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Positive psychology interventions in people aged 50–79 years: long-term effects of placebo-controlled online interventions on well-being and depression

Proyer, Rene T ; Gander, Fabian ; Wellenzohn, Sara ; Ruch, Willibald

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Positive Psychology Interventions in People Aged 50-79 Years:

Long-Term Effects of Placebo-Controlled Online-Interventions on Well-Being and
Depression

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Abstract

Positive Psychology Interventions in People Aged 50-79 Years: Long-Term Effects of Placebo-Controlled Online-Interventions on Well-Being and Depression

Aging & Mental Health

Objectives. Various positive psychology interventions have been experimentally tested, but only few studies addressed the effects of such activities in participants aged fifty and above.

Method. We tested the impact of four self-administered positive psychology interventions in an online setting (i.e., gratitude visit, three good things, three funny things, and using signature strengths in a new way) on happiness and depressive symptoms in comparison with a placebo control exercise (i.e., early memories). A total of 163 females aged 50 to 79 tried the assigned interventions or the placebo control exercise for one week and completed measures on happiness and depressive symptoms at five times (pre- and posttest, 1, 3, and 6 months).

Results. Two out of the four interventions (i.e., three good things, and using signature strengths in a new way) increased happiness, whereas two interventions (three funny things and using signature strengths in a new way) led to a reduction of depressive symptoms on at at one post measure.

Conclusion. Positive psychology interventions yield similar results for people aged 50 and above as for younger people. The dissemination of such interventions via the Internet offers a valuable opportunity for older age groups as well.

Keywords: Depression; Older Adults; Happiness; Positive Interventions; Well-being.

Positive Psychology Interventions in People Aged 50-79 Years:
Long-Term Effects of Placebo-Controlled Online-Interventions on Well-Being and
Depression

Positive psychology is an umbrella term for research and practice on the conditions and traits that make the life most worth living (Seligman & Csikszentmihalyi, 2000). Over the past decades, research in psychology has mainly focused on negative aspects of the human condition (e.g., studying depression rather than joy, or anxiety rather than courage); fields such as personal growth, subjective or psychological well-being, or flourishing (Seligman, 2011) have been comparatively less frequently studied (Myers, 2000). Of course, there were earlier works that provided ground for this new direction. For example, Marie Jahoda (1958) published a report to the *Joint Commission on Mental Illness and Health* entitled ‘Current concepts of positive mental health.’ There she reviewed literature on mental health and identified various criteria for positive mental health (e.g., attitudes of an individual towards his own self, growth, development, or self-actualization, autonomy etc.). One of the most central statements in her book regards the notion that ‘[...] the absence of disease may constitute a necessary, but not a sufficient, criterion for mental health’ (p. 15; see also Keyes, 2007).

The question arises on how mental health, or the ‘good life’ from a positive psychology perspective can be achieved—and what individual contributions may be. Lyubomirsky, Sheldon, and Schkade (2005) argue that there are three major contributors to happiness; i.e., (a) a genetically determined set-point; (b) circumstantial factors (e.g., income or education); and (c) activities and practices that relate to happiness. The latter component addresses potentials for change via specific types of intentional activities. One aim of research in positive psychology is to develop and test so-called positive interventions; i.e., ‘[...] treatment methods or intentional activities aimed at cultivating

positive feelings, positive behaviors, or positive cognitions' (Sin & Lyubomirsky, 2009; p. 468).

Two recent meta-analyses (Bolier, Haverman, Westerhof, Riper, Smit, & Bohlmeijer, 2013; Sin & Lyubomirsky, 2009) lend support to the notion that these types of intentional activities are effective to increase levels of (subjective) well-being and ameliorating depression. However, the studies that entered the meta-analyses also show that there is one group that was comparatively neglected. When going through the two meta-analyses, it was striking to see that only *six* out of the 69 studies dealt with people of comparatively higher age (i.e., used samples with a mean age over 50 years). When inspecting the mean age of the participants in the studies that entered the meta-analyses, it was evident that most of them were conducted with younger participants—frequently students. Hence, there is a lack of data from middle aged and older samples to further substantiate findings in the usefulness of positive interventions in broader age groups.

