



# Compassion interventions: The programmes, the evidence, and implications for research and practice

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**Purpose.** Over the last 10–15 years, there has been a substantive increase in compassion-based interventions aiming to improve psychological functioning and well-being.

**Methods.** This study provides an overview and synthesis of the currently available compassion-based interventions. What do these programmes look like, what are their aims, and what is the state of evidence underpinning each of them?

**Results.** This overview has found at least eight different compassion-based interventions (e.g., Compassion-Focused Therapy, Mindful Self-Compassion, Cultivating Compassion Training, Cognitively Based Compassion Training), with six having been evaluated in randomized controlled trials, and with a recent meta-analysis finding that compassion-based interventions produce moderate effect sizes for suffering and improved life satisfaction.

**Conclusions.** Although further research is warranted, the current state of evidence highlights the potential benefits of compassion-based interventions on a range of outcomes that clinicians can use in clinical practice with clients.

## Practitioner points

- There are eight established compassion intervention programmes with six having RCT evidence.
- The most evaluated intervention to date is compassion-focused therapy.
- Further RCTs are needed in clinical populations for all compassion interventions.
- Ten recommendations are provided to improve the evidence-base of compassion interventions.

## The rise of compassion

Compassion is a growing area of interest within psychotherapy research (Gilbert, 2014; Kirby, Tellegen, & Steindl, 2015). According to Google Scholar, in 2015 the term ‘compassion’ was referred to in a staggering 28,700 publications. Many researchers around the world are responsible for the rise of compassion as an area of scientific enquiry (Doty, 2015; Ekman & Ekman, 2013; Germer, 2009; Gilbert & Choden, 2013; Keltner,

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Marsh, & Smith, 2010; Neff, 2003; Ricard, 2015; Singer & Bolz, 2013). As a result, research is being conducted from the differing perspectives of evolutionary science, psychological science, and neuroscience, often in collaboration with spiritual teachers, to enhance our understanding of compassion and its associated impacts.

Compassion has been found to have a number of benefits for our physiological health, including influencing genetic expression (e.g., Fredrickson *et al.*, 2013), mental health, and emotion regulation (e.g., Keltner, Kogan, Piff, & Saturn, 2014; MacBeth & Gumley, 2012; Seppala, Rossomando, & Doty, 2012), and in improving interpersonal and social relationships (e.g., Crocker & Canevello, 2012). There have been a number of laboratory-based experiments that have also documented the impacts of compassion on physiology (e.g., increased heart rate variability; Rockliff, Gilbert, McEwan, Lightman, & Glover, 2008) and brain activation (e.g., prefrontal cortex; Klimecki, Leiberg, Ricard, & Singer, 2014; Weng *et al.*, 2013). Polyvagal theory, outlined by Porges (2007), details how the activation of the myelinated parasympathetic nervous system helps in the regulation of fight/flight (autonomic sympathetic nervous system), thus enabling calmness and soothing to be achieved when under threat through having close proximity to others, receiving affiliative, caring, prosocial behaviour (Davidson, 2012; Depue & Morrone-Strupinsky, 2005; Gilbert, 2014; Goetz, Keltner, & Simon-Thomas, 2010). Specific strategies such as breathing practices, friendly voice tones, and facial and body expressions can activate the parasympathetic system, aiming to calm and soothe the individual, which improves heart rate variability (Krygier *et al.*, 2013). Moreover, when the sympathetic system is activated under threat, this inhibits the ability for higher order cognitive capacities such as mentalizing to occur (e.g., theory of mind), whereas activating the parasympathetic system helps provide a feeling of safeness, which permits activation of the prefrontal cortex and enables mentalization (Klimecki *et al.*, 2014; Liotti & Gilbert, 2011; Thayer & Lane, 2000). Thus, compassion-based interventions focus on activating affiliative processing systems (e.g., parasympathetic system) to promote better health. In so doing, compassion-based interventions can be viewed as a transdiagnostic process. In the light of these significant benefits associated with compassion, psychotherapies and compassion-based interventions have now been developed that specifically aim to cultivate compassion.

## Defining compassion

Despite the significance and importance of compassion, the definition of compassion is varied (Strauss *et al.*, 2016), with some diverging views about whether compassion is an emotion (Goetz *et al.*, 2010), motivation (Gilbert, 2014), or a multidimensional construct (Jazaieri *et al.*, 2013). Goetz *et al.* (2010) specifically define compassion 'as the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help' (p. 351). Paul Gilbert, who developed Compassion-Focused Therapy (CFT), defines compassion as 'the sensitivity to suffering in self and others, with a commitment to try to alleviate and prevent it' (Gilbert, 2014, p. 19). Finally, Geshe Thupten Jinpa, who developed the Stanford Compassion Cultivation Training programme, defines compassion as a complex multidimensional construct that is comprised of four components: (1) an awareness of suffering (cognitive component), (2) sympathetic concern related to being emotionally moved by suffering (affective component), (3) a wish to see the relief of that suffering (intentional component), and (4) a responsiveness or readiness to help relieve that suffering (motivational component; Jazaieri *et al.*, 2013).

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: (1) being mindful, rather than overidentifying with problems; (2) connecting with others, rather than isolating oneself; and (3) adopting an attitude of self-kindness, rather than being judgmental (Neff, 2003). Given the differing definitions of compassion it is not surprising that there are different psychotherapy approaches and interventions which have been developed to help cultivate compassion for self and others.

## Interventions cultivating compassion

There are at least six current empirically supported interventions that focus on the cultivation of compassion: Compassion-Focused Therapy (CFT; Gilbert, 2014), Mindful Self-Compassion (Neff & Germer, 2013), the Compassion Cultivation Training (Jazaieri *et al.*, 2013), Cognitively Based Compassion Training (Pace *et al.*, 2009), Cultivating Emotional Balance (Kemeny *et al.*, 2012), and Compassion and Loving-Kindness Meditations (e.g., Hoffmann, Grossman, & Hinton, 2011). To date, all six forms of intervention have been subject to the 'gold standard' evaluations of randomized controlled trials (RCTs); however, only CFT and Compassion and Loving-Kindness Meditations have been evaluated in a systematic review (Hoffmann *et al.*, 2011; Leaviss & Uttley, 2015).

