

Self-compassion, Forgiveness, Suicidal ideation and Self-harm: a Systematic review

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Abstract

Self-compassion has been implicated in the aetiology and course of mental health with evidence suggesting an association between greater self-compassion and lower emotional distress. However, our understanding of the nature and extent of the relationship between self-compassion and self-harm (self-injury regardless of suicidal intent) or suicidal ideation remains unclear. This review, therefore, aimed to critically evaluate the extant literature investigating this relationship. To do so, a systematic search, including terms synonymous with self-compassion, was conducted on three main psychological and medical databases (Web of Science, PsycINFO and Medline). Only studies investigating self-compassion or self-forgiveness and self-harm or suicidal ideation were found to be relevant to the review. 18 studies were included in the final narrative synthesis. Heterogeneity of studies was high and the majority of studies were quantitative and cross-sectional (n=16) in design. All studies reported significant associations between higher levels of self-forgiveness or self-compassion and lower levels of self-harm or suicidal ideation. Several studies suggested that self-compassion or self-forgiveness may weaken the relationship between negative life events and self-harm. In conclusion, this review highlights the potential importance of self-compassion in the aetiology of suicidal thoughts and self-harm. We discuss the clinical and research implications.

Key practitioner messages:

- Higher self-compassion and self-forgiveness are associated with lower levels of self-harm and suicidal ideation.
- Research into this area is limited, study heterogeneity was high and designs tended to be cross-sectional. More prospective studies are needed.
- There are some indications that self-compassion and self-forgiveness may alter the relationship between negative life events and self-harm.

Keywords: Self-compassion, Self-forgiveness, Self-harm, Suicidal ideation, Suicide attempt

Introduction

Suicide is a major public health concern with approximately 804,000 people dying by suicide annually (WHO: World Health Organization, 2014). It is well established that suicidal thoughts and behaviours result from an interplay of biological, psychological, clinical, cultural and social factors (O'Connor & Nock, 2014) and much of the research to date has sought to identify and understand how specific markers contribute to an individual's risk of suicide. Psychological risk markers such as self-criticism, shame, perfectionism, isolation, entrapment and perceived burdensomeness are repeatedly implicated in suicide risk (O'Connor & Nock, 2014).

Despite our understanding of risk factors, there are many gaps in our knowledge, indeed we are unable to accurately predict those who are at risk of suicide (Franklin et al., 2017). To date the most consistent predictor of a suicide attempt is having made a previous suicide attempt (Arensman, Griffin, & Corcoran, 2016). Having engaged in non-suicidal self-injury (NSSI) also increases an individual's risk of future suicidal behaviour (Chan et al., 2016; Kiekens et al., 2018; Ribeiro et al., 2016) with around 50% of people who die by suicide having self-harmed previously (Foster, Gillespie, McClelland, & Patterson, 1999). For the present purposes, self-harm is defined as "self-injury or self-poisoning irrespective of the apparent purpose of the act" (NICE: National Institute for Health, 2004, 2011).

The inability to identify those most at risk of self-harm and suicide is in part because previous research has not been guided sufficiently by theoretical models. The Integrated Motivational-Volitional (IMV) model of suicidal behaviour is a tri-partite (pre-motivational, motivational and volitional phases) diathesis-stress framework which incorporates major components from psychopathology, suicidal behaviour research and health psychology literature to delineate the final common pathway to ideation and enactment of self-harm and suicidal behaviour (O'Connor, Cleare, Eschle, Wetherall, & Kirtley, 2016; O'Connor & Kirtley, 2018; O'Connor, 2011).

The IMV maps out a detailed path from background context (e.g., deprivation, genetics, negative life events) in which self-harm ideation may develop. The motivational phase highlights factors which may facilitate the transition from defeat to entrapment (threat to self-moderators e.g., rumination and problem solving), and entrapment to self-harm ideation (motivational moderators; e.g., resilience, social support). The volitional phase outlines factors that influence the likelihood that someone engages in self-harm (volitional moderators; e.g., having access to means, reduced sensitivity to pain). There has been a growing body of evidence supporting these relationships (Johnson, Wood, Gooding, Taylor,

& Tarrier, 2011; O'Connor, 2003; O'Connor, Smyth, Ferguson, Ryan, & Williams, 2013; Rasmussen et al., 2010).

The IMV highlights the complex interplay between risk and potential protective factors (O'Connor & Nock, 2014). These protective factors may be crucial in understanding and protecting against risk of self-harm by, for example, buffering the impact of stressful life events (O'Connor & Nock, 2014). Self-compassion is one such protective factor that has received considerable attention in the aetiology of mental and physical health. The role of self-compassion within the IMV model is not yet known. However, the affiliative nature of compassion may make it effective in reducing social threat-based emotions like shame and defeat thereby suggesting that self-compassion is a moderator within the motivational phase, or it may operate throughout the pathway.

What is self-compassion?

Compassion is a multi-faceted construct, which develops within a secure attachment framework (MacBeth & Gumley, 2012), and has been conceptualised in various ways (see Gilbert (2017) and Kirby (2017) for a review and discussion of the different definitions).

One of the more frequently used definitions of compassion is based in the Buddhist conceptualisation of compassion as a motivation to prevent suffering of self and others:

“Being sensitive to the suffering of self and others with a deep commitment to try to prevent and relieve it” (Gilbert & Choden, 2013, p. xxv)

Self-compassion then, is more than the absence of self-criticism. Rather it is a process in which the individual has the intention and motivation to adopt and apply a compassionate mindset to themselves (Jazaieri et al., 2014). For instance, self-compassion entails accepting personal short-comings rather than being critical of them; having a mindful awareness of thoughts, emotions and experiences that are emotionally painful and actively adopting a warm and supportive response to these experiences rather than judging the self harshly for these events. Additionally, it entails acknowledging that failure is something that everyone experiences rather than feeling isolated by experiences (Neff, 2003ab; Neff, 2016).

Neff describes self-compassion as a balancing of six integrally connected elements:

“self-kindness – extending kindness and understanding to oneself in instances of perceived inadequacy or suffering rather than harsh judgment and self-criticism, common humanity – seeing one’s experiences as part of the larger human experience rather than seeing them as separating and isolating, and mindfulness – holding one’s painful thoughts and feelings in balanced awareness rather than over-identifying with them in an exaggerated manner” (Neff & Lamb, 2009, p. 864).

Each component reinforces another (Neff, 2003; Barnard & Curry, 2011); for instance, feeling connected to others reduces feelings of isolation, leading to individuals feeling more positive about themselves.

Measuring Self-compassion

The most widely used measure of self-compassion is the Self-Compassion Scale (SCS; Neff 2003a). Neff (2003ab, 2016) described self-compassion as requiring an interaction between the positive and negative components of compassion and, consequently, developed the SCS to assess compassion as per her definition (Neff, 2003a). There has been considerable debate regarding the validity of the SCS as a measure of self-compassion. In particular, concerns have been expressed that by including 'negative' components of compassion, the SCS measures self-criticism, rumination and social isolation (MacBeth & Gumley, 2012; Muris, 2016) and that using the total score might lead to an overestimation of the relationship with symptoms of psychopathology as the negative components are more strongly associated with psychopathology than the positive components (Muris & Petrocchi, 2017). In light of these concerns, the psychometric properties of the SCS have been extensively investigated. Taken as a whole, research has yielded support for a model in which the interrelated subscales are encompassed by an overarching self-compassion factor. This is consistent with Neff's assertion that both the SCS subscale scores and overall self-compassion score are valid (Cleare, Gumley, Cleare, & O'Connor, 2018; Neff et al., 2019; Neff, Whittaker, & Karl, 2017; Tóth-Király, Bóthe, & Gábor, 2017). Several alternative models for the SCS have also been proposed, including a two-factor model based on the SCS scoring methods (i.e. self-coldness (reverse scored items) and self-compassion (Gilbert, McEwan, Matos, & Rivis, 2011), however, this model has not been supported by subsequent analyses (Cleare et al., 2018; Neff et al., 2019).

Self-compassion and wellbeing

Increasingly, self-compassion has been shown to be associated with physical ($r=0.23-0.28$; Hall, Row, Wuensch, & Godley, 2013) and psychological wellbeing (positive affect $r=0.36$; anxiety $r=-0.58$, depression $r=-0.46$; see Barnard & Curry, 2011 for review), including reduced emotional burnout and shame ($r=-0.6$). Using meta-analytic techniques, MacBeth and Gumley (2012) found higher self-compassion was associated with lower levels of depression, anxiety and stress ($r = -0.54$, 95 %CI = -0.57 to -0.51). Both the review and meta-analysis emphasise that the majority of studies were cross-sectional and the direction of the relationship is unknown, although the literature suggests that the absence self-compassion is more likely to lead to emotional distress rather than vice versa.

