POSITIVE PSYCHOTHERAPY: BUILDING A MODEL OF
EMPIRICALLY SUPPORTED SELF-HELP

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ABSTRACT

POSITIVE PSYCHOTHERAPY: BUILDING A MODEL OF EMPIRICALLY SUPPORTED SELF-HELP

Acacia C. Parks-Sheiner

Martin E.P. Seligman (Supervisor)

A sizable portion of the population experiences subthreshold depressive symptoms, and these symptoms can lead to substantial functional impairment. However, there is little research on psychological interventions for depressive symptoms in nonclinical populations. In a series of three studies, I examine the efficacy of Positive Psychotherapy (PPT) – an intervention designed to decrease depressive symptoms in mild-moderately depressed individuals by increasing pleasure, engagement, and meaning – both in-person and over the web. I also explore the mechanism by which PPT decreases symptoms without ever targeting depression directly.

In Study 1, I piloted a 6-week group PPT intervention. Participants randomly assigned to receive group PPT experienced fewer depressive symptoms and greater life satisfaction than did no-intervention controls. Decreases in depressive symptoms were mediated by increases in life satisfaction, but only partially. In Study 2, I examined the effects of the techniques used in PPT when administered individually. I randomly assigned participants to complete one of the six PPT exercises or a placebo control exercise. When analyzed as one group, PPT exercises led to significant improvement in depressive symptoms while the Control exercise did not. Both PPT exercises and the
Control exercise increased life satisfaction. However, the PPT exercises did not significantly differ from the Control exercise on either outcome. In Study 3, I piloted an online version of PPT. Compared to assessment-only controls, online PPT participants experienced significantly fewer depressive symptoms. However, there were no significant effects on life satisfaction, nor on another potential mediator: positive emotion. There was substantial variation in rates of compliance and continued use for each exercise; however, three months later, 91% of those who completed the follow-up assessment were still practicing at least one of the six exercises, with the average participant continuing to use between 2 and 3 exercises.

Despite limitations, which include high dropout rates and structural rigidities due to the automated design of online PPT, this series of studies provides an important first step in developing a low-cost, acceptable intervention for decreasing mild-moderate depressive symptoms in nonclinical populations.
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Depression is a major public health issue in the United States and around the world. Unipolar depression affects 11 million Americans per year, a higher prevalence than any other mental disorder (Greenberg, Stiglin, Finkelstein & Berndt, 1993). Costing an estimated $43 billion per year in treatment, depression is the leading cause of disability and lost productivity worldwide (Murray & Lopez, 1996). Furthermore, depression is a chronic disease; once an individual has experienced his first episode, he is 2-3 times more likely to experience subsequent episodes (Lewinsohn, Clarke, Seeley & Rohde, 1994).

Psychology has been successful in developing treatments for major depression; cognitive-behavioral therapy (CBT) produces marked improvements in 65-70% of depressed patients, about equal to pharmacotherapy, and has better efficacy than pharmacotherapy for preventing relapses (Beck et al., 1985; DeRubeis et al., 2005; Evans et al., 1992; Hollon et al., 1992; Jarrett et al., 2001). However, less research has been done on ways to improve the lives of individuals who are unhappy but do not meet criterion for a mental disorder (Seligman & Csikszentmihalyi, 2000). In the present series of studies, we were concerned with individuals with subsyndromal depression – that is, individuals who are experiencing depressive symptoms, but who do not meet criteria for a major depressive episode. Mild-moderate depressive symptoms are at least as prevalent as Major Depressive Disorder, and many individuals with subthreshold depressive symptoms experience substantial functional impairment (Flett, Vredenburg, & Krames, 1997; Judd, Akiskal & Paulus, 1997). Furthermore, subthreshold symptoms are a strong
risk factor for developing major depression in the future (Cuijpers & Smit, 2004). By decreasing subthreshold depressive symptoms, then, we may be able to both ameliorate immediate distress and potentially decrease risk for later experiencing an episode.

One plausible approach to decreasing subthreshold symptoms would be to apply the same treatments used for major depression to non-clinical populations. Indeed, several research groups have tried such an approach, offering CBT interventions ranging from 8-15 sessions to individuals experiencing mild-moderate symptoms (Seligman, Schulman & DeRubeis, 1999; Gillham, Reivich, Jaycox & Seligman, 1995; Yu & Seligman, 2002; Clarke, Hawkins, Murphy, Sheeber, Lewinsohn & Seeley, 1995). Taken together, the results of these studies are statistically significant but clinically marginal; in a review conducted by Parks (2004), effect sizes for these interventions ranged from .2-.3, with actual differences in self-report symptom levels as low as 1 point on the Beck Depression Inventory. In contrast, CBT in full-blown depression produces substantially larger effects (ranging from .82 - 1.11; Butler & Beck, 2000).

One would expect larger effect sizes when CBT is used for severe depression than when it is used in mild-moderately depressed populations, as there is more room for improvement in individuals with more severe symptoms. However, the actual difference in effect sizes is surprisingly large; a decrease in 1 point on the BDI would leave most mild-moderately depressed individuals well above the non-depressed cutoff. How do we address this problem? One possible approach would be to make available CBT interventions more intensive. However, CBT is costly, and even in the absence of financial barriers, the percentage of people suffering from depression who seek treatment is notoriously low (Regier et al., 1993; Kessler et al., 1999). One might imagine that rates
are even lower in people who are not currently suffering from full-blown depression; prevention has historically been an uphill climb in many fields, but especially when it comes to mental health.

An alternative to a disorder-focused or preventive approach would be to focus on wellness; rather than seeking to relieve symptoms or undo vulnerabilities, as is the goal of CBT, I propose an approach consistent with Seligman and Csikszentmihalyi (2001)’s call to build upon what is best in an individual. There are three advantages to a wellness approach when addressing subthreshold depressive symptoms. First, by focusing on positive aspects of patients’ lives regardless of the negative aspects, we remove the stigma that often poses a barrier to seeking treatment (Barney, Griffiths, Jorm & Christensen, 2005). Rather than identifying individuals as “at-risk” for a disorder and offering a way to reduce that risk, patients are simply working to become happier. Second, unlike problem-solving, which can often be an arduous task, discussing and improving upon positive aspects of one’s life is immediately rewarding; while it may be difficult to inspire patients to do unpleasant work on what seems to them a minor or non-pressing problem, a wellness-focused intervention is bound to be more self-reinforcing (Seligman, Rashid & Parks, 2006). Third, as I will discuss in greater detail below, there is evidence that both internal and external positive factors in an individual’s life can provide a buffer against negative factors. In short, one may be able to reduce negative emotion and negative thinking without ever directly addressing either. In doing so, we can simultaneously reduce impairment caused by subthreshold depression and promote flourishing.
Seligman’s Theory of Happiness

Seligman (2002) presents a framework in which the unwieldy concept of “happiness” is divided into three distinct components: pleasure (or positive emotion), engagement, and meaning. Below, I provide a summary of each of these three concepts, along with an overview of their empirical basis.

Pleasure. According to Seligman (2002)’s framework, one potential route to happiness involves fostering positive emotions about the past (e.g. pride), present (e.g. contentment), and future (e.g. hope). There are several immediate benefits to experiencing positive emotions, such as increased creativity, more efficient thinking, and the ability to more effectively integrate information (Fredrickson, 2001). Positive emotions can also relieve the physical effects of negative emotions by counteracting the cardiovascular activation experienced as a result of fear or anxiety (Fredrickson & Levenson, 1998; Fredrickson et al., 2000). Furthermore, there are long-term benefits to experiencing positive emotion on a regular basis. One such benefit is enhanced resilience; positive emotions contribute to one’s ability to find meaning in negative experiences and enhance resilience against depression during times of stress (Fredrickson et al., 2003; Tugade & Fredrickson, 2004). A meta-analysis by Lyubomirsky, King, and Diener (2005) found that frequent positive affect predicts future success in every domain of life, from work to social relationships to physical health. Lastly, positive emotions appear to be self-sustaining – experiencing positive emotions in the present makes future positive emotions more likely (Fredrickson & Joiner, 2002).

In short, pleasure and the experience of immediate positive emotion seem to be worthwhile, not just in the moment they are experienced, but in the long run.
Engagement. In defining engagement, Seligman (2002) cites the idea of “flow,” a term coined by Mihaly Csikszentmihalyi to describe a state in which an individual achieves complete absorption in an activity. In an extensive set of interviews examining the nature of flow, Csikszentmihalyi (1975) found that individuals in a wide variety of activities – ranging from music to sports to computer programming – report very similar experiences. Specifically, flow is characterized by a merging of action and awareness (feeling “inside” the activity), an absence of emotional distractions and mental chatter that allows complete concentration on the task, and a distorted passage of time such that time either “flies” or seems to move very slowly. In order to experience flow, one must engage in an activity that provides a perfect level of challenge given the individual’s capabilities – an activity that is too easy leaves room for the mind to wander, while an activity that is too difficult leads to frustration and self-consciousness (Csikszentmihalyi & Nakamura, 2002).

Many of the benefits of flow take place after, rather than during, the actual flow experience. For example, despite the fact that flow states are characterized by a lack of emotion, individuals often report experiencing intense positive emotions immediately following flow (Nakamura & Csikszentmihalyi, 2002; Cabo, Kleiman, McCauley & Parks, 2004). Similarly, people are more likely to excel in and attach meaning to their jobs if their work engages them in a way that is matched to their individual abilities (Hodges & Clifton, 2001; Wrzesniewski & Dutton, 2001). The experience of flow also leads to heightened tolerance of discomfort (Kellerman & Seligman, 2004). The most notable reward of flow, however, is flow itself; flow is, by definition, worthwhile in its own right. Individuals seek out activities in which they experience flow not for any
external benefit, but because it is intrinsically rewarding to do so (Nakamura & Csikszentmihalyi, 2002).

Meaning. Seligman (2002) defines meaning as an attachment to something larger than oneself. The size of the group to which one is attached can vary in scale from very large (e.g. an entire country) to only a few people (e.g. one’s own family), and the nature of meaning can range from religious to secular, and from personal to professional (Baumeister & Vohs, 2002).

A sense of meaning is important when trying to cope with negative events; one of the most important strategies for accomplishing this is known as making meaning (Baumeister & Vohs, 2002). Making meaning in the face of trauma or bereavement leads to positive health outcomes such as improved immune functioning and lower incidences of physical illness (Pennebaker & Beall, 1986; Pennebaker, Kiecolt-Glaser, & Glaser, 1988; Bower, Kemeny, Taylor, & Fahey, 1998; Bower, Kemeny, Taylor, & Fahey, 2003). Meaning-making also promotes psychological adjustment to loss and trauma, particularly when an individual is able to find a positive meaning in the negative event (Nolen-Hoeksema & Davis, 2002).

Data on the three routes to happiness. In an online study by Peterson, Park, and Seligman (2005), 845 adults reported on their life satisfaction as well as their pursuit of pleasure, engagement, and meaning in life. They found that each of the three routes to happiness – pleasure, engagement, and meaning – independently contributed to the prediction of global satisfaction with life. Furthermore, an individual who pursues all three routes reports greater life satisfaction than would be expected based on the regression equation. In other words, pleasure, engagement, and meaning each
independently lead to life satisfaction, and when all three are present in an individual’s life, they interact synergistically to produce even greater life satisfaction. Conversely, a person with a low score on all three routes reports less life satisfaction than would be predicted by the regression equation; it seems that a lack in all three routes leads to a state of “languishing.” This state of languishing may be related, or even analogous, to depression; in a study reported by Seligman, Rashid, and Parks (2006), clinically depressed young adults reported significantly fewer positive emotions, less engagement, and less meaning than did psychiatric patients who were not depressed.

It seems, then, that pleasure, engagement, and meaning are distinct entities, each of which we have a reason to believe is connected to depression. But is it possible to increase happiness? Below is a review of the substantial literature that suggests the answer is “yes.”

*Increasing happiness*

Lyubomirsky, Sheldon and Schkade (2005) argue that despite hedonic adaptation, which brings us back to a “happiness setpoint” after both positive and negative life events, it is possible to sustainably increase happiness through motivated behavior. In the past several years, research on psychological interventions that target happiness has grown exponentially. A variety of interventions have been tested, starting with a global happiness intervention designed by Fordyce (1977). Fordyce (1977) created a list of 14 “fundamental” techniques, designed to mimic the behaviors of happy people. He asked a group of undergraduates to practice as many of these activities as possible on a daily
basis over the course of two weeks. Compared to control participants, participants in the “fundamentals” group were significantly happier up to a year later (Fordyce, 1983).

The majority of positive intervention research that has followed Fordyce’s work has primarily been in the form of single exercises practiced for a set duration that ranges from one week to six weeks. Lyubomirsky and colleagues have tested several exercises, including journaling about gratitude, practicing acts of kindness, and writing about one’s best possible self, and have found each exercise to result in increased life satisfaction and decreased depressive symptoms when practiced for 6 weeks (Lyubomirsky, Sheldon & Schkade, 2004; Sheldon & Lyubomirsky, 2006). Emmons and colleagues have studied the effects of gratitude journaling on both psychological outcomes (life satisfaction, depressive symptoms) and physical outcomes (quality of sleep, frequency of exercise) (Emmons & McCullough, 2003). Most germane to the current study, Seligman, Steen, Park, and Peterson (2005) compared three exercises – Using Your Strengths, Three Good Things, and The Gratitude Visit – to a placebo exercise in which participants recorded their earliest memories on a nightly basis. The study was conducted entirely over the World Wide Web. After participants completed baseline assessments, Seligman et al (2005) randomly assigned them to one of the above conditions, then asked the participants to practice their assigned exercise for 1 week and report back to the website. They found that Using Your Strengths led to both immediate and lasting decreases in depressive symptoms and increases in happiness, while Three Good Things led to delayed effects on both outcomes. The Gratitude Visit, on the other hand had large immediate effects, but those effects were fleeting.
In summary, it appears that happiness can be increased both immediately and in the long term through brief behavioral interventions. The next step, then, is to design and test an intervention that combined aspects of many of the individual exercises that had already been studied. Our ultimate goal was to evenly target pleasure, engagement, and meaning using techniques or variations on techniques that had promise, based on the literature.