To date, there has only been one meta-analysis conducted on compassion-based interventions (Kirby *et al.*, 2015), which included 23 randomized controlled trials (RCTs) over the last 10 years. The Kirby *et al.* (2015) meta-analysis examined seven outcome variables, compassion, self-compassion, mindfulness, depression, anxiety, psychological distress, and life satisfaction and happiness. To be included in the meta-analysis, the interventions needed to focus on the cultivation of compassion, be greater than one stand-alone session, be an RCT, and include self-report measures that assessed compassion or well-being. As a result, 12 RCT studies were analysed meta-analytically. Results found significant short-term moderate effect sizes for compassion ( $d = .559$ ), self-compassion ( $d = .691$ ), and mindfulness ( $d = .525$ ). Significant moderate effects were also found for reducing suffering-based outcomes of depression ( $d = .656$ ) and anxiety ( $d = .547$ ), and small-to-moderate effects for psychological distress ( $d = .374$ ). Significant moderate effects were also found for life satisfaction and happiness ( $d = .540$ ). Kirby *et al.* (2015) reported that by employing the rigorous criteria of restricting the review to RCTs, 30 evaluation studies were not included. Recommendations were suggested to improve the methodological rigour of compassion-based intervention evaluation research, which included using self-report measures with normative data (e.g., Beck Depression Inventory for depression), evaluating interventions with clinical populations, using active control comparison groups, and collecting follow-up data (e.g., 6–12 months). However, one of the limitations of the meta-analysis is that it did not describe the differing interventions in substantive detail, which would be useful for clinicians when considering uptake of the interventions.

## Aim

The aim of this study was to provide a thorough overview and description of developed compassion-based interventions. The review aimed to identify interventions, describe their theoretical development, intervention content, and give an overview of the

evidence-base for each. Moreover, this review, for the first time, critiques the similarities and differences between all known compassion-based intervention models. This review was informed by the Kirby *et al.* (2015) systematic review and meta-analysis, and as a result, the following interventions will be examined: Compassion-Focused Therapy, Mindful Self-Compassion, Compassion Cultivation Training, Cognitively Based Compassion Training, Cultivating Emotional Balance, Meditations (e.g., Compassion and Loving-Kindness Meditations), Being with Dying Programme, and The ReSource Training Protocol. As clinicians and therapists continue to use compassion-based interventions in their clinical practice, it is timely to provide a detailed overview of what options are available.

## **A review of compassion interventions**

This section will review each intervention individually. Table 1 provides an overview of the key elements of each intervention.

### ***Compassion-focused therapy***

Paul Gilbert developed compassion-focused therapy (CFT) over the last 20 years, and its theoretical underpinning draws upon evolutionary psychology, attachment theory, and applied psychology processes from neuroscience and social psychology (see Gilbert, 2010). CFT focuses on two psychologies of compassion. The first psychology is a motivation to engage with suffering, and the second psychology is focused on action, specifically acting to help alleviate and prevent suffering. The aim of CFT is to provide psychoeducation on the human mind, specifically in regard to its three basic emotion-regulation systems: (1) the threat/self-protect system, (2) the drive-reward system, and (3) the affiliative/soothing system. CFT emphasizes how people tend to find themselves trapped between the threat and reward systems, which can often bring about a sense of failure and high levels of self-criticism and shame (Gilbert, 2014). The affiliative/soothing motivational system helps facilitate compassion, and exercises are incorporated to make this the organizing/motivational system for the person.

CFT includes a range of exercises to develop the individual's own ideal compassionate-self, including exercises to access the soothing system such as imagery (e.g., safe space imagery) and breathing (e.g., rhythm soothing breathing). CFT is the process of applying a compassion model to psychotherapy and as such it has no specific time limitations or restrictions. As a group-based therapy, the Compassionate Mind Training (CMT) programme has been designed as a compassion-focused therapeutic approach to help people with high levels of shame and self-criticism (Gilbert & Irons, 2004).

Clinicians and researchers have taken the CFT approach and combined it with other therapeutic models and also to specific populations. For example, Tirch, Schoendorff, and Silberstein (2014) have looked at integrating CFT with Acceptance and Commitment Therapy (ACT), in a new approach called, Compassion-Focused ACT or CFACT. CFT books also exist for anger (Kolts, 2012), anxiety disorders (Tirch, 2012), and eating disorders (Goss, 2014), and all of these protocols still require rigorous evaluation in RCT studies.

**Table 1.** Description of compassion interventions and evidence underpinning them

Intervention (Developer(s))	Theoretical underpinning	Intervention description	Content overview	Website and evidence
Compassion-Focused Therapy (Paul Gilbert)	<ul style="list-style-type: none"><li>• Evolutionary Psychology</li><li>• Attachment Theory</li><li>• Applied Psychological Science</li><li>• Research (Neuroscience, Social, Emotion, and Cognitive Psychology)</li><li>• Social Mentality Theory</li><li>• Buddhist Psychology</li></ul>	<p><b>Intended Population</b></p> <ul style="list-style-type: none"><li>• Individuals who have chronic and complex mental health problems, where there are links to high levels of shame and self-criticism, who often come from abusive backgrounds</li></ul> <p><b>Delivery</b></p> <ul style="list-style-type: none"><li>• Individual – no specific length restrictions to therapy</li><li>• Group (<i>Compassionate Mind Training</i>) –structured 8- to 12-weekly session programme, with 2-hr sessions</li></ul>	<ul style="list-style-type: none"><li>• Psychoeducation and de-shaming from evolutionary perspective</li><li>• Case formulation development</li><li>• Understanding three-circle model to affect regulation</li><li>• Cultivating compassion capacities in imagery, empathy, sympathy, distress tolerance, mentalizing, mindfulness, acceptance, behavioural practice, mediation practice (CM &amp; LKM), appreciation exercises, yoga, common humanity, breath training, and acting simulations</li><li>• Focus on fears, blockers and resistances to compassion</li></ul>	<p><b>Website</b></p> <ul style="list-style-type: none"><li>• <a href="http://www.compassionatemind.co.uk">www.compassionatemind.co.uk</a></li></ul> <p><b>RCTs</b></p> <ul style="list-style-type: none"><li>• Arimitsu, 2016; Braehler et al., 2013; Kelly &amp; Carter, 2015; Kelly et al., 2010; Shapira &amp; Mongrain, 2010</li></ul> <p><b>Non-RCTs</b></p> <ul style="list-style-type: none"><li>• Ashworth, Clarke, Jones, Jennings, &amp; Longworth, 2014; Gale, Gilbert, Read, &amp; Goss, 2014; Gilbert &amp; Irons, 2004; Gilbert &amp; Procter, 2006; Heriot-Maitland, Vidal, Ball, &amp; Irons, 2014; Judge, Clegghorn, McEwan, &amp; Gilbert, 2012; Kelly, Zuroff, &amp; Shapira, 2009; Laithwaite et al., 2009; Lucre &amp; Corten, 2013</li></ul> <p><b>Case Studies</b></p> <ul style="list-style-type: none"><li>• Ashworth, Gracey, &amp; Gilbert, 2011; Beaumont &amp; Martin, 2013; Boersma, Håkanson, Salomonsson, &amp; Johansson, 2014; Bowyer, Wallis, &amp; Lee, 2014; Mayhew &amp; Gilbert, 2008</li></ul>