Psychological intervention studies found participants who engaged with repeated compassionate meditations reported reductions in negative emotions including feelings of shame and self-criticism (Gilbert & Procter, 2006), lower symptoms of illness and higher social support and higher life purpose (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008).

Interventions have been found to be effective across a range of populations including student (Smeets, Neff, Alberts, & Peters, 2014), adolescent (Bluth & Eisenlohr-Moul, 2017; McGehee, 2010) and clinical populations including borderline personality disorder (Krawitz, 2012), forensic mental health inpatient populations (Laithwaite, O'Hanlon, Collins, Doyle, Abraham & Porter, 2009), depression (Gilbert & Procter, 2006), schizophrenia spectrum disorders with psychotic features (Braehler, Gumley, Harper, Wallace, Norrie, & Gilbert, 2013). Even single session compassion inductions have been shown to reduce negative emotions (Arimitsu & Hofmann, 2017), raise mood and increase positivity towards others (Hutcherson, Seppala, & Gross, 2008).

Despite the association between self-compassion and psychological wellbeing, the nature of the relationship between self-compassion and suicidal ideation or self-harm is unclear.

Through adopting a compassionate stance to themselves, self-compassion may help individuals to tolerate difficult emotions (Gilbert, 2017; Klimecki, Leiberg, Ricard, & Singer, 2014; Leiberg, Klimecki, & Singer, 2011). A recent study of self-help compassion focussed therapy (CFT) showed that self-compassion mediated the relationship between anxiety and wellbeing (Sommers-Spijkerman, Trompeter, Schreurs, & Bohlmeijer, 2018) through increasing positive affect which subsequently reduced levels of depressive symptoms. CFT also reduced self-criticism which in turn reduced symptoms of anxiety. Indeed, studies using functional magnetic resonance imaging (fMRI) have shown that areas of the brain associated with affect regulation, reward and affiliation activate in response to compassion (Colonnello, Petrocchi, & Heinrichs, 2017; Leiberg et al., 2011; Lutz, Slagter, Dunne, & Davidson, 2008). Subsequently, self-compassion may have a role in ameliorating the impact of personality traits often implicated in self-harm such as self-criticism and perfectionism (O'Connor, 2011; O'Connor & Nock, 2014).

One of the challenges facing self-compassion researchers is the range of terms used interchangeably with self-compassion. Barnard and Curry (2011) discuss the differences between many related terms (i.e. self-esteem, empathy) and self-compassion. Since their review however, there has been an increase in self-forgiveness research, which is important to consider as a possible component of self-compassion. However, it should be noted that self-compassion requires the individual to have feelings of warmth towards the recipient (Gilbert, 2017) whereas this is not necessary in forgiveness.

What is self-forgiveness?

Self-forgiveness can be conceptualised as an emotion regulation process which begins when an individual accepts responsibility for their actions, feels remorse and guilt and begins to release self-directed negativity and begins to heal themselves (Enright, 1996; Wohl, DeShea, & Wahkinney, 2008). It has recently been defined as follows:

“Self-forgiveness ... is a deliberate, volitional process initiated in response to one’s own negative feelings in the context of a personally acknowledged self-instigated wrong, that results in ready accountability for said wrong and a fundamental, constructive shift in one’s relationship to, reconciliation with, and acceptance of the self through human connectedness and commitment to change” (Webb, Bumgarner, Conway-Williams, Dangel, & Hall, 2017, p217).

This definition echoes aspects of self-compassion. Specifically, the motivation to accept the self, including flaws whilst recognising the need to make changes or take reparative action has parallels with self-kindness. The emphasis on feeling connected to others as a mechanism to support self-acceptance is akin to common humanity. In these instances a mindful attitude rather than rumination may help reconciliation with the self. Indeed, Hirsch and colleagues (Hirsch, Webb, & Jeglic, 2012) found that self-forgiveness moderated the relationship between internally directed anger and suicidal behaviour even when external anger was included in the model. Previous research has identified expressions of internally directed anger in suicide notes: for example, O’Connor, Sheehy and O’Connor (1999) found that 64.3% of note writers who had attempted suicide previously expressed self-directed anger.

In summary, self-compassion has associations with other areas of mental wellbeing and may be an important factor in buffering against suicidality. Consequently, it is important to determine the nature and extent of the relationship between self-compassion and self-harm, suicide attempts or ideation. To this end, this systematic review aimed to critically evaluate the extant research which has investigated the relationship between self-compassion/self-forgiveness and self-harm and suicidal ideation.

Methods

Search strategy

We searched the following relevant databases: Web of Science, EBSCO Host (Medical and Psychology related resources), PubMed, CINAHL and PsycINFO for relevant empirical

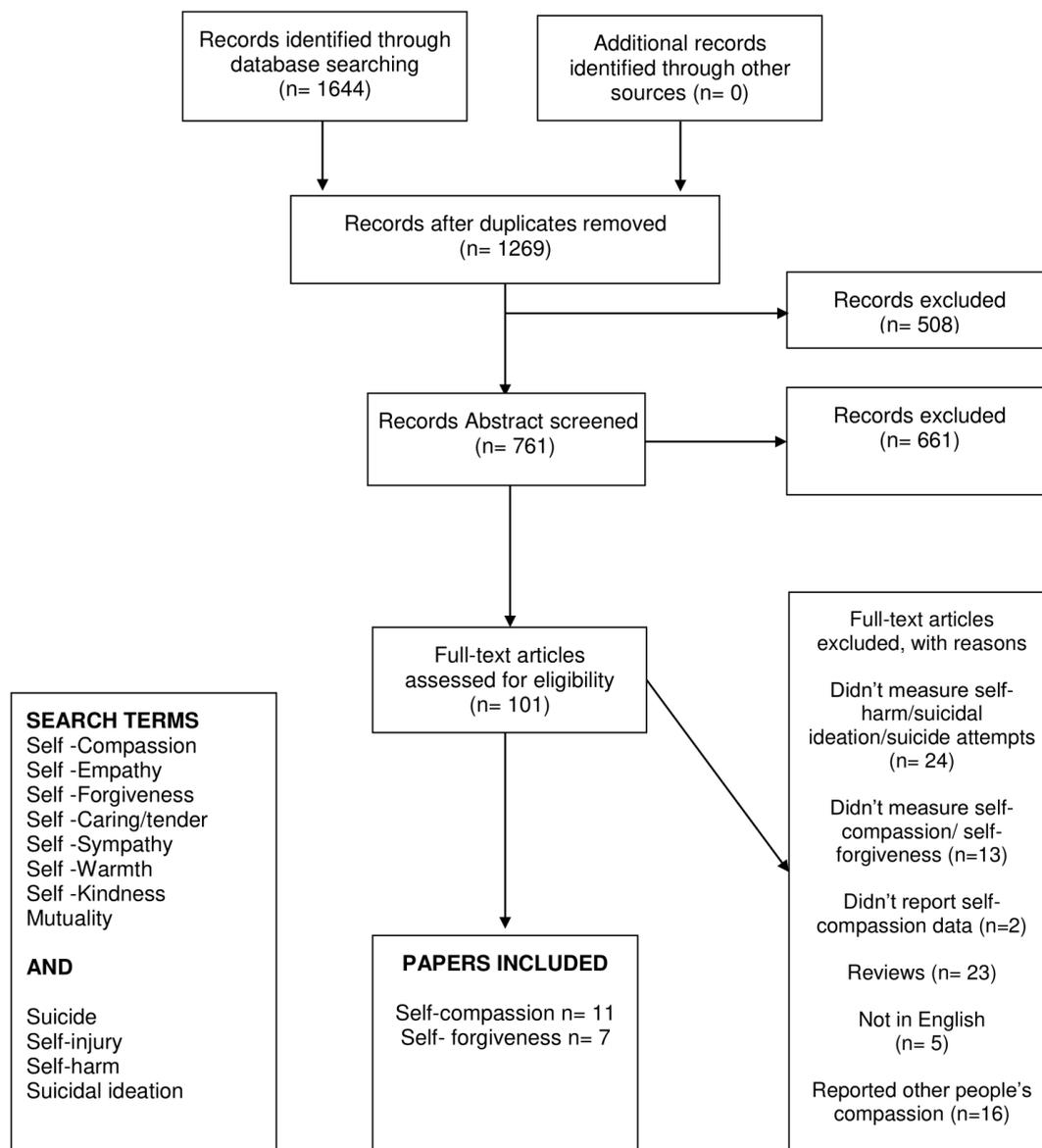
studies published up to August 2018 with no date limiters used. Searches were constrained to papers published in peer-reviewed journals and in English.