*Positive Psychotherapy*

PPT consists of six exercises designed to target pleasure, engagement, and/or meaning. Each exercise is based either on previously-tested exercises from the literature, or on one or more research studies that lend themselves well to application. Below, I describe each exercise and provide an overview of the research that inspired it.

**Three Good Things.** This exercise was originally designed to counteract the peak-end effect first observed by Kahneman. In essence, the peak-end effects leads individuals to base their assessment of an experience on: 1) the most intense part of the experience (good or bad), and 2) the way the experience ends (Kahneman et al., 1993). Because negative events are often more salient (Baumeister et al., 2001), this means that a single negative event can “spoil” one’s recollection of an otherwise pleasant day. A negative or neutral ending to an experience can also bleed into an individual’s evaluation of that experience. The Three Good Things exercise, then, asks participants to keep a nightly journal of three positive events that happened that day; practicing this exercise simultaneously helps one to recall positive events that might have otherwise been overshadowed by hassles, and ends the day on a positive note. Since human memory is
disproportionately skewed towards negative events, this exercise serves to even the playing field by “retraining attention” (Seligman, Rashid & Parks, 2006).

**Using Your Strengths.** Although there is no prescribed method for creating a flow experience, Csikszentmihalyi was able to identify several factors that make the occurrence of flow more likely. First, a person is more likely to experience flow when engaging in an activity that is intrinsically rewarding to him. Second, flow is more common in activities that require a skill of some sort, and that provide just the right amount of challenge; an activity that is too difficult will be frustrating, while an activity that is too easy will leave room for mind to wander. Csikszentmihalyi’s work on flow generally focused on activities that require skill and practice (chess, playing a musical instrument, etc.), but Seligman (2002) proposed an important next step: that innate abilities might also lead to flow when challenged. Specifically, he argued that character strengths such as kindness, curiosity, and creativity might provide a pathway to flow if one can find a way to make use of those strengths in work, play, and love. In this exercise, participants take a strengths assessment based on Peterson and Seligman (2004)’s classification of strengths and receive a list of their “top 5 strengths.” Participants are then asked to find one new way to use one of their top 5 strengths each day.

**The Gratitude Visit.** People who are grateful are happier and healthier than people who do not regularly experience gratitude (Emmons & Shelton, 2002). In a study by Emmons & McCullough (2003), people who kept a weekly gratitude journal (as compared to people who kept a journal of hassles or neutral events) were more optimistic about the immediate future, were more likely to have made progress towards personal
goals and to have helped someone else, and were more likely to experience health benefits (improved sleep duration and quality, more frequent exercise) over a 2-month period. In addition to being a positive emotion, gratitude can be a tremendous source of meaning (Emmons, 2006). Our exercise, the Gratitude Visit, aimed to provide an intense and immediate increase in gratitude. Participants compose a letter detailing their gratitude to someone who they have not properly thanked and read the letter to that person aloud.

Active-Constructive Responding. This exercise is based on work by Gable and colleagues in which they asked couples to talk about positive and negative events that had happened to them and then coded their interactions around each type of event; they found that a couple’s way of interacting when talking about positive events – namely, whether or not the couple was both active and constructive with each other in response to positive events – was more predictive of relationship well-being and break-ups (or lack thereof) 2 months later (Gable, Reis, Impett, & Asher, 2004; Gable, Gonzaga, & Strachman, 2006). This exercise teaches participants specific techniques for responding actively and constructively to good news from others with the goal of fostering positive emotion and engagement in the context of relationships.

Savoring. Mindfulness, defined as fully experiencing the present moment, leads to more frequent positive emotion and enhanced self-regulation (Brown & Ryan, 2003). Extensive research on Mindfulness-Based Stress Reduction (MBSR) demonstrates that although mindfulness can be a difficult skill to acquire, it leads to numerous physical and psychological benefits (Baer, 2003). While a full mindfulness meditation practice can be time-consuming and difficult to maintain, savoring is a brief and easy to enhance mindfulness in everyday life; in fact, savoring exercises are often used by proponents of
MBSR as an introduction to the experience of mindfulness (Kabat-Zinn, 1990). In the PPT version of Savoring, participants make a conscious effort to savor one experience – be it arranged by them, or part of their daily routine – each day.

**Life Summary.** This exercise is based on research about goal-setting and the benefits of writing about one’s goals, which include: reducing conflict between competing goals, helping to clarify one’s priorities, building self-worth, and promoting adjustment to changes in life circumstances (Emmons, 1986; McAdams, 1996; Pennebaker, 1998; Rivkin & Taylor, 1999). In this exercise, participants write an essay detailing the things for which they hope to be remembered. They then evaluate the extent to which they are using their time to pursue those things in everyday life.

* A comparison of PPT and CBT

PPT has several things in common with CBT. First, much like CBT, patients in PPT are encouraged to take an empirical approach to self-improvement; we ask patients to “experiment” with each exercise, testing a hypothesis that it might help them feel better rather than carrying out an absolute prescription. Second, PPT contains both cognitive and behavioral components, much like CBT. In some exercises, patients are recording and analyzing their thoughts and feelings, and in other exercises, patients are trying new behaviors and observing the impact of those behaviors on their moods. Where PPT is distinct from CBT is in its almost exclusive focus on the positive; in PPT, the work revolves around identifying positive features of individuals and their lives, and building upon them. While a patient in CBT might focus on the way he thinks about negative events, a patient in PPT would focus on the way he thinks about positive events.
Whereas a patient in CBT might learn how to fix weaknesses in his social skills (e.g. poor eye contact and body language), a patient in PPT would learn social behaviors that are novel even to people who are socially skilled (e.g. writing a page-long gratitude letter and reading the letter to the recipient out loud).

Current Research Questions

In the present paper, I report the findings of three studies, each of which addresses some aspects of the following three questions: 1) Does Positive Psychotherapy work? 2) If so, by what mechanism does it work? and 3) Can PPT realistically be disseminated to the general public without harming its efficacy?

The purpose of Study 1 was to evaluate the efficacy of a 6-week group intervention designed to counteract depression by increasing pleasure, engagement, and meaning. This larger study began as my 699 project; in the following year, I continued the study by collecting a second cohort of data so that I could gain a sample size sufficient to conduct a mediation analysis. The research questions I asked in Study 1 were:

- Does PPT decrease depressive symptoms and increase life satisfaction?
- Are the decreases in depression caused by PPT mediated by increases in life satisfaction?

The purpose of Study 2 was to explore the effects of the six exercises contained in group PPT when administered individually. I randomly assigned participants to receive
one of seven exercises: these consisted of the six PPT exercises, and one exercise that was intended to be a "placebo." I asked two questions:

- Do the six exercises of PPT each decrease depression and increase life satisfaction when used separately?
- Are some exercises more acceptable to users, and easier for users to practice, than others?

The purpose of Study 3 was to test the efficacy of an online version of the 6-week PPT intervention used in Study 1. Participants were randomly assigned to complete 6 exercises over 6 weeks (the same format as the intervention in Study 1, sans human hands) or to complete assessments only. I asked the following questions from these data:

- Is online PPT efficacious? How does the efficacy of online PPT compare to group PPT?
- Do people take advantage of an online version of PPT? How do usability and compliance compare to the in-person version?
- Is positive emotion a better candidate than life satisfaction as a proposed mechanism for PPT?
STUDY 1: GROUP POSITIVE PSYCHOTHERAPY

OVERVIEW

The goal of this study was to see whether a 6-week group intervention that targets pleasure, engagement, and meaning can decrease depressive symptoms compared to a no-intervention control group.

METHOD

Sample

I recruited participants from the University of Pennsylvania community through mass emails. All interested participants were screened using the Beck Depression Inventory (BDI; see “Assessments” for more information) and were invited to participate if they scored within the mild-moderate or moderate range (10-24). The sample was 37% Caucasian, 26% Asian, 6% Latino, 20% multiracial, and 11% of unspecified ethnicity. 46% of participants were female. Participants were run in two cohorts – one in Spring 2004 (N=37) and one in Fall 2004 (N=73). Participants in cohort 1 were randomly assigned by coin-toss to group PPT (N=16) or control (N=21) conditions. Participants in cohort 2 were stratified based on BDI and SWLS scores into group PPT (N=37) or control (N=36) conditions.

Note that this does not imply that all participants scored in the 10-24 range at baseline assessment; 33 participants out of 110 scored below 10 at baseline despite having scored between 10-24 on the screening questionnaire.

Participants in the second cohort were stratified because there was a baseline difference in life satisfaction that approached significance in the first cohort data. I used stratification to be sure that differences did not occur in cohort 2 that would push the existing difference towards significance.
Assessments

Participants completed web-based assessments before and after the 6-week intervention period, as well as 3-months, 6-months, and 1 year after post. The two primary outcomes were depressive symptoms and life satisfaction. Depressive symptoms were measured by the BDI (Beck, Steer, & Garbin, 1988), which is a 21-item measure of depressive symptoms that asks a person to rate the extent to which they have experienced a given symptom over the last week. For each item (for example, “I felt sad”), the person gives a rating that ranges from 0 (“I do not feel sad”) to 3 (“I am so sad or unhappy that I can’t stand it”). The score is then totaled to provide an overall rating of depressive symptom severity where 0-9 is non-depressed, 10-18 is mild-moderately depressed, 19-29 is moderate to severely depressed, and 30-63 is severely depressed. Life satisfaction was measured using the Satisfaction With Life Scale (SWLS), a 4-item scale that assesses an individual’s cognitive appraisals of their life satisfaction (Diener, Emmons, Larson & Griffin, 1985). Both measures have demonstrated adequate internal consistency (above .7) in past studies.

I asked participants to complete each assessment via email and allowed up to two weeks to complete an assessment after the initial request. Upon completion of the post assessment, participants received $100 in compensation. They received $50 for each subsequent follow-up completed.

Group Positive Psychotherapy

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3 Due to ethical concerns, we used a 20-item version of the BDI that does not contain an item about suicidal ideation and intent.
As described above, PPT is based on Seligman’s theory of happiness, with each aspect of the intervention addressing one or more of the three components of happiness: positive emotion, engagement, and meaning. We created a manual of homework exercises, each of which targets one or more of these components. The instructions for each assignment are presented in Table 1. The manual contains detailed instructions on how these assignments should be introduced to, completed by, and discussed with participants.

Participants attended a total of 6 weekly sessions, each 1.5 hours in duration. Groups were facilitated by either myself or by one of two postdoctoral fellows. Each session, we asked participants to complete homework exercises during the week, then to return to the group with a completed worksheet outlining what they did. Facilitators discouraged participants from altering the exercises until the final session, during which the group generated modifications that would make each exercise more personally relevant to them. Each session was evenly split between 1) discussion of the previous week’s homework and 2) a lecture-style introduction to the next week’s exercise, including instructions for how to do the exercise. The final session focused on maintenance and customizing the exercises for each participant in order to promote maintenance after termination.

Plan for Analysis

To assess main effects of PPT on depression and life satisfaction, we used hierarchical linear modeling (HLM; Hedeker & Gibbons, 1997). HLMs have an

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4 See appendix.
important advantage over other methods of analysis often used with intervention data: rather than deleting participants with missing data cells, HLMs make use of all data points (see Study 2 “Plan for Analysis” for a much more detailed discussion of the treatment of missing data). An HLM containing data from baseline, post, 3-month, 6-month, and 1-year assessments provided rates of change for each group and evaluated the extent to which the two groups’ trajectories differed significantly from each other.

For all main analyses, including mediation, I combined the two samples.

RESULTS

General summary

Participants who received PPT experienced significantly fewer depressive symptoms and greater life satisfaction than did participants in the no-intervention control group. A mediation analysis suggests that the impact of PPT on depressive symptoms is partially, but not completely, mediated by changes in life satisfaction.

Baseline Characteristics

Baseline depression and life satisfaction scores split by condition, along with independent sample t-tests for potential baseline differences between groups, are displayed in Table 2. The t-tests indicated that there are no significant differences between groups on depression or life satisfaction.

Dropouts
4 participants in the PPT group and 2 participants in the control group dropped out before the post assessment. Two PPT participants left the study due to scheduling conflicts; they were unable to attend any of the PPT groups. The remaining four dropouts simply did not respond to requests to complete assessments after baseline. There were no significant differences between completers and non-completers in terms of depression and life satisfaction at baseline, although small sample size would make any differences difficult to detect.

Efficacy

Descriptive statistics and effect sizes for group differences in depressive symptoms and life satisfaction are displayed in Table 3 and Table 4, respectively.\(^5\) Participants who received PPT experienced significant decreases in depressive symptoms from baseline \((M = 12.94, SD = 4.97)\) to post \((M = 7.82, SD = 5.86)\) and maintained that decrease through 3-month \((M = 7.20, SD = 7.26)\), 6-month \((M = 6.75, SD = 6.46)\), and 1-year \((M = 7.45, SD = 7.85)\) follow-ups, \(t(110) = -5.79, p < .0001\). The control group also changed significantly from baseline \((M = 13.02, SD = 5.14)\) to post \((M = 11.38, SD = 5.14)\) and maintained that change through 3-month \((M = 10.68, SD = 7.35)\) and 6-month \((M = 11.49, SD = 8.06)\) follow-ups, with an additional slight decrease at 1-year \((M = 9.51, SD = 7.35)\), \(t(109) = -2.98, p = .004\). The decrease in depression

\(^{5}\) Because the means appear to have changed over time in a way that is curvilinear rather than linear, and because HLM relies on the assumption that change in the data is linear, I tried two transformation methods on the time variable (log and square root). Log transformation resulted in the best model fit, so the below analyses all used log transformed time.
experienced by the PPT group was significantly higher than that experienced by controls, $t(109) = 2.12, p = .04$.

