT-PPT SB (*Condition* coefficient = -6.99,  $t(275) = -2.66, p = .008$ ) and General SB (*Condition* coefficient = -12.42,  $t(275) = -4.70, p < .0001$ ) participants were less depressed than WL participants at follow-up.<sup>7</sup> Again, these models controlled for age, gender, and use of other treatment (medication, therapy, and coaching).

**Anxiety, life satisfaction, self-efficacy, and social support.** Detailed information about SB's impact on secondary outcome variables is provided in Tables 4 and 5. Of note, SB users experienced greater decreases in anxiety than WL, and greater improvements in life satisfaction, self-efficacy, and social support than WL. Again, both

<sup>6</sup> Condition coefficient estimated in model using scores centered at posttest.

<sup>7</sup> Condition coefficients estimated in model using scores centered at follow-up.

versions of SB were generally effective and neither version proved superior to the other.

Here too, all models controlled for age, gender, and use of other treatment.

### **Exploratory Analysis of Impact of CBT content**

We conducted a treatment-on-treated (TOT) analysis to determine the impact of PPT content versus combined CBT-PPT content. We used a hierarchical linear model similar to those above to investigate the impact of having actually downloaded PPT content only ( $n = 37$ ), CBT and PPT content ( $n = 31$ ), or General SB content ( $n = 64$ ). In comparison to WL participants who did not use SB at all ( $n = 79$ )<sup>8</sup>, participants who actually downloaded General SB or the complete CBT-PPT content achieved significantly greater decreases in depression (see Table 6). In contrast, those who downloaded PPT only did not fare better than participants who did not use SB at all.

### **Discussion**

Participants who used the SuperBetter tool achieved decreases in depression symptoms. Our first hypothesis was supported: SB users demonstrated significantly fewer depressive symptoms by posttest than control participants. These findings are consistent with past research on the positive impact of online programs for reducing depressive symptoms (Spek et al., 2007; Andersson & Cuijpers, 2009; Richards & Richardson, 2012; Powell et al., 2013). Further, these findings suggest that mobile platforms and game mechanics provide opportunities for creative and effective applications of clinical knowledge.

<sup>8</sup> In 14 cases it was uncertain whether a WL participant had downloaded SB content before or after the WL period had elapsed. These individuals were excluded here in order to make this a clean TOT analysis.

Our second hypothesis was not supported. Even though the CBT-PPT SB version was based upon empirically supported depression interventions, CBT-PPT SB users did not experience greater decreases in depression than General SB users. Rather, both groups of SB users fared better than WL participants, and neither SB version proved superior; General SB's apparent advantage was not statistically significant.

Why was CBT-PPT SB no more effective than General SB? First, treatment fidelity issues help to explain the pattern of results. About half of CBT-PPT SB users failed to download the CBT content, and so they did not receive the full intervention as intended. We would not expect that completing just two PPT exercises would have a large impact on depression symptoms. Indeed, the treatment-on-treated analysis indicated that participants who downloaded the combined CBT-PPT content fared significantly better than the WL, whereas those who downloaded only PPT content did not. There may also be substantive issues with the CBT-PPT SB content that can explain why it was not even more effective. For instance, CBT-PPT SB users may have found this newly developed content less user-friendly and engaging compared to the General SB participants using the more refined, established, popular SB content. In addition, the more complex skills involved in CBT may take longer to master, or require more direct and intensive guidance. Moreover, depressed individuals can have motivational and cognitive deficits that cause them to be frustrated and discouraged by challenging, reflective activities; in contrast, easy pleasant activities offer a simpler path to improved mood (Sin, Della Porta, & Lyubomirsky, 2011).

On the other hand, why was General SB more effective than anticipated? First, this version of SB was chosen because it was a well-established favorite of previous SB users, and so it may have been much more engaging. Second, negative self-evaluations are central to depression (Beck, 1979), so General SB's self-esteem content may have conferred important benefits. Third, there is increasing evidence that acceptance is a useful approach for dealing with depression (Forman, Herbert, Moitra, Yeomans, & Geller, 2007). General SB's acceptance-based content may have proved accessible and helpful – and it may have been easier to adapt to the mobile format in comparison to complex cognitive restructuring skills. Fourth, it is possible that both versions of SB exert their effects through common mechanisms such as increasing positive expectancy or helping users feel empowered.

Effect sizes (Cohen's  $d$ ) ranged from 0.43 – 1.36. The binomial effect size display (BESD; Rosenthal & Rubin, 1982) can help make sense of Cohen's  $d$ . The BESD presents hypothetical differences in outcome rates across the intervention and control groups. An effect size of  $d = 0.67$  (SB vs. WL at posttest) is equivalent to a scenario in which 66% of intervention participants experience meaningful change and only 34% of WL participants do. An effect size of  $d = 1.36$  (General vs. WL at follow-up, the greatest effect found here) is equivalent to 78% of intervention participants experiencing meaningful change compared to 22% of WL participants.

### **Limitations**

These effect sizes should be interpreted cautiously in light of several important limitations of the study, concerning treatment fidelity and dosage, attrition, measurement, and generalizability.

**Treatment fidelity and dosage.** About half (54.41%) of participants using CBT-PPT SB ( $n = 37$ ) did not receive the complete intervention, as explained above. This limits conclusions that can be drawn about differences between the SB versions. To more accurately determine whether one version of SB is superior, it would be necessary to ensure that (in a large sample with low attrition) all participants received all intended content. It would also be beneficial to measure any moderators that may make a particular version of SB more effective for a particular set of individuals.

Also, although all SB participants received the same instructions about how often to use SB, treatment dosage (i.e., number of log-ins) varied from 1 - 274 ( $M = 21.53$ ). The majority of participants did not in fact log in daily for one month. Notably, several participants commented that they would have appreciated having more content to download. SB encourages users to create their own content (*quests, battles, bad guys, power-ups, etc.*) if/when they complete all the pre-programmed content. However, it may be that some users disengage when they run out of novel pre-designed content. Our log-in rates hint that to maximize SB's effectiveness, it may be necessary to spur users to return to the site daily by creating a higher volume of novel content or developing other motivational strategies.

**Attrition.** This study had low retention rates, with only 26.15% of the sample intact at posttest and 18.34% at follow-up. These large attrition rates are not uncommon



in internet-based research (Eysenbach, 2005). The attrition rate is due in part to our prioritization of ecological validity. For naturalistic SB usage, incentives for compliance were not used. The large attrition rate limits the conclusions we can draw, in spite of our efforts to alleviate some of these concerns by using ITT with HLM. The relatively small number of individuals who stayed in the study through follow-up strongly influenced the parameter estimates. These retained participants might have been especially motivated or high-functioning.

**Measurement.** Depression was measured using a validated self-report instrument, not a clinical assessment. Thus, participants may not have met criteria for a diagnosis of Major Depressive Disorder and these findings may not generalize to such individuals. (Nonetheless, the sample's mean CES-D score was well above the CES-D's standard clinical cut-off, and a majority of participants were receiving treatment.)

**Generalizability.** This sample of iPhone owners may not represent the general population as iPhone users tend to be more educated, liberal, and of higher-income than the average individual (Hunch, 2011). In addition, SuperBetter's effects may vary for users with greater or lesser comfort/expertise with mobile and online technology. Because of the short follow-up, we also cannot generalize about the long-term effects of the intervention.

Notably, our sample was largely recruited from a self-help website, Authentic Happiness. Individuals who are actively seeking self-help tools may be an especially motivated, hopeful, or proactive subset of the depressed population. Further, our participants were aware of whether they were in a waiting list control group or an

intervention group. Intervention participants may have enjoyed positive expectancies, hope, and/or increased self-efficacy due to the knowledge that they had accessed a new self-help resource. These factors could have increased the effect sizes found here.

Thus, our findings may not generalize to all depressed people, particularly those in traditional clinical settings. Our findings are more applicable to depressed individuals seeking self-help resources. Participants did not receive any incentives to take part or to comply with the intervention guidelines, and this increases the study's external validity.

### **Implications for Research**

There are exciting future directions for this research. Positive changes were effectively elicited through an innovative technological format unlike traditional therapy and psychoeducation. This suggests that psychological interventions may benefit from embracing the creative opportunities provided by mobile platforms and game-like formats. In particular, it is important to understand how evidence-based treatment strategies can translate into novel formats without sacrificing fidelity or effectiveness. It will be valuable for researchers to replicate this study but with an emphasis on internal validity, namely by minimizing attrition rates and maximizing treatment fidelity. We also need to understand the mechanisms of change in these new interventions and the populations for whom these interventions are most appropriate.

### **Implications for Clinical Work**

These findings suggest that smartphone-based apps provide promising opportunities for mental health interventions. The tools could be integrated with traditional psychotherapy approaches. For example, therapists could use mobile

applications to assign, monitor, and collaborate with clients on homework between sessions. Although these tools cannot achieve or replace what individual therapists do, they can expand access to treatment. People unable to receive treatment due to stigma or other barriers (cost, location, long waiting lists) could be helped by technology-assisted interventions. Additionally, smartphone-based tools could serve as appropriate and cost-effective interventions for people with minimal symptoms not yet requiring medication or therapy. It is our hope that a new wave of innovative, evidence-based online and mobile interventions will help to alleviate depression symptoms and raise well-being.

## References

- Andersson, G., & Cuijpers, P. (2009). Internet-based and other computerized psychological treatments for adult depression: A meta-analysis. *Cognitive Behaviour Therapy, 38*, 196-205.
- Asay, T. P., & Lambert, M. J. (1999). The empirical case for the common factors in therapy: Quantitative findings. In M. A. Hubble, B. L. Duncan, & S. D. Miller (Eds.), *The heart and soul of change: What works in therapy* (pp. 23-55). Washington, DC: American Psychological Association.
- Barak, A., & Grohol, J. M. (2011). Current and future trends in internet-supported mental health interventions. *Journal of Technology in Human Services, 29*, 155-196.
- Beck, A. T. (1979). *Cognitive therapy and the emotional disorders*. New York, NY: Penguin Inc.
- Beck, A. T. (2005). The current state of cognitive therapy: A 40-year retrospective. *Archives of General Psychiatry, 62*, 953-959.
- Burns, J. M., Webb, M., Durkin, L. A., & Hickie, I. B. (2010). Reach Out Central: A serious game designed to engage young men to improve mental health and wellbeing. *Medical Journal of Australia, 192*, S27.
- Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4*, 62-83.
- Cuijpers, P., van Straten, A., & Warmerdam, L. (2007). Behavioral activation treatments of depression: A meta-analysis. *Clinical Psychology Review, 27*, 318-326.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life

- scale. *Journal of Personality Assessment*, 49, 71-75.
- Espie, C. A. (2009). "Stepped care": A health technology solution for delivering cognitive behavioral therapy as a first line insomnia treatment. *Sleep: Journal of Sleep and Sleep Disorders Research*, 32, 1549-1558.
- Eysenbach, G. (2005). The law of attrition. *Journal of Medical Internet Research*, 7, e11, doi: 10.2196/jmir.7.1.e11
- Fanning, J., Mullen, S. P., & McAuley, E. (2012). Increasing physical activity with mobile devices: A meta-analysis. *Journal of Medical Internet Research*, 14, 61-71.
- Feingold, A. (2009). Effect sizes for growth-modeling analysis for controlled clinical trials in the same metric as for classical analysis. *Psychological Methods*, 14, 43-53.
- Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. A. (2007). A randomized controlled effectiveness trial of acceptance and commitment therapy and cognitive therapy for anxiety and depression. *Behavior Modification*, 31, 772-799.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, 44, 1-25.
- Hollon, S. D., & Ponniah, K. (2010). A review of empirically supported psychological therapies for mood disorders in adults. *Depression and Anxiety*, 27, 891-932.
- Hubble, M. A., Duncan, B. L., & Miller, S. D. (Eds.). (1999). *The heart and soul of*

*change: What works in therapy.* Washington, D.C.: American Psychological Association.

Hunch. (2011, August 15). Android vs. iPhone: Battle of the mobile operating systems.

[Blog post]. Retrieved from: <http://blog.hunch.com/?p=51781>

Jorm, A. F., Morgan, A. J., & Malhi, G. S. (2013). The future of e-mental health.

*Australian and New Zealand Journal of Psychiatry, 47*, 104-106.

Kenter, R., Warmerdam, L., Brouwer-Dudokdewit, C., Cuijpers, P., & van Straten, A.

(2013). Guided online treatment in routine mental health care: An observational study on uptake, drop-out and effects. *BMC Psychiatry, 13*, 43-51.

Lau, P. W. C., Lau, E. Y., Wong, D. P., & Ransdell, L. (2011). A systematic review of

information and communication technology-based interventions for promoting physical activity behavior change in children and adolescents. *Journal of Medical Internet Research, 13*, 44-61.

McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world.* New York, NY: Penguin Inc.

Meglič, M., Ivanovski, M., & Marušič, A. (2008). Information technology tools to

improve treatment of patients with depression: Focus on guidelines implementation. *Psychiatria Danubina, 20*, 239-244.

Merry, S. N., Stasiak, K., Shepherd, M., Frampton, C., Fleming, T., & Lucassen, M. F.

(2012). The effectiveness of SPARX, a computerised self help intervention for adolescents seeking help for depression: Randomised controlled non-inferiority trial. *BMJ: British Medical Journal, 344*, 1- 16.

- Michael, D. R., & Chen, S. L. (2005). *Serious games: Games that educate, train, and inform*. Mason, OH: Muska & Lipman/Premier-Trade.
- Papastergiou, M. (2009). Exploring the potential of computer and video games for health and physical education: A literature review. *Computers & Education, 53*, 603-622.
- Park, N., Peterson, C., & Seligman, M. E. P. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology, 23*, 603-619.
- Powell, J., Hamborg, T., Stallard, N., Burls, A., McSorley, J., Bennett, K., ... Christensen, H. (2013). Effectiveness of a web-based cognitive-behavioral tool to improve mental well-being in the general population: Randomized controlled trial. *Journal of Medical Internet Research, 15*, 3-19.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385-401.
- Richards, D., & Richardson, T. (2012). Computer-based psychological treatments for depression: A systematic review and meta-analysis. *Clinical Psychology Review, 32*, 329-342.
- Rosenthal, R., & Rubin, D. B. (1982). A simple, general purpose display of magnitude of experimental effect. *Journal of Educational Psychology, 74*, 166-169.
- Rupp, A., Gause, E., & Regier, D. (1998). Research policy implications of cost-of-illness studies for mental disorders. *British Journal of Psychiatry Supplement, 36*, 19-25.
- Russoniello, C. V., O'Brien, K., & Parks, J. M. (2009). The effectiveness of casual video

- games in improving mood and decreasing stress. *Journal of CyberTherapy and Rehabilitation*, 2, 53- 66.
- Santhiveeran, J., & Grant, B. (2005). Use of communication tools and fee-setting in E-therapy: A web site survey. *Social Work in Mental Health*, 4, 31-45.
- SAS Institute Inc. Administering SAS® Enterprise Guide 4.3 (Version 9.3) [Computer software]. Cary, NC: SAS Institute, Inc.; 2010. Retrieved from [http://www.sas.com/en\\_us/software/enterprise-guide.html](http://www.sas.com/en_us/software/enterprise-guide.html).
- Schott, G. & Hodgetts, D. (2006). Health and digital gaming: The benefits of a community of practice. *Journal of Health Psychology*, 11, 309-316.
- Seligman, M. E. P., Rashid, T., & Parks, A. C. (2006). Positive psychotherapy. *American Psychologist*, 61, 774-788.
- Sin, N. L., Della Porta, M. D., & Lyubomirsky, S. (2011). Tailoring positive psychology interventions to treat depressed individuals. In S. I. Donaldson, M. Csikszentmihalyi, & J. Nakamura (Eds.), *Applied positive psychology: Improving everyday life, health, schools, work, and society* (pp. 79-96). New York: Routledge.
- Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: A practice-friendly meta-analysis. *Journal of Clinical Psychology*, 65, 467-487.
- Spek, V., Nyklíček, I., Smits, N., Cuijpers, P., Riper, H., Keyzer, J., & Pop, V. (2007). Internet-based cognitive behavioural therapy for subthreshold depression in



people over 50 years old: A random controlled clinical trial. *Psychological Medicine*, 37, 1797-1806.

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166, 1092-1097.

Weissman, M. M., Sholomskas, D., Pottenger, M., Prusoff, B. A., & Locke, B. Z. (1977). Assessing depressive symptoms in five psychiatric populations: A validation study. *American Journal of Epidemiology*, 106, 203-214.

World Health Organization. (2012, October). *Depression Fact Sheet*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs369/en/index.html>

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, 52, 30-41.

Table 1

*List of Measures.*

	Variable Assessed	Instructions	Item Scoring	Score Range	Interpretation	Cronbach's alpha
Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977)	Depression	Indicate frequency of twenty symptoms in past two weeks	0 to 3	0 - 60	≥16 indicates clinical depression	0.86
Generalized Anxiety Disorder Scale (GAD-7) (Spitzer, Kroenke, Williams, & Löwe, 2006)	Anxiety	Indicate frequency of seven symptoms in past two weeks	0 to 3	0 - 21	≥10 indicates clinical anxiety	0.86
Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985)	Life satisfaction	Indicate agreement with five statements	7-point Likert scale	5 - 35	Higher scores indicate higher satisfaction	0.85
New General Self-Efficacy Scale (NGSE) (Chen, Gully, & Eden, 2001)	Self-efficacy	Indicate agreement with eight statements	5-point Likert scale	8 - 40	Higher scores indicate higher self-efficacy	0.89
Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988)	Social support	Indicate agreement with twelve statements	7-point Likert scale	12 - 84	Higher scores indicate more social support	0.91
Additional questions	Technology usage	Indicated hours of daily iPhone use; number of apps on iPhone; hours of daily computer use; comfort level with computers; hours per week on Facebook; hours per week spent and enjoyment of playing games on computer, phone, or video game system				
	Treatment strategies	Indicated past use and present use of (a) therapy/counseling for depression; (b) therapy/counseling for another concern; (c) medication for depression; (d) medication for another mental health concern; and/or (e) life coaching.				
	Daily functioning	Indicated number of days this week s/he (a) interacted with a friend/partner/family member; (b) exercised; (c) left the house; (d) worked				

Table 2

*Demographic and Clinical Characteristics of Sample.*

	CBT/PPT SB (n = 93)	General SB (n = 97)	Waiting List (n = 93)
<b>Demographic characteristics</b>			
Age ( <i>SD</i> )	42.28 (12.56)	37.99 (11.31)	40.27 (13.06)
Sex (% Female)	57 (61.29%)	72 (74.23%)	71 (76.34%)
Race/Ethnicity:			
Arab	0	1 (1.03%)	0
Asian/Pacific Islander	2 (2.15%)	6 (6.19%)	2 (2.15%)
Black/African-American	0	3 (3.09%)	3 (3.23%)
White/Caucasian	77 (82.80%)	75 (77.32%)	76 (81.72%)
Hispanic or Latino	8 (8.60%)	5 (5.16%)	5 (5.38%)
Other	4 (4.30%)	3 (3.09%)	0
Unknown	0	1 (1.03%)	1 (1.08%)
Multiracial	2 (2.15%)	3 (3.09%)	6 (6.45%)
<b>Clinical characteristics (at baseline)</b>			
Medication	35 (37.63%)	48 (49.49%)	41 (44.09%)
Therapy	34 (36.56%)	31 (31.96%)	36 (38.71%)
Coaching	7 (7.53%)	7 (7.23%)	7 (7.53%)

Table 3

*Means (Standard Deviations) for Main Study Outcomes Across Baseline and 2-, 4-, and 6-Week Assessments.*

Outcome	Baseline	Midpoint (2 weeks)	Posttest (4 weeks)	Follow-Up (6 weeks)
<b>Depression<sup>a</sup></b>				
CBT/PPT SB	34.48 (9.24)	25.66 (12.93)	23.55 (13.73)	18.73 (13.19)
General SB	33.07 (8.81)	23.77 (10.81)	19.06 (10.30)	16.83 (9.63)
Waiting List	32.62 (10.15)	28.34 (10.60)	27.36 (10.63)	25.14 (15.14)
<b>Anxiety<sup>b</sup></b>				
CBT/PPT SB	12.49 (4.75)	9.10 (5.63)	8.20 (6.01)	8.18 (5.02)
General SB	10.99 (4.98)	7.80 (4.80)	6.94 (4.09)	4.33 (3.39)
Waiting List	11.55 (5.15)	10.84 (5.01)	9.86 (5.39)	9.28 (5.99)
<b>Life Satisfaction<sup>c</sup></b>				
CBT/PPT SB	13.20 (6.04)	15.41 (7.43)	16.60 (7.78)	19.64 (7.80)
General SB	14.12 (6.38)	17.37 (7.17)	18.56 (7.16)	18.42 (7.60)
Waiting List	14.17 (6.07)	14.60 (5.67)	15.08 (6.86)	14.45 (6.63)
<b>Self-Efficacy<sup>d</sup></b>				
CBT/PPT SB	24.32 (5.90)	27.10 (6.57)	28.05 (4.81)	29.73 (5.78)
General SB	24.92 (6.54)	28.40 (5.17)	28.94 (6.39)	28.08 (6.87)
Waiting List	25.35 (5.69)	26.09 (5.42)	26.44 (5.12)	25.68 (6.78)
<b>Social Support<sup>e</sup></b>				
CBT/PPT SB	50.04 (15.53)	49.31 (15.18)	52.75 (14.65)	60.46 (10.92)
General SB	52.70 (14.51)	57.86 (16.02)	63.06 (13.14)	65.50 (11.21)
Waiting List	52.61 (16.05)	54.04 (15.69)	53.14 (15.36)	52.57 (15.57)
<b>Sample Size</b>				
CBT/PPT SB	93	29	20	11
General SB	97	30	18	12
Waiting List	93	58	36	29

*Note.* <sup>a</sup>Center for Epidemiological Studies Depression Scale. <sup>b</sup>Generalized Anxiety

Disorder Scale. <sup>c</sup>Satisfaction with Life Scale. <sup>d</sup>New General Self-Efficacy Scale.