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Table 1. (Continued)

Intervention (Developer(s))	Theoretical underpinning	Intervention description	Content overview	Website and evidence
Mindful Self-Compassion (Kristen Neff & Christopher Germer)	<ul style="list-style-type: none"> <li>Buddhist Psychology</li> <li>Applied Psychological Research (Neuroscience and Social Psychology)</li> </ul>	<p>Intended Population</p> <ul style="list-style-type: none"> <li>Developed as a 'hybrid' programme applicable to both general public and to some clinical populations. To date, not yet evaluated in RCT with a clinical population</li> </ul> <p>Delivery</p> <ul style="list-style-type: none"> <li>Group – 8-weekly session programme, with 2.5-hr sessions, and also a half-day silent retreat. Typically with 10–25 participants</li> <li>Briefer formats – A 3-weekly session format has been developed, with 20-min weekly online audio-guided meditations</li> </ul>	<ul style="list-style-type: none"> <li>Multiple selves for understanding emotions and chair-work for self-criticism</li> <li>Building of compassionate-self as the integrating system</li> <li>Psychoeducation on self-compassion</li> <li>Introduction to mindfulness</li> <li>Development of self-compassion through meditative exercises (LKM and CM), guided imagery, and letter writing</li> <li>Introduce concept of 'backdraft' as a painful response to self-compassion</li> <li>Positive psychology, focusing on gratitude, savouring, and appreciation</li> </ul>	<p>Website</p> <ul style="list-style-type: none"> <li><a href="http://www.centreforhsc.org">www.centreforhsc.org</a></li> </ul> <p>RCTs</p> <ul style="list-style-type: none"> <li>Albertson <i>et al.</i>, 2014; Neff &amp; Germer, 2013; Smeets <i>et al.</i>, 2014</li> </ul> <p>Non-RCTs</p> <ul style="list-style-type: none"> <li>Neff &amp; Germer, 2013</li> </ul> <p>Case Studies</p> <ul style="list-style-type: none"> <li>Germer &amp; Neff, 2013</li> </ul>

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Table 1. (Continued)

Intervention (Developer(s))	Theoretical underpinning	Intervention description	Content overview	Website and evidence
Compassion Cultivation Training (Thupten Jinpa and The Center for Compassion and Altruism Research and Education (CCARE))	<ul style="list-style-type: none"> <li>Tibetan Buddhist Contemplative Practices</li> <li>Western Psychology, including Applied Psychological Science Research</li> </ul>	<p>Intended Population</p> <ul style="list-style-type: none"> <li>Developed to be applicable to both general public and to some clinical populations. To date, not yet evaluated in RCT with a clinical population</li> </ul> <p>Delivery</p> <ul style="list-style-type: none"> <li>Group – 9-weekly session programme, with 2-hr sessions, with daily compassion-focused meditation practice. Typically with 10–25 participants</li> <li>Briefer formats – The CCT programme has been packaged into 1-hr, 2-hr, daylong, and weekend modules; however, these have not been evaluated</li> </ul>	<ul style="list-style-type: none"> <li>Settling the mind and focusing through mindfulness and breath training</li> <li>Loving-kindness and compassion meditation exercises for loved ones, oneself, and for others</li> <li>Active compassion practice where one imagines taking away others' pain and sorrow and offering them one's own joy and happiness</li> <li>Integrated daily compassion cultivation practice</li> </ul>	<p>Website</p> <ul style="list-style-type: none"> <li>www.ccare.stanford.edu RCTs</li> <li>Jazaieri et al., 2013, 2014</li> <li>Non-RCTs</li> <li>Jazaieri et al., 2016</li> <li>Case Studies</li> <li>n/a</li> </ul>
Cognitively Based Compassion Training (Lobsang Tenzin Negi, Charles Raison, and colleagues at Emory University)	<ul style="list-style-type: none"> <li>Tibetan Buddhist tradition of <i>Ijong</i></li> <li>Cognitive theory</li> </ul>	<p>Intended Population</p> <ul style="list-style-type: none"> <li>Developed originally for university undergraduate students to develop emotional resilience</li> <li>Has been applied to adolescents in foster care</li> <li>Not yet tested in clinical populations</li> </ul>	<ul style="list-style-type: none"> <li>Developing attention and stability through mindfulness training</li> <li>Psychoeducation around mental experience</li> <li>Cultivating compassion and equanimity through guided exercises (e.g., LKM and CM)</li> </ul>	<p>Website</p> <ul style="list-style-type: none"> <li>https://tibet.emory.edu/cognitively-based-compassion-training/index.html RCTs</li> <li>Desbordes et al., 2012; Dodds et al., 2015; Pace et al., 2009, 2013; Reddy et al., 2013</li> <li>Non-RCTs</li> <li>n/a</li> </ul>

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Table 1. (Continued)

Intervention (Developer(s))	Theoretical underpinning	Intervention description	Content overview	Website and evidence
Cultivating Emotional Balance (Paul Ekman, Alan Wallace, and colleagues)	<ul style="list-style-type: none"> <li>Western scientific research on emotions</li> <li>Traditional Eastern attention focus (<i>Shamatha</i>)</li> <li>Contemplative practices (Four Immeasurables)</li> </ul>	<b>Delivery</b> <ul style="list-style-type: none"> <li>Group – 6-week structure, participants attend a 50-min class twice per week</li> </ul>	<ul style="list-style-type: none"> <li>Developing appreciation, gratitude, and empathy</li> </ul>	<b>Case Studies</b> <ul style="list-style-type: none"> <li>n/a</li> </ul>
		<b>Intended Population</b> <ul style="list-style-type: none"> <li>Designed to develop emotional balance and interpersonal communication across non-clinical populations</li> <li>Not yet tested in clinical populations</li> </ul>	<ul style="list-style-type: none"> <li>Concentration and mindfulness training (e.g., LKM and CM)</li> <li>Promotion and psychoeducation on empathy and compassion</li> </ul>	<b>Website</b> <ul style="list-style-type: none"> <li><a href="http://www.cultivatingemotional-balance.org/">http://www.cultivatingemotional-balance.org/</a></li> </ul>
		<b>Delivery</b> <ul style="list-style-type: none"> <li>Group – 8-weeks, 4 all-day sessions/4 evening sessions (42 hr)</li> <li>Briefer formats are being explored</li> </ul>	<ul style="list-style-type: none"> <li>Yoga and movement practices</li> <li>Psychoeducation and recognition of emotions in self and others</li> </ul>	<ul style="list-style-type: none"> <li>Kemeny <i>et al.</i>, 2012 Non-RCTs</li> <li>Kemeny <i>et al.</i>, 2012 Case Studies</li> <li>n/a</li> </ul>
		<b>Intended Population</b> <ul style="list-style-type: none"> <li>Designed for practitioners to assist in end-of-life care, palliative care, and populations with serious illnesses</li> <li>Designed to train clinicians to improve care of patients, not yet evaluated with clinicians or patients who received the care</li> </ul>	<ul style="list-style-type: none"> <li>Attention training</li> <li>Compassion training and prosocial communication, includes GRACE intervention</li> <li>Understanding and working with grief</li> <li>LKM and CM</li> <li>Yoga</li> </ul>	<b>Website</b> <ul style="list-style-type: none"> <li><a href="https://www.upaya.org/being-with-dying/dates-curriculum/">https://www.upaya.org/being-with-dying/dates-curriculum/</a></li> </ul>
Being With Dying Programme (Joan Halifax)	<ul style="list-style-type: none"> <li>Buddhist psychology</li> <li>Neuroscience research</li> </ul>	<b>Delivery</b> <ul style="list-style-type: none"> <li>Group – 8 all-day sessions (54 hr)</li> </ul>	<ul style="list-style-type: none"> <li>Understanding and working with grief</li> <li>LKM and CM</li> <li>Yoga</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> <li>Note. Efforts to evaluate the programme are being made</li> </ul>