On the measure of life satisfaction, participants in the PPT group experienced significant increases between baseline ($M = 17.87, SD = 7.01$) and post ($M = 20.29, SD = 7.68$), and then experienced a further increase at 3-month follow-up ($M = 23.82, SD = 6.86$) which they then sustained through 6-month ($M = 23.56, SD = 6.60$) before experiencing yet another increase at 1-year ($M = 25.29, SD = 6.75$), $t(109) = 9.83, p < .0001$. The control group also experienced significant change over time ($t(109) = 6.21, p < .0001$); although controls experienced no change between baseline ($M = 18.47, SD = 6.33$) and post ($M = 18.93, SD = 6.58$), they experienced an increases at 3-months ($M = 21.75, SD = 6.30$), maintained that increase through 6-month ($M = 21.18, SD = 6.59$), and experienced yet another increase at 1-year ($M = 23.36, SD = 6.49$). On average, however, the change estimates for the two groups were significantly different such that PPT participants experienced a greater increase in life satisfaction than did the controls, $t(109) = 2.79, p = .006$.

**Mediation Analysis**

Although our data do not allow us to directly examine questions of temporal mediation, we were able to conduct a single time-point analysis following Baron and Kenny (1986)'s procedure. In a regression where condition predicts change in depressive symptoms between pre and post, condition is a highly significant predictor, $t(102) = 2.67, p = .009$. When pre-post change in our proposed mediator (life satisfaction) is added to the model, life satisfaction is a strong predictor of depressive symptoms at post ($t(102) =$
4.109, \( p < .0001 \), and while condition continues to be a statistically significant predictor \((t(102) = 2.01, p = .05)\), a Sobel test revealed that the extent to which it change in depression is predictive is significantly lessened, \( t(102) = 2.41, p = .02 \). In other words, life satisfaction is a partial mediator -- it accounts for a portion of PPT's effect on depressive symptoms, but it still leaves a substantial portion of the variance unexplained.

**DISCUSSION**

Based on these findings we can propose, at least tentatively, that a mild-moderately depressed individual’s depressive symptoms can lastingly be decreased without ever discussing negative aspects of that individual’s life. It seems that increases in life satisfaction partially explain the effects of PPT on depressive symptoms; however, we must examine other possible variables that may more fully explain the mechanism through which PPT operates.

One important limitation of Study 1 is that the findings are not immediately generalizable. First, the sample was comprised of University of Pennsylvania students, a group that may not be representative of the general population. Second, there is no realistic way to implement group PPT. As we discussed above, there are a variety of factors that prevent people suffering from MDD from seeking treatment, and the impact of these factors is only exacerbated by the lack of motivation in populations for whom depressive symptoms do not stand out as a pressing problem. The use of online interventions allows us access to a sample more representative of the general population, while simultaneously making PPT available at a low cost to the general public; for this reason, both Study 2 and Study 3 were conducted on the World Wide Web.
A second limitation of Study 1 is that the design did not allow us to assess the efficacy and acceptability of each individual exercise. We know that these six exercises lead to decreased depressive symptoms and increased life satisfaction when administered in succession over a 6-week period. However, we do not know if each exercise carries a part of the overall “weight” of the intervention, or if a few exercises are doing all the work. We also do not have a realistic estimate of compliance rates for each specific exercise, as compliance in Study 1 (as measured by completion of homework sheets) was 100%\(^6\). Study 2 examines each of the six exercises in PPT individually in terms of their efficacy and acceptability.

A third limitation of Study 1 is that it did not allow us to determine the causal mechanism underlying PPT. Although life satisfaction accounted for part of PPT’s effect on depressive symptoms, it was not a full mediator. Furthermore, we were not able to assess causality because depressive symptoms and life satisfaction were measured at the same time. In order to form a true model of mediation, we must be able to establish that changes in life satisfaction (or another mediator) temporally precede changes in depressive symptoms. Study 3 is designed to address both of these issues; I assessed positive emotion as an outcome and potential mediator, and conducted weekly assessments in hopes of capturing changes in both depression and positive emotion/life satisfaction as they happen.

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\(^6\) This is almost certainly because compliance was measured by whether or not the participant handed in their homework worksheet, rather than through an anonymous assessment of whether or not they completed the exercise. A participant who did not complete the homework could fill in the worksheet a few minutes prior to their meeting and there would be no way to tell the difference.
STUDY 2: INDIVIDUAL EXERCISES

OVERVIEW

The following exploratory study was designed to accomplish three goals. First, I wanted to examine the relative contribution of the 6 exercises in PPT to PPT’s overall efficacy. Second, I wanted to see whether each exercise had a distinct pattern of impact on depressive symptoms and life satisfaction in the immediate and in the long-term. Third, I wanted to gather usability data on each exercise to see whether some exercises are more acceptable to participants than others.

METHOD

Sample

Participants were 361 adults ranging from age 21-83 ($M = 46.70, SD = 12.43$) with baseline depressive symptoms in the mild-moderate range on the CES-D. As in Study 2, the sample was primarily female (21.9% male) and largely Caucasian (87.8%), with 2.2% of participants characterizing themselves as Asian or Asian American, 1.7% Black or African American, 5.8% Hispanic or Latino American, .3% Native American, and 2.2% Mixed or Unspecified ethnicity. The sample was predominantly American, with 26.9% of participants living outside the US.

Procedure

Recruitment took place on a rolling basis beginning in July 2006 and ending in February 2007. Each potential participant arrived at our website
via links from the Positive Psychology Center’s website and from authentichappiness.org, or by browsing the web (the website can be found by googling “participate in positive psychology research,” for example). Interested parties entered their email address into a web form, after which they received an email containing a registration token – this measure helped to ensure that participants did not enroll multiple times through the same email address, or through a fake email address, in order to get their desired experimental condition. Once a potential participant received their registration token, they had 7 days to return to the website and complete their registration by reading and electronically “signing” a consent form, creating a login, entering their demographic information, and completing baseline questionnaires.

Depression was measured using the Center for Epidemiological Studies Depression Scale (CES-D), a public-domain depression measure that is scored on a scale similar to the BDI (Radloff, 1977). As in Study 1, life satisfaction was measured using the SWLS. After completing the baseline assessment, an automated algorithm randomly assigned to practice Active-Constructive Responding ($N=53$), Three Good Things ($N=53$), Gratitude Visit ($N=37$), Life Summary ($N=55$), Savoring ($N=55$), Using Strengths ($N=54$), or to a placebo exercise (“Early Memories”; $N=54$), which Seligman et al. (2005) found to have immediate but fleeting effects on happiness and depressive symptoms. I asked all participants to practice their assigned exercise for 1 week (the same duration used by Seligman et al., 2005) and then to complete post questionnaires. I also conducted 1-month, 3-month, 6-months, and 1 year follow-ups.
Plan for Analysis

Missing data is a common problem in clinical research; a survey of clinical trials conducted by Hollis and Campbell (1999) found that 75% of the studies they examined had some missing data, and 24% of those studies were missing more than 10% of data cells on their primary outcome. This problem is exacerbated in web-based research, particularly when participants are required to return for multiple assessments. As such, I anticipated substantial missing data as I formulated my plan for data analysis. There is no standard approach to handling missing data, particularly when a large percentage of data cells are empty, as is often the case in web-based research. However, there are a few commonly-used approaches, which I have outlined below.

One common approach used in clinical research is listwise deletion. Listwise deletion, often referred to as a *completers analysis*, is what happens when one performs an analysis of group differences (for example, an ANCOVA) with missing data cells; any participant who has missing data is excluded from the analysis. When one uses a completers analysis, one assumes that missing data are random and that the subset of participants who complete all assessments is just a random subset of the overall sample; by that rationale, failure to include non-completers should have no impact on the nature of the findings (Baker & Laird, 1988). However, there is a general sentiment in the literature against using listwise deletion because it forces the researcher to exclude any participants with missing data, which is problematic for two reasons (Wood, White, & Thompson, 2004). First, excluding dropout participants’ data from analyses can lead to inaccurate conclusions, particularly when dropout participants systematically differ from completers (for example, if more depressed individuals are more likely to give up on a
treatment than are less depressed individuals) (Allison, 2002). Even if non-completers do
not differ from completers on demographic variables and outcomes measured, one might
argue that one still cannot be certain that dropouts were not systematic and that a
completers analysis would not exclude participants who are different in some way from
the non-completers (Allison, 2002). Second, in the context of efficacy trials, a completers
analysis is often insufficient because it does not take dropout rates into account when
making an projection of “efficacy.” For example, two treatments with the same effect
size but very different dropout rates would appear to be equally efficacious in a
completers analysis even though the intervention with the lower dropout rate is more
efficacious in the sense that it has a greater impact on the group of people to whom it is
offered.

One alternative to listwise deletion is imputation. Imputation is a systematic
approach to 1) predicting what empty data cells might have contained had participants
completed the missing assessment, and 2) filling those empty cells with the predicted
value. By entering values into all empty data cells, one can conduct an ANCOVA without
eliminating any participants. There are many methods of imputation, but one method
used often in clinical research is called Last Observation Carried Forward (LOCF); in
LOCF, the researcher fills in a participant’s empty data cells with their most recent score
on that assessment. In essence, LOCF stacks the decks against the intervention by making
the conservative assumption that any participant who drops out after completing only
baseline assessments would have been a “treatment failure” (in other words, they would
not have improved) had they remained in the study. LOCF is built on the assumption that
dropouts are not random and that attrition is an important consideration when evaluating
efficacy. By assuming no improvement among participants who dropped out, any differences observed between two intervention groups will be lessened. Although LOCF has the virtue of being both conservative and easy to understand intuitively, it is sometimes criticized for creating biased estimates (Molenberghs et al, 2004; Wood et al., 2004). Furthermore, particularly in studies with high dropout rates and small sample sizes, LOCF can lead to Type II error; a study can appear to have no effect when, in reality, its effect is simply masked by the many participants who are assumed to have been treatment failures when they may or may not have improved had they stayed in the study.

Another alternative to listwise deletion is Hierarchical Linear Modeling (HLM; see Study 1 Plan for Analysis). Unlike ANCOVAs, which are often used along with the above approaches, HLMs can handle missing data, eliminating the need for imputation methods. Rather than the researcher making a prediction about what each missing participant would have reported based on a theory about missing data, HLM makes a prediction based on the data available for that participant and on the mean data for the other members of the participant’s condition (Hedeker & Gibbons, 1997; Raudenbush & Bryk, 2001). This approach is useful because unlike LOCF, HLM takes the characteristics of the sample into account when estimating the trajectories of participants with missing data so that they behave consistently with the rest of the sample. Another important way that HLM differs from LOCF is that it gives less weight to participants whose data are missing – if a person only completes baseline assessments, for example, they will be included, but they will not contribute as much to the overall change estimate as would a participant who completes all assessments. This provides a good contrast to
LOCF, which gives non-completers and completers equal weight. However, like LOCF, HLM can also provide biased estimates. Specifically, missing data in a large number of data points (as is the case in this study) stretches HLM’s capacity such that it may provide estimates biased in favor of the intervention. It is often the case in clinical trials that participants experience larger improvements in the earlier phases of an intervention than they do in the later stages, but an HLM would assume a consistent rate of change throughout. Because HLMs assume that change will be linear, they often make optimistic projections for participants who improve initially and drop out when it is unlikely that the participants would have experienced that level of change had they stayed.

Both LOCF and HLM have strengths and weaknesses, and neither addresses every problem associated with missing data. When the researcher finds herself forced to choose from multiple approaches, each of which is flawed in a different way, one solution is to conduct a sensitivity analysis (Molenberghs, Kenward, & Goetghebeur, 2001; Wood et al., 2004). In short, a sensitivity analysis is a supplementary analysis that asks the same question in the data as the primary analysis, but makes different assumptions about the missing data. HLM and LOCF make explicit very different assumptions about the nature of dropouts, and as a result, are biased in opposite directions. As such, one would make a good sensitivity analysis for the other.

Due to the large number of conditions (and the large number of analyses necessary to analyze so many group differences) in Study 2, I used a tiered approach to minimize the number of analyses conducted. First, for each main analysis (one for depressive symptoms and one for life satisfaction) I asked whether the six PPT exercises combined led to decreased depressive symptoms and increased life satisfaction, and
whether the changes experienced by people using the PPT exercises differed from those experienced by people using the control exercise. If one or both of these analyses were significant, I would then analyze the six PPT exercises separately, and perform a limited number of planned contrasts, six in total – the minimum number of contrasts necessary to examine differences between the six PPT exercises and the Early Memories control condition. Third, only if the more liberal analyses (HLM) were significant would I conduct the more conservative sensitivity analyses (ANCOVA with LOCF) to verify those significant effects.

RESULTS

The PPT exercises did not significantly differ from the control exercise on either depression or life satisfaction. Although the PPT exercises led to significant decreases in depressive symptoms over time while the control exercise did not, the difference between the two groups was not significant. Both groups led to significant increases in life satisfaction, but again, the groups did not differ. When examined individually, Using Strengths and Savoring had a significant impact on depressive symptoms; both exercises also led to increases in life satisfaction, as did Active-Constructive Responding. Sensitivity analyses confirmed the effects on depressive symptoms, but not the effects on life satisfaction.

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7 Due to the fact that I would be performing 6 unrelated tests, I planned to use a Bonferroni-corrected p-value of .008 (.05 divided by 6) as the threshold for significance in any tests looking at individual exercises.
Baseline Characteristics

I conducted independent sample t-tests to assess baseline differences in depressive symptoms and life satisfaction between the PPT exercises group and the control exercise (Table 5). Neither difference was significant.

Usability Data

Dropouts. Of 361 participants who completed baseline assessments, 275 completed the post assessment 1 week later (76%). Independent sample t-tests found no significant differences on depressive symptoms or life satisfaction between people who returned for post assessment and people who did not. Retention rates decreased with each successive time point, with 61% of the original sample reporting in at 1-month follow-up, 48% at 3-month, 44% at 6-month, and 36% at 1-year.

