

## Positive psychology and the internet: A mental health opportunity

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### Abstract

This paper reviews two relatively young fields of research – positive psychology and internet interventions – and discusses the potential of online positive psychology interventions (OPPIs) as an effective and sustainable health promotion tool within a comprehensive approach to mental health care. The paper starts with a review of positive psychology, in particular well-being theory and contemporary research, and then followed by an overview of the advantages (e.g., accessibility and sustainability) and disadvantages (e.g., digital divide) of delivering mental health interventions via the internet. Finally, the results of a literature review combining the two fields of research are presented. Five randomised controlled trials were identified testing the efficacy of OPPIs as a means of enhancing well-being, with three studies demonstrating increased well-being compared to a control group. In the three studies that had populations with mild to moderate depression symptoms at baseline, there was significant symptom reduction, suggesting that well-being interventions, while primarily targeted at improving wellness, may also have an illness treatment and prevention function. While this review is limited by the small number of studies currently available, researchers, practitioners and consumers are asked to consider the opportunities and benefits of delivering well-being interventions online.

**Keywords:** *Positive psychology; internet interventions; well-being; health promotion; online*

### Introduction

This paper explores the integration of positive psychology and internet interventions as a health promotion opportunity within a comprehensive approach to mental health care. An overview of well-being, a key concept in positive psychology, and internet intervention theory and research is provided. Finally, the results of a literature review of online positive psychology interventions (OPPIs) are discussed.

Historically the mental health system has primarily focused on treatment of mental health disorders, however, it is acknowledged that this treatment-oriented approach alone cannot adequately address the growing social and economic burden of mental illness (Andrews, Issakidis, Sanderson, Corry, & Lapsley, 2004; Cuijpers, van Straten, Smit, Mihalopoulos, & Beekman, 2008; WHO, 2003). As a consequence greater attention has been invested in mental health prevention and promotion. Mental health promotion focuses on the population as a whole and seeks to address the underlying social and economic determinants of illness as well as promote positive mental health in individuals and communities. This approach has the dual benefit of not only reducing the incidence of mental illness, but also increasing the presence of positive mental health in individuals and the community (WHO, 2001, 2004).

The World Health Organisation (2001) defines mental health as “...a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her own community” (p.1). This definition emphasises well-being and positive functioning, and clearly indicates that mental health is more than the absence of illness. A growing body of scientific knowledge demonstrates that contrary to prior beliefs, well-being and illness are not simply flip sides of the same coin or opposite ends of a single continuum; rather they are independent but moderately correlated constructs (Bradburn, 1969; Keyes, 2005b; Ryff et al., 2006). The implication for mental health is that alleviation of symptoms of illness cannot guarantee the presence of wellness. To gain a complete picture of mental health an understanding of both illness and wellness is necessary. However, until recently mental health has been dominated by a psychopathology model focused on the reduction of illness and with scant attention to wellness. Even work in health promotion has been conducted largely in the context of mental

illness rather than mental health (Sainsbury, 2000). In contrast the physical health equivalent to well-being (i.e., physical fitness) has an established body of research from which mental health researchers and practitioners could learn (Secker, 1998).

In order to help address the shortcomings in our understanding of well-being and the contribution it makes to mental health, the 1998 American Psychological Association presidential address called for the establishment of Positive Psychology - the scientific study of well-being and optimal human functioning (Seligman & Csikszentmihalyi, 2000; Snyder & Lopez, 2002). The launch of the positive psychology movement served as a catalyst, drawing together previously disparate lines of research and creating enough research momentum for exponential growth in this field of scientific endeavour. As an indicator of the growth in well-being research, a search of the PsychINFO database (January 2011) for peer reviewed journal articles from 1900 to 2011 with the keyword 'well-being' found a total of 24,369 articles, with only 2,935 of these published prior to 1998. The establishment of positive psychology created an agenda for a comprehensive understanding of mental health, both illness and wellness, for individuals and communities. So what does current theory and research tell us about well-being?

