Chapter 15
Positive Psychology Interventions: Research Evidence, Practical Utility, and Future Steps

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This chapter will examine various conceptualizations of well-being, how it is measured, and why improving well-being is important. The main focus of this chapter will be on exploring methods for enhancing well-being and examining the empirical evidence for or against their efficacy and practical utility. While this chapter is not intended to be a systematic and exhaustive review of positive interventions, it does aim to give an overview of a range of widely used interventions, particularly those used within the field of positive psychology. This chapter will then critically review some of the factors that impact the success of positive interventions in enhancing well-being and will conclude with a set of recommendations for optimizing the real world application of positive interventions.

What Is Well-Being?

Within the social science literature, well-being has traditionally been operationalized as *subjective well-being*, whereby there are cognitive and affective (positive and negative) components (Diener 1994). Well-being is present when the positive aspects of everyday life considerably outweigh the negative ones. The focus of subjective well-being on life satisfaction and feeling good has resulted in this construct being closely aligned with hedonia. Such a narrow perspective of well-being has raised concern among some well-being scholars (e.g., Delle Fave et al. 2011; Keyes 2002; Ryff 1989). To address this shortcoming, new approaches have been developed, such as Ryff's (1989) model of psychological well-being, which espouses the

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importance of positive relations with others, environmental mastery, psychological growth, life purpose, autonomy, and self-acceptance for the attainment of well-being. This model is often aligned with the eudaimonic perspective of well-being and has been integrated in therapeutic approaches, such as *well-being therapy* (Fava et al. 1998). Waterman (2008) has also heralded the importance of the eudaimonic perspective of well-being and has recently developed the Questionnaire for Eudaimonic Well-Being (Waterman et al. 2010).

More contemporary perspectives on well-being have, however, underscored the multidimensional nature of well-being by reconciling the two previously disparate schools of thought (hedonic and eudaimonic) into more integrated models (Kashdan et al. 2008; Keyes et al. 2002; Ryan and Deci 2001). Examples include the Orientations to Happiness (OTH) framework originally developed by Seligman (2002) and later extended to the PERMA model (Seligman, 2011) and the Complete State Model of Mental Health (Keyes 2005, 2007).

The OTH framework describes three pathways to achieve happiness, namely, pleasure, which primarily concerns sensory gratification and fostering positive emotions about the past, present, and future; engagement, which involves being fully immersed in life's core activities; and meaning, which revolves around and serving a higher purpose for the greater good. All three pathways have been shown to be significant correlates of well-being, with engagement and meaning of particular importance (Peterson et al. 2005; Vella-Brodrick et al. 2009). The PERMA model (Seligman, 2011) also includes explicit dimensions relating to relationships- the importance of connecting with others, and accomplishment - reflecting on achievements and successes.

Keyes (2005, 2007) has outlined emotional, social, and psychological factors as being fundamental to sound mental health and to flourishing. The Mental Health Continuum, developed by Keyes, is a measure which aligns with his conceptual framework. Another recent measure that adopts this integrated approach to well-being by including items on emotional experiences, interpersonal relationships, and positive functioning is the Warwick-Edinburgh Mental Well-Being Scale (Tennant et al. 2007). Delle Fave et al. (2011) have also developed a qualitative and quantitative approach to measure the full range of well-being. These recent approaches acknowledge the breadth of defining and measuring well-being and respect the subjective nature of well-being, while maintaining that well-being entails key components, such as positive emotions, meaning, engagement, and quality relations.

Is Well-Being Amenable to Change?—The Fading Debate

A key question among scholars interested in health and well-being concerns whether people are destined to a certain level of happiness or whether their level of happiness can be controlled to some extent, and preferably by the benefactors themselves, so as to foster self-management and autonomy. The answer to this question is critical to the central mission of positive psychology, which is to assist

individuals, groups, and communities to flourish and reach their full potential (Seligman and Csikszentmihalyi 2000). Hence, some discussion about the malleability of well-being will now follow.

The happiness set point theory, sometimes referred to as the dynamic equilibrium theory, claims that happiness levels remain stable over time despite changes in life circumstances, even major ones (Headey 2006). The happiness set point is thought to operate similarly to other human homeostatic systems. For example, core body temperature, when operating effectively, seeks to maintain a temperature of around 37 degrees Celsius, irrespective of threats from parasites or external conditions. This adaptation is commonly referred to as the hedonic treadmill (Brickman and Campbell 1971) or *homeostatic control* (Cummins 2003). After repeated exposure to a stimulus, sensitivity is reduced, resulting in a need for increased stimulation in order to experience the same level of pleasure that was originally experienced. Often, this perspective is supported by citing research undertaken by Brickman et al. (1978), which found that the happiness of 22 major lottery winners and 29 paralysis accident victims soon returned to the normal range in comparison to a control group of 22 participants. These aforementioned theoretical perspectives challenge the viability of initiatives aimed at increasing individual happiness, which has led some to state that "[i]t may be that trying to be happier is as futile as trying to be taller and therefore is counterproductive" (Lykken and Tellegen 1996, p. 189). However, a noteworthy but often overlooked point is that baseline well-being data for the participants in Brickman et al.'s study were not actually collected, but their post-event well-being was instead compared with a control group. In other words, the temporal aspect, which is critical for interpreting these findings, was not included in this study. More longitudinal research, taking into account participants' actual baseline measures, is needed. Taking into consideration well-being data from panel studies, the variation in well-being across time for individuals becomes more apparent (Headey 2006).

