

## Benefits of Well-Being Training in Healthy Older Adults

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**Introduction:** Several studies have shown that psychological well-being (PWB) can be promoted through positive psychological interventions (PPIs). Although these interventions have shown promising results in clinical settings, only a few studies have investigated their effectiveness in older adults, and they have rarely considered an active control group. In addition, generalisation effects of the PWB training to quality of life (QoL) and to untrained cognitive abilities have never been considered. **Objective:** In this study, we evaluated the effectiveness of a six-session PWB intervention aiming specifically to improve PWB, and sought any transfer effects on an aspect related to PWB, QoL. Transfer effects on a high-level cognitive process, working memory (WM), were also investigated. **Methods:** Thirty-two older adults (61–82 years old) volunteered to take part in the study and were randomly assigned to either a training group or an active control group. **Results:** Only the trained group, once controlled for variability, reported larger gains in PWB and in WM performance after the training. **Conclusions:** This pilot study suggests that PWB training can be effective in older adults, with a positive generalisation effect on cognition (WM). The discussion focuses on the need to develop PPIs tailored to older adults' needs and resources.

Keywords: group intervention, older adults, positive aging, psychological well-being

### INTRODUCTION

Life expectancy among the elderly has rapidly increased, entailing challenges for society and its institutions. The various age-related changes affecting the elderly, not only at the physical level but also at the cognitive one (Park, 2002), are clearly associated with higher costs for health and social care (Kovner, Mezey, & Harrington, 2002). Aging can coincide with an increased sense of loneliness

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and loss of social relationships, which could cause isolation and serious diseases such as depression and anxiety (Shapira, Barak, & Gal, 2007). It is thus of particular importance to develop interventions that could sustain the abilities and resources of older adults, preventing or delaying their physical, cognitive, and emotional decline.

It is noteworthy that, although much effort has been dedicated to developing rigorous procedures to sustain the physical condition of older adults (Bauman et al., 2009) and their cognitive functioning (memory, attention) using different types of training (Kelly et al., 2014), the same has not been done to sustain and empower their psychological well-being (PWB): concerning older adults, there are different kinds of interventions designed to improve aspects related in some way to PWB (e.g. social engagement) but they focus mainly on the prevention of age-related losses and decline. Although important with a view to sustaining older adults' abilities, these works are based on a "disease model" (where health is seen as the absence of disease) very different from the positive approach according to which, "Mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (World Health Organization, 2014).

A possible explanation for the lack of PWB training procedures for older adults is that, in order to enhance PWB effectively, it is necessary to promote an individual's global resources, coping strategies, and their application to practical issues in everyday life (Ben-Zur, 2002). To achieve this, personal beliefs and dysfunctional behavioral schemes have to be faced in order to favor the development of new attitudes. This can be more difficult for older adults due partly to their habits of a lifetime, and partly to the fact that aging can be characterised by declining resources. Negative stereotypes about aging as a time of unhappiness and decline (Ryff, 1989) need to be refuted too, as they may prevent positive psychological changes in aging (Kite & Wagner, 2002).

The lack of interventions on the empowerment of PWB in older adults could also reflect the complexity of PWB (Dodge, Daly, Huyton, & Sanders, 2012), defined as a construct that is "intangible, difficult to define and even harder to measure" (Thomas, 2009, p. 11). Different conceptualisations of PWB have indeed been proposed according to either the "hedonic" approach (PWB as life satisfaction, pleasant and unpleasant affects) or the "eudemonic" approach (which highlights personal development and growth) (Ryan & Deci, 2001). PWB is also often confused with the concepts of "happiness", or "life satisfaction", or the wider concept of "quality of life (QoL)" (Marks & Shah, 2004), generating confusion about what PWB is and how it can be assessed using various instruments (Dodge et al., 2012).

In the present study, we adopted the eudemonic approach (Ryff, 1989) to PWB, according to which "well-being is more than just happiness. As well as feeling satisfied and happy, well-being means developing as a person, being

fulfilled, and making a contribution to the community” (Marks & Shah, 2004, p. 9). Thus, as in the WHO’s definition of mental health (WHO, 2014), the focus is on self-actualisation and the development of an individual’s own potential.

To embrace the eudemonic approach to PWB and its enhancement, the focus of interventions should be on improving a person’s coping strategies, resilience, optimism, emotional regulation and self-efficacy, and on those abilities that could promote the transition from “languishing” (the sensation of being “stuck in a rut”; Fredrickson, 1998) to “flourishing”, in which the individual’s potential is fully expressed (Keyes, 2010). Interventions with the aim to improve these aspects—also known as “Positive Psychological Interventions” (PPIs; Sin & Lyubomirsky, 2009)—have shown encouraging results in both clinical and educational settings (Bolier et al., 2013).

Despite this, only a few studies have tried to investigate the PPI’s effectiveness in older adults, and different procedures have been used to do so (also in terms of the activities involved and the topics proposed), making it difficult to understand their real efficacy in this phase of life. These studies were also based on different conceptualisations of PWB, or used outcome measures only partially related to the PWB construct (such as life satisfaction, happiness, positive emotions, perceived stress, and grateful disposition; for a review, see Sutipan, Intarakamhang & Macaskill, 2017).

Thus, although they are related to positive psychological aspects—such as gratitude, optimism, happiness, meaning of life—the interventions addressed to older adults do not focus specifically on the empowerment of PWB in the sense of “flourishing” and self-actualisation.