There is, however, literature in the field that has already established the relevance of positive psychology in general and positive interventions in older adults. It was suggested that *humor* plays an important role for the well-being of older adults (e.g., Konradt, Hirsch, Jonitz, & Junglas, 2013; Proyer, Ruch, & Müller, 2010; Ruch & McGhee, in press; Ruch, Proyer, & Weber, 2010b). Konradt et al. (2013) tested the effects of a standardized humor therapy group for depressive patients (compared to a group of patients with no treatment); all ≥ 61 years of age. Only patients in the humor-group showed lower state seriousness and greater satisfaction with life after completion of the program (see also Hirsch, Junglas, Konradt, & Jonitz, 2010). Another recent study employing an autobiographical memories-intervention tested the effects of forgiveness and gratitude in people over sixty years and also found positive effects on well-being (Ramírez, Ortega, Chamorro, & Colmenero, 2013).

Vaillant (2004) defined the mission of positive or successful aging as '[...] to add more life to years, not just more years to life' (p. 561). Research on successful aging followed two main goals: Identifying positive conditions of aging, and developing strategies for the promotion of successful aging (Fernández-Ballesteros, 2003). The examination and development of such strategies is one of the core interests of positive psychology, and there also seems to be a rising interest in interventions promoting positive psychological traits in older people (Jeste & Palmer, 2013). It has also already been established that the experience of positive emotions (or its balance with negative emotions) is of similar importance in older adults as in younger people (Meeks, Van Haitsma, Kostiwa, & Murrell, 2012). In fact, Peterson and Seligman's (2004) conceptualization of strengths (i.e., morally positively valued traits) and virtues would give rise to the idea that they may increase (due to longer and constant training) with higher age (see e.g., Ruch et al., 2010ab). From these perspectives, it seems even more surprising that only few studies within the field of positive psychology have yet focused on older samples.

One disadvantage of positive interventions conducted in group-settings or in individual settings is that they are not economic in terms of the resources needed. Therefore, positive interventions were developed that can be disseminated via the Internet and be self-administered by the participants. In a placebo-controlled design, Seligman, Steen, Park, and Peterson (2005) tested the effectiveness of five positive interventions for of up to six months after the intervention in a large sample of adults. They found positive effects on happiness and depressive symptoms for the *gratitude visit-* (writing a letter of gratitude to a person, who has not been thanked so far, reading the letter to this person, and thinking about the feelings during writing and reading the letter¹), *three good things-* (writing down three things that went well on that day and reasoning why those things happened and what emotions were experienced in the respective moments on each day

for one week before going to bed), and *using signature strengths in a new way*-interventions (participants completed the Values-in-Action Inventory of Strengths [VIA-IS; Peterson, Park, & Seligman, 2005; Ruch et al., 2010], which is a questionnaire that assesses the 24 character strengths of Peterson and Seligman's [2004] *Values-in-Action*-classification; participants received an individual feedback on their top five strengths [i.e., their so-called "signature strengths"] and were instructed to use them in a new way on each day for one week in their daily activities) in comparison with a placebo control exercise *early memories* (writing down early childhood memories and looking for similarities in these memories on each day for one week before going to bed; this exercise focuses on listing facts rather than perceived emotions associated with the memories). These findings have recently been well replicated in a study using German-speaking participants (Gander, Proyer, Wyss, & Ruch, 2013). Gander et al. (2013) also tested further interventions and variants of existing interventions and found a humor-based variant of the 'three good things'-intervention (the *three funny things*-intervention; i.e., writing about the three funniest things that happened during the day and reasoning why those things happened on each day for one week before going to bed), to be the most effective intervention in reducing depressive symptoms. It has been argued that writing about three funny things may induce *amusement*, which is one important facet of positive emotions (see Güsewell & Ruch, 2012; Ruch, 2009). In the Gander et al. (2013) study it has further been argued that amusement can be a buffer against negative states and experiences. Additionally, amusement has been associated with other positive functions such as enabling social bonds (Ruch, 2009).

