

# Self-Compassion Online: A Pilot Study of an Internet-Based Self-Compassion Cultivation Program for Psychology Trainees

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**Objective:** The current study sought to conduct a preliminary investigation of the effectiveness and feasibility of a novel, self-guided online self-compassion training for reducing psychological distress and increasing self-compassion and happiness among psychology trainees. **Method:** A 6-week online self-compassion cultivation program was developed and delivered to Australian psychology trainees ( $n = 37$ ), and a pre-experimental repeated-measures design was used to collect change data on self-compassion, happiness, perceived stress, emotion regulation difficulties as well as symptoms of depression, anxiety, and stress. **Results:** Participants reported significant increases in self-compassion and happiness and significant decreases in depression, stress, and emotion regulation difficulties between pretest and posttest, with the majority of changes maintained at 3-month follow up. **Conclusion:** This study provides preliminary evidence supporting the effectiveness and acceptability of online self-compassion training as a positive, integrated, and meaningful way of reducing distress and promoting self-compassion and happiness among trainee psychologists. © 2016 Wiley Periodicals, Inc. *J. Clin. Psychol.* 00:1–20, 2016.

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Clinical training is often characterized as a time of high stress for psychology trainees (PTs), with potentially severe consequences for personal, academic, and professional functioning if not managed effectively (Huprich & Rudd, 2003; Pakenham & Stafford-Brown, 2012; Skovholt & Rønnestad, 2003). While research documenting the incidence of stress-related conditions among PTs is limited (Kuyken, Peters, Power, & Lavender, 1998), estimates indicate that between 25% and 73% of PTs experience elevated levels of psychological distress (Brooks, Holtum, & Lavender, 2002; Cushway, 1992; Kumary & Baker, 2008; Kuyken et al., 1998; Stafford-Brown & Pakenham, 2012). Concerns about the levels of stress experienced by PTs have led a number of authors to argue that supporting PTs' capacities to manage stress is an ethical imperative (Barnett, Baker, Elman, & Schoener, 2007; Norcross & Guy, 2007; Stafford-Brown & Pakenham, 2012; Wise, Hersh, & Gibson, 2012) and that stress management initiatives should be integrated into clinical training (Newsome, Christopher, Dahlen, & Christopher, 2006; Shapiro, Brown, & Biegel, 2007; Shapiro & Carlson, 2009). Despite this, stress management and self-care is often overlooked in training (Christopher, Christopher, Dunnagan, & Schure, 2006; Munsey, 2006), and research in this area is limited (Pakenham, 2014).

In the current study, we sought to address this gap by developing an online self-compassion cultivation program for PTs and conducting a preliminary investigation into the effectiveness of the program for increasing self-compassion and happiness and reducing psychological distress. Self-compassion holds promise as a target for interventions that aim to promote self-care, well-being, and resilience to stress and burnout among PTs and other health professionals (Barnett et al., 2007; Boellinghaus, Jones, & Hutton, 2013, 2014; Finlay-Jones, Rees, & Kane, 2015; Patsiopoulous & Buchanan, 2011; Skovholt & Trotter-Mathison, 2011; Wise et al., 2012).

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The potential relevance of self-compassion training for PTs is supported by initial evidence demonstrating the utility of mindfulness- and acceptance-based (MAB) interventions for increasing well-being and reducing stress among PTs (Newsome, Waldo, & Gruszka, 2012; Rimes & Wingrove, 2011; Shapiro et al., 2007; Stafford-Brown & Pakenham, 2012). While self-compassion has been examined as an outcome variable in MAB interventions for targeting stress in PTs (e.g., Rimes & Wingrove, 2011; Shapiro et al., 2007), to our knowledge this is the first study to investigate an intervention which explicitly targets self-compassion among this group. In addition, this is the first study known to us to examine the impact of self-compassion training delivered as a fully self-guided, online intervention. Below we expand our discussion of stress and self-compassion among PTs and present a rationale for the development of the online self-compassion program.

### *Self-Compassion, Stress and Well-Being*

Self-compassion is conceptualized as a way of responding to oneself during times of stress and difficulty and involves three key capacities: a mindful awareness of one's own pain and suffering; treating oneself with care and concern during difficult moments; and the capacity to relate one's suffering to the wider spectrum of human experience (Neff, 2003a). There is growing evidence that self-compassion is an important individual differences variable in stress and coping (Allen & Leary, 2010; Leary, Tate, Adams, Allen, & Hancock, 2007; Neff & McGehee, 2010; Sirois, Molnar, & Hirsch, 2015), and it has also been found to promote a range of positive outcomes, including happiness, optimism, emotional intelligence, wisdom, and adaptive coping (Allen & Leary, 2010; Neff & Germer, 2013; Neff, Hsieh, & Dejitterat, 2005; Neff, Rude, & Kirkpatrick, 2007). Self-compassion is also a robust predictor of a number of stress-related outcomes (Breines et al., 2015; Breines, Thoma, Gianferante, Hanlin, & Chen, 2014; Galhardo, Cunha, Pinto-Gouveia, & Matos, 2013; Macbeth & Gumley, 2012) including burnout (Barnard & Curry, 2011a).

Importantly, self-compassion appears to be capable of cultivation across a variety of populations (Barnard & Curry, 2011b), with initial evidence indicating that even brief self-compassion training can have significant positive effects on well-being (e.g., Adams & Leary, 2007; Arch et al., 2014; Leary et al., 2007; Shapira & Mongrain, 2010). Preliminary evidence also supports the efficacy of longer self-compassion training in reducing psychological distress, with a randomized controlled study by Neff and Germer (2013) finding that participants in an 8-week mindful self-compassion (MSC) training reported significant reductions in depression, anxiety, and stress relative to a waitlist control.

