How Feasible and Effective is a Brief Online Self-Compassion Program for Students in the Healthcare Professions?

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Abstract

Health care professionals are at higher risk for work-related stress, burnout and compassion fatigue than other professionals. One coping strategy that has attracted considerable attention is the practice of self-compassion. Self-compassion training is associated with psychological benefits such as decreased self-criticism and rumination and increased connectedness, mindfulness, and life satisfaction. (Smeets et al., 2014). While there is preliminary evidence that online self-compassion training is as effective as in-person training (Finlay-Jones et al., 2016), length and duration of online programs may affect adherence. Accordingly, this study assessed the feasibility of a short, 4-week online self-compassion program tailored for students in health care professions. Since this was an exploratory study, there was no control group. A convenience sample of 31 students who were registered in health care profession programs at the University of Ottawa and other Canadian universities were recruited. Key feasibility indicators included ease of recruitment, retention, completion of outcome measures, and acceptability of the program (adherence, satisfaction, ease of use). The study also obtained preliminary data on the effects of the intervention on levels of self-compassion, mindfulness, depression, anxiety and stress. Recruitment was easier than expected, with 31 participants enrolled in the study within a 2-month period. Of these, 21 started the self-compassion training. Adherence to the daily self-compassion meditations was poor, with only four participants meditating at least 50% of the expected number of days. Participants rated the self-compassion meditations as easy to follow and satisfaction ratings were acceptable for three of the four meditations. However, only two of the meditations were perceived to be relevant to healthcare professions. Intent-to-treat analyses revealed that the mindfulness facet Nonjudge and levels of stress improved from pre-to- post study. Separate analyses on program starters revealed that the mindfulness facets *Describe*, *Nonjudge*, and *Act with Awareness*, and levels of stress and anxiety improved. However, it is unlikely that these changes were attributed to the meditation practice given the poor rate of adherence. Overall, results suggest that this brief online self-compassion meditation training may not be feasible for healthcare trainees at this time without certain modifications to the program.

Keywords: online self-compassion training, health care professions

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Introduction

Individuals in health care professions help their clients by providing support and healing (Newsome et al., 2012). Unfortunately, individuals in these professions are vicariously exposed to the suffering of others, whether it is mental and/or physical pain. This means that such professionals work in emotionally exhaustive environments that can make them more prone to psychological distress including stress and burnout (Moore & Cooper, 1996; Shapiro et al., 2005). Apart from exposure to human suffering, other factors such as the demands of the job/training program, risk of liability and working conditions can also contribute to stress and burnout. 'Burnout' is defined as physical and mental exhaustion from work (Iacovides et al., 2003), whereas the term 'stress' denotes the perception that external events are more demanding than one is able to handle (Lazarus, 1966). A survey study of 287 psychology trainees found that more than two-thirds of students experienced at least moderate levels of stress related to training (Cushway, 1992). Financial instability, poor work-life balance, and academic responsibilities are some of the stressors experienced by students in health care professions that can impair their wellbeing and functioning (El-Ghoroury et al., 2012). In one study involving psychology graduate students, depressive symptoms were correlated with supervisor relationship satisfaction and number of hours worked each week (Peluso et al., 2011).

Although academic demands are an important factor, personal issues that are unrelated to training can also contribute to the stress experienced by trainees in health care professions. One study that examined mental health deterioration in medical students found that medical school variables alone were not significant predictors of psychological distress (Tyssen et al., 2001). Other personal variables such as previous mental health problems and personality characteristics were better predictors of current mental health. Similarly, another study that explored the causes of burnout in medical students found that personal life events were a better predictor of burnout than work-related distress (Dyrbye et al., 2006). Even though burnout equates professional distress, life events, along with work-related distress can lead to higher levels of burnout. A longitudinal study on nursing students revealed that rates of burnout increased as the program progressed (Deary et al., 2003). Therefore, years spend in training can directly add to the trainees' diminished mental well-being.

Psychological distress such as high levels of stress and burnout faced by individuals in health care professions carry many consequences for the individuals themselves, but their

diminished well-being can subsequently impact their clients as well (Enns et al., 2018). One study examining the effects of medical students' diminished mental health on patient care found that students who met criteria for depression made six times more errors in prescribing medications than students who were not depressed (Fahrenkopf et al., 2008). The researchers also noted that out of the 123 participants, 92 met the criteria for burnout. One study on 203 doctoral psychology students found that almost 75% of participants experienced burnout during their training (Swords & Ellis, 2017). Students who report higher levels of stress are also less prepared for their career. For example, a study on nurses found that higher levels of stress and burnout during training years predicted lower career preparedness after graduation, including mastery of skills (Rudman & Gustavsson, 2012). Another form of psychological distress that afflicts health care professionals specifically is compassion fatigue. Compassion fatigue is defined as a state of emotional exhaustion that impedes one's ability to be in a caring relationship or provide care for another (Nolte et al., 2017; Raab, 2014). Health care professionals are exposed to human suffering and are therefore at risk for developing compassion fatigue. Compassion fatigue could not only limit a person's ability to provide adequate care for clients, but it could also negatively impact one's perception of job satisfaction (Brown et al., 2017). In addition to compassion fatigue, other studies on healthcare trainees have noticed a significant decline in empathy during the course of training (Hojat et al., 2004; Sherman & Cramer, 2005).

The psychological distress inherent in health care professions was highlighted in one study that compared clinical psychologists to research psychologists (Radeke & Mahoney, 2000). The authors found significantly higher levels of emotional exhaustion, anxiety and depression in the clinicians than the researchers. The stress inherent in health care professions could have deleterious effects on the individual if they do not develop adequate self-care strategies (Christopher et al., 2006). Self-care is defined as behaviours that help promote both physical and emotional well-being (Myers et al., 2012). One self-care strategy that has received considerable attention in recent years is meditation practices such as self-compassion and mindfulness. Unfortunately, students who are registered in health care profession programs are seldom taught self-care strategies through their coursework (Newsome et al., 2006). However, when self-care training is integrated in the curriculum, students report reduced psychological distress and increased overall well-being (Finlay-Jones et al., 2017). Given the present COVID-19 pandemic and its impact on the mental health of health care workers (Bettinsoli et al., 2020;

Ruiz-Fernandaz et al., 2020), the need for self-care training and resources is particularly relevant (Guo et al., 2021; Zhi et al., 2020).

Self-compassion

Even though the introduction of self-compassion as a psychological construct is quite new in the Western world, self-compassion has been practiced in Buddhist traditions for centuries (Neff et al., 2007). Self-compassion is defined as being compassionate and caring toward oneself in times of suffering or inadequacy (Neff, 2003b). Rather than being judgemental and harsh in times of perceived suffering, self-compassion involves being a kind, warm and caring friend toward oneself (Neff & Germer, 2013, Neff, 2016). Self-compassion is conceptualized as having 3 components: self-kindness, common humanity and mindfulness (Neff, 2003a). These characteristics are the opposite of self-criticism, isolation and over-identification, respectively. Self-compassion is a mutual interaction between self-kindness, common humanity and mindfulness (Neff et al., 2007; Smeets et al., 2014). Rather than belittling oneself or resorting to self-judgement, self-kindness offers comfort and love. The more self-kindness a person possesses, the less self-critical they are. Common humanity evokes a sense of inter-connectedness and realization that suffering is a part of the human condition (Neff, 2003a; Smeets et al., 2014). Thus, one recognizes that hardship is not unique to one individual and that all humans face struggles in their life. Mindfulness is described as having a receptive state of mind and being aware of the pain that is being experienced in a balanced way. Thus, one neither avoids nor amplifies the suffering (Neff, 2003a; Smeets et al., 2014). A balanced sense of acknowledgment of the painful experience is considered essential to eliciting a compassionate response to oneself during times of suffering (Neff, 2003a; Neff, 2003b).

Apart from Neff's conceptualization of self-compassion, Paul Gilbert has approached the concept from an evolutionary perspective, operationalizing a tripartite emotion regulation system. The three systems are: a threat-protection system, a system driven by competitive drives and a contentment system (Gilbert, 2014). The threat-protection system evolved to protect humans from potential danger by enabling them to respond appropriately to harm (Gilbert, 2015). Upon activation, the system generates threat-based emotions (such as anger, anxiety) and corresponding defensive behaviours (such as fight, flight, submission). The second system is driven by the need to achieve and therefore focuses on the acquisition of resources that are conducive to survival (e.g., food, sex, shelter) (Gilbert, 2015). The last system enables the person

to reach a state of quiescence and safeness once the threat-protection system and drive system are calmed (Gilbert, 2014). This soothing-contentment system not only helps the individual be at peace with themselves, but also enables feelings of connectedness (Gilbert, 2014). Therefore, an imbalance between these three systems, such as over-stimulation of the threat system and/or drive system, can make it harder for the person to feel soothed. Over time, the inaccessibility of the soothing system can make it difficult for the person to experience feelings of compassion, safeness and contentment (Gilbert, 2015). Imbalances amongst these three systems are reflected in numerous pathologies. These three systems can be rebalanced and a state of equilibrium can be achieved through compassion-focused therapy.

Although self-compassion has been gaining popularity in recent years, there are certain misunderstandings surrounding the concept. Neff (2003a) clarifies many of the common misconceptions, one of which is that being self-compassionate equates to self-pity. Feelings of self-pity is often followed by a disconnection from others around us. The person is preoccupied with their problems and fails to realize that other people face similar struggles. This emotional isolation and categorization of personal struggles as 'one of a kind' can then lead to an exaggeration of personal suffering. On the other hand, self-compassion reinforces the notion that suffering is part of the human condition and that everyone experiences different forms of suffering (Neff, 2003a; 2003b). Self-compassion is also sometimes misconstrued as being self-centered or as invoking feelings of superiority. However, compassion is actually directed towards the self to better foster a sense of interconnectedness and to acknowledge that everyone suffers at one point or another (Neff, 2003b). While self-compassion is not necessary to be compassionate to others, self-compassion increases our overall responsiveness to others, as well as generosity (Neff, 2003a, b). In that sense, being self-compassionate is also directly associated with having a compassionate stance towards others.

Studies have associated self-compassion with various positive psychological outcomes. For example, one study found that self-compassion correlated positively with levels of hope and a more optimistic view towards life, and that hope mediated the relationship between self-compassion and life satisfaction (Yang et al., 2016). Self-compassion is a healthier attitude even when compared to other generally positive self-stances such as self-esteem (Neff & Vonk, 2009). While both self-compassion and self-esteem are equally predictive of happiness, the latter is contingent on particular outcomes (Neff & Vonk, 2009). Therefore, when compared to self-

esteem, self-compassion offers a more stable sense of self-worth (Neff, 2003a). While preserving the benefits of self-esteem (such as overall well-being, high self-worth), self-compassion is negatively associated with dispositions such narcissism and social comparison that are often associated with heightened sense of self-esteem (Neff & Vonk, 2009; Veneziani et al., 2017). Therefore, self-compassion is a more self-caring disposition as it is not ego-defensive, nor are its benefits contingent on success or perceived superiority. While high self-esteem carries many potential drawbacks, having low-esteem is problematic as well. However, according to a study by Marshall and colleagues (2015) that included 2448 participants, low self-esteem was found to be detrimental only in those with low levels of self-compassion. In contrast, participants who reported higher self-compassion experienced better mental health at one-year follow-up. Therefore, being self-compassionate can be protective and may help buffer some of the negative consequences associated with low self-esteem. Additionally, in light of the current pandemic, preliminary data suggests that fostering self-compassionate attitudes may be an effective way to mitigate fear of COVID-19 (Deniz, 2021) and COVID-19 death anxiety (Mehmet et al., 2020).

Self-compassion in health care profession

Several studies have examined the effects of self-compassion on both trainees and professionals within health care. One study that assessed the effects of self-compassion, mindfulness and exercise on healthcare professionals found that self-compassion was significantly and independently associated with increased happiness (Benzo et al., 2017). Another study that explored self-compassion among graduate students in clinical psychology found that self-compassion lowered stress levels by reducing emotion-regulation difficulties (Finlay-Jones et al., 2015). In other words, individuals who are more self-compassionate experience better emotional wellbeing, which then promotes adaptive coping strategies. Self-compassion can also reduce symptoms of burnout. Community nurses who reported higher levels of self-compassion were less prone to experience burnout and expressed a greater sense of work-related satisfaction (Durkin et al., 2016). These researchers suggest that self-compassion reduces self-judgement, which in turn, reduces burnout. Nurses who are more self-compassionate are also less likely to experience compassion fatigue at work (Duarte et al., 2016). Unlike affective empathy, which could cause compassion fatigue over time, self-compassion is a protective factor that is associated with compassion satisfaction. In fact, opposing elements of self-compassion such as self-judgement, isolation and over-identification predicted compassion fatigue among

nurses (Duarte et al., 2016). In a similar study on medical students, psychological well-being correlated positively with self-compassion and negatively with self-criticism (Sampath et a., 2019). Another study (Sabir et al., 2018) that investigated the relationship between self-compassion, mindfulness, resilience and emotional well-being among physicians found that while all variables were significantly and positively correlated, only self-compassion was predictive of emotional well-being.

Increased ability to extend compassion to those around us is one of the other benefits of practicing self-compassion, which can be especially beneficial for people in health care and other similar professions. For example, a survey of student midwives found that those who scored high on self-judgment were not only less compassionate towards themselves, but also to others (Beaumont et al., 2016). Additionally, the results indicated that self-judgment was negatively associated with burnout and compassion fatigue (Beaumont et al., 2016). Self-judgement is the opposite of self-kindness, which is one of the three elements of self-compassion. According to Neff (2003a, 2003b), feelings of compassion towards others is an important aspect of self-compassion. Compassion entails an empathic awareness to others' distress along with a desire to alleviate that suffering; this in turn enhances compassion toward oneself (Neff, 2003b). Therefore, compassion is distinguished from empathic distress, which is an emotional response to suffering that can be maladaptive overtime (Eriksson et al., 2018). According to Klimecki and Singer (2011), empathic distress is often prolonged and self-oriented as the person overidentifies with others' suffering; this overidentification eventually leads to 'compassion fatigue'. The authors propose that the term 'compassion fatigue' should be replaced by 'empathic distress fatigue', as it clarifies that the fatigue is not from being overly compassionate.

As previously mentioned, mindfulness is another tenet of self-compassion and it is contrasted with over-identification. Several studies have explored the negative effects of over-identification in students in health care profession. For example, a study by Ying (2009) found that social work students who scored high on over-identification were more likely to experience emotional exhaustion. Mindfulness might protect one from emotional contagion without diminishing the ability to provide compassionate care (Barratt, 2017). For example, one study that investigated the impact of mindfulness and self-compassion on pediatric residents found that both variables were predictive of improved confidence in providing compassionate care and were inversely related to perceived stress (Kemper et al., 2019). A recent study on healthcare

professionals also found that increased practice of mindfulness improves state mindfulness which then helps mitigate stress (Valverde et al., 2021). Another study by Fulton (2016) found that the more the mindful a counsellor-trainee was, the more their clients perceived them as being empathic. This study also found that while both mindfulness and self-compassion predicted increased session depth, only self-compassion predicted increased ambiguity tolerance. The author suggested that student counsellors who are more self-compassionate may be more receptive to ambiguous situations because they respond to failures with self-kindness rather than self-criticism (Fulton, 2016).

Therapist self-compassion has also been studied in relation to therapeutic presence. For example, Bourgault and Dionne (2019) found that therapeutic presence correlated significantly and positively with self-compassion in a sample of psychologists. The authors proposed that since self-awareness is an important component of self-compassion, it may accentuate self-presence, which is a core tenet of therapeutic presence. The authors discern that since self-compassion improves consideration for others, psychologists who are more self-compassionate may be more present with their clients (Bourgault & Dionne, 2019). Heffernan and colleagues (Heffernan et al., 2010) have also documented similar results among nurses. Together, findings suggest that practicing self-compassion not only protects health care professionals from work-related emotional exhaustion, but it also enhances the provision of quality of care to clients (Raab, 2014).

Practicing self-compassion has been found to foster greater interconnectedness among professionals. In a study of child welfare workers, those who were members of a professional organization reported significantly higher levels of self-compassion than those who were not a member (Miller et al., 2018). The authors suggested that self-compassion may foster a sense of belonging to one's professions and perception that the struggles of child welfare workers are 'common' to the field rather than an isolating experience. Interestingly, the authors of this study also found that participants with a master's degree were more self-compassionate than those with a bachelor's degree (Miller et al., 2018), which may be attributed to increased personal and professional development opportunities that comes with higher education attainment. Based on these studies on self-compassion, there is compelling evidence that self-compassion may buffer many of the psychological distress faced by individuals in health care professions.

Self-compassion interventions

Given the benefits of self-compassion, cultivating a self-compassionate stance may have numerous advantages. Self-compassion interventions not only increase self-compassion but also positively affect other well-being outcomes (Neff & Germer, 2013). A study investigating the effects of a 3-week self-compassion intervention on female college students found that compared to the control group, participants in self-compassion group experienced a significant increase in life-satisfaction and optimism and decrease in rumination post-intervention (Smeets et al., 2014). Moreover, compared to the control group (time management training), students in the self-compassion program also reported higher levels of self-efficacy post-intervention. Neff and Germer (2013) evaluated the effects of a longer self-compassion program and found that wellbeing increased after the 8-week program, with effects maintained at 6- and 12-months follow-up. Another study by Delany (2018) evaluated the efficacy of a similar intervention among nurses. Following the 8-week program, nurses reported a significant reduction in secondary traumatic stress, compassion fatigue and burnout, and improvements in self-compassion and mindfulness. One limitation of this study was the small sample size and high drop-out rate (Delany, 2018), which may be partially due to the 2.5-hour duration of the weekly sessions. Another study that assessed the effectiveness of a three-day compassion-focused mindfulness training in health care professionals reported similar results as the study by Delany (Beaumont et al., 2016). However, a more recent study exploring the impact of six weekly, one-hour sessions of self-compassion training for healthcare professionals reported an attrition rate of only 4% (Neff et al., 2020). In this study, participants who received the self-compassion intervention experienced significant increases in self-compassion and overall well-being relative to those in the waitlist control, with intervention gains maintained at 3-month follow-up. A subsequent study that incorporated alternative self-report measures to examine efficacy changes in the intervention group reported significant improvements in self-compassion, secondary traumatic stress and burnout (Neff et al., 2020). It is worth noting that the interventions in both of these studies were psychoeducational in nature and did not include any self-compassion meditations. Neff and colleagues (2020) found the effectiveness of these interventions striking given they were brief and didactic and yielded similar results to more intensive programs such as MBSR or MSC. Therefore, brief skill-building self-compassion interventions appear to be as effective as longer self-compassion programs and may help mitigate high rates of attrition.

As previously mentioned, mindfulness is one of the three core elements of self-compassion. Numerous studies have also explored the impacts of mindfulness interventions on students and professionals in health care (nursing, counselling etc.). For example, an 8-week mindfulness intervention for health care professionals was found to significantly reduce stress and improve life satisfaction and self-compassion (Shapiro et al., 2005). Similar results were replicated in another study that targeted trainees in health care profession specifically (Newsome et al., 2012). Additionally, significant improvements in levels of state-anxiety, depression and empathy were reported post-intervention. In addition, mindfulness training has been found to reduce risk for compassion fatigue in health care workers and trainees (Brown et al., 2017). A meta-analysis involving 19 studies on mindfulness training for health profession students concluded that mindfulness training has many benefits for students and should be integrated into health professional training programs (Mcconville et al., 2017). Nevertheless, it should be noted that while mindfulness training can benefit health care professionals, effects are generally modest. A meta-analysis (Burton et al., 2017) involving nine studies on mindfulness interventions for healthcare professionals found a medium effect size (r = 0.342). Similar results were obtained by a larger and more recent meta-analysis on mindfulness programs for healthcare professionals and trainees (Spinelli et al., 2019). After analyzing 38 studies, the authors concluded that the interventions had a moderate effect on anxiety, depression and stress and a small effect on burnout. A more recent study on healthcare professionals reported significant improvements in perceived sense of accomplishment, resiliency, work engagement, emotional exhaustion and stress following an 8-week on-site Mindfulness in Motion (MIM) intervention (Klatt et al., 2020).

Studies have also examined the efficacy of well-established mindfulness programs in student health care professional, such as the 8-week Mindfulness Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT). A study on counselling psychology students revealed that students who received MBSR were more mindful at endpoint than those who were assigned to the control group (Shapiro et al., 2007). Additionally, elevated levels of mindfulness were associated with decreases in rumination and perceived stress, and increases in self-compassion. Similar results were reported in a sample of clinical psychology students who received MBCT, with greater frequency of home meditation practice associated with greater reductions in anxiety and stress (Rimes & Wingrove, 2011). Qualitative studies of

mindfulness training for student psychologists have yielded similar results (Pintado, 2019). A systematic review involving 34 studies indicated that MBSR is especially effective for reducing anxiety and stress and enhancing empathy among health care trainees and professionals (Lamothe et al., 2016). Although the results are robust, the authors caution that none of the 34 studies explored the mediation effect of mindfulness on any of the outcomes, making it difficult to attribute the effects solely to mindfulness.

Researchers who have assessed the long-term effects of mindfulness training confirm that mindfulness interventions can in fact render long-term benefits (De Vibe et al., 2018). Psychology and medical students who participated in a 7-week mindfulness intervention (which included themes such as self-acceptance, tolerance etc.) reported significant increases in overall well-being and problem-focused coping at six-year follow-up than students who did not receive any training. In fact, these researchers predict that the effects of mindfulness could be more robust than the current findings since students in the control group may have engaged in mindfulness on their own. This is a major limitation of the study as all participants screened in to the study was interested in participating in the training. Additionally, lack of an active control group is another drawback (De Vibe et al., 2018.) Interestingly, non-completers of the training reported higher baseline avoidance-focused coping than completers, and could have benefitted more from the program than the students who finished the program.

While self-compassion and mindfulness interventions are effective in improving psychological well-being among health care trainees, conceptual and methodological issues within studies cannot be overlooked. A systematic review of MBSR for health care trainees found that only one out of the eight studies included a control group (Irving, Dobkin & Park, 2009), making it difficult discern if improvement with MBSR was due to non-specific factors such as group support and placebo response. Additionally, only two of the studies adequately examined the relationship between practice and outcome. This is noteworthy as healthcare professionals seem to have higher attrition rates with mindfulness interventions than other populations (Shapiro et al., 2005). Irving and colleagues (2009) also noted that studies only examined the remedial effects of MBSR, limiting understanding of underlying mechanisms of MBSR in health care professionals. Other criticisms of mindfulness research in health care professionals include small sample sizes, failure to report adverse effects of mindfulness, use of convenience samples, (Lamothe et al., 2016) and publication bias (Burton et al., 2017).

Online self-compassion interventions

Online interventions are not only more flexible than in-person programs, but the anonymity of online programs can eliminate stigma-related concerns (Danilewitz et al., 2018). Unlike face-to-face interventions, asynchronous, internet-based interventions are private and protect participants' anonymity. Therefore, people who fear stigmatization for seeking wellness programs may find online programs more appealing. It has also been suggested that online self-compassion programs may be especially beneficial for non-clinical samples who experience higher levels of negative affect (such as harsh self-criticism) who would otherwise not seek help (Krieger et al., 2016). These researchers found that following a 7-week online self-compassion intervention, participants expressed a significant increase in self-compassion and mindfulness that was comparable to in-person studies. It is noteworthy that 35% of the participants also reported that they would not have participated in the study had it been an in-person intervention (Krieger et al., 2016). This underscores the importance of online programs and calls for the development of additional online self-compassion training programs. Although there are limited comparative studies on the benefits of online self-compassion interventions versus in-person interventions, available findings are promising.

A study that assessed the feasibility and effectiveness of a 6-week online self-compassion program for psychology trainees found that participants reported increases in levels of self-compassion and happiness and decreases in levels of stress and depression following the program (Finlay-Jones et al., 2017). These effects were maintained at 3-month follow up but the study reported a high drop-out rate. Even though many rated the program as highly enjoyable, qualitative feedback from participants including the ones that discontinued the study recommended reducing the content to better optimize the duration (Finlay-Jones et al., 2017). It appears that attrition and adherence are areas of concern for online self-compassion interventions. Despite such concerns, the benefits of online self-compassion programs are promising.

Another study (Eriksson et al., 2018) that evaluated the efficacy of a 6-week online self-compassion program for practicing psychologists revealed that the intervention increased self-compassion and decreased burnout symptoms and self-coldness. The study also found that decreased perceived stress and burnout were linked with a reduction in self-coldness and an increase in self-compassion (Eriksson et al., 2018). Like other studies conducted within health

care, the majority of participants in this study were females and therefore results cannot be generalized to men. This is important to note as lower levels of self-compassion and higher levels of self-criticism have been reported in male versus female medical students (Sampath et al., 2019). It is possible that the benefits of self-compassion programs can be different for men. Feasibility of alternative web-based self-compassion programs have been examined. A study that assessed the feasibility of a 30-day mobile app-based self-compassion program for 20 participants found that 92% rated the program as highly enjoyable and 64% found the program helpful as a relaxation tool (Donovan et al., 2016). Overall, the authors concluded that mobile-app would be an effective way to disseminate self-compassion programs. Studies using virtual reality found that participants who embodied compassionate avatars and who received compassion from other avatars reported a significant increase in self-compassion within one to three repetitions of the scenarios (Falconer et al., 2014; Falconer et al., 2016). Another study that investigated the feasibility of a 3-week online meditation training for healthcare professionals and trainees revealed that the program was effective in improving feelings of gratitude, overall well-being, self-compassion and confidence in providing compassionate care (Rao & Kemper, 2017). The three meditations offered to the participants of this study were (a) Gratitude, (b) Positive Word, and (c) Loving Kindness meditation. Of note, this study only administered the specific efficacy measures to participants who completed the corresponding meditations; changes in gratitude were measured for professionals who completed the Gratitude meditation, changes in well-being were assessed for participants who completed the Positive Word meditation and changes in self-compassion and compassionate care were assessed for participants who completed the Loving-kindness meditation (Rao & Kemper, 2017).

