

Effectiveness of a positive psychology intervention combined with cognitive behavioral therapy in university students

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Título: Eficacia de una intervención en psicología positiva combinada con terapia cognitivo conductual en estudiantes universitarios.

Resumen: El objetivo de este estudio fue diseñar e implementar una intervención positiva combinada con técnicas de terapia cognitivo-conductual para mejorar el bienestar subjetivo y psicológico, así como otras variables de funcionamiento positivo en una muestra de conveniencia. Los participantes analizados fueron 48 estudiantes universitarios (media 22.25 años). Se llevó a cabo una asignación no aleatorizada de los participantes a la condición de intervención ($n = 25$) y a la condición de control en lista de espera sin tratamiento ($n = 23$). Todos los participantes fueron evaluados antes y después de la intervención para probar la efectividad del programa de tratamiento. Los ANCOVAs de medidas repetidas, controlando las diferencias de la línea base entre los dos grupos, indicaron que el grupo de intervención mostraba mayor apoyo social después del período de intervención que en el grupo control en lista de espera. Se encontraron diferencias intragrupo en felicidad, auto-aceptación, relaciones positivas con los otros, optimismo y autoestima para el grupo de intervención, mientras que estas diferencias no aparecían en el grupo de control en lista de espera. Estos hallazgos sugieren la capacidad limitada de este programa de intervención para mejorar el bienestar a través de actividades positivas combinado con terapia cognitivo-conductual. Las investigaciones futuras deberían analizar qué tipo de actividades podrían ser más eficaces en la promoción del bienestar en función de las características de los participantes.

Palabras clave: intervención positiva; bienestar subjetivo; bienestar psicológico; optimismo; autoestima; apoyo social.

Abstract: The aim of this study was to design and implement a positive intervention combined with cognitive-behavioral therapy to enhance subjective and psychological well-being and other positive functioning constructs in a convenience sample. Participants analysed were 48 university students (mean age 22.25), 25 assigned nonrandomized to intervention condition and 23 to no-treatment waiting-list control condition. All participants were assessed pre- and post-intervention to test the treatment program effectiveness. Repeated-measures ANCOVAs, controlling baseline differences between the two groups, indicated that the intervention group reported greater social support after the intervention period than the waiting-list control group. Within-group differences were found for happiness, self-acceptance, positive relations with others, optimism, and self-esteem in the intervention group; these differences did not appear in the waiting-list control group. These findings suggest the limited capacity of this intervention program for improving well-being through positive activities combined with cognitive-behavioral therapy. Future research should analyse what kind of activities could be more effective in promoting well-being depending on the characteristics of participants.

Key words: positive intervention; subjective well-being; psychological well-being; optimism; self-esteem; social support.

Introduction

The emergence of Positive Psychology has allowed for the integration of various lines of research focused on analysing the determinants of happiness and the promotion of strengths and other relevant dimensions of positive mental health or well-being (DelleFave & Fava, 2011; Peterson & Seligman, 2004). Happiness is a human need (Diener, Suh, Lucas, & Smith, 1999), and many of an individual's actions and decisions have the ultimate objective of making him or her happy. When a person is happy? Research on the matter agrees that happiness or well-being is not just defined as the sum of pleasant moments—hedonic well-being—but also implies having a meaningful life—eudaimonic well-being. Hedonic or subjective well-being (SWB) is represented by the quantity and quality of experienced events or situations that provide pleasure and are subjectively assessed as positive by individuals (Diener et al., 1999). Eudaimonic or psychological well-being (PWB) involves engagement in meaningful activities that allow for the development of the individual's potential and his/her complete self-actualization (Ryff, 2014). Not all desires lead to well-being, only those

which make a person live up to his/her true self (Ryff, 1995). These two types of well-being, although correlated, are conceptually distinct (Keyes, Shmotkin, & Ryff, 2002) and depend on different gene expression and regulation profiles (Fredrickson et al., 2013).

Previous studies have shown a close relationship between certain personal characteristics and well-being (Butkovic, Brkovic, & Bratko, 2012; Marrero & Carballeira, 2011; Steel, Schmidt, & Shultz, 2008). There is clear evidence of a link between dispositional traits such as optimism, self-esteem, or gratefulness and greater well-being (Diener & Diener, 2009; Emmons & McCullough, 2003; Rius-Ottenheim, Van der Mast, Zitman, & Giltay, 2013; Schimmack & Diener, 2003; Zhang et al., 2014). One part of well-being is determined by genetic factors (Lykken & Tellegen, 1996). Another is associated with circumstantial factors that can hardly be changed (Lyubomirsky, Sheldon, & Schkade, 2005), such as the family into which the individual is born, the cultural reference group, or the historical period in which he/she has lived. Finally, a third part depends on intentional activities which are under the individual's control (Lyubomirsky et al., 2005). Thus, it is possible to identify the characteristics of naturally happy people so as to increase the well-being of the general population through systematic training in positive activities.

In recent years, a number of positive psychology interventions (PPIs) have been developed to increase well-being,

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consisting basically of the promotion of positive feelings, cognitions and behaviors (Sin & Lyubomirsky, 2009). However, there is no unified theoretical framework about what these positive interventions entail (Parks, College, & Biswas-Diener, 2013). The “broaden-and-build” theory of positive emotions explains that experiencing positive emotions increases the likelihood of feeling well in the future, initiating upward spirals toward enhanced emotional well-being (Fredrickson & Joiner, 2002). Individuals prioritizing positivity who make decisions to be happier during their day-to-day life have greater resources and experience greater positive emotions (Catalino, Algoe, & Fredrickson, 2014). Also, PPIs falling under the category of strength-based interventions have been designed to identify and promote many of the strengths and traits that the individual already has (Peterson & Seligman, 2004), leading to diminished stress and promoted positive affect, vitality and self-esteem (Park, Peterson, & Seligman, 2004; Proyer, Ruch, & Buschor, 2013; White & Waters, 2015). Recent meta-analyses have demonstrated that PPIs have been effective in promoting well-being (Bolier, Haverman, Westerhof, Riper, Smit, & Bohlmeijer, 2013; Sin & Lyubomirsky, 2009). Although a hedonic adaptation or “set point” appears, 25% of people reported that changes in their lives related to the promotion of happiness have persisted over time (Fujita & Diener, 2005).