Self-compassion may be particularly pertinent for PTs, given the types of stressors that are inherent in clinical training. During this time, trainee psychologists must start to integrate the multiple aspects of their professional role, which includes the ability to tolerate ambiguity and negotiate resistance (Guy, 1987; Pica, 1998; Skovholt & Rønnestad, 2003). This transition occurs within the context of a number of external or organizational stressors such as time pressures, high workloads, frequent evaluation, and academic demands (Cahir & Morris, 1991; Schwartz-Mette, 2009; Skovholt & Rønnestad, 2003). Importantly, managing the emotional and cognitive complexities of clinical work may be particularly difficult for PTs who hold perfectionistic expectations, have difficulties saying "no," or have underlying feelings of inadequacy and self-doubt (Cushway, 1992; Pica, 1998; Skovholt & Rønnestad, 2003; Skovholt & Trotter-Mathison, 2011).

Theoretically, the practice of self-compassion may reduce PTs experience of stress by reducing self-critical or perfectionistic approaches to clinical work, facilitating PTs' understanding that experiencing challenges and difficulties are a normal part of clinical training, and increasing the likelihood that PTs will respond to stress in a mindful, balanced, and self-supportive way. These propositions are supported by the findings of Patsiopoulos and Buchanan's (2011) narrative enquiry of self-compassion practice among counseling psychologists and recent evidence that self-compassion negatively predicts stress and emotion regulation difficulties among professional and trainee psychologists (Finlay-Jones et al., 2015).

### *The Use of an Online Intervention*

A key consideration for mental health prevention and promotion initiatives is the development of interventions that are flexible, accessible, and sustainable (Christensen & Hickie, 2010; Kazdin & Blase, 2011). Online interventions offer a number of benefits in this regard: They afford constant and remote availability; have the capacity to provide consistent, anonymous, and personalized care; and have the potential to integrate and standardize outcome measures (Andersson & Titov, 2014; Proudfoot et al., 2011). Online interventions also allow cost-effective dissemination on a wide scale, making them well suited for university-based health promotion initiatives (Davies, Morriss, & Glazebrook, 2014; Farrer et al., 2013).

Online programs have been found to be effective in the delivery of stress management interventions for college students (Chiauzzi, Brevard, Thurn, Decembrele, & Lord, 2008; Hintz, Frazier, Meredith, & Terence, 2015), and initial evidence supports the use of online programs as a viable means of delivering MAB interventions among college students as well as clinical and community samples (Spijkerman, Pots, & Bolhmeijer, 2016). Based on these considerations, we decided to develop a self-guided online program to deliver the self-compassion intervention in the current study.

### *Theoretical Basis for the Current Intervention*

The current intervention was based on an emotion regulation model of self-compassion, which proposes that self-compassion supports the capacity to regulate emotions in the face of stressful events, thereby reducing their impact. Self-compassion is negatively linked with a range of clinically relevant emotion regulation difficulties (Finlay-Jones et al., 2015; Roemer et al., 2009; Vettese, Dyer, Li, & Wekerle, 2011), including problems recognizing, understanding, or accepting certain emotional states; and difficulties accessing effective coping strategies, controlling impulsive behavior, and maintaining goal-directed behavior when experiencing emotional discomfort (see Gratz & Roemer, 2004).

Self-compassion is also linked with specific maladaptive emotion regulation strategies that are consistently implicated in psychological distress (Aldao, Nolen-Hoeksema, & Schweizer, 2010) such as rumination (Krieger, Altenstein, Baettig, Doerig, & Holtforth, 2013; Neff, 2003a; Raes, 2010), thought suppression (Neff, 2003a; Neff, Kirkpatrick, & Rude, 2007), and avoidance (Costa & Pinto-Gouveia, 2013; Krieger et al., 2013). Moreover, preliminary evidence suggests that emotion regulation difficulties mediate the link between self-compassion and stress among psychologists (Finlay-Jones et al., 2015), and that rumination and avoidance mediate the relationship between self-compassion and depression (Krieger et al., 2013; Raes, 2010), while worry and rumination mediate the relationship between self-compassion and anxiety (Raes, 2010). In line with this, it has been proposed that self-compassion training moderates stress responses by promoting adaptive emotion regulation (Arch et al., 2014) and coping in the face of difficult experiences (Allen & Leary, 2010).

### *Program Development and Website Design*

To the best of our knowledge, at the time of conducting the research, there were no protocols available for self-compassion training, beyond brief induction exercises (e.g., Adams & Leary, 2007; Shapira & Mongrain, 2010). As a result, a novel 6-week, web-based self-compassion training protocol was developed by one of the authors. This was based on an extensive review of the self-compassion literature (e.g., Germer, 2009; Gilbert, 2010b; Neff, 2011) and related fields, including compassion-focused therapy (Gilbert, 2010a), and MAB interventions (Roemer & Orsillo, 2009). Key elements of these approaches were extracted and adapted to develop a protocol to help individuals cultivate self-compassion according to Neff's (2003a, 2003b) conceptualization.

The basic structure of the program drew on a number of key elements of the MAB model of psychopathology and therapeutic change, including psychoeducation, meditation instruction, reflective and experiential exercises, self-monitoring, and feedback (e.g., Baer & Krietemeyer,

2006; Roemer & Orsillo, 2009; Shapira & Mongrain, 2010). Psychoeducation was used to provide participants with a conceptual understanding of self-compassion and how it relates to different aspects of the stress appraisal and response process. This provided a rationale for engagement with the program; it also was intended to help motivate and guide participants to self-direct treatment and apply key concepts of the online version of the program (Self-Compassion Online [SCO]) to new contexts (Roemer & Orsillo, 2009). Psychoeducation was primarily presented using brief videos, with additional text and illustrations used for more complex concepts.

In addition to this, the SCO program involved meditation training, which was structured to provide participants with a foundation in introductory mindfulness practices, before moving on to self-compassion and loving-kindness practices, which explicitly focused on cultivating the intention to extend goodwill and compassion toward oneself (Hofmann, Grossman, & Hinton, 2011). In line with Monshat, Vella-Broderick, Burns, and Herrman (2012), the length of meditation training increased over time, and participants were able to download meditations or listen to them online.

