Clinical Psychology Review 70 (2019) 26–39

Contents lists available at ScienceDirect

Clinical Psychology Review

journal homepage: www.elsevier.com/locate/clinpsychrev

Review

The '*Flow*' of compassion: A meta-analysis of the fears of compassion scales and psychological functioning

James N. Kirby[a,*], Jamin Day[b], Vinita Sagar[a]

[a] School of Psychology, The University of Queensland, Australia
[b] Family Action Centre, Faculty of Health and Medicine, University of Newcastle, Australia

HIGHLIGHTS

- The overall associations of fears of compassion and mental health are unknown.
- We meta-analyzed data from 4723 participants.
- Fears of compassion associated strongly with depression, shame, and self-criticism.
- The associations were largest for clinical samples.

ARTICLE INFO

Keywords:
Compassion
Compassion focused therapy
Fears of compassion
Shame
Self-criticism
Meta-analysis

ABSTRACT

This meta-analysis examined the associations between the fears of compassion and mental health. We extracted 19 studies reporting 154 effect sizes (Pearson's *r*) from 22 independent samples published during the last seven years, with data from 4723 participants. All studies used the Fears of Compassion Scales (FCS), which includes three subscales; fears of compassion for self, for others, and receiving from others. Specific mental health outcomes included: depression; anxiety; distress; and well-being, as well as the psychological vulnerability factors of self-criticism and shame. The overall association between the three FCS subscales and mental health difficulties was .49, .30 and .48 for fears of self-compassion, fears of compassion for others, and fears of compassion from others, respectively. Across mental health domains and vulnerability factors, pooled effect sizes ranged between $r = .13$ and .55 (in absolute value), with the strongest associations found between the mental health variables of shame, self-criticism, and depression, and the FCS subscales of fears of self-compassion and fears of receiving compassion. Moderator analyses were also conducted, including, age, gender, publication status, and sample (clinical vs. non-clinical). Overall, clinical populations demonstrated significantly stronger associations between mental health difficulties and fears of self-compassion, relative to non-clinical populations.

Compassion, according to Buddhist traditions (Dalai Lama, 1995) and evolutionary focused models (Gilbert, 2019) is conceptualized as a prosocial motivation and can be defined by "*the sensitivity to suffering in self and others, with a commitment to try to alleviate and prevent it*" (Gilbert, 2014, p. 19). Compassion plays a fundamental role in mental states, affect regulation and social behavior, due to the evolved physiological (e.g., the myelinated vagus nerve, oxytocin) and psychological mechanisms that underpin caring motives and behavior (Carter, 2014; Porges, 2007; Seppälä et al., 2017). Recently, however, research has begun to explore how access to, and the stimulation of, caring and compassion motivational systems can be therapeutic targets in their own right (Gilbert, 2019; Kirby and Gilbert, 2019). Research has also shown that many individuals are unable to activate or use these fundamental systems and affect regulators (Ebert, Edel, Gilbert, & Brüne, 2018), which negatively impacts their physiological and psychological health (Kirby, Doty, Petrocchi, & Gilbert, 2017). For example, fears of compassion have been found to predict oxytocin levels in individuals who suffer with Borderline Personality Disorder (Ebert et al., 2018). In this meta-analysis, we explore a self-report scale that examines fears, blocks, and resistances to compassion and links to mental health outcomes and vulnerability factors including shame and self-criticism.

1. The '*Flow*' of compassion

The term '*flow*' of compassion refers to the dynamic reciprocal

* Corresponding author at: Compassionate Mind Research Group, School of Psychology, The University of Queensland, St Lucia, Brisbane 4072, Australia.
E-mail address: j.kirby@psy.uq.edu.au (J.N. Kirby).

https://doi.org/10.1016/j.cpr.2019.03.001
Received 14 August 2018; Received in revised form 1 March 2019; Accepted 4 March 2019
Available online 06 March 2019

processing nature of compassion. That is, compassion is not static; rather it occurs in a social-interactional context (Gilbert, 2014), and can be directed from 1) self-to-other, 2) other-to-self, and 3) self-to-self (commonly referred to as self-compassion). Importantly, although the flows of compassion can influence each other, they can also be independent, such that individuals can be good at directing compassion to others, yet may struggle with being self-compassionate (Lopez, Sanderman, Ranchor, & Schroevers, 2018). Compassion can also 'ripple'; for example, if one is compassionate to another, it can increase the likelihood that that person will be compassionate to themselves (Breines & Chen, 2012), and possibly compassionate to another person—rippling or flowing out like a contagion (Gilbert, 2014; Klimecki, Leiberg, Ricard, & Singer, 2014; Seppälä et al., 2017). Indeed, Weng et al. (2013) found that two weeks of compassion training (focusing on compassionate wishes for family, friends and difficult people) resulted in increased altruistic behavior to others in a redistribution game when an identified victim was suffering.

Over recent years a large body of work has found that directing compassion to the self (i.e., self-compassion) is an important emotion regulation strategy, significantly associated with lower levels of depression, anxiety and stress (Finlay-Jones, 2017; MacBeth & Gumley, 2012). While undoubtedly important, relying solely on the '*self*' to alleviate suffering may only have limited effectiveness. We suggest this can be linked to Bowlby's (1969) concept of '*compulsive self-reliance*', which is reinforced in individualistic cultures (Kirby & Gilbert, 2019). Contextualizing compassion as a motivation, where there is a dynamic, reciprocal processing exchange between people, allows for distress to be regulated through our evolved physiological infrastructure in response to the affiliative behaviors of others, such as calming, soothing, and connecting. Having a fear of giving compassion to others or receiving compassion from others results in individuals having an inability to utilize their own evolved psychophysiological mechanisms of affect regulation via social relating, making them vulnerable to mental health difficulties.

Importantly, research has found that being compassionate to others has associated mental health benefits. For example, higher levels of compassion to others was linked to observed parental warmth towards children and less hostility (Miller, Kahle, Lopez, & Hastings, 2015), and compassion to others has been linked to stronger social connections (Cozolino, 2006; Crocker & Canevello, 2012). There is also recent research demonstrating how the ability to be open to receiving compassion from others is helpful at buffering depression (Hermanto et al., 2016). It is unsurprising, therefore, that compassion-based interventions are becoming increasingly used by mental health clinicians and researchers in order to reduce suffering and increase well-being for individuals who suffer with mental health difficulties (Kirby, 2016a; Seppälä et al., 2017). Although there are many compassion-based programs (Kirby, 2016a), such as Mindful Self-Compassion (Neff & Germer, 2013), Compassion Cultivation Training (Jazaieri et al., 2013), and Cognitively Based Compassion Training (Pace et al., 2013), the only specific psychotherapy model that we are aware of that directly targets the cultivation of compassion to act as the primary mechanism to alleviate suffering in populations with clinical disorders is Compassion Focused Therapy (CFT; Gilbert, 2014; Kirby & Gilbert, 2019).

In CFT, which is underpinned by evolutionary psychology and social mentality theory (Gilbert, 2019), compassion is viewed as arising from the evolved caring motivations found in mammals (Brown & Brown, 2015; Mayseless, 2016). The essence of mammalian infant caring motivation is to be attentive to the distress and needs of another (e.g., infant), and then turn towards and approach distress signals in order to help alleviate the distress, whether it be via protection, feeding, supporting or soothing (Bowlby, 1969; Gilbert, 2019; Porges, 2007). Compassion emerges from this basic mammalian caring motivation and combines complex human competencies that have evolved over the last two million years (Dunbar, 2016; Gilbert, 2019). These include the social intelligences of *knowing awareness* (i.e., ability to mentalize, have mental time travel, symbolic thinking); *empathic awareness* (i.e., insight into why we feel/think/act the way we do, and that of others); and *knowing intentionality* (i.e., deliberately choosing to cultivate specific motives and develop specific skills to enact the motive) (Dunbar, 2016; Gilbert, 2019; Kirby & Gilbert, 2017; Suddendorf, 2018).

Motives need two core processes to function successfully (Kirby & Gilbert, 2017). In the case of compassion, the first is to be able to detect signals relevant to the motive (e.g., suffering/distress), and the second is to have a signal response that helps to successfully enact the motive (e.g., some kind of behavioral repertoire). These two processes, signal detection/signal response are central to all motives, be it feeding, sexuality, harm avoidance, or competing for resources (Buss, 2014; Gilbert, 2014; Huang & Bargh, 2014). Thus, humans have an evolved motivational potential to be attentive and to take action when encountering suffering (Keltner, Kogan, Piff, & Saturn, 2014), however, like all motives (whether it be harm avoidance, sexual, competitive), it can be both facilitated and inhibited (Neel, Kenrick, White, & Neuberg, 2016).

Facilitators increase the likelihood of the motive being activated. Previous research has found many facilitators to compassion, such as engaging in meditation practices (Galante, Galante, Bekkers, & Gallacher, 2014), completing formal compassion-based programs (Kirby, 2016a), using specific compassion-based techniques such as letter-writing (Mosewich, 2013), imagery (Kelly, Zuroff, & Shapira, 2009), and using self-reassuring/friendly inner voice tones (Longe et al., 2010). Importantly, improving facilitators does not necessarily result in compassionate behavior if there are inhibitors present (Gilbert & Mascaro, 2017). Inhibitors reduce the likelihood of the motive being activated or 'turned on'. For example, there is an inherent tendency to separate into groups and discriminate based on in- and out-group biases (Loewenstein & Small, 2007; Stürmer, Snyder, Kropp, & Siem, 2006). Group biases influence compassionate responding, whereby compassion can be facilitated towards an in-group member (family, friend) and be inhibited towards an out-group member (a person who is of a different race to you; Keller & Pfattheicher, 2013; Preston, 2013; van Kleef et al., 2008). In contrast to research on facilitators, very little research has examined inhibitors to compassion, with one notable exception. There has been a growing body of work examining individuals' fears, blocks, and resistances to compassion.

2. Fears, blocks, resistances

All motivations have fears, blocks, and resistances (FBRs), and compassion is no exception (Gilbert & Mascaro, 2017). Gilbert (2010) operationalize FBRs as inhibitors that prevent compassion motivation being 'turned-on' or 'acted on', such that the signal of suffering is either not noticed by an individual or does not result in an action to alleviate said suffering. *Fears* of compassion relates to the avoidance or fear response that individuals can have to compassion, which can exist for all three directions (or flow). These include, for example, fears that compassion is a weakness or self-indulgent, or that compassionate efforts will be seen as incompetent, unhelpful, or rejected (Gilbert & Mascaro, 2017). Similarly, individuals can fear being judged as being over-reactive to another person's distress when in public spaces (Fischer et al., 2011); fear becoming too upset (personal distress) or swamped by the needs of others when engaged in compassionate acts (Vitaliano, Zhang, & Scanlan, 2003); or fear that compassion will be viewed by others as manipulative or for self-interest (Gilbert & Mascaro, 2017). *Blocks* refer to when an individual would like to be compassionate but is unable due to environmental constraints (e.g., lack of time or resources), while ignorance or lack of insight into the causes of suffering can also block compassion. According to Buddhist traditions, lack of insight into the nature of suffering and of the illusory nature of the self are key blocks to compassion (Leighton, 2003). *Resistances* refer to when the individual could be compassionate but is not. This is not due to fear, but rather because he or she sees no point to compassion, or are focused on

competitive self-advantage and thus hold onto their resources instead of sharing them. This can be a common result when one has increased power (Keltner, 2016), and is especially relevant to those with narcissistic tendencies (Basran, Pires, Matos, McEwan, & Gilbert, 2019). In an effort to understand how FBRs might influence mental health and wellbeing, Gilbert, McEwen, Matos, and Rivis (2011) developed the Fears of Compassion Scales, which was aimed to assess FBR for all three directions of compassion.