Some interventions are based on *multicomponent programs*, which include several positive activities combined with cognitive behavioral therapy to promote well-being, such as behavioral activation interventions or positive psychotherapy (Fordyce, 1977, 1983; Mazzucchelli, Kane, & Rees, 2010; RuiniMasoni, Ottolini, & Ferrari, 2014; Seligman, Steen, Park, & Peterson, 2005). Seligman, Rashid and Parks (2006), applying an intervention focused on increasing pleasant experiences, engagement and a meaningful life through positive activities, found decreased depressive symptoms for six months compared with a placebo intervention. Other researchers have proven the effectiveness of *specific interventions* focused on the construction of identity, such as imagining and writing about best possible selves (Burton & King, 2004), setting meaningful goals (Sheldon, Kasser, Smith, & Share, 2002) and “one door closes, another door opens-interventions” (Gander, Proyer, Ruch, & Wyss, 2013). Also, some PPIs have been aimed at promoting positive behaviors or activities, such as recognizing situations where one can be grateful (Emmons & McCullough, 2003); the use of forgiveness (Worthington, 1998; Worthington & Scherer, 2004); practicing acts of kindness (Lyubomirsky et al., 2005); savoring pleasurable experiences (Seligman et al. 2006); practicing loving-kindness meditation (Cohn & Fredrickson, 2010); or responding actively and constructively to positive events (Gable, Reis, Impett, & Asher, 2004). Most of these interventions significantly increased well-being in both clinical and non-clinical populations (Sin & Lyubomirsky, 2009).

For this study, a multicomponent group program was designed that included positive activities with empirically

proven effectiveness. Most past interventions had focused on isolated positive activities to be self-administered by the individual. There is evidence of better outcomes for one-on-one or group formats versus self-administered interventions (Sin & Lyubomirsky, 2009). In our study, the positive psychology intervention (PPI) was designed to include activities that promote both hedonic and eudaimonic components of well-being as well as some positive functioning variables that have been shown to be related to well-being, such as optimism, self-esteem, social support, forgiveness and gratitude. Although the focus of attention during treatment was on the positive aspects, we incorporated cognitive behavioral therapy (CBT) techniques, such as cognitive restructuring, emotional expression, communication and problem-solving skills, which facilitate the acquisition of positive behaviors, thoughts and feelings. Cognitive models emphasize the importance of modifying the content of cognitions to cause changes in behavior, so that the novel strategies learned can be transferred to everyday life (Beck, 1993). From our point of view, the incorporation of CBT strategies in PPIs will allow individuals to engage in a cognitive analysis of the content of their thoughts, which would be of central importance to structuring their world around a more positive outlook. This would facilitate changing maladaptive thoughts and behaviors to more positive activities and ways of thinking. An example might be the production of mental images (Pearson, Deeprose, Wallace-Hadrill, Heyes, & Holmes, 2013) or developing an optimistic attribution or positive expectation involving information processing (Seligman, 2011), which would require the use of cognitive restructuring techniques. In addition, recent research suggests that the combination of these two therapeutic strategies could improve the effectiveness of interventions (Chaves, López-Gómez, Hervás & Vázquez, 2016).

Our positive intervention program aimed to address various purposes: 1. To teach individuals to be aware of their own identity and promote their well-being. Our approach understands the individual from a holistic perspective, and recognizes his/her ability to integrate and organize various positive activities in the process of self-regulation of his/her behaviors. Self-determination theory proposes that people are intrinsically motivated to promote their own development in a harmonious and organized way (Deci & Ryan, 2013). 2. To promote positive traits, such as optimism and self-esteem. Previous research has shown a close relationship between optimism, self-esteem and well-being (Diener & Diener, 2009; Zhang et al., 2014). However, hardly any interventions include these dimensions as a therapeutic target. 3. To assess changes produced in both SWB and PWB. Normally, PPIs are focused on assessing and promoting SWB and neglect any changes that may occur in PWB.

Therefore, the main goal of this study was to design and implement a group PPI combined with CBT intervention with the purpose of promoting different components of SWB and PWB (focusing on positive affect, savoring, pro-

moting personal control and meaningful goals) as well as other constructs related to positive functioning (gratitude, forgiveness, optimism, self-esteem and social support). In our study the following hypothesis was established: 1. It was expected that the intervention group would show statistically significant differences on measures of SWB, PWB and positive psychological functioning from Time point 1 (pre-test) to Time point 2 (post-test) as compared to the waiting-list control group (no-treatment).

Methods

Participants

In this study, the sample size was not planned from the outset with a view to obtaining a certain effect size or statistical power. We used a convenience sample. Initially, participants were 60 university students of the University of La Laguna (Spain) who voluntarily decided to participate in the research. All participants filled out the assessment protocol before the treatment period (pre-test). Half the participants were assigned (nonrandomized) to the intervention group and the other half were placed in the waiting-list control group. During the intervention period, the dropout rate was 16.67% within the intervention group: one individual abandoned the sessions due to incompatibilities of schedule, another individual had health problems, two did not complete

the post-assessment protocol and one was excluded from the statistical analysis for being over 40 years old, which exceeds the age range typical of a university student. The dropout rate within the waiting-list control group was 23.33%, in all cases due to not filling out the post-assessment. The number of participants included in the analyses was 48; these were all the participants who provided the assessment protocol at the two time points (pre- and post-test), remained in their group until the end of the treatment period, and missed no more than three sessions—the average number of sessions attended was 10.64 (see Figure 1). Thus, the intervention group consisted of 25 individuals, aged 19-36 years ($M = 22.24$, $SD = 3.96$), pursuing different university studies (56% speech therapy, 32% labor relations, 8% social education and 4% business management and administration). The majority of participants in the intervention group were women (84%) and a 40% had a partner. Participants came from different places of residence (50% peripheral, 20.83% urban, 16.67% rural and 12.5% residential). The waiting-list control group was composed of 23 people, aged 20-32 years ($M = 22.26$, $SD = 3.31$), who were studying psychology (43.48%), speech therapy (34.78%) and labor relations (21.74%). In this group, 52.17% were women and 66.67% had a partner. Participants in the waiting-list control group were residing in peripheral (34.78%), urban (34.78%), rural (17.39%), and residential areas (13.04%).