Reflective and experiential exercises, such as compassionate letter writing, reflection on meditation practice, and self-care activity scheduling, were developed to facilitate application of the key concepts and practices learned in the program to participants' own circumstances and experiences (e.g., Neff, 2011; Shapira & Mongrain, 2010). The intervention also included self-monitoring and self-reflection on cognitive, emotional, and behavioral processes relevant to intervention concepts and practices. These exercises were designed to support self-awareness and promote deeper insight into the variability of individual experience and the link between certain cognitions, emotions, and behaviors as well as the environments in which they occur (Roemer & Orsillo, 2009).

The program was tailored to address experiences and specific needs of PTs, and was then adapted for administration in an online environment. The development of the SCO was informed by the considerations for persuasive system design outlined by Kelders, Kok, and Van Gemert-Pijnen (2012), while the design of the website took into account the elements of internet-based behavioral change stipulated by Ritterband, Thorndike, Cox, Kovatchev, and Gonder-Frederick (2009). For example, the intervention included personalized feedback, use of e-mail reminders and encouragement to support motivation, and opportunities for rehearsal.

The six modules of the SCO program were administered over 6 weeks, at the rate of one module per week. Within each module, participants were able to self-pace their learning, and it was estimated that participants would spend 1 to 2 hours per week completing the online program and homework (not including extra meditation practice). At the end of each module, participants were asked to complete a "Self-Compassion Challenge" as homework. The self-compassion challenges were designed to reinforce key concepts explored for each module and support translation of concepts into real-life applications of self-compassion practice. An overview of the key themes and practices for each module is shown in Table 1.

### *Aims and Hypotheses*

The primary aim of the current study was to conduct a preliminary investigation of the feasibility and effectiveness of the SCO program for increasing self-compassion, and reducing symptoms of psychological distress, including perceived stress, emotion regulation difficulties, and symptoms of depression, anxiety, and stress. A second aim of the current study was to examine the effect of the SCO program on eudaimonic happiness. Previous research suggests that self-compassion is theoretically and empirically connected with eudaimonic happiness and well-being (Barnard & Curry, 2011b; Hollis-Walker & Colosimo, 2011; Neff & Costigan, 2014)—defined as the extent to which a person has actualized their human potential and leads a meaningful life (Ryan & Deci, 2001).

Self-compassion is linked to numerous psychological strengths thought to promote eudaimonic well-being, including curiosity, emotional intelligence, and social connectedness (Heffernan, Quinn Griffin, McNulty, & Fitzpatrick, 2010; Neff, Pisitsungkagarn, & Hsieh, 2008; Neff, Rude, et al., 2007). In addition, it has been suggested that individuals with more self-compassion may be more likely to view mistakes and unhealthy behaviors as an

Table 1  
 Themes, Aims, and Key Components of Modules in the Self-Compassion Online Program

Module theme and aims	Key components
<p>Module 1: Introduction to self-compassion            Aim: Provide conceptual and experiential introduction to self-compassion in the context of a self-care and stress-management framework; build awareness of current self-care practices and habitual ways of self-relating during times of stress.</p>	<ul style="list-style-type: none"> <li>● Introduction to Neff's (2003) tripartite model of self-compassion</li> <li>● Introduction to brief self-compassion practice and reflection</li> <li>● Reflection and rationale for increasing self-care</li> <li>● Reflection on responding to difficulties</li> <li>● Self-compassion "micro-skills" (Gilbert, 2010) and reflection</li> <li>● Goal setting</li> <li>● Frequently asked questions about self-compassion</li> </ul>
<p>Module 2: Mindfulness            Aim: Facilitate conceptual and experiential understanding of mindful responding to difficult experiences, as contrasted with "overidentification" (Neff, 2003b) definition. Support understanding of the link between mindfulness and stress, and insight into mindfulness as the foundation to self-compassion. Facilitate reflection on the personal and professional relevance of mindfulness practice.</p>	<ul style="list-style-type: none"> <li>● Conceptual definitions of mindfulness and clarification of key terms (e.g., nonjudgment, awareness, acceptance)</li> <li>● Introductory mindfulness practice (<i>Mindfulness of Sound</i>)</li> <li>● <i>Mindfulness of Breath</i> practice to demonstrate using the breath as an anchor and <i>Three Breaths</i> practice to demonstrate informal use of breath</li> <li>● Psychoeducation and reflection on mindful versus autopilot modes</li> <li>● Experiential exercise on resistance versus acceptance</li> <li>● <i>Mindfulness of Emotion</i> practice to provide experience of physiological expression of emotion</li> <li>● Psychoeducation on formal versus informal practice</li> </ul>
<p>Module 3: Self-kindness            Aim: Facilitate conceptual and experiential understanding of relating to oneself with kindness—as opposed to self-criticism—in times of stress and difficulty. Provide an introduction to key themes related to self-kindness, including self-talk, self-criticism and perfectionism, and self-acceptance/self-soothing.</p>	<ul style="list-style-type: none"> <li>● <i>Self-Soothing Meditation</i> to practice relating to internal experiences in a gentle, soothing, and accepting way</li> <li>● Self-reflection on self-talk and its psychophysiological impact</li> <li>● Psychoeducation on psychophysiological impact of self-criticism</li> <li>● Self-reflection on self-evaluative standards and self-worth</li> <li>● <i>Introduction to Loving-Kindness</i> practice</li> <li>● Informal self-soothing practice</li> <li>● <i>Reframing negative self-talk</i> exercise</li> </ul>

opportunity for growth (Berry, Kowalski, Ferguson, & McHugh, 2010; Neff et al., 2005), and that self-compassion may decouple the relationship between taking responsibility for a failure or setback and experiencing negative affect (Leary et al., 2007), thereby promoting learning and engagement.