<sup>e</sup>Multidimensional Scale of Perceived Social Support.

The means and standard deviations reported are derived from raw data and represent descriptive statistics for each subsample *n* rather than estimated means from the HLM model.

Table 4

*Main Effects and Time\*Condition Interaction Effects Analysis for Study Outcomes  
Using Hierarchical Linear Models: SuperBetter Compared to Waiting List.*

Outcome	Time coefficient	<i>t</i> ratio	<i>df</i>	<i>p</i>	Time*Condition coefficient	<i>t</i> ratio	<i>df</i>	<i>p</i>
Depression <sup>a</sup>	-2.10	-3.22	238	.002	-3.62	-3.94	238	<.001
Anxiety <sup>b</sup>	-0.41	-1.63	237	.11	-1.42	-3.93	237	<.001
Life Satisfaction <sup>c</sup>	0.14	0.48	237	.63	1.56	3.81	237	<.001
Self-Efficacy <sup>d</sup>	0.22	0.80	235	.43	1.43	3.73	235	<.001
Social Support <sup>e</sup>	0.06	0.13	232	.90	1.62	2.39	232	.02

*Note.* In this analysis the two SB conditions are combined. Negative coefficients indicate that SB users had greater decreases over time compared to WL. Positive coefficients indicate that SB users had greater gains over time compared to WL. Coefficients represent the effect of condition controlling for age at baseline, gender, and medication and therapy/coaching usage (measured at each time point). <sup>a</sup>Center for Epidemiological Studies Depression Scale. <sup>b</sup>Generalized Anxiety Disorder Scale. <sup>c</sup>Satisfaction with Life Scale. <sup>d</sup>New General Self-Efficacy Scale. <sup>e</sup>Multidimensional Scale of Perceived Social Support.

Table 5

*Main Effects and Time\*Condition Interaction Effects Analysis for Study Outcomes  
Using Hierarchical Linear Models: CBT-PPT SuperBetter and General SuperBetter  
Compared to Waiting List.*

Outcome	Time coefficient	<i>t</i> ratio	<i>df</i>	<i>p</i>	Time*Condition coefficient	<i>t</i> ratio	<i>df</i>	<i>p</i>
Depression <sup>a</sup>	-2.09	-3.24	237	.001				
CBT-PPT SB					-3.12	-2.80	237	.01
General SB					-4.17	-3.73	237	<.001
Anxiety <sup>b</sup>	-0.41	-1.65	236	.10				
CBT-PPT SB					-1.08	-2.48	236	.01
General SB					-1.78	-4.10	236	<.001
Life Satisfaction <sup>c</sup>	0.14	0.47	236	.64				
CBT-PPT SB					1.77	3.55	236	<.001
General SB					1.36	2.71	236	.007
Self-Efficacy <sup>d</sup>	0.21	0.79	234	.43				
CBT-PPT SB					1.68	3.59	234	<.001
General SB					1.19	2.55	234	.01
Social Support <sup>e</sup>	0.06	0.12	231	.90				
CBT-PPT SB					1.77	2.12	231	.04
General SB					1.51	1.80	231	.07

*Note.* Negative coefficients indicate that SB users had greater decreases over time compared to WL. Positive coefficients indicate that SB users had greater gains over time compared to WL. Scores were centered at pre-test for these analyses, gender and age at baseline were treated as covariates, and medication and therapy/coaching usage (measured at each time point) were treated as time-varying covariates. <sup>a</sup>Center for Epidemiological Studies Depression Scale. <sup>b</sup>Generalized Anxiety Disorder Scale. <sup>c</sup>Satisfaction with Life Scale. <sup>d</sup>New General Self-Efficacy Scale. <sup>e</sup>Multidimensional Scale of Perceived Social Support.

Table 6

*Treatment-on-Treated Analysis: Impact of SuperBetter Content on Depression Symptoms  
Using Hierarchical Linear Modeling*

Content downloaded	Time coefficient	<i>t</i> ratio	<i>df</i>	<i>p</i>	Time*Condition coefficient	<i>t</i> ratio	<i>df</i>	<i>p</i>
	-2.91	-3.73	177	<.001				
General SB					-3.67	-2.97	177	0.003
PPT SB only					-0.39	-0.25	177	0.80
PPT and CBT SB					-2.97	-2.03	177	0.04

*Note.* Negative coefficients indicate that SB users had greater decreases over time compared to WL. Scores were centered at pre-test for these analyses, age at baseline and gender were treated as covariates, and medication and therapy/coaching usage (measured at each time point) were treated as time-varying covariates.

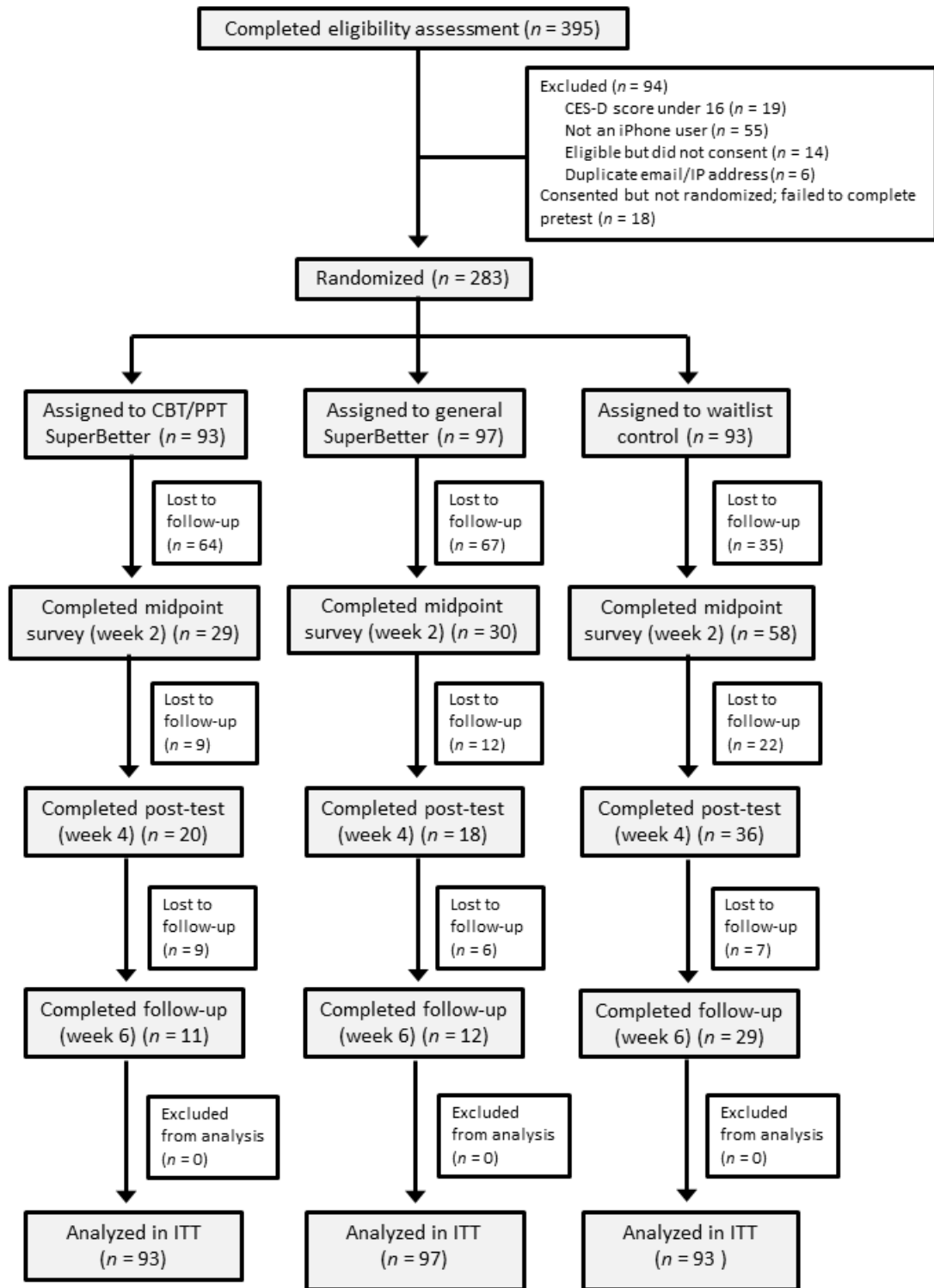


Figure 1. Participant flow diagram.



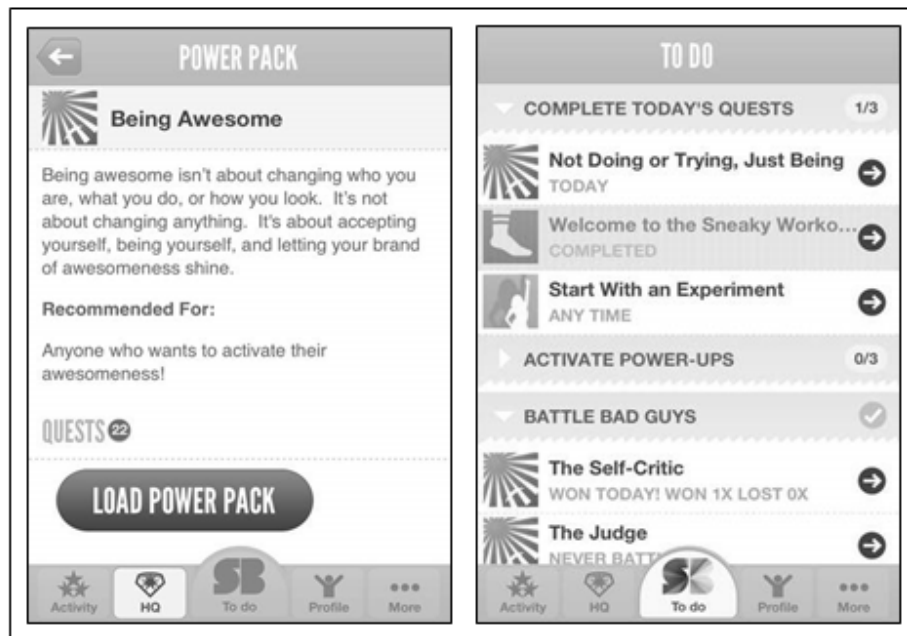


Figure 2. Screenshots of SuperBetter iPhone interface (including General SB power pack download and a sample General SB to-do list).

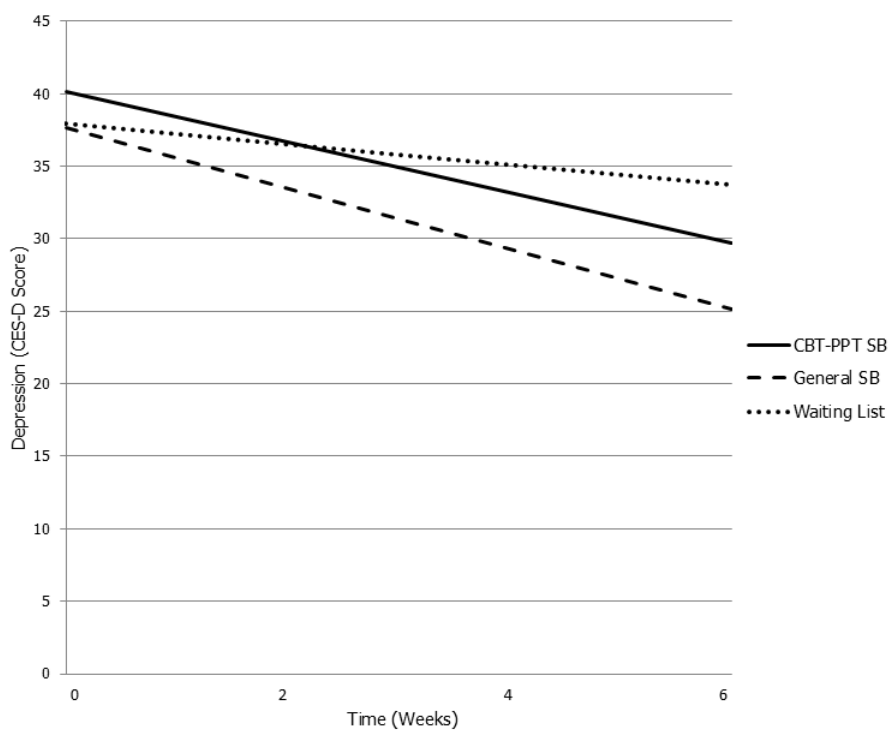


Figure 3. Change in depression symptoms over six weeks across conditions.

**CHAPTER 2****Prospective Writing: Randomized Controlled Trial of an Intervention Facilitating  
Growth after Adversity**

## Abstract

People can experience positive changes after adversity, a phenomenon known as posttraumatic growth (PTG), but little is known about how to foster this growth. Moreover, controversy surrounds the measurement of growth, and it is unclear whether interventions that foster self-perceived PTG (measured retrospectively) will also foster actual increases in PTG domains (measured prospectively). Previous work suggests that people grow when they perceive and pursue new opportunities after adversity. We designed and tested an intervention called prospective writing, which aims to facilitate PTG by encouraging people to explore new possibilities in their lives after adverse events. Participants ( $N = 188$ ) who had experienced trauma or serious adversity in the past six months were recruited online. Participants were randomly assigned to do prospective writing, factual writing, or no writing weekly for one month. Each week, and at follow-up one month later, participants completed two formats of the Posttraumatic Growth Inventory (PTGI; Frazier et al., 2006; Tedeschi & Calhoun, 1996). Hierarchical linear modeling and latent growth curve modeling were used to assess the intervention's impact on PTG and to test mediation. Results indicate that participants who did prospective writing experienced gains in PTG domains (as measured prospectively over two months). Mediation analyses suggested that engagement with new possibilities was the mechanism for this growth. These findings suggest that prospection-based interventions merit further investigation—and that rigorous, nuanced strategies are needed to measure interventions' effects on the various facets of PTG.

Prospective Writing: Randomized Controlled Trial of an Intervention Facilitating Growth  
after Adversity

*"When one door closes another door opens; but we so often look so long and so regretfully upon the closed door that we do not see the ones which open for us."*

– Alexander Graham Bell

After a long legacy in religious and philosophical contexts, the concept of growth after adversity has gained traction in psychology research (Helgeson, Reynolds, & Tomich, 2006; Linley & Joseph. 2004; Tedeschi & Calhoun, 2004). Positive psychological changes can result from struggling with life crises, a phenomenon known as posttraumatic growth (PTG; Tedeschi & Calhoun, 1996) or stress-related growth (SRG; Park, Cohen, & Murch, 1996), among other terms. Growth can involve positive changes in one's self-concept, relationships with other people, and worldviews (Calhoun, Cann, Tedeschi, & McMillan, 2000; Linley & Joseph. 2004; Schwartzberg & Janoff-Bulman, 1991). The growth process can involve reframing one's past and present, as well as finding opportunities to build a positive future (Helgeson et al., 2006; Roepke & Seligman, 2014; Tedeschi & Calhoun, 1996). We propose that noticing, imagining, and pursuing new opportunities for a better future is the key process that fosters PTG. We created and tested an intervention designed to help people perceive and pursue new opportunities after adversity, hypothesizing that this would promote PTG.

**Facilitating Posttraumatic Growth**

Can we facilitate PTG? A recent meta-analysis indicated that existing interventions on average modestly increase PTG (Roepke, 2014). These interventions, however, were not specifically designed to target PTG as their main outcome; rather, these interventions (such as prolonged exposure therapy, emotional disclosure paradigms, and stress management courses) were generally designed to target stress, anxiety, adjustment, and other clinical concerns.

Newer interventions have more explicitly targeted PTG and related constructs (e.g. meaning in life, personal growth, and psychological resilience). These include Transforming Lives Through Resilience (Dolbier, Jaggars, & Steinhardt, 2010), positive narrative group psychotherapy (Ruini, Masoni, Ottolini, & Ferrari, 2014), positive emotion-focused treatment for cancer patients (Shieh, 2013), Promoting Resilient Officers (Shakespeare-Finch et al., 2014), the Mustard Seed Project (Neimeyer & Young-Eisendrath, 2014), the Life Tape Project (Garlan, Butler, Rosenbaum, Siegel, & Spiegel, 2010), and the Life Review Group (Vincent, 2010). Preliminary findings are promising, but few PTG-related programs have been evaluated in randomized controlled trials (e.g., Dolbier et al., 2010; Shakespeare-Finch et al., 2014). More rigorous evaluations are therefore needed to uncover effective ways to foster PTG. Moreover, there is a need for simple, cheap, easily scalable interventions to increase access and impact.

Theories about the growth process hint at how we might design new and effective interventions targeting PTG. For instance, the prospective theory of PTG emphasizes the importance of future-thinking in the growth process (Roepke & Seligman, 2014).

Prospection, the mental representation and evaluation of future possibilities Gilbert &

Wilson, 2007), may be a key mechanism for positive psychological change (Seligman, Railton, Baumeister, & Sripada, 2013). Imagining positive new paths after adversity may be especially difficult and important for growth: For example, a person who lost a loved one to violence might discover an opportunity to engage in advocacy/volunteering focused on violence prevention, and in the long run this could lead to new close relationships, greater meaning in life, and a sense of great personal strength. Interventions could provide targeted support for this process of pursuing new opportunities in the wake of adversity. In the present study, we tested the efficacy of a writing paradigm aimed at enhancing participants' attention to new opportunities in their lives to foster PTG.

### **Conceptualizing and Measuring Posttraumatic Growth**

Thorny questions have arisen about the nature of self-perceived PTG: Do people's retrospective self-reports of PTG represent actual positive changes, self-deception, positive reappraisal coping, meaning-making processes, changes in functioning and well-being, attitudes about adversity, profound personal transformation, or some combination of these (Frazier et al., 2009; Jayawickreme & Blackie, 2014; Maercker & Zoellner, 2004)? Answers to these questions depend, in part, on *how* PTG is measured.

PTG is most often measured using retrospective self-reports such as the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), the Stress-Related Growth Scale (SRGS; Park et al., 1996), and the Perceived Benefit Scales (PBS; McMillen & Fisher, 1998). These scales prompt people to reflect on how much positive change they have noticed in themselves, in their relationships with others, and in their life philosophies, which they attribute to a traumatic event. Respondents are asked to gauge

their growth by contrasting their past and current selves. These retrospective self-report measures have been criticized, as it is unclear to what extent individuals accurately recall and assess such changes (Jayawickreme & Blackie, 2014). Pitfalls like motivated reasoning and positive illusions could bias people's perceptions of their growth (Kunda, 1990; McFarland & Alvaro, 2000; Taylor & Armor, 1996). Indeed, in one empirical test people's retrospective perceptions of growth were weakly related to positive changes in growth domains over time (Frazier et al., 2009). For such reasons, it has been argued that retrospective, self-perceived PTG is not a good target for interventions (e.g., Coyne & Tennen, 2010).