The following search terms were employed: self-compassion or self compassion OR self-empath OR self empath OR self-forgiv OR self forgiv OR self-car OR self car, OR self sooth OR self-sooth OR self- sympath OR self sympath OR self-warmth OR self warmth OR self-kindness OR self kindness OR mutuality; AND suicid OR self-injur OR self injur OR self-harm OR self harm. We used the truncation symbol (*) to find any different endings to the terms. See figure 1 for details of the search strategy.

Inclusion and exclusion criteria

To be eligible for inclusion, studies had to: 1) assess self-compassion or related term; 2) assess self-harm (with or without suicidal intent) or suicidal ideation; and 3) record the relationship between self-compassion (or related term) and self-harm or suicidal ideation. We included all ages and participant groups. The reference lists of all the included papers were hand-searched. Decisions around inclusion were made by the first author in the first instance, with verification from the second and third authors.

Figure 1. Procedure for identifying, screening and determining the eligibility of studies for inclusion in the review.



Data extraction

Demographic characteristics, study design, assessment of suicidal ideation or self-harm, self-compassion or self-forgiveness were extracted along with the main findings. A quality assessment framework based on O'Connor and colleagues (O'Connor, Ferguson, Green, O'Carroll, & O'Connor, 2016) was used to assess study rigour. This scale has nine areas for consideration (e.g. study design, statistical power/considerations; sample details, comparison group and compassion construct assessment) allowing calculation for an overall score for the study ranging from 0-13. For example, a score of "0" is assigned to cross-sectional, case-controlled score "1" and prospective studies receive a "2". In terms of study design, studies were also assessed on measures they used (i.e. single items or non-validated scales scored '0'; validated scales or interviews scored '2') and whether they

included a comparison group. This allows heterogeneous research designs to be compared with continuity. As this framework was not applicable for assessing qualitative studies, we adapted and applied the Critical Appraisal Skills Programme (Critical Appraisal Skills Programme (CASP), 2017) guidelines to assess appropriateness of the study design, data collection and analysis.

Results

Eighteen papers were included in the review (see Figure 1). Eleven studies addressed self-compassion (8 cross-sectional, 2 longitudinal, and 1 qualitative) and seven addressed self-forgiveness (all cross-sectional). No other synonyms of self-compassion were eligible. Where possible, we have reported the effect sizes for correlations (r values).

Studies reported a range of outcomes including suicidal behaviours (combined suicidal ideation and attempts; self-compassion $n=2$, self-forgiveness $n=4$); NSSI (self-compassion $n=4$, self-forgiveness $n=1$), suicidal ideation (self-compassion $n=1$, self-forgiveness $n=1$), suicide attempts (self-compassion $n=1$), self-harm (self-compassion $n=1$) and multiple aspects of self-harm (self-compassion $n=1$, self-forgiveness $n=1$). The final study was qualitative and used Interpretive Phenomenological Analysis (IPA) to assess the self-compassion in blog posts related to self-harm.

Quantitative studies of self-compassion

Ten studies were included in this section (see Table 1 for details); however two studies (Jiang et al., 2017b; Jiang, You, Zheng, & Lin, 2017a), appear to report the same study. To avoid duplication, the sample characteristics from the brief report (Jiang et al., 2017b) are not included, although, the findings from both are discussed as they report on different aspects of self-compassion. One study (Collett, Pugh, Waite, & Freeman, 2016) was conducted in a clinical population; four studies were carried out with adolescents and four recruited university students.

[Insert Table 1 around here]

Quality assessment

Methodology quality assessment scores (see Table 1 for details) ranged from 2-6 (low/medium-high). The majority of studies scored low for their design; six studies were

cross-sectional and four made no attempt to include homogenous groups. Only three studies (Collett et al., 2016; Gregory, Glazer, & Berenson, 2017; Xavier, Pinto-Gouveia, & Cunha, 2016) used validated measures and all studies used self-report measures. Collett et al. (2016) were the only group to report calculations for statistical power. Only seven studies controlled for confounding variables during analysis.

Sample characteristics

The combined sample size was 4345 participants, with a mean age of 20.9 years old (range= 11- 66 years old), 58.6% (n= 2547) of participants were female. Five studies were conducted in North America (Chang et al., 2017; Gregory et al., 2017; Hayes, Lockard, Janis, & Locke, 2016; Rabon, Sirois, & Hirsch, 2018; Tanaka, Wekerle, Schmuck, & Paglia-Boak, 2011) and were the only studies to detail ethnicity; three of the samples were predominantly White (59%-89%) and female (67.9%- 100% female). Tanaka and colleagues' (2011) sample reported diverse ethnic backgrounds (27% White, 31.3% Black, 27.8% Dual/Multiple ethnicity). Two studies were conducted in China (Jiang et al., 2016; Jiang et al., 2017) and two in Europe (Collett et al., 2011; Xavier et al., 2016). Collett et al., (2016) carried out a case-controlled study, comparing a clinical population (experiencing persecutory delusions n=21) to a group with no history of any mental health problems (controls; n= 21). The groups were matched for age and gender (clinical age range= 21-66, m= 45.6 years old; control age range=22-61, m= 41.9 years old).

Assessment of self-compassion

The Self-Compassion Scale (SCS; Neff, 2003) was the most frequently used measure; three studies reported subscale scores, and six the total score. Two studies (Hayes et al., 2016; Rabon et al., 2018) used the 12-item Self-Compassion Scale short form (SCS-sf; Raes, Pommier, Neff, & Van Gucht, 2011). The SCS-sf includes two items from each of the original subscales. In addition to the SCS, Gregory and colleagues (Gregory, Glazer, & Berenson, 2017) measured state self-compassion (participants rated how trusting, loving, grateful, joyful they were feeling) before and after a values affirmation task (VA).

Assessment of self-harm and self-harm ideation

Four studies used a single item to assess self-harm or ideation (Lifetime history: Gregory et al., 2017; last 12 months: Jiang et al., 2017b; Jiang et al., 2017a; Tanaka et al., 2011). Although Hayes, and colleagues (2016) recorded lifetime suicidal ideation, suicide attempts

and NSSI, they reported a dichotomised score indicating the presence or absence of suicidal ideation or self-harm.

The remaining studies assessed a variety of outcomes including suicidal ideation (Beck Scale for Suicidal Ideation; BSSI; Beck & Steer, 1991) in Collett et al., 2016); self-harm (Risk-taking and Self-harm Inventory for Adolescents; RTSHIA Portuguese; Xavier, Cunha, Pinto-Gouveia, & Paiva, 2013 in Xavier et al., 2016). Two studies (Chang et al., 2017; Rabon et al., 2018) assessed mixed suicidal behaviours (Suicidal Behaviours Questionnaire-revised; SBQ-R; Osman et al., 2001). Jiang et al., (2016) assessed the frequency of NSSI methods used in the preceding 12 months with responses on a Likert-type scale ranging from 1 (never) to 7 (almost every day).

Self-compassion, self-harm and self-harm ideation

Individuals with no history of self-harm (Gregory et al., 2017; Hayes et al., 2016) reported higher self-compassion. Additionally, self-harm groups scored lower on the positive subscales and higher on the negative subscales of the SCS than control groups. Chang and colleagues (2017) reported small associations between the subscales ($r=-0.2$ to $r=-0.26$ positive subscales; $r=0.26$ to $r=0.28$ negative subscales) and suicidal behaviours (effect sizes: positive $r^2=5.3$, negative $r^2= 7.3$). The strength of association between self-compassion and suicidal ideation or NSSI ranged from $r^2=3.6$ to $r^2= 10.9$ (Jiang et al., 2016; Xavier et al., 2016 respectively). Lower self-compassion which was associated with higher suicidal ideation ($d= -0.64$, $p<0.001$; Collett et al., 2016) and suicide attempts ($r=-0.3$, $p<0.05$; Tanaka et al., (2011) with 16.4% of individuals with low self-compassion reporting suicide attempts compared to 4.8% of those with higher self-compassion.

In the experimental study, history of self-harm was associated with lower score on the SCS and state self-compassion than the controls at baseline (Gregory et al., 2017). Following a values affirmation task (VA), the self-harm group showed greatest increases in state self-compassion and increased pain sensitivity; they reported the discomfort sooner and rated it as more painful than the control condition. Indicating that increasing self-compassion may increase sensitivity to pain and therefore, be protective in NSSI.

