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APPLIED PSYCHOLOGY | RESEARCH ARTICLE

Cultivating self-kindness and attention to the present moment in the young: A pilot-study of a two-week internet-delivered mindfulness and self-compassion program

Aurora Hasselberg¹ and Michael Rönnlund^{1*}

Abstract: The aim of the present study was to evaluate the efficacy of a two-week web-based program targeting mindfulness and self-compassion. The program was developed with young adults in mind and involves 15 minutes of training per day, 5 days a week. In an RCT study, 56 participants (18–25 years) were randomly assigned to a training group or a wait-list control group. Thirty-five participants, 15 in the training group and 20 in the control group, completed assessments of self-compassion, mindfulness, and indicators of mental health (stress, emotion regulation, affect balance, time perspective) before and directly after the two-week period. Mixed linear analyses revealed several significant group-by-time interactions, with selective changes in the intervention group. The results revealed a large effect for self-compassion ($d = 1.0$) and a medium effect for mindfulness ($d = 0.52$; $p = .07$ for the interaction). Statistically significant group-by-time interactions and small to medium effects were observed for stress ($d = 0.67$, reduced scores), affect balance ($d = 0.43$; increased scores), cognitive appraisal ($d = 0.43$; increased scores) and a Present Hedonistic time perspective ($d = 0.67$; increased scores). No significant effects were observed for other time perspective dimensions or for a measure of expressive suppression. In spite of limitations, including a small sample, lack of an active control group and follow-up assessments, the results indicate that the



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Aurora Hasselberg is a therapist in Primary Health Care, first line of psychiatry, with years of experience treating and caring for adolescents with mental illnesses and cognitive disabilities. In clinical setting, she is giving Cognitive Behavioral Therapy to patients with various psychiatric conditions such as anxiety disorders, depression and developmental crisis. She is also teaching students in behavior science and mental health in upper secondary school. She holds a master's degree in psychology along with a master's degree in medicine with specialization in child and adolescent psychiatry. The data in this study were collected as part of her master's thesis in psychology, Umeå University.

PUBLIC INTEREST STATEMENT

Trends of high and increasing levels of distress and mental health problems among young, or emerging, adults are of great concern from a public health perspective. Interventions to reduce stress and build resilience in this group should, therefore, be important. In the present study, we examined the effects of a brief internet-based intervention involving mindfulness and self-compassion exercises. The results indicated that the training served to increase levels of self-compassion and reduce stress to increase affect balance. Thus, the findings of this small-scale pilot-intervention study suggest that the training has potential as a cost-effective and easily accessible tool to support mental health in young people. Larger and more carefully controlled studies should examine the effectiveness of the training program further.

program may have potential as one tool to reduce stress and improve mental health in young individuals. Further evaluations may, therefore, be motivated.

Subjects: Health Psychology; Developmental Psychology; Mental Health Research;

Keywords: self-compassion; mindfulness; intervention; internet-based; emerging adults

1. Introduction

Given widespread socio-demographic changes, such that younger adults leave home, have their first job, and start an own family at a more advanced age than before, the period from the late teens through the twenties have been identified as a new and distinct period in development referred to as emerging adulthood (Arnett, 2000). This transition from an adolescent to a full-fledged adult is typically characterized by the exploration of different life paths and worldviews, including possibilities in higher education, work, and love. Some of the challenges encountered at this stage may be perceived as stressful, at least for some individuals. Indeed, the proportion of individuals in the age range 18–25 who report stress (e.g., Jensen et al., 2018), depressive symptoms (e.g., Twenge et al., 2018) and experience depressive episodes (Mojtabai et al., 2016) is high and showed a recent increase. The latter presumably reflects a variety of socio-economic and cultural changes, resulting in a more complex world in general, with more information and choices but also more to-be-ignored stimulations. As a complement to well-established but extensive and time-consuming interventions (e.g., face-to-face CBT), brief and easily implemented interventions designed to support positive mental health in young adults should, therefore, be of considerable interest.

1.1. Mindfulness and self-compassion training

Training aimed to improve mindfulness and self-compassion has been considered as one tool to reduce distress and build resilience in younger people (Bluth et al., 2015), something which was further investigated in the current study. Mindfulness refers to the ability to “pay attention, on purpose, in the present moment, with non-judgment and acceptance” (Kabat-Zinn, 1994). Mindfulness as a trait has been shown to covary with a variety of indicators of mental health (Mesmer-Magnus et al., 2017). Interventions involving the practice of simple mindfulness exercises like ‘breathing anchor’ and ‘body scan’ have, moreover, been found to reduce stress, anxiety, and depressive symptoms in clinical (Hoffman et al., 2010) and non-clinical adult samples (Khoury et al., 2015) suggesting that these skills may be cultivated by training.

Self-compassion, a related construct, refers to compassion toward one’s self in instances of perceived inadequacy, failure, or general suffering (Neff, 2003). More specifically, self-compassion has been regarded to involve three core components (Neff & Dahm, 2017; Neff, 2003). These are: 1) self-kindness, i.e. being warm towards oneself when pain or personal shortcomings are encountered, including actively being kind to oneself, 2) common humanity, which involves recognizing that suffering and own failure is part of a shared human experience, and 3) mindfulness, whereby negative thoughts are observed with an open, non-judgmental, and a receptive attitude and a balanced perspective is maintained.