Table 6 illustrates the retention rates at each time point split by condition. Retention was highest in Life Summary (49%), Gratitude Visit (43%) and Active-Constructive Responding (40%) and lowest in Three Good Things (30%), Savoring (27%), and Using Strengths (24%). Retention for the Early Memories control was somewhere in between (37%).

Compliance. I measured compliance by asking participants whether or not they completed the assigned exercise during the week-long period during which they were assigned to practice it. Participants reported the highest compliance rates with Active-Constructive Responding (89.1%), Life Summary (76.1%), and Savoring (76.2%). The
worst compliance rates were for Three Good Things (65.9%), Using Strengths (61.5%), Gratitude Visit (62.5%). The compliance rate for the Control condition was 57.1%.

**Continued Usage.** At each follow-up, participants reported whether or not they had continued to use their assigned exercise during the period since their last assessment. Out of the participants in the Active-Constructive Responding group who completed 1-month follow-up, 83.7% reported that they were still practicing the exercise. The continued usage rate decreased slightly by 3-month follow-up (80.2%), and again at 6-month follow-up (73.8%), with a much sharper at 1-year follow-up (52.5%). Savoring also had relatively high rates of continued use at 1-month (71.4%), 3-month (71.7%), 6-month (65.4%) and 1-year (59.1%) follow-ups.

Continued usage rates were somewhat lower for Using Strengths, with 58.5% still practicing at 1-month, 40.4% still practicing at 3-month, 42.9% still practicing at 6-month, and 48.5% still practicing at 1-year. Similarly, Three Good Things was still being practiced by 47.1% at 1-month, 49.3% at 3-months, 40.6% at 6-months, and 26.8% of the at 1-year. The Early Memories control exercise was still being used by 45.8% at 1-month, 40% at 3-months, 29.3% at 6-months, and 25.5% at 1-year.

Life Summary had a very low rates of continued use, with 34.7% still using it at 1-month, 39.7% still using it at 3-months, 23% still practicing at 6-months, and 24.5% still practicing at 1-year. Lowest of all was the continued usage rate for the Gratitude Visit, which was 29.5% at 1-month, 16.7% at 3-month, 15.6% at 6-months, and 30.8% at 1-year.
Efficacy

Descriptive statistics for participants who completed a PPT exercise and participants practicing the Control exercises on measures of depressive symptoms and life satisfaction are displayed in Table 7 and Table 8, respectively.

**Depressive symptoms.** Participants who completed one of the PPT exercises became less depressed between baseline \((M = 15.94, SD = 4.82)\) and post \((M = 12.91, SD = 8.62)\) and maintained that decrease through 1-month \((M = 12.89, SD = 9.46)\), 3-month \((M = 12.76, SD = 10.01)\), 6-month \((M = 12.44, SD = 9.13)\), and 1-year \((M = 12.30, SD = 9.81)\) follow-ups, \(t(234) = 4.21, p < .0001\). The control group experienced substantial fluctuations across baseline \((M = 15.19, SD = 4.82)\), post \((M = 11.29, SD = 6.18)\), 1-month \((M = 11.26, SD = 7.62)\), 3-month \((M = 12.52, SD = 9.20)\), 6-month \((M = 15.67, SD = 11.95)\) and 1-year \((M = 12.05, SD = 10.12)\) follow-ups, but the change they experienced over time was not statistically significant, \(t(226) = .247, \text{ns}\). Although PPT’s change estimate was significant and the control group’s change estimate was not, the change estimates for the two groups did not differ significantly from each other, \(t(228) = 1.40, p = .16\).

Since the overall change estimate for the PPT exercises was significant, I conducted a follow-up HLM that calculated change estimates for each individual PPT exercise and compared those change estimates to the control exercise. Two exercises experienced statistically significant change over the course of the study: Savoring and Using Strengths. Specifically, Savoring participants increased a large decrease from baseline \((M = 15.18, SD = 4.76)\) to post \((M = 11.80, SD = 6.97)\) and continued to
experience smaller decreases through 1-month ($M = 10.21$, $SD = 6.76$), 3-month ($M = 9.67$, $SD = 5.61$), 6-month ($M = 7.86$, $SD = 4.91$) and 1-year ($M = 7.93$, $SD = 5.01$) follow-ups, $t(249) = 3.50$, $p = .001$. Participants who practiced Using Strengths also experienced a large increase from baseline ($M = 17.06$, $SD = 4.89$) to post ($M = 13.59$, $SD = 7.73$), as well as another decrease by 1-month follow-up ($M = 10.90$, $SD = 6.76$) which they maintained through 3-month follow-up ($M = 10.50$, $SD = 7.50$); although participants in Using Strengths experienced a small increase in depressive symptoms by 6-month follow-up ($M = 12.65$, $SD = 6.92$), they maintained the same level of depressive symptoms through 1-year follow-up ($M = 12.62$, $SD = 11.38$) and the overall decrease in depressive symptoms they experienced was still significant, $t(262) = 2.72$, $p = .007$.

Neither of the two exercises that experienced significant change in depressive symptoms differed significantly from the control exercise, although the change experienced by the control exercise was not statistically significant, $t(222) = .25$, $p = .80$. Change in depression was not statistically significant for the Gratitude Visit ($t(207) = 1.69$, $p = .09$), Three Good Things ($t(243) = 1.54$, $p = .12$), Active-Constructive Responding ($t(226) = 1.17$, $p = .24$), or Life Summary ($t(204) = .15$, $p = .88$), and none of these groups differed from the control.

In order to confirm the significance of the HLMs, which found that Savoring and Using Strengths experienced significant decreases while the Control group did not, I conducted follow-up sensitivity analyses. Endpoint ANCOVAs using LOCF confirmed that the Three Good Things participants significantly differed from the Control group at 1-month follow-up ($p = .05$) and that the Savoring group significantly differed from the
Control group at 6-month follow-up ($p = .04$). There were no significant differences at other time points.

**Life Satisfaction.** Participants who completed a PPT exercise experienced significant increases in life satisfaction between baseline ($M = 20.59, SD = 7.04$), post ($M = 22.17, SD = 7.26$), and 1-month ($M = 23.48, SD = 7.14$) follow-ups, maintained the increase through 3-month ($M = 23.48, SD = 6.70$) and 6-month ($M = 23.81, SD = 6.94$), follow-ups, then experienced an additional increase at 1-year ($M = 24.42, SD = 6.71$) follow-up, $t(203) = 7.23, p < .0001$. Participants who completed the control exercise also experienced significant change between baseline ($M = 22.28, SD = 7.26$), post ($M = 23.14, SD = 7.25$), 1-month ($M = 24.74, SD = 6.91$), 3-month ($M = 25.32, SD = 5.74$), 6-month ($M = 23.71, SD = 5.43$), a 1-year ($M = 23.75, SD = 6.41$) follow-ups, $t(198) = 1.98, p = .05$. However, the groups did not differ from each other significantly. $t(199) = .97, p = .16$.

Since the change estimate for PPT exercise participants was significant, I performed a follow-up analysis looking at each exercise separately. Active-Constructive Responding, Savoring, and Using Strengths all experienced increases in life satisfaction that were significant at the Bonferroni corrected level of .008. Specifically, participants practicing Active-Constructive Responding experienced a small increase in life satisfaction from baseline ($M = 20.42, SD = 7.05$) to post ($M = 22.64, SD = 7.08$) and maintained that increase through 1-month ($M = 22.97, SD = 7.72$) and 3-month ($M = 22.42, SD = 7.27$) follow-ups until they experienced another small increase at 6-months ($M = 23.67, SD = 6.89$) and another larger increase at 1-year ($M = 26.00, SD = 5.16$).
follow-up, $t(196) = 2.85, p = .005$. Participants practicing Savoring experienced gradual increases throughout the study, from baseline ($M = 22.07, SD = 7.07$) to post ($M = 23.27, SD = 7.12$), 1-month ($M = 25.36, SD = 6.84$), 3-month ($M = 25.58, SD = 5.69$), 6-month ($M = 26.41, SD = 6.06$), and 1-year ($M = 26.73, SD = 6.26$) follow-ups, $t(172) = 4.20, p < .0001$. Participants practicing Using Strengths experienced a moderate increase from baseline ($M = 19.94, SD = 6.03$) to post ($M = 22.67, SD = 7.25$), another increase at 1-month ($M = 24.27, SD = 5.68$) which then remained through 3-month ($M = 24.15, SD = 6.29$) and 6-month ($M = 24.65, SD = 7.31$), followed by yet another increase by 1-year ($M = 26.08, SD = 6.59$), $t(232) = 5.17, p < .0001$.

Three Good Things ($t(212) = 2.20, p = .03$), Life Summary ($t(219) = 2.08, p = .04$), and the Control group ($t(194) = 1.99, p = .05$) experienced increases in life satisfaction that were significant at the .05 level, but were not significant after Bonferroni correction. The Gratitude Visit did not experience any significant change in life satisfaction ($t(176) = 1.52, p = .13$).

The change experienced by the Savoring group was significantly higher than that experienced by the Control group, but not after Bonferroni correction, $t(199) = 2.36, p = .02$. No other groups were significantly different from the Controls.

In order to confirm the significance of the HLMs, which found that Active-Constructive Responding, Savoring, and Using Strengths experienced significant change while Three Good Things, Life Summary, and the Control group may or may not have experienced change, I conducted follow-up sensitivity analyses. Endpoint ANCOVAs using LOCF did not detect any significant differences between the exercises and the
Control group. However, Using Your Strengths was different from the Control group at a level that approached significance at 1-year follow-up ($p = .09$).

**DISCUSSION**

When combined together, the PPT exercises led to significant decreases in depressive symptoms, while the control exercises did not. Both participants using PPT exercises and participants using the Control exercises experienced significant increases in life satisfaction. However, changes experienced by the PPT exercises group were not significantly greater than those experienced by the Control group on either outcome. When analyzed separately, Savoring and Using Strengths led to significant decreases in depressive symptoms and Active-Constructive Responding, Savoring, and Using Strengths led to significant decreases in life satisfaction. However, none of these changes were significantly different from changes experienced by people practicing the control exercises.

The first, and perhaps most important limitation of Study 2 was a lack of an appropriate comparison group. It is difficult to discern the efficacy of each individual exercise in Study 2 because the control condition, an Early Memories journal, did not behave like a “placebo” as it had in Seligman et al. (2005); instead, it produced significant and sustained (though inconsistent) changes in depressive symptoms and life satisfaction. One possible explanation is that when administered over the web, none of these exercises “worked” beyond the placebo effect – however, that seems unlikely given
the significant and sustained effects observed in Three Good Things and Using Strengths by Seligman et al. (2005). Indeed, the patterns of improvement observed in this study seem somewhat consistent with Seligman et al. (2005), as well as with the findings from Study 1; what is inconsistent is the behavior of the Early Memories condition.

One potential explanation for this relates to the potentially different expectations of participants in Study 2 as compared to participants in Seligman et al. (2005). Whereas the exercises tested by Seligman et al. (2005) were unknown to the general public at the time that they were tested, many of the participants in Study 2 arrived at our website after a news article discussing some of the exercises in Seligman et al. (2005) appeared in the popular media and made mention of authentichappiness.org. Whereas the introductory text participants read in Seligman et al. (2005) was very modest, suggesting that the exercises were untested and may or may not work, many participants signed up for Study 2 after reading an article that spoke highly of the exercises being studied, and thus set high expectations among participants. One might imagine that a “placebo” exercise might be applied differently when given to a participant who is determined to benefit from the exercise, as opposed to a participant who has more moderate expectations. The writing participants do in the Early Memories placebo is intended to range from positive to negative to neutral; a participant determined to derive benefit from the activity might have, for example, favored more positive memories. Because we did not collect the journal entries written by participants, however, there is no way to test this hypothesis using the current dataset.
Another substantial limitation of Study 2 is the high dropout rate. Although high dropout rates are common in web intervention research, particularly when the intervention does not target a clinical condition, a high number of dropouts compromises the ability of statistical analyses to make accurate inferences. There is a tension, however, between common measures to increase retention (e.g. financial compensation) and the goal of making the online version of PPT as realistic and as cost-effective as possible. While the increased retention caused by paying participants would increase internal validity, it would decrease external validity – if this web intervention were offered to the general public, users would not be paid to use it. Thus, testing the efficacy of an intervention without using intensive financial compensation for participation would provide the most accurate reflection of how effective the intervention would be in the real world.

This is not to say that there are no appropriate measures for reducing dropout rate; rather, given the above considerations for external validity, we sought to minimize the cost and labor-intensity of our dropout-reduction methods in our design of Study 3. For example, we added more frequent email reminders (which requires no added labor or cost), and gave participants a reminder by phone only if they failed to respond to emails (an effort that requires a relatively small amount of labor – a few phone calls per week). We also added a raffle – for each assessment completed, a participant was entered in a raffle to win one of a few cash prizes. While a raffle adds financial incentive, it does so in a way that is much more cost-effective than paying each person for each assessment, as we did in Study 1.
STUDY 3: ONLINE POSITIVE PSYCHOTHERAPY

OVERVIEW

The goal of Study 3 was to assess the feasibility of an online version of PPT. First, I wanted to see whether an online version of PPT is efficacious for decreasing depressive symptoms, and to compare the efficacy of online PPT with that of group PPT. Second, I wanted to examine usability data, both in terms of the usage rates and attrition associated with each exercise. Third, I set out to replicate the finding that PPT increases life satisfaction and that life satisfaction partially mediates the effects of PPT. I also wanted to examine whether PPT impacts positive emotion and whether positive emotion is a more complete mediator than is life satisfaction.