In light of the mounting evidence favoring the malleability of happiness, Diener et al. (2006) have provided several revisions to the original hedonic treadmill theory. These revisions more readily acknowledge individual differences in adaptation, as well as the prospect of different types of well-being having different set points which may vary in the extent of their malleability.

Lyubomirsky et al. (2005b) estimate in their *Architecture of Sustainable Change* model that 50% of the variance in happiness is attributable to genetics, 10% to circumstantial factors, and 40% to intentional activities. In other words, this model proposes that individuals can actively increase their happiness by engaging in certain types of intentional activities that are cognitive (e.g., adopting an optimistic outlook), behavioral (e.g., physical exercise), or volitional (e.g., using signature strengths to help others).

In sum, it would appear that based on more recent discourse and evidence, many scholars, particularly within the field of positive psychology, believe that examining methods for increasing well-being is a worthy pursuit. This support is further pronounced by the multitude of perceived benefits likely to emerge from these volitional strategies for improving well-being.

What Are the Benefits of Improving Well-Being?

There is theoretical support for the premise that positive emotions serve important functions. For example, Fredrickson (2001) asserted, based on her broaden-and-build theory, that positive emotions (e.g., joy, interest, contentment, and love) serve two important functions: broadening and building. Broadening refers to the facilitation of a more diverse range of thought-action repertoires that foster creativity and exploration. Building refers to the accumulation of physical, intellectual, and social resources which ensue from the exploration process. These resources are thought to better equip individuals for coping with adversity. When these theoretical perspectives were empirically tested via a series of studies, they were supported. For example, Waugh and Fredrickson (2006) found with 247 first-year college students that there was an association between positive emotions and increased assimilation with and understanding of others, namely, their roommate, suggesting that those with higher levels of positive affect tend to form new relationships more readily with others than those with low levels of positive affect. In addition, experimentally induced positive affect has been shown to hasten recovery from cardiovascular reactivity to stressful situations, supporting the notion that positive emotions can serve to "undo" negative states and therefore individuals to cope more effectively with the physiological responses to negative emotions (Fredrickson and Levenson 1998).

Consistent with the broaden-and-build theory, Lyubomirsky King et al. (2005a), in their meta-analysis of 225 studies, found that individuals with higher levels of positive affect were more successful in a number of significant life domains, such as health, work, and relationships. It is noteworthy that these studies were cross-sectional and did not enable causality to be established. In other words, it was not known whether happiness led to success or success led to happiness. However, when Lyubomirsky et al. examined the results of experimental studies which induced positive states (often through showing film clips), they found that participants who were in positive states were more sociable and were better able to resolve conflicts than their less positive counterparts. Moreover, their study also included a review of a limited number of longitudinal studies undertaken in naturalistic settings and found that happiness does lead to successful work and relationship outcomes. Such positive outcomes included an increased likelihood of marriage and stronger social support (see Harker and Keltner 2001) and greater income, creativity, productivity, and quality of work (see Estrada et al. 1994). Furthermore, subjective well-being has been shown to play an important role in mental and physical health (Pressman and Cohen 2005). Also, happy individuals are more likely to self-regulate and cope with adversities (e.g., Aspinwall 1998), have healthier immune function (e.g., Davidson et al. 2003), and live longer (e.g., Danner et al. 2001) than less happy individuals. Moreover, happier people have been shown to be more cooperative, charitable, prosocial, and other-centered compared to control participants (e.g., Williams and Shiaw 1999). Therefore, the benefits of positive emotions are not exclusively confined to the individual involved, but permeate more broadly to others.

Clearly, the benefits to be derived from being in a positive state are significant and numerous and serve to underscore the necessity of a full range of emotions spanning the negative/positive spectrum. Therefore, systematically enhancing individual happiness should be an important scientific endeavor. The question now turns to *how* well-being can best be enhanced.

How Can Well-Being Best Be Enhanced?

Although many philosophers have speculated and advised on methods for enhancing well-being, Fordyce (1977) was among the first to formally examine the effects of what are now commonly termed positive psychology interventions (PPIs). It should be noted that not all of these interventions originated under the auspices of positive psychology, but this term serves as a broad label for a range of positive interventions. PPIs are volitional activities that aim to improve well-being by targeting feelings, cognitions, and behaviors (Sin and Lyubomirsky 2009). Participants in Fordyce's research (comprising three studies) included over 200 college students who were led to believe that these positive activities were part of their "Psychology of Adjustment" subject. Participants were assigned to one of three happiness intervention groups (the *insight*, *fundamentals*, or *activities* program), or to a *suggestion* (control) group, and were informed that their participation in the subject would bring them happiness (thus controlling for expectations). All students were instructed to apply their specific program daily over 2 weeks. The fundamentals and activities groups significantly increased their happiness relative to the control group.