3. Fears of compassion and psychopathology

There is increasing evidence across the fields of neuroscience, physiology and developmental psychology that compassion is one of the prosocial motivations that is crucial for emotional processing and affiliative relating (Kirby, Doty, et al., 2017; Seppälä et al., 2017). Affiliative relating is critical to mental health and well-being because of its underlying physiological infrastructure (Brown & Brown, 2015; Rockliff, Gilbert, McEwan, Lightman, & Glover, 2008; Stellar & Keltner, 2017). The evolution of mammalian caregiving involving hormones, such as oxytocin, vasopressin, and the myelinated vagal nerve as part of the ventral parasympathetic system, enables humans to connect, co-regulate each other's emotions and create prosociality (Kirby, Doty, et al., 2017). CFT draws upon a number of specific exercises and strategies to stimulate these physiological processes and create conditions of "*interpersonal safeness*," thereby helping people engage with, alleviate, and prevent suffering. Hence, CFT techniques are aimed to help facilitate our evolved caring motivation, attachment, and our general affiliative systems that help regulate distress. Physiologically, they are connected to activity of the vagus nerve and corresponding adaptive heart rate variability (HRV). Studies have found that compassion imagery (Rockliff et al., 2008) and compassionate mind training can increase HRV (Matos, Duarte, & Pinto-Gouveia, 2017). Thus, if one is fearful of compassion, one loses the opportunity to experience and learn how affiliative behaviors and interpersonal social relating can be a source of soothing, connection, and calmness in times of distress and loneliness; therefore, making one more vulnerable to mental health difficulties.

To understand how fears of compassion can manifest, Gilbert (2019) draws upon evolutionary models, attachment theory and classical conditioning. For example, when a child is distressed, parental affiliative behaviors such as a warm, caring voice-tone and physical touch help regulate the child's distress, enabling secure attachments (Bowlby, 1969; Gilbert, 2014; Yaman, Mesman, van Ijzendoorn, & Bakermans-Kranenburg, 2010). However, the attachment system can close down or 'shut' if the child does not have the opportunity to learn how affiliative and affectionate behaviors help regulate distress. That is, the parasympathetic system is not activated in order to down-regulate threat processing, and this can lead to a heightened fear or anxiety towards affiliative behaviors (Porges, 2007; Thayer & Lane, 2000). Moreover, punitive parenting practices (e.g., over-reactive anger, criticism), particularly when children are joyful and loud, can also lead to a classically conditioned response for the individual, where positive emotions (e.g., joy, happiness) are paired with some form of punishment (e.g., being yelled at or physically hit in order to quiet down; Kirby, 2017). Gilbert (2014) proposes that in therapy, individuals can become quite fearful of positivity, kindness, and compassion from their therapist, as it can activate conditioned memories of aloneness, vulnerability, or shame (Gilbert, 2014). As Fig. 1 illustrates, it is hypothesized that kindness and compassion can be perceived as a source of a potential threat, due to past aversive emotional memories (e.g., neglect, trauma), thus leading to fight, flight or shut-down responses by the individual.

Despite the benefits the three directions of compassion can have for mental health and well-being (Kirby, Tellegen, & Steindl, 2017), research using CFT with clients has found that self-compassion and receiving compassion from others are especially susceptible to these hypothesized avoidant and fear reactions (Gilbert, 2010). As Gilbert and colleagues recognized (2011), the construct of fearing positive emotions or affiliative behaviors is not a new psychological phenomenon. For example, > 30 years ago, Arieti and Bemporad (1980) found that some depressed individuals were fearful of positive emotions. Extending on this work, Gilbert, McEwan, Matos, and Rivis (2011) described one client as saying, "*you should never be happy because that is the time you are off your guard and bad things can happen*" (p. 241). Many therapies (e.g., Acceptance and Commitment Therapy, Dialectical Behavior Therapy, Compassion Focused Therapy) recognize that the avoidance of emotions or experience of emotions such as anger, anxiety, sadness, and happiness (also commonly known as experiential avoidance), contributes to mental health problems (Gilbert, 2014; Hayes, Follette, & Linehan, 2004).

Fears of positive emotions and compassion can therefore be problematic, as affiliative emotions and behaviors (e.g., kindness and compassion) are major regulators of threat-based emotions (e.g., fear, anger, disgust) and social isolation (Depue & Morrone-Strupinsky, 2005; Gilbert, 2010; Mikulincer & Shaver, 2007). In one of the first studies examining this link, Rockliff et al. (2008) found that individuals with high levels of self-criticism had reduced heart-rate variability (marker of vagal tone and parasympathetic activation, with low levels indicating poor emotion regulation) when imagining a *'compassionate being'* expressing compassion to them. In contrast, individuals with low self-criticism had increased heart-rate variability (a positive physiological outcome).

4. Fears of compassion scales and mental health outcomes

In the first evaluation of group CFT for high self-critics, Gilbert and Procter (2006) noted that many participants had a fear of becoming self-compassionate. As a result of the participant feedback, Gilbert and colleagues developed the Fears of Compassion Scales (FCS; Gilbert et al., 2011). The aim of the FCS is to measure the three types of fears of compassion. The *fear of compassion for self* subscale consists of 15 items and relates to the self-compassion experienced when a mistake is made or when we experience difficulties in our lives. An example item includes, *"I fear that if I start to feel compassion and warmth for myself, I will feel overcome with a sense of loss/grief"*. The *fear of compassion for others* subscale consists of 10 items and refers to the compassion felt for other people, which is influenced by our sensitivity to their thoughts and emotions. An example item includes, "*People will take advantage of me if they see me as too compassionate.*" Lastly, the *fear of compassion from others* subscale consists of 13 items and measures the compassion we receive from other people and its resulting impact on the self. An example item includes, *"When people are kind and compassionate towards me I feel anxious or embarrassed."*

The items on FCS are rated on a five-point Likert scale from a rating of zero being "Don't agree at all" to a rating of four being "Completely agree". The FCS was developed using a sample of students (N = 222; 168 women and 54 men) from two universities, and therapists (N = 59; 49 women and 10 men) in the UK. The internal consistency of the subscales across both samples were in the high range (α = .78–.92). It was also found that both fears of compassion for self and from others were strongly associated with poor mental health symptoms, such as self-coldness, self-criticism, depression, anxiety, and stress. Gilbert et al.'s (2011) findings supported previous studies (e.g., Longe et al., 2010; Rockliff et al., 2008) where self-criticism was found to be related to fears of compassion from others.

In terms of the associations between the scales of self, other, and receiving compassion, Gilbert et al. (2011) reported a moderate to strong and significant correlation between fears of self-compassion and receiving compassion from others (r = .51–.67). However, there was a small and non-significant correlation between fears of self-compassion and compassion for others (r = .08), as well as for receiving compassion and compassion for others (r = .26). These results suggest the fears of compassion for self and receiving might be operating similarly; that is,

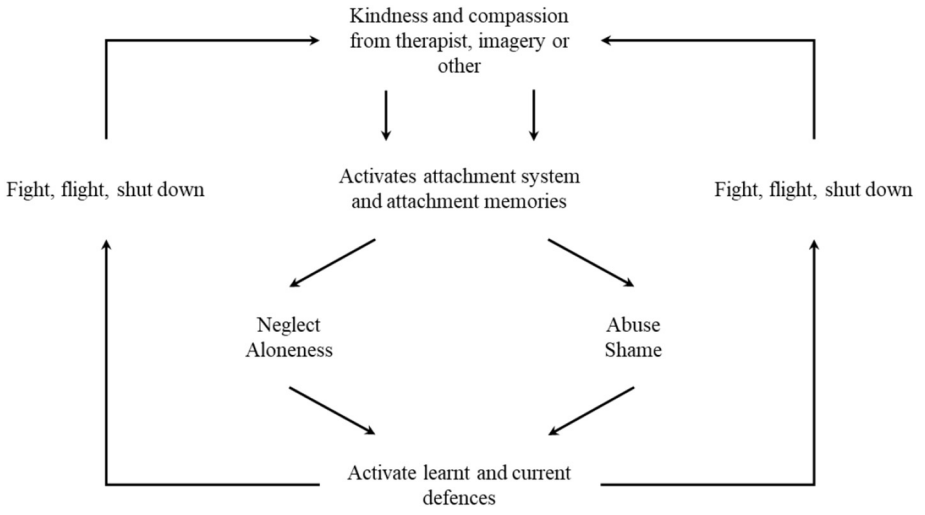

Fig. 1. A CFT perspective regarding fears of kindness and compassion, informed by attachment theory and classical conditioning. Reproduced with kind permission from Paul Gilbert (2009c) "Evolved minds and compassion-focused imager in depression", in L. Stopa (ed.), Imagery and the Threatened Self in Cognitive Therapy (pp. 206–231). London: Routledge.

the individual might have difficulty in experiencing affiliative emotions more generally from both internal (self) and external (others) sources. However, these results also indicate that the flow of compassion is experienced differently depending on the source (self, other). It follows, therefore, that each '*flow*' could have differential associations with mental health outcomes. Moreover, taking a clinical perspective, reducing the fear in one specific area, for example, self-compassion, might not generalize to reductions in other fears. An example of such a phenomenon might be a doctor who has high standards and can show extremely high levels of compassion towards others, but none towards themselves (Kirby & Gilbert, 2017). Thus, it is important to determine how each fear of compassion (self, other, receiving) is associated with mental health outcomes.

5. Aims

The aim of this meta-analysis was to synthesize for the first time all existing literature to date that has assessed the correlation between the FCS and mental health-related measures, in order to better understand their overall associations. Exploring the overall associations between fears of compassion and various psychological outcomes within the literature, including whether differential associations emerge between the three directions of fears (i.e. self, other, and receiving), has important implications for better understanding the therapeutic targets of clinical interventions. We were primarily interested in the following research questions: first, what were the average associations across studies between fears of compassion and poorer mental health outcomes; second, were there differences in how the FCS subscales (representing the flow of compassion) related to various mental health outcome domains; and third, were these associations further moderated by various study-level characteristics.

The mental health outcome variables of specific interest in this study included: (1) depression; (2) anxiety; (3) distress; and (4) well-being. We were also interested in the mental health vulnerability factors of (5) shame and (6) self-criticism. Potential moderators of interest included gender, age, sample (clinical vs. non-clinical), and publication status (published vs. unpublished). We predicted that fears of compassion for self, others and receiving would be significantly associated with negative outcomes (e.g., depression, anxiety, distress, shame, and self-criticism) and reduced well-being, and that these associations would be stronger in clinical compared to non-clinical populations. The other moderator variables of gender and age were exploratory with no a priori hypotheses. Finally, we include publication status as moderator to examine the data for evidence of publication bias.

6. Method

6.1. Protocol and registration

The review protocol was prospectively registered in PROSPERO (Kirby, Sagar, & Day, 2017), and this meta-analysis adhered to the standards of the PRISMA guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009). There was no funding for this meta-analysis.