Although there are few studies on the effects of online self-compassion programs, researchers have explored the impacts of online mindfulness interventions. A recent study on healthcare trainees that compared the effectiveness of an 8-week mobile-based mindfulness intervention to a comparable in-person mindfulness training revealed that both modes of training were equally effective in improving self-compassion and mindfulness compared to the control group (Orosa-Duarte et al., 2021). This is the first study to compare the efficacies of in-person and online mindfulness trainings for students in healthcare professions. Interestingly, while the changes in self-compassion and mindfulness were similar for both treatment groups, students in the mobile-based training reported a greater decrease in anxiety compared to the in-person group

(Orosa-Duarte et al., 2021). Similarly, other studies have found online mindfulness interventions to be more effective than in-person programs. For example, in a meta-analysis involving mindfulness-based interventions for healthcare professionals and trainees, electronically delivered interventions produced higher effects than in-person interventions (Spinelli et al., 2019). In 2017, Kemper conducted a study exploring the effects of a short online mindfulness program on 178 health professionals (which included nurses, doctors, psychologists, social workers etc.). Participants reported an immediate increase in state mindfulness and there were no significant differences between occupations or gender. However, like previous studies, one of the limitations of the study is that the majority of the participants were females (80%). Another study of an online mindfulness meditation program for medical students found that the 7-week program was effective in improving mindfulness and self-compassion (Danilewitz et al., 2018) but had no demonstrable effect on burnout or empathy. It is also worth noting that the study had a 71% completion rate, which is considered relatively good for online programs which typically have high attrition rates (Cavanagh et al., 2018). For example, a similar study of an 8-week online mindfulness training for medical students found that towards the end of the program, only 50% of the participants were practicing the meditations at least once a week (Moore et al., 2020). Nevertheless, the intervention was effective in improving self-compassion, with improvements maintained at 4-month follow-up. Interestingly, this study did not notice a significant decrease in stress immediately after the intervention. However, participants reported a significant decrease in stress at 4-month follow-up; immediately prior to the final exam. From the qualitative data, authors discern that participants used mindfulness as a tool to distract themselves from stressors rather than actively manage stress; hence, the decrease in stress at follow-up (Moore et al., 2020). However, more research is needed to substantiate this theory.

Present Study

As previously discussed, self-compassion training may be advantageous for health care professionals and trainees as they will be vicariously exposed to the suffering of others. Students in health care professions need to develop a way to empathize with clients without compromising their own well-being. Although there is a large body of research demonstrating the effectiveness of self-compassion training in various populations, there is a paucity of studies that focus specifically on students in health care professions. This is especially the case with online self-compassion trainings, which are more accessible, flexible, cost-effective and protective of

participants' anonymity (Andersson & Titov, 2014). The anonymity associated with online wellness programs may be an appealing option for those who would otherwise refuse to participate in face-to-face programs. Despite the increased accessibility and flexibility of online self-care interventions, attrition can be high due to the duration of the modules.

Research Objectives

While numerous studies have explored the impact of in-person self-compassion training in different samples, there is a paucity of studies that explore how viable it would be to disseminate self-compassion trainings to healthcare trainees online. Therefore, the primary objective of the present study was to evaluate the feasibility of a brief, online, self-administered self-compassion training intervention for students in healthcare professions. Key feasibility indicators included ease of recruitment and retention, completion of post-study outcome measures, and acceptability of the program (adherence, satisfaction, ease of use). Based on previous work, it was hypothesized that the program would be feasible if recruitment was completed within five months, if at least 50% of participants practiced the SC meditations at least 50% of the time (i.e., 14 out of 28 days), and if at least 50% of participants completed post-study questionnaires and other study outcomes. A secondary aim of the study was to obtain preliminary data on pre to post-study changes in measures of self-compassion, mindfulness, and psychological wellbeing. The research questions that guided this study were:

(1) How acceptable is this program? What is the rate of recruitment and post-study questionnaire completion rate?
(2) How adherent will the participants be?
(3) How satisfied will participants be with this program?
(4) How easily usable is this program?
(5) How relevant is the program be to healthcare trainees?
(6) How efficient is this program in increasing mindfulness, self-compassion and psychological well-being?

Methodology

Study Design

This was an uncontrolled feasibility study of a 4-week online self-compassion program for health care profession trainees. One main goal of a feasibility study is to ascertain if a new intervention is appropriate for further testing in a larger randomized trial (Bowen et al., 2009).

Feasibility outcomes vary across studies but typically include adequacy of resources needed to implement the intervention, recruitment capacity, data collection procedure, acceptability of the intervention, and adherence to study procedures (Orsmond & Cohn, 2015). Feasibility studies also provide preliminary data on the potential benefits of the new intervention (Bowen et al., 2009; Orsomond & Cohn, 2015). The results of a feasibility study would deem the intervention as (a) not feasible, (b) feasible with modification, (c) feasible without modification however, close monitoring is necessary, or (d) feasible without any modification (Thabane et al., 2010). The study was approved by the Office of Research Ethics and Integrity of the University of Ottawa.

Participants

Students were recruited from the following programs from the University of Ottawa and other Canadian universities: graduate studies in counselling psychology, clinical psychology, occupational therapy, social work, physiotherapy, general healthcare and nursing. Nursing students were recruited at the undergraduate level as well. While it may have been beneficial for in-person interventions to group participants by specific professions, it is not necessary for online programs since participants are not interacting with each other or building a professional network system (Kemper, 2017). A sample size of 30 participants was chosen as the recruitment target *a priori* based on previous feasibility studies of novel online self-compassion and mindfulness-based programs (Finlay-Jones et al., 2017; Ingraham et al., 2019; Murray et al., 2015). This allowed for a large enough sample to evaluate feasibility outcomes and within-group effect size estimates for other measures. A total of 31 students were enrolled in the study on a first-come first-serve basis. The inclusion criteria to participate were 1) provision of informed consent and 2) enrolled in a graduate program in the healthcare field (or undergraduate program in nursing or medicine).

Intervention

The intervention included a whiteboard animated psychoeducational video that was developed by the researcher using the software Explaindio 4Y, and four weekly audio-recorded self-compassion meditations adapted for healthcare trainees (see appendix). The psychoeducational video introduced students to the concept of self-compassion and its relevance to healthcare profession trainees. Neff's (2003a) tripartite model of self-compassion, along with the benefits of practicing self-compassion were explained. The video also included a brief

overview of the four self-compassion meditations participants would practice over the 4-week intervention. The meditation practices focused on cultivating self-compassion as conceptualized by Neff (2003a, 2003b). Although all the key elements of the four practices were extracted from the *Mindful Self-Compassion Workbook* (Neff & Germer, 2018), certain complementary elements were also borrowed from the *Compassionate Mind* (Gilbert, 2009).

After baseline measures were completed participants were emailed the educational video along with the week 1 audio-recorded self-compassion meditation practice. The audio-recorded meditations for week 2, 3 and 4 were also sent by email each week. Students received two versions of the exact same meditation audio-recording. One version, which was about 10-minutes long, included a brief introduction to the self-compassion practice and its relevance to healthcare trainees, while the other version, which was about 9-minutes long, had no introduction. Students were instructed to first listen to the version that included the brief introduction and to then listen to the introduction-free version for the remainder of the week. This gave participants an opportunity to familiarize themselves with the intention of the meditation before initial practice while avoiding redundancy. While the introductory psychoeducational video provided an overview of the four meditations, not all students may have watched the video in its entirety. Participants were encouraged to practice the guided self-compassion meditations once a day. The format of the program was asynchronous and there was no contact between the researcher and participants. The themes and key elements of the weekly self-compassion meditations were as follows:

Week 1 Self-compassion Practice: Compassionate Body Scan

This guided meditation was intended to help participants slow down and bring warm-hearted attention and compassion to each part of the body.

Week 2 Self-compassion Practice: Affectionate Breathing and Self-Compassion Break

This meditation focused on attuned breathing to help foster compassion and comfort. Through this breathing exercise, participants engaged in an informal practice that helped them find a form of compassionate touch that was genuinely supportive for them. Some individuals find having a hand over their heart the most soothing while others prefer to hold their hands together, cup their hands, and so forth. This form of soothing touch paired with focused breathing was intended to invoke affection. Once the participants found their soothing touch, the

remainder of the module focused on applying the three core components of self-compassion into practice through a technique called ‘self-compassion break’. This practice also incorporated the compassionate touch from the earlier exercise.

Week 3 Self-compassion Practice: Loving-Kindness for Ourselves and Others

This meditation focused on cultivating an inner sense of compassion and friendliness towards oneself and others. This meditation emphasized the importance of being kind to oneself even when there is no suffering. After the short introduction, listeners were guided in finding loving-kindness phrases that were genuine and authentic to them. A few sample phrases that are commonly used in this mediation were provided. Following this informal practice, the loving-kindness guided meditation focused on cultivating feelings of loving-kindness for oneself using the phrases participants generated. Shortly after, participants were invited to bring to mind an individual who maybe experiencing some form of distress. The meditation then guided participants in extending loving-kindness to the other person. The meditation concluded by asking participants to bring themselves back to circle of goodwill and offer compassion to both oneself and the other.

Week 4 Self-compassion Practice: Giving and Receiving Compassion; The Compassionate Self

This final meditation introduced participants to a breathing exercise that was aimed towards alleviating empathic distress. While empathetic resonance helps people cooperate with one another, repetitive over-identification with others’ suffering can be detrimental. Healthcare professionals are particularly vulnerable to empathic distress as the nature of the profession involves caring for others. Therefore, the goal of this module was to help participants cultivate self-compassion while helping others. Following the introduction, participants practiced giving and receiving compassion through a guided meditation. This audio-tape also included a brief self-compassion embodiment exercise that invited participants visualize what it would feel like to be a self-compassionate healthcare practitioner.

Feasibility Outcomes

Adherence to the program. Adherence to the self-compassion meditation practices was assessed by asking participants to indicate how many days they engaged in the practice each week, with frequency rated on a 0 (“not a single day”) to 8 (“every day of the week”) scale. Since this was a 4-week program, practice of the meditations at least 50% of the days (i.e., 14 out

of 28 days) by at least 50% of the students was set as the feasibility criterion *a priori.* Previous studies have assessed feasibility predominantly by examining the proportion of modules completed rather than frequency of home practice. For example, one study that examined the feasibility of a 7-week online self-compassion program in a non-clinical sample reported that of the seven 50-minute weekly modules, an average of 4.93 modules were opened by the participants. Of note, this study did not measure adherence to the daily self-compassion practice (Krieger et al., 2016). Other studies assessing the feasibility of online self-compassion programs for healthcare trainees have also failed to track adherence to home practice and have relied on post-study assessment completion rates to examine feasibility (Finlay-Jones et al., 2017). Thus, close attention must be paid to the definition of program completion and what it entails, as it may not always reflect the number of modules completed or meditations practiced.

Unlike these studies, the present study was neither didactic nor modular, and therefore relied on frequency of meditation practice to assess program adherence. To enhance self-compassion meditation practice rates, the researcher sent email reminders encouraging participants to practice the meditations and to complete the weekly feasibility questionnaires. If the weekly feasibility questionnaire was not completed within 3 days after it was emailed to the student, a reminder email was sent. As needed, a maximum of three follow-up emails were sent every 5-7 days after the post-intervention questionnaires were mailed. These post-intervention emails encouraged participants to complete any remaining feasibility questionnaires and the post-intervention questionnaire.

Rate of Recruitment. Active recruitment began after the project was approved by the research ethics board of University of Ottawa. Since numerous student-led associations from across Canada and instructors from different disciplines in University of Ottawa had to be contacted, a priori decision was to consider the study feasible if at least six students consented to the study per month. A larger study by Danilewitz and colleagues (2018) that assessed the feasibility of an online mindfulness program for medical students was able to recruit their target sample (n=50) within 2 months.

Attrition. Attrition was based on the number of participants who enrolled in the study but never started the intervention and the number of participants who failed to complete post-study questionnaires. Previous studies of online self-compassion training in non-clinical samples report questionnaire completion rates as low as 54% (Finlay-Jones et al., 2017) and as high as 77%

(Krieger, et al., 2016). A priori decision was to consider the present study feasible if at least half of the participants completed the post-study questionnaires.

Ease of Use. At the end of each meditation, a 5-point Likert scale was used to assess how easy or difficult it was to follow the weekly guided meditations. Participants rated difficulty as 1 ("extremely easy"), 2 ("easy"), 3 ("neither easy nor difficult"), 4 ("difficult") or 5 ("extremely difficult"). A previous 6-week online self-compassion program received an average difficulty score of 1.95 out of 5 (Finlay-Jones et al., 2017). Since previous studies (Finlay-Jones et al., 2017; O'Driscoll, Sahm et al., 2019) have reported healthcare trainees generally find mindfulness-based practices easy to follow, a more stringent feasibility criterion for program ease was set a priori. Therefore, the feasibility criterion for ease of use was set at below 2.5 for each of the four self-compassion meditations.

Program Satisfaction. Participants were asked to rate their satisfaction with each of the weekly guided self-compassion meditations on a 5-point Likert scale – 1 ("not satisfied at all"), 2 ("somewhat satisfied"), 3 ("moderately satisfied"), 4 ("very satisfied") and 5 ("extremely satisfied"). Previous studies assessing the feasibility of online mindfulness and self-compassion interventions for students in health care professions found that participants were 70% satisfied with study modules (Danilewitz et al., 2018; Finlay-Jones et al., 2017). However, unlike the current study, the interventions used in these studies had a substantial psychoeducational component and the scores measured satisfaction with the program modules rather than the guided meditations. A priori decision was to consider the present study feasible if the average satisfaction score for each meditation was no less than 3. A score of 3 or above would indicate that participants are reasonably satisfied with the guided meditations.

Relevance. Perception of the relevance of the self-compassion meditations was rated on a 5-point Likert scale - 1 ("not relevant at all"), 2 ("somewhat relevant"), 3 ("relevant"), 4 ("very relevant") or 5 ("extremely relevant"). Previous online self-compassion programs created using Neff's techniques (Neff, 2003a; 2003b) have been perceived to be highly relevant by students in health care professions (Finlay-Jones et a., 2017). Accordingly, a score of 3 or above on each of the meditations was selected as the feasibility criterion for relevance in the current study.

Assessment of Preliminary Benefits

The following self-report questionnaires were completed online by participants pre- and post-intervention. The questionnaires were embedded within the study link.

Self-Compassion Scale-Short Form (SCS-SF). The SCS-SF (Raes, Pommier, Neff & Van Gucht, 2011) is a shortened 12-item version of the original 26-item Self-Compassion Scale developed by Neff (2003a). The psychometric properties of the SCF-SF are comparable to the longer scale. The scale measures how respondents perceive they act towards themselves at times of suffering (e.g., "I try to see my failings as part of the human condition"). Items are rated on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). The scale was developed to capture both overall self-compassion (total score) and scores on the 6 self-compassion facets (three components and its opposites): Self Kindness versus Self-Judgement; Common Humanity versus Isolation and Mindfulness versus Over-Identification. The SCF-SF was developed from the long version by selecting 2 items from each of the 6 facets. The average score for the English sample (415 students from University of Texas) in the study was 36. SCF-SF has good internal consistency (Cronbach's alpha ≥ 0.86) and is strongly correlated with the original version ($r \geq 0.97$). However, it is worth noting that the internal consistencies for certain subscales were low (i.e., a score 0.54 for ′self-kindness′ subscale for an English sample (Raes et al., 2011). In the current sample, Cronbach's alpha for the SCS-SF total score was 0.89.

Five Facet Mindfulness Questionnaire-Short Form (FFMQ-SF). The FFMQ-SF (Baer, Smith, Hopkins, Krietemeyer & Toney, 2006) is a shortened version (24 items), yet reliable and efficient alternative to the longer version of the scale (39 items). Items are rated on a 5-point Likert scale ranging from 1 (never or very rarely true) to 5 (very often or always true). FFMQ-SF assesses five facets of mindfulness: *Observe* ("I pay attention to physical experiences, such as the wind in my hair or sun on my face"), *Describe* ("I'm good at finding words to describe my feelings"), *Act with awareness* ("I find it difficult to stay focused on what's happening in the present moment"), *Nonjudging* of inner experience ("I tell myself I shouldn't be feeling the way I am feeling") and *Non-reactivity* of inner experience ("I watch my feelings without getting carried away by them"). FFMQ-SF has demonstrated good internal consistency (the alpha values for the five facets ranged between 0.75 and 0.91). In the present study, Cronbach's alpha for *Observe, Describe, Act with Awareness, Nonjudge* and *Non-reactivity* were 0.82, 0.79, 0.86, 0.91 and 0.85 respectively.

Depression Anxiety Stress Scale–Short Form (DASS-21). The DASS-21 (Lovibond & Lovibond, 1995) is a shortened version of the original 42-item scale. However, the DASS-21 is

just as effective in differentiating between symptoms of depression, anxiety and stress as the longer version and retains excellent psychometric properties. The scale consists of three seven-item subscales that measure symptoms of depression ("I felt down-hearted and blue"), anxiety ("I felt I was close to panic") and stress ("I found it hard to wind down") over the past week. Items are rated on a 4-point scale ranging from 0 (did not apply at all) to 3 (applied most of the time). For the depression subscale, a total score of 0-9 is considered normal, 10-13 mild, 14-20 moderate, 21-27 severe and 28 or higher extremely severe. For the anxiety subscale, a total score between 0-7 is considered normal, 8-9 mild, 10-14 moderate, 15-19 severe and 20 or higher extremely severe. For the stress subscale, a score between 0-14 is considered normal, 15-18 mild, 19-25 moderate, 26-33 severe and 34 or higher extremely severe. The subscales have demonstrated good internal consistencies, with studies demonstrating a Cronbach's alpha of 0.91, 0.84 and 0.90 for depression, anxiety and stress subscales, respectively (Lovibond, & Lovibond, 1995; Wong et al., 2006). In the current study, Cronbach's alpha was 0.89, 0.73 and 0.84 for the depression, anxiety and stress subscales, respectively.

Statistical Methods

Data was analyzed with SPSS version 27. Data was downloaded twice from the Survey Monkey platform to ensure there were no errors in data entry. Additionally, reverse coding was conducted on both data sheets in order to verify the accuracy of coding. Analysis adopted an intention to treat (ITT) approach. This approach uses all available data and provides an unbiased estimate of intervention effects and eliminates overestimation of intervention effects that result from only including participants who adhere to the intervention. Main analyses included calculation of feasibility outcomes using descriptive statistics with 95% confidence intervals, and within-group effect sizes (Cohen's *d*) of efficacy measure (e.g., SCS-SF, DASS), with 95% confidence intervals. Calculation of within-group effect sizes accounted for correlations between pre- and post-test measures. According to convention (Cohen, 1992), $d = 0.20$ represents a small effect, $d = 0.50$ a moderate effect, and $d = 0.80$ a large effect. Effects sizes < 0.20 indicate that intervention effects are not meaningful. Missing data was imputed using the last-observation-carried-forward (LOCF) method. LOCF is a conservative approach for handling missing data (Streiner & Geddes, 2001).

Paired samples t-test was used to assess pre-to-post program changes for both the ITT sample and program starters. Independent samples t-test was used to compare baseline

differences in mindfulness, self-compassion, depression, anxiety and stress between the program starter and non-starter groups. For the program starter group, Pearson's correlations were computed to examine the relationship between frequency of self-compassion meditation practice and pre-to-post change scores on the SCS-SF, FFMQ-SF and DASS-21. Pearson's correlations were also used to assess potential relationships between frequency of self-compassion meditation practice and post-study scores on SCS-SF, FFMQ-SF and DASS-21. McNemar test was used to determine if there were differences in the proportions of participants that rated the meditation practices feasible (satisfaction, relevance and difficulty) at week 1 versus week 4. One-way repeated measures analysis of variance (ANOVA) were conducted to examine week to week changes in feasibility scores. As the main aim this study was one of estimation rather than hypothesis testing, variance estimates and effect sizes with 95% confidence intervals were calculated.

Results

Sample characteristics

Demographic characteristics of the sample are displayed in Table 1. The mean baseline SCS-SF score was 32.35 (*SD* = 4.17), which falls below the mean of 41.08 and 42.64 reported in other studies of healthcare professionals (McCade et al., 2021; Colgan et al., 2019). Consistent with other studies of healthcare trainees (Teo et al., 2019), baseline scores on the DASS-21 indicated that participants were mildly depressed and had moderate levels of stress and anxiety. However, other studies on healthcare trainees have reported baseline scores on all three psychological variables to be within the normal range (Finlay-Jones and colleagues, 2017). With respect to the FFMQ-SF, only the *Describe* facet fell within the normative range (16-18) reported in other studies of healthcare professionals (Colgan et al., 2019). The mean baseline scores for the FFMQ-SF facets *Non-react* (*M* = 13.29, *SD* = 3.16), *Nonjudge* (*M* = 14.48, *SD* = 4.26), *Observe* (*M* = 13.68, *SD* = 3.23) and *Act with Awareness* (*M* = 14.45, *SD* = 3.26) fell below the normative range.

Table 1

Descriptive Statistics of Starters versus Non-starters for All Demographic Variable

	Total	St	NSt	Total	St	NSt
		n			*%*	

Gender						
Women	29	20	9	93.5%	69%	31%
Men	2	1	1	6.5%	3.2%	3.2%
Other	-	-	-	-	-	-
Program						
Counselling Psychology	10	8	2	32.3%	25.8%	6.5%
Clinical Psychology	10	7	3	32.3%	22.6%	9.7%
Nursing (graduate studies)	1	1	-	3.2%	3.2%	-
Nursing (undergraduate)	8	4	4	25.8%	12.9%	12.9%
General Healthcare	1	-	1	3.2%	-	3.2%
Physiotherapy	1	1	0	3.2%	3.2%	-
Program Status						
Full-time	30	21	9	96.8%	67.7%	29%
Part-time	1	1	-	3.2%	3.2%	-
Ethnicity						
White/Caucasian	23	15	8	74.2%	48.4%	25.8%
Black/African American	2	1	1	6.5%	3.2%	3.2%
Asian	3	2	1	9.7%	6.5%	3.2%
Mixed race	1	1	-	3.2%	3.2%	-
Middle Eastern	1	1	-	3.2%	3.2%	-
Not listed	1	1	-	3.2%	3.2%	-
Marital Status						
Never married	27	19	8	87.1%	61.3%	25.8%
Married/living as married	3	1	2	9.7%	3.2%	6.5%
Divorced/separated	1	1	-	3.2%	3.2%	-
Previous Self-compassion meditation practice [a]	16	10	6	51.6%	32.3%	19.4%

Notes. $N = 31$. St = Program starters ($n = 21$); NSt = Non-starter group ($n = 10$).

[a] Reflects the number and percentage of participants answering "yes" to the question.

Feasibility outcomes

Rate of Recruitment.

Recruitment flyers were emailed to 26 healthcare student groups and associations across Canada and 34 professors from University of Ottawa. Response to the emails was poor, with

only eight student associations and seven professors agreeing to share the recruitment flyers with students. The remaining email that were sent were not responded to. The study also relied on snowball sampling. In snowball sampling, a small number of easily accessible participants are recruited, who then recommend the program to others in their cohort who may be interested (Sedgwick, 2013). During recruitment, 2 participants offered to share the study link with other students in their program. However, it is unknown how many students enrolled in the study because it was recommended to them by a peer. Despite the poor response from student associations and professors, the study reached its target sample after two months of active recruitment

Attrition.

Ten (32.3%) participants who were enrolled in the study did not start the intervention There were no significant differences between those who started the program and those who did not on demographic variables, previous engagement with self-compassion and baseline SCS-SF, FFMQ-SF and DASS-21 scores.

Completion of study questionnaires.

Of the 21 participants who began the program, 18 (86%) completed post-study questionnaires. Of the 10 participants who did not begin the program, three completed the post-study questionnaires. Therefore, a combined total of 10 participants (33.3%) did not complete the post-study questionnaires.

Adherence to the self-compassion meditation practices.

Out of the 21 students who started the program, only 4 students (19%) practiced the self-compassion meditations at least 14 out of the 28 days. The remaining 17 students practiced the meditations between 1-13 times. Hence, the 50% program adherence feasibility criterion was not met. There was no significant difference between participants who were adherent versus those who were not on professional program, demographic variables, and previous engagement with self-compassion practices. There was also no difference between adherent and nonadherent participants on baseline DASS-21 and SCS-SF scores. However, differences were found for four of the five FFMQ-SF facets at baseline. Participants who adhered to the practice had higher scores than those who were not adherent on the facets *Describe* (M = 20.50, SD = 1.29 versus M =16.88, SD = 3.05, $t(19) = 2.281$, p= 0.034, d=1.27), *Non-react* (M = 16.50, SD = 2.38 versus M = 12.82, SD = 3.07, $t(19) = 2.228$, p=0.038, d =1.24), *Nonjudge* (M =19.25, SD = 3.77 versus M

= 13.76, *SD* = 4.05, *t*(19) = 2.460, *p*= 0.024, *d* =1.37), and *Act with Awareness*(*M* = 18.0, *SD* = 3.16 versus *M* = 13.82, *SD* = 3.47, *t*(19) = 2.196, *p*= 0.041, *d* =1.22)

Of the 21 participants who started program, 20 (95.2%) practiced the week 1 self-compassion meditation at least once, 17 (90%) practiced the week 2 self-compassion meditation at least once, 13 (61.9%) practiced the week 3 self-compassion meditations at least once and 16 (76.2%) practiced the week 4 self-compassion meditation at least once. Adherence to establishing a daily self-compassion meditation practice was low and decreased from week 1 (2.81±1.86 days) to week 4 (1.90±2.0 days). The average daily practice over the 4 weeks was 2.27±1.85. A one way repeated-measures ANOVA revealed that there was a significant main effect of time on the average frequency of self-compassion meditation practices (F (3, 60) = 3.496, $p = 0.021$, $\eta_p^2 = 0.149$. Post hoc t-tests revealed that frequency of practice at week 1 (*M* = 2.81, *SD* = 1.86) was significantly greater than that of week 2 (*M* = 2.29, *SD* = 2.0), (*t*(20) = 2.227, *p* = 0.038, *d* =0.49) and week 4 (*M* = 1.90, *SD* = 2.0), (*t*(20) = 2.868, *p* = 0.010, *d* =0.63). Figure 1 displays the frequency of weekly self-compassion meditation practice. Table 4 displays the breakdown weekly feedback on adherence and the feasibility ratings (see Appendix).

Satisfaction, Ease and Relevance.

The weekly feasibility questionnaire on ease, satisfaction and relevance was completed by 21 students at Week 1, 20 students at Week 2, 19 students at Week 3, and 18 students at Week 4. Those who did not complete weekly feasibility questionnaire received a score of 0 on program satisfaction, relevance and ease for the week and was counted as not having practiced that week's meditation. Only program starters were included in the following feasibility calculations. See Table 2. for weekly mean feasibility ratings and the number of ratings that met the feasibility criterion each week.

The mean difficulty rating was 2.05±0.86 for week 1, with 13 participants (61.9%) providing a rating ≤2.5. Mean difficulty rating for week 2 was 2.04±1.16, with 11 participants (52.4%) providing a rating ≤2.5. Mean difficulty rating for week 3 was 2.05±1.12, with 10 participants (47.6%) providing a rating ≤2.5. Finally, the mean difficulty score for week 4 was 2.44±1.15, with eight participants (38.1%) providing a rating ≤2.5. Since each of the four self-compassion meditations received a mean difficulty rating that was below 2.5, this feasibility criterion was met. A one way repeated-measures ANOVA revealed no significant main effect of week on the average program difficulty scores (F (3, 60) = 0.013, $p = 0.998$, $\eta_p^2 = 0.001$).