Examples include the study carried out by Kremers and colleagues (Kremers, Steverink, Albersnagel, & Slaets, 2006), which was based on improving self-management abilities, and thus reducing social and emotional loneliness, or the intervention tested by Frieswijk and colleagues regarding bibliotherapy (Frieswijk, Steverink, Buunk, & Slaets, 2006). We could also include studies that have the main aim of combatting social exclusion (e.g. Saito, Kai, & Takizawa, 2012). Other studies were based on web programs (e.g. Shapira et al., 2007; Powell et al., 2013), or on reminiscence and life review which involve a person examining their life events and integrating the positive and negative events to form a coherent life story (e.g. Ruini, Masoni, Ottolini, & Ferrari, 2014; Meléndez Moral, Fortuna Terrero, Sales Galán, & Mayordomo Rodríguez, 2015)—also based on intergenerational group reminiscence protocols (e.g. Gaggioli et al., 2014). These types of interventions have shown positive effects, for example, on life satisfaction in both healthy older adults (for reviews see Bohlmeijer, Roemer, Cuijpers, & Smit, 2007; Pinquart & Forstmeier, 2012) and institutionalised elderly people (Meléndez Moral et al., 2015), even with long-lasting results. Finally, among the interventions for older adults—that could have beneficial effects in terms of PWB empowerment as well—we can also include the multifactorial interventions that combine several aspects (e.g. cognitive and physical

exercises, diet, social activities, active citizenship, and spirituality). A good example of this kind of intervention is the European multimedia program “Vivir con vitalidad” (Fernández-Ballesteros, Caprara, & García, 2004).

As mentioned earlier, all these studies focus on aspects only partially related to PWB and they lack a clear definition of PWB. However, there are certain interventions that, based on cognitive behavioral therapy (CBT), aim specifically to promote PWB—according to the eudemonic approach and Ryff’s PWB model. These interventions, defined as “Well-Being Therapy” (WBT; see Fava & Tomba, 2009), specifically work on aspects that enable individuals to “flourish”, in the sense of achieving personal growth and full self-actualisation (Keyes, 2010). Despite the promising results of the interventions based on WBT, their effectiveness in older adults has never been specifically tested (see Fava, 2016).

To the best of our knowledge the only training study considering older adults, and based on the eudemonic approach of PWB, was conducted by Friedman and colleagues (2015). Their training proposed to enhance eudemonic well-being during aging and involved an eight-week program of 90-minute group sessions designed to teach participants to identify and manage positive experiences across multiple domains. Encouraging results were reported, with a significant increase in PWB, life satisfaction, and social well-being. This study did not include a control group, however, and the themes and aspects addressed during the sessions did not focus specifically on the process of aging per se, and they were not specifically tailored to older adults’ needs and difficulties.

However, aging is a complex phenomenon, associated with specific cognitive and emotional changes. It is a time of life when individuals increasingly use emotional strategies instead of behavioral ones when faced with difficulties (Scheibe & Carstensen, 2010). The individuals’ capacity to control their environment and achieve their goals declines (Heckhausen, Wrosch, & Schulz, 2010), prompting changes also with regard to motivational aspects and the choice of developmental objectives (Baltes & Baltes, 1990). Certain issues not experienced by younger people need to be treated in order to sustain older adults’ well-being. For instance, some attitudes, such as the negative stereotypes regarding the elderly, may elicit worry and loss of self-confidence in older adults (Kite & Wagner, 2002).

A different intervention, addressed to older adults and specifically tailored to their needs, was the one of Ho and colleagues (Ho, Yeung, & Kwok, 2014). In their work, however, the sample consisted of institutionalised elderly who were living in a nursing home. As the authors said themselves, their findings—although positive in terms of a reduction in the number of depressive symptoms and increased levels of life satisfaction, gratitude, and happiness—may not be generalisable to community-dwelling older people.

The aim of the present study was to assess the efficacy of PWB training in community-dwelling older adults. We embraced a eudemonic approach to the PWB according to Ryff’s model (1989). As in PPI interventions this training is

also based on enhancing resources that permit individual flourishing such as self-regulation, coping strategies, and self-efficacy. In addition, it includes activities and themes specifically suited to older adults (see Table 2), such as reflections on age-related dysfunctional beliefs and stereotypes. In this fundamental part of the training, an experimenter guides the discussion according to a CBT approach, underscoring the potential link between dysfunctional beliefs and stereotypes, and their effects on emotions and behavior. As in WBT (e.g. Fava & Tomba, 2009), however, the focus is not on psychological distress but on how to empower personal resources, including by dispelling negative beliefs about oneself and the aging process. Finally, a metacognitive approach was used (see Wells, 2000): participants were enabled to become aware of their beliefs about their cognitive and emotional aspects, and how these may have an impact on their everyday life (possibly inducing them to experience negative thoughts and behavior). The experimenter conducted a group discussion on these aspects, proposing activities related to everyday experiences and role-play.

We investigated the effects of the training on the directly-trained aspects such as PWB. Additional effects not directly trained (so-called transfer effects) but relating to well-being (QoL) were also examined. By enhancing PWB, we expected to obtain broadly positive effects, reflected by higher scores on the QoL assessment instrument, also due to the relationship between these constructs (Camfield & Skevington, 2008). We selected the brief form of the WHO-QoL (Italian version; De Girolamo et al., 2000) because it was formulated embracing the general idea that QoL goes beyond objective aspects, and results from people's subjective judgment of their position in life in their own context, their values, and purpose (World Health Organization, 1997). It does not assess only health-related QoL or the presence of symptoms and disease. It also covers, for instance, self-esteem, personal beliefs, memory and concentration, and positive emotions.