Self-compassion and risk factors for self-harm and self-harm ideation

Higher self-compassion was repeatedly associated with lower levels of risk factors for suicidal ideation and self-harm including lower depressive symptoms in two studies ($r= -0.37$, $p<0.05$; Tanaka et al., 2011; $d= -0.73$, $p<0.001$; Collett et al., 2016). Similarly, in serial

mediation analyses, Rabon and colleagues (2018) found self-compassion was directly and indirectly (through depressive symptoms and wellness behaviours) related to suicidal behaviours. Specifically, self-compassion was related to lower depressive symptoms, which in turn, were associated with greater engagement in wellness behaviours and this was sequentially associated with less suicidal behaviour. Xavier et al. (2016) found self-compassion mediated the relationship between daily hassles and NSSI in adolescents. The authors also found that five of the subscales (not common humanity) contributed to around a quarter of the variance in NSSI (self-kindness $r^2 = 23\%$, $B = -.09$, $p = 0.028$; mindfulness $r^2 = 24\%$, $B = -.08$, $p = 0.038$; self-judgement $r^2 = 25\%$, $B = .12$, $p = 0.009$; isolation $r^2 = 24\%$, $B = .11$, $p = 0.012$; over-identification with thoughts $r^2 = 25\%$, $B = .14$, $p = 0.002$).

Self-compassion partially mediated the relationship between negative life events in the last 12 months and suicidal behaviours when gender was controlled for ($F(7,323) = 7.18$, $p < 0.001$; Chang et al., 2017), and weakened the relationship between bullying and NSSI ($b = .61$, $se = .30$, $B = -.15$, $p = 0.041$) at time 2 when time 1 NSSI was controlled for (Jiang et al., 2016).

Self-compassion was associated with better peer and familial relationships (Jiang et al., 2017) including greater feelings of maternal ($B = .20$, $SE = .05$, $p < 0.001$) and paternal closeness ($B = .18$, $SE = .04$, $p < 0.001$). Greater closeness was in turn associated with lower NSSI (maternal, $OR = -1.22$, $se = .29$, $p < 0.001$; paternal, $OR = 1.21$, $SE = .29$, $p < 0.001$). The relationship between peer communication ($B = .14$, $SE = .07$, $p = 0.032$), peer closeness ($B = .21$, $SE = .04$, $p < 0.001$) and NSSI ($OR = -1.48$, $se = .29$, $p < 0.001$) was fully mediated by self-compassion.

Quantitative studies of self-forgiveness

Seven studies investigated the relationship between self-forgiveness and self-harm or suicidal ideation (see Table 2 for details). All studies were carried out in the USA, were cross-sectional and used self-report measures. A range of populations were examined: student ($n=2$), community ($n=2$), adolescent ($n=1$), military ($n=1$), and older adults ($n=1$).

[Insert Table 2 around here]

Quality assessment

Methodology quality assessment scores ranged from 2 to 7 (low to high quality) with six of the studies scoring under 5. All the studies were cross-sectional and although two studies

(Bryan et al., 2015; Westers et al., 2012) used validated outcome measures, all studies were self-report. Measures of self-forgiveness were used in three studies (Bryan et al., 2015; Cheavens, Cukrowicz, Hansen, & Mitchell, 2016; Westers et al., 2012); the others used single or two items. None of the studies reported power calculations and subsequently scored "0" on this category. However, all but one study (Nsamenang et al., 2013) included a comparison group with no self-harm or suicidal ideation. The study that had the highest quality score (7) was by Bryan and colleagues (Bryan et al., 2015) who used the SITBI (Nock et al., 2007) to assess presence of suicidal ideation and suicide attempts in active and veteran military personnel currently enrolled in college.

Sample characteristics

The collated sample size was 1329, with a mean age of 35 years old (range= 12-78 years old). Overall 57% (n=758) of participants were female, however the majority of studies were comprised of 70-78% female participants, whilst Bryan et al.'s study sample was 69% male (Bryan et al., 2015). Four of the samples predominantly White (81.4% Bryan et al., 2014; 93% Chang et al., 2014; 93% Cheavens et al., 2016; 94% Nsamenang et al., 2013). Participants in the remaining three studies were from diverse ethnic backgrounds and White/Caucasians made up 17%, 19% (Hirsch et al., 2011; Hirsch et al., 2012 respectively) and 56.7% of the samples (Westers et al., 2012).

Assessment of self-forgiveness

Five measures of self-forgiveness were used in studies ranging from a single (Hirsch, Webb, & Jeglic, 2011; Hirsch et al., 2012) or two item (Chang et al., 2014) version of the Brief Multi-Dimensional Measure of Religiousness and Spirituality (BMMRS; Fetzer Institute, 2003), the self-forgiveness subscale of the Heartland Forgiveness Scale (HFS; Thompson et al., 2005), to the 15-item self-forgiveness subscale of the Mauger Forgiveness scale (Mauger, Perry, Freeman, & Grove, 1992).

Assessment of self-harm and self-harm ideation

Suicidal thoughts and suicide attempts were addressed in six of the studies; however four studies used the total score of the SBQ-R (Osman et al., 2001) so it is unclear what construct was assessed. Two studies (Bryan et al., 2014; Westers, Rehfuss, Olson, & Biron, 2012) employed the Self Injurious Thoughts and Behaviors Interview (SITBI; Nock, Holmberg, Photos, & Michel, 2007), however, Westers and colleagues focussed on the NSSI

subscale. The final study (Cheavens et al., 2016) assessed suicidal ideation (Geriatric Suicide Ideation Scale, GSIS-SI; Heisel & Flett, 2006).

Self-forgiveness, self-harm and self-harm ideation

Associations between higher self-forgiveness and lower NSSI, suicidal behaviours and suicidal ideation were found by all studies. However, the strength of the relationship varied between studies. Cheavens et al. (2016) reported a moderate relationship between higher self-forgiveness and lower levels of suicidal ideation ($r=-0.41$, $p<0.01$) in older adults. Moderate to weak associations were found between higher self-forgiveness and suicidal ideation and behaviours in community (Nsamenang et al., 2013; $r=-0.28$, $p<0.01$; Chang et al., 2014; $r=-0.4$, $p<0.001$) and student (Hirsch et al., 2011; $r=-0.26$, $p<0.05$; Hirsch et al., 2012; $r=-0.27$, $p<0.001$) samples. Similarly, Bryan et al., (2015) found lower levels of suicidal ideation and attempts ($r= -0.29$; $r=-0.26$ respectively) were associated with higher self-forgiveness. Self-forgiveness also differentiated between control, suicidal ideation and attempt groups in regression analyses. Self-forgiveness still distinguished between the control and suicide attempt group when socio demographic characteristics (including age, gender, current military status i.e. veteran or active), depressive symptoms, trauma history, and stress were controlled for. Westers et al. (2012) examined self-forgiveness and reasons for engaging in NSSI in adolescents. Lower self-forgiveness predicted engaging in NSSI to get rid of unwanted feelings; to feel something rather than numb; and of communicating distress to others. The latter two functions held when gender was controlled for. A strong negative association was found between self-forgiveness and NSSI frequency ($r=-0.61$, $p=0.01$), indicating that individuals who engage in NSSI repeatedly experience lower levels of self-forgiveness.

Self-forgiveness and risk factors for self-harm and self-harm ideation

Self-forgiveness moderated the relationship between perceived burdensomeness and suicidal ideation (Cheavens et al., 2016). Specifically, feeling a burden to others was associated with higher levels of ideation in the presence of low self-forgiveness even when depressive symptomology was controlled for. Hirsch and colleagues (Hirsch et al., 2011) found that self-forgiveness's association with suicidal behaviours was fully mediated by depressive symptoms. In their later study Hirsch et al. (2012) found that self-forgiveness significantly moderated the relationship ($t=-2.08$, $p<0.05$) between internal anger and suicidal behaviours ($r=0.35$, $p<0.001$). Chang et al. (2014) found that higher self-forgiveness reduced

the association between domestic abuse and suicidal behaviours by 34% reducing the relationship to non-significant levels.