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Table 1. (Continued)

Intervention (Developer(s))	Theoretical underpinning	Intervention description	Content overview	Website and evidence
The ReSource Training Protocol (Tania Singer and colleagues at the Max-Planck Institute)	<ul style="list-style-type: none"><li>• Buddhist psychology</li><li>• Applied Psychological Research (Neuroscience, Social, Emotion, and Cognitive Psychology)</li></ul>	<p>Intended Population</p> <ul style="list-style-type: none"><li>• Developed to be applicable to both general public and to some clinical populations. To date, not yet evaluated in RCT with a clinical population</li></ul> <p>Delivery</p> <ul style="list-style-type: none"><li>• 39-week training, 13 weeks per module. Each module includes retreats, and support of Web-based platform and smartphone app</li></ul>	<ul style="list-style-type: none"><li>• Presence: attention and mindfulness training</li><li>• Affect: cultivation of emotional and motivational aspects of compassion</li><li>• Perspective: focuses on meta-cognition and cognitive perspective taking</li></ul>	<p>Website</p> <ul style="list-style-type: none"><li>• <a href="https://www.resource-project.org/en/home.html">https://www.resource-project.org/en/home.html</a></li></ul> <p>RCTs</p> <ul style="list-style-type: none"><li>• Completed, not yet published</li></ul> <p>Non-RCTs</p> <ul style="list-style-type: none"><li>• n/a</li></ul> <p>Case Studies</p> <ul style="list-style-type: none"><li>• n/a</li></ul>
Compassion Meditation and Loving-Kindness Meditation (Buddhist and Eastern Traditions)	<ul style="list-style-type: none"><li>• Buddhist and Eastern Traditions and contemplative traditions</li></ul>	<p>Intended Population</p> <ul style="list-style-type: none"><li>• Applicable to both general public and to some clinical populations</li></ul> <p>Delivery</p> <ul style="list-style-type: none"><li>• Varies widely in length, typically each meditation can last between 5–30 min. Completed either individually or in guided meditations</li></ul>	<ul style="list-style-type: none"><li>• CM: aim to wish the relief of suffering in oneself and others</li><li>• LKM: aim to wish loving-kindness and caring feelings to oneself and others</li></ul>	<p>Website</p> <ul style="list-style-type: none"><li>• n/a</li></ul> <p>Meta-analyses</p> <ul style="list-style-type: none"><li>• Galante <i>et al.</i>, 2014; Hoffmann <i>et al.</i>, 2011</li></ul>

All references listed in evidence column are provided in reference list with an \*.

*CFT evidence-base*

To date, CFT has been examined in a number of trials, and a systematic review was conducted in 2014 that included 14 evaluation studies (Leaviss & Uttley, 2015). The review concluded that CFT shows promise as an intervention for mood disorders, particularly for those high in self-criticism. But no meta-analytic techniques were used due to lack of available data. The majority of studies on CFT have been uncontrolled studies conducted as part of service delivery. In the Kirby *et al.* (2015) meta-analysis two RCTs compared CFT to active control conditions in clinical samples, with one study examining CFT as a treatment for schizophrenia (Braehler *et al.*, 2013), and one targeting individuals wanting to quit smoking (Kelly, Zuroff, Foa, & Gilbert, 2010). Both interventions focused on self-criticism and shame as key moderators in facilitating compassion, a process emphasized in CFT interventions. The Braehler *et al.* (2013) CFT study was a high-intensity intervention, spanning 16 group sessions and 32 hr in total. Relative to treatment as usual, CFT was associated with greater observed clinical improvement and significant increases in compassion, with the increases in compassion being significantly associated with reductions in depression, shame, entrapment, and in perceived social marginalization. The Kelly *et al.* (2010) study investigated a self-directed light-touch intervention that did not measure compassion as an outcome. It was found that the self-compassion intervention reduced daily smoking more quickly than a baseline self-monitoring condition but at the same rate as two other imagery-based self-talk active control groups. Effects were shown to be moderated by trait self-criticism, readiness to change, and vividness of imagery. In the Kirby *et al.* (2015), meta-analysis both of these interventions was included in the systematic review, but not the meta-analysis due to not including self-report measures of compassion or well-being. In addition, the Kirby *et al.* (2015) systematic review identified 12 other effectiveness trials, indicating CFT has been the most evaluated compassion-based intervention to date.

Since the meta-analysis (Kirby *et al.* 2015), two additional CFT RCT papers have been published. In a pilot RCT (Kelly & Carter, 2015), participants with binge eating disorder (mean age 45 years; 34 females) were randomized to either food planning plus self-compassion strategies ( $n = 15$ , imagery and writing exercises), food planning plus behavioural strategies ( $n = 13$ ; alternative activity exercises to bingeing) or a wait-list control condition ( $n = 13$ ). The interventions spanned 3 weeks, and results found that the self-compassion intervention reduced global eating disorder pathology, eating and weight concerns, and increased self-compassion greater than the other two conditions, and participants low in fear of self-compassion derived greater benefits. Although promising, the sample size was small, and there was a lack of follow-up data.