There is broad empirical evidence that positive interventions may be effectively administered via the Internet (e.g., Abbott, Klein, Hamilton, & Rosenthal, 2009; Gander et al., 2013; Mitchell, Stanimirovic, Klein, & Vella-Brodrick, 2009; Mongrain & Anselmo-Matthews, 2012; Schueller & Parks, 2012; Seligman et al., 2005; Shapira &

Mongrain, 2010). However, none of these studies had a focus on people of higher age and, thus, information on the applicability and effectiveness of such interventions in samples aged 50 and older is rather limited. The main aim of this study was narrowing this gap. For this purpose, we tested the impact of the interventions that were effective in Seligman et al. (2005) plus the revised ‘Three funny things’-intervention for which we expected comparable effects than for the ‘Three good things’-intervention. Dependent variables were long-term changes in happiness (we expected an increase) and depressive symptoms (amelioration).

We were interested in sustainable changes in happiness and depressive symptoms and, therefore, not only assessed changes in the dependent variables directly after the intervention, but also after one, three, and six months. We expected that findings for our sample of people aged 50 and above would mirror findings reported for samples with mainly younger participants. Thus, all interventions should be effective in increasing levels of happiness and ameliorating depressive symptoms.

Method

Participants

A total of 510 participants were randomly assigned to the intervention groups or the placebo control group (see Figure 1).

Insert Figure 1 about here

All in all, 32.0% completed the interventions and all four follow-up assessments. The final sample consisted of $N = 163$ adult females, aged 50 to 79 ($M = 55.58$, $SD = 5.16$). About half of the sample was married or in a registered partnership (51.5%), 11.7% were in a relationship, 11.0% were single, 23.9% were divorced or living in separation, and 1.8% were widowed. Close to three quarters of the sample had children (76.7%). The

sample was well-educated: More than half of the sample (55.2%) had a degree from a university or a university of applied sciences, 13.5% had a degree allowing them to attend university, 29.4% completed vocational training, 1.2% completed secondary education, and one participant (0.6%) had basic schooling only. About three thirds of the sample were currently employed (76.7%), whereas a few were homemakers (11.0%), retirees (9.8%), or currently unemployed (2.5%).

Sample sizes for the intervention groups were $n = 30$ (gratitude visit), $n = 44$ (three good things), $n = 20$ (three funny things), $n = 35$ (using signature strengths in a new way), and $n = 34$ (placebo control group: Early memories). The intervention groups did not differ regarding marital status ($\chi^2[16, N = 163] = 18.69, p = .29$), education level ($\chi^2[16, N = 163] = 17.05, p = .38$), or current occupation ($\chi^2[12, N = 163] = 19.90, p = .07$). However, the age of the participants differed among the groups ($F[4, 158] = 2.55, p = .04$). However, none of the post-hoc tests (Hochberg's GT2) revealed significant differences between two particular groups; the largest difference was found for the comparison between the 'gratitude visit'-group and the placebo control group ($p = .08$), with participants in the former group being on average 3.4 years younger than those in the placebo control group.

Instruments

The *Authentic Happiness Inventory* (AHI, Seligman et al., 2005; in the German version used by Ruch et al., 2010ab) consists of 33 sets of five statements describing the person's feelings during the past week best (e.g., 'My life is a bad one' through 'My life is a wonderful one'). Compared to other happiness measures, the AHI allows for a better differentiation among individuals with high scores in happiness, and is also more sensitive to changes than other happiness measures. Seligman et al. (2005) reported convergent validity with other widely used happiness measures. Various studies, including intervention studies, have applied the AHI and reported high reliabilities (e.g.,

Ruch, Proyer, Harzer, Park, Peterson, & Seligman, 2010; Schiffrin & Nelson, 2010; Schueller & Seligman, 2010; Shapira & Mongrain, 2010). The alpha-coefficient in this sample was .93 (pretest).