The inclusion of a eudaimonic happiness measure was based on recommendations that stress-prevention initiatives for psychologists aim to enhance positive psychological outcomes in addition to reducing negative ones (Wise et al., 2012). Additionally, the value of positive psychological states as key predictors of clinical symptoms is increasingly recognized, with evidence that positive outcomes account for variance in psychopathology over and above that predicted by negative

Table 1  
Continued

Module theme and aims	Description
<p><i>Module 4: Interconnectedness</i> Aim: Facilitate conceptual and experiential understanding of common humanity and related themes of belongingness and disconnection, social comparison, identity, and isolation. Support participants' insight into the ways they feel connected/separate from others and normalize experience of performance concerns and self-doubt as part of the therapist development trajectory.</p>	<ul style="list-style-type: none"> <li>● Reflection on experiences of social connection and belongingness</li> <li>● Psychoeducation and reflection on belonging and acceptance</li> <li>● <i>Connection</i> practice</li> <li>● Reflection on role of others' perceptions in constructing social identity and self-worth</li> <li>● Psychoeducation and self-reflection on the link between low self-compassion and feelings of isolation</li> <li>● Psychoeducation and self-reflection on personal and professional social comparison, perceived barriers to connection with others, and how these might be overcome</li> <li>● <i>Self-Compassion</i> practice</li> </ul>
<p><i>Module 5: Dealing with difficult emotions</i> Aim: Facilitate conceptual and experiential understanding of the role of self-compassion in promoting adaptive responding to difficult emotions. Support application of the various skills and capacities learned in Modules 2–4 to facilitate coping with difficult emotional experiences.</p>	<ul style="list-style-type: none"> <li>● Psychoeducation and self-reflection on emotion regulation and common emotion regulation difficulties</li> <li>● Psychoeducation on self-compassionate responding to difficult emotions, as opposed to responding with rumination, criticism, blame etc.</li> <li>● Exercise on exploring difficult emotions in interpersonal relationships</li> <li>● <i>Self-Compassion Letter Writing Exercise</i> to reframe difficult experiences from self-compassionate perspective</li> <li>● <i>Self-Soothing Meditation</i> to practice responding to difficult emotions in a self-soothing way</li> </ul>
<p><i>Module 6: Integrating self-compassion into clinical training</i> Aim: Facilitate application of self-compassion to participants' experiences as trainee psychologists, and support understanding of self-compassion as a way of buffering stress and burnout. Summarise key concepts introduced in the SCO program and encourage ongoing self-compassion practice postprogram.</p>	<ul style="list-style-type: none"> <li>● Brief self-compassion practice (from Module 1) and reflection on how experiences have changed over the course of the program</li> <li>● Self-reflection on concerns and challenges related to training as a psychologist and how self-compassion might be applied in this context</li> <li>● Psychoeducation and reflection on relevance of self-compassion to therapeutic work</li> <li>● Goal setting for ongoing self-compassion practice</li> <li>● <i>Loving Kindness and Self-Compassion practice</i></li> </ul>

risk factors (Wood & Tarrier, 2010). Finally, we sought to assess the feasibility of the program by gathering weekly, posttest, and follow-up feedback data from participants regarding their engagement with the program as well as their perceptions of its utility, enjoyableness, relevance, and ease of use.

The aims of the current study were tested using a single-group, open trial design, with measures administered at pretest, posttest, and 12-week follow-up. An open trial design was considered appropriate, given that the intervention under investigation was completely novel and comparative hypotheses were not justifiable (Ip et al., 2013). We hypothesized that from pretest to posttest and from pretest to follow-up, there would be a (H1) significant positive change in self-compassion scores; (H2) significant negative change in emotion regulation difficulties scores;

(H3) significant positive change in happiness scores; (H4) significant negative change in perceived stress scores; and (H5) significant negative change in psychological distress (depression, anxiety, and stress) scores.

## Method

### *Participants and Procedure*

Participants were 37 (89% female, mean age 32.61 years) postgraduate PTs from around Australia, recruited through university e-mail channels and advertising on social media. An a priori analysis using the G\*Power program (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that a sample size of 29 would be sufficient to detect a small to moderate effect. The estimation of a small to moderate effect size was based on the effect sizes for depression, anxiety, and stress outcomes reported in previous studies of self-help MAB interventions (for review, see Cavanagh, Strauss, Forder, & Jones, 2014). Participants needed to be currently enrolled in an Australian Psychology Accreditation Council-accredited postgraduate psychology degree and currently engaged in clinical work to be included in the study. Eight participants (21.62%) were enrolled in a postgraduate counseling psychology program, and 29 (78.38%) were enrolled in a postgraduate clinical psychology program, with an average of 19 hours clinical work per week.

All participants completed a screening questionnaire to determine that they met the inclusion criteria for the study; eligible participants were then e-mailed a link to the pretest measures one week before the commencement of the program. After completing pretest assessments, participants were asked to nominate a username and password, which they used to log in to the program. Once in the program, participants accessed a new module each week for 6 weeks. E-mails were sent to participants at the beginning of each week, providing an overview of the scheduled module and encouraging participants to access the program. Weekly feedback questionnaires were e-mailed at the end of each week, and a link to the posttest questionnaires was e-mailed to participants at the end of the sixth week. Twelve weeks after the program completion date, participants received an e-mail with a link to the follow-up measures. A total of 37 participants completed pretest measures, while 20 (54%) provided posttest data and 15 (40%) provided data at 12-week follow-up.

### *Intervention*

The intervention comprised six modules delivered over 6 weeks and was accessed via a website. The aim of the first module was to introduce the concept of self-compassion and provide PTs with a rationale for engaging in the program, by presenting the construct within a self-care and stress-management framework. The second, third, and fourth module focused on fostering understanding, skills, and capacities connected with the three elements of Neff's (2003a) conceptualization of self-compassion (mindfulness, self-kindness, and common humanity, respectively). The fifth module was designed to encourage PTs to apply the skills and capacities developed through modules two through four, to help them cope with difficult emotional experiences. The focus of the sixth and final module was on the application of self-compassion to PTs experiences in clinical training, and how self-compassion can be used to protect against occupational stress and burnout. This module also summarized key concepts introduced in the program and provided a rationale for ongoing self-compassion practice.