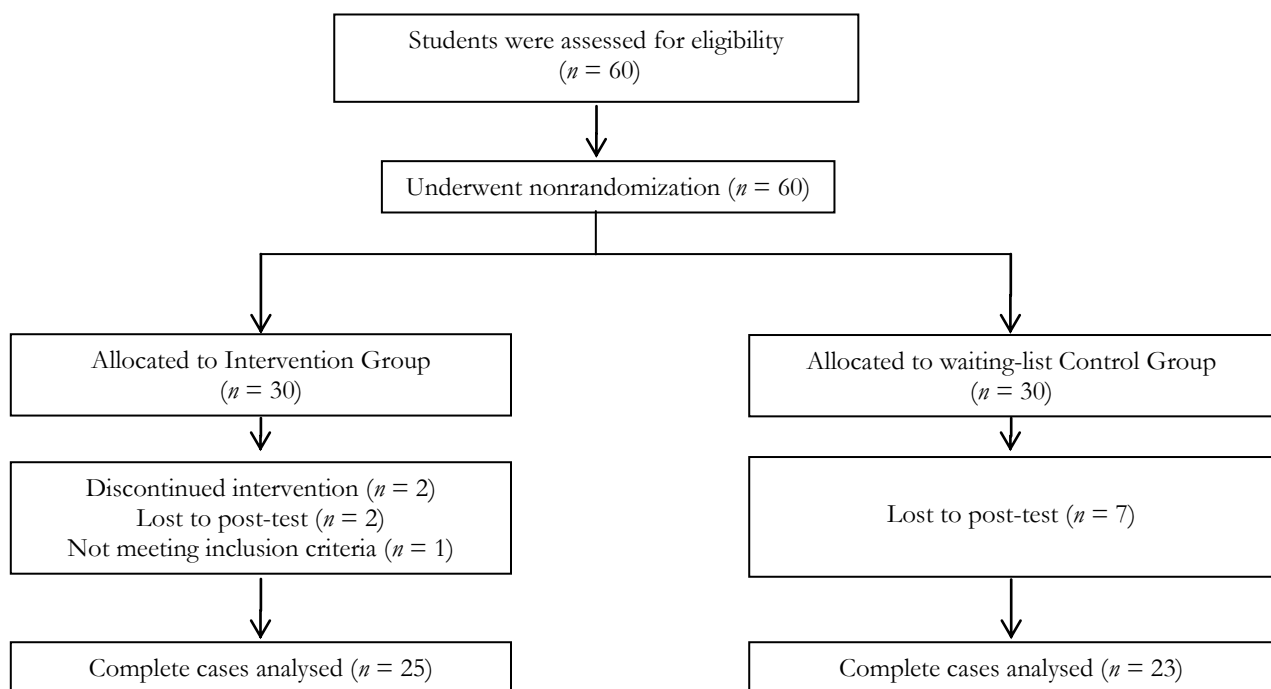


Figure 1. Flow diagram describing progress of participants through nonrandomized trial.

Instruments

Sociodemographic variables such as gender, age, partner, academic background and place of residence were recorded through a semi-structured interview, which also included information about participants' consent to participate in the research by answering the questionnaires' batteries. All instruments were translated and adapted to Spanish by the authors as part of a research project funded by the University of La Laguna (Marrero, Carballeira, & Rodríguez, 2007). Internal consistency of each instrument obtained in previous studies is described below.

The Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) comprises 4 items with response choices ranging from 1: not happy at all to 7: completely happy. The internal consistency of this scale was between .60 and .65 for the Spanish population (Marrero & Carballeira, 2011; Vazquez, Duke, & Hervás, 2013).

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) was used as a cognitive measure of overall life satisfaction. A total of 5 items were answered using a 7-point scale, ranging from 1: not satisfied at all to 7: very satisfied. In the Spanish population, Cronbach's α coefficients were between .82 and .88 (Marrero & Carballeira, 2011; Vázquez et al., 2013).

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) assesses positive and negative affect referring to the present, using 10 descriptors each. PANAS uses a 5-point scale, from 1: strongly disagree to 5: strongly agree. Both scales showed adequate internal consistency in the Spanish population, with measures between .87 and .89 for positive affect and .84 to .91 for negative affect (Marrero & Carballeira, 2011; Sandin, Chorot, Lostao, Joiner, Santed, & Valiente, 1999).

The Psychological Well-being Scales (Ryff & Keyes, 1995) consist of 84 items covering six dimensions of psychological well-being: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life and personal growth. Participants indicated on a 6-point scale the extent to which the statements described them (from 1: strongly disagree to 6: strongly agree). The internal consistency of the scales for the Spanish population was .86 for self-acceptance, .85 for positive relationships with others, .80 for autonomy, .74 for environmental mastery, .80 for purpose in life, and .78 for personal growth (Marrero & Carballeira, 2012).

Self-esteem was assessed using the 10-item Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). This scale measures global positive and negative attitudes towards the self, using a 4-point scale from 1: strongly disagree to 4: strongly agree. The internal consistency was .84 for the Spanish population (Marrero & Carballeira, 2012).

Dispositional optimism was assessed through the Life Orientation Test Revised (LOT-R; Scheier, Carver, & Bridges, 1994). This instrument consists of 10 statements, six of

which assess the individual's expectations about favorable results that may happen in the future, plus four neutral filler items. Participants indicated their level of agreement with the statements on a 5-point scale (from 0: strongly disagree to 4: strongly agree). Cronbach's α coefficient was .71 for the Spanish population (Marrero & Carballeira, 2012).

Satisfaction with social relationships was assessed using Sarason's Social Support Questionnaire (SSQ-6; Sarason, Sarason, Shearin, & Pierce, 1987). This 6-item questionnaire measures perceived social support on a 6-point scale (from 1: very dissatisfied to 6: very satisfied) and the amount of support sources for each item (the latter measure was not considered in this study). In the Spanish population, the internal consistency for perceived social support was between .85 and .96 (Marrero & Carballeira, 2010).

The Gratitude Questionnaire-6 (GQ-6; McCullough, Emmons & Tsang, 2002) comprises six items related to the tendency to recognize beneficial aspects of expressing gratitude. These items were answered using a 7-point Likert scale (1: strongly disagree to 7: strongly agree). In Spanish samples, Cronbach's α coefficient was between .77 and .78 (Martínez-Martí, Avia, & Hernández-Lloreda, 2010).

Procedure

Participants were informed in the classroom context about the implementation of a group intervention to promote well-being in the second half of September 2014. They received a brief description of the goals of the program, the application format, the meeting place and the total number of weekly sessions. Anyone interested in the intervention program was invited to attend a meeting the following week at university facilities. At the first meeting, they received different baseline measures of well-being and positive functioning, in the form of questionnaires to be completed individually at home during the week before the intervention started (pre-test). Participants were assigned to the intervention condition based on their availability to attend intervention sessions on the days indicated in the following week, with participants themselves choosing their preferred day. The remaining participants were placed on a waiting list (without treatment) constituting the waiting-list control condition.