Arimitsu (2016) developed a new group programme called the Enhancing Self-Compassion Programme (ESP), based on CFT, and spanned seven weekly one-and-a-half-hour sessions. Session content included LKM, mindfulness, imagery, letter writing, three-chair work, compassionate behaviours, and relating to self-critical thoughts. Forty-one participants (Mean age 23.25), with scores below 17.35 on the SCS, were randomized to either ESP or a wait-list control and a range of self-report measures were used at pre-, post-, and 3-month follow-up. Results found that ESP significantly improved self-compassion compared to control group, and these results were maintained at follow-up. The study also collected qualitative feedback, with participants reporting difficulty with mindfulness, LKM, and imagery; however, the participants found the programme acceptable overall.

### **Mindful self-compassion**

Mindful self-compassion (MSC) was developed by Kristin Neff and Christopher Germer specifically as a programme to help cultivate self-compassion (Neff & Germer, 2013). MSC is an 8-week group programme, with each session lasting between two and two and a half hours, with an optional half-day meditation retreat. MSC contains core meditations (e.g., affectionate breathing), other meditations (e.g., compassionate body scan), and informal self-compassion practices (e.g., self-compassion break). According to Neff and Germer (2013), the programme is considered a 'hybrid' programme, one which is applicable to both the general public and also some clinical populations. The theoretical underpinnings of MSC are not explicitly detailed in published peer review papers (Germer & Neff, 2013; Neff & Germer, 2013); however, the programme appears to draw upon Tibetan Buddhist practices, as well as psychological science literature examining the benefits of mindfulness and self-compassion.

The programme includes psychoeducation regarding self-compassion, mindfulness exercises, as well as LKM. MSC also focuses on developing your compassionate voice, with an emphasis on distinguishing between the inner critic and compassionate-self. The programme also includes addressing core values, managing difficult emotions, and addressing the human negativity bias (Germer & Neff, 2013). Participants complete weekly assigned MSC exercises, which are typically the meditations discussed in that session.

### *MSC evidence-base*

MSC has been evaluated in a single case study (Germer & Neff, 2013), and an RCT (Neff & Germer, 2013), with other variations of the MSC programme evaluated in RCTs in brief 3-week formats (Albertson, Neff, & Dill-Shackleford, 2014; Smeets, Neff, Alberts, & Peters, 2014). In the foundation RCT of MSC, Neff and Germer (2013) assessed the programme with 51 participants, who were randomized to either MSC or a wait-list control condition. Results found significant increases in self-compassion, mindfulness, and on well-being outcomes (e.g., life satisfaction). A strength of the study was that the MSC condition was measured at four time points, pre-, post-, six-, and finally 12-month follow-up. Importantly, only 15 of the 24 MSC participants completed 12-month follow-up, which may represent a bias of self-selection in measurement. The evidence-base underpinning MSC is still in its infancy, with currently no evaluations of clinical samples. The programme has not yet been evaluated in independent evaluations. Interesting though is the uptake of MSC training, with over 200 trained teachers of MSC listed on its programme directory ([www.centreformsc.org](http://www.centreformsc.org)). Although there is great enthusiasm by clinicians around the world in delivering MSC, more controlled evaluation studies are warranted to evaluate its efficacy. A current pre-registered effectiveness trial of MSC is ongoing (Kirby, Huxter, & Bennett-Levy, 2016), which will provide further insights into the benefits of the programme.

### *Compassion cultivation training*

The compassion cultivation training (CCT) programme was developed by Thupten Jinpa and colleagues (contemplative scholars, clinical psychologists, and neuroscientists) at the Center for Compassion and Altruism Research and Education (CCARE) at Stanford University (Jazaieri *et al.*, 2013). The theoretical underpinnings of CCT include Tibetan Buddhist contemplative practices and Western psychology (Jazaieri *et al.*, 2013). CCT has

a structured protocol and spans nine weekly sessions, with each session lasting 2 hr, including the following: (1) pedagogical instruction with active group discussion, (2) a guided group meditation, (3) interactive practical exercises, and (4) exercises designed to promote feelings of open-heartedness or connection to others. The sessions deliver both didactic and experiential training in compassion practices across six steps: (1) settling the mind and developing mindfulness skills; (2) experiencing loving-kindness and compassion for a loved one; (3) practising LKM and compassion for oneself; (4) compassion towards others through embracing our shared common humanity; (5) compassion towards all beings; and (6) 'active compassion' practice where one imagines taking away others' pain and sorrow and offering to them one's own joy and happiness. Finally, participants are introduced to an integrated practice where all six steps are included in a complete daily compassion-focused meditation (Jinpa, 2010). Participants are assigned weekly meditative exercises.

#### *CCT evidence-base*

The CCT programme has been evaluated in one RCT, reported in three papers, the first paper demonstrated the impact CCT has on increasing participants level of compassion (Jazaieri *et al.*, 2013), the second on improving participants mindfulness, mental health and emotion regulation (Jazaieri *et al.*, 2014), and the third paper demonstrated how CCT reduced mind wandering to unpleasant topics (Jazaieri *et al.*, 2016). The RCT itself was conducted with 100 community sample participants (no psychopathology), with 60 assigned to CCT and 40 assigned to a wait-list control. The RCT was thorough, in that it reported intervention completion data, included participant flow diagrams, and protocol adherences was measured, with over 90% adherence reported. A strength of the evidence-base of CCT is the number of outcomes that have been assessed; for example, the study examined compassion from three perspectives, for others, for self, and receiving from others (Jazaieri *et al.*, 2013). The impacts of CCT on emotion regulation have also been assessed with results indicating that CCT reduced participants' expressive suppression frequency and self-efficacy, but it did not impact cognitive reappraisal frequency or self-efficacy (Jazaieri *et al.*, 2014). One advantage of this study is it examined the practice dose effect, finding that the more participants practised formal meditations, the greater the reductions in worry and frequency of emotional suppression. However, the evidence underpinning CCT is still within its infancy, with no other RCTs being conducted, and none by independent evaluators. Based on the Clinical Trials Registry (<https://clinicaltrials.gov>), there is a registered RCT examining the efficacy of CCT for patients with chronic pain; however, this has yet to be published. Despite the infancy of evaluative research on CCT, it is popular. According to Jinpa and Weiss (2013) CCT has been taught in its entirety 21 times, and has trained over 60 accredited facilitators across countries including Australia, Chile, and United Kingdom. More RCT evaluations of CCT are needed, with a need to evaluate long-term outcomes, and with clinical populations to determine its clinical efficacy.