### *Measures*

*Self-compassion.* We used the Self-Compassion Scale (SCS; Neff, 2003a) to assess self-compassion. The SCS is a 26-item self-report measure of three dimensions as proposed by Neff (2003a,b): self-kindness (e.g., "I try to be understanding and patient towards those aspects of my personality I don't like"); common humanity (e.g., "I try to see my failings as part of the

human condition”); and mindfulness (e.g., “[w]hen something painful happens, I try to take a balanced view of the situation”). Respondents rate items on a scale ranging from 1 (*almost never*) to 5 (*almost always*). The SCS has three subscales that assess self-judgment, isolation, and overidentification, and items from these subscales are reverse-scored. Internal consistency for the SCS is high, with previous studies reporting Cronbach’s alphas above .92 (Neff, 2003a; Neff, Kirkpatrick, et al., 2007). The scale demonstrates strong test-retest reliability, convergent validity, and discriminant validity (Neff, 2009). In the current study, the internal consistency of the scale at pretest was  $\alpha = .93$ .

*Perceived stress.* We used the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) to assess cognitive appraisals of stress. The PSS is a 10-item self-report measure of respondents’ perceived sense of control over stressful events and their self-efficacy and capacity to cope with them. Respondents rate the frequency of perceived stress (e.g., [h]ow often have you felt confident about your ability to handle your personal problems?) in the past month on a 5-point Likert-type response scale ranging from 0 (*never*) to 4 (*very often*). The PSS demonstrates adequate construct and discriminant validity, and Cronbach’s alphas ranging from .85 to .88 have been reported for this scale (Cohen et al., 1983; Hintz et al., 2015). In the current study, the pretest internal consistency of the PSS was  $\alpha = .88$ .

*Happiness.* We used the 24-item Authentic Happiness Inventory (AHI; Peterson & Park, 2008) to assess eudaimonic happiness. The AHI is based on the Steen Happiness Index (SHI), developed by Seligman et al. (2005), which measures happiness along dimensions of pleasure, meaning, and engagement. Respondents select one of five statements, ranging from negative (e.g., “[m]y life does not have any purpose or meaning”) to extremely positive (e.g., “I have a very clear idea about the purpose or meaning of my life”). Preliminary research demonstrates the reliability of the AHI, with Cronbach’s alphas greater than .92 reported in the literature (e.g., Schiffrin & Nelson, 2010; Silberman, 2007). In the current study, the internal consistency of the scale at pretest was  $\alpha = .91$ .

*Emotion regulation difficulties.* We used the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) to measure problematic emotion regulation. The DERS, a 36-item self-report questionnaire, comprises six subscales: (a) non-acceptance of emotions (e.g., “[w]hen I’m upset I become angry with myself for feeling that way”); (b) difficulties engaging in goal-directed behavior when upset; (c) impulse control difficulties when upset; (d) lack of emotional awareness; (e) limited access to emotion regulation strategies; and (f) lack of emotional clarity. Items are scored on a 5-point Likert-type scale ranging from 1 (*almost never*) to 5 (*almost always*). The DERS demonstrates adequate validity, test-retest reliability, overall internal consistency ( $\alpha = .93$ ), and subscale reliability, with Cronbach’s alphas over .80 reported for each subscale (Gratz & Roemer, 2004; Ortega, 2009). In the current study, the pretest internal consistency of the total scale was  $\alpha = .91$ , while Cronbach’s alphas for the subscales ranged between  $\alpha = .69$  and  $\alpha = .93$ .

*Psychological distress.* We used the Depression Anxiety and Stress Scales (DASS-21; Lovibond & Lovibond, 1995) to assess symptoms of depression, anxiety, and stress. The DASS-21 is 21-item self-report instrument comprising three subscales, each with seven items, designed to measure symptoms of depression (e.g., “I couldn’t seem to experience any positive feeling at all”), anxiety (e.g., “I was aware of dryness of my mouth”), and stress (e.g., “I felt that I was using a lot of nervous energy”). Respondents rate items on a 4-point Likert-type scale ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*). This scale measures current symptoms of psychological distress and is sensitive to changes in these symptoms over time (Antony, Bieling, Cox, Enns, & Swinson, 1998).

The DASS-21 subscales have been shown to have high internal consistency ( $\alpha = .94$  for Depression,  $\alpha = .87$  for Anxiety, and  $\alpha = .91$  for Stress; Antony et al., 1998). In the current study, pretest Cronbach’s alphas for the subscales were  $\alpha = .84$  for Depression,  $\alpha = .80$  for



Table 2  
Means and Standard Deviations for Outcomes at Pretest, Posttest and Follow-up

	Pretest ( $n = 37$ )		Posttest ( $n = 20$ )		Follow-up ( $n = 13$ )	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Self-compassion	2.76	.01	3.43	.14	3.49	.11
Emotion regulation difficulties	76.78	2.80	67.35	3.04	67.23	4.16
Happiness	3.12	.07	3.35	.074	3.28	.10
Perceived stress	19.57	6.25	14.65	5.18	13.92	6.07
Psychological distress						
Depression	7.40	.98	4.00	.88	4.00	1.18
Anxiety	5.24	1.03	3.50	1.08	1.64	.85
Stress	15.13	1.36	9.10	1.16	8.92	1.98

Note. *M* = mean; *SD* = standard deviation.

Anxiety, and  $\alpha = .86$  for Stress. Raw scores in the current study were doubled to make them comparable with scores on the DASS-42.

### Data Analysis

The hypotheses were tested using multilevel mixed effects linear regression (MLM; see Bryk & Raudenbush, 1987; Dimitrov & Rumrill, 2003; Hofman et al., 2007) and conducted with SPSS's (version 21.0) generalized linear mixed models (GLMM) procedure. MLM affords a number of advantages over statistical procedures conventionally used to analyze behavioral change: It uses all the data available at each assessment point, rather than relying on data from all participants at each point, thereby lessening the effect of participant attrition on statistical power (Kwok et al., 2008). MLM may therefore be particularly appropriate for use in research on online interventions, which commonly experience elevated attrition rates (Melville, Casey, & Kavanagh, 2010). In addition, MLM is robust to unevenly spaced data collection points, does not require equal variances for each assessment point, or equal covariances between all pairs of time points, and can account for correlations between repeated measurements (Kwok et al., 2008). MLM also is more able to estimate group means using small group sizes compared to other statistical techniques (Holden, Kelley, & Agarwal, 2008).