On the other hand, there is evidence of the validity and usefulness of retrospective self-report measures like the PTGI. Informants' reports of a person's growth tend to agree with the person's own reports, which alleviates some concerns about self-enhancing biases (Shakespeare-Finch & Enders, 2008; Blackie, Jayawickreme, Helzer, Forgeard, & Roepke, in press). In addition, self-perceived PTG is associated with positive outcomes like higher well-being and lower depression in the long run, after about two years have passed since the trauma (Helgeson et al., 2006). These findings point to the intriguing possibility that PTG may still be adaptive even if it involves some degree of self-deception; Indeed, positive illusions are associated with successful adjustment to adversity (Taylor & Armor, 1996). Thus, retrospective measures of self-perceived growth are valuable, but need to be complemented by rigorous measures of growth unfolding over time (Joseph, 2014; Roepke, Forgeard, & Elstein, 2014).



New *current-standing* measures are increasingly recommended (Cohen, Hettler, & Payne, 1998; Tennen & Affleck, 2009). These scales can be used to prospectively measure participants' functioning in PTG domains at the time the scale is administered, rather than asking participants to reflect on changes retrospectively. For example, Frazier et al. (2009) measured relationship quality, personal priorities, life appreciation, and spirituality both before and after adverse events using a current-standing version of the PTGI (C-PTGI) along with related measures of well-being. By assessing functioning in PTG domains at multiple time points, current standing measures eliminate much of the bias associated with retrospective self-reports (Jayawickreme & Blackie, 2014).

We believe that both retrospective and current-standing measurements of PTG are valuable *and* fallible, and that they complement each other to paint a full picture of growth (Roepke et al., 2014). We have therefore used both a retrospective measure (PTGI) and a current-standing measure (C-PTGI) in this study, and refer to these as *retrospective PTG* and *current-standing PTG*, respectively.<sup>9</sup>

### **The Present Study**

We designed a PTG intervention called *prospective writing* and evaluated its effects on retrospective PTG and current-standing PTG. This intervention prompts participants to write about new opportunities for the future that they have noticed and/or acted on in their daily lives. It is not intended as a form of therapy (or a replacement for

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<sup>9</sup> Frazier et al (2009) refer to retrospective PTG as *self-perceived growth* and current-standing PTG as *actual growth*. We chose different terms here because of concerns about the unintended implications of the word *actual* and because both measures involve self-perception. We have, however, used the same scales as Frazier et al (2009).

it), but rather as a scalable self-help activity that gently nudges people's attention toward opportunities for growth.

The present study is among the first randomized controlled trials (RCTs) testing the efficacy of an intervention developed specifically to target PTG, and (to the best of our knowledge) the first to do so using both retrospective and current-standing PTG measures. We tested three hypotheses. First, we expected that prospective writing would increase current-standing measures of PTG more than an active control or measurement-only control (here, growth is measured with the C-PTGI). Second, we expected that prospective writing would increase retrospective PTG more than an active control or measurement-only control (here, growth is measured with the traditional PTGI). Third, we expected that identification of new possibilities would mediate the benefits of prospective writing. We also planned to answer an exploratory question: What is the relationship between retrospective PTG and current-standing PTG? We anticipated positive correlations, but had no a priori hypotheses about their magnitude or the ways that prospective writing might differentially impact these two measures of growth.

## **Method**

### **Participants**

A recruitment announcement was posted on the website of our research laboratory. Individuals who had recently experienced an adverse event were especially encouraged to participate; however, those who had not experienced such an event were also eligible, and enrolled in a separate arm of the trial (not reported here). Recent adversity was defined as endorsement of an item from the Life Events Checklist in the

past six months, as described below (Gray, Litz, Hsu, & Lombardo, 2004). Adults interested in participating clicked a hyperlink to complete an eligibility screening survey.

The Short-form PTSD Checklist - Civilian Version (S-PCL-C; Lang & Stein, 2005) was the key screening measure. Those who scored above 14 (cut-off for significant symptoms of posttraumatic stress) were automatically screened out of the study and offered information about how to seek professional help if needed.<sup>10</sup> Individuals were eligible to participate in the study if they scored below the S-PCL-C cut-off, were at least 18 years old, had access to a computer and the Internet, and provided a valid email address. Those who consented and enrolled were randomly assigned to one of three conditions using an automated randomization algorithm provided by the Qualtrics survey administration system: prospective writing (the intervention), factual writing (the active control), or measurement only (the weaker control).

A priori power analyses, completed using the software G\*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007), indicated that at least 174 participants would be needed (in the recent adversity arm of the RCT) to detect a small effect by posttest in a repeated-measures design testing a within-between interaction (e.g., a *Time\*Condition* interaction), assuming  $\alpha$  error probability of 0.05 and power (1 -  $\beta$  error probability) of 0.80, with a correlation of 0.50 among repeated measures. An adequate number of participants ( $N = 188$ ) were successfully enrolled during the recruitment period. All

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<sup>10</sup> Due to a malfunction of the survey software, 33 individuals with PCL scores above 14 were mistakenly admitted to the study and randomized to condition; here they are treated as ineligible participants and their data are excluded.

activities were conducted in accordance with procedures approved by the university's Institutional Review Board.

### **Measures**

**Screening measures.** The Life Events Checklist (LEC) is a well-established measure of exposure to potentially traumatic experiences (Blake et al., 1995). For each of 17 adverse events (e.g., motor vehicle accident, physical assault, sexual assault), participants indicated if they had personally experienced it, witnessed it, or learned about it happening to someone close to them. We added one additional item – death of a loved one, which was *not* sudden or violent – because bereavement is an important and prevalent form of adversity in the PTG literature (Linley & Joseph, 2004). The Short-form PTSD Checklist - Civilian Version (S-PCL-C) is an abbreviated version of the full-length PCL that retains acceptable psychometric properties and correlates strongly with the full-length version (Lang & Stein, 2005).

**Primary outcome measures.** The Post-Traumatic Growth Inventory (PTGI) is a measure of PTG that includes 21 items representing five domains: new possibilities, relationships, spirituality, appreciation of life, and personal strength (Tedeschi & Calhoun, 1996). For each item (e.g., “I appreciate every day more”) participants rate how much change they have experienced on a six-point Likert scale. In this traditional form, participants retrospectively reflect on changes that may have occurred since an adverse event (what we refer to as *retrospective PTG*).

This study also employed the newer *current-standing* format of the PTGI (C-PTGI), which asks participants to report their current standing in each of the five PTG-

related domains; it does not ask them to assess change but rather allows the researcher to directly compare scores across time (what we refer to as *current-standing PTG*). Both inventories proved reliable here (PTGI Cronbach's  $\alpha = .96$ , C-PTGI  $\alpha = .91$ ).

**Perception of new opportunities.** The Doors Opening Questionnaire (DOQ) is a six-item measure examining the degree to which participants perceive new opportunities in their lives after an important event (Roepke & Seligman, 2014). Participants rate each item (e.g., “during the time I was dealing with this difficult event, my eyes opened to paths I hadn't seen before”) on a seven-point Likert scale. The DOQ has demonstrated good reliability (here, Cronbach's  $\alpha = .90$ ) as well as evidence for convergent validity (Roepke & Seligman, 2014). The DOQ was included to test whether engagement with new possibilities mediated any beneficial effects of prospective writing.

Participants' weekly writing samples were also coded for key variables to test whether engagement with new possibilities was a mediator. Three trained research assistants coded all writing samples for (a) the number of distinct new possibilities the writer described; (b) how detailed these descriptions were, on a five-point Likert scale; (c) the length of the writing sample (word count) to serve as a rough proxy for effort (and a covariate in mediation analyses). Interrater reliability statistics suggested excellent agreement at each of the four time points regarding the number of new possibilities described,  $ICC(2, 3) = 0.89 - 0.94, p < 0.001$ , and the level of detail,  $ICC(2, 3) = 0.92 - 0.93, p < 0.001$ . The three raters' scores were averaged together for use in subsequent analyses.

**Additional measures.** The Center for Epidemiologic Studies Depression scale (CES-D; Radloff, 1977) and the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) were included as potential covariates and secondary outcomes (analyses not reported here). Participants also reported on basic demographic characteristics: age, gender, race/ethnicity, and educational attainment.

### **Procedure**

**Data collection procedure.** All study activities took place online; all data were collected using the Qualtrics survey research platform ([www.Qualtrics.com](http://www.Qualtrics.com)). All participants who consented ( $N = 188$ ) were immediately directed to a baseline survey (see Table 1 for information on measures administered at each time point). All those who completed the baseline survey in its entirety ( $n = 175$ ) were then randomized to one of three conditions, and those who were assigned to write immediately did so for 15 minutes. All participants were asked to return to the site once per week for a total of four weeks to complete a survey and repeat the same writing assignment at each visit. One month after finishing the weekly writing assignments and surveys, participants were asked to return to the site to complete the final follow-up survey. All participants were offered information about how to access mental health services. Participants did not receive compensation for any study activities.

**Intervention procedure.** Participants assigned to prospective writing or factual writing responded to the prompts below, once weekly for four weeks.

*The Prospective Writing Intervention.* Participants responded to the following prompt, designed to facilitate PTG by helping them identify new opportunities that may arise in the aftermath of adversity:

*After difficult experiences, many people feel a sense of loss: It feels that certain opportunities or “doors” have closed in their life. Sometimes, people also find that new doors open and new opportunities present themselves. These new opportunities could be almost anything (new activities, goals, role models, friends, job-related changes, ideas, or ways to help people). The existence of new opportunities does not mean that losses are unimportant or less painful; important losses can exist alongside some potentially important new opportunities. We would like to know if you have noticed any new doors opening in your own life in the past six months. For the next 15 minutes, please write down whatever comes to mind about the new opportunities or “new doors” that have opened, or might open. All of your writing will be completely confidential. Don’t worry about spelling or grammar. The only rule is that once you begin writing, continue to do so until 15 minutes have passed.*

*The Factual Writing Control Condition.* Factual writing is the stronger of two control conditions used in this study. Unlike participants in the measurement-only condition, those in the factual writing condition are not necessarily aware that they are in a control group. Moreover, factual writing shares several properties with prospective writing: If simply writing about one’s life is beneficial, perhaps by providing a chance for

reflection, then both prospective and factual writing should benefit participants. Factual writing has often been used as a control in other writing-based intervention studies (e.g., Pennebaker & Beall, 1986). Participants responded to the following prompt:

*Please record the events of the past 24 hours. Focus on who, what, when, and where. Describe them as factually as possible, without inserting your feelings into the narrative. Do not worry if you cannot remember all the details—just write out the facts that you can recall. All of your writing will be completely confidential. Don't worry about spelling or grammar. The only rule is that once you begin writing, continue to do so until 15 minutes have passed.*

*Measurement Only Control Condition.* Participants in this weaker control condition did no writing, but simply completed the online survey once weekly.

### **Data Analytic Strategy**

**Preparatory analyses.** Preparatory analyses were conducted using IBM SPSS software (version 22.0). We first examined the data distributions and checked that the assumptions of our intended analytic methods were met. Then, we tested for differences in demographic and/or psychosocial variables across conditions at baseline, using one-way ANOVAs (for continuous variables) and chi-square tests (for categorical variables). No significant differences were found for PTG, life satisfaction, Doors Opening Questionnaire scores, age, ethnicity, or education. The conditions differed, however, in gender,  $\chi^2(2, N = 175) = 7.34, p = .03$ , and baseline DOQ scores,  $F(2, 172) = 3.19, p = .04$  (see Tables 2 and 3 for descriptive statistics); therefore these were used as covariates.



We also examined whether retention or fidelity differed across conditions at each assessment. Chi-square tests of goodness-of-fit revealed that retention rates did not significantly differ across conditions ( $p > .05$ ) at any time point (see Figure 1 for participant flow). We detected fidelity problems: Due to unforeseen technical difficulties with the survey software some participants returned to the study website but failed to receive their writing assignment at Week 2 ( $n = 26$ ) and Week 3 ( $n = 31$ ). These fidelity problems did not systematically vary by condition,  $\chi^2(2, N = 103) = 0.76, p = .69$ , Cramer's Phi = 0.09. These individuals' data were included here nonetheless for the most conservative intent-to-treat (ITT) analysis.<sup>11</sup> Missing data were addressed using full-information maximum likelihood estimation.

**Hierarchical linear modeling (HLM) of changes in current-standing PTG over time.** A series of hierarchical linear models were used to conduct an ITT analysis modeling change in participants' current-standing PTG over time. The following equation represents the basic HLM framework used here:

***Level 1 (within individual):***

$$\text{Growth}_{ti} = \pi_{0i} + \pi_{1i}(\text{Time}_{ti}) + \varepsilon_{ti}$$

***Level 2 (between individuals):***

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{FactualWriting}_i) + \beta_{02}(\text{MeasurementOnly}_i) + \beta_{03}(\text{Covariates}_i) + \zeta_{0i}$$

$$\pi_{1i} = \beta_{10} + \beta_{11}(\text{FactualWriting}_i) + \beta_{12}(\text{MeasurementOnly}_i) + \beta_{13}(\text{Covariates}_i) + \zeta_{1i}$$

For all HLM models (unless otherwise noted in Results), time was centered at pretest (i.e., the intercept) and dichotomous variables were coded 1/0 to allow for meaningful evaluation of parameter estimates. Intervention effects were evaluated by

<sup>11</sup> Sensitivity analyses were also conducted, omitting these participants' data, but are not reported here due to space constraints; a similar pattern of results was obtained.

examining the *Time\*Condition* interaction, which reflects group differences in improvement over time and is represented by the beta coefficient associated with condition in the Level-2 model. The prospective writing group served as the reference group (i.e. to compare it to each of the other two conditions). In all models, we included variables that differed across conditions at baseline as covariates. We calculated effect sizes (Cohen's *d*) for between-group changes using the procedure recommended by Feingold (2009). We calculated reliable change index (RCI) values using the procedure recommended by Jacobson and Truax (1991) to assess the statistical reliability of changes in participants' scores.

**Response profile analysis of retrospective PTG at posttest, at follow-up, and the time points between.** Unlike current-standing PTG, retrospective PTG was measured only at posttest and follow-up (to protect against unwanted priming effects in participants' weekly writing). Because a linear growth model would perfectly fit two time points, we used response profile analysis (RPA). RPA is similar to growth modeling, but does not assume a specific form of change (e.g., linear, quadratic, etc.); rather, RPA allows for arbitrary patterns of means over time (Fitzmaurice, Laird, & Ware, 2004). Like growth modeling, RPA allows the researcher to assess whether groups differ in their rate of change and/or their standing at a single time-point (e.g., posttest) without running multiple models. Using RPA, we tested for differences between conditions at each of the two time points, as well as for differences in the rate of change between these two time points.

**Tests of mediation.** We hypothesized that prospective writing would foster growth by helping participants to identify new possibilities, and so we tested whether this was indeed the mechanism. We aggregated three different variables representing participants' engagement with new possibilities: (a) their scores on the Doors Opening Questionnaire, which reflect a more global sense of new opportunities, (b) the number of new possibilities coded in their writing samples, and (c) the level of detail about new possibilities coded in their writing samples. These were first transformed into  $z$ -scores and then averaged together (across variables and across time points) to form a composite variable (Cronbach's  $\alpha = 0.92$ ). Using latent growth curve modeling, we then tested whether participants' engagement with new possibilities accounted for prospective writing's effect on PTG over time (i.e., whether the indirect effect was significant), controlling for gender, baseline depression, baseline DOQ score, and lifetime adverse events.

**Exploratory analyses.** To address the second exploratory question (what is the relationship between retrospective PTG and current-standing PTG?), we computed Pearson's correlations: (a) between Time 4 PTGI and C-PTGI scores, (b) between Time 5 PTGI and C-PTGI scores, (c) between PTGI gain scores and C-PTGI gain scores (raw differences from Time 4 to Time 5, a one-month period).

## Results

### Participant Characteristics

Participants ( $N = 188$ ) were recruited online between May 2012 and January 2014. Based on the sub-sample of participants who were successfully randomized into one of the three conditions ( $n = 175$ ), 58.29% were retained at Week 2, 41.71% at Week

3, 36.57% at Week 4 (posttest), and 32.00% at one-month follow-up; see Figure 1 for participant flow. Participants who completed the entire study did not differ on any demographic or psychosocial variables compared to those who dropped out (a) before posttest or (b) before follow-up.

Tables 2 and 3 provide detailed information about participants' psychosocial and demographic characteristics. A disproportionate number were Caucasian, middle-aged women. All participants reported at least one serious adverse event in the past six months ( $M = 1.65$ ,  $SD = 1.12$ ); the most common was death of a loved one (38%), with close to half (45%) of these deaths meeting criterion A for trauma on account of being sudden and unexpected. Other frequent events fell in the "other" category (35%), followed by life threatening illness or injury (23%). (Participants endorsing "other" events were asked to describe these, and they commonly included challenges such as divorce, job loss, miscarriage, and the participant's or family member's struggle with mental illness or addiction.)

### **Effects of Prospective Writing on Current-Standing PTG**

Prospective writing appeared to foster PTG, as assessed by current-standing measures. HLM analyses indicated that prospective writing participants enjoyed greater gains in current-standing PTG compared to factual writing participants and measurement-only controls, controlling for gender and baseline DOQ scores (Table 4, Figure 2). These effect sizes (Cohen's  $d$ ) were 0.03 and 0.16 at posttest (compared to factual writing and measurement-only controls, respectively), and 0.28 and 0.46 at follow-up (respectively). More prospective writing participants (35%) than control participants (12%) showed

statistically reliable gains, according to reliable change index calculations (Jacobson & Truax, 1991).

### **Effects of Prospective Writing on Retrospective PTG**

There was some evidence suggesting that prospective writing fostered retrospective PTG, but these results were not robust. The RPA model (controlling for baseline DOQ and gender) indicated that prospective writing participants did not differ from factual writing or measurement-only controls at posttest or at follow-up; however, between these time points prospective writing participants showed greater gains than factual writing participants: an 8.06-point gain versus a 0.76-point loss, respectively ( $p = 0.03$ ). They did not show significantly greater gains than measurement-only controls: an 8.06-point gain versus a 4.71-point gain, respectively ( $p = 0.44$ ; see Figure 3).

### **Mediation: Engagement with New Possibilities Accounts for Prospective Writing's Effects**

We tested whether identification of new possibilities accounted for the beneficial effects of prospective writing, and found that it did. In the mediation model displayed in Figure 4, the prospective writing group engaged with more new possibilities than the factual writing group ( $\beta = -.61, p < .001$ ) and the measurement-only control group ( $\beta = -.58, p < .001$ ). This engagement with new possibilities predicted increases in current-standing PTG ( $\beta = 0.65, p = .002$ ). These indirect paths were significant ( $\beta = 0.40, p = .003$ , and  $\beta = 0.38, p = .003$ ). In this conservative analysis the C-PTGI included only four

factors, omitting the “new possibilities” factor (because this fifth factor is theoretically similar to the mediator variable).<sup>12</sup>

### **Exploratory Analysis: What Is the Relationship Between Retrospective PTG and Current-Standing PTG?**

Three exploratory correlational analyses indicated that retrospective PTG and current-standing PTG were strongly related. Large correlations were found between PTGI and C-PTGI scores at posttest,  $r = 0.61, p < 0.001$ , and at follow-up,  $r = 0.57, p < 0.001$ . Likewise, a large correlation was found between PTGI gain scores and C-PTGI gain scores (from posttest to follow-up),  $r = 0.55, p < 0.001$ .