Additionally, a McNemar test was conducted comparing week 1 and week 4 difficulty scores. For the purposes of this test, ratings were categorized as 'easy' or 'difficult' based on whether or not they met the feasibility criterion score of 2.5. Participants who did not complete the feasibility questionnaire for a week were classified under 'difficult' for the corresponding week. The McNemar test was not significant, X^2 (1, N = 21) = 3.2, p = 0.063.

With regard satisfaction ratings, feasibility criterion was meet for three of the four self-compassion meditations. The mean satisfaction score was 3.57±0.87 for week 1, with 20 participants (95.2%) providing a rating ≥ 3; 3.52±1.12 for week 2, with 20 participants (95.2%) providing a rating ≥ 3; 3.14±1.31 for week 3, with 18 participants (85.7%) providing a rating ≥ 3, and 2.95±1.32 for week 4, with 18 participants (85.7%) providing a rating ≥ 3. A one way repeated-measures ANOVA revealed no significant main effect of week on the average program satisfaction scores (F (3, 60) = 2.719, p = 0.052, η_p^2 = 0.120). McNemar test was used to determine if the proportion of participants who were satisfied (rating ≥ 3) or not satisfied (rating <3) with the mediations changed from week 1 to 4. Participants who did not complete the feasibility questionnaire for a week were classified under 'not satisfied' for the corresponding week. The test was not significant, X^2 (1, N = 21) = 0.250, p = 0.625).

With respect to relevance of the meditations for health care professionals, the mean relevance score was 3.57±1.33 for week 1, with 17 (81%) participants providing a rating ≥3; 3.24±1.18 for week 2, with 18 participants (81%) providing a rating ≥ 3; 2.81±1.44 for week 3, with 15 participants (71.4%) providing a rating ≥ 3; and 2.95±1.47 for week 4, with 16 participants (76.2%) providing a rating ≥ 3. Data indicate that only week 1 and 2 self-compassion mediations were perceived to be relevant enough to healthcare professions. The relevance scores for week 3 and week 4 were marginally lower than the feasibility criterion score of 3 or higher. A one way repeated-measures ANOVA revealed no significant main effect of week on average relevance scores (F (3, 60) = 2.273, p = 0.089, η_p^2 = 0.102). McNemar test was used to determine if the proportion of participants whose ratings were categorized as relevant (score ≥3) or irrelevant (score <3) changed from week 1 to 4. The test was not significant, X^2 (1, N = 21) = 0.00, p = 1.00). Participants who did not complete the feasibility questionnaire for a week were classified under 'irrelevant' for the corresponding week.

Table 2

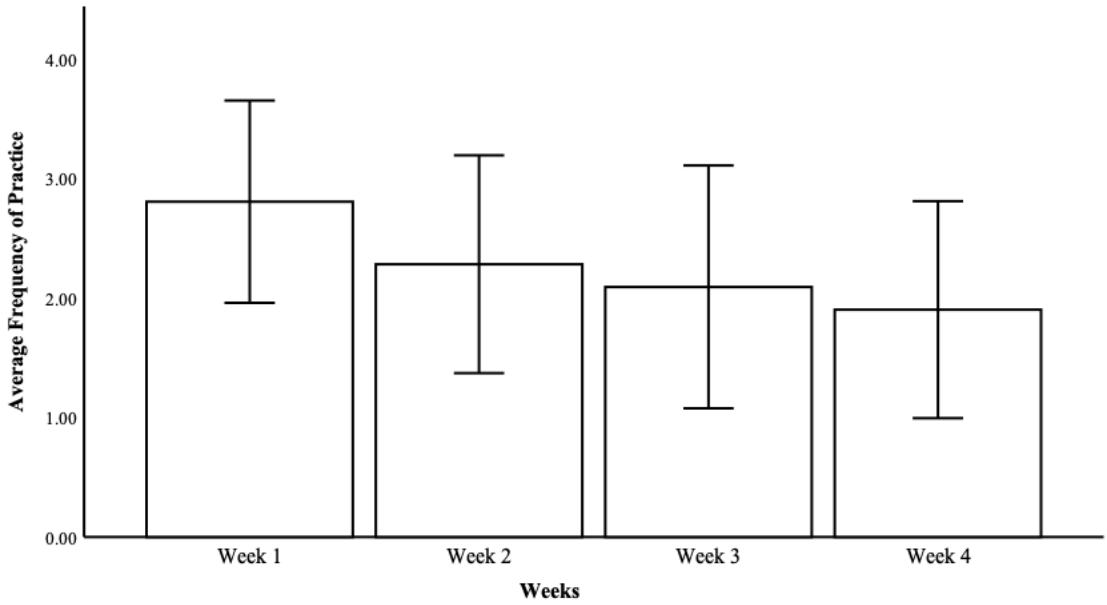
Weekly Difficulty, Satisfaction and Relevance Ratings

Week	Difficulty		Satisfaction		Relevance	
	Mean (SE)	Feasible Ratings	Mean (SE)	Feasible Ratings	Mean (SE)	Feasible Ratings
Week 1	2.05±0.86	13 (61.9%)	3.57±0.87	20 (95.2%)	3.57±1.33	17 (81%)
Week 2	2.04±1.16	11 (52.4%)	3.52±1.12	20 (95.2%)	3.24±1.18	18 (81%)
Week 3	2.05±1.12	10 (47.6%)	3.14±1.31	18 (85.7%)	2.81±1.44	15 (71.4%)
Week 4	2.44±1.15	8 (38.1%)	2.95±1.47	18 (85.7%)	2.95±1.47	16 (76.2%)

Note. ***n*** = 21 (Program Starters). Feasible ratings = number of program starter ratings that met the feasibility criterion.

Figure 1

Average Frequency of Weekly Self-Compassion Meditation Practice for Program Starters



Note. Average frequency of weekly meditation practice is shown for the participants that started the program (*n* = 21). There was a progressive decline in the frequency of daily meditation practice. Error bars show standard errors.

Preliminary Benefits

There were no significant differences between program starters (n = 21) and non-starters (n = 10) on baseline efficacy measures.

A paired samples t-test was conducted to analyse changes in efficacy variables for the intent-to-treat sample (ITT). Table 3 displays the estimated marginal means (with standard errors) for pre- and post-study measures and the estimated marginal mean changes from baseline (with 95% confidence intervals). For the FFMQ-SF, a significant pre- to post study increase emerged for the mindfulness facet *Nonjudge* ($t(30) = 2.157$, $p = 0.039$, $d = 0.39$). but none of the other mindfulness facets changed over time. A significant increase was also found for the total FFMQ-SF score ($t(30) = 2.118$, $p = 0.043$, $d = 0.38$). There was also a pre-to-post-study decrease in the stress subscale of the DASS-21 ($t(30) = -3.336$, $p = 0.002$, $d = -0.59$) (see Figure 4), but no effects were found for the depression and anxiety subscales. In addition, no significant change in SCS-SF scores were found.

A separate paired samples t-test was conducted to analyze pre-to-post changes for participants who started the program (n = 21). There was a significant increase in the FFMQ-SF facets *Describe* ($t(20) = 2.102$, $p = 0.048$, $d = 0.46$), *Act with Awareness* ($t(20) = 2.487$, $p = 0.022$, $d = 0.54$), and Nonjudge ($t(20) = 2.235$, $p = 0.037$, $d = 0.48$). The FFMQ-SF total score also increased significantly from pre-to-post study ($t(20) = 2.418$, $p = 0.025$, $d = 0.53$). In addition, significant decreases were found for the Anxiety subscale ($t(20) = -3.270$, $p = 0.004$, $d = -0.71$) and Stress subscale ($t(20) = -3.791$, $p = 0.00$, $d = -0.83$) of the DASS-21. Figures 3 to 5 display the pre- and post-study scores for the ITT sample (n = 31) and program starters (n = 21).

Table 3

Estimated marginal mean (±standard error) for pre- and post-intervention self-report measures and estimated mean pre-to post-intervention change (95% confidence intervals)

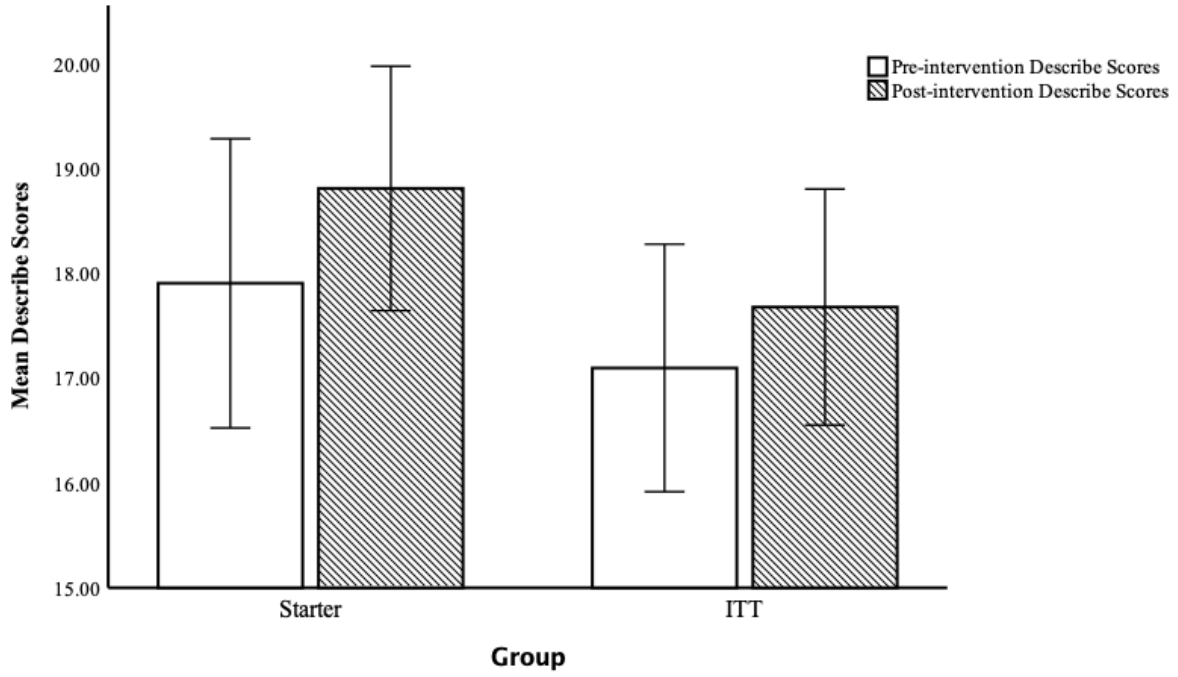
Scale	Pre-intervention	Post-intervention	Change (95% Cl)	*P*
FFMQ-SF	72.55±12.53	76.06±11.81	-3.52 (-6.91, -0.03)	0.043
Observe	13.67±3.23	13.81±3.10	-0.58 (-1.13, 0.87)	0.794
Describe	17.10±3.22	17.68±3.07	-1.89 (-1.21, 0.05)	0.068

Non-react	13.29±3.16	13.90±2.79	-0.61 (-1.62, 0.39)	0.223
Act with Awareness	14.45±3.26	15.16±3.25	-0.71 (-1.53, 0.11)	0.088
Nonjudge	14.48±4.26	15.52±4.02	-1.03 (-2.01, -0.05)	0.039
SCS-SF	32.35±8.75	35.29±8.49	-1.95 (-6.00, 0.13)	0.0604
DASS-21				
Depression	12.80±4.57	12.32±4.00	0.52 (-0.32, 1.36)	0.220
Anxiety	13.16±3.98	12.25±4.24	0.90 (-0.09, 1.90)	0.075
Stress	18.13±4.49	16.23±4.12	1.90 (0.74, 3.07)	0.002

Note. $N = 31$. Cl = confidence interval. Upper limit and lower limit are in parentheses. FFMQ-SF = Five-Facet Mindfulness Questionnaire – Short Form; SCS-SF = Self-Compassion Scale – Short Form, DASS-21 = Depression Anxiety and Stress Scale – Short Form.

Figure 2.1

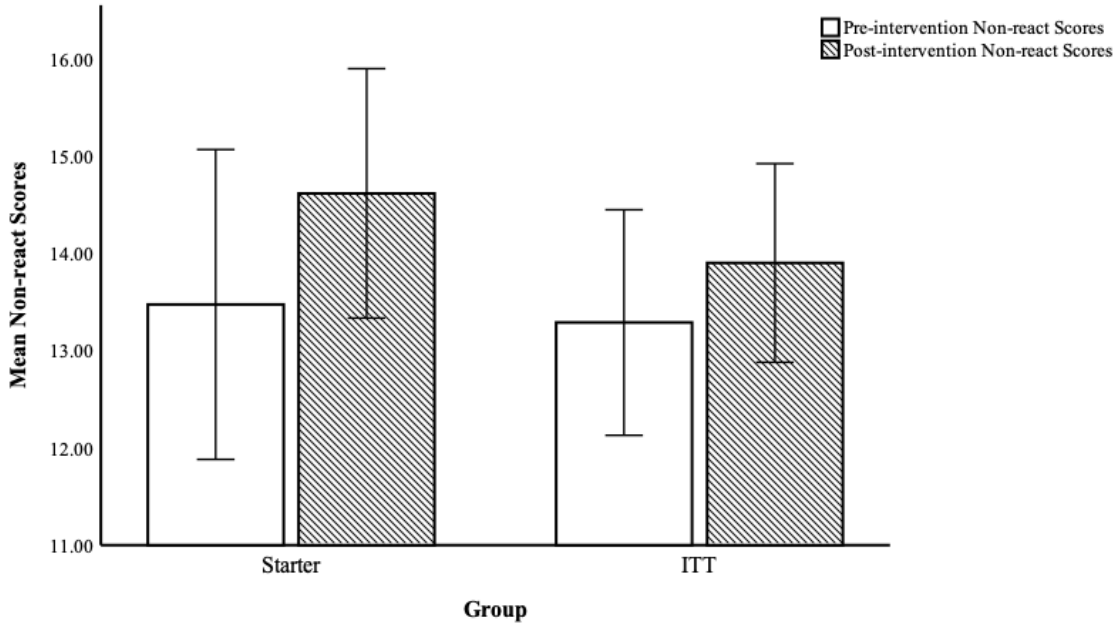
Comparing Pre- and Post-Intervention Describe Scores for Starters versus ITT Sample



Note. Pre- and post-intervention mean scores for the Describe facet of Five-Facet Mindfulness Questionnaire – Short Form for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

Figure 2.2

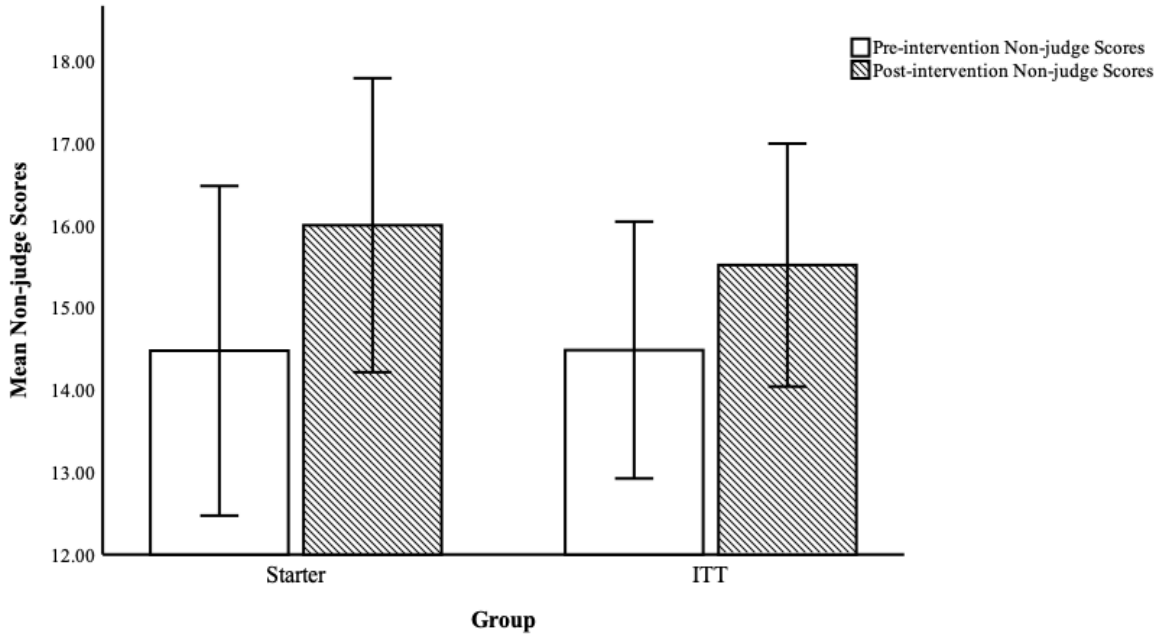
Comparing Pre- and Post-Intervention Non-react Scores for Starters versus ITT Sample



Note. Pre- and post-intervention mean scores for the Non-react facet of Five-Facet Mindfulness Questionnaire – Short Form for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

Figure 2.3

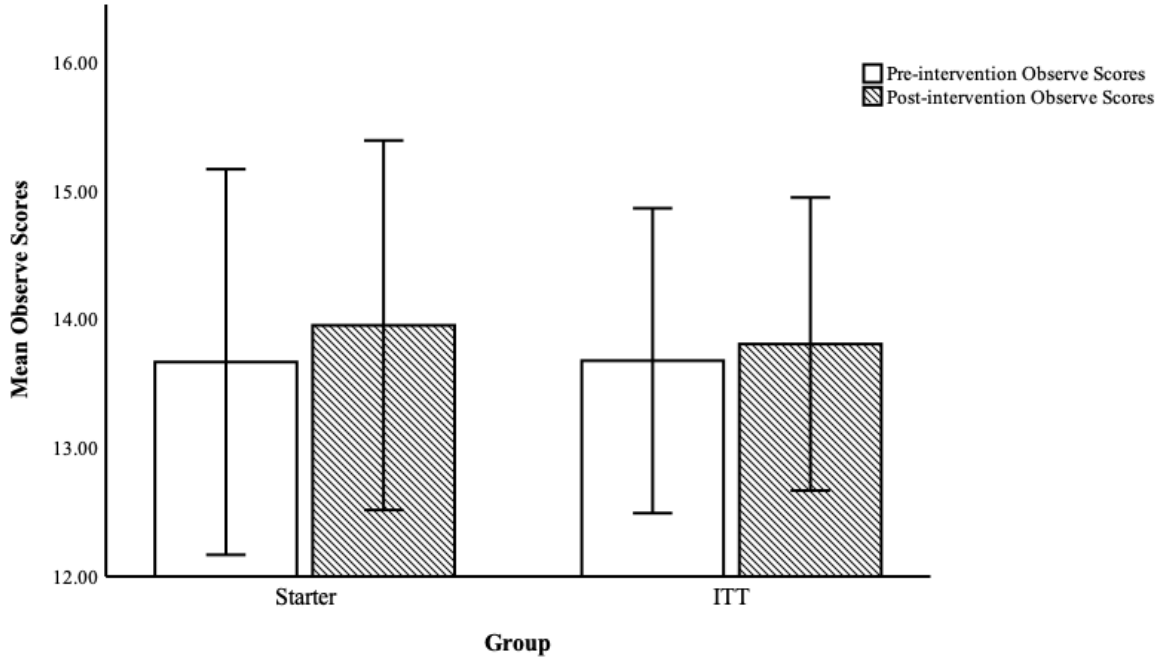
Comparing Pre- and Post-Intervention Nonjudge Scores for Starters versus ITT Sample



Note. Pre- and post-intervention mean scores for the Nonjudge facet of Five-Facet Mindfulness Questionnaire – Short Form for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

Figure 2.4

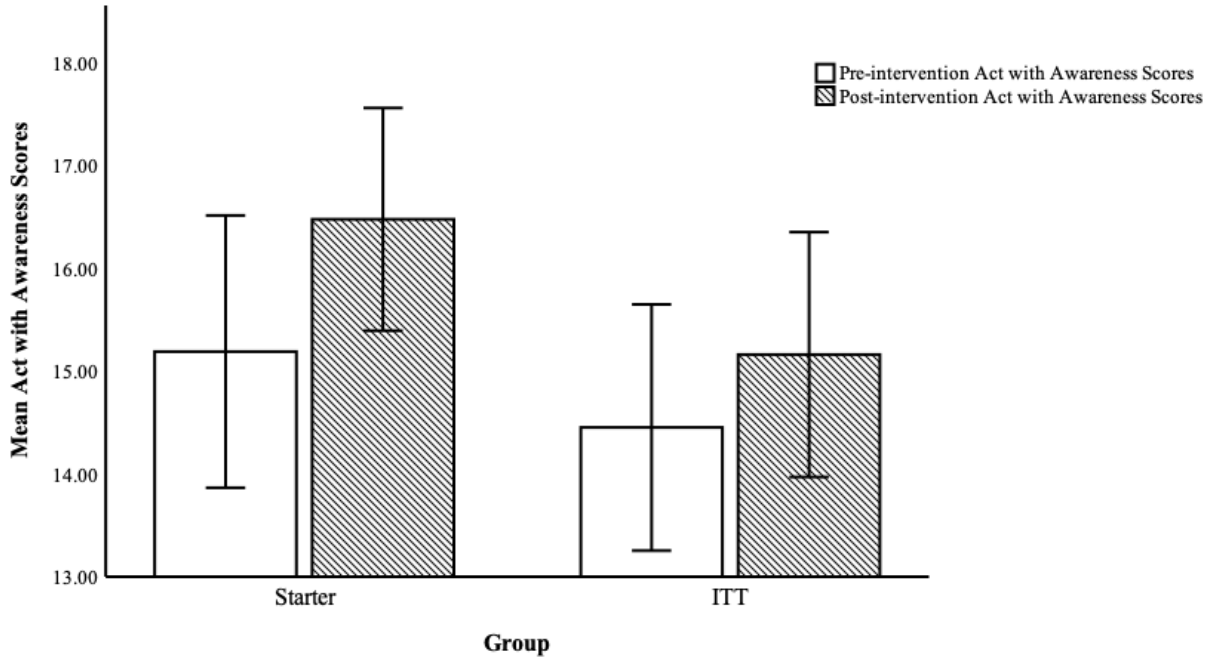
Comparing Pre- and Post-Intervention Observe Scores for Starters versus ITT Sample



Note. Pre- and post-intervention mean scores for the observe facet of Five-Facet Mindfulness Questionnaire – Short Form for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

Figure 2.5

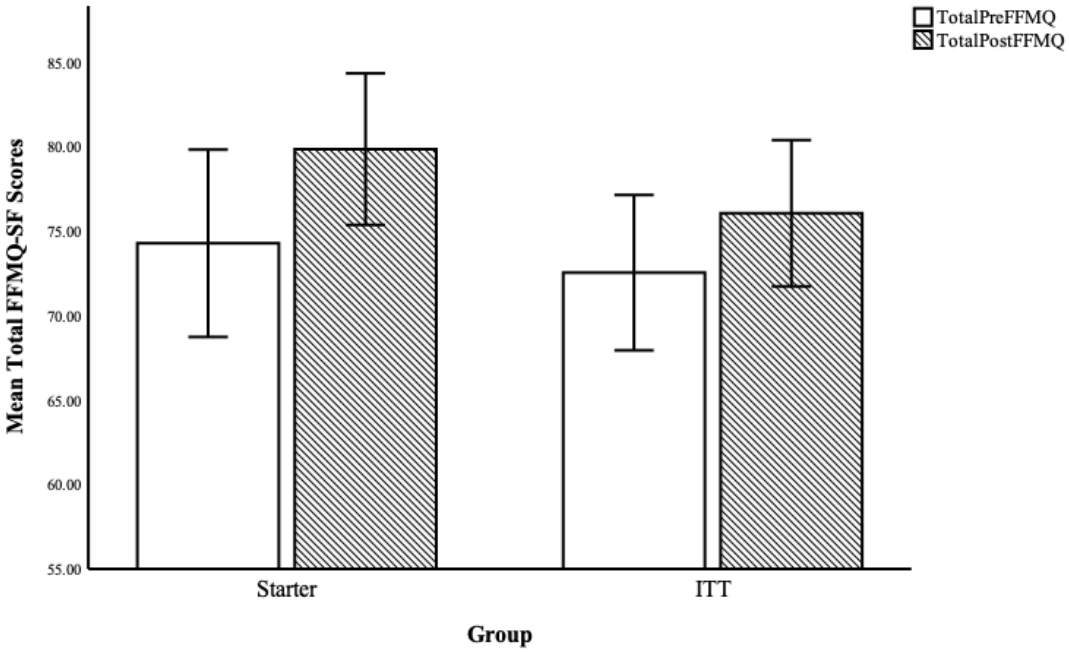
Comparing Pre- and Post-Intervention Act with Awareness Scores for Starters versus ITT Sample



Note. Pre- and post-intervention mean scores for the *Act with Awareness* facet of Five-Facet Mindfulness Questionnaire – Short Form for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

Figure 2.6

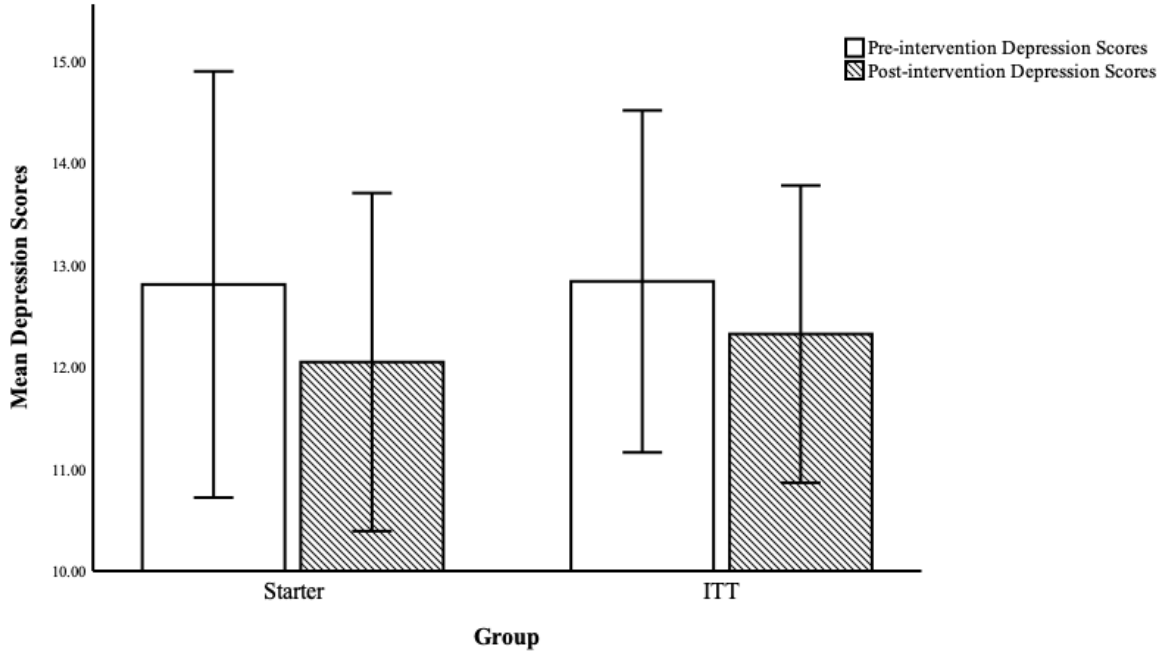
Comparing Pre- and Post-Intervention Total FFMQ-SF Scores for Starters versus ITT Sample