In common with measures of mindfulness, measures of self-compassion were positively associated with various measures of psychological well-being (eg. Neff & Dahm, 2017; Neff, 2003) and compassion-focused exercises (e.g., loving kindness) were found to increase self-compassion and reduce various forms of psychological distresses, including anxiety and depressive symptoms (Ferrari et al., 2019; Raab, 2014). Additionally, self-compassion may promote compassion for others (Neff, 2003) and was, for example, shown to increase intentions to provide help to other people (Welp & Brown, 2013).

A mindful attitude is, as noted, part of the self-compassion construct, and combining traditional mindfulness exercises with exercises targeting other aspects of self-compassion might, therefore, be effective. Neff and Germer (2013) developed such a program, the Mindful

Self-Compassion (SCS) program, an eight-week course that involves one meeting together each week, a half-day retreat, and home-based exercises. The program showed good promise as a tool to increase mindfulness and self-compassion as judged from the original study. Additionally, scores on various measures of positive affect (e.g. happiness, and life satisfaction) increased, while statistically significant reductions on measures of psychological distress (e.g., stress, anxiety, and depressive symptoms) were seen post-intervention. The effects surpassed those observed for a wait-list condition and were maintained over a follow-up period of up to 1 year (Neff & Germer, 2013). Other studies based on similar programs indicated improved body satisfaction in women (Albertson et al., 2014) and a reduction of depression and metabolic activity in diabetes patients (Friis et al., 2016). Moreover, research indicated that such interventions may reduce symptoms of distress, including burnout symptoms in health care workers (Eriksson et al., 2018; Raab, 2014).

1.2. Prior studies of mindfulness and self-compassion interventions in non-adult samples

Given the growing evidence of the effectiveness of interventions targeting mindfulness and self-compassion to reduce various forms of distress in adult samples, a focus on younger groups is motivated. Training targeting self-compassion seems particularly relevant to the extent that it may relate to problems of identity and self-esteem (Neff & McGehee, 2010) that young individuals are likely to face. In line with the notion that self-compassion is an important personal resource in young people, a recent meta-analytic study (Marsh et al., 2018) demonstrated a large effect size for the association of self-compassion and measures of distress, including stress, anxiety, and depression in adolescent samples. In spite of such support for a critical role of self-compassion to health in youth, relatively few intervention studies focusing on young individuals are still available.

Three studies were included in the review by Marsh et al. (2018); all three were based on a modified version of the SCS. In a first pre-posttest study involving 28 adolescents (Bluth et al., 2015), increased self-compassion and reduced stress was observed post-intervention, in line with adult studies. In a second study (Bluth et al., 2016), 34 adolescents were randomly assigned to the training program or to a wait-list control group. Significant gains were observed for measures of self-compassion and mindfulness together with reductions in perceived stress and anxiety. A follow-up study by Bluth and Eisenlohr-Moul (2017) involving a larger intervention-group ($n = 46$, but no control group), provided further evidence of training effects for measures of resilience and gratitude that increased, effects that were maintained at a six-week follow-up assessment.

In addition to studies involving adolescent samples, studies involving college or university students, often in the range considered for “emerging adults”, is relevant in the context of the present study. For example, Smeets et al. (2014) investigated the effectiveness of a brief compassion focused intervention for female college student. Fifty-two students were randomly assigned to the self-compassion training or to an active control group that involved learning general time management skills. Results showed that the self-compassion intervention led to significantly greater increases in self-compassion, mindfulness, optimism, and self-efficacy, and a greater decrease in rumination than for the control group. Significant gains were also seen for measures of life satisfaction and connectedness even though parallel gains were seen for the control group as well for the latter measures. Additionally, Khorami et al. (2016) demonstrated that compassion-focused training increased what they referred to as “self-efficacy in clinical performance” in nursing students. Finally, Luo et al. (2019) found reductions in anxiety and depressive symptoms for a sample drawn from the same target group as the foregoing studies, i.e. nursing students. Thus, prior studies indicate that training may be effective to improve mindfulness and self-compassion and to reduce distress in younger groups. Still, the evidence is relatively sparse and further evaluations of the effectiveness of self-compassion training for groups of younger people should be motivated (see also Marsh et al., 2018).

1.3. The present study

The present pilot RCT study aimed to evaluate the effects of a program aimed at cultivating mindfulness and self-compassion, developed with young/emerging adults in mind. The program involves 2 weeks of training (15 min per day, 5 days a week), i.e. shorter than programs used in the aforementioned studies (for an exception, see Smeets et al., 2014 who used a 3-week version of the MSC).

Of major importance, the training was based on a self-administered online program, unlike prior studies that were based on training with face-to-face contact with instructors. An online format has several advantages over the standard format, including fast and easy access and cost-effectiveness (Andersson & Titov, 2014) in particular for people who live at geographically distant places or when, for various reasons, as in the ongoing Covid-19 pandemic, people are prohibited from face-to-face contacts. In fact, a number of recent studies concerned with development/use of online tools to support mindfulness is seen in the literature (e.g., Balconi et al., 2019; Crivelli et al., 2019; for a review, see Sliwinski et al., 2017) studies that, in general, demonstrated these to be effective. Additionally, variance related to instructors (often more than one) is eliminated, which is an advantage with regard to experimental control.

Pre- and post-intervention assessments included mindfulness, self-compassion, and secondary outcomes including perceived stress and aspects of well-being (Diener et al., 2010). In addition, we considered potential effects for two constructs of particular relevance to younger individuals.