### **Discussion**

This RCT tested prospective writing, an intervention designed to foster PTG by prompting participants to notice and explore new opportunities in everyday life. The results indicated that those who did prospective writing enjoyed greater current-standing PTG and possibly greater retrospective PTG as well. The pattern of results for retrospective PTG was less robust, possibly as a result of the lower statistical power for this test. Still, it remains possible that prospective writing has more powerful effects on current-standing PTG than retrospective PTG; that is, participants changed for the better but either did not see this positive change or did not attribute it to their struggle with adversity. It could be that while constructive future-thinking promotes growth, reflection on the past helps people to *notice* their own growth. For instance, counterfactual thinking about the past (e.g., “what might have happened in my life if I hadn’t experienced

<sup>12</sup> We conducted sensitivity analyses using the full five-factor PTGI and obtained similar results.

adversity?") helps people to find benefits and make meaning of major events (Kray et al., 2010). This pattern of findings raises questions about the importance of the facets of PTG: If a person experiences growth after adversity, what is the added value of noticing this growth, attributing it to adversity, and adopting a view of oneself as a stronger, wiser survivor of a crisis?

These findings are broadly consistent with prior studies showing that self-administered interventions, including writing-based ones, can promote well-being and growth (King 2001; 2002; Roepke, 2014; Shakespeare-Finch et al., 2014; Wing, Schutte, & Byrne, 2006). Prospective writing is unique among writing interventions in that it prompts participants to notice and explore future opportunities in everyday life. Moreover, mediation analyses suggested that engaging with new opportunities is indeed the mechanism for change here. Our findings thus support the prospective theory of PTG, which emphasizes the importance of future orientation in psychological growth (Roepke & Seligman, 2014).

The effect sizes (Cohen's *d*) obtained here ranged from 0.03 to 0.46 (depending on the specific comparison group and time point). Although these effects are modest, it is notable that these benefits were achieved with only one hour of writing (15 minutes per week for four weeks).<sup>13</sup> Prospective writing is a simple, brief intervention that requires nothing more than writing materials and so it is easily scalable.

This RCT was unique in measuring growth in two formats: retrospective and current-standing. We found large correlations between these two facets of PTG. These

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<sup>13</sup> Some participants did even less writing: Due to the survey software error noted above, 51-66 participants at each time point were not directed to their writing assignment.

data inform the ongoing discussion about the veracity of self-reported PTG (Jayawickreme & Blackie, 2014). Our findings lend tentative support to the idea that people can accurately perceive their own growth, as participants' self-perceptions were strongly related to their current standing; those who felt they had grown more also had higher scores in PTG-related domains. There are also plausible alternative explanations for these large positive correlations: For example, participants may have been primed to think about causal connections between negative life events, growth, and well-being (simply because of the study's topic and the collection of questionnaires they answered). Thus, participants who were doing well in PTG domains may have easily attributed this good functioning to their history of adversity. Clearly, further research is required to clarify the relationship between retrospective and current-standing modes of measuring PTG.

### **Limitations and Future Directions**

This research has several notable limitations. First, the study had high attrition, a common concern in internet-based intervention studies (Eysenbach, 2002). Those who stayed in the study the longest, contributing the most data, may have been especially receptive or motivated. Thus the attrition rate limits the conclusions we can draw, in spite of our efforts to alleviate some of these concerns by using conservative ITT HLM analyses with maximum likelihood estimation.

Second, we experienced technical difficulties with the internet-based survey platform used to deliver the intervention (not apparent until after data collection). A subset of participants did not receive their writing assignment upon returning to the study



website, which creates a fidelity concern. Even though this problem seemed to occur at random (i.e. not due to systematic differences in participant characteristics), we chose to include all participants' data to conduct the most conservative ITT analysis. Effect sizes may be different in a trial with greater fidelity.

Third, this sample is not representative of the larger population of people who experience trauma and loss. Participants self-selected to participate through a psychology website, and a disproportionate number were Caucasian, middle-aged women. As with any study involving self-selection, our results may be influenced by these individuals' receptivity, motivation, attitudes, or other important variables. Additionally, participants with clinically significant PTSD symptoms were excluded, and not all participants met DSM-5 criteria for trauma exposure (American Psychiatric Association, 2013). Relatedly, only participants with adverse events in the past six months were included. Although there is evidence that much of the adaptation to trauma happens within the first 3-12 months (Kessler et al., 1995; Santiago et al., 2013), and grief is at its most acute in the first six months after a loss (Maciejewski, Zhang, Block, & Prigerson, 2007), trajectories of recovery are diverse, and many people continue to experience the emotional effects of adversity well past this point (Norris, Tracy, & Galea, 2009). Results could therefore vary in samples with more severe traumas, more severe symptoms, and/or more recent/distant trauma exposure, as well as in more demographically diverse samples.

Despite these limitations, this study contributes to PTG research in at least three ways. First, this study suggests that brief, writing-based interventions are effective, inexpensive, simple, and scalable tools for fostering growth. Second, the results

demonstrate the potential applications of prospection research, highlighting the usefulness of shaping people's future-thinking. Third, these data inform the dialogue about how to best assess PTG; facets of PTG (retrospective and current-standing reports) are strongly related, but not interchangeable.

These contributions can be extended in several ways. First, a replication with greater fidelity and retention is needed. Additionally, a replication that assesses retrospective PTG at every time point could resolve questions about the different patterns of results for retrospective versus current-standing PTG. Likewise, a replication that includes longer follow-up windows could explore intriguing questions about whether the impact of prospective writing amplifies (or fades) with time. Second, prospective writing can be tested with other populations, such as those with more serious PTSD symptoms. Third, future trials can assess how much writing (in terms of frequency and duration) is necessary to optimize positive change. The prospective writing prompt can also be refined to optimize its effects on growth as well as other outcomes like well-being and depression.

### **Conclusion**

Adversity can feel like a door slammed in the face, making it difficult to see a way forward. Focusing on new doors opening could foster psychological growth and well-being in the wake of adversity. Prospective writing encourages people to notice and explore new opportunities that already exist in daily life. Prospection-based interventions may help people look beyond the doors closed by adversity, and toward doorways that open into a better future.

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.
- Blackie, L. E. R., Jayawickreme, E., Helzer, E. G., Forgeard, M. J. C., & Roepke, A. M. (in press). Investigating the veracity of self-reported post-traumatic growth: A profile analysis approach to corroboration. *Social Psychological and Personality Science*.
- Calhoun, L. G., Cann, A., Tedeschi, R. G., & McMillan, J. (2000). A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. *Journal of Traumatic Stress, 13*, 521-527.
- Cohen, L., Hettler, T., & Payne, N. (1998). Assessment of posttraumatic growth. In R. Tedeschi, C. Park, & L. Calhoun (Eds.), *Posttraumatic growth: Positive changes in the aftermath of crisis* (pp. 23–42). Mahwah, NJ: Erlbaum.
- Coyne, J. C. & Tennen, H. (2010). Positive psychology in cancer care: Bad science, exaggerated claims, and unproven medicine. *Annals of Behavioral Medicine, 39*, 16-26.
- Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment, 49*, 71–75.
- Dolbier, C. L., Jaggars, S. S., & Steinhardt, M. A. (2010). Stress-related growth: Pre-intervention correlates and change following a resilience intervention. *Stress and Health, 26*, 135-147.
- Eysenbach, G., & Wyatt, J. (2002). Using the Internet for surveys and health research.

*Journal of Medical Internet Research*, 4, e13

- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191.
- Feingold, A. (2009). Effect sizes for growth-modeling analysis for controlled clinical trials in the same metric as for classical analysis. *Psychological Methods*, 14, 43-53.
- Fitzmaurice, G. M., Laird, N. M., & Ware, J. H. (2004). *Applied longitudinal analysis*. New York: John Wiley and Sons.
- Frazier, P., Tennen, H., Gavian, M., Park, C. L., Tomich, P., & Tashiro, T. (2009). Does self-reported posttraumatic growth reflect genuine positive change? *Psychological Science*, 20, 912-919.
- Garlan, R. W., Butler, L. D., Rosenbaum, E., Siegel, A., & Spiegel, D. (2010). Perceived benefits and psychosocial outcomes of a brief existential family intervention for cancer patients/survivors. *OMEGA: Journal of Death and Dying*, 62, 243-268.
- Gilbert, D. T., & Wilson, T. D. (2007). Propection: Experiencing the future. *Science*, 317, 1351-1354.
- Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric properties of the Life Events Checklist. *Assessment*, 11, 330-341.
- Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology*, 74, 797-816.

- Jacobson, N. S., & Truax, P. (1991). Clinical significance: a statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59*, 12-19.
- Jayawickreme, E., & Blackie, L. E. (2014). Post-traumatic growth as positive personality change: Evidence, controversies and future directions. *European Journal of Personality, 28*, 312-331.
- Joseph, S. (2014). Assessment of post-traumatic growth. *European Journal of Personality, 28*, 340-341.
- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry, 52*, 1048-1060.
- King, L.A. (2001). The health benefits of writing about life goals. *Personality and Social Psychology Bulletin, 27*, 798-807.
- King, L. A. (2002). Gain without pain? Expressive writing and self-regulation. In S. J. Lepore & J. M. Smyth (Eds.), *The writing cure: How expressive writing promotes health and emotional well-being* (pp. 119-134). Washington, DC: American Psychological Association.
- Kray, L. J., George, L. G., Liljenquist, K. A., Galinsky, A. D., Tetlock, P. E., & Roese, N. J. (2010). From what might have been to what must have been: Counterfactual thinking creates meaning. *Journal of Personality and Social Psychology, 98*, 106-118.
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin, 108*, 480-

498.

- Lang, A. J. & Stein, M. B. (2005). An abbreviated PTSD checklist for use as a screening instrument in primary care. *Behaviour Research and Therapy*, 43, 585-594.
- Linley, P. A., & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of Traumatic Stress*, 17, 11-21.
- McFarland, C., & Alvaro, C. (2000). The impact of motivation on temporal comparisons: Coping with traumatic events by perceiving personal growth. *Journal of Personality and Social Psychology*, 79, 327-343.
- Maciejewski, P. K., Zhang, B., Block, S. D., & Prigerson, H. G. (2007). An empirical examination of the stage theory of grief. *JAMA*, 297, 716-723.
- Maercker, A., & Zoellner, T. (2004). The Janus face of self-perceived growth: Toward a two-component model of posttraumatic growth. *Psychological Inquiry*, 15, 41-48.
- McMillen, J. C., & Fisher, R. H. (1998). The Perceived Benefit Scales: Measuring perceived positive life changes after negative events. *Social Work Research*, 22, 173-187.
- Neimeyer, R. A., & Young-Eisendrath, P. (2014). Assessing a Buddhist treatment for bereavement and loss: The Mustard Seed Project. *Death Studies*, 39, 263-273.
- Norris, F. H., Tracy, M., & Galea, S. (2009). Looking for resilience: Understanding the longitudinal trajectories of responses to stress. *Social Science & Medicine*, 68, 2190-98.
- Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality*, 64, 71-105.

- Pennebaker, J. W., & Beall, S. K. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. *Journal of Abnormal Psychology, 95*, 274-281.
- Radloff, L. S. (1977). The CES-D scale a self-report depression scale for research in the general population. *Applied psychological measurement, 1*, 385-401.
- Roepke, A. M. (2014). Psychosocial interventions and posttraumatic growth: A meta-analysis. *Journal of Consulting and Clinical Psychology, 83*, 129-142.
- Roepke, A. M., Forgeard, M. J., & Elstein, J. G. (2014). Providing context for behaviour: Cognitive change matters for post-traumatic growth. *European Journal of Personality, 28*, 347-348.
- Roepke, A. M., & Seligman, M. E. (2014). Doors opening: A mechanism for growth after adversity. *The Journal of Positive Psychology, 10*, 107-115.
- Ruini, C., Masoni, L., Ottolini, F., & Ferrari, S. (2014). Positive narrative group psychotherapy: The use of traditional fairy tales to enhance psychological well-being and growth. *Psychology of Well-Being, 4*, 1-9.
- Santiago, P. N., Ursano, R. J., Gray, C. L., Pynoos, R. S., Spiegel, D., Lewis-Fernandez, R., ... & Fullerton, C. S. (2013). A systematic review of PTSD prevalence and trajectories in DSM-5 defined trauma exposed populations: intentional and non-intentional traumatic events. *PloS One, 8*, e59236, 1-5.
- Schwartzberg, S. S., & Janoff-Bulman, R. (1991). Grief and the search for meaning: Exploring the assumptive worlds of bereaved college students. *Journal of Social and Clinical Psychology, 10*, 270-288.

- Seligman, M. E., Railton, P., Baumeister, R. F., & Sripada, C. (2013). Navigating into the future or driven by the past. *Perspectives on Psychological Science, 8*, 119-141.
- Shakespeare-Finch, J., & Enders, T. (2008). Corroborating evidence of posttraumatic growth. *Journal of Traumatic Stress, 21*, 421–424.
- Shakespeare-Finch, J. E., Shochet, I. M., Roos, C. R., Craig, C., Armstrong, D., Young, R. M., & Wurfl, A. (2014). Promoting posttraumatic growth in police recruits: Preliminary results of a randomised controlled resilience intervention trial. In *Australian & New Zealand Disaster and Emergency Management Conference*, Association for Sustainability in Business Inc., QT Hotel Gold Coast, Surfers Paradise, QLD.
- Shieh, B. L. (2013). FrB2-4: Promoting posttraumatic growth of cancer patients: Using a positive emotion-focused treatment program. *Korea Psychological Society Annual Conference, 2*, 87-88.
- Taylor, S. E., & Armor, D. A. (1996). Positive illusions and coping with adversity. *Journal of Personality, 64*, 873-898.
- Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*, 455-471.
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry, 15*, 1-18.
- Tennen, H., & Affleck, G. (2009). Assessing positive life change: In search of meticulous methods. In C. L. Park, S. C. Lechner, M. H. Antoni, & A. L. Stanton (Eds.), *Medical illness and positive life change: Can crisis lead to personal*



*transformation?* (pp. 31–49). Washington, DC, US: American Psychological Association.

Vincent, W. L. (2010). *Telling Stories in a Veterans' Life Review Group: Design, Pilot Study, and Evaluation*. Antioch University New England, Keene.

Wing, J. F., Schutte, N. S., & Byrne, B. (2006). The effect of positive writing on emotional intelligence and life satisfaction. *Journal of Clinical Psychology*, 62, 1291-1302.

Table 1

*Measurement Occasions for Key Psychosocial Variables.*

	T1 Week 1	T2 Week 2	T3 Week 3	T4 Week 4/ Posttest	T5 One-month Follow-up
Retrospective growth	-	-	-	PTGI	PTGI
Prospective growth	C-PTGI	C-PTGI	C-PTGI	C-PTGI	C-PTGI
Engagement with new possibilities	DOQ, coded writing	DOQ, coded writing	DOQ, coded writing	DOQ, coded writing	DOQ
Life satisfaction	SWLS	-	-	SWLS	SWLS
Depression symptoms	CES-D	-	-	CES-D	CES-D
PTSD symptoms	S-PCL-C	-	-	S-PCL-C	S-PCL-C
Adverse events	LEC	-	-	-	-

*Note.* PTGI = Post-Traumatic Growth Inventory. C-PTGI = Current Standing Post-Traumatic Growth Inventory. DOQ = Doors Opening Questionnaire. SWLS = Satisfaction with Life Scale. CES-D = Center for Epidemiologic Studies Depression Scale. S-PCL-C = PTSD Checklist – Civilian version. LEC = Life Events Checklist. Follow-up occurred approximately one month after posttest (two months after baseline).

Table 2

*Means (SDs) for Psychosocial Variables at Week 1, 2, 3, 4, and Follow-Up Assessments.*

Outcome variable	Prospective writing ( <i>n</i> = 61)	Factual writing ( <i>n</i> = 55)	Measurement only control ( <i>n</i> = 59)	Overall sample ( <i>N</i> = 175)
<b>CES-D</b>				
Baseline	15.26 (9.41)	15.84 (11.36)	15.27 (8.04)	15.45 (9.60)
Week 2	-	-	-	-
Week 3	-	-	-	-
Week 4	12.55 (9.59)	11.59 (10.25)	15.00 (11.80)	13.15 (10.64)
Follow-up	11.96 (10.66)	13.28 (13.03)	16.71 (12.88)	13.92 (12.21)
<b>S-PCL-C</b>				
Baseline	9.89 (2.26)	9.76 (2.09)	9.98 (2.35)	9.88 (2.23)
Week 2	-	-	-	-
Week 3	-	-	-	-
Week 4	11.83 (4.17)	12.21 (4.41)	12.94 (4.98)	12.36 (4.53)
Follow-up	10.65 (3.58)	12.08 (5.46)	11.72 (5.01)	11.47 (4.71)
<b>C-PTGI</b>				
Baseline	78.66 (15.01)	80.09 (14.41)	75.39 (12.51)	78.01 (14.08)
Week 2	76.35 (14.26)	79.71 (15.92)	76.40 (11.89)	77.28 (13.92)
Week 3	78.29 (14.68)	78.81 (17.32)	74.53 (15.67)	77.14 (15.85)
Week 4	80.17 (12.38)	79.52 (17.46)	74.44 (14.54)	77.85 (14.99)
Follow-up	84.15 (12.81)	79.60 (20.73)	73.71 (14.72)	79.29 (16.75)
<b>PTGI</b>				
Baseline	-	-	-	-
Week 2	-	-	-	-
Week 3	-	-	-	-
Week 4	66.21 (23.38)	62.00 (26.89)	57.85 (22.94)	61.79 (24.36)
Follow-up	72.31 (24.03)	59.72 (28.34)	61.75 (23.02)	64.73 (25.53)
<b>SWLS</b>				
Baseline	21.79 (7.41)	23.02 (7.03)	22.64 (7.18)	22.46 (7.19)
Week 2	-	-	-	-
Week 3	-	-	-	-
Week 4	25.03 (7.00)	25.31 (7.25)	23.00 (7.68)	24.37 (7.33)
Follow-up	26.65 (6.04)	25.72 (8.14)	23.17 (7.65)	25.23 (7.36)

*Note.* CES-D = Center for Epidemiologic Studies Depression Scale; S-PCL-C = Short-form PTSD Checklist – Civilian version; C-PTGI = Current Standing Post-Traumatic Growth Inventory; PTGI = Post-Traumatic Growth Inventory. SWLS = Satisfaction with Life Scale. Follow-up occurred approximately one month after posttest/week 4 (two months after baseline).

Table 3

*Demographic Characteristics.*

	Prospective writing ( <i>n</i> = 61)	Factual writing ( <i>n</i> = 55)	Measurement only control ( <i>n</i> = 59)	Overall sample ( <i>N</i> = 175)
<i>Demographics</i>				
Age ( <i>SD</i> )	43.95 (13.04)	43.08 (12.77)	41.34 (12.40)	42.79 (12.71)
Gender (% Female)	55 (90.16%)	48 (87.27%)	43 (72.88%)	146 (83.4%)
<i>Ethnicity &amp; Race</i>				
Asian/Pacific Islander	6 (9.84%)	3 (5.45%)	6 (10.17%)	15 (8.6%)
Black/African-American	1 (1.64%)	1 (1.82%)	3 (5.08%)	5 (2.9%)
White/Caucasian	47 (77.05%)	46 (83.64%)	45 (76.27%)	138 (78.9%)
Hispanic or Latino	4 (6.56%)	4 (7.27%)	4 (6.78%)	12 (6.9%)
Native American	2 (3.28%)	1 (1.82%)	1 (1.69%)	4 (2.3%)
Other	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Multiracial	1 (1.64%)	0 (0%)	0 (0%)	1 (0.6%)

Table 4

*Hierarchical Linear Modeling Fixed Effects: Changes in Current-Standing PTG (C-PTGI Scores) Across Conditions.*

Fixed effect	Coefficient	SE	t ratio	df	p
Intercept	51.56	3.96	13.02	170	< 0.001
Factual Writing	2.20	2.09	1.06	170	0.29
Measurement Only	0.98	2.11	0.46	170	0.64
Time	0.63 <sup>a</sup>	0.91	0.70	392	0.49
Time*Factual Writing	-0.99 <sup>b</sup>	0.43	-2.32	392	0.02
Time*Measurement Only	-1.17 <sup>b</sup>	0.45	-2.58	392	0.01

*Note.* Scores were centered at pre-test for these analyses. Coefficients are unstandardized.

The model included gender and baseline Doors Opening Questionnaire scores as covariates. <sup>a</sup>The positive *Time* coefficient indicates that prospective writing participants experienced increases in C-PTGI scores over time (although this was not statistically significant). <sup>b</sup>Negative coefficients indicate that factual writing and measurement-only control participants experienced decreases in C-PTGI scores over time compared to prospective writing participants.

