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Exploring the Role of Self-Compassion in Self-Harm and Suicidal Ideation

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Thesis submitted in fulfilment of the requirements for the
Degree of Doctor of Philosophy

Psychological Medicine
Mental Health and Wellbeing
Institute of Health and Wellbeing
College of Medicine, Veterinary and Life Sciences
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Abstract

Background: To date suicide research has mostly focussed on the presence of risk factors for suicide, and as a result, we have a good understanding of how these factors interact and contribute to risk. However, despite major advances in understanding the psychology of suicide and self-harm there are many gaps in our knowledge. In particular, the evidence for factors that may protect against suicide risk is limited.

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. Adopting a compassionate stance to the self may help individuals tolerate difficult emotions, and as self-compassion can be developed through meditation type exercises, it may present a potentially modifiable protective factor for psychological distress and perhaps protect against suicide risk.

However, research into self-compassion, suicide and self-harm is a relatively new field and our understanding of how self-compassion relates to risk-factors and self-harm as a whole is limited. This thesis presents five studies designed to address the following research questions: 1. What is the nature of self-compassion?; 2. What is the relationship between self-compassion and suicidal ideation or self-harm?; 3. Is a brief self-compassion exercise acceptable to individuals with a history of self-harm?

Methods: A range of self-report and experimental measures were utilised to address the above research questions.

To investigate the first research question, the factor structure of the Self-Compassion Scale (SCS; Neff, 2003 a,b) was assessed in study 2. Exploratory and confirmatory factor analytical techniques were used (Time 1, $n=526$; Time 2, $n= 332$). Construct divergence of the SCS and a measure of self-criticism was assessed in studies 3 and 5.

To address the second research question, a systematic review of the literature (study 1) was conducted to establish the extent of the extant knowledge on this relationship.

In studies 3 and 5 self-compassion was investigated within the context of risk factors selected from the Integrated Motivational-Volitional model of suicidal behaviour (IMV; O'Connor & Kirtley, 2018; O'Connor, 2011).

Study 3: a longitudinal (Time 1, $n=514$; Time 2, $n= 269$) online self-report survey was conducted to explore self-compassion's role within the motivational phase of the IMV model. The SCS was included along with the core constructs (defeat and entrapment) of the motivational phase of the IMV model and suicidal ideation history.

Studies 4 and 5 were laboratory studies which used experimental and qualitative components to develop and pilot a self-compassion exercise (SCM). Study 4 ($n= 8$) assessed the acceptability of the SCM to individuals with a history of self-harm (Question 3). Specifically study 4 contained a qualitative component to elicit feedback on the SCM and explore participant's experiences of compassion. Study 5 ($n= 61$) was a randomised controlled comparison of the SCM versus relaxation exercise on autobiographical memory; an established risk factor for suicidality from the IMV model (Question 2).

Results: Addressing the first research question, the factor analysis confirmed a bifactorial model of the SCS indicating that both total score or and subscale scores are valid. Additionally, the SCS demonstrated significant divergence from self-criticism indicating that these measures assess different constructs. In respect of research question 2, consistent with the systematic review, all the studies herein found that higher self-compassion was associated with no history of suicidal ideation or self-harm and lower levels of psychological distress.

In studies 3 and 5, components of the SCS were found to mediate the different pathways between selected risk factors and suicidal ideation and self-harm. Individual mediation models indicated that defeat and entrapment were mediated by SCS total score and isolation; the entrapment-suicidal ideation relationship was mediated by isolation, self-kindness and self-judgement. In study 5 the relationship between overgeneral autobiographical memory and suicidal ideation was mediated by all the negative SCS subscales, mindfulness and the SCS total score. Also in study 5, non-significant opposing trends were evident for the SCM and relaxation exercises. Specifically, following the exercises, a main effect was observed in recall latency to negative cues; latency decreased following the SCM whereas latency increased following the relaxation exercise (both non-significant). Non-significant increases in specific memories were observed following the SCM while no change was observed following the relaxation exercise. This may suggest that SCM and relaxation exercises operate differentially within autobiographical memory.

There was clear evidence that a brief self-compassion exercise acceptable in individuals with a history of self-harm with only some minor changes in administration highlighted. Following the SCM increases in self-compassion were reported by participants.

Conclusions: The range of methods used in these studies allowed an in-depth evaluation of self-compassion's role in suicidal ideation and self-harm. In line with previous research, the findings suggest that high levels of self-compassion are associated with lower suicidal ideation and self-harm. The results also indicate that components of self-

compassion may play a role throughout the motivational phase of the IMV model. Findings from the laboratory studies indicated that individuals with a history of self-harm found the brief self-compassion exercise acceptable. Our findings demonstrate that a brief self-compassion meditation is acceptable and produces changes in levels of compassion. Signals in the data from study 5 suggest that brief self-compassion exercises may be useful to investigate the relationship between self-compassion and autobiographical memory. Overall, these findings suggest that self-compassion may be an important clinical target as, given the interconnected nature of its components, targeting self-compassion may have diffuse effects on various risk factors for suicidal ideation and self-harm. Further research should investigate feasibility and outcome signals of compassion-focussed interventions for suicidal behaviour. Ultimately further research is needed to better understand the role of self-compassion in suicidal ideation and self-harm.

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Publications arising from this thesis

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Author's Declaration

"I hereby declare that I am the sole author of this thesis, except where the assistance of others has been acknowledged.

It has not been submitted in any form for another degree or professional qualification."

Seonaid Cleare

September 2019

Chapter 1 Introduction

Background: This chapter provides an introduction to research into self-harm and suicidal behaviour, including challenges faced in this field and the rationale for shifting the research focus from risk factors to protective factors. The chapter then explores one such potential protective factor, compassion before moving the focus onto self-compassion. These research areas provide the rationale that underpins the current research and informs the specific research questions outlined within this chapter.

Methods: The prevalence of self-harm and suicidal behaviour is discussed, followed by a description of the Integrated Motivational-Volitional model of suicidal behaviour (IMV; O'Connor, 2011; O'Connor, Cleare, Eschle, Wetherall, & Kirtley, 2016; O'Connor & Kirtley, 2018), a prominent model of suicidal behaviour. The IMV model provides a theoretical framework to investigate specific risk and protective factors. The origins and development of compassion, including evidence from neurological and psychological studies is discussed to provide the context for self-compassion as both a trait and a state.