6.2. Eligibility criteria

Studies were included based on the following eligibility criteria: (a) inclusion of the FCS based on participant self-report data; (b) correlations were reported between the FCS and mental health variables; (c) the study was written in English; (d) the study was based on an adult population; and (e) the study contributed original self-report quantitative data not reported in other studies. Studies with outcomes unrelated to these criteria (e.g., those focused on an adolescent population, or where no self-report quantitative measures were reported) were excluded.

6.3. Search strategy

On the 17th March 2018, the following databases were searched: PsycINFO; PsyArticles; PsycBooks; PubMed; ERIC; SCOPUS; Web of Science; and ProQuest Dissertations. Within these databases, all papers with the terms "fears of compassion" and "fear of compassion" appearing in any field were retrieved. Other compassion researchers, identified by the first author, were contacted via email in effort to broaden our search for eligible papers, including unpublished papers or dissertations. The studies were then screened by the first and third authors based on the title and abstract. If eligibility was unclear from the title and abstract, the full text was reviewed to consider whether the study met inclusion criteria. Any uncertainty around eligibility of specific papers was further discussed between all authors to reach agreement.

6.4. Data extraction

The first and third authors extracted study characteristics and relevant data, including: author(s); year published; publication type; sample type; sample size; gender ratio; study design; country; and measures used. For analyses, the following data were also extracted: mean age and standard deviation; internal consistency of measures (Cronbach's alpha); and correlations between measures of interest.

6.5. Statistical procedure

All analyses were conducted using the *metafor* package (Viechtbauer, 2010) within the *R* software environment (R Core Team, 2018). Effect sizes based on correlations were extracted from studies as Pearson's *r* correlation coefficients and converted to Fisher's Z_r correlations to adjust for skewed standard errors (Rosenthal, 1991). Following analysis, aggregated effect sizes were transformed back to Pearson's *r* correlations for ease of reporting and interpretation, using formulas described by Borenstein, Hedges, Higgins, and Rothstein (2009), p. 231). We adopted the view a priori that a random effects structure was best suited to the data, assuming that the underlying relationships between FCS subscales and mental health constructs would vary across studies (Borenstein et al., 2009).

We first conducted preliminary analysis of the three FCS subscales by pooling raw means and internal subscale correlations across studies, using a random effects model and inverse variance weighting (DerSimonian & Laird, 1986), which gives more prominence to studies with smaller variances (typically arising from larger sample sizes) when computing aggregate values. Given the importance of fears of compassion to clinical processes, we also explored mean differences between clinical and non-clinical samples by incorporating sample type as a dummy grouping variable.

A key issue when conducting meta-analyses is the assumption of independence of effect sizes (Stevens & Taylor, 2008). In our case, most of the included studies reported multiple correlations between one or more FCS subscales and one or more measures from our six mental health domains: (1) depression; (2) anxiety; (3) distress; (4) well-being; (5) shame; and (6) self-criticism. As these effect sizes were drawn from the same sample, this assumption of independence was violated. In other words, effect sizes from the same sample were likely to be more highly correlated with each other than effect sizes drawn from independent samples.

To accommodate this nested structure, we utilized a three-level, random effects meta-analysis framework (Cheung, 2014; Van den Noortgate, López-López, Marín-Martínez, & Sánchez-Meca, 2013; van den Noortgate, López-López, Marín-Martínez, & Sánchez-Meca, 2015). The benefit of the three-level approach is its flexibility to account for clustered data, but where the effect size covariance structure—a prerequisite for multivariate meta-analysis—is unknown. Ignoring the three-level structure increases the risk of incorrectly attributing variance and underestimating standard errors (Van den Noortgate et al., 2013). In the three-level model, the level 3 random effect term for *study* (τ_k^2) estimates the population-level between-study variability of effect sizes, with an expected mean of zero and variance $\sigma_{\tau k}^2$. The level 2 random effect (τ_{ik}) represents the within-study variability, with variance component denoted by $\sigma_{\tau ik}^2$, while the level 1 sampling variances (i.e. the variance of each individual effect size) are known, and thus fixed in the model. For meta-analysis of correlations, where sampling variances are typically not reported within the original studies, a close approximation of the level 1 sampling variance can be obtained from the study's sample size using the formula described by Higgins and Thompson (2002, see also Borenstein et al., 2009). Q and I^2 statistics were computed to provide an estimate of heterogeneity and the proportion of explained variance at each level (Cheung, 2014).

Where a single paper reported multiple studies conducted using separate cohorts or participant pools, we included these as independent studies. This ignores some potential *contextual* influences, due to studies being conducted by the same research team. However, in our view the small number of multiple cohort studies was likely to have negligible impact on findings, and was ignored to focus on the research questions of primary interest (Cheung, 2014).

A final note is that within the six mental health domains, one domain (positive well-being) was in all cases *negatively* correlated with fears of compassion. For our preliminary analyses, well-being correlations were thus converted to absolute values prior to Fisher's Z_r transformations, to avoid differences in terms of the direction of effect confounding estimates of effect size variance between mental health domains. However, for analyses incorporating mental health outcome as a fixed effect moderator (described below), the original directions of effect were retained.

To determine the average *r* for each FCS subscale across all mental health domains, we added three dummy variables representing subscale to the model, omitting the model intercept to obtain an estimate for each level.[1] We then added a *mental health domain* × *FCS subscale* interaction term to determine the average *r* within each FCS subscale and mental health domain combination.

6.6. Moderator analyses

To assess the impact of study characteristics as potential sources of heterogeneity, we conducted a series of three-level mixed effects models examining four additional moderator variables. First, we analyzed the effect of clinical status by including an interaction term between FCS subscale and the categorical variable *sample type* (clinical vs non-clinical), based on evidence that clinical groups may have difficulty with compassion-related thoughts and feelings (e.g. Gilbert, 2010; Pauley & McPherson, 2010). Second, we examined gender, expressed as the proportion of each sample that was female. Third, we included mean participant age as a moderator to assess the possibility that fears of compassion had a differential impact on mental health across ages. Fourth, we included publication status as a moderator to assess for potential publication bias. Pairwise follow-up comparisons were conducted for categorical moderators using Knapp and Hartung (2003) adjusted linear contrasts. Continuous moderator variables (*age* and *proportion female*) were mean-centered prior to entering into the model, with coefficients representing the intercept and slope of change in the mean correlation for each one-unit of increase or decrease in the moderator value. Level 3 random effects for *study* were retained to model within-study covariation in effect sizes.

We further examined the influence of moderators on the associations between FCS subscales and individual mental health domains within separate FCS subgroups, to avoid introducing three-way interaction terms to the full model (*mental health domain* × *moderator* × *FCS subscale*), given this would dramatically inflate the number of estimated parameters.

6.7. Correction for attenuation

As each study's observed effect sizes may be lower than the "true" effect size in the population due to measurement unreliability, we corrected for this attenuation by dividing extracted *r* values by a correction factor computed from each measure's coefficient alpha (i.e. $\rho = r/\sqrt{\alpha 1 * \alpha 2}$; Card, 2015). Where α was not reported in the study for either of the measures included in the correlation, we used the average α for this measure from all other studies if possible, or otherwise α from the original measure validation paper. These correlations (ρ) were converted to Fisher's *Z* values and moderator analyses re-run to estimate effect sizes after correction for attenuation. Results were converted back into the Pearson's *r* metric for reporting and presented as ρ in the relevant table.

6.8. Publication bias

To examine for evidence of publication bias and whether it may

[1] When using this approach, rather than the common practice of entering *k*–1 dummy variables to represent a categorical variable (where k is the number of category levels), *k* dummy variables are entered into the model. By omitting the model intercept, a fixed effect estimate is obtained for each level of the categorical variable.

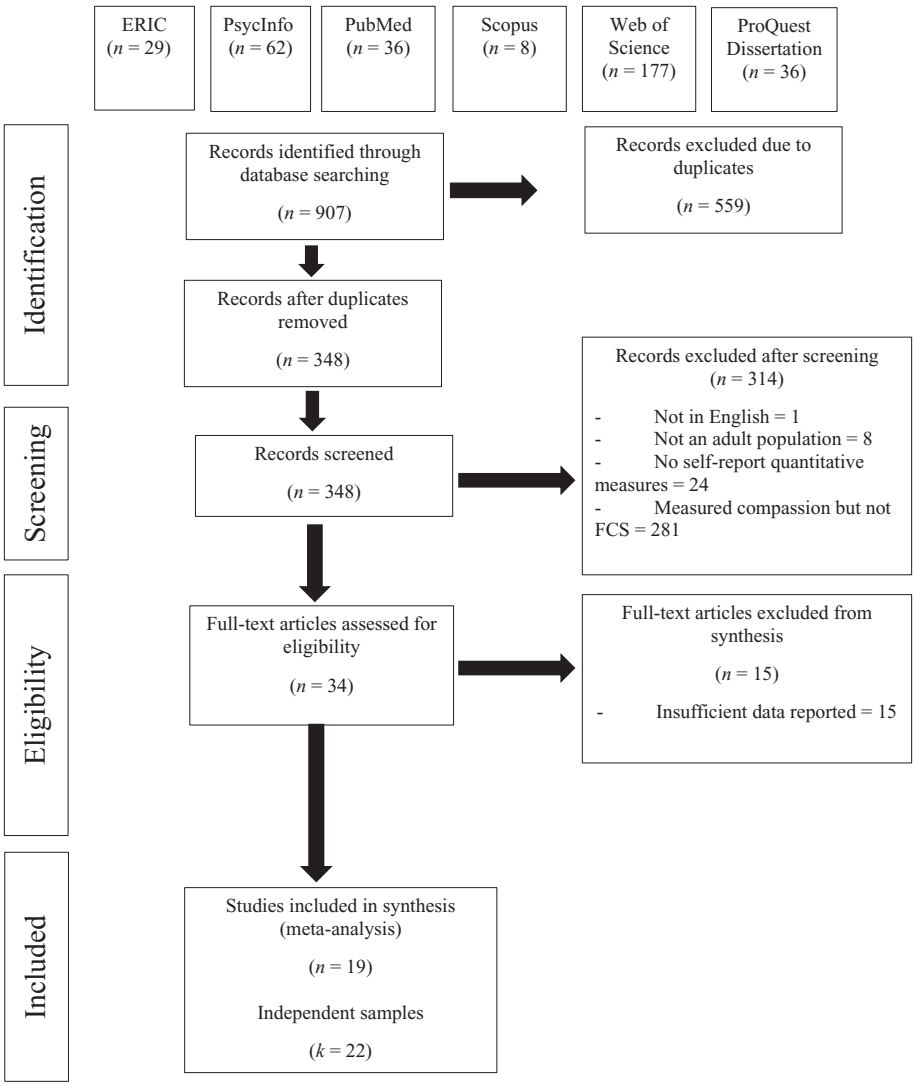

Fig. 2. PRISMA Flow Diagram of Identification and Selection of Included Studies.

have influenced effect sizes, we computed Orwin's fail-safe *N* (FSN; Orwin, 1983) from a fixed-effects analysis of effect sizes within each mental health domain and FCS subscale combination. FSN computes the number of (unpublished) studies averaging null results (i.e. $Z_r = 0$) that would be needed to reduce the average fixed-effect estimate to a negligible level (set at $Z_r = 0.10$ in the present study). As our original analyses included multiple effect sizes per study, we interpret the findings as the overall number of null effect sizes (rather than number of studies) that would be needed. For clarity, we ignored the issue of dependency in the data for this analysis.

