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A Meta-Analysis of Compassion-Based Interventions: Current State of Knowledge and Future Directions

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Objective: Scientific research into compassion has burgeoned over the past 20 years and interventions aiming to cultivate compassion towards self and others have been developed. This meta-analysis examined the effects of compassion-based interventions on a range of outcome measures. *Method:* Twenty-one randomized controlled trials (RCTs) from the last 12 years were included in the meta-analysis, with data from 1,285 participants analyzed. Effect sizes were standardized mean differences calculated using the difference in pre-post change in the treatment group and control group means, divided by the pooled pre-intervention standard deviation. *Results:* Significant between-group differences in change scores were found on self-report measures of compassion (d = 0.55, k = 4, 95% CI [0.33-0.78]), self-compassion (d = 0.70, k = 13, 95% CI [0.59-0.87]), mindfulness (d = 0.54, k = 6, 95% CI [0.38-0.71]), depression (d = 0.64, k = 9, 95% CI [0.45-0.82]), anxiety (d = 0.49, k = 9, 95% CI [0.30-0.68]), psychological distress (d = 0.47, k = 14, 95% CI [0.19-0.56]), and well-being (d = 0.51, k = 8, 95% CI [0.30-0.63]). These results remained when including active control comparisons. Evaluations of risk of bias across studies pointed towards a relative lack of publication bias and robustness of findings. However, the evidence base underpinning compassion interventions relies predominantly on small sample sizes. *Conclusions:* Future directions are provided for compassion research, including the need for improved methodological rigor, larger scale RCTs, increased specificity on the targets of compassion, and examination of compassion across the lifespan. Although further research is warranted, the current state of evidence highlights the potential benefits of compassion-based interventions on a range of outcomes.

Keywords: compassion; self-compassion; intervention; RCT; meta-analysis

COMPASSION IS NOT A NEW CONCEPT; it has been discussed for thousands of years by ancient spiritual and religious traditions (Goetz, Keltner, & Simon-Thomas, 2010; Kirby & Gilbert, 2017). What is becoming increasingly noticeable is the attention compassion is receiving by the scientific community (Gilbert, 2014; Singer & Bolz, 2013). Over the last 20 years, research has shown a number of benefits and positive associations of compassion for our physiological health, including influencing genetic expression in cross-sectional studies (e.g., Fredrickson et al., 2013), as well as in intervention studies (Klimecki, Leiberg, Ricard, & Singer, 2014), positive correlations found for mental health and emotion regulation (e.g., MacBeth & Gumley, 2012), as well as intervention studies showing benefits (e.g., Jazaieri et al., 2013; Seppala, Rossomando, & Doty, 2013), and associations between positive interpersonal and social relationships (e.g., Yarnell & Neff, 2013), as well as longitudinal studies showing improvements (e.g., Crocker & Canevello, 2012). In light of significant positive associations and benefits associated with compassion, a number of compassion-based interventions have been developed that specifically aim to cultivate compassion (e.g., Gilbert, 2014; Neff & Germer, 2013; Jazaieri et al., 2013).

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DEFINING COMPASSION

Definitions of compassion vary, with some defining it as an emotion (Goetz et al., 2010), others as a multidimensional construct (Jazaieri et al., 2013; Strauss et al., 2016), and others as a motivational system (Gilbert, 2014). Goetz and colleagues (2010) specifically define compassion as "*the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help*" (p. 351). This definition emphasizes compassion as an emotion; however, among emotion scientists, only 20% agree that compassion is an emotion, compared to over 80% agreement on other emotions such as anger, fear, disgust, sadness (Ekman, 2016). Indeed, Geshe Thupten Jinpa, who developed the Stanford Compassion Cultivation Training program, defines compassion as being a complex multidimensional construct that is comprised of four key components: (a) an awareness of suffering (cognitive component), (b) sympathetic concern related to being emotionally moved by suffering (affective component), (c) a wish to see the relief of that suffering (intentional component), and (d) a responsiveness or readiness to help relieve that suffering (motivational component; Jazaieri et al., 2013). Paul Gilbert, who developed Compassion-Focused Therapy, defines compassion as "*the sensitivity to suffering in self and others (engagement), with a commitment to try to alleviate and prevent it (action)*" (Gilbert, 2014, p. 19). In a recent review, Strauss and colleagues (2016) suggested that compassion includes five elements: (a) recognizing suffering; (b) understanding the universality of suffering in human experience; (c) feeling empathy for the person suffering and connecting with the distress (emotional resonance); (d) tolerating uncomfortable feelings aroused in response to the suffering person (e.g., distress, anger, fear); and (e) motivation to act/acting to alleviate suffering. The notion of self-compassion has received increasing attention with the work of Kristen Neff, who defined self-compassion, based on her interpretations of Buddhist teachings, as having three components: (a) being mindful, rather than overidentifying with problems; (b) connecting with others, rather than isolating oneself; and (c) adopting an attitude of self-kindness, rather than being judgmental (Neff, 2003). Given the differing definitions of compassion, it is not surprising that several different interventions have been developed to help cultivate compassion for self and others.

CURRENT COMPASSION-BASED INTERVENTIONS

A recent critique of compassion-based interventions identified that there are at least six currently empirically supported interventions that focus on the cultivation of compassion (Kirby, 2016): Compassion Focused Therapy (CFT; Gilbert, 2014), Mindful Self-Compassion (MSC; Neff & Germer, 2013), Compassion Cultivation Training (CCT; Center for Compassion and Altruism Research and Education, 2015); Cognitively-Based Compassion Training (CBCT; Pace et al., 2009), Cultivating Emotional Balance (CEB; Kemeny et al., 2012), and Loving-Kindness (LKM) and Compassion Meditations (CM; e.g., Wallmark, Safarzadeh, Daukantaite, & Maddux, 2013). We have included in Appendix A (see supplementary materials) a description of the elements included in each of these intervention approaches. Although all these interventions are secular in their design, theoretically these interventions have been typically influenced by Tibetan Buddhist traditions and perspectives of human suffering (Hangartner, 2013). CFT is notably different from the other interventions, as the theoretical underpinning also includes a combination of evolutionary psychology, attachment theory, and social mentality theory (Gilbert, 2014; Kirby, Doty, Petrocchi, & Gilbert, 2017). To date, all six forms of interventions have been subject to the gold-standard evaluations of randomized controlled trials (RCTs). Despite the increasing interest and use of compassion-based interventions, particularly over the last 5 to 10 years when many of the RCTs have been conducted (Kirby, 2016; Leaviss & Uttley, 2015), it remains unknown whether the evidence base underpinning compassion-based interventions demonstrates reductions in suffering and improvements in mental health.

AIM

Despite compassion-based interventions being increasingly used by practitioners to help with the cultivation of compassion and improvement of well-being, there has been no synthesis of the data to date. The objective of this meta-analysis is to synthesize for the very first time the impacts of all compassion-based interventions in order to best understand their overall effectiveness. Studies included in this review were RCTs, involving adults wherein cultivating compassion towards self or others was a key component in the intervention. There were two major aims. The first aim was to evaluate the success of compassion-based interventions using meta-analytic techniques on the following seven outcome variables: (1) compassion, (2) self-compassion, (3) mindfulness, (4) depression, (5) anxiety, (6) psychological distress, and (7) well-being. The second aim was to conduct moderator analyses to examine impact of potential variables on outcomes, including gender, age, intervention length, involvement of program developer, country