The first was emotion regulation, i.e. the ability to respond to ongoing demands of experience with the range of emotions in a manner that is socially tolerable, yet sufficiently flexible to permit spontaneous reactions (Thompson, 1994). Emotion regulation may be considered as a key skill in emerging adults in the sense that it is predictive of a variety of measures of stress and psychosocial adjustment (Brewer et al., 2016).

The second construct was time perspective, i.e. habitual ways of relating to the past, present, and future, including cognitions and feelings associated with each of the three temporal zones (Zimbardo & Boyd, 1999). Facets of time perspective, for example, an aversive view of the future or past were strongly related to coping strategies (Blomgren et al., 2016) and decision-making styles (Molinari et al., 2016) in adolescent and young adult samples. Of particular interest at present, a recent intervention study involving an adult samples (Rönnlund et al., 2019) indicated that participant's score profiles on the Zimbardo Time Perspective Inventory (Zimbardo & Boyd, 1999) were significantly less different from a proposed ideal score profile (Zimbardo & Boyd, 2008) after the mindfulness-based intervention. Thus, even though time perspective has been considered as a rather stable trait in part determined by genetic factors (Rönnlund et al., 2018) there is evidence that time perspective biases may be reduced following similar types of training.

2. Method

2.1. Participants

Fifty-six participants in the age range 18–25 (Mean age = 22.3, $SD = 1.8$; 50 females) completed the battery of measures pre-intervention. A majority (65%) of the participants had upper-secondary school or equivalent as the highest level of education, while 26% percent had taken courses at a higher level (higher vocational school or university) and the remainder (9%) had elementary school education. The participants were randomly assigned to an intervention group ($n = 28$) or to the wait-list control group ($n = 28$).

2.2. Intervention

The program: “Mindfulness and compassion for stressed youth” (Mindfulnesscenter, Sweden) was designed with a young group in mind. The program is a two-week self-administered program accessed via the internet using a computer or smartphone (app). The program starts with

a prerecorded psycho-educative introduction of mindfulness and compassion with self and others and an outline of its structure. The training program contains ten different exercises, each of which lasts about 15 minutes. The exercises are guided by a mindfulness instructor (i.e. using prerecorded voice clips). The exercises are: applying relaxation, body scan, breathing exercises, concentration exercises, handling difficult emotions, loving-kindness and compassion, meeting challenges, relaxation by breathing, and exploration of bodily sensations. Once an exercise is completed, the participants are provided access to the next exercise in the series. The participants are instructed to perform one exercise per day 5 days a week, yielding a total time for the program of less than 3 h.

2.3. Procedure

Participants were recruited via electronic flyers in social media. Those who were willing to participate received an email including a link to the pre-intervention assessment. Participants provided informed consent and thereafter completed the questionnaires created in Google Docs. Participants assigned to the intervention group were next provided a link to the training site, together with a unique log-in code needed to access to the training program. Two weeks after the scheduled completion of the training, the participants, including those in the control group, were sent a link to the web-based survey used for the post-intervention assessment. The web survey was open for up to a week after the assessment. A couple of email reminders were sent to those who had not responded before the web-questionnaire was closed.

2.4. Instruments

Self-compassion

To assess self-compassion, we used a Swedish translation of a short-version of the Self-Compassion Scale (Raes et al., 2011) originally developed by Neff (2003). The short-form contains 12 of the 26 items from the original scale. The items cover the three components of self-compassion suggested by Neff: mindfulness, self-kindness, and common humanity. Each item is rated on a scale from almost never (coded as 1) to nearly always (coded as 5) and a higher total score indicates a higher level of self-compassion. The short version has been shown to retain high values for internal consistency ($\alpha = 0.86$, Raes et al., 2011) and scores for the short form were almost perfectly correlated with scores from the original scale ($r = .97$).

Mindfulness

As a measure of mindfulness, we used a Swedish translation of the Cognitive and Affective Mindfulness Scale—Revised (CAMS-R; Feldman et al., 2007). CAMS-R contains 10 items assumed to involve four aspects of mindfulness: attention, awareness, acceptance, and present-focus. The items are rated on a four-point scale ranging from "never/almost never" (1) to "nearly always" (4). A higher total score reflects a higher level of mindfulness. CAMS-R showed convergent validity with alternative measures of mindfulness, an acceptable level of internal consistency (Feldman et al., 2007) and appeared sensitive to intervention-related changes (Greeson et al., 2011).

Perceived Stress

Perceived Stress Scale (PSS-14, Cohen et al., 1983; Eskin & Parr, 1996 for the Swedish translation) was used as a self-report measure of stress. The 14 items describe experiences that life has been unpredictable, uncontrollable, or overly demanding during the last month (e.g., "In the last month, how often have you felt that you were unable to control the important things in your life"). Each of the items are rated in regard to frequency of occurrence on a four-point scale ranging from Never (0) to Very often (4). The ratings are summed (range: 0–56) and a higher score reflects higher levels of perceived stress. High levels of internal consistency ($\alpha > .80$) have been observed in a variety of different studies (Lee, 2012).