Qualitative study of self-compassion

One qualitative study met inclusion criteria. Sutherland and colleagues (Sutherland, Dawczyk, De Leon, Cripps, & Lewis, 2014) used a selective sampling methodology to extract writings expressing positive components of the SCS (self-kindness, common humanity, mindfulness; SCS Neff, 2003) from web/blog posts describing NSSI experiences (Table 3). The authors explored the data using IPA techniques. A total of 170 posts were included from 27 websites (24 discussion, 3 blog sites) primarily based in the USA and UK. Due to the nature of the study no demographic data were available and it was not possible to determine respondent residence, gender, NSSI information (e.g. NSSI method, frequency), whether the posts were written by different individuals, or multiple by the same person. Multiple themes were extracted from posts highlighting the interconnectedness of the components. The authors reported that expressions of self-compassion were more apparent in writings associated with recovery; reflected greater understanding of their NSSI experience and lower levels of distress. However, many posts were excluded from the study as they discussed self-criticism, which was not the focus of the research. Although the authors did not state the number of posts excluded from the analysis, they did state that “many of the sites included more than 100 entries”.

[Insert Table 3 around here]

Discussion

Self-compassion and self-forgiveness are important factors to consider when assessing suicide risk, and this review aimed to understand this relationship further by critically evaluating the extant research literature. We employed a broad search strategy in an attempt to be inclusive and searched for terms potentially synonymous with self-compassion. Our search strategy resulted in 18 studies that met inclusion criteria; however, there was considerable heterogeneity in study designs, populations and measurement tools rendering direct comparison of studies difficult and precluded use of meta-analytic techniques. Self-compassion and self-forgiveness were repeatedly found to be significantly and negatively correlated with self-harm, suicide attempts or ideation; although the strength of the associations ranged from weak (self-compassion; $r = -0.19$ Jiang et al., 2016) to strong (self-forgiveness; $r = -0.64$; Bryan et al., 2015). Our findings echo those from related populations which have also shown associations between higher levels of self-compassion and lower

psychopathology and greater psychological wellbeing (MacBeth & Gumley, 2012; Zessin, Dickhäuser, & Garbade, 2015).

There are many possible reasons for the varying strength of associations, including the measures used. Measurement of self-forgiveness ranged from a single item to a 15-item scale and similar variation was seen in the measurement of self-harm, suicide attempts and ideation. The majority of the self-compassion studies used the total SCS (Neff, 2003ab) score. However, one of the advantages of the SCS is that it can also be used to give scores for the individual components of self-compassion (Cleare, Gumley, Cleare, & O'Connor, 2018; Neff, Whittaker, & Karl, 2017). Muris and Petrocchi (2017) suggest that as the scale includes negative components which have stronger associations with psychopathology ($r=.47$ to $.50$) than the positive components ($r=-0.27$ to -0.34), using the total score may lead to an overestimation of the strength of the relationship. Consequently, the authors emphasise the need for studies to examine the predictive value of the SCS subscales as currently little is known about how the components interact. Concerns have been expressed regarding the suitability of the SCS as a measure of self-compassion and investigating the components individually could help clarify this. Additionally, research using prospective or experimental designs that incorporate other measures of self-compassion such as physiological measures to explore whether all the components contribute equally to a person's self-compassion or if one area is potentially more important than others and when.

Experimental studies manipulating self-compassion under different conditions are needed to improve understanding of how and when components of self-compassion are activated and how this can be used in clinical practice. Our review included one experimental study (Gregory et al., 2017) which found that the self-compassion manipulation had a greater effect in the self-harm group and increased pain sensitivity; participants reported pain faster and more intense than those in the control condition. As decreased sensitivity to physical pain has been shown to be associated with increased likelihood that an individual who has thoughts of self-harm or suicide self-harm will act on their thoughts of self-harm (i.e., engage in self-harm) (O'Connor & Kirtley, 2018; O'Connor, 2011; Joiner, 2005), self-compassion may be potentially useful in protecting vulnerable individuals.

However, the sample was comprised of female students making it difficult to generalise the findings, particularly as evidence suggests that females express greater compassion towards others and lower self-compassion (Tanaka et al., 2011; Yarnell et al., 2015). Similar methodologies in other populations and balanced by gender may provide further valuable insights into the mechanisms underlying self-compassion.

One study (Collett et al., 2016) matched participants for age and gender across a control and clinical group. However, different methods were used for data collection between the

groups. Although self-report, the clinical group completed measures during an appointment with their clinician, whereas the control data were collected via an online participant pool. It wasn't clear whether the controls were assessed for suicidality and if data collection was carried out at the same time.

The SBQ-R (Osman et al., 2001) was used in six studies. This scale consists of 4-items assessing; 1) ideation in the last 12 months, 2) expressions of suicidality to another person, 3) likelihood of a future suicide attempt, 4) the presence of past suicidal behaviours or thoughts. Most studies reported the total score as an overall suicidality score (range 0-16) making it unclear which aspects individuals were endorsing. Additionally, the inclusion of the future behaviour item potentially means that someone could score on this measure without having experienced any past suicidality.

More research is required to explore how the components of self-compassion and self-forgiveness interact with established risk factors for suicide and self-harm. Several studies investigated mechanisms potentially linking self-compassion or self-forgiveness and suicidal ideation or self-harm (Chang et al., 2014; Cheavens et al., 2016; Hirsch et al., 2012; Nsamenang et al., 2013; Rabon et al., 2017). Although no study found evidence of a direct relationship between self-compassion or self-forgiveness and self-harm or suicidal ideation all found support for indirect relationships. That is, higher self-compassion or self-forgiveness was associated with lower levels of risk factors (e.g. depressive symptoms, perceived burdensomeness and internally directed anger), these in turn were associated with lower suicidal ideation, attempts or self-harm. This buffering effect could be a result of the development of self-soothing associated with compassion (Gilbert, 2005; Gilbert, 2009).

Sutherland and colleagues' (Sutherland et al., 2014) findings that expressions of self-compassion were primarily related to recovery from NSSI resonates with Wester et al.'s (2012) findings that higher self-forgiveness was reported by individuals who engaged in NSSI less frequently. However, as Sutherland et al., (2014) selected posts regarding positive components of self-compassion, only 170 posts were included in the analysis despite the authors reporting these were extracted from 27 websites which often contained in excess of 100 posts. The authors provided no information about the proportion of posts included from each website or the proportion of posts that discussed the negative SCS components. Neff (2016) describes self-compassion as requiring an interaction between the positive and negative components of compassion and focusing solely on the positive components may not reflect the true nature of self-compassion.

The majority of studies in the review were cross-sectional, which limits the conclusions that can be drawn regarding the direction of relationships between variables. As Bryan and

colleagues (2015) highlighted, low self-forgiveness could result from an individual's view that their suicide attempt was an unforgivable act.

Additionally, although self-forgiveness was associated with lower levels of self-harm it is unclear whether the measures used in the studies are measures of true self-forgiveness or whether they are influenced by pseudo self-forgiveness. Pseudo self-forgiveness is an unhelpful process during which individuals appear to make peace with themselves, but rather than accepting responsibility, they engage in defensive processes to avoid negative emotions such as shifting blame, justifying their actions and minimising the impact of the event (Enright et al., 1996; Fisher & Exline, 2006; Hall & Fincham, 2005; Tangney et al., 2005). This is believed to result in a state of self-forgiveness without requiring offenders to take ownership of wrongs.

Similarly, caution should also be used when interpreting cross-sectional mediation analyses seeking to explain causal mechanisms (Maxwell & Cole, 2007). Despite the limited research, studies consistently reported associations between higher levels of self-compassion or self-forgiveness and lower levels of self-harm or suicidal ideation. This echoes the findings from meta-analyses such as MacBeth and Gumley (2012) and Zessin et al., (2015) who found associations between higher levels of self-compassion and lower psychopathology and greater psychological wellbeing. As none of the studies in the review were guided by overarching frameworks around self-harm, it is not clear where self-compassion would be situated in the IMV model (O'Connor & Kirtley, 2018; O'Connor, 2011). However, self-compassion is thought to develop during early childhood (MacBeth & Gumley, 2012), and subsequently it may buffer the impact of negative life events (Chang et al., 2017; Jiang et al., 2016). Consequently, it may have its effect across the different phases of the IMV model. For example, due to its association with risk factors for self-harm, the amelioration of feelings of shame (Gilbert & Procter, 2006), and increase social connectedness (Hutcherson et al., 2008), it is possible that self-compassion would be placed in the motivational part of the pathway. Additionally, Gregory et al.'s (2018) finding of self-compassion increasing sensitivity to pain may indicate that self-compassion is active in the volitional phase of the IMV model. It is possible, therefore, that self-compassion has a role across multiple points of the IMV model, or it may have an overarching effect on moderators throughout the pathway. Ultimately, further research is needed to establish this. In brief, the literature highlights the potential usefulness of self-compassion and self-forgiveness in protecting against self-harm ideation and self-harm.