For the first time (to our knowledge), a transfer effect was also sought on a core cognitive ability in aging, working memory (WM), assessed with the Listening Span Task (Borella, Carretti, & De Beni, 2008). WM is the ability to retain and simultaneously process information for use in other cognitive tasks (Baddeley & Hitch, 1974). It is involved in cognitive processes (e.g. reasoning) and used in complex activities of everyday life. It undergoes a linear decline with aging (Borella et al., 2008), meaning that interventions to preserve this basic mechanism of cognition in older adults are certainly of interest. Several studies have demonstrated mutual influences between emotional and cognitive processes (e.g. Ochsner & Gross, 2008; Pessoa, 2008); for instance WM was shown to be influenced by emotions and some forms of stress and anxiety (e.g. Eysenck & Calvo, 1992). Such an emotion–cognition interaction is even more relevant in older adults because they focus more on emotional aspects than young adults (Mather & Carstensen, 2005). Finally, lower memory performance can even be related to dysfunctional beliefs and errors in metacognitive processes (i.e.

knowledge about cognition and control of cognition; Flavell, 1979), as well as to negative stereotypes about cognitive age-related processes (Schmader, Johns, & Forbes, 2008; for a metaanalysis see Lamont, Swift, & Abrams, 2015).

Based on these results, in the present study we tried to examine the impact of PWB training that was specifically designed to suit older adults' needs and characteristics and based on a eudemonic approach to PWB (Ryff, 1989), in terms of improving participants' PWB, and also any transfer effects on QoL and (for the first time, as far as we know) on WM.

Participants were randomly assigned to either a training group or an active control group. We hypothesised that only participants in the trained group would show an improvement in PWB and transfer effects on QoL and WM after the intervention.

## METHOD

### Participants

Thirty-two older adults (61–82 years old) took part in the study. They were recruited via informal contacts at various cultural clubs and randomly assigned to either the trained group ( $N = 16$ ) or the active control group ( $N = 16$ ). All participants were healthy, native Italian speakers and they volunteered for the study. They were selected on the grounds of a physical and mental health questionnaire (see the Lab-I Cognitive Empowerment; De Beni, Borella, Marigo, & Rubini, 2008) to exclude individuals with severe physical impairments or psychiatric disorders that might negatively affect their ability to cope with everyday life and have a detrimental effect on their cognitive performance. None of the participants met any of the exclusion criteria suggested by Crook et al. (1986), that is, the use of benzodiazepines in the previous 3 months; visual, auditory, and/or motor impairments; and problems or diseases that might potentially cause cognitive impairments. All participants had a Mini-Mental State Examination score above 27 (Folstein, Folstein, & McHugh, 1975), and scored below the cut-off (15 items) on the short form of the Geriatric Depression Scale (GDS; Yesavage, & Sheikh, 1986). Finally, all participants performed above the critical cut-off for their age and education in the Vocabulary test from the Wechsler Adult Intelligence Scale-Revised (Wechsler, 1981; Italian norms by Orsini & Laicardi, 2003). In short, our participants were all able to live self-sufficiently in their everyday context, and they were neither clinically depressed nor impaired in cognitive terms or motor skills.

As demonstrated by one-way analyses of variance (ANOVAs), the trained and control groups did not differ in terms of age ( $F_s < 1$ ), years of education ( $F_s < 1$ ), or WAIS-R vocabulary ( $F_s < 1$ ) scores and GDS,  $F_{(1,30)} = 2.14$ ,  $p = .14$  (see Table 1).

TABLE 1  
Demographic Characteristics of the Trained and Control Groups

	<i>Trained group</i> ( <i>N</i> = 16; <i>F</i> = 12)		<i>Control group</i> ( <i>N</i> = 16; <i>F</i> = 12)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	69.38	6.55	70.56	6.11
Years of education	8.31	3.66	8.13	4.14
Vocabulary score	46.19	14.01	43.81	16.71
MMSE	29.10	0.57	29.00	.60
GDS	3.45	1.98	4.20	1.34

## MATERIALS

### Ben-SSC Questionnaire—Questionario sul Ben-essere Psicologico (Psychological Well-being Questionnaire; De Beni, Borella, Carretti, Marigo, & Nava, 2008)

This is a 37-item questionnaire used in Italy to assess PWB in adults and the elderly. The questionnaire is inspired by the eudemonic concept of PWB proposed by Carol Ryff (Ryff, 1989), and thus covers various aspects of well-being, particularly personal satisfaction, coping strategies, and emotion regulating skills. Participants were asked to rate their agreement with each of the 37 items using a 4-point Likert scale, ranging between 1 (not at all) and 4 (yes/often). All items are self-descriptive and formulated to assess positive attitudes and beliefs rather than negative moods and pathologies. Examples of items are: (i) “When I wake up in the morning, I am pleased with life and with myself”; (ii) “I feel that I am able to cope with difficult situations”; and (iii) “I can understand when someone is mad at me”. The overall score, considered as the dependent variable, is calculated as the sum of the scores for all items (maximum = 148). Higher scores indicate higher levels of PWB. This questionnaire has been specifically validated on a sample of community-dwelling older adults (age range: 60–97 years old) with no physical or cognitive impairments. The reliability of the questionnaire was good (Cronbach’s  $\alpha = 0.91$ ) (De Beni et al., 2008).