Participants in the intervention condition were divided into four groups of four to seven persons each. The program was designed and carried out by two therapists who had been undertaking research and training in positive psychology and group management over the past 10 years. Previously, these therapists trained two co-therapists who had recently finished their psychology studies. Each team of therapists and co-therapists carried out the intervention program with two intervention groups in the same format following a manualized intervention protocol. The intervention consisted of 12 weekly sessions of 90 minutes each. In the sessions, participants received information about a topic related to well-being (see Table 1) and were asked about situa-

tions that would help them to feel more satisfied with themselves. In this way, individuals identified their own resources and abilities, and were able to promote their well-being through cognitive restructuring, role-playing, and visualization of positive situations. In addition, participants accomplished weekly homework assignments related to the content

of the session. Waiting-list control group members did not participate in any standardized activity during this time nor were they treated later. All participants filled out assessment protocols at home in the week following the end of the intervention period (post-test).

Table 1. Objectives and homework of the intervention program.

Session	Objectives	Homework
<i>Session 1:</i> Happiness	To identify positive situations, thoughts or behaviors.	Savor the moment: participants choose positive events that are pleasant to them.
<i>Session 2:</i> Self-awareness	To take control of one's life. To identify personal values and beliefs.	Record facts or situations that the individuals value most in their lives.
<i>Session 3:</i> Self-esteem and self-acceptance	To enhance self-esteem through self-acceptance.	Identify the achievements of the day.
<i>Session 4:</i> Managing my life	To set meaningful goals. To promote purposes in life.	Make a list of personal goals in the short, medium and long term.
<i>Session 5:</i> Identifying irrational beliefs	To recognize thoughts and beliefs leading to the interruption of well-being. Cognitive restructuring of irrational beliefs.	Record irrational beliefs and replace them with adaptive beliefs.
<i>Session 6:</i> Being optimistic	To learn to make positive attributions. To create future expectations of success.	Generate ten positive thoughts about themselves.
<i>Session 7:</i> Empathy and forgiveness	To understand the feelings of others. To learn to forgive.	Think about a person who can be forgiven by them.
<i>Session 8:</i> Emotional expression	To recognize, express and regulate emotions. To promote positive emotions amongst negative emotions.	Write a positive emotion generated by a family member and put it in a box. It will be read at the end of the day.
<i>Session 9:</i> Gratitude	To show gratitude.	Write a letter of gratitude.
<i>Session 10:</i> Communication skills	To learn effective communication skills. To promote positive relationships with others.	Record communication techniques employed during the day.
<i>Session 11:</i> Decision-making	To learn decision-making in interpersonal relationships. To apply problem-solving strategies. To restore lost well-being.	Identify an interpersonal conflict and record the steps taken to solve it.
<i>Session 12:</i> Ingredients for happiness	To integrate learned information, courses, strategies and skills. To cope with stress through humor. To project one's future.	Write about one's best possible self.

Intervention program

Previous research has reported definite effects on mental health and well-being of interventions focused on positive activities that fit a person's individual characteristics (Lyubomirsky & Layous, 2013; Sin & Lyubomirsky, 2009). The broaden-and-build theory reports that the experience of positive emotions increases the likelihood of their occurrence, generating an upward spiral towards enhanced well-being (Fredrickson & Joiner, 2002). Peterson and Seligman (2004) proposed that authentic happiness could be achieved through a pleasant, engaged and meaningful life. The current intervention program, based on these theoretical models, was designed to provide strategies and resources for gaining deeper self-understanding and to identify situations, cognitions or behaviors for improving well-being and promote self-regulation. Our ultimate goal was to help individuals to build a "good life" according to their needs and personal characteristics by promoting activities that are intrinsically rewarding, according to the approach of Deci and Ryan (2013). Techniques from cognitive behavioral therapy were

used, such as self-monitoring, structuring daily activities, exploring goal-directed alternative behaviors, cognitive restructuring or role-playing to address behavioral deficits.

Session 1 was focused on the pursuit of happiness, with participants asked to identify thoughts or behaviors that make individuals feel happy. Based on their own perception, happiness was defined as one of the primary goals in life. Previous research has demonstrated that talking about or experiencing high levels of positive emotions makes people happier (Catalino et al., 2014; Lyubomirsky & Layous, 2013). Also, the therapists promoted group cohesion or affiliation with the group to work together toward common goals. It has been found that cohesive groups feel they receive more help from the group and show a greater adherence to treatment (Tetley, Jinks, Huband, & Howells, 2011; Woody & Adessky, 2003). Further, communicating personal positive events with others has been shown to lead to an increase of daily positive affect and well-being (Gable et al., 2004).

Session 2 was primarily aimed at promoting self-awareness or the capacity to understand oneself. Participants were asked to identify positive events from their lives. This type

of exercise allows individuals to begin taking control of their lives, recognizing the extent to which events are due to individuals' intentional endeavors and personal values. The ultimate goal was to help participants recognize that our actions are guided by our system of beliefs and values. According to motivation theories, people's behaviors are influenced by the effects of social environments, but mainly focused on basic psychological needs or intrinsic motivation (Deci & Ryan, 2008).

Session 3 focused on the development of self-esteem and self-acceptance. Self-esteem implies the competence of the individual in several life domains and has proven to be a strong predictor of well-being (Schimmack & Diener, 2003). However, extremely high self-esteem can cause unrealistic conceptions of competence or egocentric tendencies (Neff, 2011) and does not always lead to success in important life domains (Orth, Robins, & Widaman, 2012). Our intervention program pursued a realistic perception of the individual, focused on self-acceptance. People who score high on self-acceptance recognize their achievements in different areas of life, but they are also aware of their limitations, showing a positive attitude toward the self (Ryff, 1995).

The aim of *Session 4* was to encourage personal control and help participants set goals, thereby promoting purpose in life which, in Ryff's model, is considered as setting goals in life and having a sense of directedness. Goals are central to one's sense of personal fulfillment and achieving success (Sheldon & Kasser, 1995). Several studies have noted the importance of setting and planning around goals as a mechanism that contributes to well-being (Gillet, Lafrenière, Valerland, Huart, & Fouquereau, 2014; Sheldon, Jose, Kashdan, & Jarden, 2015). These goals must be consistent and coherent not only with basic needs, but also with the interests and values of individuals (Sheldon & Krieger, 2014). Therefore, positive intervention that is focused on effective goal-striving will give meaning to life and will engage individuals in the development of tasks that allows for the attainment of these objectives. Interventions to enhance goal attainment have shown their effectiveness in promoting well-being (McLeod, Coates, & Hetherington, 2008; Sheldon, et al. 2002).