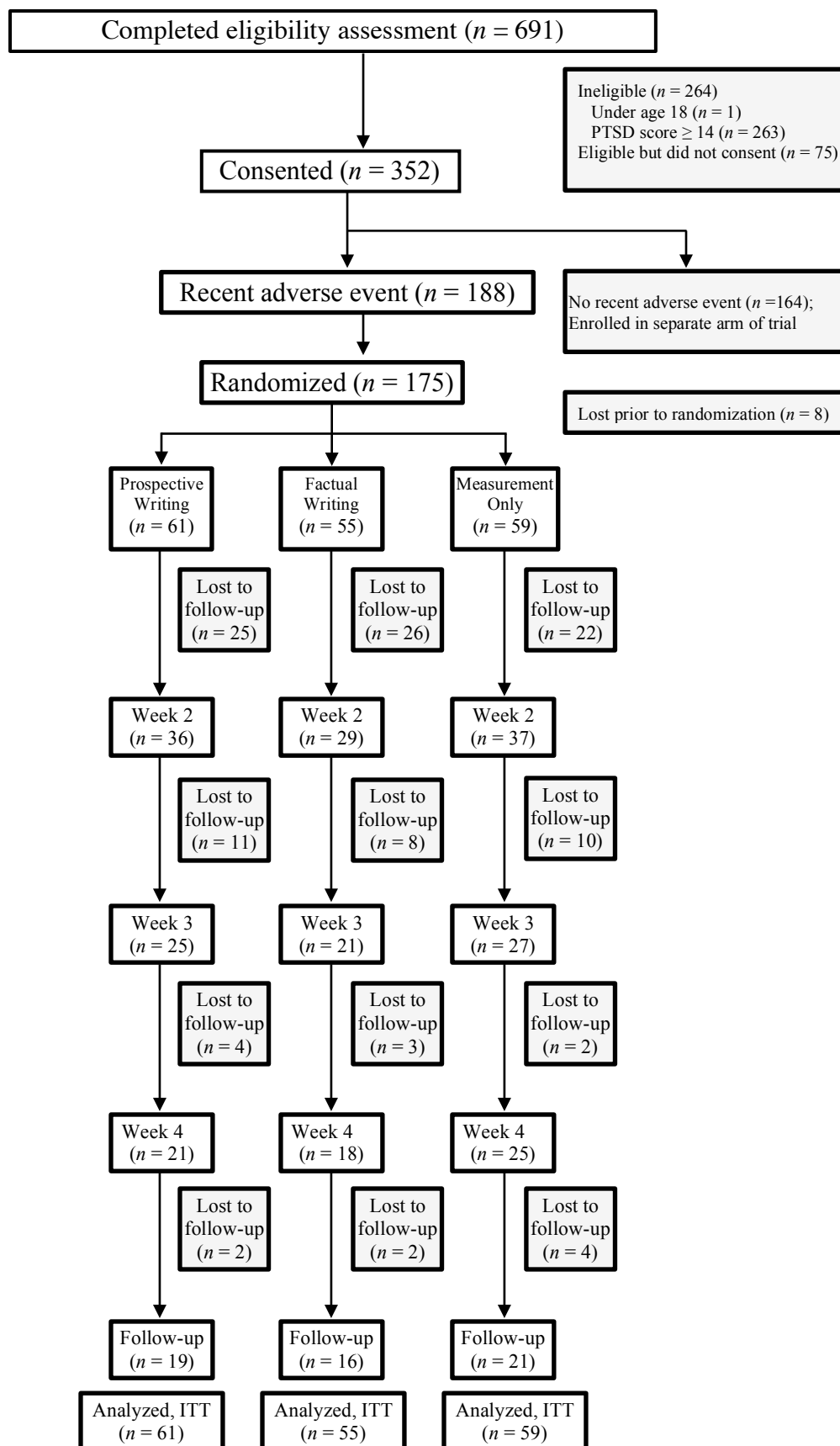
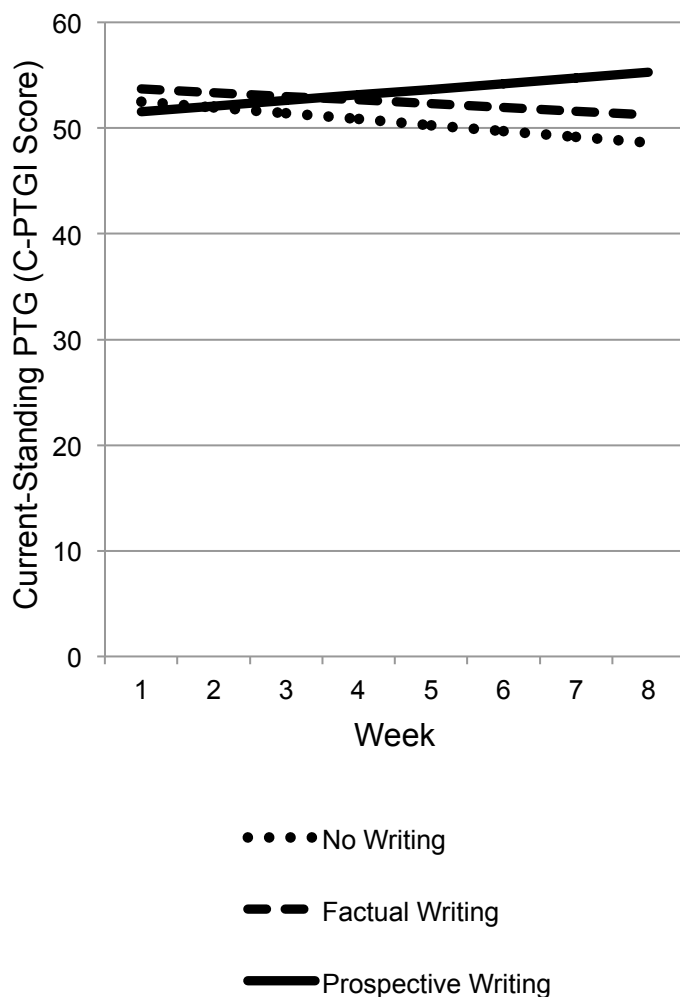
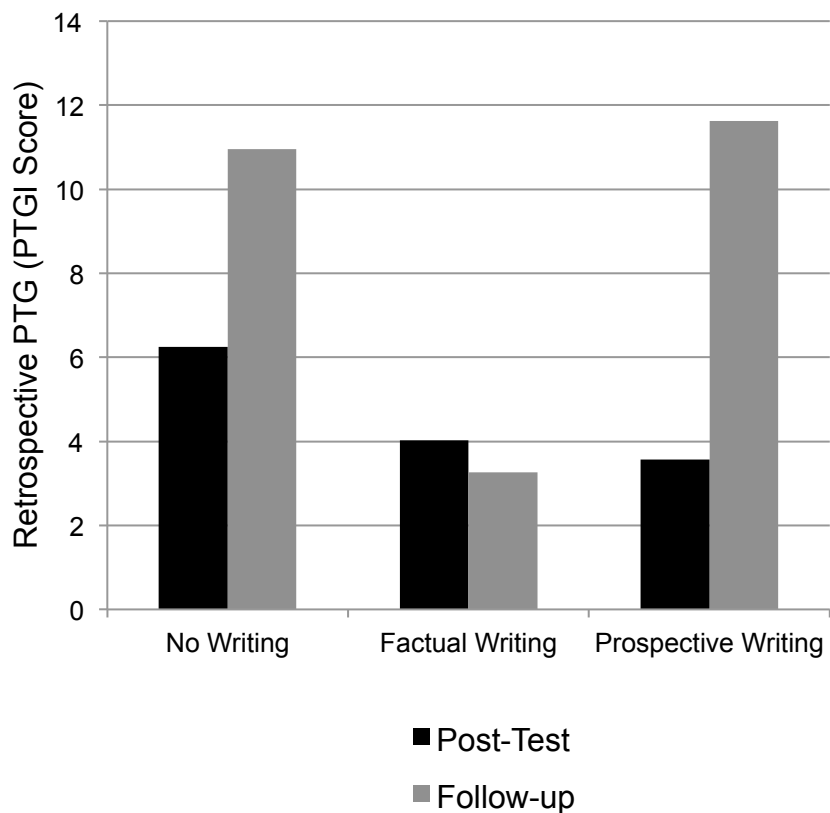


Figure 1. Participant flow diagram.



*Figure 2.* Changes in current-standing PTG (C-PTGI scores) over 8-week study period. Posttest occurred at Week 4 and follow-up occurred at Week 8. Prospective writing participants showed greater increases than control participants.



*Figure 3.* Response profile modeling of retrospective PTG (PTGI scores) across conditions at posttest and follow-up. Prospective writing participants' scores significantly increased between time points.



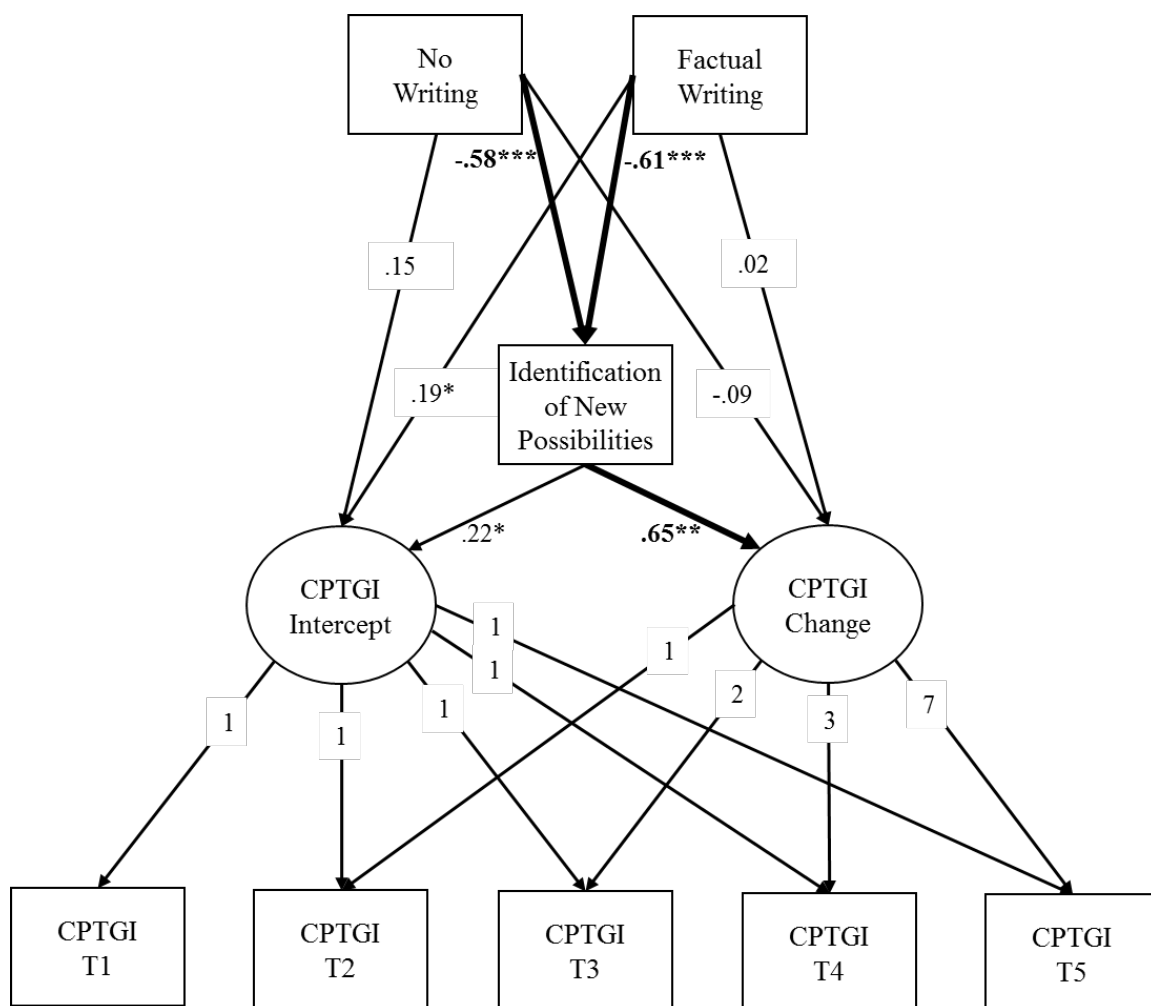


Figure 4. Mediation model. Latent growth curve model testing mediation of the effect of prospective writing on changes in current-standing PTG (C-PTGI Change) through identification of new possibilities. Covariates (gender, depression, PTSD, baseline Doors Opening Questionnaire score, and lifetime adversity) were included in the model but not displayed here. Paths and coefficients in bold were predicted to be significant and represent the mediated effect. Prospective writing serves as the reference group.

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

## Appendix A

### Coding Guidelines for Participants' Writing Samples

#### Directions:

Please read each writing sample with these questions in mind and code in the appropriate spreadsheet. Note: Raters are blind to the participant's condition.

#### Trauma and closed doors

1. How many distinct adverse events were mentioned (0<sup>+</sup>)? \_\_\_\_\_

*(Note: these should be more serious than a daily hassle, such as traffic)*

2. How much did the person write about adverse events?

0	1	2	3	4
<i>(No mention)</i>	<i>(Barely mentioned)</i>	<i>(Repeated or sorted)</i>	<i>(Quite a bit of focus)</i>	<i>(Dominant topic)</i>

#### New possibilities and open doors

3. How many distinct new possibilities were noted (0<sup>+</sup>)? \_\_\_\_\_

*(Note: count new things that 1. are in the future, 2. are clearly new since loss/adversity, or 3. are framed by the participant as new things.)*

4. How much did the person write about new possibilities?

0	1	2	3	4
<i>(No mention)</i>	<i>(Barely mentioned)</i>	<i>(Repeated or sorted)</i>	<i>(Quite a bit of focus)</i>	<i>(Dominant topic)</i>

5. Has the person already engaged in new possibilities?      0 (no)    1 (yes)

6. Has the person identified things they might do in the future?      0 (no)    1 (yes)

#### Length

How long was the sample? (word count) \_\_\_\_\_

## CHAPTER 3

### SecondStory: An Intervention for Facilitating Growth after Adversity

## Abstract

People can experience positive changes after adversity, a phenomenon known as posttraumatic growth (PTG). Recently psychology researchers have begun to focus on how to foster PTG, but so far few PTG interventions have been developed and rigorously tested. Theoretical and empirical work suggests that future-thinking, social support, use of narrative, and positive rumination may be key facilitators of PTG. These elements were integrated into a new group-format psychosocial intervention called SecondStory, which aims to facilitate PTG by helping people to make meaning of the past and plan for a positive, purposeful future. This intervention was first piloted with a focus group of bereaved young adult participants ( $N = 6$ ) who reported on their satisfaction with various intervention elements. Next, as part of an ongoing randomized controlled trial, adult participants ( $N = 34$ ) bereaved within the past five years were recruited and randomly assigned to take part in the SecondStory intervention. SecondStory participants reported on their satisfaction with the intervention and offered their suggestions for refining it. Acceptability and feasibility analyses indicated that participants found the intervention engaging, helpful, inoffensive, not overly upsetting, and worth recommending to others. These results suggest that the ongoing testing and refinement of SecondStory is a promising avenue for fostering PTG.

## SecondStory: An Intervention for Facilitating Growth after Adversity

*“There is a crack in everything. That is how the light gets in.”*

–Leonard Cohen, “Anthem”

Adversity can lead to great suffering and also to positive transformation. In the past two decades psychological researchers have turned their attention toward this potential for transformation, studying the related phenomena of posttraumatic growth (PTG), stress-related growth, and benefit-finding (Helgeson, Reynolds, & Tomich, 2006; Park, Cohen, & Murch, 1996; Tedeschi & Calhoun, 1996). Existing interventions, from cognitive-behavioral stress management to expressive writing, can foster PTG even though they were not originally designed to specifically target it (Roepke, 2015). Recently several PTG-focused interventions have been developed but few have been rigorously evaluated so far (e.g., Dolbier, Jaggars, & Steinhardt, 2010; Shakespeare-Finch et al., 2014). SecondStory is a new group-format intervention specifically designed to foster PTG and well-being in the wake of adversity. Here I report on the development, piloting, refinement, and evaluation of the acceptability and feasibility of SecondStory.

### **Posttraumatic Growth Interventions**

Despite rich traditions of cultivating personal growth in therapy, there is little research evidence indicating how to systematically facilitate PTG (Ellis, 1991; Fava & Ruini, 2003; Roepke, 2015; Rogers, 1961; Seligman, Rashid, & Parks, 2006). Calhoun

and Tedeschi (1999) have suggested how clinicians can promote PTG during traditional therapy, for instance by using Socratic questioning to help clients develop new views of vulnerability and strength. Similarly, Tedeschi and McNally (2011) have proposed general components for PTG-focused interventions: (a) psychoeducation to help clients understand the trauma response, (b) emotional regulation training, (c) constructive self-disclosure, (d) creation of a new trauma narrative that includes growth themes, and (e) development of new life principles.

Recently, intervention researchers have developed several programs specifically designed to promote PTG and related concepts (such as meaning and resilience).

*Transforming Lives Through Resilience* (TLTR; Dolbier, Jaggars, & Steinhardt, 2010) is a primarily cognitive-behavioral intervention that uses psychoeducation, cognitive restructuring, emphasis on personal responsibility, and social support to promote stress-related growth. *The Life Tape Project* (LTP; Garlan, Butler, Rosenbaum, Siegel, & Spiegel, 2010) is an existential intervention that uses videotaped semi-structured interviews to help cancer patients and their families find meaning and connection.

*Psycho-Spiritual Integrative Therapy* (PSIT; Garlick, Wall, Corwin, & Koopman, 2011) is an eight-week group intervention that explores existential concerns and builds skills in mindfulness and emotional regulation to foster growth. *The Life Review Group* (LRG; Vincent, 2010) is a 10-week intervention that uses narrative strategies (through writing and discussion) to promote PTG in veterans.

In each of these interventions, participants experienced greater PTG as measured by the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). These

evaluations are limited, however. Only one of these trials used a randomized controlled design (Dolbier et al., 2010). Moreover, all existing PTG intervention trials have relied on retrospective self-report measures of growth. These measures (such as the PTGI) have been criticized on the grounds that they may reflect participants' wishful thinking, ongoing coping, attempts to be socially desirable, and/or self-deception rather than genuine growth (Frazier et al., 2009; Jayawickreme & Blackie, 2014). Thus we not only need more PTG intervention development, but also more rigorous evaluations of these interventions. These trials should not only include control groups, but also use nuanced measurement strategies that capture both self-perceived growth measured retrospectively, as well as pre- to post- changes in PTG domains measured prospectively.

### **Theoretical and Empirical Foundations of the SecondStory Intervention**

SecondStory is a new group-format intervention developed to foster PTG and well-being after adversity. Its roots are planted in four areas of research: positive psychology, prospective psychology, meaning making and positive rumination, and narrative therapy.

**Positive psychology.** Positive psychology is the scientific study of human flourishing and the conditions that enable it (Seligman & Csikszentmihalyi, 2000). Rather than focusing on the narrow concept of happiness, this field focuses on the broader concept of well-being — all that makes life worth living. In Seligman's (2012) popular framework, five aspects of the good life constitute well-being: positive emotion, engagement, relationships, meaning, and accomplishment (collectively represented by the acronym PERMA). Well-being is therefore about more than *hedonia* (pleasure); rather it

is about *eudaimonia* (living a virtuous, purposeful, excellent life) (Ryff & Singer, 2008).

Because well-being is multifaceted, it cannot be reduced to a single number (as a thermometer yields a single temperature); instead, different facets of well-being may be high while others are low (as a dashboard shows multiple indicators; Forgeard, Jayawickreme, Kern, & Seligman, 2011; Seligman, 2012).