### World Health Organization Quality of Life Questionnaire-Brief Form (WHO-QoL-BREF, Italian adaptation; De Girolamo et al., 2000)

The WHO-QoL-BREF tool comprises 26 items and produces a profile of an individual’s overall perception of QoL. The items examine the following four



broad domains: physical health, psychological health, social relationships, and environment. Participants were asked to rate their agreement with each of the 26 items using a 5-point Likert scale, ranging between 1 (never) and 5 (always). An example is: “How satisfied are you with the conditions of the place where you live?” The overall score, considered as the dependent variable, is calculated as the sum of the scores for all items (maximum = 106). Higher scores indicate a higher QoL. The reliability of the scale was satisfactory (Cronbach’s  $\alpha = 0.80$ ).

### Listening span test (LST; Borella, Carretti, & De Beni, 2008)

This task consists of sets of increasing numbers (2, 3, 4, 5, 6) of simple sentences. Participants are instructed to listen to each sentence, judge its plausibility (say whether it is true or false) and retain the last word. At the end of each set, participants are asked to recall the last word of each sentence. The task consists of two parts with 20 sentences each, which were used as parallel versions. Two practice trials preceded the task. The total number of correctly recalled words was used as the measure of WM performance (maximum score = 20). The two parallel versions were used during the pre- and post-test assessments.

## PROCEDURE

### Training Group

Participants attended eight sessions. In the first and last sessions (lasting about 40 minutes each), for the individual pre- and post-test assessments, the tasks were administered in the following order: Ben-SSC questionnaire; LST; and Italian version of the WHO-QoL-BREF questionnaire. The pre- and post-test assessments were always conducted in the morning to control for any confounding effects related to the time of day when individuals were tested.

During the other sessions (2–7), which lasted about 90 minutes, the control group was involved in discussing social topics related to active citizenship, while the trained groups attended “Lab.I Emotional-Motivational Empowerment” training (De Beni, Marigo, Sommaggio, Chiarini, & Borella, 2009; see Table 2). Both the training and the active control activities were conducted in small groups of eight participants to ensure that all participants were involved in the discussions and role-play. For both groups, the sessions were conducted by the same experimenter, who moderated the discussions and explained the activities. Both groups completed the sessions within an 8-week time frame, and the schedule was identical, ensuring a matching amount of social interaction (both groups met the same experimenter for a similar amount of time during the various sessions).



TABLE 2  
Description of the "Lab.I Emotional Empowerment" Training (De Beni et al., 2009)

*General structure*

15 minutes of relaxation training

Discussion of homework

Presentation of the main topic and activities of the day (using questionnaires and practical exercises)

Homework assignment

*Session*

I. To feel good or to be good

*Topics and activities*

Presentation of the activities and of the group's members;

*Homework*

(a) Every evening during the week, think about three positive aspects of the day (*The good grains of the day*);

This homework (adapted from Seligman [Seligman et al., 2005]) involved participants making a note each evening for a week of three positive things in their day (moments, people or objects that made them feel good).

(b) Selecting a photo or object that elicits positive emotions.

AIMS: The whole program was presented and the participants introduced themselves. The experimenter presented the concept of PWB according to the eudemonic approach (Ryff & Singer, 2008), i.e. PWB is about personal growth. People can only reach a good level of PWB when they try to achieve their potential as best they can (Ryff & Singer, 2008). So, beyond the satisfaction of hedonic aspects (i.e. feeling good and satisfied about personal events or objects), according to the eudemonic approach, PWB is also related to knowing oneself and to an individual's ability to actualise their own innate potential. The focus of the session was therefore on recognising each individual's potential and resources.

During the first session, each participant explained what they expected from the training.

II. A path that takes you back a long time

*Topics:* Autobiographical memory, memory sensitivity, attributional style and the role of emotions.

*Activities:* To introduce these topics, the following questionnaires were handed out:

- "Autobiographical Memory Questionnaire" (De Beni et al., 2008; De Beni et al., 2009)
- "My day yesterday" (De Beni et al., 2008; De Beni et al., 2009)
- "Memory Sensitivity Questionnaire" (De Beni et al., 2008; De Beni et al., 2009)

(a) Writing a small screenplay about their own life, and imagining new goals to achieve in 10 years' time.

Table 2 (Continued)

	<p>Practical exercises about the relevance of autobiographical memory using a personal object or photo belonging to the participants (items selected as homework at the end of session 1).</p> <p>AIMS: The themes presented were autobiographical memory, “memory sensitivity” (i.e. a positive attitude to autobiographical memory and a behavior devoted to saving memories of one’s past), and “attributional style”, also illustrating the links with perceived emotions. In particular, the experimenter discussed how the external or internal locus of control could be associated with self-esteem, generating functional emotions that may help us to achieve our goals or keep us from reaching them. This session dealt with the importance of remembering autobiographical events and the role of emotions, followed by tasks and questionnaires measuring these aspects to make participants experience them more concretely. The session ended with a sharing of memories linked to the objects or photos that participants had selected as part of their homework.</p>	
III. Boost your efficacy	<p><i>Topics:</i> self-efficacy, successful/active aging.</p> <p><i>Activities:</i> Practical exercise on the expression of emotions, coping strategies, and assertiveness, presenting two everyday situations. The experimenter discusses personal dysfunctional beliefs and alternative explanations for our behavior.</p>	<p>(a) Trying to split a problem into small subsequent steps or goals. Identifying small, gradual steps for solving a complex problem could be a way to sustain our motivation to succeed because the single steps are realistic and feasible targets. Identifying these steps also enables us to better plan the tasks in question (Locke &amp; Latham, 2002).</p> <p>(b) Introducing changes in the daily routine</p> <p>This exercise makes participants aware of their personal positive or negative habits. In a second phase, the exercise involves them changing the way in which these everyday actions are conducted. This activity allows participants to think about the benefits that can be gained even by making only small changes to our daily life, routines and habits.</p>
<p>AIMS: The experimenter introduced a group discussion on the topic of successful aging and on the Baltes Selection, Optimisation, and Compensation (SOC) model (Baltes &amp; Baltes, 1990). Then the experimenter presented two everyday situations in which people may commonly feel negative emotions (e.g. when they see people jump the queue), asking participants to provide different explanations for, and reactions to, the same behavior, and encouraging them to think about and develop assertive and positive attitudes: participants were prompted to share their own experiences of situations in which they felt they had poor or high levels of self-efficacy. Thinking back to these situations, participants had to identify their functional/dysfunctional beliefs. Finally, they were encouraged to examine how these beliefs negatively or positively influenced their behavior.</p>		