7. Results

7.1. Study selection

The searches revealed a total of 907 papers. A total of 559 duplicated papers were removed, resulting in 348 unique papers. Following the eligibility process, 314 papers were excluded as they did not meet criteria and 15 papers reported insufficient data. See Fig. 2 for the PRISMA flow diagram showing the identification and selection of the 19 studies included in the meta-analysis. Of the 19 included studies, 1 reported results from more than one independent cohort, thus bringing the total number of unique samples included in subsequent analyses (hereafter referred to as studies) to 22.

7.2. Study characteristics

Appendix A shows raw effect sizes (Pearson's *r*) from each eligible study grouped by mental health domain. All 22 studies included in the analyses were conducted within a seven-year period (2011–2018). Seventeen studies were cross-sectional surveys and five studies were pre-intervention correlations. A total of 4723 participants were included in the studies with sample sizes ranging from 27 to 750. Five studies recruited participants from a clinical sample and 17 studies recruited a non-clinical sample of participants. The studies collected participant data from countries including: Australia; Canada; Japan; Portugal; Scotland United Kingdom; and United States of America. Two of the studies had only female participants. The overall average proportion of males across studies was 29.1% ($SD = 22.3$), and the mean participant ages ranged from 18.6 to 48.4 years, with an average of 30.5 years ($SD = 9.3$).

Unless stated otherwise, for the following analyses we use the term 'effect size' to refer to transformed Fisher's Z_r correlations, not raw (i.e. Pearson's *r*) correlations. Where Pearson's *r* correlations are presented, these have been transformed from aggregated Fisher's Z estimates using formulas provided by Borenstein et al. (2009).

Table 1
Random effects estimation of raw mean FCS subscale scores, and comparison by sample type (clinical vs non-clinical).

	M [95% CI]	Heterogeneity			Clinical	Non-clinical	Clinical vs non-clinical		
		Q (df)	*p*	I^2	M [95% CI]	M [95% CI]	*F* (df1, df2)	*p*	Residual I^2
FCS Self (k = 12)	22.24 [17.50, 26.98]	440.00 (11)	< .001	97.5%	31.56 [23.64, 39.49]	19.64 [15.52, 23.77]	8.83 (1, 10)	.014	97.2%
FCS Other (k = 8)	19.38 [15.89, 22.87]	266.51 (7)	< .001	97.4%	23.88 [16.66, 31.11]	18.27 [14.71, 21.83]	2.91 (1, 6)	.139	97.6%
FCS Receiving (k = 14)	17.30 [13.35, 21.25]	1105.00 (13)	< .001	98.8%	25.62 [18.24, 33.01]	15.28 [11.66, 18.90]	7.51 (1, 12)	.018	98.8%

Note. Column *clinical* vs *non-clinical* is a test of subgroup differences (i.e. between-group homogeneity), with $p < .05$ indicating a significant difference between groups. I^2 indicates the total or residual proportion of between-study variation attributable to heterogeneity. FCS = Fears of Compassion Scale. Total Score Range for FCS-Self = 0–60; Total Score Range for FCS-Other = 0–40; Total Score Range for FCS-Receiving = 0–52.

7.3. Pooling of FCS means and internal correlations

Table 1 shows aggregated raw means for the three FCS subscales across studies, pooled using a random effects model and inverse variance weighting (DerSimonian & Laird, 1986). Reporting of means and standard deviations was variable across the 22 studies included in the meta-analysis. Some studies omitted these descriptive statistics, while others reported alternative statistics such as item means (rather than sum score means) or used an altered version of the original scale items. For the remaining studies, where data was directly comparable, raw means were summarized across $k = 12$ studies for the FCS Self subscale; $k = 8$ studies for the FCS Other subscale; and $k = 14$ studies for the FCS Receiving subscale. There was a high degree of heterogeneity within each model (I^2 = 97.5%, 97.4% and 98.8% respectively), indicating scores varied substantially across studies subject to participant and study characteristics. Incorporating sample type as a moderator variable (clinical vs non-clinical) did little to reduce the amount of unexplained variability. However, clinical samples had significantly higher mean scores for the FCS Self ($F(1, 10) = 8.83$, $p = .014$) and FCS Receiving subscales ($F(1, 12) = 7.51$, $p = .018$); but not the FCS Other subscale ($F(1, 6) = 2.91$, $p = .139$).

Even fewer studies reported internal FCS correlations. Using the same procedure with pooled Fisher's Z correlations, transformed from the raw Pearson's r values, the average correlation for the FCS Self and FCS Others subscales reported by five studies was $r = .57$ ($Z_r = 0.65$ [95% CI: 0.47, 0.83]), Q(df = 4) = 59.65, $p < .001$. For the FCS Self and FCS Receiving subscales, the average correlation reported across five studies was $r = .71$ ($Z_r = 0.88$ [95% CI: 0.83, 0.94]), Q (df = 4) = 3.74, $p = .442$. For the FCS Others and FCS Receiving subscales, the average correlation reported across just three studies was $r = .53$ ($Z_r = 0.59$ [95% CI, 0.49, 0.70]), Q(df = 2) = 5.77, $p = .056$. With one exception, all studies reporting internal FCS correlations were conducted with non-clinical samples. It was therefore not possible to compare internal correlations based on sample type.

7.4. Three-level models for overall correlation with mental health outcomes

An initial three-level model (M1: effect sizes nested within studies) showed an average Pearson's r effect size of 0.452 ($Z_r = 0.488$ [95% CI: 0.431, 0.545]), indicating an overall moderate correlation between fears of compassion and measures associated with mental health difficulties; though there was significant heterogeneity in the correlations ($Q_{(df=153)} = 1227.56$, $p < .001$). The level 3 variance component showed significant between-study variation ($\sigma_{\tau k}^2 = 0.012$ [95% CI: 0.005, 0.027]), and there was significant within-study variation based on the level 2 variance component ($\sigma_{\tau ik}^2 = 0.017$ [95% CI: 0.013, 0.024]). A follow-up model (M0) with the level 3 study random effect constrained to zero resulted in a significantly poorer fit ($\chi^2_{(M0-M1)} = 36.99$, $p < .001$, BIC = −64.19) relative to M1 (BIC = −96.14). This confirmed that the average association between FCS and overall mental health varied across studies. We also expected significant within-study variation, given that each study contributed multiple effect sizes across FCS subscales and mental health domains; this was confirmed by the level 2 variance component. That is, there was heterogeneity in the association between the FCS and the various mental health dimensions, that was not attributable to differences between studies. Based on I^2 (Cheung, 2014), the proportion of total variance attributable to differences between studies accounted for 35.4%, while total within-study variation at level 2 proportionally accounted for 52.2% of the variance. This suggests that differences between mental health dimensions accounted for more variation than between-study differences in the average correlations of the FCS and overall mental health. The remaining 12.4% was attributable to level 1 sampling variance.

7.5. Mixed-effects model for FCS subscales

To determine the general pattern of associations between the three fears of compassion subscales and overall mental health difficulties, we estimated M2 incorporating *FCS subscale* as a fixed effect in the model. Results are shown in Table 2. Fears of self-compassion and fears of receiving compassion produced an overall similar association with general mental health ($r = .487$ and .478 respectively), while fears of compassion for others had a significantly lower association with general mental health ($r = .297$) than both FCS Self ($F(1, 151) = 64.29$, $p < .001$) and FCS Receiving ($F(1, 151) = 58.23$, $p < .001$). Level 3 variance components showed significant variation between studies ($\sigma_{\tau k}^2 = 0.007$ [95% CI: 0.003, 0.017]), accounting for 34.4% of the total variation. Variance within level 3 clusters (i.e. level 2 variance) accounted for 46.1% of the total variation ($\sigma_{\tau ik}^2 = 0.010$ [95% CI: 0.007, 0.014]). Therefore, even after accounting for differences between the three FCS subscales and their average associations with mental health (by including FCS subscale as a fixed effect in the model), differences between the mental health dimensions accounted for more variation in the average correlations than between-study differences.

7.6. Mixed-effects models for FCS subscales and mental health domains

While M2 produced average correlations across mental health outcomes for the three FCS subscales, the within-domain associations were also of interest. To investigate this, we computed M3 with fixed effects estimated for the *FCS subscale* x *mental health domain* interaction. As outlined above, *FCS subscales* were represented by three dummy variables (self, others, receiving), and *mental health domain* represented by six dummy variables (depression, anxiety, distress, wellbeing, shame, and self-criticism), with the intercept term omitted from the model. The results of M3 are shown in Table 2. There was significant residual effect size heterogeneity ($Q_{E(df=136)} = 661.33$, $p < .001$), with the level 3 variance component indicating significant variation between studies ($\sigma_{\tau k}^2 = 0.004$ [95% CI: 0.001, 0.013]), and the level 2 variance component indicating significant within-study variation ($\sigma_{\tau ik}^2 = 0.010$ [95% CI: 0.007, 0.013]). Based on I^2, 24.1% of the residual heterogeneity was attributable to between-study variance and 51.8% attributable to within-study variance not explained by mental health domain and FCS subscale. Thus, more of the unexplained variation was attributable to differences between measures of the same mental health

Table 2
Associations between fears of compassion and mental health outcomes (i = 154; k = 22).

Term	M1 (Overall)	M2 (*FCS subscale*)	M3 (*FCS subscale × MH outcome*)	ZZ_r	95% CI for Z_r		rr	ρρ
					L	*U*		
Fixed effects								
Overall	β_1			0.488	0.431	0.545	.452	.519
FCS self		β_1		0.532	0.478	0.585	.487	.541
Depression			β_1	0.566	0.478	0.654	.512	.576
Anxiety			β_2	0.413	0.310	0.517	.391	.441
Distress			β_3	0.480	0.398	0.561	.446	.507
Well-being			β_4	−0.435	−0.531	−0.339	−.409	−.477
Shame			β_5	0.460	0.325	0.595	.430	.465
Self-criticism			β_6	0.612	0.539	0.696	.549	.631
FCS Other		β_2		0.306	0.244	0.367	.297	.332
Depression			β_7	0.308	0.207	0.409	.299	.353
Anxiety			β_8	0.296	0.195	0.396	.287	.338
Distress			β_9	0.258	0.156	0.359	.252	.293
Well-being			β_{10}	−0.133	−0.247	−0.018	−.132	−.158
Shame			β_{11}	0.362	0.157	0.568	.347	.413
Self-criticism			β_{12}	0.309	0.222	0.397	.300	.351
FCS receiving		β_3		0.520	0.468	0.572	0.477	0.535
Depression			β_{13}	0.566	0.486	0.647	0.513	0.589
Anxiety			β_{14}	0.441	0.337	0.544	0.414	0.474
Distress			β_{15}	0.456	0.364	0.548	0.427	0.499
Well-being			β_{16}	−0.328	−0.429	−0.228	−.317	−.373
Shame			β_{17}	0.563	0.435	0.691	.510	.553
Self-criticism			β_{18}	0.563	0.494	0.632	.510	.597
Random effects								
Level 3: Study (σ_{rk}^2)	0.012	0.007	0.004					
Level 2: Within level 3 (σ_{rik}^2)	0.017	0.010	0.010					
Level 1: Individual (σ_{SE}^2)	0.004	0.004	0.004					
−2LogLik	−111.2554	−171.54	−187.72					
BIC	−96.14	−146.36	−86.98					

Note. i = number of unique effect sizes in the model; k = number of studies in the model. FCS = Fears of Compassion. MH = Mental Health. Z_r = Fisher's Z. r = Pearson's r transformed from Fisher's Z_r. ρ = r adjusted for attenuation.

construct from within the same study, than to differences between mental health constructs across studies. While this finding seems counterintuitive, it is worth noting that after directly accounting for FCS subscale and mental health domain in the model as fixed effects, there were very few effect sizes within any single study that examined the association between the same FCS subscale and mental health domain, via different outcome measures (see Appendix A). Thus, the small pool of nested effect sizes at level 2 may have conflated this variance estimate. We discuss this limitation below.

