Journal of Happiness Studies
https://doi.org/10.1007/s10902-020-00245-5

RESEARCH PAPER

Is Awareness of Strengths Intervention Sufficient to Cultivate Wellbeing and Other Positive Outcomes?

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Abstract
Contemporary theories of wellbeing have offered an alternative to traditional psychology by emphasizing strengths rather than weaknesses as a means of leveraging growth and improvement. The present study examined whether cost-effective strengths interventions through self-reflection on strengths versus weaknesses, without teaching or feedback, can bring positive outcomes and limit the negative effects that the first university examination period has on first-year students. One hundred and three students were randomly assigned to three conditions: focus on strengths, focus on weaknesses, or focus on neutral experiences. The students kept a weekly written record of their experiences. Participants completed self-report questionnaires examining psychological wellbeing, psychological distress, positive and negative affect, self-esteem, and optimistic and pessimistic views of the future at the beginning and at the end of the intervention. Results indicate that reflecting on strengths for a 5-week period prior to exams prevented the surfacing of negative emotions and distress, as well as a decline in wellbeing due to the impending examination period. The intervention also enhanced feelings of optimism about the future. Baseline levels of self-esteem and positive affect determined who would achieve the greatest improvement in mood by reflecting on strengths. In conclusion, the study findings suggest that awareness-of-strengths interventions elicit more desirable psychological outcomes than do interventions focused on weaknesses or on neutral events. The study also shows that cost-effective, easy-to-administer strengths interventions can produce positive outcomes. Implications for consulting are discussed.

Keywords Intervention · Strengths · Stress reduction · Weaknesses · Wellbeing

1 Introduction

With the rise of the new field of positive psychology in the last two decades, there has been a shift in research from exploring deficit, damage, and how suffering can be prevented and diminished, to exploring how quality of life, happiness, growth, and meaning can be built and achieved (Seligman 2002; Seligman and Csikszentmihalyi 2000). This shift, stemming

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Published online: 12 March 2020

from the increasing awareness of the importance of wellbeing to human life, has encouraged the search for ways to enhance it (Zimmerman 2010(. As a research field, positive psychology focuses on three intertwined elements: positive emotions, positive institutions, and positive virtues or strengths (Seligman 2002), all of which can be cultivated.

Contemporary theories of wellbeing endorse the approach that wellbeing can be better attained by focusing on and emphasizing one's strengths (Clifton and Hodges 2004; Seligman 2002). Studies have supported this claim and have shown that strengths interventions can boost wellbeing and other psychological measures (Ghielen et al. 2017; Quinlan et al. 2012; Schutte and Malouff 2019).

One of the best ways to advance our understanding in the field of strengths interventions appears to be examining the mechanisms that underlie the benefits thereof (Quinlan et al. 2012). It has been contended that most strengths interventions are time consuming and costly. However, it is not known whether cost-effective interventions can lead to results similar to those previously reported. To answer this question, we examined the impact of a cost-effective, strengths-focused intervention and the mechanism underlying its effects.

1.1 Strengths

In recent years, significant advances have been made in research on strengths, which are viewed as an independent sub-discipline of wellbeing research. Individual strengths have been widely studied as isolated positive traits, but according to positive psychology theory, individual strengths are regarded as a collective unit with shared key defining characteristics. Each individual strength can be understood in relation to the others as part of a larger framework (Gillham et al. 2011; Quinlan et al. 2012; Seligman et al. 2007). Strengths researchers maintain that shining a spotlight on an individual's strengths and enhancing the use thereof promotes growth and wellbeing (Clifton and Hodges 2004). In addition, it is also broadening and building the resources needed for coping with future difficulties; and enhances creativity, learning, and personal growth (Fredrickson 2001; Jiménez et al. 2012; Snyder et al. 2011). The enhanced positive affective states created by strengths awareness and use broadens one's attention, perspective, thoughts, and activities; and builds resilience, creativity, learning, and personal growth; thus enabling one to better appreciate and embrace the positive aspects of one's life. This view differs from the prevailing one in traditional psychology, which seeks to achieve goals by raising awareness of one's weaknesses and by focusing on overcoming them (Linley and Harrington 2006; Seligman 2002).

Many definitions of strengths appear in the literature. According to a common one, strengths can be regarded as a core group of positive traits or processes (Lopez et al. 2015), or as the capacity for behaving, thinking, or feeling in such a way as to enable optimal functioning and performance (Clifton and Hodges 2004; Linley and Harrington 2006). A growing body of research has focused on strengths as they are manifested spontaneously in daily life (e.g., Peterson and Seligman 2004; Reis et al. 2000; Seligman et al. 2005). Seligman and Csikszentmihalyi (2014) defined strengths in daily life as one's strongest qualities, or those that one is best at. We used this definition in the present study.

Strengths are relevant in various settings and aspects of daily life, including in occupational settings (Kong and Ho 2015; Lavy and Littman-Ovadia 2017), schools and institutions of higher education (Gillham et al. 2011), and coaching-related settings (Linley and Harrington 2006). For example, character strengths have been associated with a sense of meaningfulness and productivity at work (Littman-Ovadia and Lavy 2016). In education, using strengths was found to be related to scholastic, personal, social, and career

development outcomes for elementary, middle, and secondary school students (Galassi 2017).

1.2 Strengths and Wellbeing

Individual differences in strengths, as they manifest in daily life, are expected to affect one's wellbeing. Correlational studies have shown that strengths often correlate with wellbeing, as measured in various ways (Harzer 2016; Park and Peterson 2006, 2008; Park et al. 2004). One study reported that the correlation between strengths and wellbeing explained 2.1% of the variance when controlling for self-esteem and self-efficacy (Proctor et al. 2011). Yet it appears that all of the studies demonstrating the association between strengths and wellbeing are correlational, so that it is not possible to draw conclusions about a causal relationship between the two.