## Well-Being

### What is well-being?

The term well-being is a multifaceted construct with no single, clearly accepted definition in psychological research. In broad terms, Ryan and Deci (2001) describe well-being as a construct concerned with optimal experience and functioning. Two major conceptual approaches to defining and measuring well-being have emerged based on the hedonic and eudaimonic approaches (for a review of the philosophical origins see Kashdan, Biswas-Diener & King, 2008) and resulting in a dual category approach to well-being research in contemporary psychology. Theories of well-being derived from the *hedonic* approach have at their core the subjective experience of happiness or pleasure (i.e., a person's appraisal of their own experience), hence the term *subjective well-being* (SWB). SWB has been defined as how an individual evaluates his/her own life and incorporates both affective (e.g., positive and negative emotions) and cognitive (e.g., satisfaction judgements) components (Diener, 1984; Snyder & Lopez, 2002). SWB, also referred to as happiness or emotional well-being (Snyder & Lopez, 2002), has dominated as the primary measure in well-being research to date (Kashdan, Biswar-Diener, & King, 2008; Ryan & Deci, 2001). The two components of SWB, affective and cognitive, are most commonly measured using self-report surveys

such as the Positive and Negative Affect Scale (PANAS) (Watson, Clark, & Tellegen, 1988) and the Satisfaction With Life Scales (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985).

In contrast to the hedonic approach, theories of well-being derived from the *eudaimonic* approach focus on the degree to which a person is fully functioning and highlights personal growth and meaning (Ryan & Deci, 2001). The emphasis is on fulfilling one's potential, rather than affect and satisfaction judgments. Ryff (1989) has labelled this somewhat broad definition of well-being as *psychological well-being* (PWB). More specifically, Ryff operationalises PWB in terms of six dimensions of functioning: *self-acceptance* - a positive attitude towards oneself and one's past life; *personal growth* - being open to new experiences; *purpose in life* - believing that one's life is meaningful; *environmental mastery* - the ability to manage one's life; *autonomy* - independence and self-determination; and *positive relations with others* - having satisfying high quality relationships (Ryff, 1989; Ryff & Keyes, 1995). Ryff has designed a self-report scale to assess PWB at a particular moment in time within each of these six dimensions, called the Psychological Well-Being scale (Ryff, 1989; Ryff & Keyes, 1995).

Although most research to date has taken place in the context of either hedonic or eudaimonic theory, there has been repeated debate over the usefulness of this dual category approach. Some theorists have suggested that these models are not mutually exclusive (Kashdan et al., 2008; Keyes, Shmotkin, & Ryff, 2002; Ryan & Deci, 2001) and combined models have emerged. An example of an integrated model is Keyes (2005b, 2007) mental health continuum. This model is comprised of three factors of (i) emotional well-being (i.e., positive affect and life satisfaction); (ii) psychological well-being (i.e., self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, and positive relations with others); and (iii) social well-being (i.e., consisting of five dimensions of social acceptance, social contribution, social coherence, social integration, and social actualisation). Essentially it combines SWB and PWB and adds a third factor, social well-being. Keyes has developed a self-report measure of his three-factor model of well-being called the Mental Health Continuum (MHC), the most recent version is a brief 14-item questionnaire (MHC-SF) (Keyes, 2005b; Keyes et al., 2008). There is data supporting this three-factor model of well-being (Gallagher, Lopez, & Preacher, 2009) and the psychometric properties of the MHC-SF (Keyes et al., 2008).

Another integrated model is Seligman's theory of happiness (Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park, & Peterson, 2005). This model deconstructs happiness (the authors refer to well-being as happiness in this model) into three components or orientations - pleasure, engagement and meaning. The first orientation, (i) pleasure, refers to the hedonic

notion of increasing positive emotions. These emotions can be about the past (e.g., satisfaction, contentment, pride), present (e.g., satisfaction from immediate pleasure) or future (e.g., hope, optimism). The second orientation to happiness is (ii) engagement, or the pursuit of gratification. The key characteristic of engagement is that it fully occupies or directs one's attention when undertaking an activity (e.g., reading a book, playing golf or listening to music). It is proposed that engagement in an activity involves developing and applying an individual's personal strengths (e.g., creativity, perseverance, social intelligence). Engagement is thought to result in *flow*, the psychological state experienced during engaging activities characterised by a feeling of energised focus, full immersion, and success in the process of the activity (Csikszentmihalyi, 1990). The final orientation to happiness, as described by Seligman et al. (2005), is (iii) meaning. Meaning refers to applying one's personal strengths (e.g., teamwork, loyalty, social intelligence) to belong to and serve something larger than the self (e.g., institutions such as family, community, or religion). While the pleasure orientation appears to equate to SWB, the latter two orientations, engagement and meaning, align most closely with the eudaimonic school of PWB. Seligman et al. (2005) have operationalised their model through the creation of the Steen Happiness Index (SHI), a 20-item self-report questionnaire. The SHI is intended to be more sensitive to upward changes in happiness levels compared to other happiness or well-being measures. The SHI appears to have good internal consistency but limited published validity data. There is an updated, 24-item version of the SHI in use, namely the Authentic Happiness Inventory (AHI), which reports good internal reliability but no apparent published validity data (Schiffrin, Rezendes, & Nelson, 2008). The theoretical description of the orientations to happiness model and measures in the published literature lacks clarity. A criticism directed at positive psychology research by Kashdan et al. (2008) is the use of abstract or generic terms (e.g., happiness) when defining constructs. Compared to SWB and PWB, integrated models of well-being are in early stages of development but it is essential that clear theoretical models and precise terminology are used when labelling constructs and describing research outcomes (Kashdan et al., 2008).