Results: The IMV model provides a useful framework for understanding the circumstances in which self-compassion may be particularly pertinent. Self-compassion is a potentially relevant construct which may have a role in ameliorating the impact of established risk factors on subsequent self-harm and suicidal behaviour. Further exploration of the relationship between self-compassion and suicide risk may provide a crucial insight into how self-compassion might be utilised to understand and ameliorate risk of self-injurious behaviour.

Conclusions: This chapter ends with the presentation of the structure and aims of the current thesis, setting out the overarching purpose of the research; namely to investigate the relationship between self-compassion and risk factors for self-harm/suicidal behaviour.

1.1 Background

Suicide is a major global health concern (World Health Organization [WHO], 2014) with around 800,000 people taking their own lives annually. Suicide is the second leading cause of death in 15-29 year olds across the globe (WHO, 2018), and a leading cause of death in young people in Scotland (Scottish Suicide Information Database [ScotSID], 2018). The number of people who attempt suicide or engage in non-suicidal self-harm (NSSH) is thought to be around 20 times higher than this (WHO, 2018). Indeed, a recent study of 18-34 year olds in Scotland found that 1 in 9 (11.3%) young people reported having made a suicide attempt (O'Connor et al., 2018) whilst 1 in 6 had engaged in NSSH (16.2%).

Suicidal behaviours emerge from an accumulation of environmental, biological and psychological factors, which combine to result in an individual taking steps to end their life (Franklin et al., 2017). Prior research into suicidal behaviour has allowed us to understand some of the major risk factors for suicide (Hawton & van Heeringen, 2009), and the commonly cited risk factors are not very specific, making it difficult to identify and support those individuals within high risk groups who are more likely to take their own lives (Franklin et al., 2017; O'Connor & Kirtley, 2018; O'Connor, 2011). Indeed, the strongest indicator of future suicide risk is history of a previous suicide attempt (Arensman, Griffin, & Corcoran, 2016) or having engaged NSSH (Chan et al., 2016).

It is also worth noting that categorising episodes of self-harm as either being suicidal or non-suicidal may create a false dichotomy as these are not mutually exclusive categories as an individual's behaviours often traverse both categories (Kapur, Cooper, O'Connor, & Hawton, 2013). Additionally, an individual's reasons for engaging in self-injury are usually many (Armitage, Rahim, Rowe, & O'Connor, 2016) and their "desire to die" associated with the episode (Silverman, 2016) often changes from moment to moment. In light of this, and consistent with the UK national clinical guidance, the term self-harm is used herein to refer to any "self-injury or self-poisoning irrespective of the apparent purpose of the act" (National Institute for Health and Care Excellence [NICE], 2012, p292). However, when reporting on the research literature, the terminology used by the original authors will be maintained, where appropriate, so as not to misrepresent their findings. In addition, where we use the term suicide attempt or suicidal behaviour, there has been evidence of suicidal intent.

A key limitation of previous research in the field is that, for the most part, studies were not driven by overarching theoretical frameworks which impeded the generalisability of the results and made the identification of possible intervention points to reduce self-harm risk

unclear. One such framework which is well placed to address this gap in the literature is the Integrated Motivational-Volitional model of suicidal behaviour (IMV; O'Connor & Kirtley, 2018; O'Connor, 2011). The IMV model maps out a clear pathway (applicable to any self-harm ideation and enactment, regardless of intent [O'Connor & Kirtley, 2018]) to suicide risk, describing how factors interact and contribute to the development of suicidal ideation, and in the transition from ideation to the enactment of self-harm or suicidal behaviour. Additionally, the IMV model identifies moderators which influence the impact of risk factors on the individual and, by their presence or absence, may increase or reduce the likelihood that the individual progresses along the pathway to suicidal ideation, and from suicidal ideation to suicidal behaviours.

Historically, research into protective factors for suicidal behaviour has been more limited (O'Connor & Nock, 2014). Moreover, it is even less clear when and under which circumstances such factors may offer protection. One such factor which warrants further investigation is self-compassion. Self-compassion has both state and trait features. In terms of the latter, self-compassion is thought to develop within a secure attachment framework (MacBeth & Gumley, 2012) and have a role within the caregiving system supporting infant and caregiver bonding. Additionally, self-compassion is a reactive process in which the individual has the intention and motivation to extend warmth and kindness to themselves in the face of painful experiences whilst holding these experiences in mindful awareness.

The literature repeatedly suggests that higher self-compassion is associated with lower levels of depression, stress, anxiety (MacBeth & Gumley, 2012), self-harm and suicidal ideation although the research on the latter is limited (full discussion is in Chapter 2). Self-compassion can be developed through meditation (e.g., Gilbert & Irons, 2005; Gilbert & Procter, 2006) and there is some evidence that even single session compassion exercises can produce changes in affect (Hutcherson, Seppala, & Gross, 2008) and pain sensitivity (Gregory, Glazer, & Berenson, 2017). As such these exercises may therefore allow the exploration of select mechanisms which underlie suicide risk. Improving our understanding of how self-compassion is associated with suicide risk could point to innovative new ways to identify *the characteristics of circumstances* and individuals associated with risk of self-harm and suicidal behaviour.

In brief, in this chapter, the theoretical framework of the IMV model of suicidal behaviour (O'Connor & Kirtley, 2018; O'Connor, 2011) is introduced. This is followed by a description of compassion and self-compassion and the chapter ends with the overarching research questions investigated in this thesis and an overview of the thesis structure.

1.2 The Integrated Motivational-Volitional Model

It is well established that the pathways to suicide are determined by a complex interplay of genetic, biological, environmental and psychological factors (O'Connor, 2011; O'Connor & Nock, 2014). Although studies have identified a range of factors which are thought to increase the risk of self-harm and suicide (e.g., depression, hopelessness, perfectionism, impulsivity etc.) our understanding of the markers which specifically communicate risk remains limited (Franklin et al., 2017). Consequently, researchers have recognised the need to develop more sophisticated explanatory models of suicidal behaviour which can help conceptualise the complex interplay of risk and protective factors (O'Connor & Nock, 2014).