However, longitudinal studies on strengths provide a prospective view, suggesting that use of one's strengths correlates with enhanced wellbeing over time. For example, using strengths was correlated with goal attainment (Linley et al. 2010), coping with difficulties (Macaskill and Denovan 2013), and lower levels of stress (Wood et al. 2011). In the educational domain, Gillham et al. (2011) found that during adolescence, strengths that assist in interpersonal networking and in beyond-the-self causes (e.g., kindness, teamwork) at the beginning of high school, predict wellbeing through the end of 10^{th} grade.

1.3 Strengths and Other Psychological Measures

The literature suggests that strengths are also related to other measures, such as self-esteem, positive emotions, optimism, and mental health. Conceptually, individual differences in strengths, as they manifest in daily life, are expected to be associated with the individual's levels of self-esteem (Clifton and Hodges 2004; Seligman 2002), which is generally defined as the individual's *subjective* evaluation of her worth as a person (Donnellan et al. 2011). Empirical research generally supports the association between strengths, wellbeing, and self-esteem. Ryff and Singer (2008) suggested that psychological wellbeing is dependent upon several dimensions, including self-acceptance.

Another important variable related to strengths is emotions. Theoretically, it has been suggested that core strengths may lead to more positive emotions and other positive outcomes (Seligman 2011). Others contend that experiencing positive emotions expands one's range of thoughts and actions, which in turn enhances wellbeing (Fredrickson 2004). Empirically, it has been found that character strengths showed low to moderate positive correlations with positive emotions (<0.40) (Güsewell and Ruch 2012). Similarly, strengths are also related to optimism, and overall levels of character strengths are positively related to satisfaction with one's past (Peterson and Seligman 2004) and optimism about one's future (Lee Duckworth et al. 2005). In an empirical study, optimism correlated to greater psychological wellbeing (Carver et al. 2010), ability to inhibit negative emotions (Assad et al. 2007), and other positive measures.

Strengths are also associated with mental health. Research suggests that recovery from serious illness or psychological disorder can be associated with increased endorsement of specific character strengths (Peterson et al. 2006). Some character strengths have been associated with better mental health (Petkari and Ortiz-Tallo 2018). One study, however, failed to find an association between mental and physical health-related quality of life and strengths (Proctor et al. 2011).

1.4 Strengths-Based Interventions

Given the positive effect of strengths, we expect strengths-focused interventions to lead to better results than do weakness interventions, as the former have been theoretically linked to intrinsic motivation and fast learning (Peterson and Seligman 2004). In a previous study, strengths intervention led to more positive results than did deficit intervention (Meyers et al. 2015). Yet the results of strengths intervention are also somewhat limited, as some studies did not find a significant effect on negative affect (Schutte and Malouff 2019), life satisfaction, work engagement, and burnout (Meyers and Woerkom 2017); and some of the positive effects found were not maintained in a follow-up (Meyers and Woerkom 2017). Nevertheless, several types of strengths interventions have been documented to lead to positive results, typically focusing on creating awareness of one's strengths or on endorsing strengths (i.e., Ghielen et al. 2017; Quinlan et al. 2012; Schutte and Malouff 2019). Most of the interventions focused on endorsement and use of strengths, encouraging individuals to use their strengths more than they would otherwise. Some strengths-based interventions, however, focus on awareness, encouraging self-awareness regarding strengths.

In most studies, strengths endorsement and use interventions have shown promise (Schutte and Malouff 2019). Interventions focusing on teaching about strengths or using strengths have been shown to enhance wellbeing and other positive outcomes, such as positive emotions and happiness (Ghielen et al. 2017; Quinlan et al. 2012). A review found small to moderate effect sizes (Cohens d 0.07 to 0.15) in strengths interventions designed to increase wellbeing (Quinlan et al. 2012). In the workplace, enhanced use of strengths as a result of interventions has led to higher levels of harmonious passion for work and increased wellbeing (Dubreuil et al. 2014). Applying strengths at work has also been associated with positive effects on job satisfaction, engagement, and meaning (Harzer and Ruch 2012). Lavy and Littman-Ovadia (2017) found that after receiving feedback on their character strengths, an intervention focusing on using character strengths at work was associated with productivity and job satisfaction, mediated by higher positive emotions and engagement. Employees' ability to use character strengths in their work was also found to be critical in predicting job satisfaction (Littman-Ovadia and Steger 2010).

Interventions that focus on both strengths identification and feedback also show positive outcomes. For example, interventions that provide participants with feedback on their personal strengths have been found to lead to desirable outcomes, such as higher academic performance (Harter 1998), as well as higher self-confidence and hope (for a review, see Lopez et al. 2005). Interventions focusing on strengths training and feedback were found to improve proactivity in personal development (Meyers et al. 2015), increase the fulfillment of need for relatedness (Quinlan et al. 2015), reduce depression, and increase happiness and life satisfaction (Seligman et al. 2006; Seligman et al. 2005). In another study, after learning about strengths and identifying personal strengths at the start of a college semester, students' strengths awareness was significantly and positively associated with their sense of belonging and retention, with the model explaining 42% of the variance (Soria and Stubblefield 2015).