### Well-being outcomes and prevalence

Worldwide there is a growing body of research demonstrating the benefits of subjective and psychological well-being (for a review of correlational and longitudinal research see Lyubomirsky, King, & Diener, 2005). Some key benefits identified by Lyubomirsky King and Diener (2005) include greater work productivity, longer lasting and more satisfying marriages, greater social support, richer social interactions, increased activity, energy, flow and better

physical health (e.g., strengthened immune system, less pain, lowered stress levels, and greater longevity). Well-being is also related to increased individual creativity, prosocial behaviour, self-confidence, self-regulation and ability to cope (Lyubomirsky, King, & Diener, 2005). Less well understood are the negative consequences of low levels of well-being or what Keyes (2005b, 2007) terms *languishing*. Keyes (2007) explores the negative consequences of languishing as well as the benefits of high well-being, or *flourishing*, using data from a telephone and postal population survey of American adults ( $N = 3032$ ). The Composite International Diagnostic Interview Short Form Scales (CIDI) (World Health Organisation [WHO], 1990) was used to categorise participants as with or without a mental illness. Well-being was measured using the MHC and participants were categorised as having low, moderate or high well-being (i.e., Keyes terms these languishing, moderate well-being and flourishing, respectively). An interesting finding from the research was that languishing adults without a mental illness reported the same level of dysfunction in terms of daily living (e.g., missed days of work) and worse levels of psychosocial functioning (e.g., helplessness, goals in life, resilience and intimacy) when compared with adults with a mental illness and moderate or flourishing well-being. In a similar study, Keyes (2005a) found that the absence of well-being (with or without the presence of mental illness) was related to increased risk of chronic physical disease. In contrast, complete mental health (i.e., flourishing and absence of mental illness) was negatively correlated with physical illness, with this group reporting the fewest chronic conditions, fewer health limitations of daily living and lower health care utilization than languishers or the moderately mentally healthy (Keyes, 2005a). In summary, while the well-being data is limited by its primarily cross-sectional and correlational nature, it provides preliminary support for the idea that even if an individual is free from mental illness it does not mean that they are functioning well in life. Well-being levels vary and higher levels of well-being appear to have more positive implications for quality of life, psychosocial functioning and physical health.

In an exploration of prevalence rates of the different categories of well-being, Keyes (2007) found that 20% of the adult American population are flourishing, and only 17% are what he terms completely mentally healthy (flourishing and no mental illness). The prevalence of mental illness at 21.5% is similar to other research findings (Kessler et al., 2005); however Keyes also identifies the subset of the population who have no mental illness and are languishing at 10% (this is the previously mentioned group who function as poorly as or worse than people with a mental illness). Additional research is needed to identify if these prevalence rates generalise to non-American populations and address the possibility of increasing the prevalence of flourishing

mental health. The growing body of well-being intervention literature has begun to address some of these issues.

### **Well-being interventions**

Lyubomirsky, Sheldon and Schkade (2005) propose a theory of the determinants of well-being (they refer to well-being as enduring or chronic happiness). Their theory identifies three key factors that influence happiness: (i) a person's genetically-determined set point, or set range, for happiness; (ii) circumstantial factors (e.g., income, location, education level and marital status) and; (iii) intentional cognitive, motivational, and behavioural activities that can influence well-being. Research on this theory suggests that these three factors contribute 50%, 10% and 40% to happiness respectively. Lyubomirsky et al. (2005) propose that the third factor, with its focus on individual psychological processes, is most amenable to change. In support of this, data from longitudinal research (Fordyce, 1977; Lyubomirsky, 2006; Lyubomirsky, King et al., 2005; Lyubomirsky, Sheldon, & Schkade, 2005; Sin & Lyubomirsky, 2009) have demonstrated that well-being can be enhanced via interventions that promote intentional cognitive and behavioural activities, such as: practicing gratitude; committing acts of kindness; visualizing best possible selves; processing positive life experiences; identifying and using personal strengths; mindfulness; goal setting; forgiveness; hope therapy; positive psychotherapy (PPT); and well-being therapy.