The *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977; in the German adaptation by Hautzinger & Bailer, 1993) is a 20-item measure for the presence and duration of depressive symptoms during the past week; a sample item is ‘I thought my life had been a failure.’ Answers are given on a 4-point scale from 0 (= ‘Rarely or None of the Time [Less than 1 Day]’) to 3 (= ‘Most or All of the Time [5–7 Days]’). The CES-D is one of the most frequently used questionnaires for assessing depressive symptoms (Shafer, 2006), and good psychometric properties were reported for the original and the German version (Radloff, 1977; see also Hautzinger & Bailer, 1993). Finally, the CES-D is also sensitive to changes (Hautzinger & Bailer, 1993) and has already been used in intervention studies (e.g., Seligman et al., 2005). The alpha coefficient in this sample was .94 (pretest).

Procedure

Participants registered at a free website affiliated with an institution of higher education in the German speaking part of Switzerland. This site was especially designed for the administration of positive interventions (<http://www.staerkentraining.ch>). A large German bi-weekly magazine with predominantly female readers advertised the study as part of a series of articles on resilience; this generated the main portion of participants. People that were currently undergoing psychotherapeutic or psychopharmacologic treatment or indicated the intake of psychotropic or illegal drugs were excluded from participation. After registration, participants completed the baseline measures of the AHI and the CES-D and were then given the instruction for a one week-intervention. Participants were randomly assigned (via an automated random number generator) to either the ‘gratitude visit’, or the ‘three good things’, ‘three funny things’, or ‘signature

strengths'-intervention, or the placebo control exercise ('early memories'). After the intervention, as well as one, three, and six months after the intervention, participants were notified via email to return to the website to complete follow-up assessments of the AHI and the CES-D. At the first posttest, participants were also asked, whether they have conducted the assigned intervention. Only those participants, who indicated that they had conducted the intervention and completed all posttests, were included in the further analyses. After completing all posttests, participants received individualized feedback on their scores in the AHI and the CES-D, but no other incentives for participation were offered. The federal ethics committee approved this study.

For this study, we analyzed original data, but also re-analyzed data that were available from an earlier study ("earlier data"; Gander et al., 2013). When the earlier study was conducted, we collected additional data for parallel groups that had not been analyzed earlier ("original data"). From both samples (earlier and original data), we analyzed only participants ≥ 50 years of age. The two samples did not differ regarding their expressions in the dependent variables (all comparisons were *n.s.*) and the composition of the samples regarding demographics was comparable. Therefore, we collapsed the samples into one larger dataset; about 59% of the sample sizes for the 'three good things', the 'signature strengths', and the 'gratitude'-conditions were re-analyzed (earlier data), whereas the other part was original data. In doing so we could analyze group sizes that are needed to detect expected effects; based on the effect size estimations for positive psychology interventions by Sin and Lyubomirsky (2009; happiness: $r = .29$; depressive symptoms: $r = .31$), group sizes of approximately 30 to 35 participants were needed to find an effect with an 80% chance in a one-tailed contrast². The initial data collection was aimed at a replication of the study by Seligman and colleagues (2005), thus, there was not a parallel group for the 'three funny things'-intervention since it was newly developed and we only collected additional data for the replication groups (all

original data). Furthermore, since there were no male participants in the ‘three funny things’-group and in the parallel groups, and only few in the other groups, we analyzed only data of female participants.

Results

Preliminary analyses

About one third (32.0%) completed all post measurement time points. This is in the expected range for attrition rates in self-administered online interventions (see Mitchell, Vella-Brodrick, & Klein, 2010). There were no differences between participants who did not complete all follow-ups differed from those with full data regarding age, marital status, education level, employment status, or happiness and depressive symptoms at pretest; all $p > .05$. The intervention groups and the placebo-group also did not differ in their respective dropout rates; $\chi^2(4, N = 510) = 3.22, p = .52$.

Effects of the interventions

Table 1 gives means and standard deviations for all intervention groups and the placebo group across the pre- and post-measurement time points for a first visual inspection of changes at a descriptive level.

Insert Table 1 about here

An inspection of the mean scores in Table 1 suggested trends in the expected direction; i.e., an increase in happiness and a decrease in depressive symptoms in the intervention groups. We further tested the effectiveness of the interventions in comparison with the placebo-activity (early memories; Seligman et al., 2005) by computing planned contrasts (condition \times time interaction for every time period compared with pretest; see Figure 2²).