Interventions focusing on awareness typically stress the range of character strengths (Park et al. 2004) and are facilitated by experts who provide feedback. In contrast, we suggest that facilitating self-awareness of strengths in general may serve as another mechanism of strengths development. Raising awareness of strengths counterbalances the negativity bias, stimulates a focus on the positive and a sense of self-worth, and encourages one to use one's strengths. It has been reported that awareness of variability, which refers to

developing context sensitivity and distinguishing between various phases of experiences, rather than perceiving them as a single, steadily worsening chain of events, resulted in improved performance (e.g., Gardner and Moore 2004; Langer and Chanowitz 1981), better health (e.g., Crum and Langer 2007; Delizonna et al. 2009), enhanced wellbeing (Niemiec and Lissing 2015), and enhanced life satisfaction (Zilcha-Mano and Langer 2016). The positive effect of becoming more aware of changes may also raise awareness of strengths in daily life. Gaining awareness of the variety of strengths they possess, and exploring them, may enable individuals to go beyond relying on preconceived notions, classifying themselves as good or bad, focusing on a small number of strengths, or choosing from a list of strengths. Rather, such awareness may cause them to become more aware of the variety of strengths they possess, and explore them. General awareness of one's strengths, and attention thereto, may explain the positive effects of strengths-based interventions found in previous studies. Therefore, we can expect that the benefits of using strengths more often or of focusing on a list of strengths, can be replicated merely by asking participants to be more aware of their strengths in general, without the need to make more extensive use of them, thus rendering the intervention more cost effective.

1.5 Cost-Effective Community Intervention

Most strengths development appears to involve some personal contact or online instruction (Ghielen et al. 2017; Quinlan et al. 2012). In many fields of psychology, attention has been focused recently on short, cost-effective interventions for the community (as opposed to the traditional focus on clinical samples), with emphasis on interventions that can help large and diverse populations, with minimal budgets. These interventions may be executed without a trained professional, at minimal cost, to a variety of populations (for example, students studying at the same university and facing the same exams).

Reflective journals are a cost-effective tool (e.g., Moosath and Jayaseelan 2016; Pennebaker et al. 1988; Reiter and Wilz 2016) that can be combined with any study course, and is therefore especially useful in higher education settings. Journals can help students' reflection process and promote metacognitive skills by providing a medium for recording their thoughts (Walker 2006). Journals also enable individuals to become aware of strengths that they possess and of how they use these. Journals are a self-directed learning method that has been recommended in personal development processes, in particular for students (Boyatzis 2009). They enable individuals to work at their own pace, with the strengths they identify as most relevant and important to them.

1.6 The Present Study

In a randomized assignment, the present study compared the benefits of reflecting on strengths by means of a strengths-focused journal, with those of reflecting on weaknesses and on neutral experiences. The journals enabled us to examine whether the benefits of strengths can manifest by mere awareness of them, and to assess whether awareness is one of the active ingredients (Kabat-Zinn 1994) underlying the effect of strengths-based interventions. Therefore, participants were not asked to identify specific strengths or to use their strengths more than they otherwise would have, and were not taught about strengths. Based on previous meta-analyses on strengths intervention (Ghielen et al. 2017; Quinlan et al. 2012; Schutte and Malouff 2019), this study appears to be the first to seek to raise awareness of strengths without having to learn,

identify, or use them more than participants otherwise would have. The present study aimed to add to the growing interest in easy-to-administer, cost-effective strengths interventions. We expected the strengths intervention to lead to a more positive outcome than would the weakness (Hiemstra and Van Ypern 2015; Meyers et al. 2015) and neutral condition interventions (Harzer and Ruch 2016).

We examined the effects of keeping a strengths-focused journal (rather than focusing on weaknesses or neutral events) on the ability of first-year students to cope with their first university examination period. The exam period was chosen because of the negative outcomes it can produce. The transition from high school to university can be demanding and stressful, requiring greater independence and self-regulation than previously (Bryde and Milburn 1990). During this period, students tend to report a decrease in their level of wellbeing and a concomitant increase in negative feelings (e.g., Chemers et al. 2001; Flett and Blankstein 1994; Lizzio and Wilson 2013; Naveh-Benjamin et al. 1997). It has been found that increased wellbeing and positive feelings are likely to lead to increased focus and in turn increased learning (Seligman et al. 2009), academic success, and self-esteem (Berger et al. 2011).

Because of the association between self-esteem and strengths, strengths-based interventions may be effective for those who already enjoy reasonable levels of wellbeing or positive affect upon which to improve, yet in times of distress or crisis may find strengths-based interventions to be ineffective. The perception of "the rich get richer" is common in several fields of research (e.g., Cooper 2008; Gross et al. 2002; Stohlgren et al. 2003), and evidence suggests that the phenomenon may exist to some extent in strengths-focused research as well (Otake et al. 2006). Individuals coping with self-esteem and affect problems, during university examination period, may find it difficult to derive benefits from strengths intervention. This study is the first to assess whether these students may have a particularly difficult time benefiting from strengths interventions and may need special help in the examination period.

1.7 Aims

Our randomized trial had two aims:

1. **Aim 1** Examine the positive effects of awareness of strengths on wellbeing and other psychological measures

   Hypothesis We expect that a cost-effective intervention designed to induce a state of enhanced awareness in personal strengths, without asking participants to use their strengths more than they would otherwise, will replicate the benefits of previous strengths interventions on wellbeing and other psychological measures, leading to more improvement than in weakness and neutral conditions.

2. **Aim 2** Examine the effect of pre-intervention self-esteem and positive affect on the relationship between awareness of strengths and psychological measures.

   Hypothesis We expect participants with higher self-esteem and positive affect pre-intervention to benefit more from an intervention focusing on strengths than will participants with lower self-esteem and positive affect.

2 Method

2.1 Participants

Participants were recruited through ads at all universities nationwide, and through online student forums. The study was given broad publicity to obtain as large a sample as possible. One hundred and sixteen undergraduates were recruited. We removed from the final analyses three participants who submitted missing or incomplete data. Ten other participants from the Arab Israeli group declined to participate in the weakness focus group, and therefore we excluded them from the study. These participants did not differ from other Arab Israeli participants in the study on any demographic or pre-intervention measures.