A meta-analysis of 51 independent positive psychology intervention (PPI) studies demonstrated a significant increase in well-being (49 studies;  $r = .29$ ; Cohen's  $d = \text{medium}$ ) (Sin & Lyubomirsky, 2009). The meta-analysis also measured symptoms of illness and found a significant reduction in depression symptoms (25 studies;  $r = .31$ ,  $d = \text{medium}$ ). The interventions that were included in the meta-analysis focused on cultivating positive feelings, behaviours or cognitions, as opposed to interventions that addressed pathology or deficiencies. The results demonstrated that it is possible to enhance well-being via PPIs. Sin and Lyubomirsky (2009) also identified a number of moderators of intervention effectiveness including intervention duration, intervention format, participant age, and participant depression status. The duration of the interventions varied from 1-week to over 12 weeks, with greater well-being effects for longer interventions. This effect is possibly due to participants having more time to practice the interventions and therefore process and integrate them into their life, creating lasting changes in cognition and/or behaviour (i.e., creating new habits). This idea is supported by several other studies that found the more effort put into practicing an intervention, the greater the improvement in well-being (Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2008; Seligman et al., 2005). A second moderator of

effectiveness identified by Sin and Lyubomirsky (2009) is the intervention format; they found face-to-face individual delivery was most effective, followed by group delivery, and then self-administered interventions. These data are difficult to interpret, as causality cannot be determined without random assignment; however the differences may have occurred because participants in the individual and group format had direct human contact and support; or perhaps because presumably the group and individual face-to-face formats had pre-scheduled and specific time allocated to explain and practice the interventions. Both of these factors, human contact and scheduling sessions, may have had a positive impact on participant commitment to the intervention and motivation to complete the assigned tasks. The third moderator identified was participant age, with increased age resulting in greater well-being benefits from the intervention. The authors suggested this may be due to increases in self-regulation and emotional control as people age. Alternatively it may be that as people age they place greater value on well-being and happiness and as a result are more motivated to put effort into the intervention. The fourth moderator identified was depression status, with depressed participants more likely to see greater effects from the interventions. This finding could be accounted for by depressed participants having more room to improve compared to their non-depressed peers (i.e., floor effect). This finding suggests a potential role for PPIs in mental illness treatment and prevention as well as well-being promotion.

In summary, there is a mounting body of information indicating well-being can be enhanced both immediately and in the long term through a range of cognitive and behavioural PPIs. There are a number of moderating factors, relating to both the participant and intervention program characteristics, which influence the effectiveness of PPIs. More research is required to understand exactly what these moderators are and how they operate so that PPI effectiveness can be maximised. If, as this early research indicates, PPIs can effectively enhance well-being, how can they be integrated into an effective health promotion strategy? This is where the internet can play an important role as a mechanism for delivery of PPIs.

## **The Internet and mental health interventions**

### **Advantages, disadvantages and opportunities for internet delivery of mental health interventions**

A key objective of mental health promotion is to deliver interventions that are accessible to as many people as possible and are sustainable to deliver. Delivering well-being interventions via the internet has

the potential to enhance accessibility and sustainability (Mitchell, Stanimirovic, Klein, & Vella-Brodrick, 2009) as well as providing a range of other advantages such as: personalisation; tailoring; multi-media options; interactivity; reliability; convenience; anonymity; and consumer empowerment (Ahern, Kreslake, & Phalen, 2006; Christensen, Griffiths, & Evans, 2002; Griffiths, Lindenmeyer, Powell, Lowe, & Thorogood, 2006; Korp, 2006; Ritterband et al., 2003). In terms of *accessibility*, internet access varies greatly from country to country, with global internet usage estimated at 23.8% (Internet World Statistics [IWS], 2009). For people living in westernised, English speaking countries such as Australia (74.3% estimated internet usage), United States (73.1%) and United Kingdom (70.9%) the internet plays a central role in the work, study and personal lives of the majority of people (IWS, 2009). The internet is also accessible at any time and from a variety of locations, allowing users to access information at their own convenience and pace. As the efficiency of internet technology increases, costs decrease and people become familiar with the technology, ever growing numbers of people are gaining access to the internet from a variety of locations (e.g., at home, work, public libraries, internet cafes and mobile phones) (Australian Bureau of Statistics [ABS], 2006; Ybarra, 2005). The internet also has the ability to reach traditionally underserved populations such as those: who live in rural or remote areas; without easy access to health services or; who wish to remain anonymous (Christensen et al., 2002; Griffiths et al., 2006; Korp, 2006; Ritterband et al., 2003; Ybarra, 2005). The internet offers the opportunity to assist in addressing the large and unmet need for mental health services in our community (Christensen et al., 2002).