Note. Pre- and post-intervention total mean scores for the Five-Facet Mindfulness Questionnaire – Short Form for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

Figure 3.1

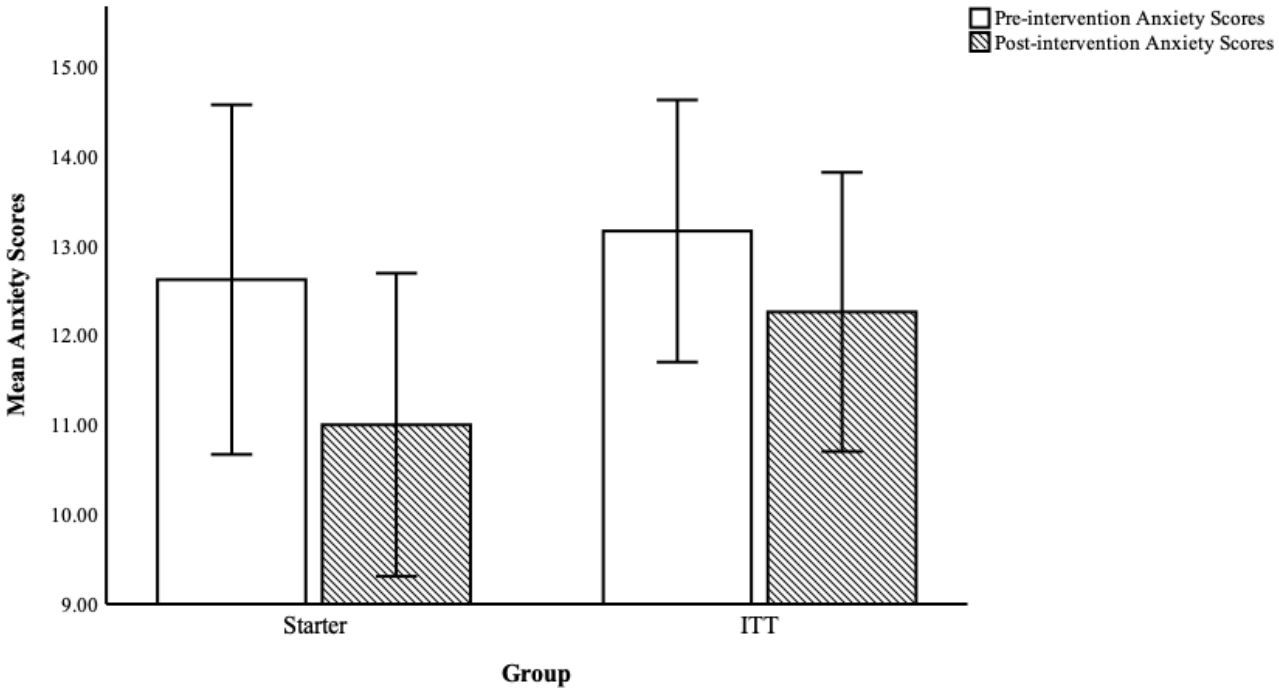
Comparing Pre- and Post-Intervention Depression Scores for Starters versus ITT Sample



Note. Pre- and post-intervention mean scores for the depression subscale of Depression Anxiety Stress Subscale – Short Form for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

Figure 3.2

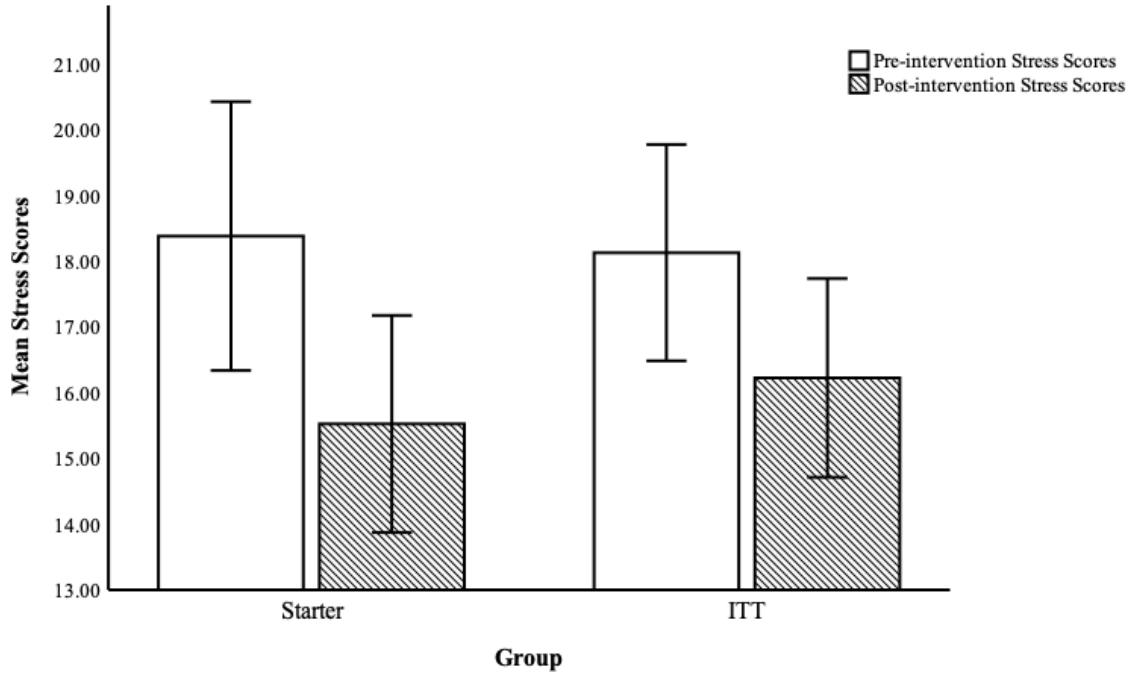
Comparing Pre- and Post-Intervention Anxiety Scores for Starters versus ITT Sample



Note. Pre- and post-intervention mean scores for the anxiety subscale of Depression Anxiety Stress Subscale – Short Form for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

Figure 3.3

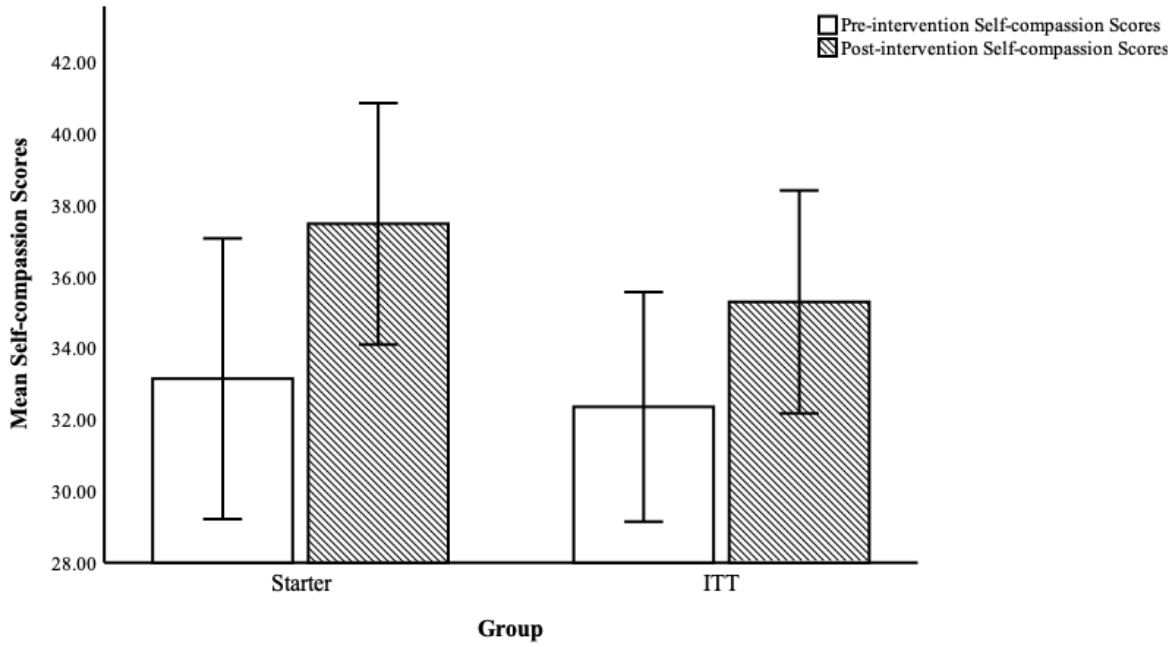
Comparing Pre- and Post-Intervention Stress Scores for Starters versus ITT Sample



Note. Pre- and post-intervention mean scores for the stress subscale of Depression Anxiety Stress Subscale – Short Form for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

Figure 4

Comparing Pre- and Post-Intervention Self-Compassion Scores for Starters versus ITT Sample



Note. Pre- and post-intervention mean self-compassion scores for starter sample (n = 21) and the intent-to-treat sample (n = 31) is displayed. Error bars show standard errors.

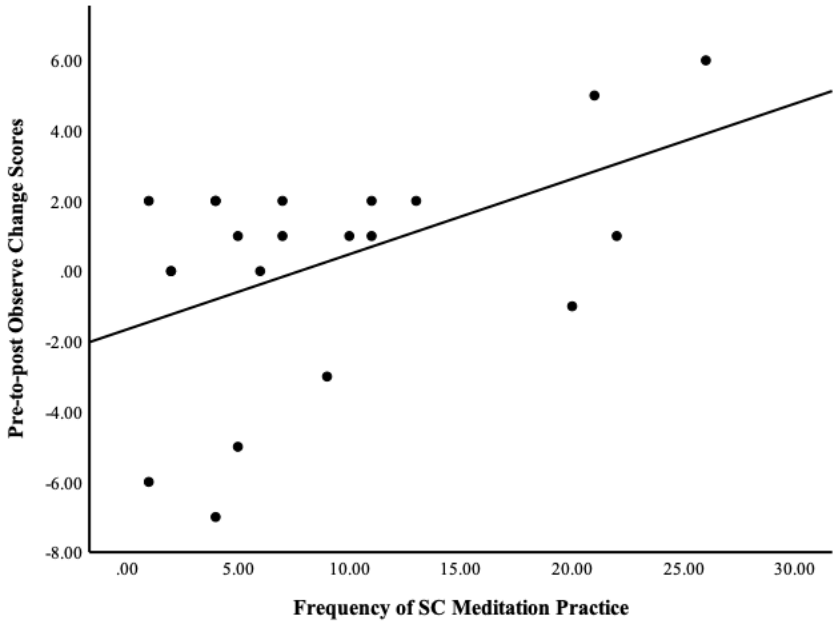
Bivariate correlation between the frequency of meditation practice over the 4 weeks and post-study questionnaires was conducted for participants who started the program (n = 21). There was a significant positive correlation between frequency of meditation practice and post-intervention scores on the FFMQ-SF facets *Non-react* (r = 0.51, p = 0.020), *Act with Awareness* (r = 0.45, p = 0.042) and total FFMQ-SF scores (r = 0.51, p = 0.020). Additionally, there was a significant positive correlation between frequency of meditation practice and post-intervention score on the Stress subscale of DASS-21 (r = 0.54, p = 0.013). No other associations were significant.

A separate bivariate correlation between the frequency of meditation practice and pre- to post-study change scores of study outcomes found a significant positive correlation between frequency of meditation practice and change score for the FFMQ-SF facet *Observe* (r = 0.49, p =

0.02). No other significant associations were found. Figure 5 displays the relationship between frequency of self-compassion meditation practice and pre-to-post change in the mindfulness facet *Observe*.

Figure 5

Association between Total Frequency of Meditation Practice and Pre-to-Post 'Observe' Change Scores for Program Starters



Note. The relationship between estimated marginal mean changes from baseline for Observe facet of Five Facet Mindfulness Questionnaire – Short Form and total frequency of meditation practice over the 4 weeks for program starters (n = 21) is displayed. Each dot represents an individual participant. A positive 'Observe' change score indicates an improved attendance towards internal and external experiences from pre-to-post intervention. The larger the 'Observe' change score, the greater the increase in observation post-intervention. Increased frequency of self-compassion meditation practice was associated with an increase in observation.

Discussion

This study assessed the feasibility and potential benefits of a brief online self-compassion meditation program for students in healthcare professions. Findings indicate that although participants were interested in enrolling in the program, adherence to the self-compassion

meditation practice was poor. The present study failed to observe changes on the key efficacy outcome – trait self-compassion. Results suggest that this online self-compassion meditation program may not be feasible without certain modifications that would help improve program adherence. Potential factors that might have hindered adherence to self-compassion meditation practice are discussed.

Feasibility

The recruitment goal was achieved faster than expected, with 31 participants enrolled in the study over a two-month period. This suggests that interest in an online self-compassion meditation program for health care professions trainees is high. Although recruitment of the target sample was easy, it is notable that 69.3% of the student organizations and 79.4% of the professors who were contacted did not reply to the recruitment email. Despite the high number of unresponded emails, it seems that online recruitment strategies fare better than offline methods with regard to ease of recruitment. Previous research on recruitment strategies for online health research suggests that online recruitment strategies (e.g., posts on social media, advertisements on websites used by target audience) are not only more efficient, but also more cost-effective in comparison to offline strategies such as flyers, posters, and media advertisement (Christensen et al., 2017). The use of social media is especially favoured by researchers who study recruitment strategies for health research (Andrew, 2012; Thornton et al., 2016). However, it is recommended that multiple online methods be utilized simultaneously since relying on just one strategy may see a decline in the rate of recruitment over time (Christensen et al., 2017). Although online recruitment strategies have many advantages, findings from epidemiological research suggests that completion of follow-up questionnaires is lower among participants recruited via online than traditional offline methods (Bajardi et al., 2014). The reason for this is unclear but attrition in prospective research is problematic and can compromise study findings.

Although there was a high interest in the online self-compassion meditation program, 32.3% of enrolled participants never started the program. One study that explored the effectiveness of an online meditation training program for nursing students reported that 18% of enrolled participants never began the program (Coster et al., 2020). Unfortunately, the authors of this study did not report if program starters and non-starters differed on any baseline characteristics. The current study found no differences between program starters and non-starters

on demographic and baseline measures, although it is plausible that the groups differed on other factors that were not assessed in this study.

The feasibility target for post-study assessment completion rate was achieved, with 67.7% of participants completing the post-study questionnaires. This completion rate compares well to the 71%-73% rate reported in studies of online meditation programs for healthcare trainees, (Danilewitz et al., 2018; Moore et al., 2020), and is higher than the 50% completion rate reported in studies of online self-compassion programs (Coster et al., 2020; Finaly-Jones et al., 2017; Orosa-Duarte et al., 2021) and in-person mindfulness-based interventions (Burgstahler & Stenson, 2020; Duarte & Pinto-Gouveia, 2016; Johnson et al., 2020) for healthcare trainees and professionals. Generally, studies of mindfulness interventions for healthcare trainees report poor post-study questionnaire completion rates and missing data introduces important biases that threaten the validity of conclusions. Of note is that data collection in the current study took place during the COVID-19 pandemic, and a recent systematic review of mental health intervention studies conducted during medical pandemics (e.g., COVID-19, Ebola) found that incomplete data is an important methodological limitation of these studies (Soklaridis et al., 2020). Considering this finding, the rate of self-report measure completion in the current study is relatively high. The investigator of this study was diligent in sending participants email reminders, which may partially explain the satisfactory post-study assessment completion rate. Participants who did not complete the questionnaires at the end of the 4-week period received up to three follow-up email reminders before they were considered to be lost to follow-up. Future research of online self-compassion interventions for healthcare trainees would benefit from using incentives to improve completion rates of post-study questionnaires, such as gift cards, money or course credit.

Although the post-study questionnaire completion rate was satisfactory, the majority of program starters were not compliant with establishing a daily self-compassion meditation practice. Only four of the 21 students who started the program meditated at least 14 of the 28 days. With time, there was a significant decline in both the number of participants who practiced the self-compassion meditations each week and the total frequency of weekly self-compassion meditation practice. Unfortunately, the accuracy of self-compassion practices may have been affected by the decline in completion of the feasibility questionnaires, which assessed the frequency and duration of self-compassion practices each week. Incorporating a more efficient

method of tracking self-compassion practices would have likely produced more reliable data. Nevertheless, the poor adherence to the self-compassion practices is in keeping with previous research on meditation-based training for healthcare trainees. Suboptimal adherence to meditation practice has been reported in both online and in-person meditation programs for students (Coster et al., 2020; Danielwitz et al., 2018; Moore et al., 2020) and non-student (Lang et al., 2019; Malboeuf-Hurtubise et al., 2016) populations. For example, Coster et al. (2020) reported that while 40% of students demonstrated moderate-to-high frequency of meditation practice during the first week, this rate decreased to 28% by the final week. In a study of medical students, only 50% of participants meditated at least once a week (Moore et al., 2020). Another longitudinal study of a 7-week in-person mindfulness course for psychology and medical students found that at 1-month follow-up, up to 80% of participants were not practicing the meditations (De vibe et al., 2018).

There are several reasons why healthcare trainees may exhibit poor adherence to self-directed meditation practices. University students have identified academic obligations, time constraints, and interpersonal commitments as barriers to establishing a regular meditation practice (Huberty et al., 2019). Physical and mental difficulties, lack of motivation, as well as doubts about the potential benefits of meditation have also been cited as factors that reduce adherence to meditation practice (Danilewitz et al., 2020; Sears et al., 2011). Nevertheless, it is interesting to note that healthcare trainees are more likely to practice mindful yoga than other types of mindfulness practices (e.g., sitting meditation, body scan) (Danilewitz et al., 2016; Beddoe & Murphy, 2004) or engage in informal mindfulness practices (Danilewitz et al., 2016). This suggests that encouraging participants to practice a preferred meditation technique might improve adherence to self-directed practice. High pre-intervention meditation interest has also been associated with greater practice frequency (Mascaro et al., 2018). Although level of interest in self-compassion practices was not assessed in this study it may be an important predictor of practice adherence that should be explored in future research of online self-compassion programs for healthcare trainees.

Few studies have explored strategies to improve self-directed meditation practices. Preliminary findings from Wahben and Oken (2016) suggest that incorporating psychoeducation and didactic learning opportunities into meditation programs may augment meditation practice adherence. These researchers conducted a randomized trial that compared guided meditation

only versus six weekly 1-hour web-based training sessions plus guided meditations. The web-based interactive training sessions included psychoeducation on stress, mind-body interactions and tips on how to establish a daily meditation practice. Results revealed that participants who were assigned to the interactive training group logged twice as many self-directed meditation practice minutes compared to the group that received the guided meditations only. While there is a possibility that a greater emphasis on psychoeducation each week might have enhanced meditation practice in this study, an online mindfulness program for medical students that included extensive weekly psychoeducational material reported poor adherence to meditation practice (Danilewitz et al., 2016). Future research is needed to ascertain if the inclusion of extensive psychoeducational material about self-compassion fosters greater adherence to self-compassion meditation practices.

Participants in the present study rated each of the four weekly self-compassion meditations for program difficulty, satisfaction and relevance. The majority of participants rated all four mediation practices as easy to follow. Three of the four self-compassion meditations received a satisfaction score above 3, which was the a priori criterion for program satisfaction in this study. Although the final self-compassion meditation received a score that was marginally below the set feasibility criterion, the difference with ratings from previous weeks was negligible. Additionally, roughly the same number of participants were satisfied with each of the four meditations, and about 80% the program starters were satisfied with each of the four self-compassion meditations. In terms of program relevance, Week 1 and week 2 self-compassion meditations received a score above the feasibility criterion, suggesting that participants perceived these specific meditations to be relevant to healthcare trainees. Although week 3 and week 4 self-compassion meditations received a lower score, there were no significant differences in relevance scores across the four meditation practices.

Feedback obtained from participants in this study specifically pertained to the self-directed self-compassion meditations and research on the acceptability of individual meditation practices is scarce. A recent evaluation of brief meditations for hospice professionals revealed that about half of the participants expressed desire for more meditations after accessing the initial meditation (Heeter et al., 2021), which suggests that at least some of the participants found the meditations useful. Despite the paucity of research on participant perception of meditation practices, the present findings compares well to studies that have evaluated comprehensive

online mindfulness or self-compassion interventions that cover a range of themes relevant to the targeted healthcare trainee and include self-directed practice. For example, healthcare trainees and professionals reported that the program modules were easy to follow (Finlay-Jones et al. (2017; O'Driscoll, Sahm et al., 2019), that they were satisfied with the program (Coster et al., 2020; Spadaro & Hunker, 2020), and that the program was useful and relevant for their professions (Coster et al., 2020; Gasper et al., 2021; Gonzalez-Garcia et al., 2021). On the contrary, other research found that a substantial number of healthcare trainees did not find online mindfulness training to be useful (O'Driscoll et al., 2019), were not satisfied with aspects of the program (O'Driscoll et al., 2019), and found non-meditative techniques such as journaling exercises and readings to be more helpful (Reid, 2013).

Of note, the Week 1 meditation practice, which also included the psychoeducational video, received the highest relevance rating by participants. Regrettably, this study did not track how many participants watched the video and it is likely the video had a favorable influence on Week 1 relevance scores. High levels of perceived relevance and usefulness have been reported for online programs that included weekly didactic information about themes related to self-compassion or mindfulness for healthcare trainees (Finlay-Jones et al., 2017; Danilewitz et al., 2018; Moore et al., 2020; Spadaro & Hunker, 2020). Despite this finding, it is important to note that both mindfulness (Bu et al., 2019; Moore et al., 2020; Shapiro et al., 2005) and self-compassion (Finlay-Jones et al., 2017; Yela et al., 2020) interventions for healthcare practitioners suffer from poor program adherence. Although little is known about the characteristics of health professions trainees who fail to adhere to health programs, time constraints (Finlay-Jones et al., 2017; Gonzalez-Garcia et al., 2021), duration of the modules (Danilewitz et al., 2018; O'Driscoll, Sahm et al., 2019), and dissatisfaction with the content (Moore et al., 2020) are some factors that may contribute to poor adherence.

Preliminary Benefits

Although changes in scores in the self-compassion measure were in the expected direction, pre- to post-intervention changes in SCS-SF scores did not reach statistical significance. This was an unexpected finding as the primary target of the intervention was to enhance compassion towards oneself. The four self-compassion meditations were adapted from compassion-focused interventions developed by Neff and Germer, (2018), and Gilbert (2009). Poor program adherence, brevity of the intervention and the lack of an extensive

psychoeducational component may have contributed to the lack of robust effects of the meditation practices on self-compassion. Prior research on in-person (Smeets et al., 2014) and online (Neff et al., 2020) self-compassion interventions support the idea that the psychoeducational component of the intervention may be integral to improving self-compassion. While the majority of studies on self-compassion interventions report significant improvement in measures of self-compassion, one study on mothers of infants found that a brief online self-compassion intervention was only effective in improving self-compassion action and not self-compassion engagement, which refers to the motivation to engage with psychological suffering (Lennard et al., 2021). Like the present study, these researchers attributed the lack of change in self-compassion to the brevity of their intervention, sub-optimal adherence to self-compassion exercises and poor adherence to psychoeducational modules.

No association was found between frequency of self-compassion meditation practice and change in SCS-SF scores, suggesting little in impact of practice on enhancing self-compassion in this sample. Existing research on online (Finlay-Jones et al., 2017; Gonzalez-Garcia et al., 2021; Yela et al., 2020) and in-person (Bellosta-Batalla et al., 2021; Haukaas et al., 2018) self-compassion interventions for students found significant improvements in self-compassion but failed to investigate the relationship between practice frequency and level of self-compassion. However, one study on loving-kindness meditation found that university students who practiced the meditations more often achieved greater improvement in self-compassion (Sorensen et al., 2019). Self-compassion interventions for non-students also report that self-compassion meditation practice enhances self-compassion (Mifsud et al., 2021; Neff & Germer, 2013). However, results are mixed, with several studies of online and in-person self-compassion interventions reporting no association between practice frequency and change in self-compassion (Albertson et al., 2015; Krieger et a., 2016; Krieger et al., 2019; Li et al., 2021; Mak et al., 2018; Toole & Craighead, 2016). Although inherently different from self-compassion meditations, no association between frequency of mindfulness meditation practices and improvement in self-compassion has been noted in both student (De Vibe et al., 2018; Berghoff et al., 2017; Breedvelt et al., 2019; Danilewitz et al., 2018; Coster et al., 2020; Moore et al., 2020) and non-student (Vetesse et al., 2009) samples.

Overall, research on the effect of practice adherence raises important questions about the precise mechanisms through which mindfulness and self-compassion training enhance the

capacity for self-compassion. At present, it is difficult to elucidate what specific elements of a self-compassion program contribute to enhancement of self-compassion in healthcare trainees and professionals and dismantling research is needed. For example, self-compassion interventions for students that were entirely meditational (Sorensen et al., 2019), entirely psychoeducational (Neff et al., 2020) or a combination of both (Beshai et al., 2020; Finlay-Jones et al., 2017; Kirby et al.,2017; Krieger et al., 2019; 2017; Yela et al., 2020) have all been effective in enhancing self-compassion. Clearly, more research is needed to better understand the extent to which practice frequency correlates with improvement in self-compassion, and determine the minimal "dose" of practice that can effect a reliable and sustained change in this trait.