The final sample included 103 students (94 women and 12 men, ranging in age from 18 to 49 years, M = 23.27, SD = 4.29). Participants were randomly assigned to one of the three conditions; strengths-focused conditions (n = 42, 13 Hebrew-speakers; 11 English-speakers who had recently immigrated from Europe and the US and begun their undergraduate studies; and 18 Arabic-speakers); weakness-focused condition (n = 21, 9 Hebrew-speakers; 12 English-speakers); neutral events condition (n = 40, 11 Hebrew-speakers, 9 English-speakers, and 20 Arabic-speakers). The inclusion criterion was being a first-year student. We avoided using any other exclusion criteria, aiming to achieve good general validity of the findings. The study was approved by the Interdisciplinary Center (IDC) institutional review board (approval no. 03/09). All participants received a verbal explanation and signed a consent form before participating in the study, stating that their participation was entirely voluntary and that they may leave the study at any time, unconditionally. This was intended to ensure that no harm would be caused to the participants. The data were obtained anonymously, and no names were used on the research report. Participants were informed that after completion of the research, they would be able to discuss the procedure and the findings with the research assistant. Participants joined voluntarily, and there was no funding or conflict of interest.

2.2 Procedure

A pilot study was conducted to ensure that the instructions were clear to all. Participants in the pilot exhibited good understanding of all questionnaires used in the study, and were not included in the study itself. Following the pilot study, we randomly assigned participants to three experimental conditions and asked them to keep weekly written records of their strengths, weaknesses, and neutral events. Participants completed a battery of psychological measures (i.e., psychological distress and wellbeing, optimism, positive and negative affect, and self-esteem) both immediately before the intervention and 1 week after its completion.

After completing the pre-intervention psychological measures, we informed participants that they would maintain an online semi-structured journal in their native language once a week, for a period of 5 weeks, before the start of the examination period. Each participant received a code number to enter the online journal. Participants were monitored anonymously. We contacted participants by e-mail weekly to ensure compliance with the online journal protocol. Participants were not restricted to a given number of words or sentences, and were free to determine how much they wanted to elaborate. In the *strengths-focused*

condition, participants were asked to write a weekly online semi-structured journal as per the following instructions:

> We are interested in gaining insight into your personal strengths. In other words, we would like to understand what it is that you are good at. Think back over the past week and write about your personal strengths – the things that you are good at – in relation to experiences that you had during the past week. Be as specific and detailed as you can when you describe the experiences in which your strengths manifested. There is no correct answer to this question. Write down, without concern for grammar or clarity, whatever comes to mind.

In the *weakness-focused* condition, participants were asked to write a weekly online semi-structured journal as per the following instructions:

> We are interested in gaining insight into your personal weaknesses. In other words, we would like to understand what it is that you are not good at. Think back over the past week and write about your personal weaknesses – the things that you are not good at – in relation to experiences that you had during the past week. Be as specific and detailed as you can when you describe the experiences in which your weaknesses manifested. There is no correct answer to this question. Write down, without concern for grammar or clarity, whatever comes to mind.

In the *neutral events* condition, participants were asked to write a weekly online semi-structured journal as per the following instructions:

> We are interested in gaining insight into your personal weekly experiences. Think back over the past week and write about experiences that you had during this week that had some effect on you. Be as specific as you can when you describe these experiences. There is no correct answer to this question. Write down, without concern for grammar or clarity, whatever comes to mind.

These written instructions appeared at the top of each weekly report, followed by blank lines for participants to list strengths, weaknesses, or neutral life events. We instructed the participants to complete the journal toward the end of the final weekday, and told them that their notes were meant to summarize events that occurred throughout the week. After 6 weeks, all participants returned to the laboratory and were asked to retake the entire pre-intervention battery of questionnaires. To control for order effects, the order of the questionnaires was counterbalanced across participants. The study was conducted in 2014, and it took 3 months to collect the data. The questionnaires were distributed in the laboratory, and the study was conducted by research assistants (third-year BA students majoring in psychology). The research assistants were continually trained in conducting the study by the senior author (SZM) throughout the duration of the study.

2.3 Measures

All measures were translated from English into Hebrew and Arabic, then back translated into English by translators (two for each language, for the forward and back translations).

2.3.1 Mental Health Inventory (MHI; Veit and Ware 1983)

A self-report measure assessing mental health. The MHI includes two subscales: psychological wellbeing, and psychological distress. Each item was answered with reference to the preceding week, using a 6-point scale, ranging from 1 = "strongly disagree" to 6 = "strongly agree". For example: "Felt tense or high-strung" (psychological distress); "Felt difficulty trying to calm down" (psychological distress); "Felt calm and peaceful." (psychological wellbeing). The MHI has previously demonstrated strong reliability of the two subscales, ranging from 0.92 to 0.96, and convergent and discriminant validity (Veit and Ware 1983). Cronbach's alphas in the current study, for both psychological wellbeing (0.85 and 0.87 pre- and post-intervention respectively), and for psychological distress (0.93 for both pre- and post-intervention) were high.

2.3.2 Positive and Negative Affect Schedule (PANAS: Watson et al. 1988)

A self-report measure assessing positive and negative affect, which includes 20 items comprised of two subscales, positive and negative affect, each consisting of 10 items. Each item is answered with reference to the extent to which participants felt the specified feeling at the moment that they were completing the questionnaire, using a 5-point scale, ranging from 1 = "very slightly or not at all" to 5 = "extremely". Examples of items include: interested (positive affect), excited (positive affect), alert (negative affect). The PANAS previously demonstrated strong reliability of the two subscales, ranging from 0.90 to 0.87, and excellent convergent and discriminant correlations with other measures (Watson et al. 1988). Cronbach's alphas in the current study, for both positive affect (0.86 and 0.90 pre- and post-intervention respectively) and negative affect (0.86 for both pre- and post-intervention) were high.