Insert Figure 2 about here

Figure 2 shows that there were effects for the ‘gratitude visit’ at the time period of one month after the intervention, yet with small effect sizes for both dependent variables (both $p = .07$). Contrary to the expectation there were effects only at the post-test for the ‘three good things’-intervention; the effects for the intervention did not outperform the effect of the placebo control-group at any other time point. The ‘three funny things’-intervention was most effective in terms of a reduction of depressive symptoms (all time points). Additionally, there was an increase in happiness at the six months post measure. The intervention aimed at identifying and using one’s signature strengths in daily activities was most effective in terms of an increase in happiness; i.e., differences at all measurement time points, with the largest effect of all interventions at the one-month follow-up ($\eta^2 = .12$). Additionally, depressive symptoms were reduced at the post-test and the one-month follow-up.

Critical differences

Aside from the reported changes on a *group level*, we were also interested in changes at an *individual level*. Therefore, we compared the number of participants that demonstrated significant increases in happiness and decreases in depressive symptoms between the intervention groups and the placebo control group by calculating critical differences (using a critical p -value of 5%) and comparing the groups with a chi-square test (one-tailed; Fisher’s exact test was used if the expected cell frequencies were smaller than 5). Results showed that there were more participants that showed significant improvements in happiness in the ‘gratitude visit’-group (40.0%) than in the placebo control group (14.7%) after three months ($\chi^2 [1, N = 64] = 5.23, p = .02$). For the ‘three good things’-group there was a marginally significant difference at the immediate post-test compared to the placebo control group (18.2% vs. 5.9%; $\chi^2 [1, N = 78] = 2.60, p =$

.10). In the ‘signature strengths’-group were more participants with increases in happiness than in the placebo control group after one (40.0% vs. 20.6%; $\chi^2 [1, N = 69] = 3.07, p = .04$) and three months (40.0% vs. 14.7%; $\chi^2 [1, N = 69] = 5.53, p = .01$). There were no differences in happiness between the ‘three funny things’-group and the control group. However, for depressive symptoms, there were more participants that indicated a significant reduction in the ‘three funny things’-group than in the control group at immediate post-test (55.0% vs. 23.5%; $\chi^2 [1, N = 54] = 5.47, p = .01$). Also, there was a marginally significant effect for the ‘gratitude visit’ after three months (38.7.0% vs. 23.5%; $\chi^2 [1, N = 65] = 1.75, p = .10$). Finally, there was one unexpected finding: After one month, there were less participants in the ‘three good things’-group (15.9%) than in the placebo control group (32.4%) that showed a significant reduction of depressive symptoms ($\chi^2 [1, N = 78] = 2.92, p = .04$). However, this effect disappeared in the following assessments; i.e., after three and six months.

Discussion

This study provides support for the notion that interventions developed in the realm of positive psychology (so called *positive psychology interventions*, PPIs) proved effective for increasing well-being and ameliorating depressive symptoms among people aged 50 and above. This study may break the ground for further research on PPIs for people starting from a middle age. The findings are encouraging and may justify stronger consideration of such techniques in research and in the future also in practice. The single interventions differed in their effectiveness (time point, dependent variable), but all seemed useful for participants in this age group. Although there were differences in the effectiveness of the intervention in comparison with earlier studies that were based on younger samples, the interventions seem to contribute to well-being in this age group as well. The findings are also encouraging regarding the usefulness of self-administered online-interventions with participants of higher age.

The ‘three good things’-intervention is among those interventions that typically demonstrate the strongest and most enduring effects in intervention studies (Gander et al., 2013; Mongrain & Anselmo-Matthews, 2012; Seligman et al., 2005). However, in the present data, there were only effects (for happiness and depressive symptoms) at the immediate post-test. This finding was unexpected given what has been reported in earlier studies. One might argue that the instructions provided the participants for this intervention need refinement. Unfortunately, we do not know what the participants noted when writing down their daily three good-things. It would be interesting to see in a future qualitative study whether there are age-dependent differences in these productions. If so, age-specific amendments to the instruction might be useful and strengthen the effectiveness of the intervention in this age group.