In subsequent studies (a series of four studies were undertaken), Fordyce (1983) evaluated the "14 fundamentals for happiness" program, which was developed based on reviews of the happiness literature focusing on malleable methods rather than on personality and objective indicators of happiness and on what worked best in his previous research (Fordyce 1977). The 14 fundamentals for happiness were:

(a) Keep busy and be more active.
(b) Spend more time socializing.
(c) Be productive at meaningful work.
(d) Get better organized and plan things out.
(e) Stop worrying.
(f) Lower your expectations and aspirations.
(g) Develop positive, optimistic thinking.
(h) Become present oriented.
(i) Work on a healthy personality.
(j) Develop an outgoing, social personality.
(k) Be yourself.
(l) Eliminate negative feelings and problems.
(m) Close relationship is the number one source of happiness.
(n) Put happiness as your most important priority. (Fordyce 1983, p. 484)

These fundamental principles were the essence of a course in which detailed explanations with accompanying cognitive and behavioral actualization techniques were provided for each principle. The course also included an overview of work undertaken in the area of psychological happiness. Across the seven studies undertaken by Fordyce (1977, 1983), participants exposed to the fundamentals program demonstrated increased happiness compared to participants from a range of placebo and control conditions. Moreover, 81% of intervention group participants claimed happiness gains, and 38% reported being "much happier" or "extremely happy" as a result of the happiness program. The program fostered "the development of new behaviors and attitudes, changes in lifestyle, new insights and understandings, better copings with bad moods, enhancement of happy moods, to a better awareness of happiness itself" (p. 495). Moreover, 96% of participants indicated that the program had educational merit. Fordyce's (1977, 1983) work provided promising signs that happiness could be improved with deliberate effort.

Despite Fordyce's (1977, 1983) initiatives to incite interest in happiness research, very little work on happiness interventions was undertaken in the 1980s and 1990s. Instead, the focus remained largely on examining the antecedents and predictors of well-being (e.g., Diener et al. 1999). It was not until the inception of positive psychology in the late 1990s that more attention was invested specifically in developing and systematically evaluating PPIs. Research by Seligman et al. (2005) was at the forefront in this respect. Their study was a randomized controlled trial (RCT) involving 577 adult participants who were recruited via the Internet. Five happiness interventions (the gratitude visit, three good things in life, you at your best, using signature strengths in a new way, and identifying signature strengths) were trialed and compared with a placebo control group instructed to write about early memories. See Table 15.1 for descriptions of these interventions. While all participants, including those from the placebo control group, reported gains in happiness and decreased depression immediately after undertaking their respective activities, participants completing the gratitude visit showed gains up to 1 month post-intervention, and participants from the three good things in life and the using signature strengths in a new way interventions showed increases for up to 6 months post-intervention in comparison to the placebo control group. This study provided preliminary evidence that not only can PPIs increase well-being, but they also have the potential to decrease depression.

Research by Seligman et al. (2006) provided additional support for the ability of PPIs to reduce depression by increasing positive emotion, engagement, and meaning as opposed to working directly on depressive symptoms. This research involved two studies, the first focusing on a group of individuals with mild to moderate symptoms of depression as measured by the BDI-II and the second study focusing on a group of individuals with unipolar depression who were seeking treatment at a psychology service provider (and needed to meet the inclusion criteria of having a major depressive disorder). The first study involved 40 students who were randomly assigned to either the positive psychotherapy (PPT) intervention or to a no treatment condition. The PPT intervention involved 2 h per week for 6 weeks of a group-based intervention program (two groups of 8–11 participants) and included activities such

Table 15.1 Descriptions of interventions in Seligman et al.'s (2005) study

*Gratitude visit – 1 week to write a letter to someone who had been kind to them and then to deliver the letter
*Three good things in life – every night for a week, write down three things that went well that day and to provide a causal explanation for each
*You at your best – write about a time when they were at their best and to reflect on the personal strengths displayed in the story. Reflect on the story every day for a week
*Using signature strengths in a new way – identify their strengths and select one of the top 5 strengths to use in new ways every day for a week
*Identifying signature strengths – to take the survey and note their five highest strengths
*Placebo (early memories) – write about early memories every night for a week

Copied from Seligman et al. (2005)

as using signature strengths, three blessings, writing an obituary, a gratitude visit, active-constructive responding, and savoring. See Table 15.2 for a description of these activities.

After 1 year, the PPT group moved to the nondepressed range, whereas the control group stayed in the mild to moderate range. Satisfaction with life also increased for the PPT group; however, the control group also reported increases. In the second study involving 46 clients with unipolar depression, the PPT entailed 14 sessions addressing clients' immediate clinical needs and included homework exercises (selected to suit the participant's specific needs from a pool of 14 exercises). This intervention was compared with a treatment as usual and a treatment as usual plus medication group. Relative to the comparison groups, PPT participants experienced decreased depression and higher remission rates (i.e., absence of depressive symptoms), once again supporting the efficacy of PPT.

Numerous other intervention studies focusing on specific PPIs, such as forgiveness (Reed and Enright 2006), kindness (Otake et al. 2006), and gratitude (Sergeant and Mongrain 2011), have also been undertaken, with many showing favorable outcomes (such as increased hope, positive affect, satisfaction with life, and decreased depression). Emmons and McCullough (2003) examined the effects of a gratitude intervention on well-being over a series of three studies, with participants ranging from students to individuals with neuromuscular disease. Participants were randomly assigned to either the hassles, gratitude, or placebo control group (life events or social comparison). They were instructed to complete their assigned activity either daily or weekly for 2 or 3 weeks (this varied across the three studies). Refer to Table 15.3 for specific instructions. Participants reported their mood states, coping behaviors, health behaviors, physical symptoms, and global life appraisal pre- and post-intervention. In comparison to the placebo control groups, participants who were in the gratitude condition reported improved well-being (e.g., more optimistic appraisals of life, increased level of exercise, decreased reporting of physical symptoms, and increased positive affect). However, not all findings were consistent across the three studies, and not all the outcome variables included in the study demonstrated improvements. Others have also questioned the use of comparison groups which induce negative affect, such as the daily hassle condition (Froh et al. 2009).