2.3.3 Rosenberg Self-Esteem Scale (RSE: Rosenberg 1965)

A self-report measure assessing self-esteem, which includes 10 items measuring both positive and negative feelings about the self. Participants were asked to respond to each item using a 4-point scale, ranging from 1 = "strongly disagree" to 4 = "strongly agree". For example: "I feel that I have a number of good qualities", "I am able to do things as well as most other people", "At times I think I am no good at all". The RSE previously demonstrated strong reliability of at least 0.90, and correlated significantly with other similar measures, and negatively with discriminant measures (Rosenberg 1965). Cronbach's alphas in the current study were high (0.85 and 0.87, pre- and post-intervention respectively).

2.3.4 Life Orientation Test (LOT; Scheier and Carver 1985)

A self-report measure assessing optimism and pessimism containing eight items, which together with four additional filler items are rated on a 5-point scale, ranging from 1 = "strongly disagree" to 5 = "strongly agree". For example: "I'm always optimistic about the future" (optimism); "I always look at the bright side" (optimism); "If something can go wrong for me, it will" (pessimism). The LOT previously demonstrated strong reliability of 0.76 (Scheier and Carver 1985). A variety of correlations have also been obtained between the LOT and other measures bearing on convergent and discriminant validity (Scheier and Carver 1985). Cronbach's alphas in the

current study for both optimism (0.73 and 0.79, pre- and post-intervention respectively) and pessimism (0.78 and 0.76, pre- and post-intervention) were satisfactory.

2.4 Statistical Analysis

2.4.1 Preliminary Analysis

First, the weakness-focused condition was contrasted with the neutral events condition for each psychological measure, as they were both comparison groups. If the contrasts did not produce any significant result, the two groups (weakness + neutral conditions) were combined and contrasted with the strengths-focused condition on pre- and post-intervention measurements for each psychological measure.

2.4.2 Aim 1

To examine the positive effects of the awareness of strengths interventions, first a change score was created indicating change from pre- to post-intervention for each psychological measure. Next, we analyzed the data using a one-way ANOVA, with focus condition (strengths-focused, weakness-focused, and neutral events) as a between-subjects independent variable, predicting the change score for each psychological measure. Psychological measures were: positive and negative affect, optimism and pessimism, self-esteem, wellbeing, and psychological distress. If the preliminary analysis did not produce any significant differences between the weakness and neutral condition, we analyzed the data using independent sample *t*-tests (strengths-focused and combined weakness and neutral), predicting the change score for each psychological measure.

2.4.3 Aim 2

To examine the effect of self-esteem and positive affect on the awareness of strengths intervention, two hierarchical regression analyses were conducted examining the significance of the 2-way interaction (affect/self-esteem × focus condition) in predicting the change score for each psychological measure. Following Dawson (2014), we entered in the first step pre-intervention affect/self-esteem and focus condition as centered variables, and in the second step the interaction (affect/self-esteem × focus condition) as centered variables. Reliability coefficients were calculated.

1. The interaction focusing on self-esteem (self-esteem × focus condition) in predicting change in the psychological measure
2. The interaction focusing on affect (affect × focus condition) in predicting change in the psychological measure

3 Results

All participants were anonymously monitored to ensure that they completed the journal weekly. Responses differed in length, but there was no difference in lengths between the three groups. Comparisons of the three conditions on all demographic and pre-intervention measures showed no significant differences, therefore we assumed that all three focus conditions were equal before the intervention. Subsequent coding of the events in the neutral condition as positive,

negative, or neutral revealed that 30% were rated pleasant, 27% unpleasant, and 43% neutral (e.g., a description of the college or work days). This balance indicates that we succeeded in creating a reasonably balanced control condition. Finally, we conducted a manipulation check by three blind assessors who were asked to evaluate, based on themes (Braun and Clarke 2006), to which condition group each written material belonged. Inter-rater validity was 100%.

3.1 Preliminary Analysis

All ANOVA and regression assumptions' preliminary assessments were met. Examination of the groups revealed no difference in the responses of the participants in the weakness-focused and the neutral events groups following the writing manipulation (post-intervention and pre-intervention, and changes from pre- to post-intervention) on any of the psychological scales ($t_{(101)} < 1.12$, n.s. for all 7 scales). Therefore, we combined the two groups in all of the analyses. Table 1 presents the means and standard deviations of the three groups pre- and post-intervention; and Table 2 presents the correlation matrix for all measures.

3.2 Aim 1

The independent-samples T-tests between the strengths-focused condition and the combined group showed that participants in the strengths-focused condition exhibited higher response to the intervention than did participants in the combined group on several of the psychological measures. Participants in the strengths-focused condition were more optimistic ($t_{(101)} = 2.13$, $p = 0.03$, Cohen's $d = 0.43$) and reported higher levels of wellbeing ($t_{(101)} = 3.74$, $p < 0.001$, Cohen's $d = 0.74$), as well as lower levels of negative affect ($t_{(101)} = 2.06$, $p = 0.04$, Cohen's $d = 0.40$) and less psychological distress ($t_{(101)} = 2.36$, $p = 0.02$, Cohen's $d = 0.45$) than did participants in the combined group. The strengths-focused group did not differ from the combined group in positive affect ($t_{(101)} = 1.72$, $p = 0.86$), self-esteem ($t_{(101)} = 0.56$, $p = 0.67$) and pessimism ($t_{(101)} = 0.87$, $p = 0.38$).

We repeated the analysis with MANOVA and obtained similar results. The multivariate result between the strengths-focused condition and the combined group was significant for the intervention group, Pillai's Trace = 0.82, $F = 2.86$ $df = (1,95)$, $p = 0.009$, indicating a difference in the psychological measures between the intervention groups. The results showed that participants in the strengths-focused condition exhibited stronger response to the intervention than did participants in the combined group on several of the psychological measures. Participants in the strengths-focused condition were more optimistic ($F_{(1,101)} = 4.55$, $p = 0.03$) and reported higher sense of wellbeing ($F_{(1.101)} = 14.04$, $p < 0.001$), as well as lower levels of negative affect ($F_{(1,101)} = 4.27$, $p = 0.04$) and less psychological distress ($F_{(1,101)} = 5.60$, $p = 0.02$) than did participants in the combined group. The strengths-focused group did not differ from the combined group in positive affect ($F_{(1,101)} = 0.02$, $p = 0.86$), self-esteem ($F_{(1,101)} = 0.32$, $p = 0.57$), and pessimism ($F_{1,101)} = 0.75$, $p = 0.38$).