Limitations and Future Directions

Although we incorporated a range of terms synonymous with self-compassion in our literature search, this involved a degree of subjectivity; therefore, there is a risk we

omitted terms that others would have included. Conversely, whereas we included self-forgiveness as a search term, other research groups may not have done so. It could also be argued that we should have searched the grey literature, but we did not in an attempt to enhance the quality of studies included in the review.

Additionally, the included studies varied in outcome measurements used and there may be considerable heterogeneity within self-harm populations, and there may be considerable statistical noise in the data herein. Future studies may wish to consider possible subgroup analyses when designing studies. For instance, there could be important differences in the profiles of individuals who have engaged in self-harm once compared multiple times and in individuals within these groups who express intent to die or report no intent. Future studies may wish to investigate differences in these subgroups.

Self-compassion has been extensively researched in relation to depression, anxiety and stress. As yet, however, we have little understanding of how the components of the SCS interact and contribute to a person's compassion or if one area is potentially more important than another. To fully understand the relationship between self-compassion, risk factors and self-harm, future research may wish to use theoretical models such as the IMV model of suicidal behaviour (O'Connor, 2011, O'Connor & Kirtley, 2018). This would allow studies to be designed which investigate the role of self-compassion within specific circumstances and may be particularly beneficial in exploring the mechanisms which underlie the relationship with self-harm and how these constructs may be applied to support recovery.

Additionally, research in this area needs to move away from cross-sectional studies as these limit the causative conclusions that may drive intervention development. Research may wish to employ more prospective designs to explore whether self-compassion (or any of the components) is predictive of self-harm ideation or self-harm behaviours over time, and to what extent self-compassion is stable which would allow the investigation of the stability of these constructs over time as well as how they affect the relationship between risk factors and self-harm or self-harm ideation. Integrating innovative technological measures such as ecological momentary assessment (EMA; Stone & Shiffman, 1994) should be considered as this would allow explorations of how self-compassion changes over time and as a function of daily stressors and mood which would provide valuable insight into the relationship with risk factors and self-harm. Additionally, it is crucial that future research investigates these relationships in different populations.

Ideally, studies should employ standardised measures of self-forgiveness and self-harm ideation or self-harm to allow comparability across studies. Research is also needed into the

relationships between the components of self-compassion, the impact of age and gender on its relationship with suicidal ideation and self-harm. Additionally, frameworks such as the IMV model can guide testable pathways of factors which may mediate the relationship between self-compassion and self-harm. For instance, investigating potential mediating roles of defeat, entrapment and self-criticism in the self-compassion and self-harm relationship would extend the knowledge base.

Self-compassion and self-forgiveness are potentially important protective factors. Although there appear to be similarities between the two constructs, studies investigating the relationship between self-compassion and self-forgiveness may provide further insight into how these factors interact. The fact that these can be targeted and cultivated through meditation provides another potential intervention point to protect individuals who may be at risk of self-harm or ideation. However, it is important to note that self-compassion is not a panacea. For some individuals, especially those experiencing high self-criticism, the process of developing self-compassion can be distressing initially (Gilbert & Irons, 2005) and requires a supportive, therapeutic environment. Additionally, research needs to reflect the complexity of self-compassion. Research into self-compassion, including its components, should account for the fact that it likely has both as both state and trait properties. Novel study designs should be used to evaluate how and under which circumstances the different aspects of self-compassion and impact upon one another. This will provide greater insight into the mechanisms which may facilitate therapeutic change as well as a better understanding of who is mostly likely affected by self-compassion.

The literature highlights the potential usefulness of self-compassion and self-forgiveness in relation to suicidal ideation and self-harm, however, more research emphasis needs to be placed on the positive components of mental health and, as such, self-compassion and self-forgiveness are important areas that deserve further research attention.

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Figures and tables

Figure 1. Procedure for identifying, screening and determining the eligibility of studies for inclusion in the review.

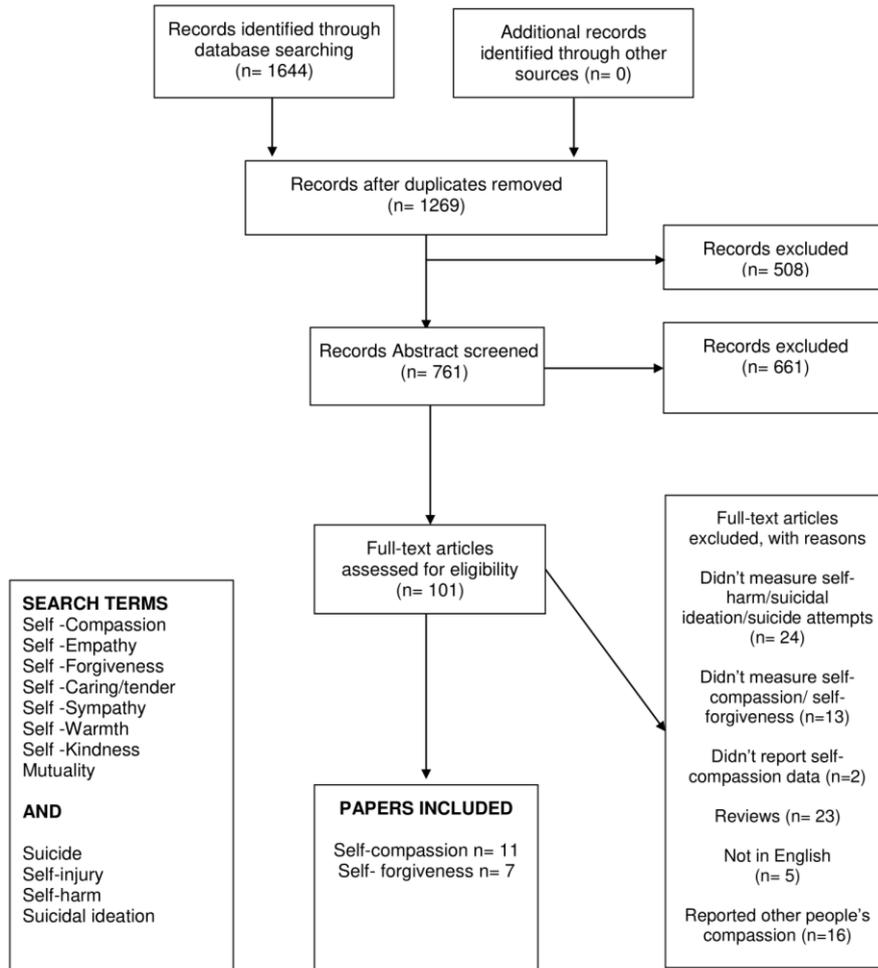


Table 1. Self-compassion Quantitative studies

Study	Sample	Study design	Measures		Key Findings	Analysis
			Self-compassion	Outcome Measure		Covariates
Country Quality assessment (QA) score Chang et al (2016) USA QA=3	Students. N= 331 (F=225, 67.9%) Mean age: 21.5 Range: 18-58 European American = 88.8%, African American =6% Asian American= 3.3%, Latino =1.8%	Cross-sectional; observational	SCS (Neff, 2003 ab)	Combined suicidal ideation and suicide attempts SBQ-R (Osman, Bagge, Gutierrez, Konick, Kooper & Barrios, 2001)	SCS subscales significantly associated with suicidal behaviours (r= 0.2 to 0.26) in expected directions. SC potential mediator of negative life events (NLE) last 12 months and SBQ-r score. NLE negatively related to common humanity (B=-.11), which in turn was negatively related to suicidal behaviours (B=-.13). The full model involving NLE and SC facets, controlling for sex, accounted for a small (f ² = .16) but significant (13.7%) of variance in suicidal behaviours, F(7, 323) = 7.18, p < .001.	Correlations Multiple Mediation Models (Depressive Symptoms And SB) To Assess Effect of Each Compassion Component. Gender Used P<.10 Significance
Collett et al (2016) UK QA=6	Clinical (persecutory delusions) vs controls (C) N= 42; 21 clinical, 21 C Groups matched age/gender Mean age: 45.6, 41.9 respectively Range: 21-66 Ethnicity not reported	Cross-sectional; Case controlled Clinical group recruited clinical service; data collected interview with clinician. C group from participant pool online.	SCS (Neff, 2003 ab)	Suicidal ideation BSSI (Beck & Steer, 1991)	Clinical group lower self-compassion and higher depression than C group (P<0.05). Self-compassion negatively correlated with suicidal ideation (r=-.64; p=0.002) and measures of self-cognitions.	Correlations Mann-Whitney U-Tests Cohen D Calculated. None
Gregory et al (2017) USA QA=6	Students N=64; all female. SH = 32; C =32 Mean age: 19.4 Range: 18-22 White= 89.1%	Cross-sectional; experimental	SCS (Neff, 2003 ab) State self- compassion trusting, loving, grateful, joyful (not at all- extremely)	Self-harm Item from the SNAP-2 (Clark 2003; item 174) assessed repeated engagement deliberate physical self-injury.	SH lower trait (M (SD) = 2.40 (0.57), than C, M (SD) = 3.25 (0.63), t (62) = -5.68, p < .001, d = -1.44) and state (F (1, 60) = -6.69, p = .012, d = -0.66 M (SD) = 3.08 (0.89), than C M (SD) = 3.60 (0.84) self-compassion. Post VA: Self-compassion increased in both SH, M (SD) = 3.52 (0.70) versus M (SD) = 2.64 (0.85), and C group, M (SD) = 3.77 (0.92) versus M (SD) = 3.44 (0.75) than neutral condition, M (SD) = 3.04 (0.89). SH group pain endurance reduced to level of C. Values affirmation produce the greatest gains in state self-compassion among individuals with low in trait self-compassion.	Correlations T-Tests Regressions Mancova 2xs Design VAS Joyful Trait Compassion