The findings for the ‘three funny things’-intervention were different from those of the other two interventions: It led to an increase in happiness at the six-months time point and to an amelioration of depressive symptoms in *all* post-measures. Hence, it was the most effective strategy for ameliorating depressive symptoms in this study, as it had been in an earlier study by Gander et al. (2013). In comparison with the ‘three good things’-intervention one might argue that the ‘three funny things’ is perhaps more strongly directed at incidents that are associated with positive affectivity and that this type of intervention has the potential to elicit the emotion of amusement (see Ruch, 2009). It can only be speculated whether participants of this age group thought more about the ‘big picture’ and wrote about more general things in the ‘three good things’-conditions, but more about current and immediate incidents when thinking about the three funniest things of the day. Thus, a difference might be that the funny events are more narrow and, therefore, only associated with positive emotions, but that three good things may relate to incidents that are considered positive, but, more so in a general way. However, this is at the level of speculations at the moment and needs further testing.

The ‘using signature strengths in a new way’-intervention was associated with an increase in happiness in *all* post-measures. It also ameliorated depressive symptoms in the post-test and one month after the intervention. As in previous studies, this intervention was among the most effective ones. Again, these findings lend support to the notion that character strengths play an important role for an individual’s well-being (Peterson & Seligman, 2004; see also e.g., Buschor, Proyer, & Ruch, 2013; Park, Peterson, & Seligman, 2004; Peterson, Ruch, Beermann, Park, & Seligman, 2007; Proyer, Ruch, & Buschor, 2013). Character strengths have not yet been studied in much detail in older people—the exceptions are closer investigations of single strengths (Ruch et al., 2010ab). This is unexpected since Peterson and Seligman (2004) argue that character strengths are malleable and that strengths may increase due to further practice (i.e., with higher age; see Ruch et al., 2010b).

The ‘gratitude visit’ led to a marginally significant increase in subjective well-being and a reduction in depressive symptoms in the one-month post-intervention measure. Earlier studies reported stronger (Seligman et al., 2005) and longer lasting effects for this intervention (Gander et al., 2013). For the case of this intervention one might speculate as to whether the interplay with the age of the participant plays a stronger role than in other interventions. Thinking about a person that played an important role in one’s own life and missed opportunities for expressing ones gratitude might also have aversive effects. Again, we suggest specifying the instruction for this intervention; e.g., by focusing on recent events and people involved in those activities.

There is a potential for positive interventions in research and practice of gerontology and geriatrics. Positive psychology interventions conducted over the Internet are cost-effective and the findings demonstrate that they also seem to be feasible for people of comparatively advanced age. All interventions were self-administered and, aside from a computer connected to the Internet, they do not require any materials or

specific soft- or hardware. Recent statistics show that the majority of Swiss people older than 50 currently have access to the Internet and use it actively. For example, between April 2012 and March 2013, about 70.9% of the Swiss people aged between 50 and 69 years accessed the Internet on a regular basis (i.e., multiple times per week) and this percentage is constantly increasing (Swiss Federal Statistical Office, 2013). Hence, there seems to be a potential for such web-based program for people in this age group.

This study has several *limitations*. The sample consisted only of females and a large portion of the sample were readers of a women's magazine. Thus far, no gender effects were reported for the effectiveness of positive psychology interventions. Nevertheless, it would be desirable to replicate and extend these findings with more diverse samples. Despite the high number of people of this age group who are using the Internet on a regular basis, it cannot be concluded that the sample is representative for the population aged 50 and above—especially people of even more advanced age groups are underrepresented. Thus, the generalizability of the findings needs to be shown empirically. The sample sizes were comparatively small and the size of the 'three funny things'-group differed from the others, resulting in low statistical power. Also, most of the effect sizes found were considerably lower than those reported by Sin and Lyubomirsky (2009). Although the attrition rate was in an expected range (see Mitchell et al., 2010), a relatively large number of participants did not complete all post measurement time points. Follow-up studies need to develop techniques that ensure greater adherence to the program (e.g., greater flexibility with the time points for testing). For this study, we did not vary the instructions of the intervention. In future studies it seems advisable to make amendments to the instructions for increasing the person \times intervention-fit. It has been argued that the economy in the presentation and conduct of the study is a plus for this type of interventions. However, it needs to be acknowledged that individually conducted interventions and those that are conducted with groups could