#### *Cognitively Based Compassion Training*

The Cognitively Based Compassion Training (CBCT) programme was developed by Lobsang Tenzin Negi, Charles Raison, and colleagues (Ozawa-de Silva & Negi, 2013) originally to assist university undergraduate students develop emotional resilience. CBCT

was designed to be secular in nature, and its theoretical underpinnings draw on the Tibetan Buddhist tradition of *lojong* (mind training; Ozawa-de Silva & Negi, 2013). CBCT also incorporates mindfulness and cognitive-restructuring strategies. CBCT has a 6-week structure with two 50-min classes a week. CBCT includes eight stages: (1) developing attention and stability of mind; (2) cultivating insight into the nature of mental experience; (3) cultivating self-compassion; (4) developing equanimity; (5) developing appreciation and gratitude for others; (6) developing affection and empathy; (7) realizing wishing and aspirational compassion; and (8) realizing active compassion for others. Participants are assigned weekly homework exercises which involve practising a meditative technique taught that week in session.

#### *CBCT evidence-base*

CBCT has been evaluated in an RCT with adolescents in foster care, reported across two papers (Pace *et al.*, 2013; Reddy *et al.*, 2013), in two RCTs with undergraduate students, one with 61 students (Desbordes *et al.*, 2012; Pace *et al.*, 2009), and in one RCT with breast cancer survivors (Dodds *et al.*, 2015).

The RCT with 71 adolescent foster care participants reported mixed findings, with qualitative feedback indicating the youth found CBCT useful in dealing with daily life stressors; however, the quantitative self-report measures found no significant differences between CBCT and the control group (Reddy *et al.*, 2013). The authors concluded that the measures were potentially not sensitive to change, and were not developed specifically for adolescents. Moreover, no power analysis was reported, and the sample was potentially underpowered. The Pace *et al.* (2013) paper used data from the same RCT to examine whether CBCT reduced C-reactive protein (CRP) in adolescents, and hypothesized that higher levels of engagement would be associated with reduced CRP from pre- to post-intervention. At post-intervention, there was no significant difference between the groups on CRP; however, among the CBCT group the study did find an association whereby the more meditative practices the adolescents completed, the greater the reductions in morning salivary CRP.

The two CBCT studies that examined healthy undergraduate university student populations focused on brain (amygdala response; Desbordes *et al.*, 2012) and body physiological responses (innate immune, neuroendocrine, and behavioural responses to psychosocial stress; Pace *et al.*, 2009) to compassion training. Desbordes *et al.* (2012) found that CBCT had an impact on right amygdala response to negative images, which was significantly correlated with a decrease in depression scores in 51 students. Pace *et al.* (2009) found that CBCT reduced stress-induced subjective distress and immune response when presented with psychological stress in 61 students. However, Hoffmann *et al.* (2011) indicate that a major limitation of the Pace *et al.* (2009) study was that the stress test was administered after, rather than before, CBCT. Thus, the results could be due to participant differences in stress response rather than due to compassion meditation practice.

The RCT with 33 breast cancer survivors included participants who had received breast cancer treatment within the last 10 years (Dodds *et al.*, 2015). CBCT included eight weekly 2-hr classes, with a 'booster' session 4 weeks later. A series of self-report measures were used, as well as salivary samples to assess for diurnal cortisol activity at pre-, post-, and 1-month follow-up. Results indicated the potential of CBCT at reducing self-reported depressive symptoms and avoidance of intrusive thoughts; however, there were no significant differences for diurnal cortisol activity. This study reported a

CONSORT participant flow diagram and included protocol adherence measurement; however, it relied on a small sample size.

CBCT is one of the more evaluated compassion-based interventions with four RCTs, and is the only intervention that has been examined with adolescents. Evaluations have used self-report measures, brain and body physiological responses, as well as qualitative feedback. Unfortunately, follow-up data have only been collected for the Dodds *et al.* (2015) study, which was at 1-month follow-up; thus, long-term impacts of CBCT remain unknown. To date there have been no independent evaluations published. Based on the CBCT website there are at least 14 certified CBCT instructors, again showing the popularity of compassion-based interventions.

#### *Cultivating emotional balance*

The cultivating emotional balance (CEB) programme was developed by Paul Ekman, Alan Wallace, and colleagues (Kemeny *et al.*, 2012), and is a secular programme aimed at building emotional balance (Ekman & Ekman, 2013). The theoretical underpinnings of CEB are based on Western scientific research on emotions, and traditional Eastern attention focus (i.e., Shamatha) and contemplative practices (i.e., Four Immeasurables). The CEB programme creates pathways to compassion by training and teaching participants to be able to recognize the suffering of others and of oneself, and to tolerate the distress more effectively through learning new ways of managing emotions (e.g., mindfulness and LKM; Ekman & Ekman, 2013). CEB is a 42-hr, eight-session programme, which involves a range of contemplative practices including mindfulness, LKM, promotion of empathy and compassion, and psychoeducation of emotions (Kemeny *et al.*, 2012). CEB is notably different to the other compassion-based interventions as there is an emphasis in the programme on understanding emotions and being able to recognize emotions of others (Ekman & Ekman, 2013).

#### *CEB evidence-base*

The CEB programme has been evaluated in one RCT with 82 female school teachers, with no psychiatric disorders or prior meditation practice (Kemeny *et al.*, 2012). The RCT compared CEB to a wait-list control condition at pre-, post-, and 5-month follow-up, on a range of measures including self-report (e.g., Beck Depression Inventory and Trait Anxiety Inventory), experimental tasks (e.g., Micro-Expression Training Tool and Trier Social Stress Test), and bodily responses (e.g., autonomic nervous system measurements including blood pressure and respiratory sinus arrhythmia). Compared to control, CEB significantly reduced negative affect, rumination, depression, anxiety, and increased positive affect and mindfulness. This study was the only one to investigate and demonstrate that the programme increased participants' abilities to recognize emotions in others – a key distinguishing feature of CEB.

The CEB intervention had the highest dosage out of all studies in this review, spanning 42 hr. Some of the advantages of the study were its methodological rigour, collecting data on a range of outcomes, across three time points, and also controlled for desirability effects used a social desirability measure. However, there are no further evaluations of CEB beyond the foundation RCT evaluation with female school teachers. Similar to the other compassion-based programmes, a range of teachers have been certified in CEB, and based on the CEB website this includes at least 43 trainers (<http://www.cultivatingemotionalbalance.org/>).

*Meditation interventions*

There have been a range of other Compassion Meditations (CM) or Loving-Kindness Meditations (LKM) evaluated. In many Buddhist practices, CM and LKM are combined together, and such is the case in most psychological studies (Hoffmann *et al.*, 2011). CM is a form of meditation where primarily the aim is to offer specific wishes for others to be free of suffering (e.g., 'May the person be free from mental/physical suffering'; Hoffmann *et al.*, 2011). LKM is a form of meditation that involves a structured approach including directing caring feelings (e.g., 'May you be safe, may you be peaceful') towards oneself, then towards loved ones, then towards acquaintances, then towards strangers, then towards someone with whom one experiences interpersonal difficulties, and finally towards all living beings without distinction (Galante, Galante, Bekkers, & Gallacher, 2014). CM and LKM are meditations that are used in all compassion-based interventions to help settle the mind, increase compassion to self and others, and to improve mental health.