Fig. 3 illustrates the range of associations across FCS subscales and mental health outcome. Values are based on model-estimated Fisher's Z_r from M3, with 95% confidence intervals computed from the profile likelihoods (Hardy & Thompson, 1996). The strongest model-estimated association was between fears of self-compassion and self-criticism (r = .549 following back-transformation from Fisher's Z_r). Other associations larger than r = .50 were depression with fears of self-compassion and receiving compassion (r = .512 and .513 respectively), and between fears of receiving compassion and mental health vulnerability factors shame and self-criticism (r = .510 for each). The smallest correlation in the model (in absolute terms, not accounting for direction of effect) was between fears of compassion for others and measures of well-being (r = −.132). Other than this correlation, which was significant at p = .024, all other estimates were significantly different from zero at $p < .001$.[2]

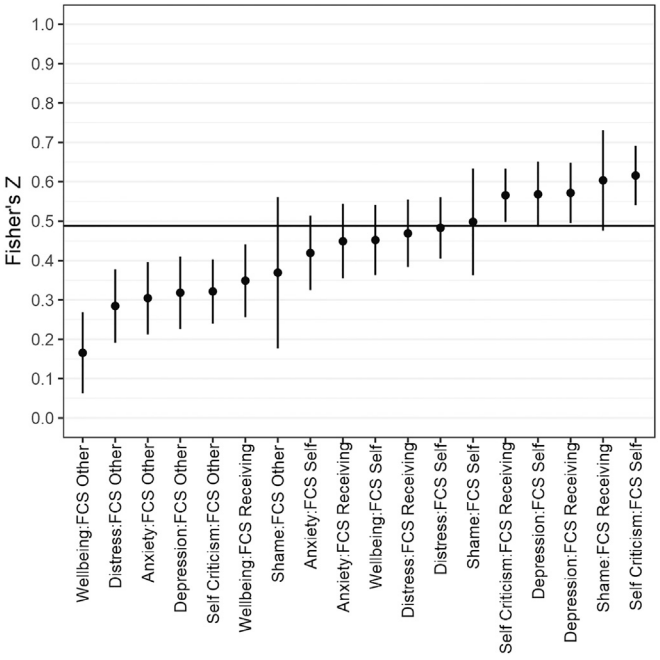

Fig. 3. Correlation estimates (Fisher's Z_r) and 95% confidence intervals based on profile likelihoods for each FCS subscale and mental health combination (Hardy & Thompson, 1996). The horizontal line shows the intercept from M1 (which contained no fixed effects moderators), representing the overall estimated correlation from the three-level random effects model. In the raw data, correlations between fears of compassion and measures of well-being were negative; these were converted to absolute values prior to pooling for easier visual comparison of the relative strength of associations.

7.7. Moderator analyses

For the overall moderator models including all effect sizes and

[2] Significance tests estimated using the Knapp and Hartung (2003) adjustment, which computes over a t statistic and produces lower Type I error rates than the standard Wald estimate.

Table 3
Moderator analyses: Fisher's Z_r estimates (with standard error) for study characteristics and publication status and results of linear contrasts.

Model and term	Clinical status		Mean age in sample		Proportion female		Publication type	
	Clinical	Non-clinical	β_0	β_1	β_0	β_1	Published	Unpublished
FCS self								
Depression	0.69 (0.12)	0.55 (0.05)	0.57 (0.04)	0.00 (0.00)	0.58 (0.04)	−0.02 (0.28)	0.56 (0.04)	0.73 (0.23)
Anxiety	0.45 (0.14)	0.40 (0.06)	0.40 (0.05)	0.01 (0.00)	0.43 (0.05)	−0.53 (0.47)	0.40 (0.05)	0.50 (0.23)
Distress	0.57 (0.08)	0.45 (0.05)	0.48 (0.04)	0.01 (0.00)	0.49 (0.04)	0.26 (0.22)	0.48 (0.04)	0.54 (0.14)
Well-being	–	−0.45 (0.05)	−0.47 (0.04)	−0.01* (0.01)	0.52 (0.11)	−0.80 (1.09)	−0.43 (0.05)	−0.53 (0.14)
Shame	0.63 (0.12)	0.31* (0.08)	0.59 (0.09)	−0.06** (0.02)	0.52 (0.10)	0.43 (0.28)	0.77 (0.16)	0.34* (0.07)
Self-criticism	–	0.62 0.04)	0.64 (0.04)	0.01 (0.00)	0.65 (0.08)	−0.23 (0.90)	0.60 (0.04)	0.76 (0.10)
Random effects								
Level 3: Study (σ_{rk}^2)	0.003		0.002		0.005		0.002	
Level 2: Within-study (σ_{rik}^2)	0.010		0.006		0.008		0.010	
Level 1: Individual (σ_{SE}^2)	0.004		0.005		0.005		0.004	
BIC	−15.91		−18.05		−10.74		−9.78	
−2LogLik	−64.43		−74.65		−67.35		−66.38	
FCS other								
Depression	0.39 (0.21)	0.29 (0.04)	0.30 (0.03)	0.00 (0.00)	0.29 (0.03)	0.16 (0.32)	0.29 (0.04)	0.39 (0.23)
Anxiety	0.42 (0.21)	0.27 (0.04)	0.27 (0.03)	0.01 (0.00)	0.27 (0.03)	−0.03 (0.32)	0.27 (0.04)	0.42 (0.21)
Distress	0.16 (0.20)	0.25 (0.04)	0.24 (0.03)	0.01* (0.00)	0.23 (0.04)	0.19 (0.29)	0.25 (0.04)	0.16 (0.20)
Well-being	–	−0.14 (0.04)	−0.13 (0.03)	−0.01*** (0.00)	0.18 (0.13)	−0.31 (1.26)	−0.14 (0.04)	–
Shame	0.48 (0.14)	0.27 (0.10)	0.19 (0.13)	0.09 (0.07)	0.27 (0.08)	−0.36 (0.28)	0.27 (0.10)	0.48 (0.14)
Self-criticism	–	0.28 (0.03)	0.28 (0.02)	0.00 (0.00)	0.22 (0.06)	0.65 (0.72)	0.28 (0.03)	–
Random effects								
Level 3: Study (σ_{rk}^2)	0.000		0.000		0.003		0.000	
Level 2: Within-study (σ_{rik}^2)	0.003		0.000		0.000		0.003	
Level 1: Individual (σ_{SE}^2)	0.004		0.005		0.004		0.004	
BIC	−31.55		−48.53		−41.07		−31.55	
−2LogLik	−75.21		−99.45		−92.00		−75.21	
FCS receiving								
Depression	0.73 (0.15)	0.55 (0.05)	0.56 (0.04)	0.00 (0.00)	0.56 (0.04)	0.01 (0.27)	0.55 (0.04)	0.83 (0.24)
Anxiety	0.45 (0.15)	0.43 (0.06)	0.43 (0.05)	0.00 (0.00)	0.45 (0.05)	−0.32 (0.46)	0.44 (0.06)	0.49 (0.24)
Distress	0.63 (0.10)	0.41 (0.06)	0.45 (0.04)	0.01* (0.00)	0.48 (0.05)	−0.17 (0.29)	0.46 (0.05)	0.50 (0.23)
Well-being	–	−0.33 (0.06)	−0.35 (0.05)	−0.02** (0.01)	0.38 (0.10)	−0.53 (1.00)	−0.30 (0.06)	−0.43 (0.15)
Shame	0.65 (0.17)	0.50 (0.07)	0.76 (0.11)	−0.08* (0.03)	0.60 (0.08)	0.29 (0.22)	0.74 (0.13)	0.45 (0.08)
Self-criticism	–	0.55 (0.04)	0.57 (0.03)	0.00 (0.00)	0.53 (0.04)	0.26 (0.30)	0.55 (0.04)	0.62 (0.11)
Random effects								
Level 3: Study (σ_{rk}^2)	0.003		0.003		0.009		0.004	
Level 2: Within-study (σ_{rik}^2)	0.012		0.007		0.006		0.011	
Level 1: Individual (σ_{SE}^2)	0.004		0.005		0.004		0.004	
BIC	−15.63		−23.32		−20.46		−8.56	
−2LogLik	−64.56		−80.40		−77.55		−65.65	

Note. β_0 = Intercept; β_1 = Slope. * = Indicates linear contrast t statistic for comparison between categorical moderators (using Knapp and Hartung (2003) adjustment), or slope estimate (for continuous moderators), was significant at the $p < .05$ level; **significant at the $p < .01$ level; ***significant at the $p < .001$ level.

Table 4
Orwin's Fail-Safe N (Orwin, 1983) (i.e. 'file-drawer' analysis) for mental health variables and FCS subscales.

FCS subscale	Mental health variable	Number of null results needed
FCS self	Depression	49
	Anxiety	23
	Distress	57
	Well-being	26
	Shame	21
	Self-criticism	62
FCS other	Depression	14
	Anxiety	14
	Distress	10
	Well-being	1
	Shame	10
	Self-criticism	16
FCS receiving	Depression	59
	Anxiety	24
	Distress	40
	Well-being	15
	Shame	27
	Self-criticism	77

Note. Target value for Orwin's Fail-Safe N set at $Z_r = 0.10$.

studies, there was a significant difference in effect sizes for the FCS Self subscale between clinical ($Z_r = 0.580$ [95% CI: 0.400, 0.761]) and non-clinical ($Z_r = 0.355$ [95% CI: 0.260, 0.451]) samples, $t(148) = -2.18$, $p = .031$. There were no differences between clinical and non-clinical samples in terms of pooled effect sizes for the FCS Other ($p = .344$) or FCS Receiving ($p = .073$) subscales, and no significant overall moderation effects of participant age or gender ratio for any of the three FCS subscales.

Table 3 shows results from the series of smaller models (i.e. using a subset of effect sizes for each FCS subscale) estimated to examine the influence of study characteristics at the level of individual mental health domains. These are reported in more detail below.

7.8. Sample type

For individual mental health domains, as shown in Table 3 there was a significantly lower average association between the FCS Self subscale and measures of shame in the non-clinical condition ($Z_r = 0.313$ [95% CI: 0.151, 0.474]) relative to the clinical condition ($Z_r = 0.626$ [95% CI: 0.392, 0.859]), $t(47) = -2.22$, $p = .032$. This comparison was based on effect sizes from only two studies with each reporting three effect sizes relating to shame. None of the other linear contrasts comparing clinical and non-clinical correlations were significant at the $p < .05$ level.

7.9. Participant age

For participant age, the slope estimates in Table 4 show the change in Fisher's Z correlations for every unit increase in age. Within each FCS subscale, mean sample age was a significant predictor of its correlation with measures of well-being. Studies with an older mean participant age showed a stronger negative association between wellbeing and FCS (FCS Self: $B = -0.012$, SE = 0.005, $t(45) = -2.35$, $p = .023$; FCS Others: $B = -0.014$, SE = 0.004, $t(26) = -3.92$, $p < .001$; FCS Receiving: $B = -0.019$, SE = 0.006, $t(47) = -3.22$, $p = .002$). In other words, as the average age of participants increased across studies, FCS scores were more strongly associated with lower well-being scores.