One model which provides such a framework for delineating the pathway to suicidal behaviour is the IMV model of suicidal behaviour (Figure 1.1; O'Connor, 2011; O'Connor et al., 2016; O'Connor & Kirtley, 2018). The IMV model was conceptualised to understand suicidal behaviour, however, in a recent update the authors emphasise that the model is applicable to all types of self-harm, irrespective of motives (O'Connor & Kirtley, 2018). As Figure 1.1 shows, the IMV model is a tri-partite (pre-motivational, motivational and volitional phases) diathesis-stress model that details key factors that facilitate or hinder an individual's transition along the pathway from the emergence of suicidal ideation to behavioural enactment, i.e., engaging in self-harm with or without suicidal intent. There is growing evidence (discussed later in this chapter) supporting the utility of the IMV model in differentiating between the phases of the suicidal behaviour pathway and distinguishing individuals who think about suicide and those who engage in the behaviour.

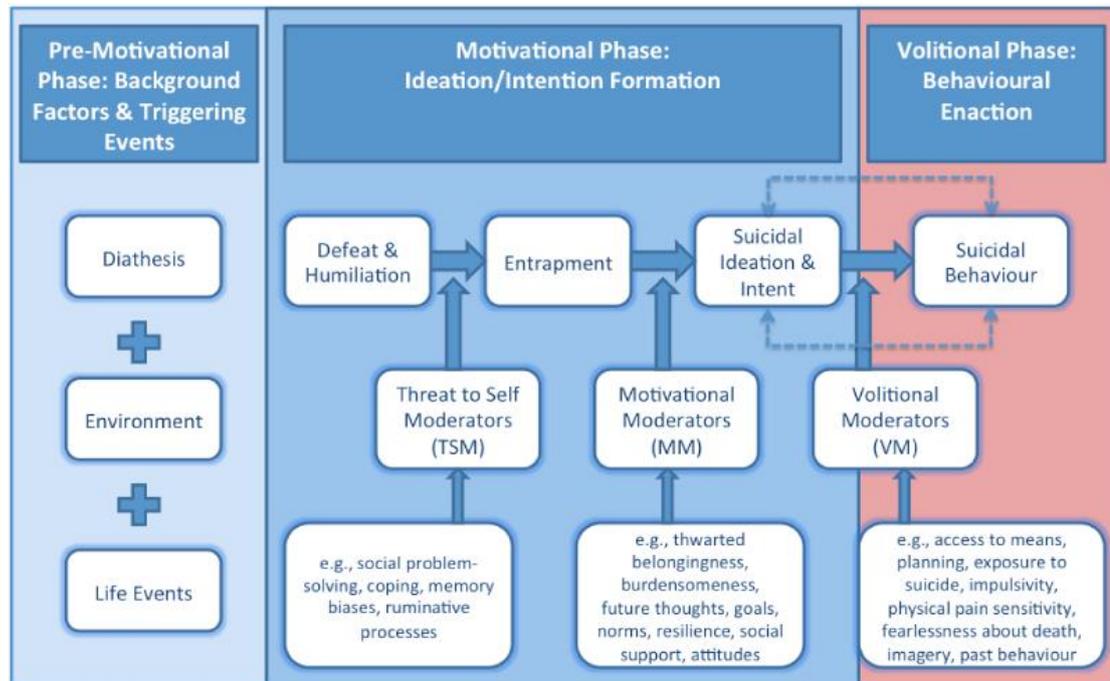


Figure 1.1. The Integrated Motivational-Volitional model of suicidal behaviour (O'Connor, 2011; O'Connor & Kirtley, 2018)

1.2.1 Pre-motivational phase

As detailed in Figure 1.1, the pre-motivational phase describes the background context in which suicidal ideation may develop within a diathesis-stress framework. The pre-motivational phase of the IMV model highlights that in the presence of environmental stressors (e.g., deprivation, socioeconomic inequalities [Platt, 2016]), or adverse life-experiences (Bagge, Glenn, & Lee, 2012) the presence of background vulnerabilities, such as genetic or biological factors (O'Connor, 2011; van Heeringen, 2012) and more stable psychological factors (e.g., cognitive, affective or personality traits) will impact upon the aetiology of mental health issues. Specifically, these factors provide the context in which suicidal thoughts and behaviours may emerge (O'Connor, 2011).

Early life experiences are implicated in the development of both psychological and biological vulnerabilities. For instance, exposure to adverse experiences during childhood has been linked to a multitude of negative outcomes later in life including substance misuse, physical and mental health issues, suicide attempts and self-harm (Bellis, Lowey, Leckenby, Hughes, & Harrison, 2014; Felitti et al., 1998; Kelly-Irving et al., 2013; Lutz, Mechawar, & Turecki, 2017) and repetition of self-harm (Cleare et al., 2018).

Additionally, early life adversity is associated with attachment and relationship problems in adulthood (Ainsworth, 1985; Hazan & Shaver, 1994). When an infant is raised in a supportive and nurturing environment where the carer provides a "safe

haven” by providing protection and soothing in response to threats and provides a secure base from which the infant can explore the world secure attachment develops. In this caregiving environment children develop the ability to manage their own distress and self-soothe (Bowlby, 1982). In the absence of a secure base and safe haven, or for example, in the presence of invalidating carer styles (Bowlby, 1988), or exposure to abuse and neglect, insecure attachment styles (i.e., avoidant, preoccupied or disorganised attachment styles) may develop (Raby, Labella, Martin, Carlson, & Roisman, 2017). Within insecure attachment styles, disorganised attachment (characterised by erratic attachment behaviours including unusual, awkward behaviour during separation and reunions [Duschinsky, 2015]) has, in particular, been associated with difficulties in regulating emotions (Pascuzzo, Moss, & Cyr, 2015) and the use of maladaptive emotional regulation strategies including non-suicidal self-injury (Baer & Martinez, 2006; Joiner et al., 2007; Kharsati & Bholra, 2016) and are vulnerability factors for suicidal ideation and attempts in adulthood (Fergusson, Woodward, & Horwood, 2000).