Results revealed pre-to-post study improvement in some mindfulness skills. For the ITT sample, a significant increase was found for the facet *Nonjudge*, but the magnitude of change was small. When program starters were analyzed separately, small but significant increases emerged for the mindfulness facets *Describe and Nonjudge,* and a moderately significant increase emerged for the facet *Act with Awareness* and the total FFMQ-SF score. Overall, the effect sizes observed in this study for the total FFMQ-SF score is in keeping with previous research involving university students. For example, one pilot study of an online self-compassion intervention for psychology trainees reported a moderate effect of 0.69 for the FFMQ (long version) total score (Yela et al., 2020). Another randomized control trial reported that the self-compassion intervention was the most effective in improving FFMQ (long version) scores, with a large effect size of 0.87 (Bellosta-Batala et al., 2021). Other self-compassion interventions for university students have demonstrated significant, but small increases in total FFMQ (long version) scores (Haukaas et al., 2018; Sorensen et al., 2019). Since the facets of mindfulness are differentially correlated to other variables and constructs, the developers of the FFMQ recommended that analysis should be based on individual facets rather than overall score (Baer et al., 2006). However, since the aforementioned studies analyzed total FFMQ scores rather than individual FFMQ facets, the present study assessed the total FFMQ-SF scores for the purposes of comparison.

Although different from self-compassion interventions, studies on mindfulness-based interventions for healthcare trainees and professionals have similarly noted improvement in key dimensions of mindfulness. For example, an online mindfulness program for medical students

reported increases in the FFMQ facets *Describe* and *Observe* on the short version (Danilewitz et al., 2018), whereas Gaspar et al. (2021) found that their mindfulness program for healthcare workers improved the facet *Act with Awareness* on the long version. In contrast, a study of a mindfulness course for medical students found no improvements on any of the FFMQ (long version) facets (Neto et al. (2020). Other app-based mindfulness interventions for the general population (Rung et al., 2020) and university students (Flett et al., 2020) have also failed to observe improvements in facets of mindfulness. Compared to these studies, the present findings are encouraging since significant changes were noted for three of the five mindfulness facets in the completer sample. It is also surprising that a brief intervention that focused exclusively on self-compassion training improved more dimensions of mindfulness than an intervention that focused on mindfulness training for healthcare trainees (Danilewitz et al., 2018; Gaspar et al., 2021). Although these studies are methodologically distinct from the one reported herein, findings suggest that self-compassion training includes elements that are essential to enhancing mindfulness skills. Indeed, mindfulness is one of the tenets of self-compassion (Neff et al., 2007; Smeets et al., 2014) and a balanced awareness of one's suffering through mindfulness is the first step in cultivating self-compassion (Neff, 2003a). The passage of time and other factors that were unaccounted for in the study such as participants engaging in other mindfulness-based self-care strategies (such as yoga, mindful eating and interactive journaling) cannot be discounted as possible contributors to some of the changes in mindfulness.

In the present study, post-intervention scores for the facets *Act with Awareness* and *Non-react and* total FFMQ-SF scores, correlated significantly with the frequency of self-compassion meditation practices. When change scores were examined, the only significant association was between practice frequency and change in the facet *Observe,* suggesting little impact of practice on most facets of mindfulness. The correlation between practice frequency and the facet *Observe* is consistent with results of prior research that showed that this facet is easily influenced by meditation practice (Lilja et al., 2013; Taylor et al., 2016) and more easily acquired than other mindfulness skills (Nyklicek & Kuijpers, 2008). While self-compassion interventions for healthcare trainees (Yela et al., 2020; Bellosta-Batalla et al., 2021), university students in general (Haukaas et al.,2018) and the general population (Beshai et al., 2020) have failed to monitor the frequency of meditation practice, one study that tracked the frequency of loving-kindness meditation practice in university students suggested that frequent practice enhanced overall

mindfulness (Sorensen et al., 2019). Some studies on mindfulness training for healthcare trainees report an influence of practice frequency on specific facets of mindfulness such as *Nonjudge* (Danilewitz et al., 2018), and *Describe* (Smith et al., 2021), while other research found no influence of practice on any of the facets (Berghoff et al., 2017; Burgstahler & Stenson., 2020; Gaspar et al., 2021; Hindman et al., 2015). Most notably, De Vibe et al. (2018) found that despite poor adherence to meditation practice, at 6-year follow-up, healthcare trainees who received mindfulness training reported an improvement in mindfulness skills compared to those in the control group. These findings suggest that the psychoeducational component of mindfulness training rather than daily practice contributes to increased levels of mindfulness. Results from the current study, along with those reported by Danilewitz et al. (2018) and Smith et al. (2021), suggest that certain facets of mindfulness may be sensitive to frequency of meditation practice. Additional research is needed to confirm if distinct facets of mindfulness are also differentially affected by frequency of self-compassion meditations. Having the option to practice one's preferred meditation has also been linked to higher levels of state mindfulness (Tang & Braver, 2020) and therefore, future research may benefit from a broader selection of meditations for participants to choose from.

Examination of the DASS-21 for the ITT sample revealed a significant pre-to-post decrease in the stress subscale with a moderate effect size. When program starters were analyzed separately, significant decreases were found for the stress and anxiety subscales, with a large effect size for the stress subscale and a moderate effect size for the anxiety subscale. Overall, these findings are consistent with previous work that found online compassion-focused interventions had beneficial mental health effects in university students (Beshai et al., 2020; Kirby et al.,2017; Krieger et al., 2019; 2017; Yela et al., 2020; Ulyana, 2020). Several loving-kindness and compassion-focused interventions for university students have reported significant reductions in anxiety (Finlay-Jones et al., 2017; Gonzalez-Garcia et al., 2021; Haukaas et al., 2018; Mantzios et al., 2021; Totzeck et al., 2020), stress (Csaszar et al., 2018; Finlay-Jones et al., 2017; Gonzalez-Garcia et al., 2021) and depression (Finlay-Jones et al., 2017; Haukaas et al., 2018; Mascaro et al., 2018). Similarly, self-compassion interventions for non-students have been effective in alleviating stress (Alba, 2013; Hasselberg & Ronnuland, 2020; Krieger et al., 2016; Krieger et al., 2019; Li et al., 2021), anxiety (Alba, 2013; Galante et al., 2016; Kreiger et al.,

2019; Mifsud et al., 2021) and depressive (Alba, 2013; Krieger et al., 2019; Lennard et al., 2021) symptoms.

The literature on mindfulness-based programs reveals similar findings (Flett et al., 2020), with several online (Kemper & Khirallah, 2015; Orosa-Duarte et al., 2021; Pandy, 2020; Spadaro & Hunker, 2016) and in-person (Gaspar et al., 2021; Johnson et al., 2015; Phang et al., 2015; Shapiro et al., 2005; Shapiro et al., 2007) interventions producing significant improvement in indices of mental health among healthcare trainees and professionals. In a meta-analytic review of mindfulness interventions for university students, Breedvelt et al. (2019) reported significant and moderate improvement in anxiety, depression and stress, whereas another meta-analysis of studies involving more diverse samples found that mindfulness interventions produced medium to large reductions in perceived stress (Jayawardene et al., 2016). Overall, these studies underscore the benefits of self-compassion and mindfulness training in improving psychological wellbeing.

However, it is worth noting the current study could not demonstrate an effect of the self-compassion training on the depression subscale of the DASS-21. This is not an entirely surprising finding as other studies of compassion-based interventions failed to note improvement in depressive symptoms as well as other symptoms of distress. For example, Totzeck et al. (2020) found that their brief loving-kindness meditation intervention had no effect in reducing depression or stress among university students. Similarly, a self-paced online self-compassion program for the general population had no demonstrable effect on anxiety and depression (Nadeau et al., 2021). Studies of mindfulness-based programs for healthcare professionals (Moore et al., 2008; Moore et al., 2020; Raab et al., 2015) have also failed to detect significant improvement in psychological wellbeing. For example, Spadaro et al. (2016) found that their 8-week mindfulness intervention for nursing students did not improve depressive symptoms, while a similar study in medical students reported no changes on any of the DASS-21 subscales (Neto et al., 2020).

It is conceivable that greater changes in self-compassion and mindfulness might have yielded more robust findings for the DASS-21. Evans et al. (2018) posit that improved mindfulness enhances self-compassion, which ultimately fosters wellbeing. This suggests that greater increases in mindfulness skills might have enhanced levels of self-compassion in this sample and resulted in greater psychological benefits. Recent research on healthcare

professionals suggest that high levels of depression may be associated with low levels of self-compassion (McCade et al. 2021). In fact, Meng et al. (2020) examined the mediating role of stress on self-compassion, anxiety, and depression in healthcare workers and found that while self-compassion had a direct and negative association with stress, self-compassion had no direct impact on anxiety and depression. These researchers argued that higher levels of self-compassion may alleviate stress, which in turn, reduces feelings of anxiety and depression (Meng et al., 2020). In sum, these studies ascertain that higher levels of mindfulness and self-compassion are precursors to improved psychological well-being.

Post-study stress scores were significantly and positively correlated with the frequency of self-compassion meditation practice, although no association emerged between practice frequency and pre-to-post change score. Previous research on compassion-based meditations has demonstrated a significant relationship between practice frequency and emotional wellbeing (Fredrickson et al., 2017). For example, a recent study of an online self-compassion meditation training for the general population established a link between increased meditation practice and improvements in perceived stress (Li et al., 2021). Although there is a paucity of research exploring the impact of self-compassion meditation practice for healthcare trainees, a few existing studies in university students have detected significant correlations between frequency of compassion-focused and loving-kindness meditation and stress (Csaszar et al., 2018), anxiety (Haukaas et al., 2018) and depression (Haukaas et al., 2018).

Studies on mindfulness meditation have also demonstrated that practice improves stress, anxiety, and rumination (Rimes & Wingrove, 2011). For example, pre-healthcare college students who reported moderate-to-high frequency of meditation practice experienced significant decreases in anxiety and stress (Burgstahler & Stenson, 2020). Although some studies have established a link, overall, research on the relationship between meditation practice and psychological wellbeing is inconclusive, with other studies on university students failing to demonstrate an association between meditation practice and improved psychological wellbeing (Berghoff et al., 2017; Hindman et al., 2015; Lahtinen et al., 2021). Interestingly, a recent meta-analysis of 25 studies of mindfulness interventions for university students reported that interventions that did not expect students to establish a regular home practice reported greater improvements in anxiety than those that did (Bamber & Morpeth, 2019). The researchers

hypothesized that establishing a regular home meditation practice may be overwhelming for students and result in reduced engagement and less benefit.

Of note, although scores on the stress and anxiety subscales of the DASS-21 were lower post-intervention, participants continued to report mild levels of stress and moderate levels of anxiety. Depression scores were also in the mild range post-study. Other research on mindfulness (Neto et al., 2020) and compassion-focused (Totzeck et al., 2020) programs for healthcare trainees have reported no improvements in DASS-21 subscale scores. However, participants in these studies had baseline scores that were in the normative range and the lack of significant improvement may be due to a floor effect. Studies on student samples do not seem to report scores that remain in the non-normal range post-intervention. However, in one study of a brief mindfulness intervention for the general public, a substantial number of participants had baseline anxiety and depression scores that were in the clinical range (Josefsson et al., 2014). This study also failed to detect significant improvement in anxiety and depression ratings post-intervention. Therefore, it is possible that brief forms of mindfulness and self-compassion training are insufficient to produce robust changes in wellbeing if baseline distress scores are elevated.

Participants were recruited during the COVID-19 pandemic; specifically, between November 2020 and January 2021. Other studies of healthcare workers during the pandemic reported high distress scores (Kotera et al., 2021; Lai et al., 2020). However, it is difficult to ascertain if the pandemic contributed to the lower levels of psychological wellbeing in this sample, as baseline DASS-21 scores are comparable to previous pre-pandemic research on healthcare workers (Teo et al., 2019). In fact, previous research on healthcare trainees have reported baseline DASS-21 scores within the normal to extremely high range (Casey et al., 2016).

Baseline self-compassion levels were also somewhat lower in this sample compared to other student samples in the healthcare field (Colgan et al., 2019; Danilewitz et al., 2018), with levels remaining lower at the post-study assessment. Other studies of healthcare workers during the pandemic reported low levels of self-compassion (Kotera et al., 2021; Prudenzi et al., 2021). Indeed, Prudenzi et al. (2020) reported SCS-SF scores as low as 31.98, which is lower than the baseline scores in the present study. While it is possible that lower levels of self-compassion were attributed to the pandemic, the cross-sectional design of these studies makes it difficult to establish a causal link between the pandemic and self-compassion. For example, pre-pandemic

research on university students have reported SCS-SF scores as low as 29.81 (Huberty et al., 2019), which is much lower than scores observed in the current study. Therefore, it is difficult to ascertain if levels of self-compassion in this sample were impacted by the pandemic. It is worth noting that a recent meta-analysis of 25 studies found that the psychological impact of the pandemic is rather minor, with most participants appearing to be quite resilient (Prati & Mancini, 2021; Reger et al., 2020). In line with previous research on disasters and pandemics (Calo-Blanco et al., 2017; Hawdon & Ryan; 2011; Lau et al., 2008), many studies on the COVID-19 pandemic report improved social cohesion and closeness, with increased feelings of care and concern for family, friends, and community (Courtet et al., 2020; Luchetti et al., 2020; Tull et al., 2020).

Limitations and future research

Since online self-compassion meditation training for healthcare trainees is still in its infancy, there are gaps in the current study that should be addressed in future research. This was an exploratory study with a small sample size, which limits the generalizability of findings. Although a sample size of 31 participants was sufficient to detect change, almost one-third of the participants did not complete the post-study questionnaires. While this is well within the expected range, missing data reduced power to find more robust intervention effects. While the LOCF is an unbiased approach to handling missing data, imputing post-study scores for almost one-third of the sample introduced a significant bias to the study. Assessment of program feasibility was also affected by incomplete weekly feasibility questionnaire data. Email reminders can improve questionnaire completion rates (Lippman et al., 2019) and without them, the weekly feasibility questionnaire and post-study questionnaire completion rates in the present study would have been poorer. If study resources permit, future research should employ incentives such as monetary compensation or course credits to improve self-report measure completion (Zautra et al., 2012).

Second, adherence to the weekly self-compassion meditation practice was poor, which likely compromised the study's power to detect stronger effect of the self-compassion meditation training. Poor adherence rates are particularly evident in programs that are entirely self-guided, hence future research should solicit ongoing feedback from participants on how to modify the program to assure better adherence. Additionally, on-going support in establishing a regular meditation practice would be of benefit and one online mindfulness intervention for college

students that reported stable rates of adherence throughout the program used three different strategies to improve adherence to the program and to the meditation practices (Reyes et al., 2020). These researchers organized the weekly mindfulness exercises so that the ones that were perceived as easy were available to participants in the first half of the program. Secondly, weekly phone follow-ups addressed technical difficulties and any struggles students had establishing a meditation practice. Finally, participants received one-on-one time with facilitators at the beginning of the program to discuss strategies to overcome common challenges to practicing meditations (Reyes et al., 2020). While these are good strategies that can improve adherence, providing on-going support would require considerable resources and would not be as cost-efficient as a completely self-directed program.

Additional strategies that improve program adherence include providing access to live training sessions (Flynn et al., 2020; Seekis et al., 2020; Wahbeh & Oken, 2016; Yang et al., 2019) that allow participants to share their experiences with others (Bu et a., 2019; Klatt et al., 2020; Mak et al., 2018; Yang et al., 2019) and providing additional tips on how to utilize the training material (Coster et al., 2020; Wahbeh & Oken, 2021). Preliminary findings suggest that other online modes of intervention such as mobile app-based programs are effective (Orosa-Duarte et al., 2021), however, more research is needed to establish if they are suitable for healthcare professionals (O'Donnell et al., 2020; Reyes, 2020). Given their increased portability and accessibility, future research should compare the effect of mobile app-based interventions versus synchronous online programs on program adherence. Preliminary research comparing online psychoeducation to app-based meditational programs suggest that delivery of meditation via apps are effective (Economides et al., 2018: Lahtinen et al., 2021) and should be examined further.

Additionally, stepwise organization of exercises and meditations, where access to upcoming exercises is only granted after the completion of preceding tasks, may also improve adherence (Eriksson et al., 2018). Preliminary research on virtual reality embodiment techniques to improve meditation practice has been encouraging (Navarrete et al., 2021) and should be explored further.

Third, while the length of the self-compassion meditations was within the optimal range of 5-12 minutes (Burgstahler & Stenson, 2020), it is possible the program could have been shortened to two or three weeks and involve one meditation to practice each week) without

compromising efficacy. For example, one study that investigated a 2-week online self-compassion meditation training for women struggling with body-image-related concerns reported that the 2-week adaptation of the program was just as effective at improving self-compassion as the original 3-week program (de Wet et al., 2020). Of note, unlike the 10-minute meditations used in this study, these researchers used meditations that were 20-minutes long. Nonetheless, more research is needed since not many studies have examined the impact of self-compassion meditation training (without the incorporation of adjunct psychoeducational materials) on university students. One loving-kindness meditation intervention for university students that reported improved well-being scores was six weeks long (Csaszar et al., 2018).

Fourth, the present study failed to monitor if participants watched the introductory video. Given the potential impact of psychoeducation on efficacy measures, it would have been worthwhile to examine if better knowledge and understanding of the concepts of self-compassion had any notable effects on adherence or outcome. Future research should have systems in place to monitor participation in all aspects of the intervention. One possibility is using online platforms that track viewing time as this eliminates the issue of incomplete participation log.

Fifth, since the primary focus was the practice of self-compassion meditations, the program did not include an adjunct didactic component. Aside from the introductory video, the only other educational aspect of the training was the four-weekly audio-taped guided self-compassion meditations that included a version with a brief introduction (approximately 1-minute long) about the meditation practice. Previous online training for healthcare trainees that were effective often consisted of weekly guided meditations and corresponding didactic elements such as mini-lectures, exercises, and activities such as compassionate letter writing and reframing negative self-talk (Danilewitz et al., 2018; Finlay et al., 2017). Although healthcare trainees experience severe time-constraints that make engagement with modules challenging (Danilewitz et a., 2018; Finlay-Jones et al., 2017; Orosa-Duarte et al., 2021), the present study should have incorporated more psychoeducation and a few experiential exercises such as compassionate journaling and compassionate self-talk strategies.

Fifth, participants were predominantly female, which is in keeping with the gender ratios reported by previous researchers (Coster et a., 2020; Finlay-Jones et al., 2017; Kemper et al., 2017; Neff et al., 2020; Rao & Kemper; 2016; Wen et al., 2017; Yela et al., 2020). Although expected, this is a notable limitation since there is some evidence for an effect of gender on self-

compassion (Neff, 2003a; Neff & Kirkpatrick, 2007; Neff & Vonk, 2009). Neff (2003a) found that women reported significantly lower levels of self-compassion than men. Additionally, while women report greater other-focused concern than men, the link between self-focused and other-focused compassion is weaker for women (Neff & Pommier, 2013). One study of healthcare professionals that included mainly women (82% of the sample) found that increased compassion for others was significantly associated with lower levels of self-compassion (Mills et al., 2018). This suggests that women are more likely to be attuned to the suffering of others than they are to their own suffering. A possible explanation for this finding is gender-role socialization that upholds traditionally feminine qualities such as nurturing and self-sacrificing (Neff & Pommier, 2013). However, more research is needed to fully understand the impact of gender on cultivating self-compassion. Nevertheless, a disproportionate number of male-to-female participants limits the generalizability of current findings.

Sixth, participants self-selected to enroll in the program and they may have been motivated to participate in self-compassion training or were at least curious about the program. As such, results from the present study cannot be used inform curriculum-based interventions. Although previous research on course-based psychological intervention for students in healthcare professions has been promising (Bond et al., 2013), voluntary mindfulness courses fare better (Aherne et al., 2016) than compulsory mindfulness training that is built into medical school training (Dybre et al., 2017), which is often perceived as yet another obligation that offers no immediate and measurable benefits (Neto et al., 2020). Optional trainings are more acceptable and useful (Aherne et al., 2016), with medical students who take such courses reporting significant improvements in self-compassion and emotion regulation (Bond et al., 2013).

Seventh, preliminary benefits were assessed using self-report measures. Self-report scales are inherently subjective and may not provide an accurate representation of participants' inner experience as effectively as objective measures. Also, it is possible that the self-report ratings were biased by social desirability. Further, SCS-SF can only calculate the overall self-compassion score (Babenko & Guo, 2019; Kotera & Sheffield, 2020; Neff, 2003a). Future research should ideally use the long version of SCS-SF, so that subscale scores could be calculated to conduct a more fine-grained analysis of the effect of the intervention of aspects of self-compassion.

With regards to the measure of trait mindfulness, certain studies have suggested that patience and equanimity are core features of mindfulness (Holzel et al., 2011; Shapiro et al., 2006). However, the FFMQ-SF does not fully capture these elements. Baer (2011) suggests that an all-encompassing, reliable measurement of mindfulness has yet to be constructed. Therefore, future research that simultaneously examines self-report tools and physiological measures is warranted. While self-report measures examine perceived changes in mindfulness, physiological measures offer more objective and unbiased evaluation of mindfulness. Inconsistencies between self-report and physiological measures may provide more insight into potential biases and/or issues with construct validity. Physiological measurement techniques such as functional magnetic resonance imaging (fMRI) (Holzel et al., 2011; Smith et al., 2021), electroencephalography (Lomas, et al., 2015), and heart rate variability (Krygier et al., 2013) have already been used by previous researchers to measure physiological changes with regards to mindfulness meditations.

Conclusion

The aim of the current study was to evaluate the feasibility and preliminary benefits of a brief online self-compassion meditation intervention for healthcare trainees. Findings indicate that without certain modifications, this self-compassion meditation training may not be feasible for students in the healthcare professions at this time. Although no significant changes emerged for self-compassion, a recent meta-analytic review of online compassion-focused programs suggest that such interventions hold promise in their ability to improve self-compassion and psychological wellbeing (Kirby et al., 2017). This study was efficient in reducing anxiety and stress. A large effect was found for the facet *Act with Awareness*, and albeit small, effects were also found for the FFMQ-SF facets *Nonjudge* and *Describe*. Since this was a feasibility study that was intended to inform larger confirmatory studies, there was no control group and there is a paucity of randomized control studies comparing the benefits of online versus in-person self-compassion training for healthcare trainees. As such, a fruitful line of future research would be a comparison of different modalities. Although overall findings were disappointing, this study highlights the potential drawbacks of omitting didactic elements from the training. Therefore, future interventions that investigate the uptake and preliminary benefits of online self-compassion meditation trainings for healthcare trainees should seriously consider offering opportunities for formal and informal didactic learning. Moving forward, it would be valuable to

solicit additional qualitative feedback from participants as this would be help modify the program before a larger confirmatory study.

References

Aherne, D., Farrant, K., Hickey, L., Hickey, E., McGrath, L., & McGrath, D. (2016). Mindfulness based stress reduction for medical students: optimising student satisfaction and engagement. *BMC Medical Education, 16*(1), 209–209. https://doi.org/10.1186/s12909-016-0728-8

Alba, B. (2013). Loving-kindness meditation: a field study. *Contemporary Buddhism, 14*(2), 187–203. https://doi.org/10.1080/14639947.2013.832494

Albertson, E. R., Neff, K. D., & Dill-Shackleford, K. E. (2015). Self-Compassion and Body Dissatisfaction in Women: A Randomized Controlled Trial of a Brief Meditation Intervention. *Mindfulness*, *6*(3), 444–454. https://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. https://doi.org/10.1002/wps.20083

Andrews, C. (2012). Social media recruitment: the opportunities and challenges social media provides in the realm of subject recruitment.(PEER REVIEWED). *Applied Clinical Trials*, *21*(11), 32–.

Babenko, O., & Guo, Q. (2019). Measuring Self-Compassion in Medical Students: Factorial Validation of the Self-Compassion Scale-Short Form (SCS-SF). *Academic Psychiatry*, *43*(6), 590–594. https://doi.org/10.1007/s40596-019-01095-x

Baer, R. (2011). Measuring mindfulness. *Contemporary Buddhism*, *12*(1), 241–261. https://doi.org/10.1080/14639947.2011.564842

Baer, R. A., Lykins, E. L., & Peters, J. R. (2012). Mindfulness and self-compassion as predictors of psychological wellbeing in long-term meditators and matched nonmeditators. The Journal of Positive Psychology, 7(3), 230–238. https://doi.org/10.1080/17439760.2012.674548

Baer, R., Smith, G., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using Self-Report Assessment Methods to Explore Facets of Mindfulness. *Assessment, 13*(1), 27-45.