Conversely, for both FCS Self and FCS Receiving, increases in mean sample age predicted a significantly smaller correlation with measures of shame ($B = -0.064$, SE = 0.024, $t(45) = -2.70$, $p = .010$; and $B = -0.081$, SE = 0.033, $t(47) = -2.47$, $p = .017$ respectively). Increased sample age also significantly predicted larger correlations with measures of distress for FCS Other ($B = 0.008$, SE = 0.003, $t(26) = -2.55$, $p = .017$; and FCS Receiving ($B_1 = 0.009$, SE = 0.004, $t(47) = 2.02$, $p = .049$).

7.10. Participant gender

Participant gender (i.e. proportion of each study that was female) was not a significant predictor for any of the correlations between FCS subscales and mental health variables.

7.11. Publication bias

For the full model there were no differences in associations between overall mental health difficulties and FCS subscales according to publication status. However, comparison across individual mental health domains within FCS subscales showed a significantly smaller correlation between fears of self-compassion and measures of shame in unpublished studies (published: $Z_r = 0.772$, SE = 0.165; unpublished: $Z_r = 0.345$, SE = 0.069), $t(45) = -2.389$, $p = .021$. We note that this comparison incorporated six effect sizes, with five drawn from two unpublished studies and only one published effect size. There were no other significant differences in model-estimated correlations based on publication status.

7.12. Orwin's fail-safe N

Orwin's fail-safe *N* (FSN) was used to further evaluate the studies for evidence of publication bias or the 'file drawer' problem. Results are presented in Table 4. There was an FSN of 1 for the correlation between the FCS Other subscale and well-being measures, based on a fixed-effects estimate in this study of $Z_r = -0.115$ (from pooling five correlations), and an FSN target value of $Z_r = |0.10|$ representing a negligible association. This suggests that only one hypothetical study, showing a null association between the FCS Other subscale and a measure of well-being (i.e. $Z_r = 0$), would be needed to reduce the average, pooled effect size to a negligible level ($Z_r = -.10$, after taking the direction of effect into account). Thus, there is limited evidence that the pooled association between the FCS Other subscale and well-being measures that we reported from the currently available literature is robust to the file-drawer problem. For the remaining outcomes, the number of null effect sizes required to reduce the estimated average effect to a negligible level of $Zr = 0.10$ ranged between 10 and 77, suggesting the other pooled associations reported in this study are more robust to the file-drawer problem.

8. Discussion

This was the first meta-analysis to evaluate associations between the FCS and mental health outcomes and psychological functioning. Overall, meta-analyses were performed on data from 22 studies, containing 4723 participants, and conducted over a period of seven years. Studies included both clinical and non-clinical participants from seven countries (Australia, Canada, Japan, Portugal, Scotland, United Kingdom, and the United States of America). In terms of summary statistics, we found that studies using a clinical population had significantly higher mean scores on the FCS Self and Receiving subscales, while there were no differences for the FCS Other subscale.

Consistent with our predictions we found significant moderate effect sizes for the relationships between fears of self-compassion and overall mental health outcomes (depression, anxiety, distress, and wellbeing) and vulnerability factors (shame and self-criticism). The associations with fears of receiving compassion were similar, while for fears of compassion for others there was a significant but small pooled correlation. Associations for each FCS subscale and individual mental health domain resulted in effect sizes ranging between $r = .13$ to .55. The strongest associations were found for the FCS subscales of fears of self-compassion and fears of receiving compassion, with the mental health factors of shame, self-criticism, and depression. As highlighted in Fig. 3, fears of compassion for others consistently had the lowest associations overall with mental health difficulties and vulnerability factors. Overall, these findings suggest that in terms of the '*flow*' of compassion, fears of self-compassion and fears of receiving compassion tend to have the greatest impact on mental health.

In line with the above, our hypothesis that associations would be stronger in clinical populations relative to non-clinical populations was only partially supported. In the full model, there was a significant difference between clinical and non-clinical populations in terms of the association with overall mental health difficulties and vulnerability factors for the FCS Self subscale; but no difference for the FCS Other or Receiving subscales. When contrasted within individual mental health domains, pairwise comparisons indicated that the association between FCS Self and shame variables was significantly higher for clinical populations, whereas there was no difference for the other individual domains.

We found no other moderation effects for mental health difficulties overall, however comparisons across domains within individual FCS subscales showed some evidence that participant age moderated the FCS's association with wellbeing, shame, and distress. In studies that had an older mean participant age, we found a significantly stronger (i.e. more negative) association with well-being measures across all FCS subscales, suggesting that the link between fears of compassion and poor wellbeing tended to be stronger for older participants. We also found a significantly stronger positive association between distress measures and the FCS Other and Receiving subscales in studies with older participants. Conversely, for the FCS Self and Receiving subscales, the association with measures of shame became significantly weaker in studies that had an older mean participant age. While these findings suggest some trends that may have interesting implications for clinical work, these models incorporated a smaller subset of the extracted FCS effect sizes, and as such should be interpreted with caution until further studies can be conducted to verify obtained findings.

Regarding publication bias, Orwin's failsafe *N* indicated that the findings were largely robust and unlikely to be heavily influenced by publication bias. However, the *N* was quite low for the association between fears of compassion for others and measures of well-being, given that the pooled correlation for this domain ($r = -.13$) was already close to the threshold value ($r = .10$). We also found a significant difference in effect size between published and unpublished studies for the association between fears of self-compassion and shame, although with only six effect sizes contributing to this comparison (three published, three unpublished), the available sample is too small to draw sound conclusions about publication bias.

There are five key findings based on our results. First, we found the FCS are significantly correlated with mental health and wellbeing. Examining fears of compassion is clinically important in case

formulations and the implementation of compassion-based interventions, which are becoming increasingly popular (Kirby, 2016a). Second, it is the fear of receiving and being self-compassionate that are most strongly associated with poorer mental health, indicating that these might be operating similarly, despite coming from internal (self) and external (others) sources. Third, when introducing compassion-based approaches with clients, therapists need to be cognizant that new experiences of compassion can activate a threat-based response of fear. Therefore, in clinical work it can be useful to explore a client's perception of compassion before starting to implement compassion-based interventions. The fourth key finding is that when measuring compassion, commonly the direction of compassion is not explicitly specified. Indeed, Strauss et al. (2016) concluded that many measures only assess for compassion as a global construct or focus on one direction (e.g., self). This meta-analysis found that depending on flow, the effect sizes of the associations varied, indicating one can be high in one direction (e.g., others) and low in another direction (e.g., self). This was further confirmed with the average correlations between the directions of self, other, and receiving. Unfortunately, the Strauss et al. (2016) review of self-report measures of compassion did not include the Fears of Compassion Scales, due to the eligibility criteria for the review excluding measures that assessed barriers to feeling compassion. When one views compassion as a motive, it is crucial to examine both facilitators and inhibitors to compassion, as focusing only on facilitators is not sufficient to enable compassion to manifest. Indeed, as this meta-analysis has found, inhibitors to compassion have a major impact on mental health. Finally, this is the first time average means and standard deviations on the FCS have been evaluated across samples of clinical and non-clinical populations, thus helping with future measurement of clinical and reliable change scores for intervention research.

9. Strengths and limitations

A strength of our study was the use of a three-level approach to modelling the relationships between the three fears of compassion subscales and a range of overlapping mental health domains and vulnerability factors, where multiple effect sizes are often reported within a single study. As this violates the meta-analysis assumption of independence, by using a three-level approach we were able to account for this non-independence by clustering effect sizes within studies. A further advantage of this approach is that contrary to multivariate meta-analysis, it can be applied when the within-study covariances are not known, as was the case here (Van den Noortgate et al., 2013). We also examined a range of moderators to determine differential responding, finding that clinical status of the sample, mean age, and publication status had some influences on the associations between the FCS and mental health outcomes.

As our statistical analyses were restricted to self-report measures and correlations, this meta-analysis is not without limitations. First, as the FCS is a self-report measure, responses may be susceptible to some social desirability responding. This highlights the importance of progressing beyond self-report to more objective measurement approaches in clinical research studies examining compassion. For example, physiological measurements such as heart rate variability are increasingly being suggested as viable options for the assessment of compassion (Kirby, Doty, et al., 2017). However, for this study we could not include important studies that have examined fears of compassion using physiological measurements such as heart rate variability (e.g., Matos et al., 2017). We were therefore unable to explore how fears, blocks, and resistances to compassion impact on the physiological infrastructures that have been identified as central to compassion, such as the myelinated vagal nerve, the parasympathetic system, and heart rate variability (Stellar & Keltner, 2017). Second, due to the correlational nature of the meta-analysis we could not examine for causal relationships or directions of effect between psychopathology and fears of compassion. Likewise, we were unable to assess the degree to which our results reflect state effects, or whether fears of compassion are reduced as people recover from psychopathology during the course of treatment and the link. These are important areas to examine through future randomized clinical trials and meta-analysis studies. Third, we urge some caution when interpreting our findings due to the small number of effect sizes available for some analyses, particularly regarding our investigation of moderators of the associations between FCS and specific mental health dimensions. While we made every effort to obtain a comprehensive dataset from all available published and unpublished studies examining these associations, research into clinical implications of fears of compassion is still largely in its infancy. As research continues, it will be important to either replicate or extend our findings through future meta-analyses that can draw on a larger pool of studies. Finally, we were unable to assess for cross-cultural differences, which is another important topic for future studies.

10. Implications

The results of this meta-analysis suggest that individuals with fears of compassion are vulnerable to a range of mental health difficulties. Importantly, fears of compassion act as an inhibitor to compassion, which can influence an individual's vulnerability to mental health difficulties, the intensity of symptoms experienced, and possibly the recovery from psychopathology. A key finding of this meta-analysis is that while there is considerable research on compassion facilitators and their link to mental health, far less research has focused on the inhibitors. This study suggests that these early measures of compassion inhibitors are highly linked to self-report measures of psychopathology. In addition, and as our data demonstrates, compassion to others and from others should not be seen as equivalent. Moreover, it is possible that fears of compassion to others is linked to dimensions of prosocial versus antisocial behavior, rather than psychopathology (Basran et al., 2019). Although not compared statistically in this study, as shown in Fig. 3 we found that fears of compassion for self and receiving compassion generally had the strongest associations with depression, shame and self-criticism. The associations with anxiety were generally smaller, as were the correlations for fears of compassion for others. With regards to anxiety, it is also unclear whether associations differ for individuals with social anxiety disorder relative to those with specific phobias or generalized anxiety disorder. Further research is needed to determine whether there are indeed any statistically or clinically meaningful differences arising between these psychological difficulties, and to identify the psychological mechanisms that might lead to such differences.