METHOD

Sample

Participants were 267 adults ranging from age 19-73 ($M = 43.21$, $SD = 11.86$) with mild-moderate depressive symptoms on the CES-D at baseline. The sample was primarily female (24.3% male) and close to evenly split between participants within the U.S. (55.1%) and outside of the U.S. (44.9%). In terms of ethnicity, the sample was largely Caucasian (81.3%), with 9.4% of participants characterizing themselves as Asian or Asian American, 4.1% Black or African American, 2.2% Hispanic or Latino American, .4% Native American, and 2.6% Mixed or Unspecified ethnicity.
Assessment and Procedure

Primary outcomes were depressive symptoms and life satisfaction. Depressive symptoms were measured using the CES-D as in Study 2, and as in Studies 1 and 2, Life Satisfaction was measured using the SWLS. In addition, we measured positive emotion using the positive emotion subscale of the Positive and Negative Affect Scales (PANAS), a 20-item measure that names individual emotions and asks the individual to report the extent to which they have experienced each emotion in a given period – over the last week, for the purposes of this study (Watson, Clark, & Tellegen, 1988).

I recruited participants for Study 3 between February 2007 and November 2008. Each participant went through the same recruitment, registration, consent, and baseline assessment procedures as in Study 2 (see above). After registration was completed, an automated algorithm randomly assigned participants to either the 6-week online PPT program (N=125) or an assessment-only control condition (N=142). I asked all participants, regardless of condition, to complete weekly assessments for the 6 weeks immediately following their registration. Assessments contained questionnaires about usage and acceptability – participants indicated whether or not they completed the assigned exercise and how often they used it. Participants had 7 days to complete each assessment, and received multiple automatic email reminders whenever they were due for an assessment, as in Study 2. In addition to email reminders, participants received a phone call if they were approaching the final deadline for an assessment – a measure to reduce dropouts.

Immediately after randomization, participants in the PPT group received instructions for the first exercise in a fixed sequence identical that used in Study 1. At
subsequent weekly assessments, PPT participants received the next exercise in the sequence following completion of the questionnaires for that week. If a participant missed any of the weekly assessments during this period, he or she was dropped from the study. After the completion of the 6th weekly assessment, participants completed follow-up assessments 1-month, 3-months, 6-months, and 1-year later (note that although some participants have already completed the 1-year follow-up, only 3-month follow-ups have been completed by all participants at this time). Participants who missed a long-term follow-up were still invited to participate in subsequent long-term follow-ups.

*Plan for Analysis*

As was the case in Study 2, this dataset contained a substantial number of missing data cells. As such, I followed the same plan as in Study 2 for conducting sensitivity analyses: all initial analyses used HLM, with follow-up ANCOVAs using LOCF to verify significant findings.

**RESULTS**

Online PPT led to significant decreases in depressive symptoms compared to the control group, but did not have an effect on life satisfaction or positive emotion. Participants seemed to comply more when asked to practice exercises that required a few minutes on a daily basis, as opposed to exercises that require a larger one-time time commitment.
Baseline characteristics

The baseline characteristics of the sample are displayed in Table 9. Independent sample t-tests indicated that the PPT and Control groups were not significantly different on either outcome variable⁸.

Usability data

Dropouts. Out of 267 participants, 127 dropped out prior to the completion of the 6-week assessment period. Independent sample t-tests found no significant differences (or trends towards differences) between completers and non-completers on baseline depression or life satisfaction. Rates of attrition at each time split by group are displayed in Table 10.

Compliance. Of the 125 participants in the PPT group, 10.4% of PPT participants reported completing all 6 exercises; 11.2% reported completing 5 exercises; 20.8% completed 4 exercises; 10.4% completed 3 exercises; 7.2% completed 2 exercises; 18.4% completed 1 exercise; and 21.6% (including dropouts) completed no exercises. There were no significant differences in baseline depressive symptoms between participants who completed no exercises, participants who had “low” compliance (1-3 exercises), and participants who had “high” compliance (4-6 exercises).

Three out of the four exercises that required a few minutes per day (Three Good Things, Savoring, and Active-Constructive Responding) had compliance rates higher than 80%. Compliance rates were substantially lower for the more time consuming one-

⁸ The difference between groups on CES-D was not statistically significant, but it did approach significance (p = .07). I tried all analyses with baseline CES-D as a covariate, but its inclusion did not alter the outcome of any analysis.
time exercises such as the Gratitude Visit (47.4%) and the Life Summary (67.8%). Surprisingly, Using Your Strengths had the second lowest compliance rate (53.4%), perhaps because it is a more complex everyday task that requires more creativity than the other three.

**Continued Usage.** Of the participants in the PPT group who completed 1-month follow-up, 60.3% were still using Active-Constructive Responding, 63.2% were still using Three Good Things, and 70.7% were still using Savoring. In contrast, Life Summary (8.6%) and the Gratitude Visit (22.8%) were used less frequently. Using Strengths was somewhere in the middle, with 47.4% of participants still practicing it. Continued usage rates among the participants who completed 3-month follow-up were similar within a few percentage points in all cases.

**Efficacy**

Means for PPT and control participants at baseline, post, 1-month, and 3-month follow-ups are displayed for depressive symptoms, life satisfaction, and positive emotion in Table 11, Table 12, and Table 13, respectively.

**Depressive symptoms.** PPT participants experienced significant decreases in depressive symptoms from baseline \((M = 16.34, SD = 4.62)\) to post \((M = 13.25, SD = 9.93)\) and maintained that decrease through 1-month \((M = 13.96, SD = 10.44)\) and 3-month \((M = 13.19, SD = 9.38)\) follow-ups, \(t[140] = 3.35, p = .001\). Controls did not experience statistically significant change. The overall statistical significance between the two groups approached significance, \(p = .09\).
Life satisfaction. Although the Time term was significant ($F[1,140] = 6.07, p = .02$), suggesting that the sample experienced an increase in life satisfaction as a whole, there were no significant differences between the PPT participants and the control participants on life satisfaction ($p = .42$).

Positive emotion. Although there were significant changes in positive emotion over the course of the study, these changes took place primarily in the control group, while the PPT group remained stable. In leg 1, the PPT group experienced no significant change in positive emotion ($t(556) = .98, p = .33$) while the control group experienced a decrease in positive emotion ($t(524) = 3.93, p < .0001$). The change rates for the two groups differed significantly, $t(543) = 3.32, p = .001$.

LOCF endpoint analyses controlling for baseline positive emotion found no significant differences between PPT and control groups at any time point, suggesting that the significant change estimates found in the above HLM analysis may not be meaningful.

Mediation

Since there were no significant effects on either life satisfaction or positive emotion, a mediation analysis was not possible.

DISCUSSION

In summary, PPT participants were significantly less depressed than control participants by 3-month follow-up. However, the effect was substantially smaller in magnitude and occurred only in long-term follow-up, rather than at immediate post test as
in Study 1. Contrary to the findings from Study 1, there were no significant effects of online PPT on life satisfaction. Similarly, positive emotion was the same across online PPT and control groups. There was great variation in the acceptability of the six exercises in online PPT, with briefer daily exercises generally faring better than one-time exercises that are more time consuming. Since online PPT had no significant effects on life satisfaction or positive emotion, I could not conduct mediation analyses on either variable.

Why did online PPT produce smaller effects on depression and no significant effects on life satisfaction and positive emotion? Why was the magnitude of the difference between the PPT group and the control group so much smaller? There are two factors that may have contributed to the differences between effects in Study 1 and Study 3.

First, the change experienced by PPT participants in Study 3 (.46 points per week) was substantially smaller than the change experienced by PPT participants in Study 1 (.91 points per week). The most likely explanation for this disparity involves structural differences between group PPT and online PPT. One such difference is attendance. In group PPT, if a participant missed a session for whatever reason, they attended a make-up session for the meeting they missed and then continued to attend subsequent meetings. There was no mechanism for “catching up” in online PPT; if a participant missed the 7-day window for completing a weekly assessment (the equivalent of “missing a session”), they could not receive the instructions for their next exercise and thus could not continue receiving PPT. Thus, in group PPT, attendance at all sessions was essentially mandatory,
whereas in online PPT, a missed “session” resulted not just in missing out on that week of PPT, but on however many weeks followed the missed session.

Another important structural difference between group PPT and online PPT is compliance. To promote compliance in group PPT, each week we collected worksheets in which participants detailed their experience with the assigned exercise. Although receiving a completed worksheet does not guarantee that each participant actually practiced the exercise throughout the week as assigned, filling out the worksheet still requires participants to take a few minutes to think about the exercise and how it might have helped them, which is more than a non-complier in online PPT may have done. In online PPT, in contrast, participants didn’t have to turn anything in; they could report back in and just say that they didn’t do the exercise. As a result of the above two structural differences between group PPT and online PPT, less than half of online PPT participants (42.4%) completed 4 or more of the 6 exercises. The dosage, in essence, was much lower in online PPT than it was in group PPT.

A second factor contributing to the smaller group differences between PPT and Control groups in Study 3 is that the control participants in Study 3 experienced larger improvements in depressive symptoms over time than did the control participants in Study 1 (.40 and .29 points per week, respectively). This is due, at least in part, to the very different populations used in each study. Recall that while Study 1 used a sample of Penn students, Study 3 participants were people actively seeking self-help over the internet. Most Study 3 participants arrived at our site through a link on a companion website to a self-help book and signed up because they were interested in trying a new self-help intervention. Given that, the probability that no-intervention control participants
actually received no intervention is quite low; they had many other self-help interventions available to them, and we did not require participants to refrain from other self-help activities. Although it is possible that both groups were using other self-help methods, it seems that this would happen more often in the group that did not receive new activities to try.

Furthermore, unlike Study 1 when participants were all recruited at the same time, participants in Study 3 had a choice as to when they joined – they signed up whenever they happened to find our website, which may well have been at a time when they were experiencing unusually high depression levels and searching the internet for help. The natural return of participants to their average level of depression after a temporary bout of higher depression might have inflated change estimates for both conditions. However, it is also possible that this differentially impacted the two conditions, ultimately leading to additional inflation in the change scores of the controls. If a participant came to our website in an unusually depressed state, seeking help, someone who is randomly assigned to the PPT group will react differently than would someone randomly assigned to the assessment-only control group. Whereas a PPT participant might have been content to try the exercises they were assigned to, a Control participant was more likely to aggressively seek and try out other self-help approaches.

In Study 1, the effects of group PPT on life satisfaction were substantially smaller than the effects on depressive symptoms, so it may be reasonable to explain the lack of effects on life satisfaction by pointing to the lack of adequate “dosage.” However, we cannot reach any solid conclusions about the lack of effect on positive emotion – is this because PPT does not, in fact, affect positive emotion? Is it because we did not measure
positive emotion in a way that is accurate and sensitive to change? Or is it because the dosage of PPT was not adequate in order to produce effects? I will return to this question in the general discussion.

In summary, Study 3 PPT participants did not do as well than Study 1 PPT participants, perhaps due to differences in the “dosage” of PPT each group received. At the same time, Study 3 Control participants improved more on their own than did Study 1 control participants, perhaps due to the self-help seeking nature of the Study 3 population. As a result of these two factors, the effects of PPT – estimated based on the difference between the PPT and Control groups – were substantially smaller.
GENERAL DISCUSSION

In Study 1, group PPT led to substantial decreases in depression and increases in life satisfaction compared to a no-intervention control group. The decrease in depression was partially mediated by increases in life satisfaction. In Study 2, the six exercises featured in PPT each led to increases in life satisfaction and all but one – the Life Summary – decreased depressive symptoms; however, because participants in the “placebo” control group improved at rates equivalent to the PPT exercises, it is not possible to determine whether these effects are the result of a global placebo effect, or if the control exercise was more powerful in this sample than previous research suggested it would be. In Study 3, an online version of PPT produced significant, but substantially smaller, effects on depressive symptoms and no significant effect on life satisfaction. I proposed that the smaller effects occurred in part because the control participants improved significantly on their own, thus reducing the overall difference between groups, and in part because the average “dosage” of PPT received by online PPT participants was much lower than the average “dosage” received in group PPT.

Methodological limitations of each study, as well as interpretations of surprising or unusual findings, have already been discussed in the “discussion” sections of each study (see above). Below, I discuss more broad-reaching issues that apply to all three studies, and to the study of PPT in general.
The Mechanism of PPT

Although Study 1 data allowed me to identify life satisfaction as a partial mediator of PPT’s effects on depression, several questions remain unanswered regarding the mechanism of PPT.

First: is positive emotion the mechanism by which PPT decreases depressive symptoms? The Broaden and Build model of positive emotion provides an excellent theoretical framework to explain how an intervention that targets only the positive can reduce the negative – positive emotions can undo negative emotions, so one might imagine that PPT, in increasing negative emotion, might be able to undo depression. Why, then, did online PPT fail to have an effect on positive emotion? Does this mean that PPT truly has no impact on positive emotion? Or did we fail to detect the effect due to problems with assessment (perhaps a more sensitive measure is necessary to accurately measure positive emotion) or compliance (perhaps a larger “dose” of PPT is necessary in order to produce an observable effect)?

Second: if positive emotion isn’t the mechanism underlying PPT, then what is? The relatively small impact of PPT on life satisfaction as compared to depressive symptoms suggests another possibility. Perhaps, rather than having a large effect on a single positive variable that mediates the entire effect of PPT on depression, PPT has small effects on several different variables, each of which contributes to the overall effect. In other words, perhaps the exercises in PPT work through multiple mechanisms. For example, exercises such as Three Good Things and Active-Constructive Responding are particularly focused on building a general awareness, re-educating peoples’ attention to what is good in their lives. Exercises like the Gratitude Visit and Using Your Strengths
might operate by the same mechanism as behavioral activation, while Savoring might lead to increased mindfulness and the Life Summary might help people process experiences through writing. As discussed in the introduction, the empirical basis of each exercise is unique; the same may be true about their theoretical basis.

Lastly, the current study designs did not allow me to examine questions of temporal precedence, and thus, did not truly address questions of causal mediation. Future studies on PPT should include more frequent assessments so as to capture changes in depression, as well as potential mediators, as they happen.