Early experiences also shape, in part, our personality and individual differences traits. Perfectionistic traits, for instance, are thought to develop as a consequence of our early environments. Socially prescribed perfectionism (the perception of others’ expectations of one’s behaviour being unachievably high; Hewitt & Flett, 1991) is thought to develop in the presence of inconsistent, absent, or conditional carer approval (Barrow & Moore, 1983) and it has been shown to be repeatedly associated with suicidal thoughts and behaviours (Smith et al., 2017; O’Connor, 2007). Similarly, self-oriented perfectionism (an individual’s unremitting need for their own perfection; Hewitt & Flett, 1991), and the need to be perceived as perfect have been associated with insecure attachment style (Flett & Hewitt, 2002). Individuals with self-oriented perfectionism are hypervigilant to their own perceived flaws and fearful of criticism from others and often employ self-criticism as a defensive strategy against others’ evaluations (Ferreira, Pinto-Gouveia, & Duarte, 2014). Self-criticism is a pervasive form of self-judgement which has been associated with a self-punishing manner in the face of one’s shortcomings or failures (Ferreira et al., 2014; Shahar et al., 2012) and has been shown to increase an individual’s vulnerability to mental health concerns including depression (Mcintyre, Smith, & Rimes, 2018) and stress (Gruen, Silva, Ehruch, Schweitzer, & Fhedhoff, 1997).

Biological responses to stress have also been shown to be affected by exposure to trauma in childhood. For instance, impairments in the serotonergic and hypothalamic-pituitary-adrenal (HPA) axis have been associated with adversity early in life (Mann & Currier, 2010; Nyström-Hansen et al., 2019) and have been linked to increased

vulnerability for suicidal behaviour later in life (Lutz, Mechawar, & Turecki, 2017; O'Connor, Ferguson, Green, O'Carroll, & O'Connor, 2016; Van Heeringen & Mann, 2014). The HPA axis is a fast-acting response system designed to evade threats. When a possible threat is detected the HPA axis releases stress hormones which increase physiological alertness and preparedness to escape the threat (Cozolino, 2006). This system then de-escalates quickly when the threat has passed. Consequently, the system is designed for short-term activation. Exposure to chronic or inescapable stress has a detrimental impact on the system. Exposure to adversity in early life has a long-term impact on the HPA axis and in particular on the production of the stress hormone cortisol (Mann & Currier, 2010). Recent research has highlighted that, in individuals with a history of suicide ideation or attempts, blunted cortisol reactivity and lower resting cortisol levels were predicted by greater exposure to childhood trauma (O'Connor, Green, Ferguson, O'Carroll, & O'Connor, 2018).

The IMV model proposes that the presence of these factors may increase an individual's vulnerability for self-harm or suicide (O'Connor, 2011) and other mental health problems. In the event that an individual is exposed to a stressor (e.g., socioeconomic inequalities [Platt, 2016], or interpersonal negative life event [Bagge, Glenn, & Lee, 2013]), the interaction between background vulnerabilities and current stress may increase the likelihood that the individual enters the motivational phase to the model and develops suicidal thoughts through perceptions of defeat and entrapment.

1.2.2 Motivational Phase

The motivational phase of the IMV model details the development of suicidal ideation and intent. This section of the model is informed by the arrested flight model (Williams, 2001) and subsequently focuses on the impact of defeat and humiliation which are perceived to be inescapable (entrapment) - and are central the development of suicidal intent (O'Connor & Kirtley, 2018; O'Connor & Portzky, 2018). Specifically, that when an individual feels defeated and trapped by their circumstances, then thoughts of NSSH or suicide may become more prominent.

Entrapment can be a consequence of external factors (e.g., feel trapped in a job or relationship) or internal ruminations (e.g., feel trapped by one's own self-critical thinking) (Gilbert & Allan, 1998). Indeed, internal entrapment has been found to mediate the relationship between defeat and suicidal ideation over a 4-month period in a sample of patients with bipolar disorder (Owen, Dempsey, Jones, & Gooding, 2018) and over 12-months in a general population sample (Wetherall et al., 2019). The IMV model extends the

arrested flight pathway (Williams, 2001) through the inclusion of moderators which, by their presence or absence, may increase or reduce the likelihood that feelings of defeat will be translated into feelings of entrapment (O'Connor, 2011).

1.2.2.1 Threat to self moderators

According to O'Connor (2011) the defeat to entrapment pathway may be affected by cognitive processes associated with an individual's ability to cope with life situations (e.g., rumination, social problem solving), which are termed 'threat to self' moderators.

Autobiographical memory recall; our ability to recall personal episodic (e.g., the first time we ever rode a bike) and semantic (our knowledge about our world) memories are pertinent threat to self moderators. Overgeneral memory recall has been repeatedly associated with impairments in social problem solving (Dudai & Carruthers, 2005; Williams & Broadbent, 1986), coping strategies (Williams, Barnhofer, Crane, & Duggan, 2006) and is repeatedly implicated in the aetiology and course of depression and suicidality (Kuyken et al., 2006; Rasmussen et al., 2008; Thompson et al., 2005; Van Vreeswijk & De Wilde, 2004; Williams & Broadbent, 1986).

The development of overgeneral autobiographical memory recall is not yet fully understood (see Chapter 7; for further discussion). One hypothesis is that as suicidal ideation intensifies, the generality of the memories increase thereby reducing an individual's ability to access specific details from previous experiences which are crucial to inform the selection of effective coping strategies (Williams, 1996). The increase in overgeneral memories then biases the valence of available memories, leading to negative memories being over-represented (Williams & Broadbent, 1986). The increase in pervasive negative memories, associated social problem solving, along with brooding ("a passive comparison of one's current situation with some unachieved standard" Treynor, Gonzalez, & Nolen-Hoeksema, 2003, p. 256) rumination (Morrison & O'Connor, 2008; Tucker, O'Connor & Wingate, 2016), can contribute to feelings of social isolation, intense feelings of burdensomeness and increased feelings of entrapment (Williams & Broadbent, 1986).

1.2.2.2 Motivational moderators

Within the IMV model the transition from entrapment to the emergence of suicidal ideation is influenced by the presence or absence of motivational moderators.