Hayes et al (2016) USA QA= 3	Students registered with mental health services 1609 (f=1110; 69%, m=499; 31%) Mean age: 22.74 Range: 18-63 (85% under 25 years old) European American/White= 59% African American/Black= 13% Hispanic/Latino/a=13% Asian American= 8% Multiracial= 4% Other= 2%	Cross-sectional; observational	SCS-SF (Raes et al., 2011)	Suicidal ideation, suicide attempts, NSSI Lifetime frequency. Dichotomised score used.	Factor analysis of SCS-sf; differences between groups for total scores reported. ANOVAS conducted C; SI, SA; NSSI	Correlations Anovas None
Jiang et al (2016) China QA=4	Adolescents 525 (f=225, 43%) Mean age: 12.97 Range: 11-16 Ethnicity not reported	Longitudinal	SCS (Neff, 2003 ab)	NSSI in 12m. NSSI methods listed with frequency scale (Never- almost every day)	Time 1: 152 (29%) engaged in NSSI, 69 (29%) 1 method, 83 (54.6%) multiple methods Self-compassion negatively correlated NSSI $r=-.3$ and being bullied ($r=-.27$) (both $p<0.001$) Time 2: 137 (26.1%) NSSI, 60 (44.1%) 1 method, 77 (56.2%) multi. Higher SCS less NSSI $r=-.19$ ($p<0.001$) Victimisation associated with NSSI at t2. Self-compassion weakened relationship. Interaction SCS and peer victimisation $b=-.61$, $se b= .30$, $B -.15$, $p= .041$ Self-compassion not predictive of NSSI.	Correlations Regressions Correlations: Living Arrangements Parent's Education/Occupation Regressions: T1 NSSI, Bullying, Gender, Age, Family Cohesion, Self-Compassion Interaction Bullying/SCS
Jiang et al (2017) China QA=4	Adolescents N= 658 (f=264, 40.1%) Mean age: 13.58 Range: 11-16 Ethnicity not reported	Cross-sectional	SCS (Neff, 2003 ab)	NSSI. Item asking presence or absence NSSI 12m	91 (13.8%) engaged in NSSI. Females more likely to engage in NSSI 17.8% vs 11.86%; $\chi^2(1, N=607)=4.18$, $p=0.041$, NSSI in 12m younger than those with no NSSI. NSSI group lower family attachment and SCS scores ($p<0.001$). NSSI group lower feelings trust, communication and closeness than C. NSSI (mean = 2.97) significantly lower levels of self-compassion ($F(1, 504) = 35.56$, $p < .001$, $.07$) no hist group (mean = 3.37) Attachment and NSSI; self-compassion mediated the relationship maternal/paternal closeness and NSSI. Also mediated the relationship between peer communication /closeness and NSSI.	Chi-Square Mancova Mediation Univariate Tests Mediation- Gender, Age

Jiang et al (2017) China QA=4	Adolescents N= 606 (f=38.8%) *authors don't report n. Mean age: 13.58 Range: 11-16 Ethnicity not reported	Cross-sectional	SCS (Neff, 2003 ab)	NSSI/ NSSIT Item asking presence or absence NSSI/NSSIT 12m	Group breakdown: C 422 (154 f); NSSIT 98 (39f); NSSI 86 (42F) Females more likely than men NSSI (n=42) 17.87% vs 11.86% (n=44); chi sq (2,N=606)=4.27, p=0.039. No gender diffs NSSIT. C vs NSSI- significant differences (p<0.001) all SCS subscales C vs NSSIT significant differences (p<0.001) all negative SCS subscales NSSI vs NSSIT; NSSI significant lower common humanity (m=3.27 vs 3.55, p<0.01) and self-kindness (m=3.06 vs 3.38, p<0.001) than NSSIT.	Chi-Square Mancova Group X Gender Post Hoc Tukey Age
Rabon et al (2017) USA QA=2	Students N= 356 (f=242, 68%) Mean age: 21.44 Range: not reported White=83.1% Black/African American= 8.5% Asian= 4.2% Other= 2% Multiracial= 1.1% Hispanic= 0.6% Refused=0.3% Native American=0.3%	Cross-sectional	SCS-SF (Raes et al., 2011)	Combined suicidal ideation and suicide attempts SBQ-R (Osman et al, 2001)	Self-compassion correlated with wellness, and negative correlation with SBQ-r and depressive. Carried out serial mediation. Indirect mediation; greater self-compassion associated with lower depression, in turn lower SBQ-r score.	Correlations, Serial Mediations None
Tanaka et al (2011) Canada QA=4	Adolescents 117 (F=55%) Mean age:18.1 Range: 16-20 White= 27%, Black= 31.3% Dual/multiple ethnicity=27.8%	Cross-sectional	SCS (Neff, 2003 ab)	Suicide attempts Item asking presence or absence 12m	Lower SCS score greater association with SA (r=-.3, p<0.05). Significant associations found between childhood emotional and physical abuse (but not sexual abuse) and lower self-compassion. Chi-square: greater proportion of people reporting low SCS score and SA 16.4% vs high SCS score 4.8% (p<0.05).	Correlations, Chi-Square (High Vs Low Self-Compassion) Regression Age, Gender 2- Emotional Abuse Q Score 3 Physical Abuse 4 Emotional Neglect 5 SCS Score
Xavier et al (2016) Portugal QA=5	Adolescents 643 (F=332, 51.6%) Mean age: 15.24, range: 12-18 Ethnicity: not reported	Cross-sectional	SCS (Neff, 2003 ab)	NSSI RTSHIA (Vrouva, Fonagy, Fearon, & Roussow, 2010; Portuguese version: Xavier, Cunha, Pinto-Gouveia, & Paiva, 2013)	Males higher self-compassion and lower NSSI. Self-compassion significantly correlated with depression (r=-.64), NSSI (r=-.33), and daily hassles (r=-.34). SCS subscales: self-kindness accounted 23% variance NSSI; interaction term depression and self-kindness significant, but self-kindness and daily hassles not significant. Mindfulness 24% variance NSSI; interaction term depression and mindfulness significant, but not significant mindfulness and daily hassles All negative subscales significant and 24/25% accounted for SCS had moderating effect on depression and NSSI; SCS buffers against depression and NSSI	Correlations T-Tests Path Analysis Testing Moderation Effect Self-Comp. Moderation: Gender

SCS= Self-compassion scale; SCS-SF= Self-compassion scale short-form; RTSHIA= Risk-taking and Self-harm Inventory for Adolescents; SBQ-R =Suicidal Behaviours questionnaire-r; BSSI= Beck scale for suicidal ideation; SNAP-2=Schedule for Non-adaptive and Adaptive Personality-2.