*Dropouts and Missing Data*

Although high dropout rates are a common problem in web-based research, they remain a serious problem statistically for the reasons discussed above. However, as mentioned in the Study 3 discussion, there is a tension between internal validity (e.g. minimizing dropouts) and external validity (e.g. not paying participants to do something they wouldn’t do otherwise).

This brings up an important larger question – what is the most appropriate analytic approach to handling dropouts when evaluating a self-help intervention? In the current set of studies, we used analytical methods often used in Clinical Psychology research. These approaches are intended for use in psychological interventions that treat a diagnosable disorder such as depression. Major Depressive Disorder, if left untreated, may lead to dire consequences such a suicide, and as such, dropouts are rightfully considered a negative outcome in clinical research. A non-depressed participant dropping out of a self-help intervention, by contrast, doesn’t encounter the same level of risk as an
untreated depressed patient does. Dropouts may, in fact, be a common, perhaps even normal part of self-directed intervention data. Should a dropout, then, warrant as much serious consideration in an analysis of a self-help intervention as it does in a therapeutic intervention?

I would argue that even though dropouts are not necessarily important for the same reasons in self-help interventions as they are in clinical interventions, they are nevertheless very important in determining a self-help intervention’s overall efficacy. A self-help intervention is inherently elective – a user can come and go at any moment without explaining herself. It is doubly important, then, for a self-help intervention to be able to retain users. The consequences are not as dire if a person quits a self-help program, but retention is nevertheless an important component if its efficacy. Even the best, most cost-effective self-help intervention isn’t worth much if nobody uses it.

In clinical research, dropouts are an indicator that the treatment is not well-tolerated by patients. In self-help research, dropouts carry a different meaning; they signify that the intervention is not “sticky” enough. Measures need to be taken, then, to make online PPT more “sticky” so that it retains more users. In the meantime, more conservative statistical analyses that count dropouts against PPT’s efficacy are, by the above logic, warranted.

**Future Directions for Online PPT**

The translation of PPT to an online intervention is still a work in progress. In short, one of the greatest benefits of online PPT – the fact that it was completely automated, with no human hands involved – was also one of its greatest shortcomings.
Although the automated system provides a cost-efficient way for participants to receive the content of PPT, there are two problems associated with using an online program.

The first problem with the automated structure of online PPT is inflexibility. In order to standardize the amount of time spent on each exercise, I placed a strict time limit for each assessment period; a more realistic online program would allow participants to set their own pace and to choose which exercise they would like to do when, and for how long. It may be that greater flexibility and freedom will actually increase adherence rates – Self-Determination Theory (SDT) would predict that if participants feel that their happiness-increasing program is personalized to them, and within their control, they may be more likely to invest fully in it (Ryan & Deci, 2000).

A second problem with the current version of online PPT is that it does not provide the same personalization or accountability as an in-person group. Instead of each person reporting her experience using an exercise to a group of peers, the participant reported her progress to a web page that asked only whether or not she completed the assignment. Participants got automated reminders and received their instructions from a web page, which provided no individualized feedback or help applying the exercises to their lives.

Once we are able to create a more flexible and “sticky” version of online PPT, it would be an important next step to compare that intervention to a more “active” control condition – perhaps a Cognitive-Behavioral intervention of comparable intensity and duration – rather than an assessment-only control⁹.

⁹ The control conditions in Study 3 might be considered “active” because a self-help seeking population, if placed in the control condition, is likely to pursue other means of
Concluding Remarks

At the beginning of this paper, I discussed the importance of subthreshold depression as a public health issue, and presented two barriers to decreasing subthreshold depressive symptoms in the general population: accessibility and motivation. An online version of PPT addresses both of these issues; it has the potential to provide a low-cost, accessible method of decreasing depressive symptoms without asking people with relatively low motivation to engage in potentially aversive problem-focused approaches. With further refinement and broad dissemination, online PPT holds promise as an important tool in fighting the depression epidemic.

self-help. In essence, the control group may have been more of a “standard care” control rather than a “no intervention” control.
TABLES

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Utilizing Your Strengths: Take the VIA strengths questionnaire to assess your top 5 strengths, and think of ways to use those strengths more in your daily life.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 2</td>
<td>Three Good Things: Each day, write down three good things that happened and why you think they happened.</td>
</tr>
<tr>
<td>Week 3</td>
<td>Life Summary: Imagine that you have passed away after living a fruitful and satisfying life. What would you want your obituary to say? Write a 1-2 page essay summarizing what you would like to be remembered for the most.</td>
</tr>
<tr>
<td>Week 4</td>
<td>Gratitude Visit: Think of someone to whom you are very grateful, but who you have never properly thanked. Compose a letter to them describing your gratitude, and read the letter to that person by phone or in person.</td>
</tr>
<tr>
<td>Week 5</td>
<td>Active/Constructive Responding: An active-constructive response is one where you react in a visibly positive and enthusiastic way to good news from someone else. At least once a day, respond actively and constructively to someone you know.</td>
</tr>
<tr>
<td>Week 6</td>
<td>Savoring: Once a day, take the time to enjoy something that you usually hurry through (examples: eating a meal, taking a shower, walking to class). When it's over, write down what you did, how you did it differently, and how it felt compared to when you rush through it.</td>
</tr>
</tbody>
</table>

Table 1. Week-by-week summary of Group Positive Psychotherapy

<table>
<thead>
<tr>
<th></th>
<th>PPT</th>
<th>Control</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>N</td>
</tr>
<tr>
<td>Depressive Symptoms (BDI)</td>
<td>53</td>
<td>12.94</td>
<td>4.97</td>
<td>57</td>
</tr>
<tr>
<td>Life Satisfaction (SWLS)</td>
<td>53</td>
<td>17.87</td>
<td>7.01</td>
<td>57</td>
</tr>
</tbody>
</table>

Table 2. T-tests assessing baseline differences in outcome measures for Study 1.
<table>
<thead>
<tr>
<th></th>
<th>PPT</th>
<th>Control</th>
<th>Group Difference</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>N</td>
<td>M</td>
</tr>
<tr>
<td>Baseline BDI</td>
<td>53 12.94</td>
<td>4.97</td>
<td>57 13.02</td>
<td>5.14</td>
</tr>
<tr>
<td>Post BDI</td>
<td>49 7.82</td>
<td>5.86</td>
<td>55 11.38</td>
<td>6.57</td>
</tr>
<tr>
<td>3-month follow-up BDI</td>
<td>45 7.20</td>
<td>7.26</td>
<td>53 10.68</td>
<td>7.35</td>
</tr>
<tr>
<td>6-month follow-up BDI</td>
<td>45 6.76</td>
<td>6.46</td>
<td>51 11.49</td>
<td>8.06</td>
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<tr>
<td>1-year follow-up BDI</td>
<td>49 7.45</td>
<td>7.85</td>
<td>53 9.51</td>
<td>7.35</td>
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Table 3. Means, standard deviations, difference in raw scores, and effect sizes for depressive symptoms in both cohorts of Study 1.

<table>
<thead>
<tr>
<th></th>
<th>PPT</th>
<th>Control</th>
<th>Group Difference</th>
<th>Cohen’s d</th>
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</thead>
<tbody>
<tr>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>N</td>
<td>M</td>
</tr>
<tr>
<td>Baseline SWLS</td>
<td>53 17.87</td>
<td>7.01</td>
<td>57 18.47</td>
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<tr>
<td>Post SWLS</td>
<td>49 20.29</td>
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<td>55 18.93</td>
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<tr>
<td>3-month follow-up SWLS</td>
<td>45 23.82</td>
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<td>6.30</td>
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<tr>
<td>6-month follow-up SWLS</td>
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<td>6.60</td>
<td>51 21.18</td>
<td>6.59</td>
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<tr>
<td>1-year follow-up SWLS</td>
<td>49 25.29</td>
<td>6.75</td>
<td>53 23.36</td>
<td>6.49</td>
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</table>

Table 4. Means, standard deviations, difference in raw scores, and effect sizes for life satisfaction in both cohorts of Study 1.
<table>
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<th>ACR</th>
<th>TGT</th>
<th>GV</th>
<th>LS</th>
<th>SAV</th>
<th>STR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>N=54</td>
<td>100%</td>
<td>N=53</td>
<td>100%</td>
<td>N=37</td>
<td>100%</td>
<td>N=55</td>
</tr>
<tr>
<td>Post</td>
<td>N=42</td>
<td>78%</td>
<td>N=44</td>
<td>83%</td>
<td>N=41</td>
<td>77%</td>
<td>N=44</td>
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<tr>
<td>1-month</td>
<td>N=34</td>
<td>63%</td>
<td>N=34</td>
<td>64%</td>
<td>N=24</td>
<td>65%</td>
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<tr>
<td>3-month</td>
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<td>46%</td>
<td>N=31</td>
<td>59%</td>
<td>N=26</td>
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<tr>
<td>1-year</td>
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<td>40%</td>
<td>N=16</td>
<td>30%</td>
<td>N=27</td>
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Table 5. Sample sizes and rates of retention at each time point split by group, Study 2.

<table>
<thead>
<tr>
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<td>M</td>
<td>SD</td>
<td>N</td>
<td>M</td>
<td>SD</td>
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<tr>
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<td>Life Satisfaction</td>
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<td>7.04</td>
<td>53</td>
<td>22.28</td>
<td>7.26</td>
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<tr>
<td>(SWLS)</td>
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Table 6. T-tests assessing baseline differences in outcome measures for Study 2.
<table>
<thead>
<tr>
<th></th>
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<tr>
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<td>108</td>
<td>12.30</td>
</tr>
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</table>

Table 7. Means and standard deviations for depressive symptoms, split by condition, in Study 2.

<table>
<thead>
<tr>
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<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
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<td>$M$</td>
</tr>
<tr>
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</tr>
<tr>
<td>Post SWLS</td>
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<td>22.17</td>
</tr>
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<td>184</td>
<td>23.48</td>
</tr>
<tr>
<td>3-month follow-up SWLS</td>
<td>149</td>
<td>23.48</td>
</tr>
<tr>
<td>6-month follow-up SWLS</td>
<td>133</td>
<td>23.81</td>
</tr>
<tr>
<td>1-year follow-up SWLS</td>
<td>108</td>
<td>24.42</td>
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Table 8. Means and standard deviations for life satisfaction, split by condition, in Study 2.

<table>
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<tbody>
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<td></td>
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<td>$M$</td>
</tr>
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<td>Depressive Symptoms (CES-D)</td>
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</tr>
<tr>
<td>Life Satisfaction (SWLS)</td>
<td>125</td>
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<td>Positive Emotion (PANAS)</td>
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Table 9. T-tests assessing baseline differences in outcome measures for Study 3.
<table>
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<tr>
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<th>Activity</th>
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<tr>
<td>1</td>
<td>Three Good Things</td>
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<td>2</td>
<td>Using Your Strengths</td>
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<td>Assessment only (N=103) 73% of original sample</td>
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<td>3</td>
<td>Gratitude Visit</td>
<td>61% of original sample</td>
<td>Assessment only (N=93) 66% of original sample</td>
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<tr>
<td>4</td>
<td>Savoring</td>
<td>57% of original sample</td>
<td>Assessment only (N=88) 62% of original sample</td>
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<tr>
<td>5</td>
<td>Active-Constructive Responding</td>
<td>53% of original sample</td>
<td>Assessment only (N=84) 59% of original sample</td>
</tr>
<tr>
<td>6</td>
<td>Life Summary</td>
<td>47% of original sample</td>
<td>Assessment only (N=81) 57% of original sample</td>
</tr>
<tr>
<td></td>
<td>1-month follow-up Assessments</td>
<td>46% of original sample</td>
<td>46% of original sample</td>
</tr>
<tr>
<td></td>
<td>3-month follow-up Assessments</td>
<td>42% of original sample</td>
<td>49% of original sample</td>
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Table 10. Sample sizes and rates of retention at each time point split by group, Study 3.
<table>
<thead>
<tr>
<th></th>
<th>PPT</th>
<th>Control</th>
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</thead>
<tbody>
<tr>
<td>N</td>
<td></td>
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<tr>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
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<td></td>
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<tr>
<td>Group</td>
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</tr>
<tr>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cohen’s d</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline CES-D</td>
<td>125</td>
<td>16.34</td>
</tr>
<tr>
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<td></td>
<td>142</td>
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<tr>
<td></td>
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<tr>
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<td></td>
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<td>81</td>
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<td></td>
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</tr>
<tr>
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<td>2.33</td>
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Table 11. Means, standard deviations, difference in raw scores, and effect sizes for depressive symptoms in Study 3.

<table>
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<th>PPT</th>
<th>Control</th>
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<tbody>
<tr>
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<td>M</td>
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<td>SD</td>
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<tr>
<td>Group</td>
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<tr>
<td>Difference</td>
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<td></td>
</tr>
<tr>
<td>Cohen’s d</td>
<td></td>
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<tr>
<td>Baseline SWLS</td>
<td>125</td>
<td>20.50</td>
</tr>
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<td></td>
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<td>141</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
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<td>Post SWLS</td>
<td>59</td>
<td>21.39</td>
</tr>
<tr>
<td></td>
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<td>81</td>
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<td>.00</td>
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<tr>
<td></td>
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<td>75</td>
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<tr>
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<td>.04</td>
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Table 12. Means, standard deviations, difference in raw scores, and effect sizes for life satisfaction in Study 3.