Burdensomeness (perceiving oneself as a burden on those around you) and thwarted belongingness (feelings of not belonging) are motivational moderators that increase the likelihood that entrapment develops into suicidal ideation (Joiner, 2005; O'Connor & Kirtley, 2018; Van Orden, 2015). Other motivational moderators include psychological

factors, which may, by their presence, ameliorate feelings of entrapment. For instance, motivational moderators such as reasons for living (Linehan, Goodstein, Nielsen, & Chiles, 1983), social support (Chang, Chan, & Yip, 2017) and realistic future thinking (Macleod, Pankhania, Lee, & Mitchell, 1997) may alleviate feelings of entrapment as they may enable the individual to see alternatives to their current stressful situation and reduce feelings of isolation.

Conversely, factors which hinder the availability of potential alternatives such as impaired self-focused (intrapersonal) positive future thinking (O'Connor, Smyth, & Williams, 2015) and the inability to redirect goal directed behaviour from an unobtainable goal to more obtainable ones (O'Connor, O'Carroll, Ryan, & Smyth, 2012) have been implicated within the suicidal process (Hunter & O'Connor, 2003; O'Connor, Connery, & Cheyne, 2000; O'Connor, O'Connor, O'Connor, Smallwood, & Miles, 2004) and predicted suicidal ideation 2-3 months following an episode of self-harm (O'Connor et al., 2008).

Resilience was specified as a motivational moderator in the 2018 update of the IMV model (O'Connor & Kirtley, 2018). Indeed, the importance of resilience was highlighted in a recent study (Wetherall, Robb, & O'Connor, 2018) in which it was shown to moderate the entrapment-suicidal ideation relationship; levels of suicide ideation were highest in the presence of high entrapment and low resilience.

However, findings from studies into the different components of the motivational phase have not always been consistent.

For instance, a prospective study of students showed that baseline defeat predicted suicidal ideation at 12-month follow-up (Taylor, Gooding, Wood, Johnson, & Tarrier, 2011). Contrary to the IMV model entrapment did not predict suicidal ideation at follow-up.

Similarly, in a cross-sectional study of students, Tucker and colleagues (Tucker, O'Connor, & Wingate, 2016) found that defeat was directly associated with suicidal ideation, but not indirectly via entrapment again diverging from the IMV model. However, the latter study also showed that the relationship between defeat and entrapment was moderated by the presence of brooding rumination, which, as shown in Figure 1.1, is consistent with the placing of rumination as a threat-to-self-moderator in the IMV model.

Another study reported mixed support for the motivational phase of the IMV model. In line with the IMV model, Forkmann and Teismann (2017) found that entrapment and burdensomeness were associated with suicidal ideation. However, the authors tested the role of thwarted belongingness and burdensomeness as motivational moderators (i.e. moderating the entrapment - suicidal ideation relationship) and found no evidence of

moderation. However, as noted by O'Connor and Kirtley (2018) this is not a direct test of the IMV model.

Despite the mixed findings around the motivational phase pathway there is a mounting evidence that, as predicted by the IMV model, that although the motivational phase variables are important in the emergence of suicidal thinking they are not instrumental in distinguishing between people who ideate about suicide, and those who engage in suicidal behaviour. According to the model, it is the volitional phase moderators that drive behavioural enaction (Branley-Bell et al., 2019; Dhingra, Boduszek, & O'Connor, 2016; O'Connor, Rasmussen, & Hawton, 2012; Wetherall, Cleare, et al., 2018). To date, studies testing the utility of volitional factors of IMV model in differentiating between suicide ideators and suicide attempters have consistently provided support for its predictions.

However, as noted by the authors in the recent update (O'Connor & Kirtley, 2018), the majority of the research thus far has been cross-sectional and has been conducted in Western samples which limits the conclusions which can be drawn from the data. Longitudinal studies which explore how the components from within the phases of IMV model interact over time and contribute to the emergence of suicidal ideation and behaviours in different cultures are needed.

1.2.3 Volitional Phase

As noted above, a key premise of the IMV model is that the factors which are associated with the emergence of ideation are distinct from those which facilitate the transition to the enaction of self-injurious behaviours. As a result, the IMV model fits within the ideation-to-action framework (Klonsky et al., 2017) as it specifies that different factors are associated with suicidal ideation and behavioural enaction, respectively.

1.2.3.1 Volitional moderators

The IMV model details eight volitional moderators (see Figure 1.2) including factors such as (having reduced) sensitivity to physical pain (Chu et al., 2017; Van Orden et al., 2010), (high levels of) impulsivity (Mann et al., 1999) and acquired capability for suicide (which is the combination of fearlessness about death and physical pain insensitivity; Joiner, 2005). These moderators may interact to increase risk of suicide. For instance, if

an individual is impulsive then they may be more likely to partake in risky behaviours, which in turn, may expose them to more painful experiences (Anestis et al., 2014). These factors may contribute to feeling fearless about dying; which has been associated with suicide attempts previously (Van Orden et al., 2008).

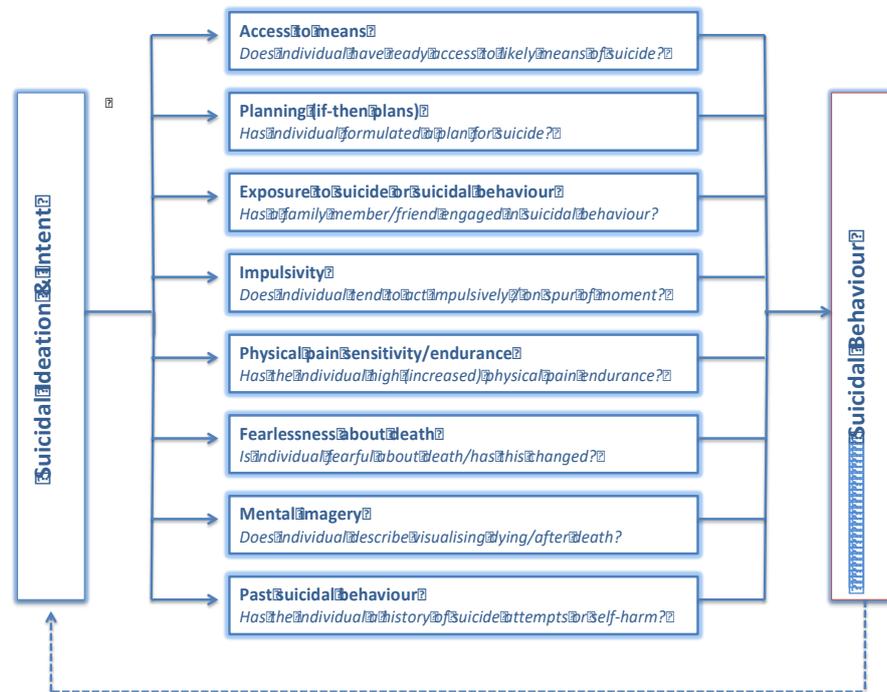


Figure 1.2. The Volitional Moderators within the IMV model (O'Connor and Kirtley, 2018)