Table 15.2 Descriptions of interventions from Seligman et al.'s (2006) study

Session	Description
1	*Using your strengths*: Take the VIA (values in action) strengths questionnaire to assess your top 5 strengths and think of ways to use those strengths more in your daily life
2	*Three good things/blessings*: Each evening, write down three good things that happened and why you think they happened
3	*Obituary/biography*: 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
4	*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
5	*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
6	*Savoring*: Once a day, take the time to enjoy something that you usually hurry through (e.g., eating a meal, taking a shower, walking to class). When it is over, write down what you did, how you did it differently, and how it felt compared to when you rush through it

Table 15.3 Descriptions of interventions from Emmons and McCullough's (2003) study

Condition	Instructions
Gratitude	*There are many things in our lives, both large and small, that we might be grateful about. Think back over the past week and write down on the lines below up to five things in your life that you are grateful or thankful for* (Emmons and McCullough 2003, p. 379)
Hassles	*Hassles are irritants—things that annoy or bother you. They occur in various domains of life, including relationships, work, school, housing, finances, health, and so forth. Think back over today and, on the lines below, list up to five hassles that occurred in your life* (Emmons and McCullough 2003, p. 379)
Life events	*What were some of the events or circumstances that affected you in the past week? Think back over the past week and write down on the lines below the five events that had an impact on you* (Emmons and McCullough 2003, p. 379)
Social comparison (downward)	*It is human nature to compare ourselves to others. We may be better off than others in some ways and less fortunate than other people in other ways. Think about ways in which you are better off than others, things that you have that they do not have, and write these down in the spaces below* (Emmons and McCullough 2003, p. 381)

Cheavens et al. (2006) designed a hope intervention involving 8 × 2-h group sessions. The hope intervention covered aspects such as setting realistic and meaningful goals, developing various pathways for achieving these goals, identifying motivational sources and counteracting motivational challenges, monitoring goal

progress, and modifying goals and pathways, as required. Homework tasks were also assigned to intervention group participants. Examples of goals selected by study participants included exercising more often, working on interpersonal relationships, and changing jobs. Participants comprised 32 members from the community who were randomly assigned to either the hope condition or a wait-list control condition. Improvements from pre- to post-intervention and relative to the wait-list control group were found for agency hope (but not pathways hope), anxiety, self-esteem, and purpose in life.

Sin and Lyubomirksy's (2009) meta-analysis provides an efficient overview of the efficacy of 51 different positive psychology interventions ($N = 4{,}266$), including forgiveness (Freedman and Enright 1986; Reed and Enright 2006), positive writing (King 2001), and well-being therapy (Fava et al. 1998). Essentially, this meta-analysis found that PPIs are effective in increasing well-being and decreasing depression, with effect sizes of .29 and .31, respectively. While these results generally support the use of PPIs, at best, these effect sizes are moderate and should not be overestimated. Consequently, gaining insight into methods for improving the efficacy of PPIs is an important next step and will now be explored.

Which Positive Psychology Interventions Work, and for Whom?

With an increasing focus on evidence-based practice, cost-effectiveness, efficient distribution of limited resources, and treatment success, gaining an understanding of the underlying mechanisms behind PPIs—and not just the main effects on well-being—is imperative. This means that at least two fundamental criteria need to be met. First, that there is sound research (including RCTs and meta-analyses) supporting the efficacy of PPIs, and second, that there is sufficient ecological validity demonstrating that PPIs possess real world applicability for a variety of people and outcomes, as intended. Hence, the circumstances under which the interventions are beneficial need to be elucidated. This will enable the selection of appropriate interventions to suit individual needs while concurrently accommodating contextual factors. For example, there is little point in recommending online interventions to individuals who do not have computer access or who are not sufficiently skilled to use a computer.

Lyubomirsky (2008) refers to *person-activity fit* as being important for the selection of PPIs or volitional activities. Person-activity fit is believed to occur when the activity feels natural, enjoyable, and valuable. Ideally, the requirements (or nature) of the activity should align with the skill set, interests, needs, disposition, values, and personal resources of the individual. In addition, the context (or environmental) conditions should also fit the task at hand, in terms of time demands, special equipment, and level of support from significant others.

Research examining the direct effects of an intervention on well-being without considering any potential moderating or mediating factors, while important in the

initial stages of determining the broad effects of an intervention, has limitations from a long-term perspective. Although not always consistent, evidence—including RCTs and meta-analyses supporting the efficacy of PPIs—is steadily accumulating, and thus more attention is being directed to understanding interaction effects. As a starting point, Sin and Lyubomirsky (2009), in their meta-analysis, examined interaction effects and found that higher levels of depression, increased age, one-on-one interventions (in contrast to group administration), and interventions of longer duration, heighten the efficacy of PPIs. This information provides some direction for exploring mediating and moderating factors. These types of factors can be divided into three broad categories: (1) participant characteristics, (2) nature of intervention, and (3) contextual factors.