3.3 Aim 2

Examination of Hypothesis 2 indicates that both interaction effects (affect/self-esteem × focus condition) were non-significant on almost all of the outcome variables except for positive and negative affect (Fig. 1). This indicates that self-esteem and positive affect did not moderate the effects of the focus condition (Table 3).

Table 1 Means and standard deviations of the psychological measures as a function of focus condition

Focus group	Strength (n = 42)		Neutral (n = 40)		Weakness (n = 21)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Self-esteem						
Pre-intervention	3.20	.50	3.31	.53	3.15	.58
Post-intervention	3.26	.54	3.33	.51	3.13	.57
Positive affect						
Pre-intervention	3.28	.67	3.52	.68	3.21	.92
Post-intervention	3.25	.86	3.55	.79	2.99	.94
Negative affect						
Pre-intervention	2.15	.70	1.90	.68	1.79	.78
Post-intervention	2.09	.81	2.10	.62	1.97	.75
Optimism						
Pre-intervention	2.55	.62	2.84	.79	2.75	.78
Post-intervention	2.75	.68	2.85	.80	2.65	.73
Pessimism						
Pre-intervention	1.52	.77	1.51	.73	1.25	1.03
Post-intervention	1.27	.68	1.38	.79	1.06	.91
Wellbeing						
Pre-intervention	3.25	.98	3.72	.87	3.70	.68
Post-intervention	3.58	.95	3.51	.95	3.47	1.03
Distress						
Pre-intervention	2.89	.99	2.55	.90	2.58	.71
Post-intervention	2.61	.93	2.62	.92	2.68	.92

M mean, *SD* standard deviation

Table 2 Correlation matrix for (a) pre intervention measures, (b) post intervention measures

	Self-esteem	Positive affect	Negative affect	Pessimism	Optimism	Wellbeing
	(a)					
Positive affect	.36**					
Negative affect	−.37**	−.11				
Pessimism	−.54**	−.13	.47**			
Optimism	.58**	.44**	−.13	−.33**		
Wellbeing	.47**	.39**	−.19	−.28**	.52**	
Distress	−.44**	−.25**	.50**	.23*	−.36**	−.47**
	(b)					
Positive affect	.43**					
Negative affect	−.34**	−.14				
Pessimism	−.37**	−.09	.44**			
Optimism	.49**	.51**	−.19	−.39**		
Wellbeing	.44**	.40**	−.36**	−.36**	.54**	
Distress	−.42**	−.47**	.52**	.25*	−.41**	−.46**

*$p < .05$, **$p < .01$

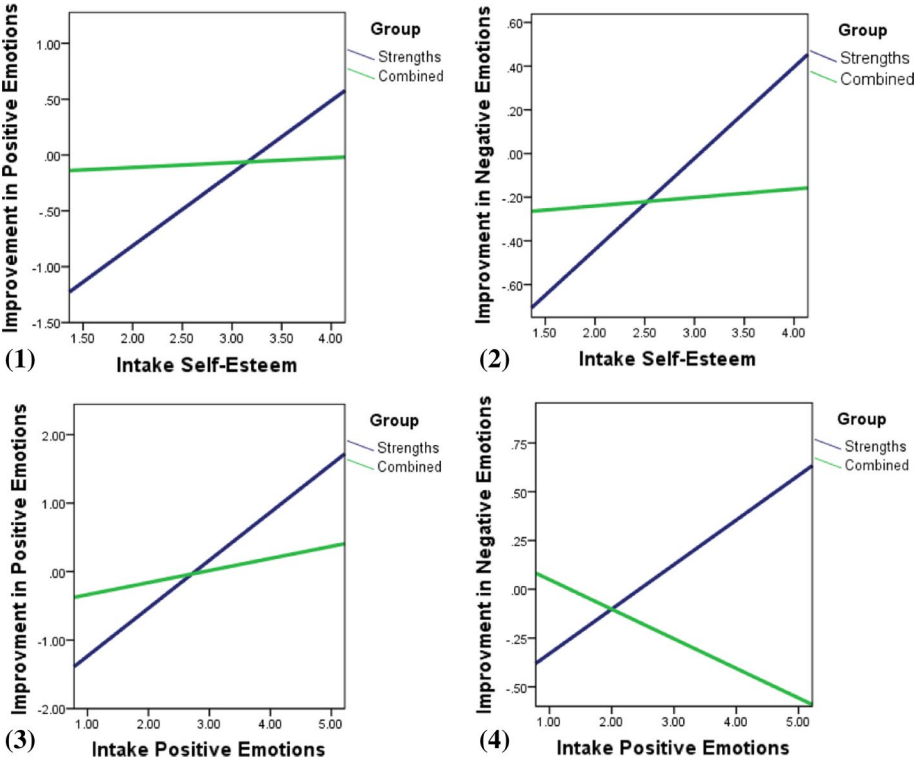

Fig. 1 All significant interactions between focus condition (strengths/ combined) and self-esteem or positive affect in predicting improvement in emotions (positive/negative), higher improvement is better. 1. Self-esteem in predicting improvement in positive emotions. 2. Self-esteem in predicting improvement in negative emotions. 3. Positive affect in predicting improvement in positive emotions. 2. Positive affect in predicting improvement in negative emotions

3.3.1 Self-esteem × focus condition interaction

For positive affect, in the first step, we entered pre-intervention self-esteem and focus group ($\beta = -0.18$, $p = 0.07$, $\beta = -0.02$, $p = 0.79$ respectively; $R^2 = 3.3\%$). In the second step, we entered the interaction effect (self-esteem × focus condition) in predicting improvement in positive affect ($\beta = 0.27$, $p = 0.01$, $R^2 = 7.4\%$). For negative affect, in the first step, we entered pre-intervention self-esteem and focus group ($\beta = -0.15$, $p = 0.12$; $\beta = -0.20$, $p = 0.03$ respectively; $R^2 = 6.3\%$). In the second step, we entered the interaction effect (self-esteem × focus condition) in predicting improvement in negative affect ($\beta = -0.28$, $p = 0.01$, $R^2 = 8.7\%$).