The internet also has the potential to provide a *sustainable* means of mental health delivery. The health literature provides several examples of the cost-effectiveness of internet interventions for the prevention and treatment of specific disorders (Crone et al., 2004; de Graaf et al., 2008; Mihalopoulos et al., 2005). For example, a study by Crone et al. (2004) estimated that internet interventions for anxiety and depression could reduce the cost to between one-third and one-sixth, relative to other forms of psychological treatment. Less is known about cost-effectiveness for mental health promotion interventions, however after initial development costs these types of interventions are likely to be fully or partially automated, reducing the need for, and expense of, direct one-on-one professional-consumer interaction. In addition, information on the internet can be accessed at no or minimal cost to the consumer. Internet interventions appear to require minimal financial and human input to sustain them beyond the initial development phase (Crone et al., 2004; de Graaf et al., 2008; Mihalopoulos et al., 2005); however, research is required to test this observation for health promotion interventions.

The ability to personalise and tailor a website is another advantage of this medium. *Personalisation* refers to the provision of specific content aimed at increasing user identification with the material presented, for example, making content culturally or gender-specific based on participant characteristics. *Tailoring* of information is the provision of content that meets the specific needs of the user based on their responses to certain questions, for example, providing questionnaire feedback. Importantly, there is a small but growing body of research indicating that personalisation and tailoring enhance program engagement and adherence (Brug, Oenema, & Campbell, 2003; de Vries & Brug, 1999; Ritterband, Thorndike, Cox, Kovatchev, & Gonder-Frederick, in press).

While most web-based interventions are predominantly text-based, other *multimedia formats* can be incorporated such as audio, video, animation, pictures and graphics. Using a variety of multimedia formats is thought to be advantageous because it appeals to a range of learning styles and makes the intervention more dynamic and engaging for the user (Abbott, Klein, & Ciechomski, 2008; Barak, Klein, & Proudfoot, 2009). Again research is limited, however, a study of a web-based program for paediatric encopresis found that users positively received and preferred the addition of multimedia formats (i.e., case audio and graphics) to the text-based program (Ritterband, Cox et al., 2006). Although many health websites provide static information only, the internet can be highly *interactive* (e.g., the user completes a survey and is provided with immediate feedback; or the user can move objects on the screen). Interactivity is theorised to enhance interest in, and understanding of, content and program adherence (Abbott et al., 2008; Barak et al., 2009; Ritterband et al., in press; Stevens et al., 2008).

The internet provides a *reliable* delivery medium with information remaining the same across repeated presentations (Griffiths et al., 2006). Computers are immune to fatigue, illness, boredom or other similar human traits. The internet offers the user access to information while maintaining their *anonymity* and it can be accessed from the *convenience* of their own home without need for human interaction. Several authors have identified that some people feel more comfortable and are more candid in disclosing information online than face-to-face, particularly for highly stigmatised issues such as mental illness (Christensen et al., 2002; Evers, 2006; Griffiths et al., 2006; Pier et al., 2005; Ybarra, 2005). Lastly, the internet can be *empowering* for the consumer, as they can take an active role in engaging and directing their own learning and behaviour change process (Christensen et al., 2002).

The disadvantages of using the internet for mental health care are similar to those of the more traditional approaches (e.g., face-to-face therapy, self-help books).

Although recent statistics indicate that the digital divide (i.e., the gap between sections of the population that do or do not have access to the internet) has reduced (ABS, 2006), there are still groups of people in the community who have low levels of internet access (e.g., unemployed and elderly). There are also a vast number of health-related websites and the quality of the information is variable (Ybarra, 2005). Furthermore, basic computer and literacy skills are required to access the internet; downloading information from the internet can be slow, depending on the modem speed and type of website; and the internet does not appeal to all consumers (e.g., some people may prefer face-to-face contact or reading a book). Delivering mental health interventions via the internet also raises a range of ethical issues, such as confidentiality of information (e.g., security of data provided via the web) and duty of care (e.g., how to establish the age of participants so you know if you are dealing with a minor). As this field of research and practice grows, professional standards and guidelines are being developed to address many of these issues (Barak et al., 2009; Ritterband, Andersson, Christensen, Carlbring, & Cuijpers, 2006).

In summary, the internet as a health promotion tool offers a range of advantages; most notably it has the potential to enhance accessibility in a sustainable manner compared to traditional delivery mechanisms. However, the internet is only useful if the interventions it is delivering are efficacious. So what does the internet intervention research tell us about the efficacy of mental health internet interventions?