*Meditation interventions evidence-base*

Two recent reviews examined the effectiveness of CM and LKM. Hoffmann *et al.* (2011) provided a narrative review of CM and LKM, and concluded that both offer potential to be included as adjunct components to empirically supported treatments, such as cognitive-behaviour therapy (CBT). The review found that LKM and CM showed promise to help with varying psychological problems that involved interpersonal process, depression, social anxiety, marital conflict, anger, and coping with the strains of long-term caregiving (Hoffmann *et al.*, 2011). However, more rigorous RCT evaluations are needed to determine the effectiveness of LKM.

Galante *et al.* (2014) conducted the first systematic review and meta-analysis on LKM. The meta-analysis eligibility criteria were the study had to be an RCT, peer-reviewed, with an adult population, contain data on outcomes related to health and well-being, and include an intervention that was predominantly LKM. Twenty-two studies were included in the review and nine were included in the quantitative meta-analysis. The results found that LKM was moderately effective at increasing compassion (Hedge's  $g = .61$ ), self-compassion (Hedge's  $g = .45$ ), mindfulness (Hedge's  $g = .63$ ), and decreasing self-reported depression (Hedge's  $g = -.61$ ). The majority of the studies involved multiple sessions of LKM across 4 to 8 weeks, and five of the studies consisted of single sessions of 7 to 15 min.

*Other compassion-based interventions*

There are two other RCTs that could not be appropriately categorized in previous intervention sections.

The Acceptance and Commitment Therapy (ACT) self-compassion RCT was examined with university undergraduate students, and was a relatively light-touch intervention (6 hr) with high levels of protocol adherence (Yadavaia, 2014). The ACT self-compassion intervention was aimed at reducing self-criticism and improving the core value of self-kindness. At post-intervention, the ACT group experienced a significant increase in self-compassion, and decreased anxiety and psychological distress. The authors also indicated that based on their process analysis, psychological flexibility was a significant mediator for changes in self-compassion.

Held and Owens (2015) examined the impact of two self-directed programmes: a self-compassion programme, which was a blending of MSC and CFT ( $n = 13$ ); and a stress inoculation programme ( $n = 14$ ), with homeless male veterans (Held & Owens, 2015). In both 4-week programmes participants were given a workbook and instructed to complete the exercises. Limitations of the study were that there was no way to verify whether participants had actually been practising the exercises, and participants were given a number of incentives for participation, which may have biased the results. The results indicated that both interventions increased self-compassion and reduced trauma-related guilt, with no differential effects.

#### *Not yet evaluated compassion-based interventions*

There are other compassion programmes that have been developed, but have not yet been evaluated in RCTs or are currently under evaluation. These will be briefly discussed.

#### *The being with dying (BWD) programme*

The BWD programme is a compassionate end-of-life care programme, where practitioners are trained to improve their interactions with patients who have serious illness or end-of-life care. BWD is an 8-day (54-hr intervention length) residential intervention and training is available through the website (<https://www.upaya.org/being-with-dying/dates-curriculum/>), as of 2012 over 40 individuals had been trained in BWD, and the programme is currently being evaluated (Halifax, 2013).

#### *The ReSource Training Protocol*

The ReSource Training Protocol is an emerging new research project developed by Tania Singer and colleagues (Bornemann & Singer, 2013), which is a large scale compassion project currently being evaluated across Europe (<https://www.resource-project.org/en/home.html>). The ReSource Training Protocol has three core components: *Presence*, which is focused on attention and mindfulness; *Affective*, which is focused on compassion and prosocial motivation; and *Perspective*, which is focused on meta-cognition and cognitive perspective taking. The ReSource Training Protocol is a 39-week training programme which includes weekly retreats, and the support of a Web-based platform and smartphone app. The ReSource Training Protocol has been completed; however, peer-reviewed papers have not yet been published (<https://www.resource-project.org/en/home.html>).

## **Discussion**

The aim of this review was to identify what compassion-based interventions currently exist, and provide a thorough overview of the differing elements of the developed interventions (e.g., theoretical underpinnings, intervention description), along with an examination of the evidence-base for each. In doing so, the aim is for this review to be a practical guide for researchers, clinicians and practitioners to determine what interventions need further research (and with what populations), and what options are available to clinicians to use in clinical practice with their clients.

### **Critiquing the state of interventions: similarities and differences**

All the discussed interventions have a common focus to cultivate compassion. However, there are some notable similarities and differences between intervention models, which is a strength from a scientific stand point because compassion is multidimensional and factorial (Gilbert, 2014).

#### *Similarities*

All interventions have been designed to be secular in approach; however, theoretically all of these interventions have been influenced by Tibetan Buddhist traditions. As such, all interventions have included some kind of *mindfulness-based training*, the extent on which this is focused varies, with CFT and MSC spending less time on mindfulness, and with CCT, CBCT, and CEB devoting larger proportions of their intervention to mindfulness. Given this, it is not surprising that all interventions also include some form of *LKM or CM*. Although the specifics differ slightly for each intervention, all include a component of *psychoeducation*, where a rationale is provided for compassion training. All interventions also include *active experiential components*, whereby participants actively complete and rehearse specific compassion strategies in the session. All interventions also include *homework* exercises, and have the ability to be delivered in a *group format*.

#### *Differences*

In terms of differences, CFT is notably different to all other compassion-based interventions as it is a form of *psychotherapy*. The other interventions are manualized programmes. As such CFT has the ability for flexible delivery based upon the case formulation developed for that specific client, whereas the other interventions need to follow the prescribed session content. CFT is also noticeably different in its *theoretical underpinning*, as it was also built upon evolutionary psychology, attachment theory, and evidence pertaining to applied psychological research (e.g., physiological and neuro-physiological). This difference in theoretical underpinning has impacted the *resultant therapy model*, where CFT strategies are included that directly attempt to stimulate affiliative processes such as the parasympathetic system and prefrontal cortex (e.g., rhythm soothing breathing), and this is explained to the client as part of case formulation and psychoeducation.