*Effect sizes.* Effect sizes for changes on outcome variables between pre- and posttest, posttest and follow-up, and pretest and follow-up were determined by calculating Cohen's *d* for each of the outcome variables. According to Cohen's (1992) conventions, a Cohen's *d* of 0.2 indicates a small effect, a Cohen's *d* of 0.5 indicates a medium effect, and a Cohen's *d* of 0.8 or more indicates a large effect.

## Results

### Missing Data and Descriptive Statistics

The mean scores and standard deviations for each outcome variable at pretest, posttest, and follow-up are reported in Table 2. Of the 37 participants who completed pretest measures, 20 (54%) completed posttest measures and 13 (35%) completed 3-month follow-up measures. While the GLMM maximum likelihood procedure reduces sampling bias and the need to replace missing data, we used Mann-Whitney *U* tests to assess whether there were differences between completers and noncompleters on pretest scores for each of the outcome variables. The results of these tests were nonsignificant for all variables apart from perceived stress, with pretest levels of perceived stress for noncompleters significantly higher (*mean rank* = 22.00,  $n = 17$ ) than for

Table 3  
Results of the Fixed Effects of Time for Each Outcome

Outcome	Numerator df	Denominator df	F-value	Sig.
Self-compassion	2	65	28.51	< .001
Emotion regulation difficulties	2	67	17.01	< .001
Happiness	2	67	6.75	.002
Perceived stress	2	67	6.73	.002
Psychological distress				
Depression	2	67	5.37	.007
Anxiety	2	65	7.92	.001
Stress	2	67	14.60	< .001

Note. df = degree of freedom.

completers (*mean rank* = 17.50, *n* = 20), *p* = .03. In addition, chi-square tests conducted to determine whether there was a significant age or gender difference between participants who completed the program and those who did not revealed no significant gender,  $\chi^2(1, N = 37) = .04$ , *p* > .05 or age  $\chi^2(14, N = 37) = 19.28$ , *p* > .05 difference between the groups.

#### Main Effects of Time and Pairwise Contrasts

Table 3 presents the main effects of time for each of the outcome variables and data for the pairwise contrasts between pretest and posttest, posttest and follow-up, and pretest and follow-up for each outcome variable are reported in Table 4. In support of H1, the main effect of time on total self-compassion scores was significant at the Bonferroni-corrected alpha level of .008,  $F(2,65) = 28.51$ , *p* < .001, with significant positive changes in self-compassion scores observed between pre- and posttest (*p* < .001). These changes were maintained at follow-up, with a large effect size found for the changes in self-compassion between pre- and posttest (*d* = .86) and between pretest and follow-up (*d* = 1.15).

In support of H2, the main effect of time on total emotion regulation difficulties score was significant at the Bonferroni-corrected alpha level of .008,  $F(2,67) = 17.01$ , *p* < .001, with significant negative changes in emotion regulation difficulties scores between pre- and posttest (*p* < .001). These changes were maintained at follow-up, with a moderate to large effect size calculated for pre- to posttest changes, and a moderate effect size for changes between pretest and follow-up.

H3 was supported, with a significant main effect of time on happiness,  $F(2,67) = 6.75$ , *p* = .002. Significant increases in happiness were observed between pre- and posttest (*p* < .001), and these changes were maintained at follow-up. A moderate effect size was observed for the pre-post test changes in happiness, while the effect size for changes in happiness between pretest and follow-up was small. In support of H4, we found a significant main effect for time on perceived stress,  $F(2,66) = 4.97$ , *p* = .002, with significant pre- to posttest decreases in perceived stress (*p* = .002). These changes were maintained at follow-up, and a moderate effect size was observed for the pre-post changes (*d* = .52), while a small-moderate effect size was observed for pretest to follow-up changes (*d* = .48).

Finally, partial support was found for Hypothesis 5. Overall, a significant main effect for time was observed for each of the psychological distress variables at a Bonferroni-corrected alpha level of .017: depression,  $F(2,67) = 5.37$ , *p* = .007; anxiety,  $F(2,65) = 7.92$ , *p* = .001; and stress,  $F(2,67) = 14.60$ , *p* < .001. Between pre- and posttest, there was a significant reduction in depression (*p* = .002) and stress (*p* < .001), and these changes were maintained at follow-up. For anxiety scores, nonsignificant reductions were observed between pretest and posttest (*p* = .165); however, reductions between pretest and follow-up were significant (*p* = .003). Between pre- and posttest, a moderate effect size was observed for changes in depression (*d* = .54), and changes in stress showed a large effect size (*d* = .85). Between pretest and follow-up, a small to

Table 4  
*Least Significant Difference (LSD) Tests of the Simple Main Effects of Time With Pairwise Contrasts of Pretest and Posttest (T1–T2), Posttest and Follow-Up (T2–T3), and Pretest and Follow-Up (T1–T3) for Outcome Variables*