Session 5 was focused on cognitive restructuring of irrational beliefs and on recognizing thoughts and beliefs that lead to the interruption of well-being. The group therapists employed different questions to refute maladaptive ideas and encourage individuals to replace these thoughts with more positive ones. This type of intervention has been used successfully to promote PWB (Fava, Ruini, Rafanelli, Finos, Conti, & Grandi, 2004).

In *Session 6*, the objective was to promote a more optimistic interpretation of the facts and teach participants to make positive attributions. Optimists are more likely than pessimists to persist in their goals despite the difficulties, employ coping strategies when goals are truncated, and take advantage of life opportunities (Wrosch & Scheier, 2003). Through examples from everyday life, the therapists identi-

fied pessimistic thoughts to be disputed and replaced by future expectations of success. Intervention that is focused on optimism has been shown to enhance well-being and diminish depressive symptomatology (Shapira & Mongrain, 2010).

In *Session 7*, two topics were addressed: empathy toward others and forgiveness. Empathic people recognize others' feelings and feel connected with them, which leads them to experience greater happiness, positive affect (Shanafelt et al., 2005; Tkach & Lyubomirsky, 2006) and positive relations with others (Ryff, 2014). In this session, participants put themselves in the place of another to understand their feelings. Through various examples, therapists established an association between empathy and forgiveness. Forgiveness happens when the individual leaves aside negative emotions or thoughts of revenge toward him/herself or others and replaces them with kindness or love (Toussaint & Friedman, 2009). This has been shown to prevent negative emotional states and promote well-being (Maltby & Barber, 2005; Worthington, Witvliet, Pietrini, & Miller, 2007). In the session, participants thought of a person who might cause them harm; the therapists stimulated a positive emotion in the victim through reframing and empathizing; and participants reappraised the situation, leading to forgiveness.

Session 8 focused on recognizing, expressing and regulating emotions. Emotions have an informative, motivating, adaptive and social function (Izard, 1992) and are therefore involved in interpersonal relationships and solutions to problems (Keltner, & Gross, 1999). In this session, participants identified different emotions in others and themselves through role-playing. The therapists explained the importance of expressing an emotion when the conditions are appropriate and promoted positive emotions over negative ones. Also, participants learned to optimize their own personal resources in different situations (Fredrickson & Joiner, 2002). Emotional expression techniques have been shown to be successful for tackling different problems of physical and mental health (Pennebaker, 1997) and are associated with greater well-being (Fredrickson & Joiner, 2002; Lyubomirsky & Layous, 2013).

Session 9 was centered on promoting gratitude, which is considered as a positive interpersonal feeling that includes admiration, respect, trust and consideration (Storm & Storm, 1987). Activities of gratitude, such as writing about situations for which people are thankful or writing a letter of gratitude to a person, are associated with greater optimism, happiness, more positive emotions and prosocial behaviors, and fewer depressive and physical symptoms (Emmons & McCullough, 2003; Martínez-Martí et al., 2010; Toepfer, Cichy, & Peters, 2012). In this session, participants engaged in visualization about someone they appreciated who contributed to making their lives better.

In *Session 10*, the aim was to train basic skills in effective communication to increase the likelihood of having positive relationships with others and generating positive emotions. Good communication skills allow people to identify and

solve problems more accurately but are also useful to express positive emotions. Communicating personal positive events to others has been linked to greater positive affect and well-being, even more than the positive event itself (Gable et al., 2004). In this session, participants also practiced through role-playing how to achieve an assertive response.

Session 11 was aimed at teaching decision-making through problem-solving strategies to be implemented in interpersonal relationships in order to facilitate self-regulation and maintain behavior changes (D’Zurilla & Goldfried, 1971). Therapists or participants suggested a conflict situation from daily life and then applied the problem-solving model: problem definition; generation of alternative solutions; decision-making; solution implementation and verification (D’Zurilla & Goldfried, 1971). This session was intended to provide participants with resources to deal with conflict and restore well-being, teaching them to perceive stressful life events as challenges and themselves as capable of resolving them successfully (D’Zurilla & Nezu, 2010).

Finally, *Session 12* was focused on integrating and verifying the acquisition of resources and strategies needed to enhance the participants’ well-being. Therapists gave a brief overview of everything that had been discussed during the program. The emphasis was on the participants’ ability to choose happy environments and to change or cope with stressful events (environmental mastery). Also, humor was incorporated as a strategy of coping with stress, relativizing life circumstances, and producing positive emotional states which are at the base of happiness and well-being (Herzog & Strevey, 2008). The meeting ended with a proposal to visualize one’s best possible selves (Burton & King, 2004). Participants thought about their personal goals in various life domains and they imagined their lives after having achieved them. This type of activity has been shown to be associated with greater positive affect, flow and feelings of relatedness (Layous, Nelson, & Lyubomirsky, 2013).

A summary of the objectives and homework of each session of the program is presented in Table 1.

Statistical Analysis

Chi-square test was used to investigate differences between groups in baseline demographic variables. T-tests were computed to analyze whether there were differences in the baseline of well-being and positive functioning scores and age for control and intervention groups. Levene’s test was used to evaluate homogeneity of variances for both groups. Repeated-measures ANCOVA models were conducted including as factors both pre-test and post-test measures of waiting-list control and intervention groups and

gender, controlling pre-test scores of those measures with baseline differences. Since sample size had not been previously calculated, we report the effect size, statistical power and the confidence interval of the differences found between the groups after carrying out the ANCOVAs. Post hoc Hochberg’s t-tests were used to analyze changes over time (from baseline or pre-test to post-test) for all measures. This contrast allows for controlling for type 1 error without detriment to type 2 error (Hochberg, 1988). Analyses were performed using the R statistics package with ULLR Toolbox (Hernández & Betancort, 2016).

Results

Preliminary analyses

Chi-square test was used to investigate differences between the waiting-list control and intervention groups in baseline demographic variables. Gender differences were found between the two groups $\chi^2(1) = 4.62, p < .05$. Fewer men (16%) participated in the intervention than women (84%). For the waiting-list control group, the proportion of men and women was similar (47.83% vs. 52.17%, respectively). Also, differences in academic background appeared between intervention and waiting-list control groups $\chi^2(4) = 15.27, p < .01$. These differences were due to the fact that the waiting-list control group included students of psychology, whereas these studies were not represented in the intervention condition. No differences were found in partner $\chi^2(1) = 3.25, p = .085$ or place of residence $\chi^2(3) = 1.47, p = .689$. The t-test of age distribution revealed no differences between the two groups $t(46) = 0.02, p = .98$.