Clinically, with the increasing use of compassion-based interventions (Kirby, Tellegen, & Steindl, 2017), it is important that therapists are aware that some individuals will respond unfavorably to the introduction of compassion or kindness-based interventions. From a CFT perspective, any fear that has emerged to compassion and affiliative connecting has likely been an adaptive reaction to a form of threat in one's past or current environment (e.g., trauma, abuse, neglect). Unfortunately when it comes to clinical practice there can be a tendency for clinicians when working with patients who fear compassion to then avoid compassion altogether as part of the course of therapy (Gilbert, 2010; Steindl, Kirby, & Tellegen, 2018). However, we would caution against this, and suggest that despite patients being fearful of compassion, compassion is likely to be the key therapeutic target that needs to be addressed. Exposure to threatening situations, such as being outside of the home alone and where escape is difficult, is likely to cause fear and anxiety for the patient. However, the short-term suffering experienced by being exposed to such situations is not purposeless, rather it is *purposeful*, as exposure is necessary to reduce the fear response and to help the client shift beliefs and physiological responses about the dangers associated with these contexts (e.g., being outside of the home). The same holds for fears of compassion. As our meta-analysis demonstrates, individuals fearful of compassion are at risk for a range of mental health problems. Moreover, being fearful of and

avoiding compassion results in individuals losing access to specific evolved physiological and psychological mechanisms designed to help them. Therefore, we suggest assessing for the client's understanding of compassion and also whether he/she fears compassion, by discussing this in therapy or through administering the FCS. In addition, motivational interviewing techniques can be useful at exploring fears, block and resistances to compassion and to help engage in compassionate motivation as part of the therapeutic process with clients (Steindl et al., 2018).

Gilbert (2010) has also proposed that compassion from others and self-compassion can trigger feelings of grief, resulting from a need for affection and care from significant others that has been absent in the past. Thus, refinements of the FCS could examine how different types of fears of compassion may influence outcomes. For example, the fear of being overwhelmed by receiving compassion, compared to a fear of guilt obligation, would be an important differential fear processes to explore.

In terms of measurement implications, the current version of the FCS may inadequately address the subtle differences between genuine fears, blocks, and resistances to compassion. For example, an item about "*wanting others to be kind to oneself is a weakness*" may not reflect a fear; instead, this may be viewed as being unhelpful due to over-competitive environments where self-interest is key. The next generation of measures that aim to assess inhibitors of compassion should focus on further refining such differences between fears, resistances, and blocks with greater clarity.

11. Future research

Based on this meta-analysis, there are a number of recommendations that could improve our understanding of the effects of fears of compassion on mental health. First, we encourage further development of clinical measures that are able to clearly differentiate between fears, blocks, and resistances. Second, although age was a moderator in our analyses, research to date has largely focused on people aged between 18 and 45 years; thus, it is unknown how fears of compassion might look in older adults or younger children. Third, cross-cultural evaluation would be useful. For example, a recent validation study by Asano et al. (2017) found the FCS had a different factor structure when administered to a Japanese sample, suggesting that these resistances might be tapping into avoidance of compassion, rather than fears of compassion. Fourth, future research could examine the relationship between fears of compassion with submissive compassion. Submissive compassion refers to acting compassionately towards others in order to be liked, or not rejected by others. Both fears of compassion and submissive compassion are highly correlated with negative mental health outcomes, but little is known about the interrelationship between these two dimensions (Catarino, Gilbert, McEwan, & Baiao, 2014). Fifth, it would also be useful to determine in future research if targeting one specific flow of compassion is more therapeutically useful. To date, self-compassion has received the most attention in the literature; however, receiving compassion or giving compassion to others might be a more useful starting point for some individuals, such as those who find self-compassion particularly difficult. Indeed, research that aims to assess how each dimension of the flow of compassion uniquely contributes to mental health outcomes would be of great interest.

12. Conclusion

This is the first meta-analysis to synthesize all existing literature that has used the FCS to assess its correlation with mental health outcomes. The results suggest that all three fears of compassion have a significant correlation with all mental health outcomes. Fear of self-compassion had the largest correlations with self-criticism and well-being, and fear of compassion from others had the largest correlation for shame, closely followed by depression, and then self-criticism.

Disclosure

Statement 1: There was no funding for the present research

Statement 2: Authors A and B designed the study and wrote the protocol. Author C conducted literature searches and provided summaries of previous research studies. Author B conducted the statistical analysis. Author A wrote the first draft of the manuscript and all authors contributed to and have approved the final manuscript.

Statement 3: All authors declare that they have no conflicts of interest

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cpr.2019.03.001.

References

Arieti, S., & Bemporad, J. R. (1980). The psychological organization of depression. *The American Journal of Psychiatry, 137*, 1360–1365. https://doi.org/10.1176/ajp.137.11.1360.

Asano, K., Tsuchiya, M., Ishimura, I., Lin, S., Matsumoto, Y., Miyata, H., ... Gilbert, P. (2017). The development of fears of compassion scale Japanese version. *PLoS One, 12*(10), e0185574. https://doi.org/10.1371/journal.pone.0185574.

Basran, J., Pires, C., Matos, M., McEwan, K., & Gilbert, P. (2019). Styles of leadership, fears of compassion, and competing to avoid inferiority. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2018.02460.

Borenstein, M. H., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis.* Hoboken, NJ: Wiley.

Bowlby, J. (1969). *Attachment and loss* (2nd ed.). New York, NY: Basic Books.

Breines, J. G., & Chen, S. (2012). Self-compassion increases self-improvement motivation. *Personality and Social Psychology Bulletin, 38*(9), 1133–1143. https://doi.org/10.1177/0146167212445599.

Brown, S. L., & Brown, R. M. (2015). Connecting prosocial behaviour to improved physical health: Contributions from the neurobiology of parenting. *Neuroscience & Biobehavioral Reviews, 55*, 1–17. https://doi.org/10.1016/j.neubiorev.2015.04.004.

Buss, A. H. (2014). *Personality: Evolutionary heritage and human distinctiveness.* New York, NY: Psychology Press.

Card, N. A. (2015). *Applied meta-analysis for social science research.* New York, NY: Guilford Publications.

Carter, C. S. (2014). Oxytocin pathways and the evolution of human behavior. *Annual Review of Psychology, 65*, 17–39.

Catarino, F., Gilbert, P., McEwan, K., & Baiao, R. (2014). Compassion motivations: Distinguishing submissive compassion from genuine compassion and its association with shame, submissive behavior, depression, anxiety and stress. *Journal of Social and Clinical Psychology, 33*, 399–412. https://doi.org/10.1521/jscp.2014.33.5.399.

Cheung, M. W.-L. (2014). Modeling dependent effect sizes with three-level meta-analyses: A structural equation modeling approach. *Psychological Methods, 19*, 211–229. https://doi.org/10.1037/a0032968.

R Core Team (2018). *R: A language and environment for statistical computing.* Vienna, Austria: R Core Team. Retrieved from https://www.r-project.org/.

Cozolino, L. (2006). *The neuroscience of human relationships: Attachment and the developing social brain.* New York: W. W. Norton.

Crocker, J., & Canevello, A. (2012). Consequences of self-image and compassionate goals. In P. G. Devine, & A. Plant (Vol. Eds.), *Advances in experimental social psychology. Vol. 45. Advances in experimental social psychology* (pp. 229–277). New York, NY: Elsevier.

van den Noortgate, W., López-López, J. A., Marín-Martínez, F., & Sánchez-Meca, J. (2013). Three-level meta-analysis of dependent effect sizes. *Behavior Research Methods, 45*, 576–594. https://doi.org/10.3758/s13428-012-0261-6.

van den Noortgate, W., López-López, J. A., Marín-Martínez, F., & Sánchez-Meca, J. (2015). Meta-analysis of multiple outcomes: A multilevel approach. *Behavior Research Methods, 47*, 1274–1294. https://doi.org/10.3758/s13428-014-0527-2.

Depue, R. A., & Morrone-Strupinsky, J. V. (2005). A neurobehavioral model of affiliative bonding: Implications for conceptualizing a human trait of affiliation. *The Behavioural and Brain Sciences, 28*, 313–350. https://doi.org/10.1017/S0140525X05000063.

DerSimonian, R., & Laird, N. (1986). Meta-analysis in clinical trials. *Controlled Clinical Trials, 7*(3), 177–188. https://doi.org/10.1016/0197-2456(86)90046-2.

Dunbar, R. I. M. (2016). The social brain hypothesis and human evolution. *Oxford research encyclopedia of psychology.*. https://doi.org/10.1093/acrefore/9780190236557.013.44.

Ebert, A., Edel, M. A., Gilbert, P., & Brüne, M. (2018). Endogenous oxytocin is associated with the experience of compassion and recalled upbringing in Borderline Personality Disorder. *Depression and Anxiety, 35*, 50–57. https://doi.org/10.1002/da.22683.

Finlay-Jones, A. L. (2017). Compassion in clinical practice: Current applications and new directions. *Clinical Psychologist, 21*, 59–61. https://doi.org/10.1111/cp.12133.

Fischer, P., Krueger, J. I., Greitemeyer, T., Vogrincic, C., Kastenmüller, A., Frey, D., ... Kainbacher, M. (2011). The bystander-effect: A meta-analytic review on bystander intervention in dangerous and non-dangerous emergencies. *Psychological Bulletin, 137*, 517–537. https://doi.org/10.1037/a0023304.

Galante, J., Galante, I., Bekkers, M. J., & Gallacher, J. (2014). Effect of kindness-based