Emotion regulation

To assess emotion regulation we used a Swedish version of the Emotion Regulation Questionnaire (Enebrink et al., 2013; Gross & John, 2003). This scale contains 10 items. Each item reflects one of two subscales: cognitive reappraisal (e.g., “I control my emotions by changing the way I think about the situation I’m in”) and expressive suppression (“I control my emotions by not expressing them”); the former is considered an adaptive strategy and the second, avoidant strategy, a maladaptive strategy. Items are scored via a seven-point Likert scale, from “strongly disagree” (1) to “strongly agree” (7). An independent mean score is computed for each subscale, where a higher score indicates a higher level of engagement in the relevant strategy. Previous studies have shown acceptable levels of internal consistency for both scales ($> .70$; Enebrink et al., 2013) and studies have provided consistent support of the proposed two-factor structure (e.g., Enebrink et al., 2013).

Affect balance

A Swedish translation of the Scale of Positive and Negative Experience (SPANE; Diener et al., 2010; Kormi-Nouri et al., 2013) was used to assess the balance of positive and negative experiences. SPANE is a 12-item questionnaire that includes six items rated on a five-point scale (never, almost never = 1 to always or nearly always = 5) to assess positive feelings and six items to assess negative feelings. A higher score indicates a more frequent experience of the type of experience considered (i.e. positive or negative affect). For both the positive and negative items, three of the items are general (e.g., positive, negative) and three per subscale are more specific (e.g., joyful, sad). The measure considered at present was the total affect balance computed by subtracting the score for SPANE-N (negative affect) from SPANE-P (positive affect). SPANE showed acceptable consistency (α -values $> .80$, Diener et al., 2010).

Time perspective

Time perspective was measured using a short-version (Carelli & Olsson, 2015) of the Swedish Zimbardo Time Perspective Inventory (Carelli et al., 2011; a revised and extended version of the scale originally developed by; Zimbardo & Boyd, 1999). The inventory concerns habitual ways of relating to the past, present, and future time frames. The version of the inventory used in the present study was a short-form that involves 30 of the original 64 items. The 30 items are divided into six subscales: Past Negative (e.g., “Painful past experiences keep being replayed in my life”), Past Positive (e.g., “Happy memories of good times spring readily to mind”), Present Hedonistic (e.g., “I find myself getting swept up in the excitement of the moment”), Present Fatalistic (e.g., “Since what-ever will be will be, it doesn’t really matter what I do”), Future Negative (e.g., “Usually, I don’t know how I will be able to fulfil my goals in life”), and Future Positive (e.g., “I complete projects on time by making steady progress”). For each of the items the description is rated on a 5-point Likert scale to indicate to what extent the they are characteristic of oneself from very uncharacteristic (1) to very characteristic (5). The average rating across the five items in each scale was used as the dependent measure. A higher mean score on each of the subscales mean that you identify more strongly with each of the habitual views described by the items. Internal consistency of subscales ($\alpha = .65-.73$) were deemed to be reasonable and the original six-factor structure was supported by a prior study involving adolescents and young adults (Molinari et al., 2016).

2.5. Statistical methods

Mixed linear modelling (in SPSS IBM 26) was used to evaluate the effects of the intervention. Such analyses offers the advantage over a traditional ANOVA (repeated measures) approach in that an intention-to-treat approach can be used. This means that data for all participants who took part in the pre-intervention assessment is considered, regardless of whether post-intervention data were collected, which should yield less biased effect estimates (Gueorguieva & Krystal, 2004). Participant was a random-effects factor, and time (pre- vs. post-assessment) and group

(intervention vs. control group) were fixed factors. Covariance type used for the residuals was set to be autoregressive heterogenous. We tested full factorial models, i.e. effects of group, time and the interaction between the two factors, but we were mainly interested in the interaction effects. As a measure of effect size Cohen's *ds* were computed. At this point, we used the formula for pre-posttest-control group designs recommended by Morris (2008; *d_{ppc2}*—i.e. mean pre-post change in the treatment group minus the mean pre-post change in the control group, divided by the pooled pretest standard deviation). The grading of effect sizes proposed by Cohen (1988) was used, i.e. small = 0.2–0.5, medium = 0.5–0.8, large > 0.8.

3. Results

Of the 56 participants 35 participants, 15 in the intervention group (all women) and 20 in the control group (17 women), completed the post-intervention assessments. Most (67%) of the participants reached the final levels of the program, as judged by self-reports and server log-data that could be used to verify these reports. No indication that the dropout was selective was seen for any of the outcome measures, as judged by non-significant group differences for returnees vs. dropouts at baseline (*ps* > .05).

Table 1 provides descriptive statistics (*M*, *SD*) of the dependent measures pre- and post-intervention, as a function of group (intervention vs. control group). For each group, separate values are provided for the pre-intervention assessment depending on returnee status, i.e. for the whole group and for the group that returned for the second assessment. Results of the mixed models analyses in the form of the Group x Time interaction term, together with estimates of effect size (Cohen's *d*) are in addition summarized (rightmost columns).