Bailey, N. W., Nguyen, J., Bialylew, E., Corin, S. E., Gilbertson, T., Chambers, R., & Fitzgerald, P. B. (2018). Effect on Well-Being from an Online Mindfulness Intervention: "Mindful in May." *Mindfulness*, *9*(5), 1637–1647. https://doi.org/10.1007/s12671-018-0910-7

Bajardi, P., Paolotti, D., Vespignani, A., Eames, K., Funk, S., Edmunds, W. J., Turbelin, C., Debin, M., Colizza, V., Smallenburg, R., Koppeschaar, C., Franco, A. O., Faustino, V., Carnahan, A., Rehn, M., Merletti, F., Douwes, J., Firestone, R., & Richiardi, L. (2014). Association between recruitment methods and attrition in Internet-based studies. *PloS One*, *9*(12), e114925–e114925. https://doi.org/10.1371/journal.pone.0114925

Bamber, M. D., & Morpeth, E. (2019). Effects of Mindfulness Meditation on College Student Anxiety: a Meta-Analysis. *Mindfulness*, *10*(2), 203–214. https://doi.org/10.1007/s12671-018-0965-5

Barratt, C. (2017). Exploring how mindfulness and self-compassion can enhance compassionate care. *Nursing Standard (2014+)*, *31*(21), 55. doi:http://dx.doi.org.proxy.bib.uottawa.ca/10.7748/ns.2017.e10671

Beaumont, E., Durkin, M., Hollins Martin, C. J., & Carson, J. (2016a). Compassion for others, self-compassion, quality of life and mental well-being measures and their association with compassion fatigue and burnout in student midwives: A quantitative survey. *Midwifery*, *34*(Complete), 239-244. doi:10.1016/j.midw.2015.11.002

Beaumont, E., Irons, C., Rayner, G., & Dagnall, N. (2016b). Does Compassion-Focused Therapy Training for Health Care Educators and Providers Increase Self-Compassion and Reduce Self-Persecution and Self-Criticism? *Journal of Continuing Education in the Health Professions*, *36*(1), 4–10. https://doi.org/10.1097/CEH.0000000000000023

Bellosta-Batalla, M., Cebolla, A., Pérez-Blasco, J., & Moya-Albiol, L. (2021). Introducing mindfulness and compassion-based interventions to improve verbal creativity in students of clinical and health psychology. *Psychology and Psychotherapy*, *94*(3), 541–557. https://doi.org/10.1111/papt.12329

Benzo, R., Kirsch, J., & Nelson, C. (2017). Compassion, Mindfulness, and the Happiness of Healthcare Workers. *Explore: The Journal of Science and Healing*, *13*(3), 201–206. https://doi.org/10.1016/j.explore.2017.02.001

Bergen-Cico, D., & Cheon, S. (2014). The Mediating Effects of Mindfulness and Self Compassion on Trait Anxiety. *Mindfulness*, *5*(5), 505–519. https://doi.org/10.1007/s12671-013-0205-y

Berghoff, C. R., Wheeless, L. E., Ritzert, T. R., Wooley, C. M., & Forsyth, J. P. (2017). Mindfulness Meditation Adherence in a College Sample: Comparison of a 10-MinVersus

20-Min 2-Week Daily Practice. *Mindfulness*, *8*(6), 1513–1521. https://doi.org/10.1007/s12671-017-0717-y

Beshai, S., Bueno, C., Yu, M., Feeney, J. R., & Pitariu, A. (2020). Examining the effectiveness of an online program to cultivate mindfulness and self-compassion skills (Mind-OP): Randomized controlled trial on Amazon's Mechanical Turk. *Behaviour Research and Therapy*, *134*, 103724–103724. https://doi.org/10.1016/j.brat.2020.103724

Bettinsoli, M., Di Riso, D., Napier, J., Moretti, L., Bettinsoli, P., Delmedico, M., Piazzolla, A., & Moretti, B. (2020). Mental Health Conditions of Italian Healthcare Professionals during the COVID-19 Disease Outbreak. *Applied Psychology : Health and Well-Being*, *12*(4), 1054–1073. https://doi.org/10.1111/aphw.12239

Birnie, K., Speca, M., & Carlson, L. E. (2010). Exploring self-compassion and empathy in the context of mindfulness-based stress reduction (MBSR). *Stress and Health*, *26*(5), 359 371. https://doi.org/10.1002/smi.1305

Bond, A., Mason, H., Lemaster, C., Shaw, S., Mullin, C., Holick, E., & Saper, R. (2013). Embodied health: the effects of a mind-body course for medical students. *Medical Education Online*, *18*(1), 1–8. https://doi.org/10.3402/meo.v18i0.20699

Bourgault, M., & Dionne, F. (2019). Therapeutic Presence and Mindfulness: Mediating Role of Self-Compassion and Psychological Distress among Psychologists. *Mindfulness*, *10*(4), 650–656. https://doi.org/10.1007/s12671-018-1015-z

Bowen, D., Kreuter, M., Spring, B., Cofta-Woerpel, L., Linnan, L., Weiner, D., Bakken, S., Kaplan, C., Squiers, L., Fabrizio, C., & Fernandez, M. (2009). How We Design Feasibility Studies. *American Journal of Preventive Medicine*, *36*(5), 452–457. https://doi.org/10.1016/j.amepre.2009.02.002

Breedvelt, J. J. F., Amanvermez, Y., Harrer, M., Karyotaki, E., Gilbody, S., Bockting, C. L. H., Cuijpers, P., & Ebert, D. D. (2019). The effects of meditation, yoga, and mindfulness on depression, anxiety, and stress in tertiary education students: A meta-analysis. *Frontiers in Psychiatry*, *10*(APR), 193–193. https://doi.org/10.3389/fpsyt.2019.00193

Brouwer, K., Walmsley, L., Parrish, E., McCubbin, A., Braido, C., & Okoli, C. (2021). Examining the associations between self-care practices and psychological distress among nursing students during the COVID-19 pandemic. *Nurse Education Today*, *100*, 104864 104864. https://doi.org/10.1016/j.nedt.2021.104864

Brown, J. L. C., Ong, J., Mathers, J. M., & Decker, J. T. (2017). Compassion fatigue and mindfulness: Comparing mental health professionals and MSW student interns. *Journal of Evidence-Informed Social Work, 14*(3), 119-130. doi:10.1080/23761407.2017.1302859

Bu, C. N. N., Cotzias, E., & Panagioti, M. (2019). Mindfulness intervention for foundation year doctors: a feasibility study. *Pilot and Feasibility Studies*, *5*(1), 61–61. https://doi.org/10.1186/s40814-019-0449-y

Burgstahler, M. S., & Stenson, M. C. (2020). Effects of guided mindfulness meditation on anxiety and stress in a pre-healthcare college student population: a pilot study. *Journal of American College Health*, *68*(6), 666–672. https://doi.org/10.1080/07448481.2019.1590371

Burton, A., Burgess, C., Dean, S., Koutsopoulou, G., & Hugh-Jones, S. (2017). [Review of *How Effective are Mindfulness-Based Interventions for Reducing Stress Among Healthcare Professionals? A Systematic Review and Meta-Analysis*]. *Stress and Health*, *33*(1), 3–13. https://doi.org/10.1002/smi.2673

Casey, D., Thomas, S., Hocking, D., & Kemp-Casey, A. (2016). Graduate-entry medical students: older and wiser but not less distressed. *Australasian Psychiatry : Bulletin of the Royal Australian and New Zealand College of Psychiatrists*, *24*(1), 88–92. https://doi.org/10.1177/1039856215612991

Calo-Blanco, A., Kovářík, J., Mengel, F., & Romero, J. G. (2017). Natural disasters and indicators of social cohesion. *PLoS ONE*, 12(6), e0176885. doi:10.1371/journal.pone.0176885.

Cavanagh, K., Churchard, A., O'Hanlon, P., Mundy, T., Votolato, P., Jones, F., . . . Strauss, C. (2018). A Randomised Controlled Trial of a Brief Online Mindfulness-Based Intervention in a Non-clinical Population: Replication and Extension. *Mindfulness, 9*(4), 1191-1205. https://doi.org/10.1007/s12671-017-0856-1

Chen, E., Kaczmarek, K., & Ohyama, H. (2020). Student perceptions of distance learning strategies during COVID-19. *Journal of dental education*, 10.1002/jdd.12339. Advance online publication. https://doi.org/10.1002/jdd.12339

Chen, Q., Liang, M., Li, Y., Guo, J., Fei, D., Wang, L., ... & Zhang, Z. (2020). Mental health care for medical staff in China during the COVID-19 outbreak. *The Lancet Psychiatry*, *7*(4), e15-e16.

Christensen, T., Riis, A. H., Hatch, E. E., Wise, L. A., Nielsen, M. G., Rothman, K. J., Sorensen, H. T., & Mikkelsen, E. M. (2017). Costs and Efficiency of Online and Offline Recruitment Methods: A Web-Based Cohort Study. *Journal of Medical Internet Research*, *19*(3), e58–e58. https://doi.org/10.2196/jmir.6716

Chrisman, J., Chambers Christopher, J., & Lichtenstein, S. (2009). Qigong as a mindfulness practice for counseling students: A qualitative study. *Journal of Humanistic Psychology, 49*(2), 236-257. doi:10.1177/0022167808327750

Christopher, J., Christopher, S., Dunnagan, T., & Schure, M. (2006). Teaching self-care through mindfulness practices: The application of yoga, meditation, and qigong to counselor training. *Journal of Humanistic Psychology, 46*(4), 494-509 doi:10.1177/0022167806290215

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Second ed.).

Colgan, D., Christopher, M., Bowen, S., Brems, C., Hunsinger, M., Tucker, B., & Dapolonia, E. (2019). Mindfulness-based Wellness and Resilience intervention among interdisciplinary primary care teams: a mixed-methods feasibility and acceptability trial. *Primary Health Care Research & Development*, *20*, e91–e91. https://doi.org/10.1017/S1463423619000173

Coster, S., Gould, R., Coulson, M., & Norman, I. (2020). An online mindfulness intervention to enhance compassion in nursing practice: A feasibility and acceptability study with nursing students. *International Journal of Nursing Studies Advances*, *2*, 100004–. https://doi.org/10.1016/j.ijnsa.2020.100004

Courtet, P., Olié, E., Debien, C., & Vaiva, G. (2020). Keep socially (but not physically) connected and carry on: Preventing suicide in the age of COVID-19. *Journal of Clinical Psychiatry*, 81(3), e20com13370–e13320com13370. doi:10.4088/JCP.20com13370.

Csaszar, I. E., Curry, J. R., & Lastrapes, R. E. (2018). Effects of Loving Kindness Meditation on Student Teachers' Reported Levels of Stress and Empathy. *Teacher Education Quarterly (Claremont, Calif.), 45*(4), 93–116.

Cushway, D. (1992). Stress in clinical psychology trainees. *British Journal of Clinical Psychology, 31,* 169–179. doi:10.1111/j.2044- 8260.1992.tb00981.x

Danilewitz, M., Bradwejn, J., & Koszycki, D. (2016). A pilot feasibility study of a peer-led mindfulness program for medical students. *Canadian Medical Education Journal*, *7*(1), e31–e37. https://doi.org/10.36834/cmej.36643

Danilewitz, M., Koszycki, D., Maclean, H., Sanchez-Campos, M., Gonsalves, C., Archibald, D., & Bradwejn, J. (2018). Feasibility and effectiveness of an online mindfulness meditation program for medical students. *Canadian Medical Education Journal*, *9*(4), E15-e25.

de Wet, A. J., Lane, B. R., & Mulgrew, K. E. (2020). A Randomised Controlled Trial Examining the Effects of Self-Compassion Meditations on Women's Body Image. *Body Image*, *35*, 22–29. https://doi.org/10.1016/j.bodyim.2020.07.009

Deary, I. J., Watson, R., & Hogston, R. (2003). A longitudinal cohort study of burnout and attrition in nursing students. *Journal of Advanced Nursing*, *43*(1), 71-81. doi:10.1046/j.1365-2648.2003.02674.x

Delany, M.C. (2018). Caring for the caregivers: Evaluation of the effect of an eight-week pilot mindful self-compassion (MSC) training program on nurses' compassion fatigue and resilience. *PLoS ONE, 13*(11), E0207261.

Deniz, M. (2021). Self-compassion, intolerance of uncertainty, fear of COVID-19, and well-being: A serial mediation investigation. *Personality and Individual Differences*, *177*, 110824–110824. https://doi.org/10.1016/j.paid.2021.110824

De Vibe, M., Solhaug, I., Rosenvinge, J., Tyssen, R., Hanley, A., & Garland, E. (2018). Six-year positive effects of a mindfulness-based intervention on mindfulness, coping and well-being in medical and psychology students; Results from a randomized controlled trial. (Research Article). *PLoS ONE*, *13*(4), e0196053. https://doi.org/10.1371/journal.pone.0196053

Donovan, E., Rodgers, R., Cousineau, T., Mcgowan, K., Luk, S., Yates, K., & Franko, D. (2016). Brief report: Feasibility of a mindfulness and self-compassion based mobile intervention for adolescents. *Journal of Adolescence*, *53*, 217–221. https://doi.org/10.1016/j.adolescence.2016.09.009

Duarte, J., & Pinto-Gouveia, J. (2016). Effectiveness of a mindfulness-based intervention on oncology nurses' burnout and compassion fatigue symptoms: A non-randomized study. *International Journal of Nursing Studies*, *64*, 98–107. https://doi.org/10.1016/j.ijnurstu.2016.10.002

Duarte, J., Pinto-Gouveia, J., & Cruz, B. (2016). Relationships between nurses' empathy, self -compassion and dimensions of professional quality of life: A cross-sectional study. *International Journal of Nursing Studies, 60*(Complete), 1-11. doi:10.1016/j.ijnurstu.2016.02.015

Durkin, M., Beaumont, E., Hollins Martin, C. J., & Carson, J. (2016). A pilot study exploring the relationship between self-compassion, self-judgement, self-kindness, compassion, professional quality of life and wellbeing among UK community nurses. *Nurse Education Today, 46*(Complete), 109-114. doi: 10.1016/j.nedt.2016.08.030

Dyrbye, L. N., Shanafelt, T. D., Werner, L., Sood, A., Satele, D., & Wolanskyj, A. P. (2017). The Impact of a Required Longitudinal Stress Management and Resilience Training Course for First-Year Medical Students. *Journal of General Internal Medicine : JGIM*, *32*(12), 1309–1314. https://doi.org/10.1007/s11606-017-4171-2

Dyrbye, L. N., Thomas, M. R., Huntington, J. L., Lawson, K. J., Novotny, P. A., Sloan, J. D., & Shanafelt, T. (2006). Personal Life Events and Medical Student Burnout: A Multicenter Study. *Academic Medicine, 81*(4), 374-384.

Economides, M., Martman, J., Bell, M. J., & Sanderson, B. (2018). Improvements in Stress, Affect, and Irritability Following Brief Use of a Mindfulness-based Smartphone App: A Randomized Controlled Trial. *Mindfulness*, *9*(5), 1584–1593. https://doi.org/10.1007/s12671-018-0905-4

El-Ghoroury, N. H., Galper, D. I., Sawaqdeh, A., Bufka, L. F. (2012). Stress, coping, and barriers to wellness among psychology graduate students. *Training and Education in Professional Psychology*, *6*(2), 122-134. doi:10.1037/a0028768

Enns, A., Eldridge, G. D., Montgomery, C., & Gonzalez, V. M. (2018). Perceived stress, coping strategies, and emotional intelligence: A cross-sectional study of university students in helping disciplines. *Nurse Education Today, 68*(Complete), 226-231. doi:10.1016/j.nedt.2018.06.012

Eriksson, T., Germundsjo, L., Ostrom, E., & Ronnlund, 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*, *9*, 2340. https://doi.org/10.3389/fpsyg.2018.02340

Evans, S., Wyka, K., Blaha, K. T., & Allen, E. S. (2018). Self-Compassion Mediates Improvement in Well-being in a Mindfulness-Based Stress Reduction Program in a Community-Based Sample. *Mindfulness, 9*(4), 1280–1287. https://doi.org/10.1007/s12671-017-0872-1

Fahrenkopf, A., Sectish, T., Barger, L., Sharek, P., Lewin, D., Chiang, V., . . . Landrigan, C. (2008). Rates of medication errors among depressed and burnt out residents: Prospective cohort study. *BMJ, 336*(7642), 488-491.

Falconer, C. J., Rovira, A., King, J. A., Gilbert, P., Antley, A., Fearon, P., . . . Brewin, C. R. (2016). Embodying self-compassion within online reality and its effects on patients with depression. *BJPsych Open, 2*(1), 74-80. doi:10.1192/bjpo.bp.115.002147

Falconer, C. J., Slater, M., Rovira, A., King, J. A., Gilbert, P., Antley, A., . . . Brewin, C. R. (2014). Embodying compassion: A online reality paradigm for overcoming excessive self-criticism. *PLoS ONE, 9*(11) doi:10.1371/journal.pone.0111933

Finlay-Jones, A., Kane, R., & Rees, C. (2016). Self-Compassion online: A pilot study of an Internet-Based Self-Compassion cultivation program for psychology trainees. *Journal of Clinical Psychology, 73*(7), 797-816. doi:10.1002/jclp.22375

Finlay-Jones, A., Rees, C., & Kane, R. (2015). Self-Compassion, Emotion Regulation and Stress among Australian Psychologists: Testing an Emotion Regulation Model of Self Compassion Using Structural Equation Modeling. *PLoS ONE, 10*(7), E0133481.

Flett, J. A. M., Conner, T. S., Riordan, B. C., Patterson, T., & Hayne, H. (2020). App-based mindfulness meditation for psychological distress and adjustment to college in incoming university students: a pragmatic, randomised, waitlist-controlled trial. *Psychology & Health*, *35*(9), 1049–1074. https://doi.org/10.1080/08870446.2019.1711089

Fredrickson, B. L., Boulton, A. J., Firestine, A. M., Van Cappellen, P., Algoe, S. B., Brantley, M. M., Kim, S. L., Brantley, J., & Salzberg, S. (2017). Positive Emotion Correlates of Meditation Practice: a Comparison of Mindfulness Meditation and Loving-Kindness Meditation. *Mindfulness*, *8*(6), 1623–1633. https://doi.org/10.1007/s12671-017-0735-9

Fulton, C. (2016). Mindfulness, self-compassion, and counselor characteristics and session variables. *Journal of Mental Health Counseling*, *38*(4), 360–374. https://doi.org/10.17744/mehc.38.4.06

Galante, J., Bekkers, M.-J., Mitchell, C., & Gallacher, J. (2016). Loving-Kindness Meditation Effects on Well-Being and Altruism: A Mixed-Methods Online RCT. *Applied Psychology : Health and Well-Being*, *8*(3), 322–350. https://doi.org/10.1111/aphw.12074

Gaspar, I., Martinho, A., & Lima, M. (2021). Exploring the benefits of a mindfulness program for Portuguese public healthcare workers. *Current Psychology (New Brunswick, N.J.)*, *40*(2), 772–781. https://doi.org/10.1007/s12144-018-9987-3

Gilbert, P. (2015). An evolutionary approach to emotion in mental health with a focus on affiliative emotions. *Emotion Review, 7*(3), 230-237. doi:10.1177/1754073915576552

Gilbert, P. (2009). *The compassionate mind: A new approach to life's challenges*. London: Constable.

Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology, 53*(1), 6-41. doi:10.1111/bjc.12043

González-García, M., Álvarez, J. C., Pérez, E. Z., Fernandez-Carriba, S., & López, J. G. (2021). Feasibility of a Brief Online Mindfulness and Compassion-Based Intervention to Promote Mental Health Among University Students During the COVID-19 Pandemic. *Mindfulness*, *12*(7), 1685–1695. https://doi.org/10.1007/s12671-021-01632-6

Guo, A., Crum, M., & Fowler, L. (2021). Assessing the Psychological Impacts of COVID-19 in Undergraduate Medical Students. *International Journal of Environmental Research and Public Health*, *18*(6), 2952–. https://doi.org/10.3390/ijerph18062952

Hasselberg, A., & Rönnlund, M. (2020). 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. *Cogent Psychology*, *7*(1), 1769807–. https://doi.org/10.1080/23311908.2020.1769807

Haukaas, R. B., Gjerde, I. B., Varting, G., Hallan, H. E., & Solem, S. (2018). A Randomized Controlled Trial Comparing the Attention Training Technique and Mindful Self Compassion for Students With Symptoms of Depression and Anxiety. *Frontiers in Psychology*, *9*, 827–827. https://doi.org/10.3389/fpsyg.2018.00827

Hawdon, J., & Ryan, J. (2011). Social relations that generate and sustain solidarity after a mass tragedy. *Social Forces*, 89(4), 1363–1384. doi:10.1093/sf/89.4.1363.

Heeter, C., Allbritton, M., Lehto, R., Miller, P., McDaniel, P., & Paletta, M. (2021). Feasibility, Acceptability, and Outcomes of a Yoga-Based Meditation Intervention for Hospice

Professionals to Combat Burnout. *International Journal of Environmental Research and Public Health*, *18*(5), 2515–. https://doi.org/10.3390/ijerph18052515

Heffernan, M., Quinn Griffin, M., Mcnulty, S., & Fitzpatrick, J. (2010). Self-compassion and emotional intelligence in nurses. *International Journal of Nursing Practice*, *16*(4), 366 373. https://doi.org/10.1111/j.1440-172X.2010.01853.x

Henry, J., & Crawford, J. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, *44*(2), 227–239. https://doi.org/10.1348/014466505X29657

Hindman, R. K., Glass, C. R., Arnkoff, D. B., & Maron, D. D. (2015). A Comparison of Formal and Informal Mindfulness Programs for Stress Reduction in University Students. *Mindfulness*, *6*(4), 873–884. https://doi.org/10.1007/s12671-014-0331-1

Hojat, M., Mangione, S., Nasca, T., Rattner, S., Erdmann, J., Gonnella, J., & Magee, M. (2004). An empirical study of decline in empathy in medical school. *Medical Education*, *38*(9), 934–941. https://doi.org/10.1111/j.1365-2929.2004.01911.x

Holzel, B. K., Carmody, J., Vangel, M., Congleton, C., Yerramsetti, S. M., Gard, T., & Lazar, S. W. (2011). Mindfulness practice leads to increases in regional brain gray matter density. Psychiatric Research: Neuroimaging, 191, 36-43.

Huberty, J., Green, J., Glissmann, C., Larkey, L., Puzia, M., & Lee, C. (2019). Efficacy of the Mindfulness Meditation Mobile App "Calm" to Reduce Stress Among College Students: Randomized Controlled Trial. *JMIR mHealth and uHealth*, *7*(6), e14273–e14273. https://doi.org/10.2196/14273

Iacovides, A., Fountoulakis, K. N., Kaprinis, S., & Kaprinis, G. (2003). The relationship between job stress, burnout and clinical depression. *Journal of Affective Disorders*, *75*(3), 209 221. doi:10.1016/S0165-0327(02)00101-5

Ingraham, N., Card, K., Jabson Tree, J. M., Patterson, J. G.(2019). A test of feasibility and acceptability of online mindfulness-based stress reduction for lesbian, gay, and bisexual women and men at risk for high stress: Pilot study. *JMIR Mental Health, 6*(8) doi:10.2196/15048

Jayawardene, W., Lohrmann, D., Erbe, R., & Torabi, M. (2016). Effects of preventive online mindfulness interventions on stress and mindfulness: A meta-analysis of randomized controlled trials. *Preventive Medicine Reports*, *5*(C), 150–159. https://doi.org/10.1016/j.pmedr.2016.11.013

Johnson, J. R., Emmons, H. C., Rivard, R. L., Griffin, K. H., & Dusek, J. A. (2015). Resilience Training: A Pilot Study of a Mindfulness-Based Program with Depressed Healthcare Professionals. *Explore (New York, N.Y.)*, *11*(6), 433–444. https://doi.org/10.1016/j.explore.2015.08.002

Johnson, J., Simms-Ellis, R., Janes, G., Mills, T., Budworth, L., Atkinson, L., & Harrison, R. (2020). Can we prepare healthcare professionals and students for involvement in stressful healthcare events? A mixed-methods evaluation of a resilience training intervention. *BMC Health Services Research*, *20*(1), 1094–14. https://doi.org/10.1186/s12913-020-05948-2

Josefsson, T., Lindwall, M., & Broberg, A. G. (2014). The Effects of a Short-term Mindfulness Based Intervention on Self-reported Mindfulness, Decentering, Executive Attention, Psychological Health, and Coping Style: Examining Unique Mindfulness Effects and Mediators. *Mindfulness*, *5*(1), 18–35. https://doi.org/10.1007/s12671-012-0142-1

Kemper, K. J. (2017). Brief online mindfulness training: Immediate impact. *Journal of Evidence Based Complementary & Alternative Medicine*, *22*(1), 75-80. doi:10.1177/2156587216639199

Kemper, K. J., & Khirallah, M. (2015). Acute Effects of Online Mind–Body Skills Training on Resilience, Mindfulness, and Empathy. *Journal of Evidence-Based Complementary & Alternative Medicine*, *20*(4), 247–253. https://doi.org/10.1177/2156587215575816

Kemper, K., McClafferty, H., Wilson, P., Serwint, J., Batra, M., Mahan, J., Schubert, C., Staples, B., & Schwartz, A. (2019). Do Mindfulness and Self-Compassion Predict Burnout in Pediatric Residents? *Academic Medicine*, *94*(6), 876–884. https://doi.org/10.1097/ACM.0000000000002546

Kirby, J. N., Tellegen, C. L., & Steindl, S. R. (2017). A meta-analysis of compassion-based interventions: Current state of knowledge and future directions. Behavior Therapy, 48(6), 778–792. https://doi.org/10.1016/j.beth.2017.06.003

Klimecki, O., & Singer, T. (2011). Empathic Distress Fatigue Rather Than Compassion Fatigue? Integrating Findings from Empathy Research in Psychology and Social Neuroscience. In *Pathological Altruism*. https://doi.org/10.1093/acprof:oso/9780199738571.003.0253 https://doi.org/10.1371/journal.pone.0136598

Kotera, Y., & Sheffield, D. (2020). Revisiting the Self-compassion Scale-Short Form: Stronger Associations with Self-inadequacy and Resilience. *SN Comprehensive Clinical Medicine*, *2*(6), 761–769. https://doi.org/10.1007/s42399-020-00309-w

Kotera, Y., Ozaki, A., Miyatake, H., Tsunetoshi, C., Nishikawa, Y., & Tanimoto, T. (2021). Mental health of medical workers in Japan during COVID-19: Relationships with loneliness, hope and self-compassion. *Current Psychology (New Brunswick, N.J.)*, 1–. https://doi.org/10.1007/s12144-021-01514-z

Krieger, T., Martig, D. S., van den Brink, E., & Berger, T. (2016). Working on self-compassion online: A proof of concept and feasibility study. *Internet Interventions*, *6*(Complete), 64 70. doi:10.1016/j.invent.2016.10.001

Krieger, T., Reber, F., von Glutz, B., Urech, A., Moser, C. T., Schulz, A., & Berger, T. (2019). An Internet-Based Compassion-Focused Intervention for Increased Self-Criticism: A Randomized Controlled Trial. *Behavior Therapy*, *50*(2), 430–445. https://doi.org/10.1016/j.beth.2018.08.003

Krygier, J. R., Heathers, J. A. J., Shahrestani, S., Abbott, M., Gross, J. J., & Kemp, A. H. (2013). Mindfulness meditation, well-being, and heart rate variability: A preliminary investigation into the impact of intensive Vipassana meditation. International Journal of Psychophysiology, 89, 305-313.

Kumlander S, Lahtinen O, Turunen T, Salmivalli C (2018) Two is more valid than one, but is six even better? The factor structure of the Self-Compassion Scale (SCS). PLOS ONE 13(12): e0207706. https://doi.org/10.1371/journal.pone.0207706

Lahtinen, O., Aaltonen, J., Kaakinen, J., Franklin, L., & Hyönä, J. (2021). The effects of app based mindfulness practice on the well-being of university students and staff. *Current Psychology (New Brunswick, N.J.)*, 1–10. https://doi.org/10.1007/s12144-021-01762-z

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z., & Hu, S. (2020). Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to

Coronavirus Disease 2019. *JAMA Network Open*, *3*(3), e203976–e203976. https://doi.org/10.1001/jamanetworkopen.2020.3976

Lamothe, M., Rondeau, É., Malboeuf-Hurtubise, C., Duval, M., & Sultan, S. (2016). Outcomes of MBSR or MBSR-based interventions in health care providers: A systematic review with a focus on empathy and emotional competencies. *Complementary Therapies in Medicine*, *24*, 19–28. https://doi.org/10.1016/j.ctim.2015.11.001

Lang, A. J., Malaktaris, A. L., Casmar, P., Baca, S. A., Golshan, S., Harrison, T., & Negi, L. (2019). Compassion meditation for posttraumatic stress disorder in veterans: randomized proof of concept study. *Journal of Traumatic Stress*, https://doi.org/10.1002/jts.22397

Lau, A. L. D., Chi, I., Cummins, R. A., Lee, T. M. C., Chou, K.-L., & Chung, L. W. M. (2008). The SARS (Severe Acute Respiratory Syndrome) pandemic in Hong Kong: Effects on the subjective wellbeing of elderly and younger people. *Aging and Mental Health*, 12(6), 746–760. doi:10.1080/13607860802380607.