meditation on health and well-being: A systematic review and meta-analysis. *Journal of Consulting and Clinical Psychology, 82*, 1101–1114. https://doi.org/10.1037/a0037249.
Gilbert, P. (2009). Evolved minds and compassion-focused imager in depression. In L. Stopa (Ed.). *Imagery and the threatened self in cognitive therapy* (pp. 206–231). London: Routledge.
Gilbert, P. (2010). *Compassion focused therapy: Distinctive features.* London, UK: Routledge.
Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology, 53*, 6–41. https://doi.org/10.1111/bjc.12043.
Gilbert, P. (2019). Explorations into the nature and function of compassion. *Current Opinion in Psychology, 28*, 108–114. https://doi.org/10.1016/j.copsyc.2018.12.002.
Gilbert, P., & Mascaro, J. (2017). Compassion fears, blocks, and resistances: An evolutionary investigation. In E. Sappla, & J. Doty (Eds.). *Handbook of compassion* (pp. 399–416). New York, NY: Oxford University Press.
Gilbert, P., McEwan, K., Matos, M., & Rivis, A. (2011). Fears of compassion: Development of three self-report measures. *Psychology and Psychotherapy: Theory, Research and Practice, 84*, 239–255. https://doi.org/10.1348/147608310X526511.
Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. *Clinical Psychology & Psychotherapy, 13*, 353–379. https://doi.org/10.1002/cpp.507.
Hardy, R. J., & Thompson, S. G. (1996). A likelihood approach to meta-analysis with random effects. *Statistics in Medicine, 15*(6), 619–629. https://doi.org/10.1002/(SICI)1097-0258(19960330)15:6<619::AID-SIM188>3.0.CO;2-A.
Hayes, S. C., Follette, V. M., & Linehan, M. M. (Eds.). (2004). *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition.* New York: Guilford Press.
Hermanto, N., Zuroff, D. C., Kopala-Sibley, D. C., Kelly, A. C., Matos, M., Gilbert, P., & Koestner, R. (2016). Ability to receive compassion from others buffers the depressogenic effect of self-criticism: A cross-cultural multi-study analysis. *Personality and Individual Differences, 98*, 324–332. https://doi.org/10.1016/j.paid.2016.04.055.
Higgins, J. P. T., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine, 21*(11), 1539–1558. https://doi.org/10.1002/sim.1186.
Huang, J.Y., & Bargh, J. A. (2014). The selfish goal: Autonomously operating motivational structures as the proximate cause of human judgment and behaviour. Behavioral and Brain Sciences, 37, 121–175. doi: https://doi.org/10.1017/S0140525X13000290.
Jazaieri, H., Jinpa, G. T., McGonigal, K., Rosenberg, E. L., Finkelstein, J., Simon-Thomas, E., ... Goldin, P. R. (2013). Enhancing compassion: A randomized controlled trial of Compassion Cultivation Training Program. *Journal of Happiness Studies, 14*, 1113–1126. https://doi.org/10.1007/s10902-012-9373-z.
Keller, J., & Pfattheicher, S. (2013). The compassion-hostility paradox: The interplay of vigilant, prevention-focused self-regulation, compassion, and hostility. *Personality and Social Psychology Bulletin, 39*, 1518–1529. https://doi.org/10.1177/0146167213499024.
Kelly, A. C., Zuroff, D. C., & Shapira, L. B. (2009). Soothing oneself and resisting self-attacks: The treatment of two intrapersonal deficits in depression vulnerability. *Cognitive Therapy and Research, 33*, 301–313. https://doi.org/10.1007/s10608-008-9202-1.
Keltner, D. (2016). *The power paradox: How we gain and lose influence.* London: Allen Lane.
Keltner, D., Kogan, A., Piff, P. K., & Saturn, S. R. (2014). The sociocultural appraisals, values, and emotions (SAVE) framework of prosociality: Core processes from gene to meme. *The Annual Review of Psychology, 65*, 425–460.
Kirby, J. N. (2016a). Compassion interventions: The programs, the evidence, and implications for research and practice. *Psychology and Psychotherapy: Theory, Research and Practice*. https://doi.org/10.1111/papt.12104.
Kirby, J. N. (2017). Compassionate parenting: The role of compassion in parenting. In J. Doty, & E. Seppala (Eds.). *The handbook of compassion science* (pp. 312–342). Oxford, England: Oxford University Press.
Kirby, J. N., & Gilbert, P. (2019). Commentary Regarding Wilson et al. (2018) "Effectiveness of 'Self-Compassion' Related Therapies: a Systematic Review and Meta-analysis." All Is Not as It Seems. *Mindfulness*. https://doi.org/10.1007/s12671-018-1088-8.
Kirby, J. N., Doty, J., Petrocchi, N., & Gilbert, P. (2017). The current and future role of heart rate variability for assessing and training compassion. *Frontiers in Public Health, 5*, 40. https://doi.org/10.3389/fpubh.2017.00040.
Kirby, J. N., & Gilbert, P. (2017). The emergence of the compassion focused therapies. In P. Gilbert (Ed.). *Compassion: Concepts, research and applications* (pp. 258–285). Abingdon, UK: Routledge Ltd.
Kirby, J., Sagar, V., & Day, J. (2017). *A meta-analysis on the fears of compassion scales with mental health outcomes and psychological well-being. PROSPERO 2017:CRD42017065906.* Retrieved from http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42017065906.
Kirby, J. N., Tellegen, C. L., & Steindl, S. R. (2017). A systematic review and meta-analysis of compassion-based interventions: Current state of knowledge and future directions. *Behavior Therapy*. https://doi.org/10.1016/j.beth.2017.06.003.
van Kleef, G. A., Oveis, C., van der Löwe, I., LuoKogan, A., Goetz, J., & Keltner, D. (2008). Power, distress, and compassion: Turning a blind eye to the suffering of others. *Psychological Science, 19*, 1315–1322. https://doi.org/10.1111/j.1467-9280.2008.02241.x.
Klimecki, O. M., Leiberg, S., Ricard, M., & Singer, T. (2014). Differential pattern of functional brain plasticity after compassion and empathy training. *Social Cognitive and Affective Neuroscience, 9*, 873–879. https://doi.org/10.1093/scan/nst060.
Knapp, G., & Hartung, J. (2003). Improved tests for a random effects meta-regression with a single covariate. *Statistics in Medicine, 22*(17), 2693–2710. https://doi.org/10.1002/sim.1482.
Lama, D. (1995). *The power of compassion.* New York, NY: HarperCollins Publishers.
Leighton, T. D. (2003). *Faces of compassion: Classic Bodhissattva archetypes and their modern expression.* Massachusetts, MA: Wisdom.
Loewenstein, G., & Small, D. A. (2007). The Scarecrow and the Tin Man: The vicissitudes of human sympathy and caring. *Review of General Psychology, 11*, 112–126. https://doi.org/10.1037/1089-2680.11.2.112.
Longe, O., Maratos, F. A., Gilbert, P., Evans, G., Volker, F., Rockliff, H., & Rippon, G. (2010). Having a word with yourself: Neural correlates of self-criticism and self-reassurance. *Neuroimage, 49*, 1849–1856. https://doi.org/10.1016/j.neuroimage.2009.09.019.
MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*, 545–552. https://doi.org/10.1016/j.cpr.2012.06.003.
Matos, M., Duarte, J., & Pinto-Gouveia, J. (2017). Being afraid of compassion: Fears of compassion as mediators between early emotional memories and psychopathological symptoms in adulthood. *European Psychiatry, 41*(Supplement), https://doi.org/10.1016/j.eurpsy.2017.01.312.
Mayseless, O. (2016). *The caring motivation: An integrated theory.* Oxford: Oxford University Press.
Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change.* New York, NY: Guilford Press.
Miller, J. G., Kahle, S., Lopez, M., & Hastings, P. D. (2015). Compassionate love buffers stress-reactive mothers from fight-or-flight parenting. *Developmental Psychology, 51*, 36–43.
Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6*(7), https://doi.org/10.1371/journal.pmed.1000097.
Mosewich, A. D. (2013). Self-compassion as a resource to manage stress in women athletes. *Journal of Sport & Exercise Psychology, 35*, 514–524. Retrieved from http://hdl.handle.net/2429/44182.
Neel, R., Kenrick, D. T., White, A. E., & Neuberg, S. L. (2016). Individual differences in fundamental social motives. *Journal of Personality and Social Psychology, 110*, 887–907. https://doi.org/10.1037/pspp0000068.
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*, 28–44. https://doi.org/10.1002/jclp.21923.
Orwin, R. G. (1983). A fail-safe *N* for effect size in meta-analysis. *Journal of Educational and Behavioral Statistics, 8*, 157–159. https://doi.org/10.3102/10769986008002157.
Pace, T. W. W., Negi, L. T., Dodson-Lavelle, B., Ozawa-de Silva, B., Reddy, S. D., Cole, S. P., et al. (2013). Engagement with cognitively-based compassion training is associated with reduced salivary C-reactive protein from before to after training in foster care program adolescents. *Psychoneuroendocrinology, 38*, 294–299. https://doi.org/10.1016/j.psyneuen.2012.05.019.
Pauley, G., & McPherson, S. (2010). Experience and meaning of this compassion and self-compassion for individuals with depression and anxiety. *Psychology and Psychotherapy, 83*, 129–143. https://doi.org/10.1348/147608309X471000.
Porges, S. W. (2007). The polyvagal perspective. *Biological Psychology, 74*, 116–143. https://doi.org/10.1016/j.biopsycho.2006.06.009.
Preston, S. D. (2013). The origins of altruism in offspring care. *Psychological Bulletin, 139*, 1305–1341. https://doi.org/10.1037/a0031755.
Rockliff, H., Gilbert, P., McEwan, K., Lightman, S., & Glover, D. (2008). A pilot exploration of heart rate variability and salivary cortisol responses to compassion-focused imagery. *Journal of Clinical Neuropsychiatry, 5*(3), 132–139.
Rosenthal, R. (1991). *Meta-analytic procedures for social research. Vol. 6.* Thousand Oaks, CA: SAGE Publications.
Lopez, A., Sanderman, R., Ranchor, A. V., & Schroevers, M. J. (2018). Compassion for others and self-compassion: Levels, correlates, and relationship with psychological well-being. *Mindfulness, 9*, 325–331. https://doi.org/10.1007/s12671-017-0777-z.
Seppälä, E. M., Simon-Thomas, S., Brown, S. L., Worline, M. C., Cameron, C. D., & Doty, J. R. (2017). *The Oxford Handbook of compassion science.* NY: Oxford University Press.
Steindl, S. R., Kirby, J. N., & Tellegen, C. (2018). Motivational interviewing in compassion-based interventions: Theory and practical applications. *Clinical Psychologist.* https://doi.org/10.1111/cp.12146.
Stellar, J. E., & Keltner, D. (2017). Compassion in the autonomic system. In P. Gilbert (Ed.). *Compassion: Concepts, Research and Applications* (pp. 203–217). London: Routledge.
Stevens, J. R., & Taylor, A. M. (2008). Hierarchical dependence in meta-analysis. *Journal of Educational and Behavioral Statistics, 34*(1), 46–73. https://doi.org/10.3102/1076998607309080.
Strauss, C., Taylor, B. L., Gu, J., Kuyken, W., Baer, R., Jones, F., & Cavanagh, K. (2016). What is compassion and how can we measure it? A review of definitions and measures. *Clinical Psychology Review, 47*, 15–27. https://doi.org/10.1016/j.cpr.2016.05.004.
Stürmer, S., Snyder, M., Kropp, A., & Siem, B. (2006). Empathy-motivated helping: The moderating role of group membership. *Personality & Social Psychology Bulletin, 32*, 943–956. https://doi.org/10.1177/0146167206287363.
Suddendorf, T. (2018). Two features created the human mind. *Scientific American, 319*, 42–47. https://doi.org/10.1038/scientificamerican0918-42.
Thayer, J. E., & Lane, R. D. (2000). A model of neurovisceral integration in emotion regulation and dysregulation. *Journal of Affective Disorders, 61*, 201–216. https://doi.org/10.1016/S0165-0327(00)00338-4.
Viechtbauer, W. (2010). Conducting meta-analyses in *R* with the *metafor* package. *Journal of Statistical Software, 36*(3), 1–48. Retrieved from http://www.jstatsoft.org/v36/i03/.
Vitaliano, P. P., Zhang, J., & Scanlan, J. M. (2003). Is caregiving hazardous to one's health: A meta-analysis. *Psychological Bulletin, 129*, 946–972. https://doi.org/10.1037/0033-2909.129.6.946.
Weng, H. Y., Fox, A. S., Shackman, A. J., Stodola, D. E., Caldwell, J. Z., Olson, M. C., ...

Davidson, R. J. (2013). Compassion training alters altruism and neural responses to suffering. *Psychological Science, 24*, 1171–1180.
Yaman, A., Mesman, J., van Ijzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2010). Parenting and toddler aggression in second-generation immigrant families: The moderating role of child temperament. *Journal of Family Psychology, 24*, 208–211.

James is the Co-Director of the Compassionate Mind Research Group (CMRG) at the School of Psychology at the University of Queensland. James has broad research interests in compassion, however, specific research areas include: a) examining compassion focused therapy, b) examining compassion with children, c) examining what fears, blocks, & resistances people have towards compassion, and d) developing and evaluating compassion interventions. James also holds a Visiting Fellowship at the Center for Compassion and Altruism Research and Education at Stanford University. Since graduating with his PhD in 2013 he has published 6 book chapters and 42 peer reviewed publications. According to Google Scholar his work has been cited 882 times, he has an h-index of 14 and an i10 index of 15. To date, he has been successful in obtaining approximately $750,000 to conduct his research into his various fields of interest. You can view his profile here: http://researchers.uq.edu.au/researcher/16692