<table>
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<th>Control</th>
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<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
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<tr>
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</tr>
<tr>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cohen’s d</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline PANAS</td>
<td>125</td>
<td>28.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>142</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Post PANAS</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>1.40</td>
<td>.16</td>
</tr>
<tr>
<td>1-month follow-up PANAS</td>
<td>57</td>
<td>29.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>2.77</td>
<td>.33</td>
</tr>
<tr>
<td>3-month follow-up PANAS</td>
<td>52</td>
<td>29.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>4.33</td>
<td>.50</td>
</tr>
</tbody>
</table>

Table 13. Means, standard deviations, difference in raw scores, and effect sizes for positive emotion in Study 3.
FIGURES

Figure 1. Change scores in depressive symptoms across time points in six individual exercises and a control exercise, Study 2.
Figure 2. Change scores in depressive symptoms across time points in six individual exercises and a control exercise, Study 2.
APPENDIX: Group PPT Manual and Worksheets

Positive Psychotherapy (PPT) Lesson Plan

Group PPT consists of six 1.5-hour seminars offered across six weeks to young adults with mild-moderate depressive symptoms. Seminar groups consist of approximately 10 students and one seminar leader. Over the course of the intervention, participants complete assigned exercises using worksheets provided to them during each session. The following is a brief overview of the content for each session:

**Week 1**

Opening and Positive Introductions  
Preview Next Session and Describe Homework: VIA/Utilizing Your Strengths  
HOMEWORK: Take VIA strengths assessment, find one way to use one of your strengths every day.

**Week 2**

Discuss Homework: Using Your Strengths  
Preview Next Session and Describe Homework: Gratitude  
HOMEWORK: Write and deliver a gratitude letter.

**Week 3**

Discuss Homework: Gratitude Letter  
Preview Next Session and Describe Homework: Active-Constructive Responding  
HOMEWORK: Make an effort be active-constructive in your social interactions.

**Week 4**

Discuss Homework: Being Active-Constructive  
Preview Next Session and Describe Homework: Blessings  
HOMEWORK: Each night before bed, write down three good things that happened.

**Week 5**

Discuss Homework: Blessings  
Preview Next Session and Describe Homework: Savoring/Biography
HOMEWORK: Pick one thing you usually rush through and take the time to savor it.
Write a short essay (~1 page) detailing the characteristics and accomplishments that you hope to be remembered for and consider how much time you dedicate to pursuing these goals.

Week 6

Discuss Homework: Biography and Savoring
Closing/Maintenance
HOMEWORK: Pick at least one exercise and try to integrate it into your everyday life.
The Exercises

Utilizing Your Strengths - Look at the list of 24 strengths provided in your workbook and decide what 5 strengths represent you the most (you can have them do this in class or before they take the VIA). Take the VIA strengths questionnaire and read the feedback it gives you about your top five strengths. At least once over the next week, find a way to modify your daily routine such that you can make use of one of your strengths (preferably those that you and the VIA agree on) and/or come up with a new activity that you can do to make use of your strengths. Record what you did, how you made use of your strength, and how it felt different from your usual routine.

Active/Constructive – One important way to increase our closeness with others is to share in their good fortune. When someone we know comes to us with good news, there are a variety of ways that we could react. An active-constructive response is one where, when presented with good news, you openly display excitement and make an effort to help the other person savor their victory. For the next week, keep your eyes peeled for opportunities to react active-constructively and try to do it at least once a day.

Biography – Imagine that, after you retire, someone writes a book about your fruitful and satisfying life. What would you want the book to say about you? Write a 1-2 page essay summarizing what you would like to be remembered for the most. What traits and accomplishments would you like to define you? What legacy would you want to leave behind?

Savoring - Once a day, take the time to enjoy something that you usually hurry through (examples: eating a meal, taking a shower, walking to class). When it's over, write down what you did, how you did it differently, and how it felt compared to when you rush through it.

Blessings – Each day before bed, write down three things that went right and why you think they happened.

Gratitude Letter – Think of someone to whom you are very grateful, but who you have never properly thanked. Compose a letter to them describing your gratitude, and read the letter to that person by phone or in person.

Maintenance – Participants provide feedback on the strengths and weaknesses of each exercise with the goal of generating ways to modify the exercise to fit their lives. In addition, a variety of new exercises will be described. The focus is on honing exercises that can be used habitually, on a daily or weekly basis. One-time exercises (ex. biography, gratitude letter) are adapted to fit this format. Each participant will be asked to choose one or two exercises to practice regularly for the next several months as a way of maintaining their gains.
PPT Manual, Session 1 (Total Time: 90m)

LEADER PREPARATION: Decide what story you will tell for your positive introduction and practice telling it if necessary.

I. Opening Comments (10m)
   a. Welcome participants.
   b. Introduce yourself and say a bit about your background. Provide participants with your business card and let them know that they can email you with any questions throughout the workshop.
   c. PURPOSE
      i. The goal of this workshop is to teach you some skills that will help you get more out of life.
      ii. In the next 6 weeks, you will learn exercises to help you find out what you’re best at, experience more gratitude, interact more constructively with your friends and loved ones, get more enjoyment out of your daily activities, and feel more optimistic about your future.
      iii. By practicing these skills, we hope that you will be able to increase the amounts of positive emotion, deep engagement, and meaning you experience in your lives.
   d. Describe the structure of the intervention
      i. This is the first of six weekly workshops, each of which will take place at this same time and location. The exception to this is spring break, during which workshops will not be held.
      ii. Each workshop will begin with a discussion and end with a description of the homework for the week. Homework will be some kind of exercise, which should not take you more than an hour or two. Most assignments will be accompanied by a worksheet.
      iii. We will provide you with food this week, and will do so at every workshop meeting.
      iv. We will ask you to complete these two questionnaires every week to track how you are doing.
         1. Distribute any self-report questionnaires that would be useful to you (we use the Beck Depression Inventory and the Authentic Happiness Index)
   e. Questions?

II. Positive Introductions (60m)
   a. The majority of this first session will be spent getting to know each other by way of what we call “positive introductions”. That is, each person here will tell a story – a thoughtful narrative with a beginning, middle and end – that illustrates what is best about themselves.
b. Because I know that this is a difficult task, I will start by telling mine as an example and then give you all a few minutes to think of your own story (*tell your story*).

c. Give students a couple of minutes to generate ideas, eat, get drinks, etc.

d. *Elicit stories from each student, being mindful of time.*
   i. After each story, ask participants to summarize what is best about the storyteller, i.e. what sort of strength it illustrates (without the constraint of the VIA classification)

III. Preview of Next Session and Homework: Using Your Strengths (20m)

a. *This will need to be quick, as the introductions will probably take up most of your time. Pass out the homework handout.*

b. The goal of this week’s assignment is to help you learn what your strengths are and how to use them in order to make your life more engaging.

c. RATIONALE:
   i. There is a good deal of research to suggest that people get the most enjoyment out of activities that they can really get into. Furthermore, a study we did recently indicated that being absorbed in an activity improves one’s mood.
   ii. So it makes sense to want to find activities that you can lose yourself in.
   iii. We know that in order to *really* get involved in an activity, you have to be doing something that is both:
      1. Something you are very good at, i.e. that employs one of your strengths
      2. Something that challenges you
         a. Example (you can use your own): One of my strengths is love of learning, so I get really engaged in reading or hearing about something new.
   iv. It follows, then, that you could more easily find activities that let you use your strengths if you know what your strengths are.

d. For your homework, you will need to take an online questionnaire called the VIA. The VIA will ask you a variety of questions, which it will use to determine which of many strengths are your top 5. The URL and instructions for reaching the survey are on your handout.

e. It is a rather lengthy questionnaire, and could take you as long as an hour, but trust me, the feedback it gives you will be worth it.

f. Once you have taken the VIA, start thinking of ways that you use your top 5 strengths in your life. The idea is that if you can work your strengths into your life, you will be more involved in what you are doing more of the time, making your day to day life more satisfying.
   i. Examples: Use Humor by weaving jokes into a class presentation that you have to make.
ii. We will generate more ideas during next week’s seminar.

   g. WORKSHEET: Use the worksheet to keep track of what you did.
   i. Write down your top 5 strengths
   ii. Come up with 3 ways that you could use a strength
      1. You can either come up with a new activity, or find a way to change something that you already do so that it makes use of one of your strengths
   iii. Try one of them and be ready to discuss it at the next session
   iv. Turn in the worksheet next week
   v. It is vital that you be honest on these sheets. If you don’t do the exercise, please leave that section of the form blank and turn it in anyways! You will not be penalized in any way if you do not finish the homework. However, it is very important when we track each participant’s outcomes that we know the degree to which they participated in the workshop.

IV. Ok, that’s all for this week! It was good to get to know each of you a little better. Please feel free to email me if you have any questions, and I look forward to seeing you all next time!
Week 1 Homework: Using Your Strengths

Before the next workshop, you will need to take an online survey called the VIA. Below are instructions:

- Go to http://www.psych.upenn.edu/seligman/strengths/
- Click on “begin.”
- Follow the instructions on the web page to complete the survey

You will be asked to answer a variety of questions about yourself, after which the survey will use those answers to determine your character strengths. This should take you between 30-45 minutes. Using your feedback, complete the following worksheet, which we will collect next week.

Name: _____________________________

Top 5 Strengths: 1. ________________ 2. ________________
3. ________________ 4. ________________ 5. ________________

Possible Ways to Use Your Strengths:

1: _____________________________________________________________________
_______________________________________________________________________

2: _____________________________________________________________________
_______________________________________________________________________

3: _____________________________________________________________________
_______________________________________________________________________

Select one of the ideas that you wrote above, and try it before next week’s session. Initial here when you’ve done it: ______

Be ready to discuss all of this in the next meeting!
PPT Manual, Session 2 (Total Time: 90m)

PREPARATION: Know your top 5 strengths. Have a solid working knowledge of ways to use each of the 24 strengths (participants will need you to troubleshoot).

I. Check-in (5m)
   a. Ask if people had any technical problems
   b. Have everyone do the BDI and AHI
   c. How was the workload? Reasonable, a struggle, easy to do?
   d. Did everyone get a chance to take the VIA? (show of hands)

II. Discussion of Using Your Strengths – Part 1 (60m)
   a. Last week, you all took the VIA and received feedback on your top 5 strengths. Here is a list of the 24 strengths from which your top 5 were chosen. Distribute the list.
      i. This first part gives people who didn’t do their homework a chance to come up with some strengths to work with during class. Take a look at the list, and mark the five strengths that you believe are most characteristic of you (they do not have to match with the strengths that the VIA gave you). On the whole, do you agree with the VIA’s characterization of your strengths?
   b. Now, I’d like to go around the room and ask each of you to do the following:
      i. Choose the strength from your top 5 that was most characteristic of you, i.e. that you display most often and tell us what it is (write down each person’s strength as they tell you for use later)
      ii. Give us an example of something you do regularly that takes advantage of that strength.
   c. Ok, we’ve now heard about some of your strengths and how you already use them. The next thing we’re going to do is work out some ways that each of you can use your strengths more in your lives
      i. We’ll start with some of the strengths that you all listed a few minutes ago. Refer to the list of the participants’ strengths that you made, select three of them, and elicit ideas on how to use them in a new and interesting way. Try to get a couple of ideas for each one. If some are more difficult than others, work on the easier ones first.
      ii. Did anyone have a strength in their top 5 that they have a hard time imagining ways to use?
         1. Take however many the class brings up and work through them, eliciting participation from other members of the group.
   d. Our main purpose in suggesting that you create new tasks and/or recraft activities in order to use your strengths is to make your everyday tasks more interesting and engaging.
i. How many people got a chance to try a new task that used one of your top 5 strengths? How many recrafted a task that you already do regularly?

ii. Elicit Discussion: What was your experience in attempting to try a new activity or recraft a regular activity to use one of your strengths? Was it easy? What did you do? Was the activity a hobby, or was it school/work-related?

e. Ok, let’s take a quick break before we finish up our discussion about strengths and move on to next week’s homework assignment.

f. This next section can be more lecture or more interactive. Decide based on the group dynamic. There are many situations in which being aware of your strengths and creatively making use of them could be beneficial in your life. Examples:

i. In romantic relationships. Use this example, make up your own, or elicit an example from the group.
   1. Strengths Date: If person A has social intelligence as a strength and person B has appreciation of beauty, then they could divide the tasks of coordinating a party so that each is able to do what they are best at. Person A could be in charge of entertainment and being the host, while person B could be in charge of decorating and creating an aesthetically pleasing meal.

ii. At work or school. Use this example, make up your own, or elicit an example from the group.
   1. In a group project, if team member A is good with humor and social intelligence and team member B has love of learning as a strength, then member A could be in charge of putting together a great presentation while member B takes charge of the research for the presentation.

iii. Can you think of other areas where using your strengths might be beneficial?

III. Wrap-Up of Strengths
   a. Does anyone have questions about the VIA, or about strengths in general?
   b. Collect worksheets.

IV. Preview of Next Session and Homework: Gratitude Visit (25m)
   a. The next exercise, which you will be doing over the next two weeks, is called the Gratitude Visit. The Gratitude Visit is designed to help you take the time to acknowledge something that another person has done for you. According to the many people who have tried our exercises, the gratitude visit is one of the very best. In fact, the majority of people who do a gratitude visit report that it is a moving, sometimes life-changing experience!
   b. The exercise consists in three steps:
i. First, you think of something wonderful that another person has done for you. It might be a friend, a relative, a mentor, or someone you hardly know. The important thing is that whatever they did for you, it was very important to you, and you have never properly thanked them for it.

ii. Second, you compose a letter to that person describing what they did, what it meant to you, and how grateful you are.

iii. Third, you schedule a time to meet with that person (this can also be done over the phone if an in-person meeting is not possible), and read the letter aloud to them.

c. As you complete the three steps I just outlined, keep track of what you did on this worksheet.

d. Questions?

V. See you next time!
Week 2 Homework: Gratitude Visit

In the next two weeks, you will be working on a Gratitude Visit. The steps you will need to follow in order to complete this exercise are outlined below:

- Think of a person who has done something wonderful for you, but whom you have never properly thanked.
- Compose a letter to that person describing what they did, what it meant to you, and how grateful you are.
- Schedule a time to meet with that person (this can also be done over the phone if an in-person meeting is not possible), and read the letter aloud to them.