Table 2 (Continued)

IV. Emotioning	<p><i>Topics:</i> Emotion detection and expression.</p> <p><i>Activities:</i> Practical exercises on the expression of emotions.</p>	<p>(a) Thinking about two personal strengths and weaknesses, and ways to improve oneself.</p> <p>This exercise can stimulate an internal locus of control and self-regulation associated with positive emotions. Indeed, according to several authors (e.g. the “Broaden-and-build theory” in Fredrickson, 2001), experiences of positive emotions broaden people’s momentary thought-action repertoires, which in turn serve to build their enduring personal resources.</p>
<p>AIMS: The experimenter prompted participants to think about negative situations, trying to transform the individual’s weaknesses into strengths, and to highlight their personal resources. The aim of this session was to discover, once again, the link between beliefs/thoughts and emotions and behavior. Depending on the situation presented, participants had to detect their own emotions (e.g. anger, sadness, happiness, and so on) and to understand how the latter could influence their behavior. They were also encouraged to detect their dysfunctional and automatic thoughts that could in turn elicit a number of emotions (e.g. “I’m worthless”, Sadness, Avoidance of the tasks). These activities can help participants to enhance their emotional competences, and regulate their emotions, fostering psychological well-being.</p>		
V. Well-being and multidimensionality	<p><i>Topics:</i> The multidimensionality of well-being.</p> <p><i>Activities:</i> Practical exercises: “The game of six dimensions” and “The game of three dimensions”. In these games, participants had to use different adjectives to illustrate the concept of well-being according to six dimensions (Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance; [Ryff, 1989]) or three dimensions (Personal Satisfaction, Coping Strategies, and Emotional Competences; [De Beni et al., 2009]), respectively.</p>	<p>(a) Write a thank-you letter to the group.</p> <p>This activity was adapted from the work of Seligman et al. (2005). Experiencing gratitude towards themselves and the group is a tool that helps participants come into real contact with their experiences, amplifying the focus on themselves in the construction of psychological well-being.</p>

AIMS: Practical activities and exercises were presented concerning negative situations in which participants had to find positive aspects or their own strengths. For example, they had to imagine a situation in which they did not reach a goal or in which they had had trouble with work, friends, or their partner. On the basis of these episodes, they had to imagine a different and more constructive behavior that they could have adopted, which could have led to different consequences. This exercise was aimed at improving coping strategies (a new way to solve problems, changes to habits and routines) and emotional competences (i.e. assertive behavior, emotion recognition, etc.).

Table 2 (Continued)

VI. Summing up	<i>Topics:</i> Considerations on the whole training program were shared among the group.
AIMS: All of the previously presented themes were briefly discussed and participants voiced their impressions of the whole training program.	

The experimental procedure described here complies with the Declaration of Helsinki (Appleyard, 2008).

## Description of Training Activities

Each training session had the same structure: first, 15 minutes of breathing relaxation exercises with the aim of promoting mental focus and awareness towards the proposed activities. Homework and the main topic covered by the previous session were briefly presented and discussed to share participants' experiences and difficulties, then the experimenter presented the topic of the day. Each topic was illustrated and developed with practical assignments and the use of questionnaires. Finally, new homework was assigned (see the description and the rationale of the activities in Table 2).

Homework was assigned to enable participants to: (i) apply and generalise the skills learned during the sessions to a variety of situations arising in everyday life; (ii) reflect on dysfunctional habits; (iii) become aware of the active influence that they have on their own well-being. The independent use of new strategies in an everyday context could be a determinant of a participant's long-term emotional health (Mausbach, Moore, Roesch, Cardenas, & Patterson, 2010).

In each training session, a particular aspect was stressed—drawing on the eudemonic approach to PWB (Ryff, 1989)—linking it with a discussion on age-related issues (see Table 2).

*Session 1.* The focus was on PWB as personal growth beyond the mere satisfaction of hedonic aspects. Participants were invited to discuss their personal resources, to think about what potential they had fully expressed during their lives (that could contribute to their life satisfaction), and what they had left undone, although it could still be important to them to reach full self-actualisation and well-being, despite their age-related changes. Participants were thus invited to think about elements that they usually did not consider during their daily lives, but that might contribute to their well-being. The homework was anchored to this latter element and involved the exercise “The good grains of the day” (adapted from Seligman, Steen, Park, & Peterson, 2005) and selecting photos or object that elicited positive emotions. This session was therefore strictly related to two key factors of Ryff's model: “personal growth” and “purpose in

life". The discussion was guided to emphasise the importance for well-being of continuing development and new experiences.

*Session 2.* This was mainly focused on autobiographical aspects. Individuals could have positive attitudes and have a sense of meaning in their lives when they felt a link between their past and present life, and their future goals.