The results revealed significant interactions for self-compassion (*d* = 1.00), reflecting a pattern of gain for the intervention group but not the control group, with a similar trend for the measure of mindfulness (*p* = .07; *d* = 0.50). For the measure of stress, the mean-patterns also indicate a selective decrease in the intervention group (*p* < .01 for the Group-by-time interaction, *d* = 0.67). Moreover, scores on the cognitive reappraisal scale of the ERQ increased and the measure of affect balance (higher values reflecting more positive relative to negative experiences) showed a pattern of increase for the training group with little difference for the control group. There were a significant time x group interactions for both measures (*ps* < .05), with effect sizes in the small to medium range (*d* = 0.43–0.77). By contrast, no effect was observed for the emotion suppression facet of ERQ (*p* = .52 for the interaction). Finally, for scores on the time perspective inventory, a significant group-by-time interaction was observed for Present Hedonistic (*p* < .01, *d* = 0.67), with a higher mean value for the second measurement for those who had trained and, if anything, a reversed trend for the control group. No effect was observed for the other time perspective dimensions.

4. Discussion

The present small-scale RCT study provided preliminary evidence in regard to the efficacy of a brief and internet-based program of mindfulness and self-compassion for young adults. In line with prior studies, typically involving a considerably larger training dose (e.g., Neff & Germer, 2013; Eriksson et al., 2018), the results demonstrated significant training-related gains on the measure of self-compassion (*d* = 1.00), suggesting that rather small amounts of compassion-focused training may serve to enhance self-kindness, common humanity, and a mindful attitude towards personal suffering (Smeets et al., 2014). For the measure of mindfulness, which should be expected to improve following the training as well (e.g., Bluth et al., 2016), a non-significant trend in the same direction was observed (*d* = 0.52). The finding of a larger effect for the measure of self-compassion relative to that of mindfulness could possibly reflect the fact that the measure of self-compassion includes mindfulness, at least a specific aspect of it (mindfulness towards own suffering). It could also be that more widely used measures of mindfulness than that used in the present study would have been more sensitive to the effects of the intervention. Future studies with better power and alternative (or multiple) measures of the

Table 1.

Variable	Training Group			Control Group			G x T F-value	p-value	Cohen's d
	Pre-all n = 28	Pre-ret n = 15	Post-ret n = 15	Pre-all n = 28	Pre-ret n = 20	Post-ret n = 20			
Self-compassion	2.43 (0.74)	2.35 (0.78)	2.85 (0.61)	2.39 (0.68)	2.40 (0.67)	2.24 (0.55)	15.04**	<.001	1.00
Mindfulness	22.36 (4.72)	23.07 (4.53)	26.07 (4.42)	21.14 (5.37)	21.85 (5.71)	22.10 (5.69)	6.58	.071	0.52
Perceived stress	51.25 (7.60)	49.27 (7.61)	41.53 (7.17)	50.43 (7.40)	50.40 (7.78)	47.85 (8.46)	7.82**	.008	0.67
Cognitive reappraisal	3.55 (0.95)	3.64 (1.04)	3.90 (1.19)	3.64 (1.06)	3.74 (1.09)	3.52 (1.07)	4.22*	.048	0.43
Expressive suppression	3.63 (1.49)	3.80 (1.49)	3.45 (1.37)	3.55 (1.53)	3.48 (1.43)	2.98 (1.40)	0.43	.520	0.13
Affect balance	33.14 (8.81)	36.33 (9.30)	41.00 (5.71)	33.25 (6.30)	34.20 (5.78)	34.35 (6.71)	6.04*	.018	0.77
Past Negative	3.58 (0.85)	3.36 (0.86)	3.09 (1.06)	3.56 (0.91)	3.56 (0.77)	3.44 (0.90)	0.57	.450	0.19
Past Positive	3.05 (0.86)	3.36 (0.81)	3.44 (0.91)	2.99 (0.92)	3.01 (0.88)	2.90 (0.76)	2.38	.132	0.22
Present Fatalistic	2.50 (0.73)	2.44 (0.65)	2.71 (0.61)	2.60 (0.72)	2.39 (0.67)	2.39 (0.67)	1.97	.170	0.37
Present Hedonistic	2.74 (0.83)	2.80 (0.98)	3.11 (0.84)	3.09 (0.75)	3.13 (0.72)	2.92 (0.64)	9.28**	.004	0.67
Future Negative	3.49 (0.94)	3.61 (0.70)	3.20 (0.99)	3.21 (0.93)	3.12 (0.94)	3.11 (0.89)	2.66	.112	0.47
Future Positive	3.12 (0.76)	3.36 (0.81)	3.44 (0.91)	3.26 (0.71)	3.01 (0.88)	2.90 (0.76)	0.74	.397	0.22

Pre-all = Pretest whole group, Pre-ret = Pretest returnees, Post-all = Posttest, whole group, Post-ret = Posttest, returnees. G X T = Group-by-time Interaction, * $p < .05$, ** $p < .01$

foregoing constructs seem required to determine whether the difference in magnitude of effects are substantial or simply reflect measurement error.

Of major interest, the gains in self-compassion were accompanied by significant effects also on some of the secondary outcome measures. First, in agreement with studies using similar types of training (e.g. Bluth et al., 2016, 2015; Neff & Germer, 2013) levels of perceived stress were significantly reduced, post-intervention. Second, the result revealed significant effects on one aspect of emotion regulation, with higher scores on the cognitive reappraisal scale of the ERQ after the training, indicating that the training might support this particular strategy of handling negative emotions. Moreover, the training seemed to improve one particular aspect of well-being as reflected by the measure of affect balance, with a higher ratio of positive to negative affective experiences after as compared with prior to the training.