We also examined the presence of group differences in all baseline measures through a series of t-tests. Some participants did not answer any item in any of the measures, and it was decided not to replace that score by the mean and leave out the missing data; for this reason, some analyses show different degrees of freedom throughout the manuscript. Although the waiting-list control group showed higher scores at baseline than the intervention group in most of the measured variables (see Table 2), the results showed significant differences only for purpose in life $t(37.21) = 2.71, p < .05$. This measure was included as covariant for further analysis. There were no significant baseline differences in the remaining 13 measures of well-being and positive functioning. Levene’s test for homogeneity of variance showed that the groups had similar variances for all measures, except purpose in life $F(1,44) = 6.76, p = .013$, with the intervention group having more variance than the waiting-list control group ($SD = 8.60, SD = 4.93$, respectively).

Table 2. Means and standard deviations in well-being and positive functioning measures for both intervention and control groups

	Intervention Group N = 25			Waiting-list Control Group N = 23			Group x Time Interaction		Main effect Time	
	Pre Mean (SD)	Post Mean (SD)	d	Pre Mean (SD)	Post Mean (SD)	d	F	η^2	F	η^2
Happiness	19.16 (4.58)	20.88 (3.52)	-.42	19.86 (3.73)	20.30 (3.82)	-.11	.0001	.00001	4.45*	.10
Lifesatisfaction	23.36 (7.63)	25.32 (6.20)	-.28	25.17 (5.03)	24.56 (5.81)	.11	.38	.009	2.10	.05
Positive affect	30.96 (8.56)	35.20 (8.15)	-.51	33.26 (6.69)	31.96 (8.75)	.17	1.66	.01	1.96	.05
Negative affect	19.28 (6.06)	19.04 (8.02)	.03	18.96 (7.15)	17.00 (5.23)	.31	.24	.006	1.41	.03
Autonomy	60.46 (8.04)	63.26 (8.27)	-.34	61.68 (9.84)	63.68 (8.43)	-.21	.57	.01	12.01**	.25
Environmental mastery	58.42 (7.95)	61.88 (6.88)	-.47	58.82 (7.95)	63.39 (6.62)	-.62	2.83	.07	23.57***	.38
Personal growth	66.70 (7.79)	69.87 (6.91)	-.43	67.52 (5.23)	70.68 (6.24)	-.55	.90	.02	16.03***	.30
Positive relations with others	65.20 (8.54)	69.25 (9.36)	-.45	66.00 (10.51)	66.56 (9.37)	-.06	.04	.001	6.85*	.15
Purpose in life ¹	60.50 (8.60)	66.32 (8.18)	-.69	66.04 (4.93)	67.43 (6.86)	-.23	.21	.005	14.39***	.26
Self-Acceptance	58.04 (11.99)	65.60 (10.13)	-.68	63.64 (9.05)	65.39 (9.60)	-.19	.47	.01	36.46***	.48
Self-Esteem	30.24 (5.29)	32.44 (4.43)	-.45	32.82 (4.93)	33.70 (3.73)	-.20	.10	.002	13.88***	.25
Optimism	14.12 (4.74)	16.88 (3.19)	-.68	15.09 (4.53)	16.30 (3.18)	-.31	.36	.009	15.80***	.28
Social support	31.52 (3.93)	33.08 (2.65)	-.46	31.48 (5.49)	29.61 (7.38)	.29	3.99*	.10	.005	.0001
Gratitude	35.77 (4.84)	37.67 (3.63)	-.44	36.04 (3.34)	37.19 (3.22)	-.35	2.75	.07	4.45*	.11

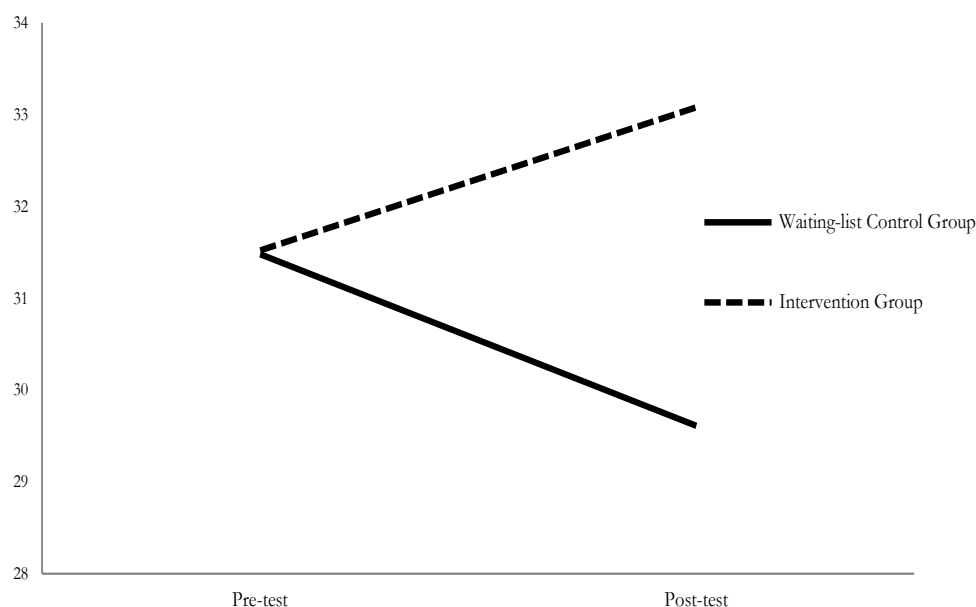
Note: $p < .05$, $p < .01$, $p < .001$, $d =$ Cohen's d

¹There were significant differences in baseline $t(37.21) = 2.71$, $p < .05$.

Between-group and within-group analyses

Pre- and post-test means and standard deviations in all well-being and positive functioning measures for both intervention and waiting-list control groups are shown in Table 2. Repeated-measures ANCOVAs were conducted for both comparison groups at pre-test and post-test including gender as factor (two conditions x two time points x two genders) for each well-being and positive functioning measure, controlling pre-test scores of purpose in life, which showed baseline differences between the two groups. There were no significant effects for the group x time x gender interaction for any of the well-being or positive functioning measures. The ANCOVAs yielded a marginally significant group x time for social support $F(1, 40) = 3.98$, $p < .05$, $\eta^2 = .09$, $1 - \beta =$

.38, 95% CI_{intervention pre-test} [30.62, 33.27], CI_{intervention post-test} [32.03, 34.68]; 95% CI_{control pre-test} [29.69, 32.34], CI_{control post-test} [27.97, 30.62]. Simple effects through post hoc Hochberg's tests were in the expected direction, with greater scores in social support for the intervention group at post-test compared to pre-test $t(23) = -2.76$, $p = .022$, $\eta^2 = .25$, whereas no significant changes appeared from pre-test to post-test for the waiting-list control group $t(22) = 1.06$, $p = .299$, $\eta^2 = .05$. Furthermore, post hoc Hochberg's tests comparing post-test intervention group vs. post-test waiting-list control group showed a marginally significant difference in social support $t(27.38) = -2.13$, $p = .085$, $\eta^2 = .14$. The intervention group exceeded the waiting-list control group in social support at post-test (see Figure 2). There were no significant effects for the group x time interaction in the remaining measures.