Lazarus, R. S. (1966). *Psychological stress and the coping process.* New York, NY: McGraw Hill.

Lennard, G. R., Mitchell, A. E., & Whittingham, K. (2021). Randomized controlled trial of a brief online self-compassion intervention for mothers of infants: Effects on mental health outcomes. *Journal of Clinical Psychology*, *77*(3), 473–487. https://doi.org/10.1002/jclp.23068

Li, Y., Hu, Y., Yang, W., & Wang, Y. (2021). Daily interventions and assessments: The effect of online self-compassion meditation on psychological health. *Applied Psychology : Health and Well-Being*. https://doi.org/10.1111/aphw.12278

Lilja, J. L., Lundh, L.-G., Josefsson, T., & Falkenström, F. (2013). Observing as an Essential Facet of Mindfulness: A Comparison of FFMQ Patterns in Meditating and Non Meditating Individuals. *Mindfulness*, *4*(3), 203–212. https://doi.org/10.1007/s12671-012 0111-8

Lippmann, M., Laudel, H., Heinzle, M., & Narciss, S. (2019). Relating instructional design components to the effectiveness of internet-based mindfulness interventions: A critical interpretive synthesis. *Journal of Medical Internet Research, 21*(11), 15. https://doi.org.proxy.bib.uottawa.ca/10.2196/12497

Lomas, T., Ivtzan, I., & Fu, C. (2015). A systematic review of the neurophysiology of mindfulness on EEG oscillations. *Neuroscience and Biobehavioral Reviews*, *57*, 401 410. https://doi.org/10.1016/j.neubiorev.2015.09.018

Lovibond SH, Lovibnnd PF. *Manual for the depression anxiety and stress scales (DASS21).* Second edition. Sydney, NSW: Psychology Foundation of Australia. 1995;1–3.

Luchetti, M., Lee, J. H., Aschwanden, D., Sesker, A., Strickhouser, J. E., Terracciano, A., … Sutin, A. R. (2020). The trajectory of loneliness in response to COVID-19. *American Psychologist*, 75(7), 897–908. doi:10.1037/amp0000690.

Mak, W. W., Tong, A. C., Yip, S. Y., Lui, W. W., Chio, F. H., Chan, A. T., & Wong, C. C. (2018). Efficacy and Moderation of Mobile App-Based Programs for Mindfulness-Based Training, Self-Compassion Training, and Cognitive Behavioral Psychoeducation on Mental Health: Randomized Controlled Noninferiority Trial. *JMIR Mental Health*, *5*(4), e60–e60. https://doi.org/10.2196/mental.8597

Malboeuf-Hurtubise, C., Achille, M., Muise, L., Beauregard-Lacroix, R., Vadnais, M., & Lacourse, É. (2016). A Mindfulness-Based Meditation Pilot Study: Lessons Learned on Acceptability and Feasibility in Adolescents with Cancer. *Journal of Child and Family Studies*, *25*(4), 1168-1177. https://doi.org/10.1007/s10826-015-0299-z

Mantzios, M., Tariq, A., Altaf, M., & Giannou, K. (2021). Loving-Kindness Colouring and Loving-Kindness Meditation: Exploring the Effectiveness of Non-Meditative and Meditative Practices on State Mindfulness and Anxiety. *Journal of Creativity in Mental Health*, 1–8. https://doi.org/10.1080/15401383.2021.1884159

Marshall, S., Parker, P., Ciarrochi, J., Sahdra, B., Jackson, C., & Heaven, P. (2015). Reprint of "Self-compassion protects against the negative effects of low self-esteem: A longitudinal study in a large adolescent sample".(Clinical report). 81.

Mascaro, J. S., Kelley, S., Darcher, A., Negi, L. T., Worthman, C., Miller, A., & Raison, C. (2018). Meditation buffers medical student compassion from the deleterious effects of depression. *The Journal of Positive Psychology*, *13*(2), 133–142. https://doi.org/10.1080/17439760.2016.1233348

Mcconville, J., Mcaleer, R., & Hahne, A. (2017). Mindfulness Training for Health Profession Students—The Effect of Mindfulness Training on Psychological Well-Being, Learning and Clinical Performance of Health Professional Students: A Systematic Review of

Randomized and Non-randomized Controlled Trials. *Explore: The Journal of Science and Healing*, *13*(1), 26–45. https://doi.org/10.1016/j.explore.2016.10.002

McCade, D., Frewen, A., & Fassnacht, D. (2021). Burnout and depression in Australian psychologists: The moderating role of self-compassion. *Australian Psychologist*, *ahead of-print*(ahead-of-print), 1–12. https://doi.org/10.1080/00050067.2021.1890979

Meng, R., Luo, X., Du, S., Luo, Y., Liu, D., Chen, J., Li, Y., Zhang, W., Li, J., & Yu, C. (2020). The Mediating Role of Perceived Stress in Associations Between Self-Compassion and Anxiety and Depression: Further Evidence from Chinese Medical Workers. *Risk Management and Healthcare Policy*, *13*, 2729–2741. https://doi.org/10.2147/RMHP.S261489

Mifsud, A., Pehlivan, M. J., Fam, P., O'Grady, M., van Steensel, A., Elder, E., Gilchrist, J., & Sherman, K. A. (2021). Feasibility and pilot study of a brief self-compassion intervention addressing body image distress in breast cancer survivors. *Health Psychology & Behavioral Medicine*, *9*(1), 498–526. https://doi.org/10.1080/21642850.2021.1929236

Miller, J., Lee, J., Benner, K., Shalash, N., Barnhart, S., & Grise-Owens, E. (2018). Self-compassion among child welfare workers: An exploratory study. *Children and Youth Services Review*, *89*. Retrieved from http://search.proquest.com/docview/2088759390/

Mills, J., Wand, T., & Fraser, J. A. (2018). Examining self-care, self-compassion and compassion for others: a cross-sectional survey of palliative care nurses and doctors. *International Journal of Palliative Nursing*, *24*(1), 4–11. https://doi.org/10.12968/ijpn.2018.24.1.4

Moore, P. (2008). Introducing Mindfulness to Clinical Psychologists in Training: An Experiential Course of Brief Exercises. *Journal of Clinical Psychology in Medical Settings*, *15*(4), 331–337. https://doi.org/10.1007/s10880-008-9134-7

Moore, K., & Cooper, C. (1996). Stress in mental health professionals: A theoretical overview. *International Journal of Social Psychiatry, 42*, 82-89.

Moore, S., Barbour, R., Ngo, H., Sinclair, C., Chambers, R., Auret, K., Hassed, C., & Playford, D. (2020). Determining the feasibility and effectiveness of brief online mindfulness training for rural medical students: a pilot study. *BMC Medical Education*, *20*(1), 104 104. https://doi.org/10.1186/s12909-020-02015-6

Murray, G., Leitan, N. D., Berk, M., Thomas, N., Michalak, E., Berk, L., . . . Kyrios, M. (2015). Online mindfulness-based intervention for late-stage bipolar disorder: Pilot evidence for feasibility and effectiveness. *Journal of Affective Disorders, 178*(Complete), 46-51. doi:10.1016/j.jad.2015.02.024

Myers, S., Sweeney, A., Popick, V., Wesley, K., Bordfeld, A., & Fingerhut, R. (2012). Self-Care Practices and Perceived Stress Levels Among Psychology Graduate Students. *Training and Education in Professional Psychology, 6*(1), 55–66. https://doi.org/10.1037/a0026534

Nadeau, M. M., Caporale-Berkowitz, N. A., & Rochlen, A. B. (2021). Improving Women's Self Compassion Through an Online Program: A Randomized Controlled Trial. *Journal of Counseling and Development*, *99*(1), 47–59. https://doi.org/10.1002/jcad.12353

Navarrete, M., Martínez-Sanchis, M., Bellosta-Batalla, M., Baños, R., Cebolla, A., & Herrero, R. (2021). Compassionate Embodied Online Experience Increases the Adherence to Meditation Practice. *Applied Sciences, 11*(1276), 1276–. https://doi.org/10.3390/app11031276

Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*(3), 223-250. doi:10.1080/15298860309027

Neff, K. D. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2*(2), 85-101. doi:10.1080/15298860309032

Neff, K. D. (2016). The self-compassion scale is a valid and theoretically coherent measure of self-compassion. *Mindfulness, 7*(1), 264-274. doi:10.1007/s12671-015-0479-3

Neff, K. D, and Elizabeth Pommier. (2013). "The Relationship Between Self-Compassion and Other Focused Concern Among College Undergraduates, Community Adults, and Practicing Meditators." *Self and identity* 12.2 (2013): 160–176. Web.

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. doi:10.1002/jclp.21923

Neff, K. D., & Germer, C. K. (2018). *The mindful self-compassion workbook: a proven way to accept yourself, build inner strength, and thrive*. New York, NY: The Guilford Press.

Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality, 41*(1), 139-154. doi:10.1016/j.jrp.2006.03.004

Neff, K.D., Knox, M., Long, P., & Gregory, K. (2020). Caring for others without losing yourself: An adaptation of the Mindful Self-Compassion Program for Healthcare Communities. *Journal of Clinical Psychology, 76*(9), 1543–1562. https://doi.org/10.1002/jclp.23007

Neff, K. D., Tóth-Király, I., Yarnell, L. M., Arimitsu, K., Castilho, P., Ghorbani, N., Guo, H. X., Hirsch, J. K., Hupfeld, J., Hutz, C. S., Kotsou, I., Lee, W. K., Montero-Marin, J., Sirois, F. M., de Souza, L. K., Svendsen, J. L., Wilkinson, R. B., & Mantzios, M. (2019). Examining the factor structure of the Self-Compassion Scale in 20 diverse samples: Support for use of a total score and six subscale scores. *Psychological Assessment, 31*(1), 27–45. https://doi.org/10.1037/pas0000629

Neff, K. D., & Vonk, R. (2009). Self-compassion versus global self-esteem: Two different ways of relating to oneself. *Journal of Personality, 77*(1), 23-50. doi:10.1111/j.1467 6494.2008.00537

Neto, A. D., Lucchetti, A. L. G., Ezequiel, O. da S., & Lucchetti, G. (2020). Effects of a Required Large-Group Mindfulness Meditation Course on First-Year Medical Students' Mental Health and Quality of Life: a Randomized Controlled Trial. *Journal of General Internal Medicine : JGIM*, *35*(3), 672–678. https://doi.org/10.1007/s11606-019-05284-0

Newsome, S., Christopher, J. C., Dahlen, P., & Christopher, S. (2006). Teaching counselors self -care through mindfulness practices. Teachers College Record, 108, 1881-1900. doi:10.1111/j.1467-9620.2006. 00766.x

Newsome, S., Waldo, M., & Gruszka, C. (2012). Mindfulness group work: Preventing stress and increasing self-compassion among helping professionals in training. *The Journal for Specialists in Group Work, 37*(4), 297-311. doi:10.1080/01933922.2012.690832

Nolte, A. G., Downing, C., Temane, A., & Hastings-Tolsma, M. (2017). Compassion fatigue in nurses: A metasynthesis. *Journal of Clinical Nursing, 26*(23-24), 4364-4378. doi:10.1111/jocn.13766

Nyklicek, I., & Kuijpers, K. F. (2008). Effects of mindfulness-based stress reduction intervention on psychological well-being and quality of life: is increased mindfulness indeed the

mechanism? *Annals of Behavioral Medicine*, *35*, 331–340. https://doi.org/10.1007/s12160-008-9030-2

O'Donnell, K. T., Dunbar, M., & Speelman, D. L. (2020). Effectiveness of using a meditation app in reducing anxiety and improving well-being during the COVID-19 pandemic: A structured summary of a study protocol for a randomized controlled trial. *Trials*, *21*(1), 1006–1006. https://doi.org/10.1186/s13063-020-04935-6

O'Driscoll, M., Byrne, S., Byrne, H., Lambert, S., & Sahm, L. J. (2019). An online mindfulness-based intervention for undergraduate pharmacy students: Results of a mixed-methods feasibility study. *Currents in Pharmacy Teaching and Learning*, *11*(9), 858–875. https://doi.org/10.1016/j.cptl.2019.05.013

O'Driscoll, M., Sahm, L. J., Byrne, H., Lambert, S., & Byrne, S. (2019). Impact of a mindfulness-based intervention on undergraduate pharmacy students' stress and distress: Quantitative results of a mixed-methods study. *Currents in Pharmacy Teaching and Learning*, *11*(9), 876–887. https://doi.org/10.1016/j.cptl.2019.05.014

Orosa-Duarte, Á., Mediavilla, R., Muñoz-Sanjose, A., Palao, Á., Garde, J., López-Herrero, V., Bravo-Ortiz, M., Bayón, C., & Rodríguez-Vega, B. (2021). Mindfulness-based mobile app reduces anxiety and increases self-compassion in healthcare students: A randomised controlled trial. *Medical Teacher*, *ahead-of-print*(ahead-of-print), 1–21. https://doi.org/10.1080/0142159X.2021.1887835

Orsmond, G., & Cohn, E. (2015). The Distinctive Features of a Feasibility Study: Objectives and Guiding Questions. *OTJR (Thorofare, N.J.)*, *35*(3), 169–177. https://doi.org/10.1177/1539449215578649

Pandya, S. P. (2020). Online Meditation Program Builds Resilience and Competencies Among Social Work Students Working With Older Adults. *Journal of Social Work Education*, 1 13. https://doi.org/10.1080/10437797.2020.1817817

Peluso, D. L., Carleton, R. N., Asmundson, G. J. G. (2011). Depression symptoms in canadian psychology graduate students: Do research productivity, funding, and the academic advisory relationship play a role? *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, *43*(2), 119-127. doi:10.1037/a0022624

Pérula-de Torres, L., Verdes-Montenegro-Atalaya, J., Melús-Palazón, E., García-de Vinuesa, L., Valverde, F., Rodríguez, L., Lietor-Villajos, N., Bartolomé-Moreno, C., Moreno-Martos,

H., García-Campayo, J., González-Santos, J., Rodríguez-Fernández, P., León-Del-Barco, B., Soto-Cámara, R., González-Bernal, J., & The Minduudd Collaborative Study Group. (2021). Comparison of the Effectiveness of an Abbreviated Program versus a Standard Program in Mindfulness, Self-Compassion and Self-Perceived Empathy in Tutors and Resident Intern Specialists of Family and Community Medicine and Nursing in Spain. *International Journal of Environmental Research and Public Health*, *18*(8), 4340 . https://doi.org/10.3390/ijerph18084340

Phang, C. K., Mukhtar, F., Ibrahim, N., Keng, S.-L., & Mohd. Sidik, S. (2015). Effects of a brief mindfulness-based intervention program for stress management among medical students: the Mindful-Gym randomized controlled study. *Advances in Health Sciences Education : Theory and Practice*, *20*(5), 1115–1134. https://doi.org/10.1007/s10459-015-9591-3

Pintado, S. (2019). Changes in body awareness and self-compassion in clinical psychology trainees through a mindfulness program. *Complementary Therapies in Clinical Practice*, *34*, 229–234. https://doi.org/10.1016/j.ctcp.2018.12.010

Prati, G., & Mancini, A. D. (2021). The psychological impact of COVID-19 pandemic lockdowns: a review and meta-analysis of longitudinal studies and natural experiments. *Psychological Medicine*, *51*(2), 201–211. https://doi.org/10.1017/S0033291721000015

Prudenzi, A., D Graham, C., Flaxman, P. E., & O'Connor, D. B. (2021). Wellbeing, burnout, and safe practice among healthcare professionals: predictive influences of mindfulness, values, and self-compassion. *Psychology, Health & Medicine*, 1–14. https://doi.org/10.1080/13548506.2021.1898651

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. https://doi.org/10.1080/08854726.2014.913876

Raab, K., Sogge, K., Parker, N., & Flament, M. F. (2015). Mindfulness-based stress reduction and self-compassion among mental healthcare professionals: a pilot study. *Mental Health, Religion & Culture*, *18*(6), 503–512. https://doi.org/10.1080/13674676.2015.1081588

Radeke, J. T., Mahoney, M. J. (2000). Comparing the personal lives of psychotherapists and research psychologists. *Professional Psychology: Research and Practice, 31*(1), 82-84. doi:10.1037/0735-7028.31.1.82

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, 250–255.

Rao, N., & Kemper, K. (2017). Online Training in Specific Meditation Practices Improves Gratitude, Well-Being, Self-Compassion, and Confidence in Providing Compassionate Care Among Health Professionals. *Journal of Evidence-Based Complementary & Alternative Medicine*, *22*(2), 237–241. https://doi.org/10.1177/2156587216642102

Reger, M. A., Stanley, I. H., & Joiner, T. E. (2020). Suicide mortality and coronavirus disease 2019 – A perfect storm? *JAMA Psychiatry*, 77(11), 1093–1094. doi:10.1001/jamapsychiatry.2020.1060.

Reid, D. T. (2013). Teaching mindfulness to occupational therapy students: Pilot evaluation of an online curriculum. *Canadian Journal of Occupational Therapy*, *80*(1), 42–48. https://doi.org/10.1177/0008417413475598

Reyes, A. T. (2020). A Mindfulness Mobile App for Traumatized COVID-19 Healthcare Workers and Recovered Patients: A Response to "The Use of Digital Applications and COVID-19." *Community Mental Health Journal*, *56*(7), 1204–1205. https://doi.org/10.1007/s10597-020-00690-9

Reyes, A. T., Bhatta, T. R., Muthukumar, V., & Gangozo, W. J. (2020). Testing the acceptability and initial efficacy of a smartphone-app mindfulness intervention for college student veterans with PTSD. *Archives of Psychiatric Nursing*, *34*(2), 58–66. https://doi.org/10.1016/j.apnu.2020.02.004

Richardson, J. (2021). Teaching Pharmacology to Medical Students: Preference for Faculty Interaction Over Recorded Lectures. *The FASEB Journal*, *35*. https://doi.org/10.1096/fasebj.2021.35.S1.04350

Rimes, K., & Wingrove, J. (2011). Pilot Study of Mindfulness-Based Cognitive Therapy for Trainee Clinical Psychologists. *Behavioural and Cognitive Psychotherapy*, *39*(2), 235 241. https://doi.org/10.1017/S1352465810000731

Rudman, A., & Gustavsson, J. P. (2012). Burnout during nursing education predicts lower occupational preparedness and future clinical performance: A longitudinal study. *International Journal of Nursing Studies*, *49*(8), 988-1001. doi:10.1016/j.ijnurstu.2012.03.010

Ruiz-Fernández, M., Ramos-Pichardo, J., Ibáñez-Masero, O., Cabrera-Troya, J., Carmona-Rega, M., & Ortega-Galán, Á. (2020). Compassion fatigue, burnout, compassion satisfaction and perceived stress in healthcare professionals during the COVID-19 health crisis in Spain. *Journal of Clinical Nursing*, *29*(21-22), 4321–4330. https://doi.org/10.1111/jocn.15469

Rung, A. L., Oral, E., Berghammer, L., & Peters, E. S. (2020). Feasibility and Acceptability of a Mobile Mindfulness Meditation Intervention Among Women: Intervention Study. *JMIR mHealth and uHealth*, *8*(6), e15943–e15943. https://doi.org/10.2196/15943

Sabir, F., Ramzan, N., & Malik, F. (2018). Resilience, self-compassion, mindfulness and emotional well-being of doctors. *Indian Journal of Positive Psychology*, *9*(1), 55–59. https://doi.org/10.15614/ijpp.v9i01.n743

Sampath, H., Das, D., Soohinda, G., & Dutta, S. (2019). Is excessive self-criticism and inadequate self-compassion hurting the well-being of future doctors? Original Research Article). *Journal of Evolution of Medical and Dental Sciences*, *8*(30). https://doi.org/10.14260/jemds/2019/522

Sears, S. R., Kraus, S., Carlough, K., & Treat, E. (2011). Perceived benefits and doubts of participants in a weekly meditation study. *Mindfulness, 2*(3), 167-174. https://doi.org/10.1007/s12671-011-0055-4

Sedgwick, P. (2013). Snowball sampling. *BMJ : British Medical Journal*, *347*(dec20 2), f7511 f7511. https://doi.org/10.1136/bmj.f7511

Seekis, V., Bradley, G. L., & Duffy, A. L. (2020). Does a Facebook-enhanced Mindful Self Compassion intervention improve body image? An evaluation study. *Body Image*, *34*, 259–269. https://doi.org/10.1016/j.bodyim.2020.07.006

Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching Self-Care to Caregivers: Effects of Mindfulness-Based Stress Reduction on the Mental Health of Therapists in Training. *Training and Education in Professional Psychology*, *1*(2), 105–115. https://doi.org/10.1037/1931-3918.1.2.105

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of clinical psychology*, *62*(3), 373-386.

Shapiro, S., Astin, J., Bishop, S., & Cordova, M. (2005). Mindfulness-Based Stress Reduction for Health Care Professionals: Results From a Randomized Trial. *International Journal of Stress Management*, *12*(2), 164–176. https://doi.org/10.1037/1072-5245.12.2.164

Shapiro, S. L., Brown, K. W., & Biegel, G. M.(2007). Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training.*Training and Education in Professional Psychology, 1*(2), 105-115. doi:10.1037/1931-3918.1.2.105

Shapiro, S. L., Schwartz, G. E., & Bonner, G. (1998). Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine, 21*(6), 581-599.

Sherman, J., & Cramer, A. (2005). Measurement of Changes in Empathy During Dental School. *Journal of Dental Education*, *69*(3), 338–345. https://doi.org/10.1002/j.0022 0337.2005.69.3.tb03920.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. doi:10.1002/jclp.22076

Smith, C. (2020). Covid-19: healthcare students face unique mental health challenges. *BMJ*, *369*, m2491–m2491. https://doi.org/10.1136/bmj.m2491

Smith, J. L., Allen, J. W., Haack, C., Wehrmeyer, K., Alden, K., Lund, M. B., & Mascaro, J. S. (2021). The Impact of App-Delivered Mindfulness Meditation on Functional Connectivity and Self-Reported Mindfulness Among Health Profession Trainees. *Mindfulness*, *12*(1), 92–106. https://doi.org/10.1007/s12671-020-01502-7

Soklaridis, S., Lin, E., Lalani, Y., Rodak, T., & Sockalingam, S. (2020). Mental health interventions and supports during COVID- 19 and other medical pandemics: A rapid systematic review of the evidence. *General Hospital Psychiatry*, *66*, 133–146. https://doi.org/10.1016/j.genhosppsych.2020.08.007

Sorensen, S., Steindl, S. R., Dingle, G. A., & Garcia, A. (2019). Comparing the Effects of Loving-Kindness Meditation (LKM), Music and LKM Plus Music on Psychological Well-Being. *The Journal of Psychology*, *153*(3), 267–287. https://doi.org/10.1080/00223980.2018.1516610

Spadaro, K. C., & Hunker, D. F. (2016). Exploring The effects Of An online asynchronous mindfulness meditation intervention with nursing students On Stress, mood, And Cognition: A descriptive study. *Nurse Education Today*, *39*, 163–169. https://doi.org/10.1016/j.nedt.2016.02.006

Spinelli, C., Wisener, M., & Khoury, B. (2019). Mindfulness training for healthcare professionals and trainees: A meta-analysis of randomized controlled trials. (Report). *Journal of Psychosomatic Research*, *120*, 29–38. https://doi.org/10.1016/j.jpsychores.2019.03.003

Streiner, D., & Geddes, J. (2001). Intention to treat analysis in clinical trials when there are missing data. *Evidence-Based Mental Health*, *4*(3), 70–71. https://doi.org/10.1136/ebmh.4.3.70

Swords, B., & Ellis, M. (2017). Burnout and Vigor Among Health Service Psychology Doctoral Students. *The Counseling Psychologist*, *45*(8), 1141–1161. https://doi.org/10.1177/0011000017747548

Tang, Rongxiang, and Todd S. Braver. "Predicting Individual Preferences in Mindfulness Techniques Using Personality Traits." *Frontiers in Psychology*, vol. 11, Frontiers Research Foundation, 2020, pp. 1163–1163, doi:10.3389/fpsyg.2020.01163.

Taylor, N. Z., & Millear, P. M. R. (2016). Validity of the Five Facet Mindfulness Questionnaire in an Australian, meditating, demographically diverse sample. *Personality and Individual Differences*, *90*, 73–77. https://doi.org/10.1016/j.paid.2015.10.041

Teo, Y., Teo, Y., Hj Yusuf, A., Hj Yusuf, A., Alice Lim, W., Alice Lim, W., Ghazali, N., Ghazali, N., Abd Rahman, H., Abd Rahman, H., Lin, N., Lin, N., Koh, D., & Koh, D. (2019). Validation of DASS-21 among nursing and midwifery students in Brunei. *Journal of Public Health*, *27*(3), 387–391. https://doi.org/10.1007/s10389-018 0947-z

Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L., Robson, R., Thabane, M., Giangregorio, L., & Goldsmith, C. (2010). A tutorial on pilot studies: the what, why and how. *BMC Medical Research Methodology*, *10*(1), 1–1. https://doi.org/10.1186/1471 2288 10-1

Thornton, L., Batterham, P. J., Fassnacht, D. B., Kay-Lambkin, F., Calear, A. L., & Hunt, S. (2016). Recruiting for health, medical or psychosocial research using Facebook:

Systematic review. *Internet Interventions : the Application of Information Technology in Mental and Behavioural Health*, *4*(P1), 72–81. https://doi.org/10.1016/j.invent.2016.02.001

Toole, A. M., & Craighead, L. W. (2016). Brief self-compassion meditation training for body image distress in young adult women. *Body Image*, *19*, 104–112. https://doi.org/10.1016/j.bodyim.2016.09.001

Totzeck, C., Teismann, T., Hofmann, S. G., von Brachel, R., Pflug, V., Wannemüller, A., & Margraf, J. (2020). Loving-Kindness Meditation Promotes Mental Health in University Students. *Mindfulness*, *11*(7), 1623–1631. https://doi.org/10.1007/s12671-020-01375-w

Tull, M. T., Edmonds, K. A., Scamaldo, K. M., Richmond, J. R., Rose, J. P., & Gratz, K. L. (2020). Psychological outcomes associated with stay-at-home orders and the perceived impact of COVID-19 on daily life. *Psychiatry Research*. Advance online publication. doi:10.1016/j.psychres.2020.113098.