What does this conception of well-being mean for trauma, PTG, and interventions? First, it means that even if trauma causes one element of PERMA to plummet, the other elements can remain stable or even rise (and in particular, hedonic elements may decrease while eudaimonic elements increase). For instance, a person might experience little positive emotion during a crisis while also deriving great meaning and feeling deeply connected to other people. In keeping with this, PTG can be conceptualized as gains in engagement, relationships, meaning, and accomplishment – an increase in eudaimonic well-being that can occur even as a person struggles with painful emotions (Joseph, 2013). Because SecondStory aims to increase eudaimonic well-being and does not directly target feelings of anxiety or sadness, its success does not ride on addressing painful emotions (one difference between SecondStory and more traditional therapeutic approaches).

**Prospective psychology.** Humans constantly engage in prospection (the mental representation of possible futures) and this helps us to solve problems, regulate emotions, and effectively plan for the future (Gilbert & Wilson, 2007; Seligman, Railton, Baumeister, & Sripada, 2013; Taylor, Pham, Rivkin, & Armor, 1998). Prospection is highly relevant to trauma and growth. While traumas and losses can rob us of the



positive futures we had counted on before, they can also present new possible futures; some people are able to look past the doors that are closing to see new doors opening – and such people are more likely to report PTG (Roepke & Seligman, 2014). Positive prospection is a key element of SecondStory, an intervention approach that not only helps people to make sense of the past but also to construct a purposeful and positive future. The intervention utilizes key empirical findings from prospective psychology: for instance, visualizing a positive future can be useless or even harmful if one does not also visualize the route to achieving this positive future, and so SecondStory emphasizes planning specific routes toward goals (Oettingen, Hönig, & Gollwitzer, 2000; Taylor et al., 1998).

**Meaning-making and positive rumination.** Meaning is a key part of eudaimonic well being; the good life is not just about feeling good, but rather feeling that life is worthwhile and serves a greater purpose (King & Napa, 1998; Ryff & Singer, 2008; Seligman & Csikszentmihalyi, 2000; Steger, Frazier, Oishi, & Kaler, 2006). Meaning-making can also be a good way to cope with adversity: when people successfully find a reason why life remains worthwhile after tragedy, they are less distressed (Park, 2010).

In making sense of crises, people can use the same set of facts to construct different meanings. One person might ruminate about how some people have hurt and disappointed her during a crisis and conclude that people are terrible and life worthless (interpretations characteristic of depression), or that the world is a dangerous place where no one can be trusted (interpretations characteristic of PTSD); in contrast, another person might reflect about how some people have supported and inspired her during a crisis and

conclude that people can be wonderful and life meaningful (interpretations characteristic of PTG). We make, and change, the meaning of an event as we ruminate on it.

Rumination typically refers to the intrusive, repetitive, negative, unproductive brooding linked to depression and anxiety (Nolen-Hoeksema, 2000), but deliberate, thoughtful, and ultimately productive self-reflection (termed *positive rumination*) is linked to greater PTG (Lindstrom, Cann, Calhoun, & Tedeschi, 2013).

SecondStory was developed in light of this research on meaning-making and reflection. It offers participants a context for making meaning of their struggles; structured reflection and discussion is used to guide participants in trying on different meanings. The facilitator not only stimulates reflection but also constrains it, using structured activities and questions to increase the likelihood of positive rumination and decrease the likelihood of negative rumination. As in motivational interviewing (Rollnick & Miller, 1995), the facilitator validates negative content that participants bring up while gently eliciting and reinforcing positive content.

**Narrative therapy.** Narrative therapy is a counseling style based on re-authoring/re-storying, using stories to interpret and connect the events in one's life (Morgan, 2000). Narrative therapy is based on postmodernist assumptions, and so the therapist does not aim to uncover the "real" portrayal of events but rather to help construct a variety of storylines that help a person make sense of life (Weingarten, 1998). The central role of narrative is obvious in interventions like Narrative Exposure Therapy (NET; Schauer, Neuner, & Elbert, 2005), but Wilson (2011) has argued that narrative is also key across diverse interventions. Many of the most effective psychosocial

interventions, he argues, work through *story-editing* (cuing people to invoke particular stories to understand their lives). For example, struggling students are more likely to persevere and succeed in school if they are offered a helpful narrative for framing their difficulties (e.g., stories about older students who initially struggled but persevered and succeeded; Wilson & Linville, 1982).

Similarly, narrative strategies could be a powerful tool for increasing PTG: by strategically suggesting specific stories, clinicians may influence how people make sense of the ways that difficult experiences fit into their pasts, lead them to the present, and set up their futures. When reflecting on adversity, a person can use the same facts to tell different stories: a story of ruin and despair, versus a story of pain, redemption, and transcendence. Stories can grant us a dark past and a pointless future, or a meaningful past and a positive, purposeful future. SecondStory aims to help participants arrive at the latter view.

### **The Present Studies**

I developed SecondStory based on the scientific literature described above, piloted it with a focus group, refined it based on the group's feedback, and then evaluated it in an RCT (which is ongoing). Here, I first present the focus group data (Study 1) then present the initial feasibility and acceptability data drawn from the RCT.

## STUDY 1: SECONDSTORY FOCUS GROUP

### Method

#### Participants

Using the website [www.craigslist.org](http://www.craigslist.org), I recruited young adults (aged 18-28) in the Philadelphia metropolitan area who had lost a loved one within the past five years.<sup>14</sup> Individuals were excluded if they showed clinical levels of depression or PTSD symptoms based on the screening measures described below. The target sample size (5-10 participants) was determined based on the intended size of intervention groups in the RCT; no a priori power analyses were conducted because I did not plan to use inferential statistics in analyzing the focus group data. All participants were compensated \$40 cash for taking part in the focus group and a \$10 gift card for completing a follow-up survey. All participants were offered resources and referrals for mental health services. All study activities were completed in accordance with the University of Pennsylvania Institutional Review Board protocol #819637.

#### Measures

**Screening measures.** In the online eligibility screening conducted using the survey platform Qualtrics.com, prospective participants completed measures of PTSD and depression symptoms. PTSD was measured with the PTSD Checklist – Civilian version (PCL-C), using the established cut-off score of 50 to exclude those with clinically significant symptoms (McDonald & Calhoun, 2010; Weathers et al., 1993). Depression

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<sup>14</sup> I targeted young adults for the focus group because this originally was the intended population for the RCT; based on our difficulty recruiting with a restricted age range, I expanded the age criteria for the RCT.

was measured using the Center for Epidemiologic Studies Depression (CES-D) questionnaire, using the established cut-off score of 16 to exclude those with clinically significant symptoms (Radloff, 1977). Individuals excluded from the study due to clinically significant symptoms of PTSD and/or depression were contacted directly via phone and provided with appropriate referrals for mental health services.

**Additional measures.** Approximately one month prior to the focus group, eligible participants completed two additional measures online: the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) and the current-standing version of the Posttraumatic Growth Inventory (C-PTGI; Frazier et al., 2009).<sup>15</sup> These measures were collected in order to characterize the sample's well-being and not only their symptoms of psychopathology.

**Assessment of participants' satisfaction with the intervention.** At the end of each intervention module, participants filled out a brief questionnaire about their satisfaction, opinions, and reactions to the module. First, they answered four questions on a 1-5 Likert scale:

- (1) How engaging was the activity?
- (2) How helpful was the activity in introducing an idea about posttraumatic growth?
- (3) How offensive was the activity, if at all?
- (4) How upsetting was the activity, if at all?

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<sup>15</sup> Participants completed the C-PTGI again at the focus group and one month afterward (data not analyzed or presented here).

Next, participants indicated whether they would recommend including this module in the SecondStory intervention (answering *yes* or *no*). Finally, they were invited to answer an open-ended question asking them for any other reactions to the intervention content.

### **Research Design and Procedure**

**Procedure.** Eligible individuals (based on the online screening) were contacted by phone and/or email and invited to take part in the study. Those who enrolled ( $N = 6$ ) completed a brief online survey approximately one month prior to the focus group. The focus group was then held in a single four-hour session at the research center. Participants were explicitly informed of the goal of the focus group: to receive their feedback about activities that may be included in an intervention for posttraumatic growth and well-being after bereavement. Participants then engaged in four intervention modules. After each one, they provided written feedback and also engaged in group discussion about the usefulness of the module. All quantitative data (baseline characteristics and satisfaction surveys) were analyzed using IBM SPSS software (version 22.0).

**Intervention modules.** All four modules followed a similar pattern: first participants engaged in an activity and/or watched a video that introduced a specific aspect of PTG, and then they discussed (with a partner or group) how this aspect of PTG related to their own experiences.

*Appreciation of life/new perspectives.* This module was introduced with a video of a young woman discussing her new appreciation of life since a life-threatening

accident. Participants then engaged in an experiential activity that provided a metaphor for perspective change: each participant was given a smaller piece of a larger image and collectively assembled the pieces, then the facilitator turned the image upside-down to reveal what it was. The facilitator then led a discussion beginning with these prompts: (a) Sometimes when our lives are turned upside-down, we can see some things more clearly. Are there any things that you see differently or more clearly since your loss? (Have you changed your view of yourself, other people, the world, etc.?) (b) Sometimes a loss or trauma can lead us to better appreciate the “little things” that make up the big picture of our lives. Are there any things that you appreciate more since your loss?

**Strengths.** This module was introduced with a story about someone who displayed *hysterical strength* (a phenomenon in which humans may be able to push muscles beyond their usual capacity in fight-or-flight situations; Riggs, 2011). Then, the facilitator gave a brief introductory lecture about character strengths (Peterson & Seligman, 2004) and suggested that we may also display and/or develop extraordinary personal strengths during difficult times. Next, the participants were given a deck of 24 strengths cards (each card listing one character strength) and invited to share a strengths story with a partner; they recounted episodes related to their loss in which they had displayed a character strength, and partners provided feedback about such strengths (picking out and discussing applicable strengths cards).

**New possibilities.** This module was introduced with a video clip of a blind man who has developed a sonar-like strategy to help him perceive the world. The video served as a metaphor: participants were invited to consider how losses and struggles may

provide opportunities to develop in new directions. Then, participants created collages depicting new possibilities open to them (basing these, in part, on the list of questions provided in Appendix D of the SecondStory manual). Participants then shared and discussed their collages, decided whether to pursue any specific goals inspired by the new possibilities explored in the collages, and generated steps toward these goals.

***Backward imaging.*** This module was introduced with a guided imagery activity (termed *backward imaging*) based on Beck’s (1970) time projection technique and Erickson’s (1954) pseudo-orientation in time procedure: participants closed their eyes and projected themselves one year into the future, imagining that their goals had already been achieved. Participants were guided in visualizing what this achievement looked like, how they celebrated it, what steps they had taken along the way, what obstacles they had overcome, and what strengths they had employed. Afterward, they discussed these accomplishments with the facilitator as if they were truly speaking one year in the future (using the past tense, e.g., “I overcame obstacles by...” rather than using the future tense, e.g., “I will try to overcome obstacles by...”). The module ended with discussion of participants’ motivations and goal pursuit.

## Results

Overall, focus group participants were satisfied with the intervention content they piloted. They reported that all modules were engaging, helpful, inoffensive, not overly upsetting, and worth including in SecondStory.

### Participants’ Baseline Characteristics



Of the 15 people who completed the online screening, seven were eligible and eight were not (in one case due to age and in all other cases due to elevated PTSD and depression symptoms). Six individuals aged 18-28 (five women and one man) consented to take part. This sample was predominantly African-American ( $n = 5$ ), with one participant endorsing each of the following racial/ethnic identities: Caucasian, Hispanic/Latino, multiracial, and *other*. (Because participants were invited to check all races and ethnicities they identified with, the sum adds to more than  $N = 6$ ). Three participants had earned a B.A. degree, two had completed some college, and one had a high school diploma.

Of the six participants, five had suffered a loss defined as potentially traumatic by DSM-5 (American Psychiatric Association, 2013) because the death was violent ( $n = 2$ ) and/or unexpected ( $n = 5$ ). Half ( $n = 3$ ) of the participants had lost a loved one 2-5 years ago, two had lost a loved one 1-2 years ago, and one had lost a loved one 3-6 months ago. On average the sample reported subclinical symptoms of depression (CES-D mean = 9.00,  $SD = 2.45$ ) and PTSD (PCL-C mean = 26.17,  $SD = 7.31$ ), moderate life satisfaction (SWLS mean = 26.33,  $SD = 5.79$ ), and high current-standing PTG (C-PTGI mean = 89.33,  $SD = 7.82$ ).

### **Participants' Satisfaction with Intervention**

Overall, participants were satisfied with the intervention elements presented to them; satisfaction ratings are provided in Table 1. Participants rated all four modules as moderately-to-very engaging and helpful in introducing PTG concepts (Figure 1a and 1b). Participants were generally not upset or offended by the intervention content (Figure

1c and 1d). All participants endorsed all modules for inclusion in SecondStory.

Although some modules (e.g., the New Possibilities module) received higher ratings than others, there was inadequate statistical power to test for significant differences in ratings.

### **Discussion of Study 1**

Results from the focus group indicated that participants were satisfied with the proposed intervention content, finding it engaging, helpful, inoffensive, and not overly upsetting. These findings suggested that SecondStory merits continued development and evaluation. The focus group data are limited, however, in important ways. First, the sample was small, self-selected, and non-representative (for instance, all participants were young adults under 30). They may not share similar attitudes and reactions with participants in the RCT sample (which includes a broader age range) or bereaved people more generally. The second limitation is that people can feel satisfied with an intervention that proves useless or even harmful; critical incident stress debriefing is an example of this (McNally, Bryant, & Ehlers, 2003). As such, it will be essential to complement this participant satisfaction data with more rigorous measurement strategies in later stages of the RCT.

## STUDY 2: ACCEPTABILITY AND FEASIBILITY ANALYSES FROM RCT

### Method

#### Participants

The study was advertised with flyers (posted at local clinics, businesses, street corners, and university dorms and libraries), online announcements (posted on [www.craigslist.org](http://www.craigslist.org) and a University of Pennsylvania research webpage), and through word-of-mouth (via emails to friends and colleagues). Eligible participants were adults aged 18 or older who had lost a loved one within the past five years, but no more recently than three months ago. Individuals were excluded if they reported high levels of depression symptoms, high levels of PTSD symptoms, or frequent suicidal ideation (screening measures described below); if they reported that they had been diagnosed with a psychotic disorder; or if they did not live close enough to the research site to attend sessions. The sample ( $N = 68$ ) was predominantly Caucasian (42.60%) with a mean age of 31.62 ( $SD = 12.15$ ) and with more women (61.80%) than men; see Table 2 for additional detail.

Individuals who saw the study flyer/announcement and were interested in taking part contacted the research team; they were then sent an online screening survey using [Qualtrics.com](http://Qualtrics.com). Of those who completed the screening, 60.18% were eligible to take part; see Figure 1 for participant flow diagram. Participants who enrolled were randomly assigned to either the intervention or control group using a number sequence generated with the [www.randomizer.org](http://www.randomizer.org) website. Only those participants assigned to the first six

intervention group cohorts ( $n = 34$ ) are included in the acceptability and feasibility analyses presented here. Participants were compensated with Amazon.com gift cards (at the rate of \$90 for full-day intervention sessions, \$15 for booster sessions, and \$10 per survey). All participants, as well as ineligible individuals, were offered referrals (e.g., for therapy, medication, support groups, and other paid studies). All study activities were approved by the University of Pennsylvania Institutional Review Board.

## Measures

**Screening measures.** Two well-established measures were used for screening. First, the PTSD Checklist - Civilian Version (PCL-C) was used to measure posttraumatic stress disorder symptoms. The PCL-C is reliable and valid and a cut-off of 44 suggests clinically significant PTSD symptoms in a civilian population (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Wilkins, Lang, & Norman, 2011); those who exceeded the cut-off were screened out.<sup>16</sup>

Second, the Patient Health Questionnaire-9 (PHQ-9) was used to measure depression symptoms. The PHQ-9 is reliable and valid and a cut-off of 20 suggests severe depression symptoms (Kroenke, Spitzer, & Williams, 2001); those who exceeded this cut-off were screened out. In addition, those who endorsed frequent suicidal ideation (scores of 2 or 3 on PHQ-9 item 9) were screened out.

**Intervention acceptability.** Immediately after taking part in the day-long session, intervention participants were asked to report on their satisfaction, opinions, and preferences. (Control participants did not do so, for two reasons: (a) because these

<sup>16</sup> There is no single cut-point for the PCL-C but rather several cut-points that vary in sensitivity and specificity; I elected to use a slightly more conservative cut-point for the RCT than the focus group.

measures were administered for the sake of refining SecondStory whereas there was no intention to refine the expressive writing paradigm; (b) because of the need to minimize participant burden given the large number of other questionnaires administered.) First, participants were asked to rank-order the intervention modules from most preferred to least preferred. Next, they responded to the following questions on a 1-5 Likert scale:

- (1) Overall, how satisfied were you with this program?
- (2) Overall, how engaging/interesting were the activities and discussions?
- (3) Overall, how helpful were the activities and discussions?
- (4) Overall, how upsetting were the activities and discussions? (How distressed did you feel during the program?)
- (5) Overall, how offensive were the activities and discussions? (Did you ever feel that the program was not respectful of your experience?)
- (6) Overall, how helpful were the other group participants?
- (7) Overall, would you recommend this program to someone else who has lost a loved one?

Next, intervention participants wrote answers to five free-response questions:

- (1) What did you like best about taking part in our program?
- (2) What did you like least about taking part in our program?
- (3) If you could change anything about the program, what would you change?
- (4) If you could add anything to the program, what would it be? (What was missing?)
- (5) How would you describe this program, in one sentence, to someone who

didn't know anything about it?

**Additional measures.** The following variables were also measured in this RCT; baseline scores are presented here (see Table 1) to characterize the sample.

**Posttraumatic growth.** The RCT's primary outcome is PTG, which was assessed in two ways in this study: retrospectively and prospectively. The Post-Traumatic Growth Inventory (PTGI) was used to assess retrospective, self-perceived growth. The PTGI is the most commonly used PTG measure, and includes 21 items representing five domains: new possibilities, relationships, spirituality, appreciation of life, and personal strength (Tedeschi & Calhoun, 1996). For each item (e.g., "I appreciate every day more") participants rate how much change they have experienced on a six-point Likert scale. As in previous studies, the PTGI was reliable here ( $\alpha = .95$ ).

To measure PTG prospectively, the newer *current standing* format of the PTGI (C-PTGI) was used. This version asks participants to report on their current standing in each of the five PTG-related domains; it does not ask them to assess change but rather allows the researcher to directly compare scores across time (Frazier et al., 2009). It, too, proved reliable ( $\alpha = .92$ ).

**Secondary outcomes.** Several secondary outcomes were targeted in the RCT. The intervention was expected to raise psychological well-being, measured with the Ryff Scales of Psychological Well-Being 54-item version (Ryff-54) as well as life satisfaction, measured with the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985; Ryff, 1989). The PHQ-9 was also re-administered at each time point to determine whether the intervention impacted depression symptoms.

***Covariates, mediators, and moderators.*** The following measures were also administered to serve as potential covariates, mediators, and/or moderators in future analyses. Social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). Participants' perception of new opportunities was measured using the Doors Opening Questionnaire (DOQ; Roepke & Seligman, 2014). Coping styles were measured using the positive reappraisal and behavioral disengagement subscales of the COPE inventory (Carver, Scheier, & Weintraub, 1989). The *big five* personality traits were measured using the Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003).

Participants also reported basic demographic characteristics (age, gender, educational attainment, religion, and how important religion/spirituality is for them), as well as the following details about their bereavement: (a) how long ago the loved one passed away, (b) the nature of the relationship with the deceased loved one, (c) how close they were to the deceased love one (1-6 Likert scale), (d) how upsetting the death was (1-7 Likert scale), and (e) if the death met Diagnostic and Statistical Manual-IV criteria for trauma (i.e., violent, sudden, and/or a result of suicide; American Psychiatric Association, 2000).

## **Procedure**

**Data collection procedure.** All screening and baseline data were collected using Qualtrics survey software ([www.qualtrics.com](http://www.qualtrics.com)). Participants were sent a pre-test approximately two weeks before their scheduled intervention session (Time 1). On the day of the intervention (Time 2), immediately after completing the scheduled activities,

participants filled out a paper-and-pencil version of the same measures along with acceptability questions.