Results showed significant gender x time interactions for three measures: life satisfaction $F(1, 41) = 4.35, p < .05, \eta^2 = .09, 1-\beta = .74, 95\% \text{ CI}_{\text{men pre-test}} [22.96, 24.49], \text{ CI}_{\text{men post-test}} [21.74, 23.28]; 95\% \text{ CI}_{\text{women pre-test}} [23.67, 25.20], \text{ CI}_{\text{women post-test}} [25.32, 26.86];$ environmental mastery $F(1, 39) = 8.21, p < .01, \eta^2 = .17, 1-\beta = .73, 95\% \text{ CI}_{\text{men pre-test}} [58.53, 61.05], \text{ CI}_{\text{men post-test}} [59.72, 62.25]; 95\% \text{ CI}_{\text{women pre-test}} [55.98, 58.51], \text{ CI}_{\text{women post-test}} [61.84, 64.36];$ and self-acceptance $F(1, 39) = 8.83, p < .01, \eta^2 = .18, 1-\beta = .95, 95\% \text{ CI}_{\text{men pre-test}} [59.52, 62.27], \text{ CI}_{\text{men post-test}} [60.64, 63.39]; 95\% \text{ CI}_{\text{women pre-test}} [57.40, 60.15], \text{ CI}_{\text{women post-test}} [65.55, 68.30].$ Simple effects showed that life satisfaction changed over time in both men [$t(14) = 2.35, p = .037, \eta^2 = .28$] and women [$t(32) = -2.18, p = .037, \eta^2 = .13$] in both waiting-list control and intervention groups, but the change observed was a decrease in life satisfaction in the case of men and an increase in life satisfaction in the case of women. For environmental mastery and self-acceptance, simple effects showed that only women changed over time [$t(30) = -5.17, p < .001, \eta^2 = .47$ and $t(30) = -5.27, p < .001, \eta^2 = .48$, respectively].

Main effects of time were significant for most PWB and positive functioning measures, except for life satisfaction, negative and positive affect. Both comparison groups changed over time in autonomy $F(1, 36) = 12.01, p < .01, \eta^2 = .25, 1-\beta = .91, 95\% \text{ CI}_{\text{pre-test}} [59.88, 61.61], \text{ CI}_{\text{post-test}} [62.77, 64.51],$ environmental mastery $F(1, 39) = 23.57, p < .001, \eta^2 = .38, 1-\beta = .99, 95\% \text{ CI}_{\text{pre-test}} [57.16, 58.95], \text{ CI}_{\text{post-test}} [61.56, 63.35],$ personal growth $F(1, 37) = 16.03, p < .001, \eta^2 = .30, 1-\beta = .99, 95\% \text{ CI}_{\text{pre-test}} [66.01, 67.53], \text{ CI}_{\text{post-test}} [69.31, 70.83],$ and gratitude $F(1, 35) = 4.45, p < .05, \eta^2 = .11, 1-\beta = .50, 95\% \text{ CI}_{\text{pre-test}} [35.16, 36.58], \text{ CI}_{\text{post-test}} [36.59, 38.02].$ Additionally, main effects of time were found for happiness $F(1, 40) = 4.45, p < .05, \eta^2 = .10, 1-\beta = .55, 95\% \text{ CI}_{\text{pre-test}} [18.74, 19.90], \text{ CI}_{\text{post-test}} [19.96, 21.12],$ self-acceptance $F(1, 39) = 36.46, p < .001, \eta^2 = .48, 1-\beta = .99, 95\% \text{ CI}_{\text{pre-test}} [58.48, 60.42], \text{ CI}_{\text{post-test}} [64.46, 66.41],$ positive relations with others $F(1, 40) = 6.85, p < .05, \eta^2 = .15, 1-\beta = .72, 95\% \text{ CI}_{\text{pre-test}} [64.47, 66.49], \text{ CI}_{\text{post-test}} [67.08, 69.10],$ optimism $F(1, 41) = 15.80, p < .001, \eta^2 = .28, 1-\beta = .97, 95\% \text{ CI}_{\text{pre-test}} [13.92, 14.99], \text{ CI}_{\text{post-test}} [16.03, 17.10]$ and self-esteem $F(1, 41) = 13.88, p < .001, \eta^2 = .25, 1-\beta = .95, 95\% \text{ CI}_{\text{pre-test}} [30.82, 31.75], \text{ CI}_{\text{post-test}} [32.54, 33.46].$ In these measures, simple effects showed within-group differences only in the intervention condition and none appeared for the waiting-list control condition: happiness $t_{\text{intervention}}(24) = -2.19, p = .076, \eta^2 = .17, t_{\text{control}}(21) = -.57, p = .574;$ self-acceptance $t_{\text{intervention}}(23) = -4.86, p < .001, \eta^2 = .51, t_{\text{control}}(21) = -1.82, p = .083;$ positive relations with others $t_{\text{intervention}}(23) = -2.89, p = .017, \eta^2 = .27, t_{\text{control}}(22) = -.39, p = .709;$ optimism $t_{\text{intervention}}(24) = -4.39, p < .001, \eta^2 = .45, t_{\text{control}}(22) = -1.48, p = .153;$ and self-esteem $t_{\text{intervention}}(24) = -3.27, p = .006, \eta^2 = .31, t_{\text{control}}(21) = -1.57, p = .132).$

Cohen's d (Cohen, 1988) pre-post effect sizes were computed for each group, given that the waiting-list control group showed slightly higher scores in the pre-test than the intervention group, although they were not significant in the baseline. The effect sizes were larger in most measures for

the intervention group than for the waiting-list control group (see Table 2). Specifically, intermediate effect sizes were found in happiness, positive affect, positive relations with others, purpose in life, self-acceptance, self-esteem, optimism, social support and gratitude.