### Internet intervention research

Ritterband et al. (2003) define internet interventions for mental health as interventions that promote knowledge and behaviour change via web-based programs that are typically theory-driven, self-paced, interactive, tailored to the user and utilise the multimedia opportunities provided by the internet. Most of the research to date has been undertaken in the context of mental illness treatment and prevention rather than wellness. The number of internet interventions available for mental health treatment and prevention is growing rapidly and these interventions have demonstrated efficacy (e.g., reduction in symptoms or number of people meeting clinical criteria for diagnosis of a disorder) for a range of mental health disorders and health behaviours (e.g., depression, anxiety, smoking and weight loss) (Cuijpers, van Straten, Andersson, & van Oppen, 2008; Cuijpers, van Straten, Smit et al., 2008; Griffiths, Farrer, & Christensen, 2007; Klein et al., 2009; Mitchell et al., 2009). There is enough quality research to indicate that internet interventions for mental health treatment can be effective, but it is unknown if this finding generalises to online well-being interventions.

### Literature Review of Online Positive Psychology Interventions (OPPIs)

While there are a range of web-based well-being programs available to the public, most have not been rigorously evaluated. A literature review conducted in May 2009 of the PsychINFO database for randomised controlled trials (using the following *search terms*: positive psychology, well-being, happiness, internet and website) identified two peer-reviewed studies (Mitchell et al., 2009; Seligman et al., 2005). Consultation with international experts in the area identified three additional studies: two peer reviewed journal articles (Abbott, Klein, Hamilton, & Rosenthal, 2009; Shapira & Mongrain, 2010) and one unpublished doctoral thesis (Parks, 2009). A summary of selected features of these five studies are presented in Table 1.

Findings relating to the efficacy of OPPIs have been mixed with the clearest support emerging from the Seligman et al. (2005) study. In this study participants were randomly assigned to one of five active interventions or a placebo control. The results found that two of the interventions, *using signature strengths* and *three good things*, produced significant change in the expected direction on the happiness and depression outcome measures, with benefits apparent at six months. The *gratitude visit* intervention was also effective in improving happiness and reducing depression ratings; however, this change lasted only one month. It is important to note that at baseline participants were, on average, mildly depressed; and to access the research study had actively sought out Seligman's widely publicised Authentic Happiness website, so were likely to be highly motivated. In addition, participants who reported continued adherence to the happiness intervention beyond the required one-week, scored higher on happiness scores at all times points and lower on depression scores at one-month follow-up, compared to those who did not continue to adhere. This supports previous research findings that effort moderates PPI outcomes (Sin & Lyubomirsky, 2009).

A study by Mitchell et al. (2009) extended the Seligman et al. (2005) study by taking one of their effective 1-week interventions, *using your strengths*, and creating a 3-week web-based intervention; and comparing it to a *problem solving intervention* and an *information-only* placebo control. This study found significant improvement for the *using your strengths* group compared to the placebo for the cognitive component of SWB as measured by the personal well-being index (PWI-A), but not the affective component measured by the PANAS. Unlike the Seligman et al. (2005) study, no change was found on the measure of illness symptoms from baseline to follow-up. However baseline scores were all within the normal range compared to the mildly depressed sample in the Seligman et al. (2005) study, leaving little room for

Table 1:

*Overview of five randomised controlled trials testing Online Positive Psychology Interventions (OPPIs)*

Authors	Design	Population	Measures	Intervention and control groups	Assessment	Well-being increased	Illness reduced	Attrition
Seligman et al. (2005)	RCT; 1 week intervention	Adults with mild depression (n = 557)	SHI * CES-D†	<ul style="list-style-type: none"> <li>• Three good things (gratitude)* †</li> <li>• Gratitude visit*†</li> <li>• Using strengths*†</li> <li>• You at your best</li> <li>• Identifying strengths</li> <li>• Earliest memories (placebo control)</li> </ul>	Pre, post, 1-mth, 3-mths, & 6-mths	Yes*	Yes†	29% at 6-mths
Mitchell et al. (2009)	RCT; 3 week intervention	Adult community sample (n = 160)	SWLS PANAS PWI-A* OTH DASS-21	<ul style="list-style-type: none"> <li>• Using strengths*</li> <li>• Problem solving</li> <li>• Information only (placebo control)</li> </ul>	Pre-, post & 3-mths	Yes*	No	69.8% at post, 83% at 3-mths
Abbott et al. (2009)	RCT; 10 week intervention	Adult sales managers (n = 53)	AHI WHOQOL-BREF DASS-21	<ul style="list-style-type: none"> <li>• Resilience online</li> <li>• (Waitlist control)</li> </ul>	Pre- & post	No	No	41.5% at post
Parks (2009) (PhD thesis)	RCT; 6 week intervention	Adults with mild/mod depression (n = 267)	SWLS PANAS CES-D†	<ul style="list-style-type: none"> <li>• Positive psychotherapy (PPT) †</li> <li>• (Waitlist control)</li> </ul>	Pre-, post, 1-mth & 3-mths	No	Yes†	47.6% at post
Shapira & Mongrain (2010)	RCT; 1 week intervention	Adults with moderate depression (n = 188)	SHI * CES-D†	<ul style="list-style-type: none"> <li>• Self-compassion*†</li> <li>• Optimism*†</li> <li>• Earliest memories (placebo control)</li> </ul>	Pre, post, 1-mth, 3-mths, & 6-mths	Yes*	Yes†	35% at post, 79% at 6-mths