While the training appeared to reduce stress, improve emotion regulation and affect balance, no statistically significant effects were observed for five of the six facets of time perspective. This is in contrast with the study by Rönnlund et al. (2019) that found reduced scores on two of the negatively valenced subscales (Past Negative, Future Negative), increased scores on Past Positive, as well as a reduction in a score reflecting time-perspective biases across all six dimensions, “deviations from a balanced time perspective” (see Rönnlund et al., 2017; unfortunately no balanced, or optimal, score profile has yet been established for the present short-form of the S-ZTPI). On the other hand, the time perspective inventory consider reflects habitual views of the past, present, and future. Possibly, more durable training, as in Rönnlund et al. (2019), is required for more substantial changes in such trait-like aspects of time perspective to be observed; alternative measures that focus on time attitude (states; e.g. Mello & Worrell, 2007) might, more realistically, have been expected to be modifiable by brief interventions such as the present one. Nonetheless, we observed a significant group-by-time interaction for one scale, Present Hedonistic, with a trend of higher mean score post-intervention. This could possibly indicate a beneficial influence of the training, as some studies found scores on Present Hedonistic to be positively associated with measures of psychological well-being (e.g., Sailer et al., 2014). The boundary conditions and specificity of effects of mindfulness/self-compassion training on time perspective (trait/state-related aspects) should be attended to in future studies.

Even though the present study has merits, including as a randomized control group design and comprehensive measures, it clearly has several limitations. These include a small sample mainly composed of females, lack of an active control group, and lack of follow-up measurements to determine maintenance of effects. Also, dropout which was quite extensive (13 out of 28 in the intervention group did not return for the post-intervention assessments. The reasons for dropout should be attended to in future studies and unfortunately, no information as to the reasons for dropout was collected in the present study. Potential means to increase participation should be considered. A larger sample would, apart from better power to detect intervention-related changes, allow for analyses of covariation of changes in the relevant constructs, i.e. to see whether the gains in self-compassion are correlated with changes in the secondary outcome measures of interest. An active control group would furthermore be helpful to isolate effects specific to the training. Physiological markers (e.g. of stress) would also be good as a complement to self-report measures to rule out placebo effects. It should finally be of interest for future studies to compare the effectiveness of the online program with a version that includes face-to-face contact with instructors and to investigate how variations in training dose (e.g., the present program compared to a similar but longer program) influence effects of the training and maintenance of these effects.

4.1. Conclusions

Despite the limitations of this pilot RCT study, we take significant gains in self-compassion, changes in measures of emotion regulation and affect balance, to indicate that the brief, easy accessible training program has promise as one tool to boost self-compassion and support mental health in young adults. Further evaluations of the efficacy of the program in more carefully

controlled studies with a larger number of participants and research aimed to establish a dose-response relationship for this type of training, therefore seem motivated.

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Ethics statement

All participants were informed of the study, confidentiality, handling of the data, and the right to withdraw from the study at any time point, and provided informed consent before the start of the study.

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References

- Albertson, R. A., Neff, K. D., & Dill-Shackleford, K. E. (2014). Self-compassion and body dissatisfaction in women: A randomized controlled trial of a brief meditation intervention. *Mindfulness*, 6(3), 444–454. <http://doi.org/10.1007/s12671-014-0277-3>
- Andersson, G., & Titov, N. (2014). Advantages and limitations of internet-based interventions for common mental disorders. *World Psychiatry*, 13(1), 4–11. <http://doi.org/10.1002/wps.20083>
- Arnett, J. J. (2000). Emerging adulthood. A theory of development from the late teens through the twenties. *American Psychologist*, 55(5), 469–480. <http://doi.org/10.1037/0003-066X.55.5.469>
- Balconi, M., Fronda, G., & Crivelli, D. (2019). Effects of technology-mediated mindfulness practice on stress: Psychophysiological and self-report measures. *Stress*, 22(2), 200–209. <http://doi.org/10.1080/10253890.2018.1531845>
- Blomgren, A.-S., Svahn, K., Åström, E., & Rönnlund, M. (2016). Coping strategies in late adolescence: Relationships to parental attachment and time perspective. *Journal of Genetic Psychology*, 177(3), 85–96. <http://doi.org/10.1080/00221325.2016.1178101>
- Bluth, K., & Eisenlohr-Moul, T. A. (2017). Response to a mindful self-compassion intervention in teens: A within-person association of mindfulness, self-compassion, and emotional well-being outcomes. *Journal of Adolescence*, 57, 108–118. <http://doi.org/10.1016/j.adolescence.2017.04.001>
- Bluth, K., Gaylord, S. A., Campo, R. A., Mullarkey, M. C., & Hobbs, L. (2016). Making friends with yourself: A mixed methods pilot study of a mindful self-compassion programs for adolescents. *Mindfulness*, 7(2), 479–492. <http://doi.org/10.1007/s12671-015-0476-6>
- Bluth, K., Robertson, N. E., & Gaylord, S. A. (2015). A pilot study of mindfulness intervention for the adolescents and the potential role of self-compassion in reducing stress. *Explore*, 11(4), 292–295. <http://doi.org/10.1016/j.explore.2015.04.005>
- Brewer, S. K., Zahniser, E., & Conley, C. S. (2016). Longitudinal impacts of emotion regulation on emerging adults: Variable- and person-centered approaches. *Journal of Applied Developmental Psychology*, 47, 1–12. <http://doi.org/10.1016/j.appdev.2016.09.002>
- Carelli, M. G., & Olsson, C. J. (2015). Neural correlates of time perspective. In M. Stolarski, N. Fieulain, & W. Van Beek (Eds.), *Time perspective theory: Review, research and application. Essays in honor of Philip Zimbardo* (pp. 231–242). Springer International Publishing. http://doi.org/10.1007/978-3-319-07368-2_15
- Carelli, M. G., Wiberg, B., & Wiberg, M. (2011). Development and construct validation of the Swedish Zimbardo time perspective inventory. *European Journal of Psychological Assessment*, 27(4), 220–227. <http://doi.org/10.1027/1015-5759/a000076>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Routledge Academic.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385–396. <http://doi.org/10.2307/2136404>
- Crivelli, D., Fronda, G., Venturella, I., & Balconi, M. (2019). Stress and neurocognitive efficiency in managerial contexts: A study on technology-mediated mindfulness practice. *International Journal of Workplace Health Management*, 12(2), 42–56. <http://doi.org/10.1108/IJWHM-07-2018-0095>
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., & Biswas-Diener, R. (2010). New measures of well-being: Flourishing and positive and negative feelings. *Social Indicators Research*, 97(2), 143–156. <http://doi.org/10.1007/s11205-009-9493-y>
- Enebrink, P., Björnsdotter, A., & Ghaderi, A. (2013). The emotion regulation questionnaire: Psychometric properties and norms for Swedish parents of children aged 10–13 years. *Europe's Journal of Psychology*, 9(2), 289–303. <http://doi.org/10.5964/ejop.v9i2.535>
- Eriksson, T., Germundsjö, L., Åström, E., & Rönnlund, M. (2018). Mindful self-compassion training reduces stress and burnout symptoms among practicing psychologists: A randomized controlled trial of a brief web-based intervention. *Frontiers in Psychology*, 91. <http://doi.org/10.3389/fpsyg.2018.02340>
- Eskin, M., & Parr, D. (1996). *Introducing a Swedish version of an instrument measuring mental stress*. Reports from the Department of Psychology, 813. Stockholm University, Department of Psychology.
- Feldman, G., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J. P. (2007). Mindfulness and emotion regulation: The development and initial validation of the cognitive and affective mindfulness scale-revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment*, 29(3), 177–190. <http://doi.org/10.1007/s10862-006-9035-8>
- Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of RCTs. *Mindfulness*, 10(8), 1455–1473. <http://doi.org/10.1007/s12671-019-01134-6>
- Friis, A. M., Johnson, M. H., Cutfield, R. G., & Consedine, N. S. (2016). Kindness matters:

- A randomized controlled trial of a mindful self-compassion intervention improves depression, distress, and HbA1c among patients with diabetes. *Diabetes Care*, 39(11), 1963–1971. <http://doi.org/10.2337/dc16-0416>
- Greeson, J. M., Webber, D. M., Smoski, M. J., Brantley, J. G., Ekblad, A. G., Suarez, E. C., ... Wolever, R. Q. (2011). Changes in spirituality partly explain health-related quality of life outcomes after Mindfulness-Based Stress Reduction. *Journal of Behavioral Medicine*, 34(6), 508–518. <http://doi.org/10.1007/s10865-011-9332-x>
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348–362. <http://doi.org/10.1037/0022-3514.85.2.348>
- Gueorguieva, R., & Krystal, J. H. (2004). Move over ANOVA: Progress in analyzing repeated-measures data and its reflection in papers published in the Archives of General Psychiatry. *Archives of General Psychiatry*, 61(3), 310–317. <http://doi.org/10.1001/archpsyc.61.3.310>
- Hoffman, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effects of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 78(2), 169–183. <http://doi.org/10.1037/a0018555>
- Jensen, H. A. R., Davidsen, M., Ekholm, O., & Christensen, A. I. (2018). *Danskernes Sundhed. Den Nationale Sundhedsprofil 2017* [Health in Denmark—The National Health Profile 2017]. Sundhedsstyrelsen.
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness in everyday life*. Hyperion.
- Khorami, E. S., Moeini, M., & Ghamarani, A. (2016). The effectiveness of self-compassion training: A field study. *Global Journal of Medicine Research*, 3(1), 15–20. http://self-compassion.org/wp-content/uploads/2016/Khorami_et_al_2016.pdf
- Khoury, B., Sharma, M., Rush, S. E., & Fournier, C. (2015). Mindfulness-based stress reduction for health individuals: A meta-analysis. *Journal of Psychosomatic Research*, 78(6), 519–528. <http://doi.org/10.1016/j.jpsychores.2015.03.009>
- Kormi-Nouri, R., Farahani, M. N., & Trost, K. (2013). The role of positive and negative affect on well-being among Swedish and Iranian university students. *Journal of Positive Psychology*, 8(5), 435–443. <http://doi.org/10.1080/17439760.2013.823511>
- Lee, E. H. (2012). Review of the psychometric evidence of the Perceived Stress Scale. *Asian Nursing Research*, 6(4), 121–127. <http://doi.org/10.1016/j.anr.2012.08.004>
- Luo, Y., Meng, R., Liu, B., Cao, X., & Ge, W. (2019). Self-compassion may reduce anxiety and depression in nursing students: A pathway through perceived stress. *Public Health*, 174, 1–10. <http://doi.org/10.1016/j.puhe.2019.05.015>
- Marsh, I. C., Chan, S. W. Y., & MacBeth, A. (2018). Self-compassion and psychological-distress in adolescents – A meta analysis. *Mindfulness*, 9(4), 1011–1027. <http://doi.org/10.1007/s12671-017-0850-7>
- Mello, Z. R., & Worrell, F. C. (2007) The adolescent time attitude scale-English, University of California, Berkeley, CA [online]. <http://www.uccs.edu/~faculty/zmello/ATI.html>
- Mesmer-Magnus, J., Manapragada, A., Viswesvaran, C., & Allen, J. W. (2017). Trait mindfulness at work: A meta-analysis of the personal and professional correlates of trait mindfulness. *Human Performance*, 30(2–3), 79–98. <http://doi.org/10.1080/08959285.2017.1307842>
- Mojtabai, R., Olfson, M., & Han, B. (2016). National trends in the prevalence of treatment of depression in adolescents and young adults. *Pediatrics*, 138(6), e20161878. <http://doi.org/10.1542/peds.2016-1878>
- Molinari, L., Speltini, G., Passini, S., & Carelli, M. G. (2016). Time perspective in adolescents and young adults: Enjoying the present and trusting in a better future. *Time & Society*, 25(3), 594–612. <http://doi.org/10.1177/0961463X15587833>
- Morris, S. B. (2008). Estimating effect sizes from pre-posttest-control group designs. *Organizational Research Methods*, 11(2), 364–386. <http://doi.org/10.1177/1094428106291059>
- Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, 2(3), 223–250. <http://doi.org/10.1080/15298860309027>
- Neff, K. D., & Dahm, K. A. (2017). Self-compassion: What it is, what it does, and how it relates to mindfulness. In B. A. Gaudiano (Ed.), *Major themes in mental health. Mindfulness: Nonclinical applications of mindfulness: Adaptations for school, work, sports, health, and general well-being* (pp. 495–517). Routledge/Taylor & Francis Group.
- Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology*, 69(1), 28–44. <http://doi.org/10.1002/jclp.21923>
- Neff, K. D., & McGehee, P. (2010). Self-compassion and psychological resilience among adolescents and young adults. *Self and Identity*, 9(3), 225–240. <http://doi.org/10.1080/15298860902979307>
- Raab, K. (2014). Mindfulness, self-compassion, and empathy among health care professionals: A review of the literature. *Journal of Health Care Chaplaincy*, 20(3), 95–108. <http://doi.org/10.1080/08854726.2014.913876>
- Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology & Psychotherapy*, 18(3), 250–255. <http://doi.org/10.1002/cpp.702>
- Rönnlund, M., Åström, E., Adolfsson, R., & Carelli, M. G. (2018). Perceived stress in adults aged 65 to 90: Relations to facets of time perspective and COMT Val158Met polymorphism. *Frontiers in Psychology*, 9, 378. <http://doi.org/10.3389/fpsyg.2018.00378>
- Rönnlund, M., Åström, E., & Carelli, M. G. (2017). Time perspective in late adulthood: Aging patterns in past, present and future dimensions, deviations from balance, and associations with subjective well-being. *Timing & Time Perception*, 5(1), 77–98. <http://doi.org/10.1163/22134468-00002081>
- Rönnlund, M., Koudriavtseva, A., Germundsjö, L., Eriksson, T., Åström, E., & Carelli, M. G. (2019). Mindfulness promotes a more balanced time perspective. *Mindfulness*, 10(8), 1579–1591. <http://doi.org/10.1007/s12671-019-01113-x>
- Sailer, U., Rosenberg, P., Nima, A. A., Gamble, A., Gärling, T., & Garcia, D. (2014). A happier and less sinister past, a more hedonistic and less fatalistic present and a more structured future: Time perspective and well-being. *Peer J*, 11, 2. <http://doi.org/10.7717/peerj.303>
- Sliwinski, J., Katsikitis, M., & Jones, C. M. (2017). A review of interactive technologies as support tools for the cultivation of mindfulness. *Mindfulness*, 8(5), 1150–1159. <http://doi.org/10.1007/s12671-017-0698-x>