be more effective (Sin & Lyubomirsky, 2009). We do not yet have experience with the effectiveness of these interventions in clinical groups of middle-aged and older adults. However, findings from other research groups (e.g., Hirsch et al., 2010; Konradt et al., 2013; Ramírez et al., 2013) are encouraging. The question arises on the suitability of the current design for clinical populations. Especially in groups of participants lacking energy and zest there might be problems with high attrition rates when self-administered interventions that are probably less binding on the side of the participants are used (since there is no person for direct interactions aside from a contact person via e-mail). It also needs to be clearly stated that it is *not* proposed that these interventions are intended to replace current treatment techniques for patients, but that they might be an effective *supplement*—one that is also directed at people from the general public (non-clinical groups) that want to actively develop their well-being. However, further research is needed to see whether these expectations can be met.

Critics of positive psychology sometimes argue that it is a *prescriptive* discipline that follows a dogmatic principle of happiness. Of course, this is a misunderstanding and the aim is *not* to ignore problems or challenges people face (e.g., due to illnesses, personal losses, or other critical life events). Rather, the aim of this type of studies is to evaluate simple techniques that can help improving people's well-being and that may help to either buffer daily hassles and problems, or contribute to a faster recovery from serious problems (e.g., illnesses; see Peterson, Park, & Seligman, 2006). Positive interventions in middle-aged and older adults can help increase well-being and more research needs to be done for a better understanding of its underlying processes and working mechanisms.

Conflicts of interest

The corresponding author states that there are no conflicts of interest.

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Footnotes

¹ Given space restrictions we paraphrase the original instructions here only. We give the core instructions. In our studies we use these instructions plus some further explanations on how to conduct the study and give some examples to make it easier following the instructions. We also provide a working sheet for download that can be used by the participants for the practical completion of the intervention (e.g., giving space for completion of an intervention on Day 1, Day 2, and so forth). The full instructions are available from the authors.

² A Table with all *F*-scores for the comparisons has been uploaded as supplemental material (Table 2).

Table 1

Means and Standard Deviations of the Ten Groups at the Five Time Periods for Happiness and Depressive Symptoms

	<i>N</i>	Pre		Post		1 M		3 M		6 M	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>Happiness</i>											
Gratitude visit	30	93.33	18.54	92.43	19.18	97.43	20.38	98.43	23.21	97.93	22.57
3 good things	44	96.98	16.93	100.50	17.74	99.86	20.50	99.95	22.70	98.11	22.55
3 funny things	20	101.45	10.59	99.95	13.74	103.20	12.35	104.25	21.69	107.80	19.43
Signature strengths	35	98.43	18.02	101.26	16.94	108.54	21.11	106.26	20.87	106.97	21.04
Early Memories	34	95.85	13.57	94.56	14.26	95.71	14.51	97.97	15.81	96.38	17.99
<i>Depressive Symptoms</i>											
Gratitude visit	30	18.27	13.34	15.93	12.77	12.03	10.22	12.80	9.63	14.73	12.88
3 good things	44	12.95	10.42	8.89	9.25	12.45	11.79	12.36	11.51	13.30	11.47
3 funny things	20	17.80	11.29	9.05	6.10	11.00	8.05	11.40	12.52	12.15	11.33
Signature strengths	35	14.97	12.19	9.00	8.34	9.49	10.46	11.06	11.13	10.57	9.24
Early Memories	34	13.59	9.08	11.56	7.44	11.12	8.61	10.88	9.30	12.50	9.47

Note. Happiness = Authentic Happiness Inventory, Depression = Center for Epidemiologic Studies Depression Scale. 1 M = one month after the intervention, 3 M = three months after the intervention, 6 M = six months after the intervention.

Figures

Figure 1: Flow of participants through each stage of the study.

Figure 2: Happiness and depressive symptoms among the groups at the five measurement periods.