Note: SHI = Steen Happiness Index; AHI = Authentic Happiness Index (updated version of SHI); SWLS = Satisfaction With Life Scale; PANAS = Positive & Negative Affect Scale; PWI-A = Personal Wellbeing Index – Adult version; OTH = Orientations to Happiness; WHOQOL-Bref = World Health Organisation Quality of Life – Brief version; CES-D = Centre for Epidemiological Studies – Depression scale; DASS-21 = Depression Anxiety Stress Scale – 21 item version.

\* Significant improvement in well-being

† Significant reduction in depression symptoms

illness symptoms improvement (i.e., floor effect).

The study by Parks (2009) examined a six-week multi-component intervention called positive psychotherapy (PPT) that is based on Seligman's theory of happiness (i.e., pleasure, engagement and meaning) (Seligman, 2002). PPT combines six positive psychology exercises with previously demonstrated efficacy, including: three good things (gratitude) (Emmons & McCullough, 2003); identifying and using your strengths (Seligman et al., 2005); a gratitude visit (Emmons & McCullough, 2003; Seligman et al., 2005); active-constructive responding (Gable, Reis, Impett, & Asher, 2004); savouring (Bryant, Smart, & King, 2005); and life summary (based on goal setting research)

(Parks, 2009). Parks conducted a pilot study using an online version of PPT with mild to moderately depressed adults. The sample was primarily female (75.7%) and a mix of US (55.1%) and non-US participants (44.9%). Primary outcomes measured were SWB and depression symptoms. Assessments were conducted at baseline, and at 1- and 3-month follow-up, with assessments planned for 6-month and 1-year follow-up but the data was not yet available. The study design was a randomised controlled trial, with participants allocated to either a 6-week online PPT program (n =125) or an assessment-only control condition (n =142).

The key outcome findings from the research were that PPT led to significant decreases in depressive symptoms compared to the control group at 3-month follow-up. Contrary to studies examining the efficacy of group PPT (Parks, 2009; Seligman, Rashid, & Parks, 2006), the online version did not demonstrate the hypothesised increase in SWB compared to the control group. The author suggests that the discrepancy in well-being outcomes between online PPT and group PPT is due to a mixture of intervention factors. The group intervention provided an opportunity for participants to re-schedule any missed sessions; there was the expectation of attending a face-to-face, group program where attendance was recorded; and weekly summaries of participant experience of the assigned tasks were collected from the group. These factors are likely to have created greater adherence to group PPT, compared to online PPT where there was no human contact, group processes, or submitting weekly assignments to prompt adherence to the task. While it is interesting to explore reasons for the different well-being outcomes between group PPT and online individual PPT, it is impossible to draw any meaningful conclusions without conducting research that directly compares these two formats, ideally via a randomised controlled trial. Parks also measured self-reported adherence to the various exercises within PPT and noted that there was greater adherence by participants to exercises that required a few minutes on a daily basis (i.e., three good things; savoring; and active-constructive responding), as opposed to exercises that require a larger one-time time commitment (i.e., gratitude visit; and life summary) or were more complex and demanding daily tasks (i.e., identifying and using strengths).

Abbott et al. (2009) conducted a randomised waitlist controlled trial in a workplace setting of a 10-week, multi-component intervention called Resilience Online. The program consisted of seven resilience components, including: emotion regulation; impulse control; optimism; causal analysis; empathy; self-efficacy and; reaching out. The results indicated no improvement on happiness, quality of life or work performance. There was also no improvement on scores for depression, anxiety and stress symptoms; however like the Mitchell et al. (2009) study, illness symptoms were all within the normal range at baseline, leaving little room for improvement. The authors note that the lack of significant change may be due to insufficient time interval by post-assessment, and that change may be evident at 3-month follow-up (data currently unavailable). The study limitations included small sample size, low intervention adherence and high study attrition, making it difficult to detect significant change.