Particularly with aging, individuals sometimes see their lives as lacking sense and utility, and may devalue their function in life (see Fava & Tomba, 2009). During this session, great attention was paid to autobiographical memories and related emotions (see activity in Table 2). An effort was also made to identify the progress participants had made towards achieving their goals in life, underplaying negative events and regrets, and emphasising the importance of failing as a way to learn and grow. In short, this session was designed to favor the integration of positive and negative events in a coherent personal story, promoting a sense of direction in life.

*Session 3.* The main focus here was on promoting self-efficacy in relational contexts: participants were involved in role-playing about everyday life experiences, by means of which they could identify their dysfunctional beliefs about themselves and their associated emotions and negative behaviors (e.g. passive or aggressive attitudes). They were also encouraged to think about how they could reinterpret situations (objective events) by changing their negative beliefs and producing different emotions. So the core issues here were the emotional regulation process and coping strategies. This session was also used to introduce a discussion on the topic of successful aging and the Baltes selection, optimisation, and compensation (SOC) model (Baltes & Baltes, 1990). The SOC model is a good example of personal growth during the lifespan and self-acceptance in aging. Individuals could, in fact, have unrealistically high standards and expectations about themselves and their performance, leading to dissatisfaction with themselves. During this session the aim was to work on factors of PWB considered in Ryff's model (1989), that is, autonomy, self-acceptance, and positive relations with others.

*Session 4.* Here again, the focus was on the link between thoughts and related emotions. As in CBT protocols, participants were invited to detect their dysfunctional and automatic thoughts that could elicit various emotions, and thereby improve their emotional competence and emotion expression.

*Session 5.* Participants were invited to reflect on Ryff's model of PWB (1989) and to indicate, in the light of their own life experiences, the importance they assigned to each factor (autonomy, self-acceptance, personal growth, purpose in life, positive relations with others, environmental mastery). They were also asked to reflect on negative past experiences, and to imagine how they could

re-script the situation thanks to their new attitudes or changes in their behavior (this exercise also aimed to boost their sense of mastery and competence in managing everyday affairs and environmental opportunities).

*Session 6.* This final session was devoted to discussing the training as a whole. Participants could express their personal impressions of the activities and topics proposed.

## Control Group

The control group met with the experimenter for the same number of sessions as the trained group, and for approximately the same amount of time. During sessions 2–5, they discussed various political and social topics drawn from the daily news and related in some way to active citizenship (e.g. concerning intercultural and intergenerational dialogue, employment and retirement, volunteering, age-friendly environments, and social cohesion).

## RESULTS

First, ANOVAs were run, with Groups (trained, control) as the between-subjects factor, on the participants' pre-test performance in all tasks (see Table 3). The results indicated that there were no baseline differences between the trained and the control groups (for all measures,  $F < 1$ ).

Then, to examine training-related gains, 2 (group: trained, control)  $\times$  2 (session: pre-test, post-test) mixed-design ANOVAs were run for all measures of interest. Significant main effects and interactions were analyzed using pairwise comparisons, with Bonferroni's adjustment for multiple comparisons. The  $\alpha$

TABLE 3  
Descriptive Statistics for Each Measure of Interest at Pre-test and Post-test, by Group

	Trained group ( <i>N</i> = 16)				Control group ( <i>N</i> = 16)			
	Pre-test		Post-test		Pre-test		Post-test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Ben-SSC	101.69	13.94	109.44	13.20	103.94	14.74	100.44	15.14
WHO-QoL Brief	92.18	7.26	99.43	13.40	92.87	8.13	97.43	11.75
LST	16.25	5.73	18.13	5.52	17.00	5.66	16.88	5.73

*Note:* *M* = mean; *SD* = standard deviation; LST = Listening Span Task; Ben-SSC: Psychological Well-being Questionnaire.

TABLE 4  
Standardised Gains for the Trained and Control Groups, for Each Measure of Interest

Characteristics		Gains* in the trained group (N = 16)		Gains in the control group (N = 16)	
		M	SD	M	SD
Ben-SSC	Total	0.54	0.24	-0.24	0.37
WHO-QoL Brief		0.98	1.36	0.61	1.05
LST		0.30	0.37	-0.02	0.18

Note: \* Gains were computed as follows: (individual post-test score – individual pre-test score) / pre-test SD), separately for each group. Ben-SSC: Psychological Well-being Questionnaire; LST: Listening Span Task.

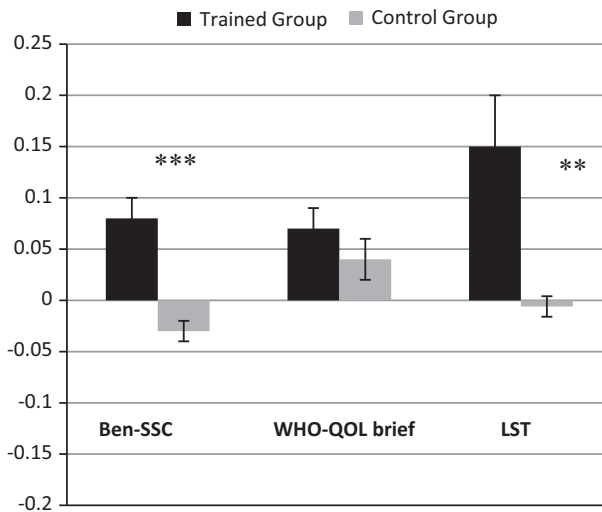


FIGURE 1. Benefits for the trained and control groups.