Outcome	Time	CE	SE	<i>t</i> -value	95% CI	Adj. Sig.	<i>d</i>
Self-compassion	T1–T2	–.66	.13	–5.25	[–.92, –.41]	< .001	.86
	T2–T3	–.06	.13	–.49	[–.32, .20]	.623	.08
	T1–T3	–.73	.10	–7.00	[–.94, –.52]	< .001	1.15
Emotion regulation difficulties	T1–T2	9.43	2.52	3.75	[4.41, 14.45]	.001	.62
	T2–T3	1.43	2.63	.05	[–5.12, 5.36]	.964	.10
	T1–T3	9.55	3.01	3.17	[3.54, 15.56]	.002	.52
Happiness	T1–T2	–.23	0.06	–3.58	[–.37, –.10]	.001	0.59
	T2–T3	.07	.10	.74	[–.12, .26]	.465	0.12
	T1–T3	–.16	.12	–1.41	[–.40, .07]	.164	0.23
Perceived stress	T1–T2	3.92	1.24	3.16	[1.44, 6.39]	.002	0.52
	T2–T3	.10	1.47	.07	[–2.83, 3.03]	.945	0.01
	T1–T3	4.02	1.38	2.92	[1.27, 6.77]	.005	0.48
Depression	T1–T2	3.44	1.05	3.27	[1.34, 5.54]	.002	0.54
	T2–T3	–.80	1.12	–0.72	[–3.01, 1.41]	.473	0.12
	T1–T3	2.64	1.42	1.86	[–0.19, 5.47]	.067	0.31
Anxiety	T1–T2	1.74	1.24	1.40	[–.74, 4.23]	.165	0.23
	T2–T3	1.86	.85	2.18	[.16, 3.57]	.033	0.36
	T1–T3	3.61	1.15	3.14	[1.31, 5.90]	.003	0.52
Stress	T1–T2	5.45	1.06	5.15	[3.34, 7.56]	< .001	0.85
	T2–T3	–.78	1.76	–.44	[–4.29, 2.73]	.659	0.07
	T1–T3	4.67	1.67	2.79	[1.33, 8.01]	.007	0.46

Note. CE = contrast estimate; SE = standard error; CI = confidence interval; adj. sig. = adjusted significance; *d* = Cohen's *d*.

moderate effect size was observed for depression ( $d = .31$ ) and stress ( $d = .46$ ), and a moderate effect size was observed for anxiety ( $d = .52$ ).

### Program Feedback

At the end of each module, participants were given the option to rate the module on a scale from 1 to 5 along five dimensions: difficulty; enjoyableness; relevance; comprehension (i.e., “I understood this module”); and learning (i.e., “I learned something from this module”). Response rates varied, with an average of nine participants providing feedback per module. Average ratings across modules were high for enjoyableness (4.12), relevance (4.32), comprehension (4.54), and learning (4.34), and low to moderate on difficulty (1.95).

At the end of the program, 20 participants responded to a question asking them about any benefits they experienced in relation to the SCO program. The majority of participants reported finding the program enjoyable and relevant to their academic, professional, and personal lives (e.g., “I really enjoyed the program. It was something to look forward to each week and I found it to be a source of support. I found the topics covered to be extremely relevant not only to the experiences associated with masters but other areas of my life like interpersonal issues”). Most participants mentioned developing a greater understanding of self-compassion and how to apply it in their own lives, including increased mindfulness, self-kindness, and self-acceptance, and decreased self-criticism and feelings of personal and professional isolation.

Participants also reported increased resilience in the face of stress and expressed appreciation for the value of self-care practices. They said that the SCO program provided them with techniques to reduce stress or distress during clinical training and supported them to take time

for self-reflection and self-care. Participants also described positive effects on their therapeutic work, including increased authenticity, responsiveness, and a greater capacity to “be present” and “practice what you preach.”

Finally, participants reported finding the program well structured, clear, and engaging. Sixteen participants provided responses to a question asking them to describe any difficulties they experienced with the SCO program. The main difficulty reported was a lack of time to complete the program, and a number of participants suggested that decreasing the amount of content in the SCO program might make it more feasible for them to complete it given their time constraints.

## Discussion

The results from the current study provide initial support for the feasibility and effectiveness of online self-compassion training for increasing self-compassion and reducing psychological distress among Australian PTs. As hypothesized, participants reported significant improvements in self-compassion, happiness, perceived stress, emotion regulation difficulties, and psychophysiological symptoms of depression and stress between pre- and posttest. Additionally, these changes were maintained at 3-month follow-up. Our hypothesis that anxiety would decrease between pre- and posttest was not supported, although we observed significant decreases on this variable between pretest and follow-up. Feedback data indicated that, overall, participants found the SCO program relevant, enjoyable, and beneficial in both their personal and professional lives; however, some revisions to the program are recommended to increase the flexibility of the intervention and optimize engagement.

These results provide promising preliminary evidence that self-compassion can be increased using an online intervention and that changes remain robust over time. The average increases in self-compassion (0.67 points of a possible 5 at posttest and 0.73 points at follow-up, with a large effect size indicated) in the current study can be compared with results from Neff and Germer’s (2013) randomized controlled trial of MSC (1.13 point increase, large effect size), and studies examining self-compassion as an outcome after mindfulness-based stress reduction (e.g., Birnie, Speca, & Carlson, 2010; Shapiro, Astin, Bishop, & Cordova, 2005; Shapiro et al., 2007) and mindfulness-based cognitive therapy (e.g., Kuyken et al., 2012; Lee & Bang, 2010; Rimes & Wingrove, 2011), which reported average self-compassion increases of .54 and .30 points, respectively.

The increases in happiness observed between pre- and posttest are in line with previous research documenting a positive relationship between self-compassion and happiness (Hollis-Walker & Colosimo, 2011; Neff, Rude, et al., 2007; Shapira & Mongrain, 2010; Smeets, Neff, Alberts, & Peters, 2014), and the moderate effect observed for these changes in the current study can be compared with the small effect for happiness reported by Neff and Germer (2013). Similarly, the decreases on psychological distress outcomes are consistent with evidence that increased self-compassion is associated with lower levels of depression and stress (Barnard & Curry, 2011b).

While the moderate effect size observed for depression and perceived stress after the SCO program can be compared with the large effect size for depression and small effect size for stress after the MSC program (Neff & Germer, 2013), it is not completely clear why there was no significant decrease in anxiety between pretest and posttest in the current study. One possibility is that this is linked to a floor effect: While the score distribution for stress and depression were relatively normal, inspection of the score distribution for anxiety revealed that 45.9% of the sample had a score of 0–2 on the DASS Anxiety scale at pretest. This might be expected given that the intervention was targeted at a nonclinical population; as has been reported previously in the mindfulness-based intervention literature, individuals with low levels of anxiety at pretest may demonstrate smaller improvement than those with higher pretest scores (e.g., Hofmann, Sawyer, Witt, & Oh, 2010).