The fifth study (Shapira & Mongrain, 2010) tested the efficacy of online self-compassion ( $n = 63$ ) and optimism exercises ( $n = 55$ ) compared to a placebo control ( $n = 70$ ). Both of the active interventions resulted in increased well-being sustained to six

months, and decreases in depression symptoms observable to three months. This study was limited by a self-selected, primarily Caucasian, female sample and high study attrition. A key strength of the study was the attempt to identify individual differences that moderate the effectiveness of OPPIs, in particular the personality orientations of self-criticism and dependence moderated the effects of the active interventions.

In summary, three of the five studies demonstrated increases in well-being as a result of five independent OPPIs (i.e., using your strengths, three good things, gratitude visit, self-compassion and optimism). In the three studies where participants had mild to moderate depression symptoms at baseline the OPPIs had a significant impact on depression symptom reduction. This finding suggests that well-being interventions, while primarily targeted at improving wellness, may also have a treatment and prevention function.

The well-being outcomes measured in these five studies were based on two theoretical approaches, SWB (Diener, 1984) and an integrated well-being model (Seligman et al., 2005). Two studies (Seligman et al., 2005; Shapira & Mongrain, 2010) detected significant changes using the SHI, this is consistent with the theory that the SHI is sensitive to upward changes in well-being. The third study (Mitchell et al., 2009) that identified changes in well-being measured both the cognitive and affective components of SWB. Interestingly changes were evident for the cognitive but not the affective component of SWB; and the cognitive SWB changes were significant when measured by the PWI-A but not the SWLS. It has been suggested that the PWI-A is a more sensitive measure of the cognitive component of SWB compared to the SWLS because it has a domain specific rather than global focus (see Mitchell et al., 2009). However, it should be noted that PPIs delivered offline have detected significant changes using both the SWLS and PANAS. As the body of research grows it may be possible to determine more about the differences and similarities between these theoretical approaches and well-being measures; meantime, it is important that positive psychology researchers continue to clearly identify the well-being constructs under review.

Based on the small amount of data available, the brief (1-3 weeks), single component OPPIs were more effective than longer (i.e., 6-10 weeks), multi-component OPPIs. This effect may be related to the difficulty in getting participants to dedicate ongoing time and effort to longer, and perhaps more complex, self-administered programs with a focus on wellness. This finding is in contrast to Sin and Lyubomirsky's (2009) meta-analysis results; how meaningful a finding this is will need to be determined by future research. Finally, the effect sizes for the well-being changes detected in the current review were nil (two studies) or small to medium (three studies). This result supports the finding by Sin & Lyubomirsky (2009) that self-



administered interventions have a smaller effect size than administered interventions in individual or group formats. However, if future research can identify the reason for this difference then it may be possible to reduce the effectiveness gap between offline and online formats. It would also be interesting to conduct a cost-benefit analysis of delivering a less effective intervention to a large audience (i.e., via the internet) versus a more effective intervention to a smaller audience (i.e., face-to-face individual or group delivery). Overall, online well-being interventions have demonstrated potential but more research is necessary to conclusively establish their efficacy.

### Conclusion

This review of two relatively young fields of positive psychology and internet interventions highlights the benefit of integrating research to create new mental health opportunities. To paraphrase Proust (2009), this opportunity is based not on finding new landscapes but on changing the way we view our current one. If mental health professionals remain focused on the alleviation of illness, then they miss out on the possibility of understanding and capitalising on well-being. Well-being has demonstrated potential as both a worthwhile pursuit in its own right and as a factor that can protect individuals against mental illness. The internet offers additional benefits, particularly in terms of accessibility and sustainability, and as a versatile medium with a growing presence in everyday life. Currently there is a small body of quality research that seeks to understand more about combining positive psychology with internet delivery to increase well-being and decrease illness symptoms. Additional research is required to clearly establish the efficacy of OPPIs. In addition, future research would benefit from addressing *intervention factors*, to learn more about which PPIs work best online and what program factors enhance participant adherence and reduce attrition. More quality research is also needed on *participant characteristics*, to enhance knowledge of who would use these interventions and if individual differences (e.g., personality traits or baseline well-being levels) moderate intervention effectiveness. In conclusion, researchers, practitioners and consumers are asked to consider the opportunities and benefits of delivering well-being interventions online. This approach to mental health promotion is intended to complement, not replace, current delivery formats and form part of a stepped-care approach to complete mental health – the absence of illness *and* the presence of well-being.

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