The IMV model also highlights the importance of social and environmental moderators associated with NSSH and suicidal behaviour. For instance, exposure to another's suicidal behaviour (i.e. having a friend and family member who has engaged in suicidal behaviour [O'Connor, Rasmussen, & Hawton, 2014; Pitman, Osborn, King, & Erlangsen, 2014]) or via media portrayal of suicidal behaviour may increase the cognitive accessibility of self-harm or suicide (O'Connor & Kirtley, 2018). Additionally, having made a suicide plan (Kessler et al., 1999), having access to the means for suicide (Hawton, Saunders, & O'Connor, 2012), mental imagery about death and/or dying (Holmes et al., 2007) may all serve as cognitive rehearsal mechanisms for suicidal behaviour (O'Connor & Kirtley, 2018), subsequently reducing the 'intention to action' gap. Additionally, having engaged in any form of self-harm previously is associated with an increased risk of repetition (Hawton et al., 2012), and past behaviour is often the strongest predictor of a future suicide attempt (O'Connor et al., 2013), with around half of those who take their own lives having self-harmed in the past (Foster, Gillespie, McClelland, & Patterson, 1999)

As noted above, the IMV model was recently updated to reflect the cyclical nature of the relationship between suicidal ideation and enactment (i.e. motivational and volitional phases [O'Connor & Kirtley, 2018]). The authors point out that individuals who engage in repeat suicidal behaviour are likely to exhibit higher levels of distress and endorse volitional moderators more strongly and subsequently experience a shorter ideation-enactment cycle than individuals engaging in suicidal behaviour for the first time.

One of the advantages of IMV model is that by highlighting moderating factors throughout the pathway to self-harm or suicidal behaviour, the model pinpoints possible intervention points for at-risk individuals and it allows for the postulation of specific predictions, including those explored in this thesis.

As highlighted earlier in this chapter, the majority of research into suicidal behaviour has understandably focused on identification and amelioration of risk factors associated with these devastating behaviours. However, developing our understanding of factors which may protect against risk of self-harm or suicide by, for example, buffering the impact of stressful life events (O'Connor & Nock, 2014) is also important. Self-compassion is one such protective factor that has received considerable attention in the aetiology of mental and physical health, however its potential role and applications in suicide are not yet understood.

1.3 What is Compassion?

Before considering the topic of self-compassion further, it is important to define compassion. Consequently, this section will introduce the concept and origins of compassion before addressing self-compassion and the current evidence base as it relates to mental wellbeing.

The importance of compassion has long been recognised in Buddhist and Eastern philosophical traditions. More recently its potential clinical applications in both mental and physical health have attracted a great deal of research attention. Along with the increase in research into compassion, there has been a concomitant increase in conceptualisations of this construct (see Gilbert (2017) and Kirby (2016) for reviews of many of the definitions). For instance, Gilbert and Choden (2013) base their description on the Buddhist model of compassion which details compassion as a motivation:

“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)

Although definitions of compassion vary in their complexity, Jazaieri et al., (2014) point out four features which are present in most of the definitions. These are: a cognitive component (an awareness of suffering); affective component (sympathetic concern related to being emotionally moved by suffering); an intentional component (the desire to see the relief of that suffering); and a motivational component (responsiveness or readiness to help relieve that suffering). A good example of this is Feldman and Kyken's (2011) description of compassion which includes the nature of suffering:

“Compassion is the acknowledgment that not all pain can be ‘fixed’ or ‘solved’ but all suffering is made more approachable in a landscape of compassion. Compassion is a multi-textured response to pain, sorrow and anguish. It includes kindness, empathy, generosity and acceptance. The strands of courage, tolerance, equanimity are equally woven into the cloth of compassion. Above all compassion is the capacity to open to the reality of suffering and to aspire to its healing.” (Feldman & Kuyken, 2011, p143)

As the above highlights, compassion is a multi-faceted construct which includes components of constructs such as altruism and empathy. However, parallels have also been drawn between compassion and sympathy or pity (Gilbert, 2017). Indeed, searching for ‘compassion’ on Google (20th January 2019) yields sympathy or pity as synonyms for compassion. Although all of these emotions can be elicited in response to another's suffering, they are distinct constructs. Pity, for instance, is a term associated with an individual ‘looking down’ on another (Nussbaum, 2003), feeling sorry for someone who has been wronged (Zembylas, 2014). Pity is a passive state (Zembylas, 2014) where the observer is inactive, whereas compassion is an emotional response to suffering accompanied by a motivation to relieve the suffering (Gilbert & Choden, 2013). In addition, compassion differs from both pity and empathy in that, as highlighted by the above quotes, compassion is extended to the whole of humanity. Gilbert (2017) emphasises that it's easier to feel compassion for people we care about, however “deep courageous compassion is for those who we may not know, may not like, trust or feel affection for” Gilbert (2017, p10). Pity and empathy on the other hand, are responses often reserved for sufferers who the observer feels are ‘innocent’ (Singer et al., 2006; Zembylas, 2014) and empathy more likely when they are viewed as being similar to the observer (Hein, Silani, Preuschoff, Batson, & Singer, 2010; Small, Loewenstein, & Slovic, 2013).