Participant Characteristics

Numerous individual difference factors are plausible mediators or moderators of the efficacy of PPIs. An endless range of state and dispositional factors may be relevant, but some of the most obvious ones include personality, motivation levels, mental health status, character strengths, and sociodemographic factors. Some of these will now be discussed.

Motivation

Sheldon and Lyubomirsky (2006) found that self-concordant motivation, which refers to a commitment to pursue goals that are interesting and align with one's core values, moderates the efficacy of PPIs. Study participants were assigned to either the counting blessings (CB), visualizing best possible selves (BPS), or life events (placebo control) condition. Descriptions of the counting blessings (gratitude) and life events activities were similar to those used in Emmons and McCullough's (2003) study, as outlined in Table 15.2. BPS participants were asked to

> [i]magine yourself in the future, after everything has gone as well as it possibly could. You have worked hard and succeeded at accomplishing all of your life goals. Think of this as the realization of your life dreams, and of your own best potentials. In all of these cases you are identifying the best possible way that things might turn out in your life, in order to help guide your decisions now. You may not have thought about yourself in this way before, but research suggests that doing so can have a strong positive effect on your mood and life satisfaction. So, we'd like to ask you to continue thinking in this way over the next few weeks, following up on the initial writing that you're about to do. (p. 77)

Participants were asked to rate their level of engagement and motivation to continue with the assigned activity. They also reported on how often they did the assigned activity. Of the three groups, self-concordant motivation was found to be highest for the BPS group. Consistent with predictions that the intervention which aligned most closely with the participants' interests and values would be the most effective in improving mood, the BPS participants reported greater increases in

positive affect relative to the CB and life events participants. Interestingly, however, participants from all conditions, including life events, reported immediate decreases in negative affect. The most pertinent finding was that an individual's motivational level to undertake an activity influenced the efficacy of the activity. Hence, the use of wait-list control groups would help balance out issues related to motivational factors and should be used where relevant and possible.

Wants Versus Needs

Schueller (2010) found that preference for undertaking a PPI is positively related to adherence to the activity. More recently, Schueller (2011) found no significant difference between participants assigned to activities based on preference compared to those who were randomly assigned an activity. It would seem, then, that determining person-activity fit based on preference is not always straightforward. Giannopoulos and Vella-Brodrick (2011) found that assigning individuals to an intervention which differed from, rather than matched, their dominant orientation to happiness (pleasure, engagement, and meaning) was most effective in enhancing well-being. In other words, participants with, for example, a high-pleasure orientation to happiness, who were assigned to either the three engaging or three meaningful things writing activity, rather than the three pleasurable things writing activity, reported greater well-being benefits. Similarly, Silberman (2007) found with 72 undergraduate psychology students that self-selection into four PPIs (three good things, you at your best, using signature strengths, and the gratitude visit) did not increase the benefits to be gained from undertaking the interventions. These study findings illuminate the situation, whereby activities may match needs but not preferences (wants), and raise the issue of which of these criteria should take precedence when determining person-activity fit. At present, there is insufficient evidence-based research to guide these decisions.

Positive Affect and Personality

Froh et al. (2009), in their study of 89 adolescents, explored positive affect as a moderator of the efficacy of the gratitude visit. As gratitude interventions have not shown consistent well-being benefits in comparison to control conditions, it was thought that the gratitude intervention may only benefit a subgroup of individuals with specific characteristics, such as low positive affect. It was predicted that those already high in positive affect may have experienced an emotional ceiling whereby additional emotional gains are unlikely. Hence, those lower in positive affect may have more scope to improve their positive emotions through the gratitude intervention. They found that adolescents low in positive affect in the gratitude condition reported higher levels of both gratitude and positive affect immediately after the intervention and positive affect at the 2-month follow-up, compared to adolescents in the daily event condition. Hence, positive affect did moderate the efficacy of the gratitude visit.

Personality is another participant characteristic that could influence how well PPIs work. Personality factors have received considerable research attention, with extroversion and emotional stability being particularly identified as strong correlates of well-being (See Diener et al. 1999). However, personality has seldom been examined as an individual difference factor potentially influencing the efficacy of specific PPIs. Yet, it is conceivable that personality may play a large role in determining what interventions will work for specific individuals. For example, do certain interventions, such as the gratitude visit, require high levels of extroversion or openness for them to be effective in enhancing well-being? One study, which has focused on the "depressive personality styles" of being self-critical and needy, found with 772 adults who were assigned to either a gratitude, music, or control exercise for 1 week that those in the gratitude and music conditions reported increased happiness over time in comparison to control participants (Sergeant and Mongrain 2011). Noteworthy in this study, however, is that self-critics reported the most favorable outcomes if they were assigned to a gratitude condition, whereas needy individuals did not benefit from the intervention and indeed decreased with regards to self-esteem. Clearly, the interactive role of personality in relation to PPIs is another area that warrants further investigation.

Mental Imagery

Given that many of the PPIs involve recalling situations (e.g., three good things) or imagining future events (e.g., BPS), there appears to be some reliance on mental imagery skills in the execution of these tasks. Mental imagery is defined as the occurrence of quasisensory or quasiperceptual experiences despite the absence of any real sensory stimuli (Richardson 1969). Mental imagery ability is evident when individuals can immerse themselves in and respond to the mental images, as if they were really occurring.