- Smeets, E., Neff, K., Alberts, H., & Peters, M. (2014). Meeting suffering with kindness: Effects of a brief self-compassion intervention for female college students. *Journal of Clinical Psychology*, 70(9), 794–807. <http://doi.org/10.1002/jclp.22076>
- Thompson, R. A. (1994). Emotion Regulation: A Theme in Search of Definition. *Monographs of the Society for Research in Child Development*, 59(2–3), 25–52. <http://doi.org/10.1111/j.1540-5834.1994.tb01276.x>
- Twenge, J. M., Joiner, T. E., Rogers, M. L., & Martin, G. N. (2018). Increases in depressive symptoms, suicide-related outcomes, and suicide rates among U.S. adolescents after 2010 and links to increased new media screen time. *Clinical Psychological Science*, 6(1), 3–17. <http://doi.org/10.1177/2167702617723376>
- Welp, L. R., & Brown, C. M. (2013). Self-compassion, empathy, and helping intentions. *The Journal of Positive Psychology*, 9(1), 54–65. <http://doi.org/10.1080/17439760.2013.831465>
- Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, 77(6), 1271–1288. <http://doi.org/10.1037/0022-3514.77.6.1271>
- Zimbardo, P. G., & Boyd, J. N. (2008). *The time paradox - the new psychology of time that will change your life*. New York: Free Press.



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