Note: Error bars represented standard error; \*\*\* $p < .001$ ; \*\* $p < .01$ . LST: Listening Span Task; Ben-SSC: Psychological Well-being Questionnaire.

value was set at 0.05 for all statistical tests, and at 0.006 for the interactions. Descriptive statistics are given in Table 3.

Finally, standardised gains, equivalent to effect sizes as they offer the advantage of allowing variability to be controlled for at the pre-test stage, were examined. They were computed as follows: [(individual post-test score – individual pre-test score) / groups' pre-test SD] (see Table 4 and Figure 1).



## Psychological Well-Being—Ben-SSC Questionnaire (De Beni et al., 2009)

The main effects of Group and Session were not significant ( $F < 1$ ;  $F_{(1,30)} = 3.24$ ,  $p = .08$ , respectively). The Group  $\times$  Session interaction was significant, however,  $F_{(1,30)} = 22.75$ ,  $p < .001$ ,  $\eta_p^2 = .48$ . Post-hoc comparison showed that the trained participants had better scores at post-test than at pre-test ( $M_{\text{diff.}} = 7.75$ ,  $p < .001$ ). The control group's performance did not show any significant differences between pre- and post-test. At post-test, there was a marginally significant difference between the groups ( $M_{\text{diff.}} = 9.00$ ,  $p = .08$ ), in favor of the trained group.

## WHO-QoL-BREF (De Girolamo et al., 2000)

The main effect of Session was significant,  $F_{(1,30)} = 13.71$ ,  $p < .001$ ,  $\eta_p^2 = .31$ . Both groups improved their perceived QoL at post-test compared to pre-test ( $M_{\text{diff.}} = 5.90$ ;  $p < .001$ ). The main effect of Group was not significant, and neither was the Group  $\times$  Session interaction ( $F_s < 1$ ).

## Listening Span Task—WM task (Borella et al., 2008)

The main effect of Group was not significant ( $F < 1$ ). On the other hand, the main effect of Session was significant,  $F_{(1,30)} = 7.38$ ,  $p < .01$ ,  $\eta_p^2 = .19$ , showing a higher overall performance at post-test than at pre-test ( $M_{\text{diff.}} = .87$ ;  $p < .01$ ). The Group  $\times$  Session interaction was significant,  $F_{(1,30)} = 9.64$ ,  $p < .01$ ,  $\eta_p^2 = .24$ . Post-hoc comparison showed that only the trained group's performance improved from pre-test to post-test ( $M_{\text{diff.}} = 1.87$ ;  $p < .001$ ). The control group showed no significant differences from pre-test to post-test ( $M_{\text{diff.}} = -0.12$ ;  $p = .78$ ). No significant differences emerged at post-test, however, between the training group and the control group ( $M_{\text{diff.}} = 1.25$ ;  $p = .53$ ).

## Benefits Resulting from the Training

To clarify the effect of the training on PWB, QoL, and WM, a measure expressing the benefits resulting from the training activities was calculated, considering the standardised gains (see Schmiedek, Lövdén, & Lindenberger, 2010) to check and control for individual differences between the two groups at the pre-test session (see Table 4 and Figure 1).

Three separate ANOVAs were run on the standardised gains for each of the variables of interest, with Group (trained vs. control group) as the between-factors variable. The results showed significant gains for the trained group compared to the control group for the Ben-SSC questionnaire,  $F_{(1,30)} = 22.10$ ;  $p < .001$ .

.001;  $\eta_p^2 = .42$ , and the LST,  $F_{(1,30)} = 9.64$ ;  $p = .01$ ;  $\eta_p^2 = .24$ . No significant differences emerged for the WHO-QoL ( $F < 1$ ) (see Figure 1).

## DISCUSSION

The aim of this study was to ascertain whether training can improve PWB in community-dwelling older adults. Few studies have examined this issue, even though the promotion of interventions able to improve PWB in older adults is of particular importance. Several interventions have been planned and presented to improve PWB; however, they have different methodologies (i.e. self-help approaches, bibliotherapy, life review, internet-based protocol and so on), are not specifically addressed to community-dwelling older adults, and are not based on a common definition of PWB. The novelty of the present study lies in that it aimed to promote PWB according to the eudemonic approach and it proposed activities tailored specifically to older adults' needs and characteristics, unlike other PPIs or PWB training protocols (e.g. Friedman et al., 2015). For the first time, at least to our knowledge, this type of training was presented to older adults, and also involving an active control group. We examined the transfer effects, which are rarely examined in the literature on PWB training independently of their theoretical framework, not only on a quality of life (QoL) measure but also, and for the first time in the literature, on WM, a cognitive ability that has a crucial role in higher-order cognition.

In line with the literature (Friedman et al., 2015), and consistent with our expectations, our results showed an improvement only in the trained group, in terms of subjective PWB as assessed by the Ben-SSC questionnaire. Although at post-test the difference between two groups was not so large, the standardised gains (calculated after controlling for individual differences and variability at the pre-test stage) clearly showed an advantage for the trained group over the control group on this measure. Such a result indicates that this type of intervention—based on a eudemonic approach, that is, on the valorisation of the psychological resources, including self-efficacy, emotional regulation, and coping and adaptive strategies (Bowling & Dieppe, 2005)—could actually improve older adults' PWB. The training was thus presumably able to: (i) elicit positive emotional experiences; (ii) help to dispel dysfunctional beliefs and behavioral patterns, also related to stereotypes of aging; and (iii) boost individual resources and coping strategies. It may be that the training helped the older adults to experience alternative and more functional thoughts, emotions, and attitudes regarding themselves, and to work on their attributional styles and locus of control (sessions 2 and 3). Ameliorating these aspects means generating functional and positive emotions that can help individuals to achieve their goals (Fredrickson & Brannigan, 2005) and increase their PWB. The present findings on the standardised gains also call upon the need to control for individual differences and variability at the pre-test before concluding in favor of the benefits or not of training.