Researchers of PPIs are beginning to explore the role of mental imagery for increasing happiness and well-being. For example, Peters et al. (2010) examined whether a 15-min BPS condition followed by a further 5 min of mental imagery was more effective at increasing optimism than a control condition in which participants were asked to write about and imagine a typical day in their life. The BPS plus mental imagery condition was more effective at increasing optimism than the control condition. While it is not known whether mental imagery per se was the active ingredient of the PPI (particularly as there was no comparison group without the explicit mental imagery instructions), this finding is consistent with evidence that mental imagery activates emotional systems (more readily than verbal methods) and is therefore an effective tool for amplifying positive emotions (Holmes and Mathews 2010; Holmes et al. 2008).

Just as mental imagery training has been shown to enhance sporting performance (Martin et al. 1999), some competency with mental imagery may be helpful to participants when undertaking PPIs that involve the recall or reexperiencing of events

and projecting into the future to imagine what life would be like. A study by Odou and Vella-Brodrick (2011) examined the influence of mental imagery prompts while undertaking the three good things and best possible self-interventions and found there was no difference in intervention efficacy for those with the mental imagery prompts compared to those without the prompts. However, mental imagery ability was positively correlated with well-being, suggesting that by improving mental imagery skills such as controllability and vividness, well-being may be enhanced (or well-being may improve mental imagery ability). Extending on this work, more targeted and controlled studies examining mental imagery ability as a possible moderator or mediator variable, rather than as a component of an intervention, are warranted.

Mindfulness

Mindfulness can be operationalized as both a trait and state and involves heightened awareness of, and attention to, stimuli as well as personal emotions, thoughts, and motives (Brown and Ryan 2003; Thomas 2006). Aspects of mindfulness also seem relevant to the successful undertaking of many PPIs. For example, high levels of awareness and attention are relevant to PPIs, such as savoring and three good things, as these interventions require individuals to be aware of positive events and experiences as they are occurring so that they can be recalled at a later point in time. Given that there are training programs to increase mindfulness (Kabat-Zinn 2003), determining which PPIs are optimized as a result of specific levels of mindfulness seems a worthwhile task. This means that individual's mindfulness levels can be improved to suit the task, or PPIs can be selected to suit individuals based on whether or not they possess high levels of mindfulness. Higher levels of mindfulness practice have been associated with increased levels of positive affect and decreased levels of negative affect (Jha et al. 2010) and increased psychological well-being (Huppert and Johnson 2010). However, how mindfulness levels influence the efficacy of PPIs has not been the focus of research to date.

Socioeconomic Status and Demographics

Typically, research studies have relied on participants from high socioeconomic and westernized backgrounds. This middle class, white bias may impact significantly on the outcomes obtained on the efficacy of PPIs. It has been found that higher education and income levels are related to higher SWB (Cummins 2000). Hence, PPIs may not be as effective for individuals with lower levels of education and income or from different cultural backgrounds. Moreover, PPIs appear to be more effective for older people (Sin and Lyubomirsky 2009). These findings suggest that some consideration of the interaction effects of individuals' socioeconomic status and demographic details is warranted when selecting PPIs, and greater effort is needed

to recruit more diverse and representative samples in future research studies on PPIs so that more about the influence of individual difference and cultural factors on the efficacy of PPIs can be learned.

Nature of the PPI

Frequency of Undertaking the PPI

The specific components and qualities of PPIs, such as the response format, frequency of completion, delivery mode, and content coverage and depth, may impact the success of the intervention for specific individuals. Some of these factors will now be examined in more detail.

The frequency with which PPIs are undertaken appears to be an important factor. Huppert and Johnson (2010), in their RCT of the efficacy of mindfulness training to improve well-being in 155 adolescent boys, found that there was no significant difference in mindfulness, resilience, and psychological well-being between the mindfulness and control groups. There was, however, a positive relationship between the amount of practice undertaken by the adolescents and improvements in psychological well-being and mindfulness. Jha et al. (2010) also found similar results in their study on mindfulness, with improvements evident only for those participants with higher levels of mindfulness training. Therefore, there is escalating evidence to suggest that the number of times a PPI is undertaken is important. However, it is not known what the optimal frequency rate is for each activity and whether there is a saturation point whereby the activity no longer remains effective due to, for example, hedonic adaptation. For instance, Sheldon and Lyubomirsky (2004) found that individuals who counted their blessings once a week, as opposed to those who counted their blessings three times per week, reported more significant gains in well-being. This demonstrates that the relationship between frequency of PPI and well-being is not always a linear one. Hence, PPIs will need to be adapted into several different versions to ensure there is sufficient variety to mitigate boredom and adaptation (e.g., count blessings relating to a different life domain each week for a month).

Writing-Based PPIs

Many PPIs require participants to write. This raises the question about whether those individuals who are more proficient in or comfortable with writing are more likely to derive greater benefits from PPIs. Interestingly, placebo control groups which involve writing about early memories or daily events have been shown to be equally effective in increasing well-being as the PPI conditions in some studies (e.g., Seligman et al. 2005, at the immediate post-intervention time point). Therefore, it can be deduced from these findings that the writing task may be the

active ingredient rather than the positive nature of the intervention per se. Subsequently, more extensive exploration of the content and length of the writing activity, as well as the individual's preferred response style (e.g., writing versus verbal), seems relevant.