There are also notable differences between the intervention in terms of *definition and focus* of compassion. MSC focuses specifically on self-compassion, whereas the other interventions are based on a more Buddhist approach that focuses on compassion more broadly (e.g., compassion to others, to self, and receiving compassion from others). MSC uses a unique definition of self-compassion, one which was developed by Kristen Neff (2016), that includes three bipolar constructs (kindness vs. judgment, isolation vs. humanity, and over identification vs. mindfulness). Recently this definition of self-compassion has come under increased scrutiny, as has the widely used Self-Compassion Scale (Neff, 2003) used to measure these constructs (Muris & Petrocchi, 2017; Neff, 2016).

CEB differs to the other intervention models as it has a specific focus on understanding *emotions* and being able to recognize emotions in others. CEB and BWD also include *yoga* based training. The *intervention lengths* are also differ, ranging from 18 hr dosage for CCT compared to 54 hr for CEB. LKM and CM can also vary quite widely in length (5–30 min) and frequency (stand-alone or daily meditation).

### **State of evidence**

Of all the interventions, CFT has been the most evaluated, and is the most appropriate for the use in clinical populations. Meditations (CM & LKM) have also been evaluated in meta-analyses and found to have clinical utility with a range of clinical populations, including anxiety and depression. The remaining six compassion interventions (MSC, CCT, CBCT, CEB, BWD, and ReSource), have not yet been evaluated with clinical populations, and are more appropriate for non-clinical settings, although with continued evaluation research this could change.

What these findings highlight is although all interventions include compassion, they are not equivalent. For example, different compassion approaches define compassion differently, and there is variation regarding what competencies are targeted (e.g., empathy, sympathy, distress tolerance, mentalizing, mindfulness, acceptance, behavioural practice, mediation practice, appreciation exercises, yoga, LKM, common humanity, breath training, acting simulations, working on self-criticism). CFT, which is the only therapy model, focuses specifically on the fears, blocks and resistances to compassion, affiliative feelings and behaviour, whereas others do not (Gilbert, 2014). More research is needed on the specific competencies included in each intervention. Ideally therapies should be developed from an evidence-base of the individual ingredients included in their approach.

What is most striking from this review is the number of accredited and trained facilitators in various compassion-based interventions with few RCTs supporting these developed interventions. Indeed, the evaluation literature on compassion-based interventions is still within its infancy, and many more rigorous trials are needed to assess the utility and effectiveness of these interventions with non-clinical and clinical populations. This phenomenon of quick uptake of new interventions is not unique to compassion-based interventions, with the field of clinical psychology constantly exploring new and innovative intervention models to help clients with emotional suffering and improve well-being (Kazdin & Blasé, 2011).

### **Future directions for compassion interventions**

A key future direction for compassion interventions is the availability of low-to-high-intensity interventions for consumers. Not all consumers of compassion interventions will require a 54-hr programme; thus, it is important to develop lighter touch interventions. Given CFT is the only therapy model, it could benefit from developing a number of programmes that condense some of the key elements of the therapy into more easily delivered programmes that could range from light-tough (e.g., stand-alone 2-hr seminars), to moderate (e.g., 4–8 group sessions), and high-intensity programmes (e.g., greater-than-10-session manual). The development of intervention manuals for CFT in this manner could facilitate its use more easily in different contexts such as within schools, workplaces, and through agencies.

Despite the number of compassion interventions available, it is surprising that there is no real agreement on how compassion should be measured, indeed this is a key challenge for the field of compassion. Currently, the most relied upon method of measurement is self-report, which is far from perfect, and the most widely used measure of self-compassion is becoming increasingly scrutinized for its psychometric properties (Muris & Petrocchi, 2017; Neff, 2016; Strauss *et al.*, 2016). Moreover, there is a need to examine the potential benefits of compassion in the education system (Welford & Langmead, 2015) and in organizational workplaces (Kanov *et al.*, 2004). See Table 2 for a series of

**Table 2.** Recommendations for the future of compassion-based interventions

No.	Recommendation description
1	Provide a clear description of the theoretical underpinnings in which the intervention has been developed
2	Pre-register RCTs or non-randomized evaluations of compassion-based interventions on clinical trial databases (e.g., ClinicalTrials.gov <a href="http://www.clinicaltrials.gov/">http://www.clinicaltrials.gov/</a> ), and include conflict of interest statements
3	Conduct RCTs that adhere to the JARS (APA, 2008) or CONSORT (Moher et al., 2010) guidelines, with adequately powered sample sizes
4	Examine the intervention with specific clinical populations to determine their clinical utility, such as clients who meet anxiety disorders or mood-based disorders
5	Use self-report measures that have normative data so that clinical and reliable change scores (e.g., Jacobson & Truax, 1991) can be calculated
6	Where possible include physiological and neurophysiological measures to evaluate the impacts of compassion-based interventions (e.g., HRV). Only a few studies reviewed were able to include a direct measure of physiological or neurophysiological impacts of compassion training (e.g., Desbordes et al., 2012; Kemeny et al., 2012; Pace et al., 2009); more measurement needs to focus on this
7	Begin active comparison trials, where compassion-based interventions are compared to other interventions, as opposed to a wait-list control condition
8	Begin component analyses of the interventions to determine what are the mechanisms of change or active ingredients of the developed compassion interventions. Alternatively conduct microtrial design studies (Kirby, 2016) to determine the impact of individual specific intervention components. An example of this is in a recent experimental randomized design study of compassionate imagery with individuals with psychotic patients with paranoid ideation (Ascone, Sunday, Schlier, & Lincoln, 2017)
9	Include qualitative outcomes in measurement of compassion interventions. Although some studies did report on qualitative outcomes (e.g., Arimitsu, 2016; Reddy et al., 2013) examining qualitative feedback in terms of experience, acceptability and barriers to specific strategies would be helpful for compassion-focused approaches
10	There is a need to investigate whether there is an ideal intervention dosage, particularly in regard to intervention length (e.g., length of each individual session, for example 30 min to 2 hr, or length of the intervention programme itself, for example 4- or 8-week intervention), to document dosage impacts. Presumably this would differ between clinical and non-clinical samples, and needs to be evaluated

recommendations for the future of compassion-based intervention research to improve the quality and methodological rigour for this field.

## Conclusion

There has been sharp increase in the number of evaluations of compassion-based interventions in the last 10 years. One reason for this increased interest could be due to current psychotherapies being far from perfect (Kazdin, 2015). Although psychotherapies are moderately effective, there are many clients who still do not respond to treatment (Gilbert, 2014). Compassion changes the focus of therapy away from solely focusing on thoughts or unconscious conflicts towards the development of affiliative and prosocial functioning. This is important, as scientific studies now demonstrate how important affiliative motives and emotions are for the body and brain organization, which influence basic phenotypes. Thus, compassion as the focus of therapy offers a novel, innovative, and transdiagnostic approach for reducing psychopathology and increasing well-being.

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