It is important to note, however, that there was not any improvement on QoL, as measured with the brief form of the WHO-QoL. This questionnaire developed by the WHO embraces a broad concept of QoL, examining several aspects that—although related to PWB—reflect an individual's functioning in everyday life and in a specific context. PWB and QoL are actually two distinct and multifaceted concepts, reflecting both objective and subjective considerations about life (Camfield & Skevington, 2008). While PWB relates to positive ideas of *self-actualisation* (Ford, 1991), QoL could be conceptualised as a wider concept that includes, and is defined as “an individual's perception of their position in life in the context of the culture and value that can be affected by the person's physical health, psychological state, personal beliefs, social relationships” (World Health Organization, 1997). PWB is thus “nested” within an overall QoL (Camfield & Skevington, 2008). The WHO-QoL questionnaire thus examines aspects, such as satisfaction with physical health and environmental context, that may not be amenable to change by means of the short PWB training adopted in the present study. In other words, the activities promoted by our training may not suffice to influence such aspects that at the same time are quite stable over time. An alternative interpretation is that, because of the characteristics of the dimensions of this measure, it may take longer for individuals' perceived QoL to change, and for objective situations (e.g. living conditions, physical health) or social relationships to be influenced. In this sense, a follow-up assessment (not performed in this study) might have been useful for the purpose of identifying possible “ sleeper effects ” (see Borella, Carbone, Pastore, De Beni, & Carretti, 2017) over the longer term. Future studies could attempt to verify this issue.

A “novelty” emerging from the present study concerns the benefit regarding WM, an ability not strictly related to PWB and not trained directly in the present study. Although there were no significant differences between the trained and control groups at post-test, the standardised gains showed a clear benefit on WM performance only for the trained participants. It is possible that through the training—including discussion on cognitive aging, but also paying attention to the negative stereotypes about this phase of life, and aspects related to self-efficacy and locus of control—participants have gained a better awareness of their cognitive abilities, and also greater confidence in their memory capacity, thus showing more endurance and persistence during a task, using more efficiently their resources and increasing their self-regulation processes, which could have led to better WM performance. Thus it is plausible to assume that this training may have affected both what individuals know about their cognition and their thoughts, actions, and behavior when performing a task, the “knowledge of cognition” and “regulation of cognition” metacognitive components, respectively (see Tzohar-Rozen & Kramarski, 2014; Efklides, 2006; Fairfield, Mammarella, Palumbo, & Di Domenico, 2015). This result supports growing evidence of an interaction between emotion and cognition in older adults (Mather & Carstensen, 2005). It also confirms the relationship between individual differences in WM

capacity and the self-regulation of emotional expression and emotional experience (Schmeichel, Volokhov, & Demaree, 2008).

As the idea that the changes were due to metacognition aspects is mere speculation that should be verified and confirmed, it would be interesting to see—in future research—the specific components that might induce a change in cognitive abilities after PWB training: it would thus be interesting to see if the intervention works because it focuses on better awareness and the dispelling of negative stereotypes (e.g. Stein, Blanchard-Fields, & Hertzog, 2002), or is due to positive emotions and locus of control (e.g. Cadinu, Maass, Frigerio, Impagliazzo, & Latinotti, 2003), or to lower levels of anxiety during the task (e.g. Blascovich Mendes, Hunter, Lickel, & Kowai-Bell, 2001; Eysenck & Calvo, 1992; Beaudreau & O'Hara, 2009). Finally, future studies could also examine the transfer effects of PWB training to both “classical”—as here—and “emotional” WM tasks in which emotional stimuli are used (see Mammarella, Borella, Carretti, Leonardi, & Fairfield, 2013) to see if the training gains are larger. The inclusion of other tasks to assess transfer benefits to other domains such as inhibitory control (e.g. also by comparing performance in a “Stroop task” vs. an “Emotional Stroop task”; see Schweizer, Hampshire, & Dalgleish, 2011) could also be of interest. As a first step, in the present study we aimed to identify possible transfer effects of PWB training on cognitive abilities per se, while avoiding any confounding variables linked to the use of emotional stimuli. This aspect needs to be taken into consideration in future studies, however.

Despite the promising results of this study, that should be considered as a pilot one, a number of limitations need to be acknowledged. First, the lack of a follow-up assessment: the long-term maintenance of the effects of the training need to be examined, and any “sleeping effects” (in QoL scores, for example) need to be sought. Second, our results need to be replicated in larger samples and with other tasks, although the size of our sample is comparable with those generally considered in training studies on older adults (see Karbach & Verhaeghen, 2014). Lastly, other tasks to measure transfer effects could be included in future studies in order to elucidate any generalisation effects of the training. A strength of our study, on the other hand, lies in the use of an active control group involved in alternative activities (balanced in terms of the amount of social interaction, sessions, and times) to compare with the group attending the PWB training.

In conclusion, in the light of the improvement in PWB and WM seen only in the trained group, the present study could be seen as a first, encouraging step towards the development of PWB training procedures following a eudemonic approach and tailored to the specific needs, difficulties, and resources of older adults.

## CONFLICT OF INTEREST

The authors have no conflict of interest to disclose.

## ETHICAL APPROVAL

This article does not contain any studies involving animals performed by any of the authors. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

## INFORMED CONSENT

Informed consent was obtained from all individual participants included in the study.

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