In terms of content, it has been found that when individuals are asked to write about intensely positive events, positive affect is significantly improved (Burton and King 2004). However, writing and journaling have been used as deliberate psychosocial strategies which promote emotional expression and disclosure of stressful events (Nazarian and Smyth 2008). For example, it has been shown that when participants who have experienced a relationship dissolution are asked to write about what the relationship was like prior to the break-up, the factors that may have triggered the break-up, and the consequences of the break-up, they experienced fewer adverse health symptoms in comparison to control participants (Lewandowski 2009). Research findings relating to this area of investigation have been mixed, but it seems that the use of positively oriented words is related to better health outcomes, whereas the use of words reflecting negative emotions results in negative health outcomes (see Lewandowski 2009). Less is known about the ideal length of the writing activity in relation to PPIs or about the individual's preferred response mode, and research directed at understanding more about these factors is needed.

Combination Interventions

Some PPIs, such as PPT or Cheavens et al.'s (2006) hope intervention, involve a combination of positive activities rather than a single activity, thus making it difficult to identify what the active ingredients associated with the successful or unsuccessful outcomes are. If a positive outcome is achieved, it is not possible to know whether all aspects of the combined interventions were effective or whether it was just one or two of the activities which generated the desired outcome. Hence, identifying the unique contributions each activity makes to specific outcome variables is difficult with these combination interventions, and more tightly designed studies are needed to first identify the unique contributions of specific interventions and then to examine the effects of various combinations of activities.

Preliminary findings suggest that combination activities may be less effective for enhancing well-being than are interventions which focus exclusively on one activity. For example, Giannopoulos and Vella-Brodrick (2011), in their study comparing four activity groups asking participants to write daily about (1) three pleasurable things; (2) three engaging things; (3) three meaningful things; and (4) a combination group of one pleasurable, one engaging, and one meaningful thing, found that the combination activity group was the least effective group. One explanation for this finding is that by attempting to cover a greater breadth of topics, depth is sacrificed, and this may have detrimental effects on the efficacy of PPIs in enhancing well-being. Given the time and commitment restrictions many individuals face, insight into the right balance of breadth and depth is needed.

Delivery Mode

PPIs can be delivered via a variety of mediums and settings. One medium that is gaining increasing attention is the Internet. Mitchell et al. (2009) conducted an RCT comparing the well-being effects of an online strengths intervention with a problem-solving intervention and a problem-solving information-only placebo control condition. In this study the measurement of well-being included domain-specific indices, cognitive and emotional well-being, and the pleasure, engagement, and meaning orientations to happiness. Results were mixed and tended to favor improvement of the cognitive component of well-being relative to the affective component. Although the study demonstrated that it is possible to improve specific aspects of well-being using self-guided Internet PPIs, this was not the case for many of the study outcome variables. This raises the question of whether different delivery modes impact the efficacy of interventions.

Although online, self-guided PPIs are currently scarce, they will become more prevalent given the large network of people that can be reached using the Internet and the convenience associated with responding via the Internet. However, one major challenge for scholars utilizing online interventions concerns the high attrition rates which, in the case of Mitchell et al.'s study, were 83% at the 3-month follow-up. The inclusion of methods which provide human support, such as e-coaching or regular reminders and follow-up, may increase the likelihood that participants will be (1) more fully engaged in online interventions, (2) comply with instructions, and (3) commit to completing online programs. Research exploring these propositions is critical to the advancement of practical online methods for enhancing well-being.

Contextual Factors

Contextual factors appear to be the least emphasized of the three broad categories of factors which may influence the success of PPIs. The importance of contextual aspects relating to lifestyle (e.g., time availability) and support from significant others should not be ignored. These will now be discussed briefly.

Time Availability

PPIs need to suit the lifestyles of the users. Quick and simple interventions are likely to be more readily adopted by individuals. This is clearly an advantage of PPIs, which tend to be self-administering, easy to do, enjoyable, and quick to complete. More specific information on how individuals embed these PPIs into their lifestyle and how much time they take to complete using a variety of different samples is needed to guide the development of future PPIs and ensure they remain practical for the end user.

Support from Significant Others

It has been shown that the support structure of individuals is important for any change process (Williams et al. 2006). For example, if an adolescent was involved in a PPI, the support and encouragement of peers, parents, and teachers may be helpful in completing the activity. Health initiatives in work settings have also demonstrated the beneficial effects of supportive workplace supervisors (Della et al. 2008). Hence, it appears that for PPIs to have maximal impact, a support network comprised of individuals and systems that will facilitate and encourage the practice of the PPI is likely to lead to better well-being outcomes; however, this has not been tested explicitly with PPIs.

Progressing PPI Research and Applications: Issues to Consider

Monitoring PPIs

Studies on PPIs, to date, have raised a number of important issues which need to be considered in future research so that the study of PPIs can continue to progress and deliver practical and effective outcomes for those in pursuit of optimal psychological health. Some of these issues pertain to the administration of the PPI, the selection of comparison and control groups, and the selection and types of measures employed.