Abbreviations for key findings: SC= Self-compassion; SF= self-forgiveness; C= no history of any suicidality; SA =history of suicide attempt; SI = history of suicide ideation; NSSI= non-suicidal self-injury; NSSIT= Non-suicidal self-injurious thoughts; SB=suicidal behaviours (not specified/multiple constructs measured); SH= any self-harm regardless of intent

Table 2. Self-forgiveness Quantitative studies

Study Country Quality assessment (QA) score	Sample	Study Design	Measures		Key Findings	Analysis Covariates
			Self-forgiveness	Outcome Measure		
Bryan et al (2015) USA QA=8	military services active and veterans enrolled in college 476 (M=69%) Mean age: 36.2 Range: 19-78 Ethnicity: Caucasian=81.4% African American= 6.1% Native American= 3.2% Asian= 2.5% Pacific Islander= 1.1% Dual/multi= 10.8%	Cross-sectional	SF-HSF (Thompson, Snyder, Hoffman, Michael, Rasmussen, Billings, et al, 2005)	Suicidal ideation and attempts SITBI (Nock, Holmberg, Photos & Michel, 2007)	Group breakdown: SA= 31 (7.1%), SI= 129 (29.5%), C= 278 (63.5%). Significant difference in SF scores between groups Lowest SF (M _ 22.97, SD _ 7.47) reported SA, SI significant higher SF (M _ 27.90, SD _ 7.38), C highest (M _ 31.23, SD _ 6.40). Regressions: SF differentiated SA from C (OR) _ 0.85, [0.80, 0.90], p _ .001) and SI (OR _ 0.91 [0.86, 0.96], p _ .001). SF also differentiated SI from C (OR _ 0.93 [0.90, 0.96], p _ .001). Covariates included SF still differentiated SA from C (AOR) _ 0.90 [0.84, 0.97], p _ .008), but not SI from C (AOR _ 0.97 [0.93, 1.01], p _ .111). Multinomial logistic regressions SF negatively correlated with PTS, depression severity, SI (r=-0.29) and SA (r=-0.26) p<0.05). SF significant predictor of PTS (adjusted age, gender, military versus veteran status, and depression; -.131, p _ .001), F(4, 407) _ 37.587, p _ .001, _R2 _ .180.	Correlations, Anovas, Regressions Age, Gender, Trauma History, Post Trauma Stress (Pts), Veteran Status, Depression
Chang et al (2014) USA QA=2	Community sample 101 (F=71%) Mean age: 42.18 Range: 18-64 Ethnicity: White= 93%	Cross-sectional	2 items: BMMRS (Fetzer Institute, 2003)	Combined suicidal ideation and suicide attempts SBQ-R (Osman et al, 2001)	SF significant negative association with SB. SB significant negative association with SF. SF indirect effect on Domestic abuse-> SB relationship. SF partial mediation domestic abuse and SB relationship ($\beta = .20$, $p < .05$). SB ($\beta = .13$, NS); forgiveness of self ($\Delta\beta = .07$) accounted from mediation. Inclusion of SF accounted for 34% reduction of the variance in SB.	Correlations Mediations None
Cheavens et al (2016) USA QA=3	Older adults 91 (F=75%) Mean age: 70.4 Range: 60+ Ethnicity: Caucasian= 93% African American= 1% Hispanic= 6%	Cross-sectional	HFS-S (Thompson et al., 2005)	Suicide ideation GSIS-SI (Heisel & Flett, 2006)	SF significant negative association with SI and depression SF moderated relationship perceived burdensomeness (PB) and SI. PB and SI highest when SF lowest. Held when controlling for demographic variables and depression PB and SI relationship strongest when SF lowest. Models including all demographics and SF accounted for significant SI variance. Including interaction terms; Interaction PB and SF accounted for further variance. Only SF remained significant association with SI.	Correlations, Regression, Moderation Demographic Variables Depression
Hirsch et al (2011) USA QA=3	Student 158 (F=123, 78%) Mean age: 19.58 Ethnicity: White= 17% Hispanic= 46% Black= 23% Asian =4% American Indian/Alaskan native= 2% Other= 6%	Cross-sectional	BMMRS (Fetzer Institute, 2003); Single item	Combined suicidal ideation and suicide attempts SBQ-R (Osman et al, 2001)	All forgiveness associated with SB. SF significant negatively association with SB and depression SF mediated depression and SB relationship. Mediation: Higher SF, lower SB effect. Fully accounted for by indirect effect of depression (higher SF, lower depression) Mediations: SF and depression predictive of SB Forgiveness of others related to lower SB regardless of depression symptoms Forgiveness of others and SF both predictive of SB.	Regressions, Mediations. Age, Gender, Ethnicity, Religion, Spirituality, Depression, Forgiveness of Others, Forgiveness by God,
Hirsch et al (2012) USA QA=3	Student 372 (F=260, 70%) Mean age: 19.6 Ethnicity: White= 19%	Cross-sectional	BMMRS (Fetzer Institute, 2003); Single item	Combined suicidal ideation and suicide attempts	SF significant negative association with inward anger, SB, and depression. Inward-anger significantly positively associated, outward-anger significantly negatively associated with SB	Correlations, Regressions, Moderations,

	Hispanic= 41% Black= 26% Asian =6% American Indian/Alaskan native= 1% Other= 7%			SBQ-R (Osman et al, 2001)	SF moderator of association between inward and outward-directed anger and SB, in independent models. effect persisted in a full model including both inward and outward-anger and all forgiveness subscales.	Age, Gender, Ethnicity, Religion, Spirituality, Depression, Outward Anger
Nsamenang et al (2013) USA QA=2	Primary care, rural community. Uninsured 101 (F=71, 71%) Mean age: 42.18 Range: 18-64 Ethnicity: White= 94%	Cross-sectional	BMMRS (Fetzer Institute, 2003); Single item	Combined suicidal ideation and suicide attempts SBQ-R (Osman et al, 2001)	SF significant negative association with SB, depression. Thwarted belongingness and perceived burdensomeness were significant Negatively association with SF (r.25_58, and _55, pso.001, respectively SF indirect relationship SB. Burdensomeness mediator SF (r=.25 to .28, p=.004) and of others (r.25 to.24, p=.017), not forgiveness by God, were significantly negatively associated with SB. dep and negatively association with forgiveness of self (r=-.48, p=.001), mediations Higher Sf>lower dep/ burdensomeness/t belongingness>lower SB Mediation: Significant total and direct effects for all forgiveness dimensions on SB not observed coV; age, gender, ethnicity, religion, spirituality, depression indirect effect of SF on SB was statistically significant.	Correlations, Regressions, Mediations, Age, Gender, Ethnicity, Religion, Spirituality, Depression
Westers et al (2012) USA QA=5	Adolescents 30 (F=21, 70%) Mean age: 15.77 Range: 12-19 Ethnicity: Caucasian= 56.7% Hispanic= 30% African American= 6.7% Native American= 3.3% Multiple ethnicities: 3.3%	Cross-sectional	MFS (Mauger, Perry, Freeman, Grove, McBride & McKinney, 1992)	NSSI NSSI subscale of SITBI (Nock et al., 2007) and Functional assessment of NSSI	Higher NSSI frequency associated with lower SF. Lower SF associated with greater likelihood of NSSI to get rid of unwanted feelings (ANR) (adjusted r2 = 0.35, F2,27 = 8.91, p = .001.) Lower SF significant predictive of NSSI for automatic positive reinforcement (APR), ANR, social positive reinforcement (SPR). Latter 2 held when sex controlled for. SF only significant contribution to regression SF significant predictor of engaging in NSSI for APR (A = 0.45, p = 0.021), and for NSSI for SPR (A = 0.43, p = 0.027). Association more frequent NSSI and SF (r25 = .609, p = .001), negative relationship.	Correlations, Regressions Gender

Note: Abbreviations for measures: SF-HSF= Self-forgiveness subscale of the Heartland Forgiveness Scale; BMMRS= Brief Multidimensional Measure of Religiousness and Spirituality; HFS-S= The heartland forgiveness scale; MFS= Mauger Forgiveness Scale; SBQ-R =Suicidal Behaviours questionnaire-r; SITBI= Self-Injurious Thoughts and Behaviours Interview; GSIS-SI= Geriatric Suicide Ideation Scale.

Abbreviations for key findings: SC= Self-compassion; SF= self-forgiveness; C= no history of any suicidality; SA =history of suicide attempt; SI = history of suicide ideation; NSSI= non-suicidal self-injury; NSSIT= Non-suicidal self-injurious thoughts; SB=suicidal behaviours (not specified/multiple constructs measured); SH= any self-harm regardless of intent.

Table 3 Qualitative study of Compassion

Study Country Quality assessment (QA) score	Sample	Study Design	Measures		Key Findings	Analysis Covariates
			Self-compassion	Outcome		
Sutherland et al (2014) Web based QA=N/A	IPA analysis of self-compassion themes in 170 NSSI related posts on blog/websites	Convenience/ purposeful sampling	Guided by positive subscales of SCS (Neff, 2003 ab)	NSSI Free responses	Multiple self-compassion themes extracted from within posts. Self-compassion mostly found in posts regarding recovery from NSSI.	Not applicable