Finally, the moderate-large effect sizes observed for changes in emotion regulation difficulties between pre- and posttest are in line with previous literature documenting the association

between self-compassion and adaptive emotion regulation (Allen & Leary, 2010; Finlay-Jones et al., 2015; Terry & Leary, 2011).

### *Limitations*

While the results of the current study are encouraging, there are a number of limitations that should be taken into account. Given that the current study was an open trial with no control group, it cannot be concluded that the improvements on outcome measures were due to participation in the intervention rather than uncontrolled variables such as time or changing professional or personal demands. Future research should address this by comparing the effect of the current intervention with an alternative stress-management intervention and a waitlist control group.

Additionally, despite the robust evidence of an inverse relationship between self-compassion and psychological distress, the current study does not provide evidence that increases in self-compassion reported after the SCO program brought about the observed changes on other outcome variables. To determine whether changes in self-compassion mediate concurrent improvements in psychological health, it is recommended that future research incorporate mediation analyses in the context of a controlled design. In addition, given evidence that emotion regulation may represent a key mechanism underlying the relationship between self-compassion and psychological well-being (Allen & Leary, 2010; Arch et al., 2014; Finlay-Jones et al., 2015; Neff et al., 2005), future research may wish to examine the role of emotion regulation in mediating outcome change over the course of the SCO program.

The generalizability of the current findings are limited by the small sample size and the fact that participants self-selected to enroll in the intervention, making it likely that motivation to complete the intervention was higher in the current sample than it may be in the wider population of PTs. A larger sample size with randomization of participants to the intervention or to a control condition is recommended to investigate how well PTs typically engage with and respond to the SCO program.

In addition, the current study is limited in the reliance on self-report scales to measure key outcomes. In light of the hypothesis that self-compassion affects sympathetic nervous system activity by altering perceptions of threat (Gilbert & Proctor, 2006) and preliminary evidence that self-compassion enhances immune function and moderates inflammatory stress responses (Arch et al., 2014; Breines et al., 2014; Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008; Rockliff, Gilbert, McEwan, Lightman, & Glover, 2008), we recommend that future research incorporate measures of behavioral and biological responses to stress. In particular, it has been hypothesized that self-compassion reduces self-criticism, promotes active self-soothing, and supports a balanced, nonjudgmental attitude in the face of stressful events (e.g., Germer & Neff, 2013; Neff et al., 2005). Future research may wish to examine this proposition in greater detail by examining the way that individuals respond to specific stressors after self-compassion training and consider how this may manifest within the therapeutic hour, as well as outside of it.

Finally, in line with initial evidence that self-compassion and loving-kindness interventions support the cultivation of key therapeutic capacities such as empathy, therapeutic presence, and self-awareness (Bibeau, Dionne, & Leblanc, 2016; Boellinghaus et al., 2013; Raab, 2014), another important area of future research is to examine how self-compassion training among PTs might affect their clients' therapeutic outcomes and evaluations of the therapeutic relationship.

A final limitation in the current study concerns the rate of dropout from the program: Only 54% of participants completed posttest measures and 40% completed 3-month follow-up measures. While statistics from internet intervention research (e.g., Christensen, Griffiths, Korten, Brittliffe, & Groves, 2004; Eysenbach, 2005) suggest that the current attrition rates are well within expected levels, we recommend that future revisions to the program incorporate additional measures to increase engagement and minimize dropout. First, in line with participants' suggestions to reduce the amount of content to improve completion rates, we recommend that the program be refined to optimize the balance of module length, conceptual clarity, and opportunity for experiential learning. Given that the SCO program is entirely

self-guided, it is recommended that further user feedback be sought regarding amount of content, comprehension of key concepts, and modes of presenting information and experiential exercises (e.g., text, video, audio, questionnaires, and reflective spaces). A second recommendation is to consider more flexible methods of intervention administration, such as delivery via smartphone. Finally, we recommend that future trials consider integrating the intervention into clinical training so that PTs are supported to complete it as part of their academic curricula.

### *Directions for Future Research*

It should be noted that as noncompleters in the current study reported significantly higher levels of perceived stress at pretest, it is possible that the additional time demands of engaging in the program were difficult to sustain for those who were already experiencing elevated stress. It may be of greater benefit to implement stress-prevention programs earlier on in postgraduate training (e.g., before commencing clinical work), when PTs tend to experience less demands on their time and are more able to dedicate attention to cultivating capacities for preventing and dealing with stress. It is also recommended that evaluations of the program include follow-up assessment with participants who drop out so that the reasons for attrition can be examined in greater detail. Additionally, as the current study did not measure frequency or duration of program log-in time, we recommend that future evaluations of the SCO program should examine treatment adherence in line with CONSORT-EHEALTH guidelines (Eysenbach, 2011), by examining metrics such as number of logins, number of modules accessed, and average session time.

### Conclusion

This pilot study provides the first evidence that PTs may benefit from online self-compassion training, a finding that has important implications for individuals and training institutions interested in reducing distress and promoting well-being among this professional group. Further research is required to replicate the current results in the context of a randomized controlled trial with a larger sample, to clarify the efficacy of the SCO program for reducing distress and promoting well-being in PTs and determine if the program is well tolerated among this population. Given the types of stressors faced by PTs undergoing clinical training (Pakenham & Stafford-Brown, 2012; Skovholt & Rønnestad, 2003), self-compassion-based interventions may represent a particularly meaningful and relevant means of supporting resilience and well functioning in a positive and integrated way (see Skovholt & Trotter-Mathison, 2011; Wise et al., 2012).

Importantly, the current study adds to emergent findings suggesting that MAB interventions can feasibly and effectively be imparted in an online environment (Spijkerman et al., 2016), providing a sustainable and cost-effective alternative to face-to-face training. The accessibility and flexibility of web-based programs may make them preferable to face-to-face training for PTs and clinical training institutions, which commonly face limitations in terms of time and resources (Shapiro et al., 2007). An important direction for future research may therefore be to consider the feasibility of integrating such programs into clinical training.

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