3.3.2 Positive affect × focus condition interaction

For positive affect, in the first step, we entered pre-intervention positive affect and focus group ($\beta = -0.33$, $p = 0.001$, $\beta = 0.01$, $p = 0.89$ respectively; $R^2 = 11.3\%$). In the second step, we entered the interaction effect (positive affect × focus condition) in predicting improvement in positive affect ($\beta = 0.26$, $p = 0.01$, $R^2 = 16.8\%$). For negative affect, in the first step we entered pre-intervention positive affect and focus group ($\beta = 0.02$, $p = 0.76$;

Table 3 FSS (a) Pre intervention self-esteem as a moderator of the effects of focus condition on the improvement of psychological measures, (b) pre intervention positive affect as a moderator of the effects of focus condition on the improvement of psychological measures

	Beta	*SE*	*t*	*p*
(a)				
Positive affect				
Step one				
Self-esteem	−.18	.14	−1.85	.07
Focus condition	−.02	.15	−.26	.79
Step two				
Interaction	.27	.10	2.70	.01*
Negative affect				
Step one				
Self-esteem	−.14	.11	−1.15	.12
Focus condition	−.20	.12	−2.15	.03*
Step two				
Interaction	.28	.11	2.53	.01*
Self-esteem				
Step one				
Self-esteem	−.36	.07	−3.95	.01*
Focus condition	.03	.07	.41	.67
Step two				
Interaction	.12	.07	.78	.43
Pessimism				
Step one				
Self-esteem	.18	.10	1.85	.06
Focus condition	−.08	.11	−.79	.43
Step two				
Interaction	.27	.11	.16	.86
Optimism				
Step one				
Self-esteem	−.04	.10	−.41	.67
Focus condition	−.21	.11	−2.14	.03*
Step two				
Interaction	−.12	.11	−.75	.45
Wellbeing				
Step one				
Self-esteem	.11	.12	1.20	.23
Focus condition	.35	.14	3.80	.01*
Step two				
Interaction	.01	.15	.06	.95
Distress				
Step one				
Self-esteem affect	.03	.14	.32	.74
Focus condition	.23	.15	2.37	.02*
Step two				
Interaction	−.18	.15	−1.15	.25

Table 3 (continued)

	Beta	*SE*	*t*	*p*
(b)				
Positive affect				
Step one				
Positive affect	−.33	.09	−3.56	.001*
Focus condition	.01	.14	.13	.89
Step two				
Interaction	.26	.99	2.62	.01*
Negative affect				
Step one				
Positive affect	.02	.08	.29	.76
Focus condition	−.20	.12	−2.07	.04*
Step two				
Interaction	−.28	.11	2.42	.01*
Self-esteem				
Step one				
Positive affect	.13	.05	1.35	.18
Focus condition	.04	.08	.45	.65
Step two				
Interaction	−.12	.08	−.69	.48
Pessimism				
Step one				
Positive affect	−.07	.07	−.70	.48
Focus condition	−.08	.11	−.80	.42
Step two				
Interaction	.12	.11	.70	.48
Optimism				
Step one				
Positive affect	.01	.07	.10	.91
Focus condition	−.21	.10	−2.12	.04*
Step two				
Interaction	.02	.11	.12	.90
Wellbeing				
Step one				
Self-esteem	−.08	.09	−.86	.39
Focus condition	.35	.14	3.80	.01*
Step two				
Interaction	.14	.10	1.36	.17
Distress				
Step one				
Self-esteem affect	.06	.10	.64	.52
Focus condition	.22	.15	2.29	.03*
Step two				
Interaction	−.14	.16	−.87	.38

SE standard error, *Beta* standardized beta

*$p < 0.05$

$\beta = -0.20$, $p = 0.04$ respectively; $R^2 = 4.1\%$). In the second step, we entered the interaction effect (positive affect × focus condition) in predicting improvement in negative affect ($\beta = -0.28$, $p = 0.01$, $R^2 = 8.7\%$).

4 Discussion

In contrast to the traditional "deficit" approach, contemporary theories of wellbeing stress the benefits of focusing on strengths rather than weaknesses or neutral experiences. Our study lent support to this fundamental approach underlying contemporary theories of wellbeing by showing that there are many advantages to paying attention to strengths rather than to weaknesses (e.g., Meyers et al. 2015; Seligman et al. 2005) or to neutral or unrelated events (e.g., Harzer and Ruch 2016), and that these advantages are somewhat moderated by self-esteem and positive affect.

As per our first aim, focusing on strengths had many positive effects, more than did focusing on weaknesses and neutral content. Awareness of their strengths curbed the increase in negative affect and emotional distress, and increased wellbeing and students' optimistic view of the future in the weeks before the examination period. Awareness of strengths appears to serve as a buffer against distress-eliciting events, and to promote wellbeing. Yet, we found no increase in positive affect and self-esteem, or a decrease in pessimism.

The positive effects on students' mental health occurred naturally, by increasing their attention to their own strengths as they manifested in daily life. Students were not required to introduce changes in their daily lives, apart from entering a few lines into a journal once a week, for a limited period. They were not required to learn in advance about types of strengths, and did not receive feedback. This is in contrast to previous studies in which participants were asked to increase the use of their self-reported strengths (e.g., Seligman et al. 2005), in what is referred to as the "identify and use" approach (Biswas-Diener et al. 2011); nor were they taught about the types of strengths and their use (Dubreuil et al. 2014).