Many PPIs are self-regulated and self-administered, which means that they are not required to be completed under standardized conditions with the researchers present to oversee program integrity. Therefore, it is not known whether participants have completed the PPIs in accordance with the specified instructions. Most studies do not monitor the extent to which participants have followed instructions, although some studies do ask participants for self-reports, for example, on the frequency of completing the activity. However, these responses are likely to be overinflated due to a range of response biases. For PPIs that involve writing, one possible solution is to ask participants to submit their journals detailing the frequency and content of their activities, to researchers, so this information can also be analyzed. While access to this level of information would provide valuable insight, it may make participants apprehensive about disclosing personal information to researchers. In many studies, however, participants remain anonymous; hence, privacy may not always be an issue. Unless information about the adherence of the intervention is monitored, it is not possible to know exactly what participants are doing as part of the positive intervention. In some recent studies undertaken by the author, participants were asked to complete the assigned intervention online, and these activity responses were recorded as part of the research study. It was found that the quality of the responses varied considerably, with participants assigned to an active intervention group not completing the activity. Others who did complete their assigned activity

varied tremendously with regard to the quality and quantity of the responses. Therefore, researchers should not presume that all participants have adhered to the researchers' instructions. Instead, researchers should collect data to verify, within reason, that PPI activities have indeed been undertaken and completed as instructed, by participants.

More standardized instructions around the duration that one should spend on the activity (e.g., 20 min of writing or listing three things that happened today), or the quantity of responses expected (e.g., one pleasurable thing, one engaging thing, and one meaningful thing), may also provide more guidance and encourage greater compliance by participants. The key challenge will be to gain verification of completion of self-guided and self-administered activities as instructed and to promote adherence to instructions, without compromising participant autonomy and privacy.

Placebo Control and Control Conditions

Careful selection and monitoring of placebo control activities is needed. It is common for studies investigating PPIs to use daily events or early childhood memories placebo control groups which, on the whole, are believed to be fairly neutral conditions. It is possible, however, that participants in these conditions, particularly those with an optimistic outlook, can be selecting and writing about positive life events, thus transforming this neutral condition into a positive one. This may explain why some studies (e.g., Seligman et al. 2005) have found that their placebo control conditions have also been effective in increasing well-being in some post-intervention measures. Consequently, the content of placebo control activities should also be monitored and accounted for in the interpretation of study findings.

Research participants who have been assigned to a no-activity control group may have decided to adopt their own well-being strategy independent of the study. Although research participants of RCTs are informed that they have an equal chance of being in an intervention or control group, participants of PPI studies often sign up because they have an interest in improving their own well-being. This implies that they may wish to be proactive in meeting this goal during the course of the study. Therefore, asking participants questions about significant life events or lifestyle changes can provide valuable information, which can then be factored into the analysis.

What Are the Desirable Outcomes Resulting from PPIs?

One point for further discussion concerns how the success of PPIs should be evaluated. The majority of research undertaken on PPIs has focused primarily on increased positive affect and satisfaction with life and decreased negative affect and depression, as the target outcome variables. Less focus on short-term, hedonic outcomes, to instead include a wider range of well-being outcomes related to eudaimonia, is

desirable. Target outcomes that benefit the community and include long-term growth and other-oriented benefits should be utilized more frequently and extensively in future studies. This will align more closely with contemporary conceptualizations of well-being and help to refine the specific well-being outcomes likely to be attained by various PPIs.

Measurement of Well-Being Change

Measures of well-being most commonly used in PPI studies are limited. Most are self-report measures, which may not be sufficiently sensitive to change. Others focus on narrow conceptualizations of well-being (e.g., high activation emotions). Greater use of a broader range of existing measurement methods is needed. For example, experience sampling and day reconstruction methods may provide greater insights than the exclusive use of standard well-being questionnaires commonly employed in well-being research. Physiological and neurological measures may also help confirm the accuracy of emotional reports. Ideally, more of an *assessment* approach rather than a *testing* approach employing both quantitative and qualitative methods would be valuable.

Multidisciplinary Interventions

It is important that well-being and positive psychology scholars draw on the expertise and knowledge currently available. Incorporating other interventions outside of positive psychology may provide valuable insight and may encourage the development of more diverse and potentially powerful interventions. For example, emotion regulation strategies or music therapy may provide some fruitful avenues for PPIs. Moreover, multidisciplinary collaborations would promote this multifaceted approach to the study and measurement of well-being.

Conclusion

In sum, it appears that positive interventions are generally effective at increasing well-being and decreasing depression for the middle class individual who is motivated to achieve positive changes. However, not all PPIs have been shown to produce all the desired or predicted outcomes, and not all individuals benefit from specific PPIs. Moreover, there are particular groups of people who have not been sufficiently examined in relation to PPIs, resulting in speculation over whether positive interventions are helpful with individuals across the full life span (e.g., for adolescents and older samples) and with specific populations such as those with particular illnesses or learning difficulties. Nevertheless, many studies supporting the efficacy of PPIs are of a high quality (RCTs and meta-analyses). This means that

the evidence for PPIs is steadily increasing. Additional appealing features of PPIs are that most are simple, cost-effective, and self-administered, implying that they have real world applicability. Most PPIs appear to have met the two fundamental criteria of being evidence-based and demonstrating ecological validity. What is currently lacking, however, are insights into the optimal conditions for PPIs to achieve the greatest benefits. Given the infancy of PPIs, and the rapid developments gained in the field thus far, it is expected that this knowledge will continue to emerge over time and that robust interventions to suit most individual needs will be developed.

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