Empathy often occurs as a reaction to specific situations (Gilbert, 2010). In empathy the responder shares the other person's emotion, and ‘feeling with’ the individual without a

motivation or the opportunity to act on the feelings which can lead to empathic distress and often burnout in the responder (Singer & Klimecki, 2014). By contrast, in a compassionate response, the responder 'feels for' the individual, which doesn't require the responder to share the other's suffering. Rather the individual feels concerned about the other person's suffering and responds to the associated distress in a warm, supportive way with the motivation to relieve the individual's suffering (Singer & Klimecki, 2014; Gilbert, 2017). Support for this differentiation comes from experimental studies which have shown that although empathy exercises increase pro-social behaviours (e.g., helping others) immediately following an empathy induction (Batson, 1991) they abate quickly. Whereas following compassion training, pro-social behaviours have been shown to increase and be maintained in the short-term (e.g., across a 2-5 day follow up), and these behaviours may not be limited to people targeted during the training (Leiberg, Klimecki, & Singer, 2011) but extended to strangers too.

Compassion and empathy are different emotional experiences and consequently activate different neural systems. In a functional magnetic resonance imaging (fMRI) study, Klimecki and colleagues (Klimecki, Leiberg, Ricard, & Singer, 2014) showed videos of people in distress to female participants following either memory training (control group) or empathy training. Participants who had received empathy training showed increased negative affect in response to the others' distress and displayed increased activation in regions of the brain which are associated with empathy for pain and negative affect (i.e. anterior insula and anterior midcingulate cortex). The empathy group then underwent compassion training and the control group had a second session of memory training before watching another set of distressing videos. At re-test (following exposure to the videos) the compassion group showed a reduction in negative affect and an increase in positive affect which was not observed in the control group. Accordingly, areas of the brain associated with affect regulation, reward and affiliation (i.e. middle insula area; ventral striatum, pregenual anterior cingulate cortex [ACC] and medial orbitofrontal cortex [mOFC]) showed increased activation.

Similarly, while engaged in a compassionate mindset, experienced meditators tend to show greater activation in these brain regions than inexperienced meditators when listening to distressing sounds (Lutz, Slagter, Dunne, & Davidson, 2008). Studies have shown that these areas can also be activated in the presence of romantic (Bartels & Zeki, 2000) or maternal (Bartels & Zeki, 2004) love; or when viewing pictures of a person the individual feels affection towards (Aron et al., 2005) and even in response to pictures of smiling faces (Vrtička et al., 2008). The brain regions noted in the preceding paragraph contain high concentrations of receptors for the neuropeptides oxytocin and vasopressin; compounds which are implicated in reward, attachment and bonding

behaviours (Colonnello, Petrocchi, & Heinrichs, 2017; Cozolino, 2006; Depue & Morrone-Strupinsky, 2005). Taken together, these findings indicate that compassion is intrinsically linked to both receiving and giving care and are implicated in socio-emotional processing (Uddin, Nomi, Hébert-Seropian, Ghaziri, & Boucher, 2017).

1.3.1 The development and role of compassion

Within an evolutionary context, compassion is thought to have developed within the attachment system and it plays a pertinent role in supporting infant and caregiver bonding (i.e., caregiving system). Although they are distinct systems (George & Solomon, 2008; Solomon & George, 1998), the attachment system develops in tandem with the caregiving system; a behavioural system which is activated by cues from the attachment system. Essentially the role of the caregiving system is to protect and ensure the survival of off-spring or close kin by prioritising the availability and responsiveness of caregivers (Bowlby, 1982; George & Solomon, 2008; Solomon & George, 1998). Subsequently, the caregiving system responds to either internal or external cues connected to situations that the caregiver feels are endangering the child (George, Solomon, Cassidy, & Shaver, 1999). For example, witnessing an infant's signals of distress generates the desire to alleviate the other's suffering and increase their feelings of safety.

Initially, attachment behaviours are a set of innate behaviours which support the survival of the infant (Bowlby, 1969, 1982; Fonagy et al., 1995) by trying to ensure proximity of the caregiver, particularly at times of distress. These behaviours include smiling or crying to elicit a response and contact from the caregiver and presenting distress in the absence of the caregiver, or in the presence of strangers (Bowlby, 1969, 1982). Obtaining proximity to the caregiver de-escalates the threat system, creating feelings of security which reassures and soothes infants.

The availability and responsiveness of the caregiver forms a framework from which the infant experiences threats, interprets the world and learns about themselves (Bowlby, 1969). A caregiver's responsiveness also shapes the internal framework the infant develops which guides future social and emotional interactions (George & Solomon, 2008; Hazan & Shaver, 1994; WHO, 2018).

As discussed elsewhere (Section 1.2.1), secure attachment develops in the context of a supportive and nurturing environment where a carer provides a safe haven from which a child can explore their world and the carer is attentive and reactive to comfort the child and manage its distress (Bowlby, 1982; Hazan & Shaver, 1994).

Support and encouragement from the caregiver are translated into exploratory behaviour and provide 'courage' for the infant (Gilbert & Choden, 2013). Within secure attachment, the caregiver is viewed as being dependable and the child has a secure base from which to explore their world. By being sensitive and responsive to the infant's needs, the carer provides the infant with a secure base from which to explore the world (George et al., 1999). Having this 'safe haven' to return to when they need reassurance supports the development of independence through facilitating explorative behaviour and curiosity (Solomon & George, 1998). Additionally, raised in this environment the individual develops the ability to respond to other's emotions appropriately (Mikulincer & Shaver, 2005), and the ability to recognise and regulate their own distress (Mikulincer & Shaver, 2005; Gilbert, 2005, 2009). Attentive and available caregiving has been associated with lower levels of baseline cortisol, higher levels of exploring behaviour, socialisation and self-soothing in 3-6 month olds (Spangler & Grossmann, 1993).

Disorganised attachment has been linked to caregiving disorganisation and is thought to develop in the context of adverse childhood experiences including abuse, neglect and deprivation (Mikulincer & Shaver, 2005). For example, recent research found that in mothers with a history of severe psychopathology, insecure caregiving (including avoidant [caregivers consistently reject the child's comfort seeking], and anxious/ambivalent [inconsistent responsiveness to child; sometimes unresponsive and other times responds intrusively] attachment patterns; Hazan & Shaver, 1994) in the antenatal and perinatal period was linked with more problematic interactions with infants and greater perceptions of helplessness as a caregiver (Røhder et al., 2019). Additionally, participants who felt dissatisfied with the practical support received from their own mother were more likely to feel helpless as a caregiver and expect less enjoyment from motherhood.