Tyssen, R., Vaglum, P., Grønvold, N. T., & Ekeberg, Ø. (2001). Factors in medical school that predict postgraduate mental health problems in need of treatment. A nationwide and longitudinal study. *Medical Education, 35*(2), 110-120. doi:10.1046/j.1365 2923.2001.00770.x

Ulyana, S. (2020). Loving-Kindness Meditation and Compassion Meditation: Do They Affect Emotions in a Different Way? *Mindfulness.*, *11*(11). https://doi.org/10.1007/s12671-020 01465-9

Valverde, F. J., Garcia-Campayo, J., Borau, L., Arias-Vega, R., Morillo, C., Bartolome-Moreno, C., Perula-de Torres, L. A., Verdes-Montenegro Atalaya, J. C., Melus-Palazon, E., Garcia-De Vinuesa, L., Hachem-Salas, N., Magallon-Botaya, R., Rodriguez, L. A., Grande, T., Lietor-Villajos, N., Moreno-Martos, H., Epstein, R., Roldan-Villalobos, A., & Perula-Jimenez, C. (2021). Mindfulness in primary care healthcare and teaching professionals and its relationship with stress at work: a multicentric cross-sectional study. *BMC Family Practice*, *22*(1), 29–29. https://doi.org/10.1186/s12875-021-01375-2

Veneziani, C. A., Fuochi, G., & Voci, A. (2017). Self-compassion as a healthy attitude toward the self: Factorial and construct validity in an italian sample. *Personality and Individual Differences, 119*(Complete), 60-68. doi:10.1016/j.paid.2017.06.028

Vettese LC, Toneatto T, Stea JN, Nguyen L, Wang JJ. Do mindfulness meditation participants do their homework? And does it make a Difference? A review of the empirical literature. J Cogn Psychother. 2009;23:198-225.

Wahbeh, H., & Oken, B. S. (2016). Internet Mindfulness Meditation Intervention for the General Public: Pilot Randomized Controlled Trial. *JMIR Mental Health*, *3*(3), e37–e37. https://doi.org/10.2196/mental.5900

Wasson, R. S., Barratt, C., & O'Brien, W. H. (2020). Effects of Mindfulness-Based Interventions on Self-compassion in Health Care Professionals: a Meta-analysis. *Mindfulness*, *11*(8), 1914–1934. https://doi.org/10.1007/s12671-020-01342-5

Wen, L., Sweeney, T. E., Welton, L., Trockel, M., & Katznelson, L. (2017). Encouraging Mindfulness in Medical House Staff via Smartphone App: A Pilot Study. *Academic Psychiatry*, *41*(5), 646–650. https://doi.org/10.1007/s40596-017-0768-3

Whitford, S., & Warren, K. (2019). Perceived Barriers to Meditation Among College Students: The Role of Personality Traits. *Building Healthy Academic Communities Journal*, *3*(1), 23–33. https://doi.org/10.18061/bhac.v3i1.6678

Wong J, Cheung E, Chan K, Ma K, Tang S. Web-based survey of depression, anxiety and stress in first year tertiary education students in Hong Kong. Aust N Z J Psychiatry. 2006;40(9):777–82.

Wu, A., Maddula, V., Yu, A., Goel, R., Shimizu, H., Chien, C., Wingate, R., Sagoo, M., Kielstein, H., Traxler, H., Brassett, C., Waschke, J., Vielmuth, F., Keay, K., Zeroual, M., Sakurai, T., Olsen, J., El-Batti, S., Viranta-Kovanen, S., … Noel, G. (2021). An Observation of Healthcare Professions Students' Perceptions During the COVID-19 Pandemic. *Medical Science Educator*, 1–9. https://doi.org/10.1007/s40670-021-01240-y

Yang, Y., Zhang, M., & Kou, Y. (2016). Self-compassion and life satisfaction: The mediating role of hope. *Personality and Individual Differences*, *98*(Complete), 91-95. doi:10.1016/j.paid.2016.03.086

Yela, J., Gómez-Martínez, M., Crego, A., & Jiménez, L. (2020). Effects of the Mindful Self Compassion programme on clinical and health psychology trainees' well-being: A pilot study. *Clinical Psychologist (Australian Psychological Society)*, *24*(1), 41–54. https://doi.org/10.1111/cp.12204

Ying, Y. (2009). Contribution of self-compassion to competence and mental health in social work students. *Journal of Social Work Education, 45*(2), 309-323. doi:10.5175/JSWE.2009.200700072

Zautra, A. J., Davis, M. C., Reich, J. W., Sturgeon, J. A., Arewasikporn, A., & Tennen, H. (2012). Phone-based interventions with automated mindfulness and mastery messages improve the daily functioning for depressed middle-aged community residents. *Journal of Psychotherapy Integration, 22*(3), 206-228. https://doi.org/10.1037/a0029573

Zhi, X., Lu, L., Pu, Y., Meng, A., Zhao, Y., Cheng, F., Jiang, J., Xu, J., & Zeng, Y. (2020). Investigation and analysis of psychological stress and professional identity of nursing students during COVID-19 pandemic. *Indian Journal of Experimental Biology, 58*(6), 426–432.

Appendix

Self-Compassion Psychoeducational Video
https://uottawa-my.sharepoint.com/personal/mkalp049_uottawa_ca/_layouts/15/guestaccess.aspx?docid=04a05724eace64453b268b9e58e67e2a9&authkey=AXkp1YrvEorMw37A7t6KF1o&e=zPKDav

Week 1 Meditation:

Compassionate Body Scan:
[*Introduction*] Welcome to this self-compassion meditation for students in healthcare professions. Before we begin the meditation, let's quickly go over why it's important for healthcare trainees to practice self-compassion. We know that people in the healing professions are exposed to the suffering of others. Although bringing relief to the suffering of others can bring great joy and meaning to our lives, it can also take its toll if don't step back and take care of ourselves. The meditation we are about to practice teaches us to slow down and offer compassion to our body. The meditation is called the "compassionate body scan". We will be bringing warm-hearted attention to each part of the body, moving from one part to another, practicing how to be with each part of the body in a kind and compassionate way.. Accepting our inner world with openness, and compassion has a profound influence on maintaining a positive attitude towards clinical work. Being present and attuned with ourselves is an essential step for responding to the pain, sorrow and fears of others with compassion. So, practicing compassionate attunement exercises early in your training has many benefits.

So, when you are ready, we can begin the meditation. This exercise can be done lying down or sitting comfortably on a chair. If you are lying down use a yoga mat, rug, or blanket to lie on. Keep your hands about six inches from your sides and your feet about shoulder width apart. If are sitting on a chair, sit with your back straight, but relaxed, and your feet firmly planted on the floor.

Then place one or two hands over your heart as a reminder to bring loving presence to your body. Feel the warmth and gentle touch of your hands. Take three slow, relaxing breaths and then return your arms to your sides, if you like. Deep breath in, deep breath out, and in and out. One more deep breath in and out. If you have judgements or unpleasant sensations regarding a body part, perhaps you can let your heart soften in sympathy, maybe also place a hand on that part of your body as a gesture of compassion and support and imagine warmth and kindness flowing through your hand and fingers into your body.

If you feel ease and well-being in a particular body part, you can invite some gratitude or appreciation to arise within you toward that part of your body. And if any area of your body is too difficult to stay with, feel free to move your attention to another body part for a while, just allowing this meditation to be as comfortable as possible.

When you are ready, direct your attention to the toes. Notice if there are any sensations in your toes. Are your toes warm or cool, are they dry or moist? Just feel the sensations in your toes—ease, discomfort, or perhaps nothing at all - and let each sensation be just as it is. If your toes feel good, perhaps offer some gratitude.

And when you are ready, turn your attention to the soles of your feet. Can you detect any sensations there? They work so hard; they hold up your entire body all day long. Feel free to send your soles a bit of gratitude if that feels right. If there is any discomfort, just be open to it and offer some kind words such as “may they be well”.

Now, slowly move your attention to your entire feet; sense your whole feet. If your feet feels comfortable, you can also extend gratitude for the discomfort that you don’t have. If there is any discomfort, just validate your discomfort with kind words, such as “There’s a little discomfort there; or it’s okay for now.”

And once you are ready, gradually move your attention up your legs, noticing whatever body sensations are present, send some appreciation if the part feels fine, and send compassion if there is any discomfort. Move slowly to your ankles, savouring any sensations. And then on to your shins – just acknowledge what they are feeling and offer some compassion if it feels right. And now, moving on to your calves– take a moment to relax your calves. Just savour any sensations. When you are ready moving on to your knees. When you notice your mind has wandered, just return to the sensations in the part of your body you were attending to. You might also wish to add some words of kindness or compassion, such as “May they be at ease. May they be well.”

And now when you are ready, Moving on to your thighs – if your thighs feel comfortable offer some gratitude. And now moving on to your hips. If you feel uneasy or judgmental about a particular body part, try putting a hand over your heart and gently breathing, imagining that kindness and compassion are flowing through your fingers into your body. Or if you feel ease, offer some appreciation and gratitude, if that feels right to you. Now bring loving awareness to your entire legs, making room for whatever you may be sensing or feeling.

And when you are ready, slowly bring your awareness to your pelvic area—the strong bones that support your legs and also the soft tissue in your pelvic area. Perhaps feeling your buttocks on the floor or on the chair—large muscles that help you climb stairs and also allow you to sit softly and comfortably. And now your lower back. See if you can tune into the sensation there. If you notice any discomfort or tension, you might imagine your muscles relaxing, melting with tenderness. Feel free to shift your posture a little if an adjustment will make you more comfortable. And then your upper back; just feel it relax. When you are ready, moving your attention to the front of your body, to your abdomen. Your abdomen is a very complicated part of the body with many organs and body functions. Perhaps sending some gratitude to this part of the body. If you have judgments about your belly, see if you can say some words of kindness and acceptance.

And when you’re ready, bring your attention to your chest; the center of your breathing, also your heart center. This place is the source of love and compassion. Try to infuse your chest with awareness, appreciation, and acceptance. Perhaps put a gentle hand on the center of your chest, allowing yourself to feel whatever it is you’re feeling right now. You should feel free to touch any part of the body as we go along, even gently stroking that part, whatever feels right to you. Continue to incline your awareness toward your body, feeling the sensations in your shoulders, upper arms, elbows. Bring tender awareness to each part of your body. Your lower arms, wrists,

hands and fingers. Just savor any sensations that arise. Your hands are uniquely designed to hold and manipulate fine objects, and are very sensitive to touch. Scan both your arms and hands with loving and compassionate awareness for a couple seconds.

When you are ready, slowly proceed with awareness toward the head, beginning with the neck. If you like, touch your neck with your hand, remembering how the neck supports your head throughout the day. Offer kindness to your neck if your neck feels good, or sending compassion if there is any tension or discomfort there.

Now, bring your awareness to your ears - these sensitive organs tell us so much about our world. If you are glad you have the capacity to hear, allow appreciation to arise in your heart. If you are worried about your hearing, perhaps put a hand over your heart and give yourself some compassion. And then offer the same loving or compassionate awareness to your other organs of perception, such as your eyes, your nose and your lips.

When you are ready, slowly become aware of your facial muscles. We have hundreds of muscles in our face. They work very hard for us, expressing our emotions some of which are quite painful emotions. Feel any tension or stress in any of your facial muscles. Try relaxing and soothing them. And finally, the crown of your head, just notice what sensations are there. See if you can tune in to that point just between the air above your head and where your skull starts. Is there any tingling or any sensation there? If so, just notice it. If not, that's fine too. Your tender brain is comprised of billions of nerve cells that are communicating with each other all the time to help you make sense of this world. If you like, say "thank you" to your brain for working so hard.

When you have finished giving kind and compassionate attention to your whole body, try offering your body a final shower of appreciation, compassion and respect from head to toe for a few seconds. And when you are done, gently open your eyes.

Week 2 Meditation:

Affectionate Breathing:

[*Introduction*]Welcome to today's meditation; so, the first exercise is called "affectionate breathing". This is a common form of mindfulness meditation; but with an added element of bringing affection to the process. This is a meditation that will help you quiet your mind and develop focused attention. It will also prepare you for the 2nd brief self-compassion exercise we will be doing called the "self-compassion break". Affectionate breathing and the self-compassion break are quick but very effective exercises that you can easily incorporate into your busy lives. In your daily life as a student in healthcare training, you may engage in self-critical thoughts throughout the day. For example, you might say "I should have provided better care for that patient or client today"; or "why didn't I do well on that assignment or test". Thoughts like this can engender negative feelings overtime and erode your self-confidence. Additionally, once you start the clinical component of your education you will discover that providing care for people who are suffering is not always pleasant. Sometimes, when people are in distress, they are not necessarily in their best behaviour. This is not something they consciously choose to do, they simply can't help it. And at times like that, we need to have patience and compassion. Practicing

affectionate breathing and the self-compassion break can really help us step back and make room for these difficult interactions, and help us respond with genuine care.

So, when you are ready, find a quiet spot where you could practice this quick meditation. Find a posture in which your body is comfortable and you will feel supported for the length of the meditation. Then let your eyes gently close, partially or fully, whatever you are comfortable with. Take a few slow, easy breaths, releasing any unnecessary tension in your body. If you like, try placing a hand over your heart or another soothing place. This brings not only awareness, but affectionate awareness, to our breathing and to ourselves.

Begin to notice your breathing in your body, feeling your body breathe in and feeling your body breathe out. Feel the in-breaths and outbreaths. Just feel them. Notice how your body is nourished on the in-breath and relaxes with the outbreath. See if you can just let your body breathe you. There is nothing you need to do. It is just natural. Start to notice the rhythm of your breathing, flowing in and flowing out. Feel your whole body subtly moving with the breath. In and out, in and out. Just let your body relax. Your mind will naturally wander but that's okay, just gently return to the rhythm of your breathing.

Allow your whole body to be gently rocked by your breathing. If it feels right, you can give yourself over to your breathing, letting your breathing be all there is for a few seconds. Just breathing. And now, gently release your attention on your breath, sitting quietly in your own experience. Just allowing yourself to feel whatever you're feeling for a few seconds.

Self-compassion break:

Now that you are relaxed and your mind is calm, let's move on to practicing the self-compassion break. To practice this exercise, you will need to bring to mind a situation that causes you some distress.

Think of a situation in your life that is causing you distress, such as a health problem, a relationship problem, work or academic problems, or some other difficulties. Choose a problem in the mild to moderate range, not a big problem, as we want to build the resource of self-compassion gradually. When you have chosen the situation, visualize the situation clearly in your mind's eye. What is the setting? Who is saying what to whom? What is happening? What might happen? Can you feel discomfort in your body as you bring this difficulty to mind?

Now I am going to be saying a series of phrases that are designed to help us remember the three components of self-compassion. The first phrase is "This is a moment of suffering." That's right, this is a moment of suffering. With this phrase, we are bringing mindful awareness to the fact that suffering is present. And I would invite you to find some language that speaks to you. Something like: This hurts. This is really hard right now. This is stressful. We are turning towards our suffering, acknowledging it. We are acknowledging that "This is a moment of suffering".

The second phrase is "Suffering is a part of life." With this phrase, we are reminding ourselves of our common humanity. "Suffering is a part of life". And again, finding language that speaks to you. It maybe something like: "It's normal to feel this way. -I'm not alone". "Everyone

experiences situations like this, just like me. This is how it feels when people struggle in this way." The degree of suffering or the type of suffering maybe different, but suffering is a part of life; it is a part of being human.

And the third phrase is "May I be kind to myself in this moment." With this phrase, you are bringing kindness to yourself. I would invite you to place your hand over your heart or somewhere else on your body that feels soothing and comforting, feeling the warmth of your hand. Letting those feelings of care stream through your fingers. "May I be kind to myself." Use any language that supports that kindness. Perhaps language that you would use with a good friend you care about who is going through a very similar situation. Maybe something like, "I am here for you. It's going to be alright". You can even try calling yourself by your first name, if it feels right to you. Anything that feels natural to express your deep wish that you be well and be free from suffering. For one last time, tell yourself: May I accept myself as I am, may I forgive myself, may I be strong, may I be patient and may I be kind and compassionate to myself in this moment.

Now, gently let go off the practice and notice how your body feels right now. Allowing any sensations to be, just as they are. Allowing yourself to be just as you are in this moment.

Week 3 Meditation:

Loving-kindness for self and loving-kindness for others:
Welcome to today's meditation. Today, we will focus on developing feelings of loving kindness towards ourselves and others. We know that providing care to someone with kindness and compassion can have a powerful effect on their well-being and recovery. But the caring motivation needs to be genuine. Patients and clients can sense if the care is genuine or not. So, It's not something that you can fake. But it is something that we can cultivate. We can train ourselves to be kind to others.

But at the same time, we need to make room for compassion towards ourselves. During the course of your training you will come to realize that it is not possible to alleviate the suffering of all your clients or all your patients. This can be hard to accept, and may leave you feeling helpless and disconnected from the people you are caring for. And at times like this, it is important to practice self-compassion and self-kindness and be gentle to yourself. The loving-kindness meditation you are about to practice can help you achieve self-compassion and compassion for others. It will help you develop internal feelings of compassion and attunement to others, as well as ourselves.

So, when you are ready, we can get started with the meditation. This exercise can be done lying down or sitting comfortably on a chair. If you are lying down use a yoga mat, rug, or blanket to lie on. And if you chose to lie down, keep your hands about six inches from your sides and your feet shoulder width apart. If are sitting on a chair, sit with your back straight, but relaxed, and your feet firmly planted on the floor. You can put your hands together in your lap, palms up, with your left hand on the bottom and fingers of your right hand resting just on the top of your left hand.

An important step in cultivating compassion skills in healthcare trainees is to become aware of your own experience of what it feels like to be ill and to suffer. So, to truly embody these feelings, I will ask that you recall a time when you felt unwell or experienced some sort of distress. Just take a few moments. Don't just think about the situation but try to feel the emotions you felt during that unpleasant time. When you are in contact with these emotions, gently close your eyes. Take a few deep breaths to settle into your body and into the moment.

Now, put your hand over your heart, or wherever it is comforting and soothing, as a reminder to bring not only awareness, but loving awareness, to your experience and to yourself.
Now, feel your breath move in your body. Just feel the gentle rhythm of your breathing. And if your attention wanders, just bring your attention back to the gentle movement of your breath once again for a few seconds.

Now, release the focus on your breath, allow the breath to slip into the background of your awareness, and begin to offer yourself compassionate phrases that are meaningful to you. The phrases could be: May I be kind to myself, May I live in peace, May I rest in love. Allow the words to resonate in every cell of your body. May I be kind to myself. May I know that I belong. May I live in peace. May I rest in love. And whenever you notice that your mind has wandered, you can refresh your aim by offering yourself soothing touch, or just by feeling the sensations in your body.

When you are ready, bring to mind a person who has experienced or is experiencing some form of suffering or illness. This could be a client, a patient, a family member or a friend – someone you care for. If many people arise, just choose one. Let yourself feel what it's like to be in that person's presence as they are coping through their stressful situation.

Recognize how this person wishes to be happy and free from suffering, just like you and every other person out there. Repeat these phrases silently, feeling the importance of your words. May you be happy. May you be peaceful. May you find hope. May you live with ease. May you accept that which cannot be changed. When you notice that your mind has wandered, just return to image of the person and offer the words. May you be peaceful. May you find hope. May you accept that which cannot be changed. May you live with ease.

Now when you are ready, add yourself to your circle of goodwill. Create an image of yourself in the presence of the other person, visualizing you both together. Now, offer yourself these loving-kindness phrases for the two of you: May you and I be happy. May you and I be peaceful. May you and I find hope. May you and I live with ease. Just savour the feelings for a few moments. Now, slowly let go of the image of the other person, perhaps thanking the person before moving on, and then letting the full focus of your attention rest directly on yourself.

Put your hand over your heart, or elsewhere, and feel the warmth and gentle pressure of your hand. Visualize your whole body in your mind's eye, noticing any stress or uneasiness that may be lingering within you, and offering yourself the phrases: May I be happy. May I be peaceful. May I find hope. May I live with ease. Finally, take a few breaths and just rest quietly in your own body, accepting whatever your experience is, exactly as it is.

Week 4 Meditation:

[*Introduction*] Welcome to today's meditation. Today, we will be practicing an exercise called giving and receiving compassion. We know that one way in which self-compassion transforms our lives is by allowing us to give to others without losing ourselves. When we are present for others who are suffering, sometimes we can feel their pain as our own. This form of empathic resonance is evolutionarily adaptive because it allows us to cooperate with one another. Although empathy is usually a good thing, it can also be a problem because when we are resonating with other peoples' pain, sometimes, we feel their pain as our own. And this is especially common in many healthcare professions and eventually, it can really take a toll on the healthcare wellbeing. This is a quick meditation that can be practiced in moments like that to alleviate any distress you may experience. It is a breathing exercise: so, we will breathe in for ourselves and out for others. Breathing out expands the meditation to include others, and breathing in helps us remember to be self-compassionate.

So, when you are ready, we can get started with the meditation. Find a posture in which your body is comfortable and you will feel supported for the length of the meditation. Then let your eyes gently close, partially or fully, whatever you are comfortable with. If you like, put a hand over your heart or another soothing place just as a reminder to bring not just awareness but loving awareness to yourself. Take a few deep, relaxing breaths, noticing how your breath nourishes your body as you inhale and soothes your body as you exhale. Just breathing in and out.

Now let your breath find its own natural rhythm. Just allow yourself to feel the sensation of breathing in and breathing out for a few seconds. Now focus your attention on your in-breath, letting yourself savor the sensation of breathing in, noticing how your in-breath nourishes your body, breath after breath and then release your breath. As you breathe, begin to breathe in kindness and compassion for yourself. Just feel the quality of kindness and compassion as you breathe in, or if you prefer, letting a word or an image ride on your in-breath. Now slowly, shift your focus to your outbreath, feeling your body breathe out, feeling the ease of exhalation.

When you are ready, call to mind someone whom you love or someone who is struggling and needs compassion such as a client or patient that you are working with right now during your practicum work or a peer in your training program. Visualize that person clearly in your mind. Now, start directing your outbreath to this person, offering the ease of breathing out. If you wish, send kindness and compassion to this person with each out breath, one breath after another.

Now, focus on the sensation of breathing both in and out, savoring the sensation of breathing in and out for a few seconds. Breathing in for yourself and out for the other person. In for yourself and out for the other person. And as you breathe, draw kindness and compassion in for yourself and breathe kindness and compassion out for the other person. If you wish, you can focus a little more on yourself for example, or the other person or just let it be an equal flow-whatever feels right to you. Let go of any unnecessary effort, allowing this meditation to be as easy as breathing. Breathing compassion in and out for a few more seconds. And when you are ready, slowly open your eyes.

Before we end our final session, I would like to leave you with a fun embodiment exercise that you could practice in your journey to be as compassionate as you can to yourself and others.

The compassionate-self imaginary exercise:
So, for this exercise, you're going to get into the role of a compassionate healthcare professional, as if you're an actor who, in order to convince your audience, has to live this part from the inside. To do that, you should really get in touch with what it is to be that person. Just as a good actor studies the individual whom they're going to portray and tries to re-create the role within themselves, you're going to do the same – you're going to become the perfect, ideal, compassionate healthcare practitioner. Now you may have a professional role model in mind; someone whom you consider to be the ideal compassionate healthcare professional; someone you look up to or aspire to be like. The idea is not to become them as such but to use them as a guide or an inspiration for you to become the most compassionate that you can.

So, when you are ready, stand loosely and relaxed, looking down or to wherever your vision is most comfortable. Adopt a soothing breathing rhythm for a few seconds. Just breathing in and out naturally. Allow your body to relax and go as loose as it is able. Now, for a moment, imagine that you are a deeply compassionate individual. Think of the ideal qualities that you would like to have as a compassionate healthcare professional. This could include: deep kindness, warmth, gentleness, being difficult to provoke. It doesn't matter if you actually have these qualities or not, because you're focusing on imagining and thinking about what it would be like to have them and your desire to develop them. So, think about your age and appearance, your facial expressions and posture as you interact with your clients or patients, your inner emotions of, say, gentleness. Now, like an actor about to take on a part, feel yourself become these. Just truly try to embody it.

Try to allow your facial expressions to be gentle and compassionate. Think about the idea that you are a wise, compassionate practitioner who has seen much in life. When you speak to your patients or clients, think about the tone of your voice. Think about what it's like to be a forgiving person who doesn't bear grudges. Allow yourself to become this person. Spend as long as is comfortable practising this role, and try and do it seriously but also playfully. With this exercise, it can be interesting to notice how it affects your body, including your posture, breathing rate and so forth. Do you notice your muscles becoming tense or more relaxed and softer? Are there any areas of your body that feels warm, perhaps? Just pay attention to those sensations as best you can for a few seconds.

In the beginning, it will be hard to visualize those compassionate qualities but as practice this exercise more and more, you will be better able to picture them as well as embody those qualities. You can practise this at any time of the day. As you move around in your life, imagine being this compassionate professional and slowly, you will take on the qualities of genuinely compassionate professional.

Table 4

Weekly Feasibility Feedback for ITT Sample

	Meditation 1 Compassionate Body Scan	Meditation 2 Affectionate Breathing; Self-Compassion Break	Meditation 3 Loving-Kindness for Self and Others	Meditation 4 Giving and Receiving Compassion; The Compassionate Self
Adherence				
Unanswered	34.4%	37.5%	40.6%	43.8%
0 days	9.4%	15.6%	36.8%	9.4%
1 day	9.4%	12.5%	21.9%	18.8%
2 days	15.6%	9.4%	6.3%	12.5%
3 days	9.4%	6.3%	6.3%	3.1%
4 days	9.4%	6.3%	3.1%	-
5 days	6.3%	6.3%	12.5%	9.4%
6 days	3.1%	6.3%	9.4%	-
7 days	3.1%	-	-	3.1%
Ease				
Unanswered	34.4%	37.5%	40.6%	43.8%
1 (Extremely Easy)	21.9%	25.0%	15.6%	15.6%
2	18.8%	9.4%	15.6%	9.4%
3	25.0%	21.9%	25.0%	25.0%
4	-	6.3%	3.1%	3.1%
5 (Extremely Difficult)	-	-	-	3.1%
Satisfaction				
Unanswered	34.4%	37.5%	40.6%	43.8%
1 (Not satisfied at all)	3.1%	-	-	-
2	-	-	3.1%	-

3	25.0%	31.3%	34.4%	31.3%
4	31.3%	18.8%	12.5%	25.0%
5 (Extremely satisfied)	6.3%	12.5%	9.4%	-
Relevance				
Unanswered	34.4%	37.5%	40.6%	43.8%
1 (Not relevant at all)	6.3%	3.1%	6.3%	-
2	6.3%	3.1%	6.3%	6.3%
3	18.8%	28.1%	31.3%	25.0%
4	12.5%	21.9%	6.3%	18.8%
5 (Extremely Relevant)	21.9%	6.3%	9.4%	6.3%