**Intervention procedure.** Participants randomized to the intervention condition took part in the new group-format intervention, SecondStory. The intervention was delivered to multiple groups of 3-5 participants at the University of Pennsylvania, with each group session lasting one full day. An optional, group-format, one-hour booster session was offered two weeks later. All group sessions were led by PhD candidates in clinical psychology, with support from research assistants and supervision/consultation from a licensed, practicing psychologist. Group facilitators followed the SecondStory manual (see supplementary materials), leading participants through seven modules:

- (1) Using stories to make meaning of the past and plan for the future
- (2) Identifying strengths forged through adversity
- (3) Exploring changes in worldview after adversity
- (4) Understanding and creating changes in relationships after adversity
- (5) Identifying new possibilities for the future
- (6) Setting and pursuing goals
- (7) Integrating what was learned during the intervention and writing a message to future participants

For each module, the facilitator presented informational material (through videos and/or brief lectures) and then guided participants through individual reflection and partner-based or group-based discussion about the topic. For example, this is how the facilitator led the *relationships* module (4): First, the facilitator introduced the idea that



relationships can become strengthened and/or weakened during times of adversity. Next, she showed a video in which a woman described how her own relationships changed after a loss. Then, she guided participants in building three-dimensional models of (a) how their social networks have changed since their losses and (b) how they would like their social networks to change in the future. After that, she invited them to discuss these changes with a partner, to identify the behaviors that can strengthen their relationships, and to explore how they wish to support their own family/friends in the future.

**Intervention booster session procedure.** Approximately two weeks after the SecondStory session, participants returned for their optional one-hour booster session. The session began with general discussion of participants' reflections on the intervention and their progress in their goal pursuits. It then focused on the backward imaging activity described in Study 1.

### **Data Analytic Strategy**

**Preparatory analyses and descriptive statistics.** All analyses were conducted using IBM SPSS software (version 22.0). I first examined the data distributions and checked that the assumptions of the intended analytic methods were met. I then computed basic descriptive statistics (frequencies, means, and standard deviations) to characterize the sample's demographic and psychosocial characteristics at baseline.

**Acceptability and feasibility analyses.** First I assessed feasibility, using a chi-square test to examine whether retention differed between the two conditions (SecondStory versus control group). Then, I analyzed participants' satisfaction with the intervention by computing the means and standard deviations for the seven Likert-scale

variables listed above. Next, I analyzed participants' preferences for particular intervention modules by computing the mean rank-order of each module. No further analyses were done to explore the rank-orders, as there were insufficient data points to use the Friedman test (a non-parametric test that assesses whether differences in rankings are significant). Then, I analyzed participants' free-response answers about the intervention: a research assistant and I coded each response using the coding scheme supplied in Appendix A and interrater reliability was assessed with the Cohen's kappa ( $\kappa$ ) statistic. (In the few cases where the two ratings did not agree, we discussed and resolved the discrepancies before analyzing the variables.) Then, I computed the frequency of each response (i.e., what percentage of participants expressed a particular opinion).

**Prediction of the intervention's acceptability.** I also examined whether key baseline variables predicted participants' satisfaction with the intervention. First, participants' baseline levels of PTG might be related to their satisfaction; those with greater PTG might have a greater appreciation for the intervention's focus on growth. Second, participants' baseline level of distress (depression and PTSD symptoms) might be related to satisfaction. On one hand, more distressed individuals might be more appreciative of the support provided. On the other hand, more distressed individuals might be less satisfied with the intervention, wanting/needing something more akin to traditional therapy focused squarely on their distress. (Therefore, no directional hypothesis was made.)

## Results

Overall, the SecondStory intervention was feasible and acceptable. Retention rates did not differ across the intervention condition and the expressive writing control. SecondStory participants were highly satisfied with the intervention, reporting that all modules were engaging, helpful, inoffensive, and not overly upsetting. Participants indicated that they would recommend the intervention to other bereaved people.

### **Participants' Baseline Characteristics**

Participants ( $N = 68$ ) were recruited between July, 2014 and May, 2015. Of those enrolled, 80.88% were retained at pre-test and 73.53% attended their scheduled intervention/control activity. Retention was not significantly lower in the SecondStory group (67.65%) than in the control group (79.41%),  $\chi^2(2, N = 68) = 1.21, p = 0.27$ , despite the less flexible scheduling offered to SecondStory participants (who had to attend pre-scheduled group sessions). In the present report, I used casewise deletion to address missing data; those who did not attend the intervention group did not provide acceptability data and thus are excluded from those analyses.

Table 1 provides detailed information about participants' psychosocial and demographic characteristics at baseline. On the whole, the sample reported mild levels of depression, with a mean PHQ-9 score of 6.35 ( $SD = 3.77$ ). The sample endorsed somewhat greater PTSD symptoms; while the sample remained under the PCL-C's diagnostic cut-off of 44, the mean score of 31.00 ( $SD = 7.66$ ) corresponds to endorsing "moderately" for 10 of 17 symptoms or "extremely" for 6 of 17 symptoms. Participants generally reported moderate PTG at baseline, with a mean (54.93,  $SD = 25.06$ ) slightly

lower than those reported in other studies of bereaved people (e.g., Engelkemeyer & Marwit, 2008; Shakespeare-Finch & Armstrong, 2010).

### **Acceptability of the Intervention**

**Participants' satisfaction with the group intervention.** In general, participants were satisfied with the SecondStory intervention; found it engaging and helpful; and would recommend it to others. See Table 3 for detailed information on these variables. Participants generally did not find the intervention offensive, but some found it upsetting. Those who found it upsetting reported that thinking about their loss was inherently distressing; they did not report being troubled by a particular feature of the intervention itself.<sup>17</sup>

**Participants' preferences for intervention modules.** Participants favored certain intervention modules, but these differences were not stark. As Table 4 shows, the range in average rankings was small: the most-preferred module (exploring the use of stories) had a mean ranking of 2.18 whereas the least-preferred module (writing a message to future participants) had a mean ranking of 3.36. This restricted range was due, in part, to some participants reporting a “tie” between multiple modules.

**Participants' open-ended feedback and suggestions.** Participants offered valuable open-ended feedback about the intervention. The five free-response questions were reliably coded by the first author and a research assistant (with  $\kappa$  values ranging from .60 – 1.00). See Table 5 for detailed information about which aspects participants liked best; liked least; would like to change; would like to add; and how they would

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<sup>17</sup> Both the first author and a research assistant coded participants' free-response explanations of why they felt upset, and their ratings were in complete agreement.

describe the intervention to someone who knew nothing about it. Notably, the vast majority of participants commented that they appreciated the group format of the intervention.

### **Predictors of Satisfaction with Intervention**

I assessed whether participants were more/less satisfied with the intervention depending on baseline depression, PTSD, and PTG. None of these predicted satisfaction. The only relationship that approached conventional levels of statistical significance was between baseline PTG and satisfaction,  $r = 0.35$ ,  $p = 0.10$ . Notably, any effect would have to be large to be detected with such low statistical power ( $n = 23$  in this analysis).

### **Discussion of Study 2**

SecondStory participants found the intervention engaging, helpful, and worth recommending to other bereaved individuals. While some participants found the intervention upsetting, they explained that this was because discussing loss was inherently painful (not because of any specific problems with the intervention itself). Participants generally found the intervention inoffensive and respectful of their experiences. This is important in light of concerns that trying to actively foster PTG could make people feel invalidated, alienated, disappointed, or pressured (Calhoun & Tedeschi, 1991; Ehrenreich, 2009; Sheikh, 2008). The intervention's group format was generally well-received: although several participants expressed dissatisfaction with their interactions with other group members, the vast majority of participants expressed appreciation for the opportunity to discuss growth and loss with other bereaved people.

Overall, these results suggest that further development and evaluation of SecondStory is worthwhile. The rigorous measurement strategies used in the RCT will complement these acceptability and feasibility analyses. Although participants' satisfaction matters, it is possible to like an intervention that is not actually beneficial (McNally et al., 2003). As such it will be key to model changes in the RCT's primary outcome measures and to examine the relationship between these changes and participants' satisfaction.

There are several priorities for future research evaluating SecondStory. First, it will be key to examine whether SecondStory benefits diverse types of people: those with more severe PTSD and depression symptoms, with diverse co-occurring problems, and with different histories of adverse events and traumas. In particular, people with severe traumas may respond differently than people with more normative stressful events. It will be important to test whether participant characteristics impact (moderate) the program's effectiveness. Second, future research on implementation and dissemination would be fruitful. For instance, after efficacy and effectiveness have been established, it would be worthwhile to examine whether it is feasible for SecondStory to be delivered by paraprofessionals (such as peer support specialists) and/or with the help of new media (such as smartphone applications and social media websites).

### **General Discussion**

People can experience growth after adversity, and a diverse array of interventions can foster this (Roepke, 2015). Existing interventions' effects are small, however, perhaps because they were not designed to directly and systematically target PTG. PTG-

focused interventions hold great promise for helping people to thrive after adversity and they deserve to be rigorously evaluated. The present research is a step in that direction. These results support the further refinement and evaluation of SecondStory, a PTG intervention rooted in positive psychology, prospective psychology, meaning-making, and narrative therapies.

Critics have voiced concerns that PTG is not an appropriate target for interventions at this time (Coyne & Tennen, 2010). These objections are rooted in two issues. First, there are controversies about how to best conceptualize and measure PTG (Frazier et al., 2009). Most PTG research has relied on retrospective, self-report measures of perceived change (like the PTGI), and scores on such measures likely reflect ongoing coping and positive illusions in addition to genuine positive change (Jayawickreme & Blackie, 2014). It is arguable, then, that increased PTGI scores may not be the most valuable outcome for an intervention. Because of these concerns, it is essential to use more sophisticated measurement strategies such as tracking participants' current standing in PTG domains prospectively over time (as in the SecondStory RCT). This allows us to uncover interventions' impact on self-perceived growth as well as on measurable changes in PTG domains.

A second objection to PTG interventions is based on the uncertain relationships between PTG and traditional clinical outcomes: in cross-sectional studies PTG has shown positive, negative, and null relationships with PTSD, depression, general distress, and adjustment (Coyne & Tennen, 2010; Zoellner & Maercker, 2006). Is PTG a good target for interventions if greater PTG does not translate into lower distress and

psychopathology? One way to answer this question is to more closely examine the adaptational value of PTG. A meta-analysis has helped to clarify the mixed findings about PTG and other outcomes: cross-sectionally, PTG is related to less depression, higher well-being, and more PTSD symptoms (intrusion and avoidance) and is unrelated to anxiety, distress, and quality of life (Helgeson et al., 2006). Time is a moderator: after two years have passed since trauma, greater PTG is more strongly related to less depression and more positive affect. Given these relationships, fostering PTG could be relevant in addressing other clinical concerns, especially over time.

There is a larger question at stake, however: Are PTG and other positive psychology constructs valuable ends, or only means to other ends (such as reducing distress and impairment)? Relatedly, should interventionists focus on promoting growth and well-being or on alleviating suffering? This is, of course, a false dichotomy: it is not necessary to choose between treating PTSD and fostering PTG. PTG intervention research is not about replacing the goals of psychological intervention but rather about expanding the list of goals and exploring additional paths toward building a life worth living. Better questions focus on how to balance, sequence, and integrate these two approaches to maximize gains, and this is a fruitful area for further research. It is advisable for PTG intervention researchers to include measures of distress or psychopathology alongside measures of growth and well-being (as in the SecondStory RCT) to help answer these questions. PTG intervention research holds great potential for helping individuals to not only survive adversity, but also to thrive afterward.



## References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4<sup>th</sup> ed., text rev.). Washington, D.C: American Psychiatric Association.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.
- Beck, A. T. (1970). Cognitive therapy: Nature and relation to behavior therapy. *Behavior Therapy, 1*, 184-200.
- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD Checklist (PCL). *Behaviour Research and Therapy, 34*, 669-673.
- Calhoun, L. G., & Tedeschi, R. G. (1991). Perceiving benefits in traumatic events: Some issues for practicing psychologists. *The Journal of Training & Practice in Professional Psychology, 5*, 45-52.
- Calhoun, L. G., & Tedeschi, R. G. (1999). *Facilitating posttraumatic growth: A clinician's guide*. Mahwah, New Jersey: Lawrence Erlbaum.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: a theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267-283.
- Coyne, J. C., & Tennen, H. (2010). Positive psychology in cancer care: Bad science, exaggerated claims, and unproven medicine. *Annals of Behavioral Medicine, 39*, 16-26.
- Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with

- life scale. *Journal of Personality Assessment*, 49, 71-75.
- Dolbier, C. L., Jaggars, S. S., & Steinhardt, M. A. (2010). Stress-related growth: Pre-intervention correlates and change following a resilience intervention. *Stress and Health*, 26, 135-147.
- Ehrenreich, B. (2009). *Bright-sided: How the relentless promotion of positive thinking has undermined America*. New York: Metropolitan Books.
- Ellis, A. (1991). Achieving self-actualization: The rational-emotive approach. *Journal of Social Behavior & Personality*, 6, 1-18.
- Engelkemeyer, S. M., & Marwit, S. J. (2008). Posttraumatic growth in bereaved parents. *Journal of Traumatic Stress*, 21, 344-346.
- Erickson, M. H. (1954). Pseudo-orientation in time as an hypnotherapeutic procedure. *Journal of Clinical & Experimental Hypnosis*, 2, 261-283.
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191.
- Fava, G. A., & Ruini, C. (2003). Development and characteristics of a well-being enhancing psychotherapeutic strategy: Well-being therapy. *Journal of Behavior Therapy and Experimental Psychiatry*, 34, 45-63.
- Feingold, A. (2009). Effect sizes for growth-modeling analysis for controlled clinical trials in the same metric as for classical analysis. *Psychological Methods*, 14, 43-53.
- Forgeard, M. J., Jayawickreme, E., Kern, M. L., & Seligman, M. E. (2011). Doing the

right thing: Measuring wellbeing for public policy. *International Journal of Wellbeing*, 1, 79-106.

Frazier, P., Tennen, H., Gavian, M., Park, C., Tomich, P., & Tashiro, T. (2009). Does self-reported posttraumatic growth reflect genuine positive change? *Psychological Science*, 20, 912-919.

Garlan, R. W., Butler, L. D., Rosenbaum, E., Siegel, A., & Spiegel, D. (2010). Perceived benefits and psychosocial outcomes of a brief existential family intervention for cancer patients/survivors. *OMEGA: Journal of Death and Dying*, 62, 243-268.

Garlick, M., Wall, K., Corwin, D., & Koopman, C. (2011). Psycho-Spiritual Integrative Therapy for women with primary breast cancer. *Journal of Clinical Psychology in Medical Settings*, 18, 78-90.

Gilbert, D. T., & Wilson, T. D. (2007). Propection: Experiencing the future. *Science*, 317, 1351-1354.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the big five personality domains. *Journal of Research in Personality*, 37, 504-528.

Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology*, 74, 797-816.

Jayawickreme, E., & Blackie, L. E. (2014). Post-traumatic growth as positive personality change: Evidence, controversies and future directions. *European Journal of Personality*, 28, 312-331.

- Joseph, S. (2013). *What doesn't kill us: The new psychology of posttraumatic growth*. New York, NY: Basic Books.
- King, L. A., & Napa, C. K. (1998). What makes a life good? *Journal of Personality and Social Psychology*, 75, 156-165.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9. *Journal of General Internal Medicine*, 16, 606-613.
- Luoma, J. B., Kohlenberg, B. S., Hayes, S. C., & Fletcher, L. (2012). Slow and steady wins the race: A randomized clinical trial of acceptance and commitment therapy targeting shame in substance use disorders. *Journal of Consulting and Clinical Psychology*, 80, 43-53.
- Lindstrom, C. M., Cann, A., Calhoun, L. G., & Tedeschi, R. G. (2013). The relationship of core belief challenge, rumination, disclosure, and sociocultural elements to posttraumatic growth. *Psychological Trauma: Theory, Research, Practice, and Policy*, 5, 50-55.
- McDonald, S. D., & Calhoun, P. S. (2010). The diagnostic accuracy of the PTSD Checklist: A critical review. *Clinical Psychology Review*, 30, 976-987.
- McNally, R., Bryant, R., & Ehlers, A. (2003). Critical Incident Stress Debriefing. *Public Interest*, 4, 45-79.
- Morgan, A. (2000). *What is narrative therapy? An easy-to-read introduction*. Adelaide, South Australia: Dulwich Centre Publications.
- Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology*, 109, 504-511.

- Oettingen, G., Hönig, G., & Gollwitzer, P. M. (2000). Effective self-regulation of goal attainment. *International Journal of Educational Research*, 33, 705-732.
- 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. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, 8, 162-166.
- Peterson, C., & Seligman, M. E. (2004). *Character strengths and virtues: A handbook and classification*. New York: Oxford University Press.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.
- Riggs, R. (2011, March 25). Does hysterical strength really exist? [online magazine article]. Retrieved from <http://mentalfloss.com/article/27333/does-hysterical-strength-really-exist>.
- Roepke, A. M. (2015). Psychosocial interventions and posttraumatic growth: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 83, 129-142.
- Roepke, A. M., & Seligman, M. E. (2014). Doors opening: A mechanism for growth after adversity. *The Journal of Positive Psychology*, 10, 107-115.
- Rogers, Carl. (1961). *On becoming a person: A therapist's view of psychotherapy*. London: Constable.
- Rollnick, S., & Miller, W. R. (1995). What is motivational interviewing? *Behavioural and Cognitive Psychotherapy*, 23, 325-334.

- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069-1081.
- Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies*, 9, 13-39.
- SAS Institute. (2014). SAS software (Version 9.4) [software]. Cary, NC: SAS Institute.
- Schauer, M., Neuner, F., & Elbert, T. (2005). *Narrative Exposure Therapy: A short term intervention for traumatic stress disorders after war, terror or torture*. Cambridge, MA: Hogrefe & Huber.
- Sheikh, A. I. (2008). Posttraumatic growth in trauma survivors: Implications for practice. *Counselling Psychology Quarterly*, 21, 85-97.
- Seligman, M. E. (2012). *Flourish: A visionary new understanding of happiness and well-being*. New York: Simon and Schuster.
- Seligman, M. E., & Csikszentmihalyi, M. (2000). *Positive psychology: An introduction*. *American Psychologist*, 55, 5-14.
- Seligman, M. E., Railton, P., Baumeister, R. F., & Sripada, C. (2013). Navigating into the future or driven by the past. *Perspectives on Psychological Science*, 8, 119-141.
- Seligman, M. E., Rashid, T., & Parks, A. C. (2006). Positive psychotherapy. *American Psychologist*, 61, 774-788.
- Shakespeare-Finch, J., & Armstrong, D. (2010). Trauma type and posttrauma outcomes:

- Differences between survivors of motor vehicle accidents, sexual assault, and bereavement. *Journal of Loss and Trauma*, 15, 69-82.
- Shakespeare-Finch, J. E., Shochet, I. M., Roos, C. R., Craig, C., Armstrong, D., Young, R. M., & Wurfl, A. (2014). Promoting posttraumatic growth in police recruits: Preliminary results of a randomised controlled resilience intervention trial. In *Australian & New Zealand Disaster and Emergency Management Conference*, Association for Sustainability in Business Inc., QT Hotel Gold Coast, Surfers Paradise, QLD.
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53, 80-93.
- Taylor, S. E., Pham, L. B., Rivkin, I. D., & Armor, D. A. (1998). Harnessing the imagination: Mental simulation, self-regulation, and coping. *American Psychologist*, 53, 429.
- Tedeschi, R. G., & Calhoun, L. G. (2004). "Posttraumatic Growth: Conceptual Foundations and Empirical Evidence". *Psychological Inquiry*, 15, 1-18.
- Tedeschi, R. G., & McNally, R. J. (2011). Can we facilitate posttraumatic growth in combat veterans? *American Psychologist*, 66, 19-24.
- Vincent, W. L. (2010). *Telling stories in a veterans' Life Review Group: Design, Pilot Study, and Evaluation*. Antioch University New England, Keene.
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993). *The*

*PTSD checklist: reliability, validity, and diagnostic utility.* Paper presented at the annual meeting of the International Society for Traumatic Stress Studies, San Antonio, CA.

Weingarten, K. (1998). The small and the ordinary: The daily practice of a postmodern narrative therapy. *Family process, 37*, 3-15.

Wilkins, K. C., Lang, A. J., & Norman, S. B. (2011). Synthesis of the psychometric properties of the PTSD checklist (PCL) military, civilian, and specific versions. *Depression and Anxiety, 28*, 596-606.