Based on these analyses, our intervention program promoted change over time for the intervention condition in social support compared to the waiting-list control condition. Additionally, results suggested changes in the intervention group that did not occur in the waiting-list control condition for one dimension of subjective well-being—happiness—two dimensions of psychological well-being—positive relations with others and self-acceptance—and two positive functioning variables—optimism and self-esteem.

Discussion

The main objective of this research was to design and assess the effectiveness of a positive intervention program combined with cognitive behavioral therapy to improve well-being. Previous research has shown that PPIs increase the general well-being of participants (Fordyce, 1977, 1983; Fava et al., 2004). In this regard, the relevance of certain positive activities has been highlighted, particularly when they are used together with strategies such as focusing on positive affect, personal control and meaningful goals, expressing gratitude and forgiveness, or promoting optimism (Bolier et al., 2013; Sin & Lyubomirsky, 2009).

The current intervention program was designed with the objective of promoting not only SWB, but also PWB and other positive functioning variables. Our focus was on the individual as a whole, and on the adaptive self-regulation of his/her behaviours. The hypothesis that the intervention group would show significant statistically differences on the assessed measures as compared to the waiting-list control group barely had empirical support. The results indicated that the intervention program was effective in promoting social support, but no significant interactions between group and time were found in the remaining variables. Probably, the group format of intervention allowed individuals to encourage one another to share similar experiences and build a social network to provide social support (Beck & Coffey, 2005).

Although the post-assessment mean scores between the two comparison groups were not statistically significant for most of the measures—except social support—some significant simple effects of time were observed in the intervention group, whereas these did not appear in the waiting-list control group. Participants in the intervention group achieved significantly higher scores after treatment as compared to the pre-test in happiness, self-acceptance, positive relations with others, optimism and self-esteem. These results could be indicating a tendency for well-being to increase in people who attended positive psychology intervention programs combined with cognitive behavioral therapy. However, these improvements were not detected empirically due to the

small sample size or differences in sociodemographic characteristic between the two comparison groups. Gender distribution differed between the two groups, as did the participants' academic background. The results indicated no significant interactions between group, time and gender on any measures, but significant group x gender interactions were observed for life satisfaction, environmental mastery and self-acceptance. Women increased their life satisfaction over time, whereas life satisfaction decreased among men in both groups. Additionally, women increased their scores in environmental mastery and self-acceptance, whereas men remained stable in both groups. These results should be taken with caution, given the small number of men who participated in this study.

Overall, the PPI combined with CBT intervention applied in this study seems not to have had the desired effects. From our point of view, there are several reasons that could explain this limited scope. First, the intervention program incorporated different therapeutic targets, such as improving well-being, self-esteem, optimism, and gratitude, among others, and each session was devoted to training in one. It is likely that the training has not been sufficiently intensive to promote statistically significant changes. Additionally, it is possible that participants ignored the advice to continue practicing the various recommended activities. According to Lyubomirsky et al. (2005), the effectiveness of an intervention relies on the relevance of making a habit from its process. Seligman et al. (2005) found that those participants who voluntarily continued the exercises after the prescribed period reported more happiness. Second, participants were young adults, so they are in a stage where some well-being dimensions are still being developed, which could explain why changes were observed over time in both comparison groups and the absence of differences between the two groups. Third, some participants in the waiting-list control group were psychology students who would have benefited from what they were learning in class to incorporate positive changes in their lifestyle, and so they did not differ greatly from the intervention group. Fourth, the group format has been shown to be advantageous to promote therapeutic changes through engagement, mutual acceptance, identification and affiliation with members and the possibility of offering positive peer modelling and reinforcement or social support (Manassis et al., 2002). However, research in PPIs has found the individual approach to be more effective than group or self-administered interventions. Perhaps, our program could be reinforced with individual sessions, leading to an improvement in some of the measures that did not enjoy the expected success. In fact, the application of combined therapies, both individual and group, has achieved superior effects on the improvement of negative symptoms such as anxiety (Wergeland et al., 2014).

This study presents some limitations that must be addressed. First, our findings were based on a small convenience sample composed exclusively of undergraduate stu-

dents, which inherently limits the findings' generalizability. Second, participants were not assigned randomly to the experimental conditions and this led to differences in gender, academic background and motivation between the two comparison groups. Future studies should include a well-balanced representation of both genders and the inclusion of older samples, not only undergraduate students. Sin and Lyubomirsky (2009) found that older participants benefited more from the processes, perhaps because of their awareness about the importance of taking part in them, which could lead to better emotional regulation or more awareness about the responsibility of following the recommendations of an intervention. Third, the methodological design would have been more illuminating if it had included a placebo control group assigned some kind of neutral task. In this way, it would have identified whether the differences observed were produced by the treatment or by the attention given to the participants by the therapists. Fourth, intermediate and small effect sizes were found in most measures, although the differences within-group for the intervention condition were greater than those in the waiting-list control group. Fifth, the study lacks a follow-up assessment, which could mean that some findings went unnoticed, since some changes may only be gradually incorporated into the individuals' lives or take some time to be internalized. Seligman et al. (2005) found that positive activities, such as using strengths or focusing on three good things, did not have an immediate effect on the individuals' well-being, but the intervention group did show more happiness and fewer depressive symptoms than the control group at one-, three-, and six-month follow-ups. Finally, the current study involved participants from an individualistic culture. Previous research has found that individualistic people may achieve greater profit from activities focused on themselves—e.g., writing about their best possible self—whereas collectivist cultures could improve their well-being by focusing on others—e.g., performing acts of kindness, or writing letters of gratitude (Sin & Lyubomirsky, 2009). This suggests the relevance of a suitable selection of activities according to participants' profiles.

The limited effectiveness of this program based on the principles of positive psychology combined with cognitive behavioral therapy suggests that there is a multiplicity of factors that should be controlled so that interventions promote the desired changes. In the future, one should consider small modifications in the instructions for the activities that might make the intervention more effective for the targeted population (Layous et al., 2013). It has been noted that believing in the efficacy of the activities may lead to optimum results (Layous et al., 2013). It should also be necessary to explore the specific mechanisms—motivational factors or personality traits—by which engagement in certain activities would be relevant to improving well-being. Further, this line of research must consider other factors, such as values and beliefs, to build up human strengths. It is also necessary to

know if all individuals can increase their well-being in an unlimited way regardless of their starting point or if there is a ceiling effect or set point beyond which significant changes are not possible. Therefore, if we are able to identify the par-

ticipants' personal profiles we can select specific positive psychology intervention programs that best fit their needs, with the ultimate aim of achieving a complete state of personal well-being.

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