Name: _____________________________

Who did you thank, and why? ______________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Did you read them the letter? (Circle One):     Yes (In Person)      Yes (On Phone)        No

How did they react? ______________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Session 3 (Total Time: 90m)

I. Check-in (5m)
   a. Ask how people are, cover logistical issues if there are any
   b. Have people do the BDI and AHI

II. Discussion of Gratitude – Part 1 (55m)
   a. Ok, how many of you got a chance to do a gratitude visit or phone call over the last two weeks?
      i. Ask how many did a call vs. a visit?
   b. I’d like to spend most of today talking about each of your experiences doing this exercise.
      i. Go around the room and ask each person who did the exercise to talk about who they wrote a letter to, what they thanked the person for, and how the interaction went when they read the letter to that person (that should take a while).
      ii. What were your general impressions? Were any aspects of the exercise more or less important to its potency?
      iii. What did you get out of this exercise? Was this a good experience?
   c. The gratitude visit is an example of a powerful but time-consuming way to get yourself to think about gratitude. But you can’t do a gratitude visit every day, or even every month! You’d run out of people!
   d. For the rest of the discussion, I would like you guys to generate some ways to incorporate mindfulness about gratitude into one’s everyday life.
      i. Spend 15-20 minutes coming up with ideas.
      ii. One possibility: counting your blessings. We’ll do this one later in the workshop. Other ideas: thank-you notes, throw a party for someone, tell other people about a nice thing a person did for you.

III. Preview of Next Session and Homework: Active/Constructive (30m)
   a. This next section is more lecture than discussion. Try to move through it quickly so that you can allow for questions at the end. Your next exercise involves a way of interacting with other people called Active-Constructive Communication.
   b. Shelly Gable at UCLA has done some research which indicates that relationship satisfaction depends on how one person reacts when something good happens to the other.
   c. When someone approaches you with good news, you can react in a variety of ways.
      i. You could be happy for them, but not make a big deal about it (“Cool!”).
      ii. You could be skeptical, and point out why the good news isn’t so good at all (“Are you sure that this is what you really want?”).
      iii. You could be indifferent (“Oh.”).
      iv. But according to the research, the only way of reacting to good news that predicts higher relationship satisfaction is to be genuinely excited about it, and to make sure that the other person knows that you are happy for them.
d. *Use this example, give an example of your own, or elicit an example from the group.* Your friend gets a prestigious award. You smile hugely, and exclaim “Wait a go! You really worked hard for that. An award like that will really look great on your resume! I am so proud of you.” Then, you insist on going to a restaurant with friends to celebrate the victory, telling everyone you see about your friend’s accomplishment.

e. The key components of an active-constructive response are:
   i. Genuine excitement
   ii. Outwardly displaying your excitement
   iii. Capitalizing (prolonging discussion of the good news, telling people about it, encouraging your friend to tell other people, suggesting celebratory activities)

f. Your assignment is to find as many opportunities as possible to respond to someone else in an active-constructive manner. Follow the instructions in your workbook, and write down what you did for discussion in class next week.
Week 3 Homework: Active-Constructive Responding

In the next week, find as many opportunities as possible to respond active-constructively to good news from your friends and family. Recall that an active-constructive response includes:

- Being genuinely excited
- Outwardly displaying your excitement
- Capitalizing on the good event by telling other people, celebrating, talking about the victory, etc.

Then fill out the worksheet below:

Name: _____________________________

How many times did you respond active-constructively to good news from another person? _____

Describe three times that you responded active-constructively. Who were you interacting with and what was their news? What did you do? How did they react to it?

1: _____________________________________________________________________
   _____________________________________________________________________
   _____________________________________________________________________

2: _____________________________________________________________________
   _____________________________________________________________________
   _____________________________________________________________________

3: _____________________________________________________________________
   _____________________________________________________________________
   _____________________________________________________________________

Be ready to discuss all of this in the next meeting!
Session 4 (Total Time: 90m)

I. Check-In: How was everyone’s week? (5 min)

II. Discussion of Active-Constructive – Part 1 (55m)
   a. Did everyone get a chance to do the exercise?
      i. Who got to use it with friends?
      ii. With family?
      iii. Relationship?
   b. Go around the room and have everyone discuss their experiences.
      i. Who was the recipient and what was their news?
      ii. Was it easy or hard? Did it come naturally to you?
      iii. How did the recipient react?
      iv. How did it feel for you when you were doing it?
   c. General discussion:
      i. Have you ever had anyone react to news from you active-constructively?
         1. What was that like for you?
         2. Did it change how you felt about telling that person when something happens to you?
      ii. Do you think that you will use this technique in your lives? Why or why not?

III. Preview of Next Sessions and Homework: Blessings (30m)
   a. The next exercise is something we call the “Blessings” exercise.
   b. Like the gratitude letter, the Blessings exercise is another way of being more aware of the good things that happen to you.
   c. It’s pretty simple, and requires only that you write a few sentences each day.
   d. Every night this week before you go to bed, take the time to write down three good things that happened that day and speculate a bit about why they happened.
   e. Try to mix it up a bit, rather than writing the same thing each day.
Week 4 Homework: Blessings

Each night before you go to sleep, write down three good things that happened that day. Then write why you think each of those things happened. You can do your writing on this sheet, or do it elsewhere and transfer your entries onto the worksheet later.

Name: ______________________________

Monday:
1. What happened: ______________________________________________________
   Why it happened: ______________________________________________________
2. What happened: ______________________________________________________
   Why it happened: ______________________________________________________
3. What happened: ______________________________________________________
   Why it happened: ______________________________________________________

Tuesday:
1. What happened: ______________________________________________________
   Why it happened: ______________________________________________________
2. What happened: ______________________________________________________
   Why it happened: ______________________________________________________
3. What happened: ______________________________________________________
   Why it happened: ______________________________________________________

Wednesday:
1. What happened: ______________________________________________________
   Why it happened: ______________________________________________________
2. What happened: ______________________________________________________
   Why it happened: ______________________________________________________
3. What happened: _______________________________________________________
   Why it happened: _______________________________________________________ 

Thursday:

1. What happened: ______________________________________________________ 
   Why it happened: ______________________________________________________

2. What happened: ______________________________________________________
   Why it happened: ______________________________________________________

3. What happened: ______________________________________________________
   Why it happened: ______________________________________________________

Friday:

1. What happened: ______________________________________________________ 
   Why it happened: ______________________________________________________

2. What happened: ______________________________________________________
   Why it happened: ______________________________________________________

3. What happened: ______________________________________________________
   Why it happened: ______________________________________________________

Saturday:

1. What happened: ______________________________________________________ 
   Why it happened: ______________________________________________________

2. What happened: ______________________________________________________
   Why it happened: ______________________________________________________

3. What happened: ______________________________________________________
   Why it happened: ______________________________________________________
Sunday:

1. What happened: _______________________________________________________
   Why it happened: ______________________________________________________

2. What happened: _______________________________________________________
   Why it happened: ______________________________________________________

3. What happened: _______________________________________________________
   Why it happened: ______________________________________________________
Session 5 (Total Time: 90m)

I. Check-In: How was everyone’s week? (5 min)

II. Discussion of Blessings (55m)
   a. This section should be largely discussion-oriented.
   b. Ask each person to share, in detail, their experience with the exercise.
      Discussion questions:
      i. Were you able to come up with 3 good things every day?
      ii. What kinds of reasons did you give for “why” your positive events happened?
      iii. Are there any particular situations in which good things events tend to occur more frequently for you?
         1. Suggest pursuing these situations to maximize the probability of good things happening.
      iv. Was this a useful exercise? Could you see yourself using it in your everyday life?

III. Preview of Next Sessions and Homework: Savoring/Biography (30m)
    a. Describe the Savoring exercise: Once a day, take the time to enjoy something that you usually hurry through (examples: eating a meal, taking a shower, walking to class). When it's over, write down what you did, how you did it differently, and how it felt compared to when you rush through it.
       i. Give pointers on how to savor…
          1. Sharing With Others: You can seek out others to share the experience and tell others how much you value the moment. This is probably the single best way to savor pleasure.
          2. Memory-Building: Take mental photographs or even a physical souvenir of the event and reminisce about it later with others.
          3. Self-Congratulation: Do not be afraid of pride. Tell yourself how impressed others are and remember how long you’ve waited for this to happen.
          4. Sharpening Perceptions: Focus on certain elements and block out others.
          5. Absorption: Let yourself get totally immersed and try not to think, just sense.
       ii. Ask students to generate things that they might target for this exercise over the next week. Give examples of things you savor in your own life.
    b. Describe the Biography exercise: Imagine that, after you retire, someone writes a book about your fruitful and satisfying life. What would you want the book to say about you? Write a 1-2 page essay summarizing what you would like to be remembered for the most. What traits and accomplishments would you like to define you? What legacy would you want to leave behind?
       i. Don’t spend much time talking about this one; you don’t want to influence the content. However, take a few minutes to address any concerns participants might have about the exercise being morbid or
weird. Sometimes people get depressed thinking about meaning without much guidance.
Homework – Session 5
PART A, Savoring

This exercise is about savoring – the ability to notice a pleasant experience and to make it last as long as possible. Noticing and savoring life’s small (and big) pleasures is a powerful tool for increasing your overall happiness. Over the next week, find one thing each day that you can spend 2-3 minutes savoring. Write what you did each day on the worksheet below.

For reference, here are the five ways to promote savoring that we discussed in the workshop:

I. **Sharing With Others:** You can seek out others to share the experience and tell others how much you value the moment. This is probably the single best way to savor pleasure.

II. **Memory-Building:** Take mental photographs or even a physical souvenir of the event and reminisce about it later with others.

III. **Self-Congratulation:** Do not be afraid of pride. Tell yourself how impressed others are and remember how long you’ve waited for this to happen.

IV. **Sharpening Perceptions:** Focus on certain elements and block out others.

V. **Absorption:** Let yourself get totally immersed and try not to think, just sense.

Name: _____________________________

Tuesday: _______________________________________________________________

Wednesday: _____________________________________________________________

Thursday: ______________________________________________________________

Friday: _________________________________________________________________

Saturday: ______________________________________________________________

Sunday: ________________________________________________________________

Monday: ________________________________________________________________
Imagine that one day, long after you have passed away, one of your great grandchildren asks about you and your life. How would you want to be remembered and described? Write a summary of your life (one page) as you would like to have it related to your great grandchild. Be sure to include a description of your values and your personal characteristics. Put this summary aside for a few days and then come back to it. Notice not only what you included in your summary but also what you omitted. Are there activities that consume a great deal of time in your waking life that you did not include in this summary? Why did you leave them out? What changes might you make in your life so that this life summary might one day be an accurate reflection of your life and personal priorities? Please think about these questions a bit, then write your thoughts below.

1. Are there activities that you spend a lot of time on that you did not include? If so, why?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. What changes might you make in your life so that this life summary might one day be an accurate reflection of your life and personal priorities?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Be ready to discuss your synopsis next week!
Session 6 (Total Time: 90m)

I. Check-In: How was everyone’s week? (5 min)

II. Discussion of Savoring (20m)
   a. Ask each participant to describe their experience with this exercise.
      i. Were you able to do it? Was it inconvenient or easy? Do you already
         savor things, or was this a new experience for you?
      ii. What kinds of activities did you savor?
      iii. Which of the different methods for savoring did you use most? Were
           some more useful than others?
      iv. What did it feel like at the moment that you were savoring? How did
           you feel afterwards?

III. Discussion of Biography (20m)
   a. Ask a few volunteers to read their life summaries and answer questions about
      it:
      i. Were there activities that you spend a lot of time on that you did not
         include? If so, why?
      ii. What changes might you make in your life so that this life summary
         might one day be an accurate reflection of your life and personal
         priorities?
   b. Suggest that participants hold on to their letters and refer back to them every
      once in a while. These letters are a helpful tool for gaining perspective on
      your life.

IV. Maintenance (45m)
   a. To refresh participants’ memories, go through each of the exercises that were
      assigned throughout the workshop and give a brief description.
   b. Ask each person in the group to say which of these exercises were most useful
      for them.
   c. Which exercises do they feel like they could continue using in their everyday
      lives? In what way could they make their chosen exercises into a habit?
   d. Which exercises would be the hardest to use regularly? Elicit ideas for ways
      to modify these exercises to make them more feasible.
      i. Example: Gratitude letter could turn into a daily routine of making a
         conscious effort to thank people when they do something nice.
         Alternatively, one could make it a habit to write mini gratitude letters
         to their loved ones once a year (birthdays or a particular holiday, for
         example) in which they summarize the good things that the person has
         done recently.
   e. Offer some ideas for other variants on the exercises that people might try.
      i. Strengths date (Engagement): Arrange a date in which both people are
         able to use their highest strengths.
         1. Example: A man with high appreciation of beauty and a
            woman with high social intelligence might throw a party
            together; the man can take care of decorations and preparing a
            lovely meal, the woman can take care of entertaining the
            guests.
ii. Beautiful Day exercise (Pleasure): Schedule a full or half-day full of your favorite pleasures and make an effort to savor and enjoy them.
   1. Examples: Spend a day at the spa, go hiking, have a quiet day at home reading your favorite book.
iii. The Year’s Accomplishments (Meaning): Once a year (perhaps on New Years Eve), take the time to summarize what you have accomplished during that year. Are you satisfied with your accomplishments? What do you hope to accomplish in the next year?
iv. Gift of Time (Engagement): Regardless of their financial circumstances, anyone has the power to give one of the greatest gifts of all: the gift of time. The aim is to give someone you care about the gift of time by doing something for them that requires a fair amount of time and whose creation calls on one of your signature strengths. This exercise is the opposite of giving a Hallmark card.
v. Positive Human Future (Meaning): Imagine an ideal human future and describe it in a short (1pg) essay. How do you fit into this positive future? In what way can you contribute to helping society become better?
REFERENCES


Preventing recurrent depression using cognitive therapy with and without a continuation phase: A randomized clinical trial. *Archives of General Psychiatry*, 58, 381-388.