Wilson, T. D. (2011). *Redirect: The surprising new science of psychological change.* New York: Penguin Group.

Wilson, T. D., & Linville, P. W. (1982). Improving the academic performance of college freshmen: Attribution therapy revisited. *Journal of Personality and Social Psychology, 42*, 367-376.

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*, 30-41.

Zoellner, T., & Maercker, A. (2006). Posttraumatic growth in clinical psychology: A critical review and introduction of a two component model. *Clinical Psychology Review, 26*, 626-653.



Table 1

*Baseline Demographic and Psychosocial Characteristics of Intervention Participants (RCT Sample).*

<i>Demographic variables</i>	Frequency (%)
Age ( <i>SD</i> )	36.32 (13.75)
Gender (% Female)	17 (50%)
Ethnicity & Race*	
Asian/Pacific Islander	3 (11%)
Black/African-American	11 (41%)
Hispanic or Latino	2 (7%)
Native American	0 (0%)
White/Caucasian	11 (41%)
Other	0 (0%)
Religion*	
Christian	11 (41%)
Catholic	2 (7%)
Muslim	2 (7%)
Jewish	4 (15%)
Hindu	1 (4%)
Spiritual but not religious	3 (11%)
Agnostic	1 (4%)
Atheist	2 (7%)
Other	0 (0%)
Educational attainment	
Less than bachelor's degree	18 (53%)
Bachelor's degree	8 (24%)
Graduate degree	8 (24%)
<i>Psychosocial variables</i> (instrument range)	Mean ( <i>SD</i> )
PTSD symptoms <sup>a</sup> (17-85)	31.00 (7.66)
Depression symptoms <sup>b</sup> (0-27)	6.35 (3.77)
Life satisfaction <sup>c*</sup> (5-35)	20.30 (7.07)
Social support <sup>d*</sup> (12-84)	62.59 (15.72)
Retrospective PTG <sup>e*</sup> (0-105)	54.93 (25.06)
Current standing PTG <sup>f*</sup> (0-105)	72.37 (18.52)
Well being <sup>g*</sup> (54-324)	245.56 (36.56)
Therapy use at pre-test*	5 (18.5%)
Medication use at pre-test*	5 (18.5%)
<i>Bereavement variables</i>	Mean ( <i>SD</i> )
Months since loss ( <i>SD</i> )	13.59 (10.06)
How upsetting, 1-7 ( <i>SD</i> )	5.88 (0.84)
How close to the deceased, 1-6 ( <i>SD</i> )	4.74 (0.93)

*Note.*  $N = 34$ . \*Data available only for participants who completed the pre-test, when these measures were administered ( $n = 27$  in intervention group). <sup>a</sup>PCL. <sup>b</sup>PHQ-9. <sup>c</sup>SWLS. <sup>d</sup>MSPSS. <sup>e</sup>PTGI. <sup>f</sup>C-PTGI. <sup>g</sup>Ryff Scales sum.

Table 2

*Focus Group Participants' Ratings of Satisfaction with Intervention.*

Rating of Satisfaction with Intervention	Mean (SD)
<i>On a scale of 1-5, how engaging was the activity?</i>	
Activity 1: Appreciation of Life	3.83 (0.75)
Activity 2: Personal Strengths	4.67 (0.52)
Activity 3: New Possibilities	5.00 (0.00)
Activity 4: Backward Imaging	4.50 (0.55)
Average Rating (Across All Four Activities)	4.50 (0.16)
<i>On a scale of 1-5, how helpful was the activity in introducing an idea about posttraumatic growth?</i>	
Activity 1: Appreciation of Life	3.83 (0.75)
Activity 2: Personal Strengths	4.67 (0.52)
Activity 3: New Possibilities	4.67 (0.52)
Activity 4: Backward Imaging	4.17 (1.17)
Average Rating (Across All Four Activities)	4.33 (0.59)
<i>On a scale of 1-5, how offensive was the activity, if at all?</i>	
Activity 1: Appreciation of Life	1.00 (0.00)
Activity 2: Personal Strengths	1.00 (0.00)
Activity 3: New Possibilities	1.67 (1.63) <sup>a</sup>
Activity 4: Backward Imaging	1.00 (0.00)
Average Rating (Across All Four Activities)	1.17 (0.41) <sup>a</sup>
<i>On a scale of 1-5, how upsetting was the activity, if at all?</i>	
Activity 1: Appreciation of Life	1.17 (0.41)
Activity 2: Personal Strengths	1.33 (0.52)
Activity 3: New Possibilities	1.33 (0.52)
Activity 4: Backward Imaging	1.33 (0.52)
Average Rating (Across All Four Activities)	1.29 (0.40)
<i>Would you include this activity in the posttraumatic growth intervention?</i>	% endorsing
	'yes'
Activity 1: Appreciation of Life	100%
Activity 2: Personal Strengths	100%
Activity 3: New Possibilities	100%
Activity 4: Backward Imaging	100%
Overall Response (Across All Four Activities)	100%

*Note.*  $N = 6$ . <sup>a</sup>We suspect that the participant who endorsed "5" (extremely upsetting) for Activity 3 did so in error, as all his/her other feedback about this activity was positive. If we were to exclude this outlying score, these averages would be 1.00 (0.00).

Table 3

*RCT Participants' Satisfaction with the SecondStory Intervention.*

Question (rated on 1-5 Likert scale)	Mean (SD)
<i>Overall, how satisfied were you with this program?</i>	4.28 (0.62)
<i>Overall, how engaging/interesting were the activities and discussions?</i>	4.24 (0.67)
<i>Overall, how helpful were the activities and discussions?</i>	4.02 (0.75)
<i>Overall, how helpful were the other participants?</i>	4.02 (0.75)
<i>Overall, how upsetting were the activities and discussions?</i>	2.02 (1.11)
<i>Overall, how offensive were the activities and discussions?</i>	1.09 (0.29)
<i>Overall, would you recommend this program to someone else who has lost a loved one?</i>	4.50 (0.66)

*Note.*  $N = 23$

Table 4

*RCT Participants' Preferences for Specific Intervention Modules.*

Module	Mean ranking	n*
<i>(1) Using stories to make meaning of the past and plan for the future</i>	2.18 (1.33)	11
<i>(7a) Integrating what was learned, sharing parting thoughts</i>	2.22 (1.56)	9
<i>(2) Identifying strengths forged through adversity</i>	2.31 (1.40)	16
<i>(4) Understanding and creating changes in relationships after adversity</i>	2.59 (1.58)	17
<i>(3) Exploring changes in worldview after adversity</i>	2.75 (1.34)	16
<i>(5) Identifying new possibilities for the future</i>	2.93 (1.39)	15
<i>(6) Setting and pursuing goals</i>	3.00 (1.58)	21
<i>(7b) Writing a message to future participants</i>	3.36 (1.69)	11

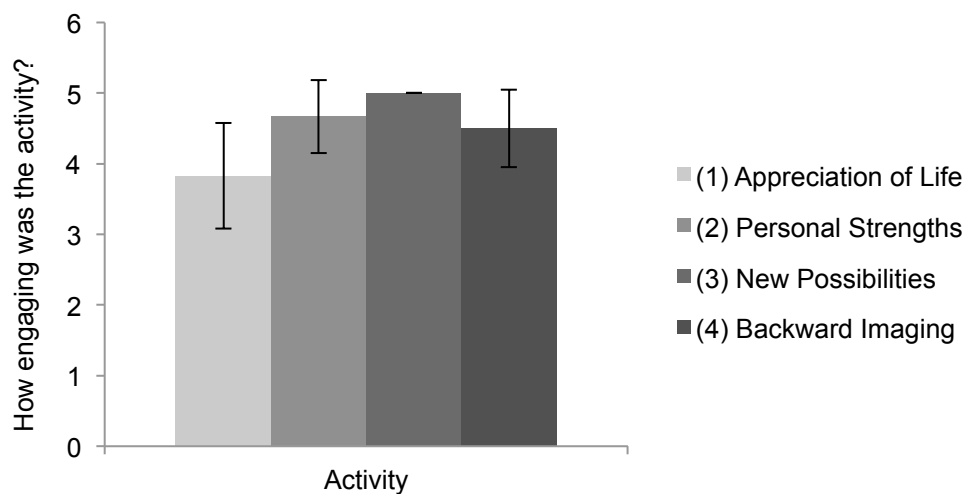
*Note.* \*The 23 participants who completed the feedback survey did not necessarily include every module in their rank-order lists; this column shows the number of times a module was ranked. Some participants indicated a tie for first-place among multiple modules (each assigned a rank of “1” in this analysis). Participants were asked to rank the two aspects of Module 7 separately: writing a letter to future participants vs. engaging in the closing discussion.

Table 5

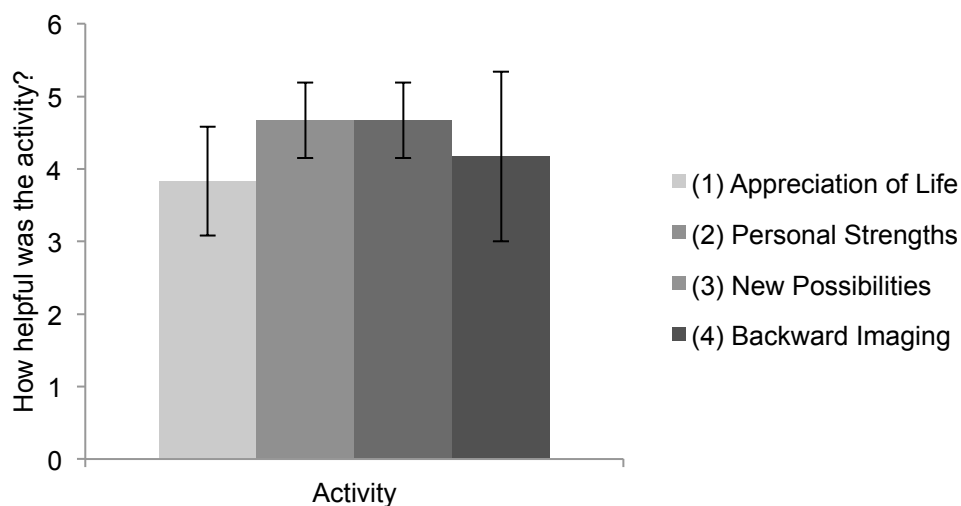
*RCT Participants' Free-Response Feedback about the SecondStory Intervention.*

Response	$\kappa$	Endorsed by <i>n</i> (%)
<i>What did you like best about taking part in our program?</i>		
Speaking openly with other people; group format	.75	19 (82%)
Staff/facilitator	1.00	4 (17%)
Videos/media	1.00	3 (13%)
Useful/diverse topics and activities	.60	3 (13%)
Reframing; focusing on positive	1.00	2 (9%)
Learning to be proactive	1.00	1 (4%)
Well-executed logistically	1.00	1 (4%)
<i>What did you like least about taking part in our program?</i>		
Nothing; happy with program <sup>a</sup>	1.00	11 (48%)
Dissatisfying interaction with other participant(s)	1.00	3 (13%)
Did not understand or benefit from a specific module	1.00	2 (9%)
Logistical concerns (e.g., schedule, time spent seated)	1.00	2 (9%)
Discussion of spirituality/faith	1.00	1 (4%)
Pacing of program	1.00	1 (4%)
<i>If you could change anything about the program, what would you change?</i>		
Nothing; happy with program <sup>a</sup>	1.00	8 (35%)
Have larger groups	1.00	3 (13%)
Change screening process (to alter group composition, type of participants)	1.00	3 (13%)
Change/remove a specific module	1.00	1 (4%)
Include more videos	1.00	1 (4%)
Include more worksheets/discussions/activities	1.00	1 (4%)
Change logistical issues (e.g., schedule, time spent seated)	1.00	1 (4%)
Alter pace of program	1.00	1 (4%)
<i>If you could add anything to the program, what would it be?</i>		
Nothing; happy with program <sup>a</sup>	.88	12 (52%)
Change group composition (e.g., to make it more/less diverse)	1.00	2 (9%)
Add more physical activity	1.00	2 (9%)
Include more group discussions	1.00	1 (4%)
Make more connections between the intervention modules	1.00	1 (4%)
Change logistical details (specifically, increase food/beverage choices)	1.00	1 (4%)
<i>How would you describe this program, in one sentence, to someone who didn't know anything about it?</i>		
Loss themes	.82	15 (65%)
Positive psychology themes	.81	8 (35%)
A good/helpful program (in general)	.69	8 (35%)
Discussion themes	.80	7 (30%)
Future themes	.80	6 (26%)
Past themes	.86	4 (17%)

*Note.* All intervention participants ( $n = 23$ ) took the feedback survey, however, some participants did not answer all questions, and some participants gave multiple answers to a single question (and thus percentages listed above do not add to 100%). All  $\kappa$  values were statistically significant at  $p < .01$ . <sup>a</sup>These numbers only include participants who explicitly noted that there was nothing they disliked or wished to change/add (participants who simply left this answer blank are excluded).

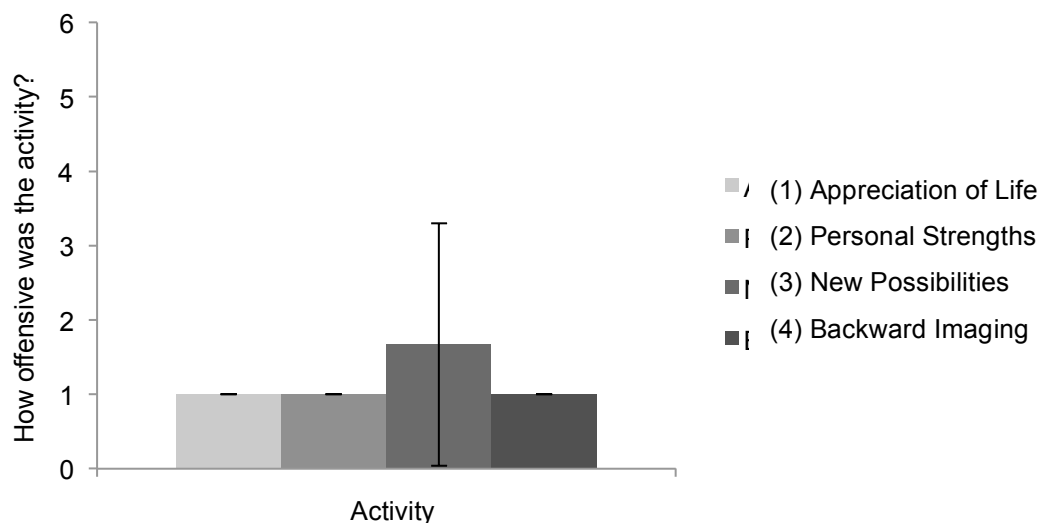


*Figure 1a.* Focus group participants' satisfaction with intervention activities. This figure illustrates mean ratings for the question: "On a scale of 1-5, how engaging was the activity?" Bars represent standard deviations for each rating.

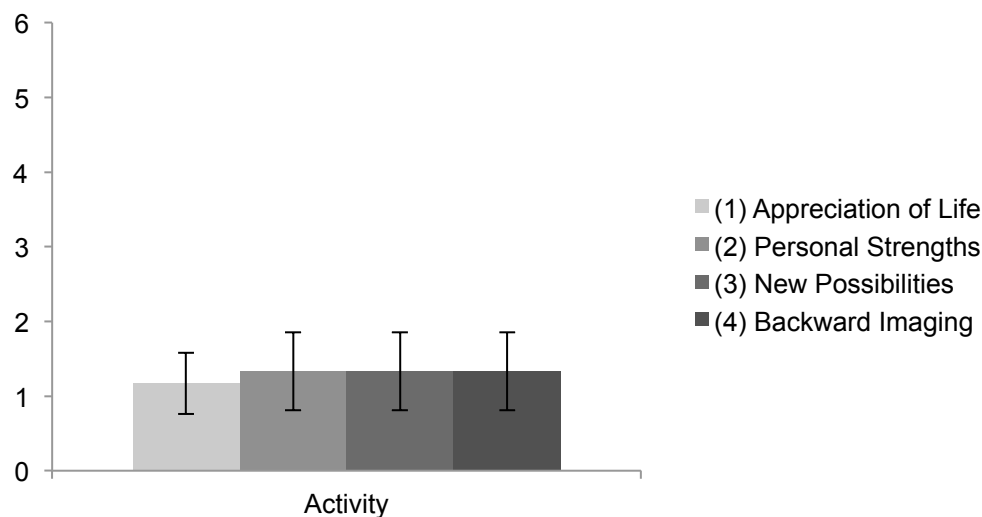


*Figure 1b.* Focus group participants' satisfaction with intervention activities. This figure illustrates mean ratings for the question: "On a scale of 1-5, how helpful was the activity in introducing an idea about posttraumatic growth?" Bars represent standard deviations for each rating.





*Figure 1c.* Focus group participants' satisfaction with intervention activities. This figure illustrates mean ratings for the question: "On a scale of 1-5, how offensive was the activity, if at all?" Bars represent standard deviations for each rating.



*Figure 1d.* Focus group participants' satisfaction with intervention activities. This figure illustrates mean ratings for the question: "On a scale of 1-5, how upsetting was the activity, if at all?" Bars represent standard deviations for each rating.

## Appendix A

### *Coding Guidelines for Participants' Open-Ended Responses (Study 2)*

#### **Directions:**

Read each free-response answer with the below questions in mind and code in the appropriate spreadsheet. Be sure to enter only the numbers to the left of each category below (no words). Code every participant's response to every question, being sure to assign at least one of these categories. (A participant's response may fall into more than one category.)

Note: Raters are blind to the participant's identity.

#### **Question: What did you like best about taking part in our program?**

##### ***Variable name: Best***

- (1) Logistical details (e.g., breaks, lunch, schedule, etc.)
- (2) Speaking freely with others (includes expressing oneself to others and hearing others' experiences)
- (3) The staff/facilitator (includes comments on teaching/presenting style)
- (4) Videos/media
- (5) Useful/varied activities and topics
- (6) Learning to reframe; discussing topics in a way that isn't exclusively negative
- (7) Focusing proactively on things one can do to improve [some aspect of] life

#### **Question: What did you like least about taking part in our program?**

##### ***Variable name: Worst***

- (1) Logistical details (e.g., breaks, lunch, schedule, seating, etc.)
- (2) Issues re: interactions with other participants (e.g., not connecting, relating, liking; not wanting to share/talk)
- (3) A particular module/activity (any)
- (4) Pace of the program (too slow/fast)
- (5) Concerns re: the treatment of religion/faith/spirituality
- (6) Nothing/no complaints/liked everything

#### **Question: If you could change anything about the program, what would you change?**

##### ***Variable name: Change***

- (1) Logistical details (e.g., breaks, lunch, schedule, etc.)
- (2) Change/remove a particular activity/module (any)
- (3) Larger group size
- (4) More videos
- (5) More worksheets/discussions/activities
- (6) Fewer discussions/activities (condense program; change pace)

- (7) Alter the screening process (to impact what type of participants are in the group)
- (8) Nothing/no complaints/liked everything

**Question: If you could add anything to the program, what would it be?**

**Variable name: Add**

- (1) Logistical details (e.g., breaks, lunch, schedule, etc.)
- (2) More physical activity
- (3) More group discussion
- (4) Changes to group composition (more people in group, more diverse group, less diverse group)
- (5) More connections between activities/modules
- (6) Nothing/no complaints/liked everything

**Question: How would you describe this program, in one sentence, to someone who didn't know anything about it?**

**Variable name: Describe**

- (1) *Loss* themes: supportive place/way/group to think about, talk about, open up about loss
- (2) *Discussion* themes: guided/moderated/focused discussion
- (3) *Past* themes: how loss changed/impacted you; reflect on past, move through past
- (4) *Future* themes: what you want your life/future to be like; ideas for how to make changes, move on, help oneself
- (5) *Positive psychology* themes: gain positivity, gratitude, well-being, growth, strengths; not therapy
- (6) General remarks: good/helpful program, glad to have taken part, provided relief/benefit

**Question: If you marked [upsetting] above, can you please help us understand what was upsetting?**

**Variable name: WhyUpset**

- (1) Being reminded of/thinking about/talking about loss and death is upsetting
- (2) The facilitator said something that upset me