Our results are consistent with other conceptualizations of the mechanisms underlying the benefits of strengths awareness, underscoring the important role of awareness of strengths and their manifestations in daily life (Linkins et al. 2015). The results of the present study demonstrate the usefulness of facilitating awareness (Kabat-Zinn 1994; Langer 1989) in research on strengths, and suggest that it may be the mechanism that explains the positive influences of strengths-focused interventions reported in previous studies. Future research should compare groups receiving "awareness of strengths" with those receiving "identify and use" interventions.

Consistent with previous research on strengths-focused interventions (Ghielen et al. 2017; Quinlan et al. 2012), we found that during examination periods, students' wellbeing may be improved by strengths-focused intervention. When integrated with previous studies, ours suggests that strengths-focused interventions' effects may be generalized beyond a certain clinical population to the general population. Our findings are also consistent with similar studies that examined strengths-based intervention's effect on enhancing wellbeing, self-esteem, and positive affect, and on alleviating depression (Gander et al. 2013; Govindji and Linley 2007; Wood et al. 2011).

As per our second aim, higher baseline levels of self-esteem and positive affect were found to moderate the effect of only some of the intervention measures, leading to an increase in positive and a decrease in negative affect post-intervention in the strengths-focused condition. This moderation effect was not found in self-esteem, pessimism, optimism, wellbeing, and distress levels, which together lend partial support to our hypothesis.

The present findings contribute to the literature by elucidating the role of self-esteem and positive affect in bringing about important changes in individuals' lives. They also lend partial support to our hypothesis that participants who were "rich" became "richer", in other words, that participants with higher self-esteem and positive affect benefitted more from strengths- focused intervention. The "rich get richer" hypothesis was supported for less stable outcome measures, so that individuals with high levels of self-esteem and positive affect before the beginning of the intervention showed greater increase in positive affect and less increase in negative affect post intervention, than did those with lower initial levels of self-esteem and positive affect. For more stable outcome measures, however, such as optimism, wellbeing, and psychological distress, no moderating effect was found, and individuals benefited from the intervention irrespective of their baseline self-esteem and positive affect levels. Our findings are consistent with the few other studies that tested the "rich get richer" hypothesis and found support for it for relatively labile variables, such as mood. Previous studies found that interventions aimed at increasing wellbeing provided greater benefits to the moods of individuals with higher levels of subjective happiness or lower levels of neuroticism than they did to the moods of individuals with lower levels of subjective happiness or higher levels of neuroticism (Ng 2015; Otake et al. 2006).

An important feature of the present research is our random assignment of participants to the various conditions. This sets our study apart from the literature on strengths in particular, and on personality and subjective wellbeing in general, which is mostly correlational in nature. Future studies can expand the scope of this randomized controlled study to examine the effects of the proposed intervention on students' grades and their wellbeing in the long term. Future research can also examine whether individual differences, such as susceptibility to test anxiety, affect strengths-focused interventions' results.

Another feature of the present study is the diverse student population. The literature on strengths highlights strengths-focused interventions' ability to help diverse populations, therefore strengths-focused interventions can be used cost effectively in a variety of communities. A review of the literature on strengths interventions shows that they have been used effectively in various populations and situations in schools (Seligman et al. 2009), colleges (Rashid et al. 2017), and workplaces (Dubreuil et al. 2016).

4.1 Limitations

The study has several limitations. Firstly, although we sought to develop an intervention that can be implemented with as broad a population as possible, future studies should also address an aim that is complementary to ours: building individually-tailored interventions. The students in the present study differed in their personal and cultural backgrounds and socioeconomic statuses, and it is important to examine these differences and how they affect the students' ability to benefit from such interventions. Furthermore, our ability to generalize the results to other populations is limited, as our study was conducted with university students. Participants were recruited by ads published at all universities in Israel, so that it was not possible to estimate the response rate, and thus we have no information about the total population that was exposed to the ads. Secondly, we did not collect

information about the participants' past experiences, such as specific successes and failures, significant life events, and trauma. To reduce participant burnout and attrition, we did not include other related measures. Future studies should use additional measures, such as quality of life, to complement the present findings. Thirdly, variability in the length of the journals may also have affected our results. Future studies should consider specifying a required length for the journals. Additionally, we did not measure the effect of the intervention over a follow-up period, which has previously been found to be an important aspect of the research on strengths-focused interventions (Meyers et al. 2015).

Finally, due to the relatively small sample, we combined the weakness-focused and neutral events groups for comparison with the strengths-focused group. This strategy was aimed at providing sufficient statistical power for finding an effect. Future studies, with larger samples, should compare each group (weakness and neutral events) separately with the strengths group. Studies assessing mechanisms ordinarily resort to methodologies that examine mediation. Instead, we sought to isolate the component that we hypothesized to be the active ingredient in the intervention, and tested it for producing a positive effect by itself. We did not employ a strengths use questionnaire in the present study, and there may have been a change in strengths use as a result of the awareness of strengths intervention. Follow-up studies can complement the findings of the present one by examining whether awareness of strengths intervention has an effect on strengths use in daily life.

5 Conclusions

The study found that awareness of strengths interventions elicits more desirable psychological outcomes than do interventions focused on weaknesses and on neutral events. These findings are consistent with contemporary theories of wellbeing, and contradict conventional wisdom about growth through understanding and change, or acceptance of one's weaknesses. The findings also suggest that mere awareness of strengths may be an important mechanism behind the positive effect of strengths-based interventions, as participants in the present study were not requested to use their strengths more than they ordinarily would have, nor to focus on a given set of strengths. From a practical standpoint, the present study attests to the strengths awareness technique's efficacy, which counselors and therapists can use with clients in general, and with student populations in particular.

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