As mentioned earlier, cognitive vulnerabilities and maladaptive strategies for regulating distress are thought to develop in the context of inconsistent or absent caregiver responses to the infant's distress (Baer & Martinez, 2006; Joiner et al., 2007; Kharsati & Bhola, 2016). Early attachment experiences also shape an individual's attachment pattern (Brennan, Clark, & Shaver, 1998; Hazan & Shaver, 1994), which can be associated with interpersonal problems later in life (Hazan & Shaver, 1994). In some cases, individuals may desire proximity to others so much that they become acutely fearful of rejection or abandonment and require a lot of reassurance; they may ruminate on perceived threats to relationships and may be highly self-critical (Mikulincer & Shaver, 2003). This style of attachment has been associated with a pseudo

form of compassion (labelled submissive compassion) which aims to appease others and avoid rejection (Catarino, Gilbert, McEwan, & Baião, 2014).

Alternatively, individuals may actively avoid close relationships and suppress actions or thoughts which might activate the attachment system opting for self-reliance instead. In these cases, individuals may view compassion as a vulnerability or a weakness (Mikulincer, Shaver, Gillath, & Nitzberg, 2005).

Fears of compassion have been observed in individuals who demonstrate high levels of shame and self-criticism (Gilbert, McEwan, Matos, & Ravis, 2011; Gilbert & Procter, 2006), and have been linked to feelings of not deserving compassion, viewing it as a vulnerability, or being unfamiliar with compassion. Although developing compassion for the self can be challenging (Gilbert et al., 2011), adopting a compassionate stance to themselves, may help individuals to tolerate these difficult emotions (Gilbert, 2017; Klimecki, Leiberg, Ricard, & Singer, 2014; Leiberg, Klimecki, & Singer, 2011) and ameliorate the impact of shame and self-criticism (Gilbert et al., 2011).

1.4 Self-compassion

Consistent with the literature above, previous research (MacBeth & Gumley, 2012) has placed self-compassion within an attachment framework and argued that it is based on a secure attachment style ([where caregiver is available and responsive to child's distress signals; if caregiver leaves, child displays some distress, then seeks caregiver on return; Duschinsky, 2015]; Breines & Chen, 2013; Gilbert, 2005; Neff & McGehee, 2010). Essentially, the inner-working model of our caregiver is used to regulate our emotions and soothe our distress. Neff (2003a) defines self-compassion as:

“Being touched by and open to one’s own suffering, not avoiding or disconnecting from it, generating the desire to alleviate one’s suffering and to heal oneself with kindness. Self-compassion also involves offering non-judgmental understanding to one’s pain, inadequacies and failures, so that one’s experience is seen as part of the larger human experience.”

(Neff, 2003a, p. 87)

Neff (2003) describes self-compassion as a balance of six components: (1) self-kindness and (2) self-judgement; (3) common humanity and (4) feelings of isolation; (5) mindfulness and (6) overidentification with thoughts. These elements are intrinsically connected and each element reinforces another to create a self-compassionate mind set

(Neff, 2003; Barnard & Curry, 2011). For instance, feeling connected to others may reduce feelings of isolation and lead to individuals feeling more positive about themselves.

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). Self-kindness entails extending unconditional support, understanding and warmth to the self, rather than being critical or judging the self harshly even in the face of shortcomings. Within this is the recognition that there may be aspects of ourselves or behaviours which we wish to change; and offering unconditional support and warmth to the self, in accepting or changing these aspects and behaviours. Additionally, self-compassion involves the motivation to take steps to soothe and comfort the self in times of distress. Common humanity is feeling connected to others through the recognition that our experiences, imperfections and failures are all part of the shared human experience, rather than feeling isolated by one's experiences. To do this, the individual requires a mindful approach to their experiences. That is, a non-judgemental, balanced awareness of their thoughts in the present; neither ignoring nor ruminating on aspects of oneself or experience.

1.4.2 Measuring self-compassion

Self-compassion is frequently assessed using the Self-Compassion Scale (SCS; Neff, 2003a,b). As the SCS was developed in order to assess Neff's (2003a,b, 2016) definition of self-compassion detailed above, the SCS evaluates the presence and/or absence of both positive and negative components of self-compassion. The inclusion of the negative components has generated considerable debate amongst researchers around 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 the presence of self-criticism, rumination and social isolation (MacBeth & Gumley, 2012; Muris, 2016). As the negative elements are more strongly associated with psychopathology than the positive components (MacBeth & Gumley, 2012) concerns have been expressed that using the SCS total score will lead to an overestimation of the relationship between self-compassion and symptoms of psychopathology (Muris & Petrocchi, 2017). Subsequently the factor structure of the SCS has been extensively investigated in a range of populations; however, studies have provided inconsistent results (see Chapter 5 for full discussion).

For instance, some research has indicated a model in which the interrelated subscales are encompassed by an overarching self-compassion factor as the best fit (bifactorial; Cleare, Gumley, Cleare, & O'Connor, 2018; Neff et al., 2019; Neff, Whittaker, & Karl, 2017; Tóth-Király, Bóthe, & Gábor, 2017) denoting both total score and subscales can be used. Others have supported a two-factor model of the SCS to give a self-compassion (positive subscales) and self-coldness score (negative subscales) (Gilbert, McEwan, Matos, & Ravis, 2011). Although some researchers report the two-factor model as a preferred fit to the data (Brenner, Heath, Vogel, & Credé, 2017; Costa, Marôco, Pinto-Gouveia, Ferreira, & Castilho, 2016; López et al., 2015); other studies have found the two-factor and six-factor model fits to be comparable (Coroiu et al., 2018) whilst other studies support single (Deniz, Kesici, & Sümer, 2008) or higher order models (Castilho, Pinto-Gouveia, & Duarte, 2015).

Neff developed the SCS (Neff, 2003, a,b) to assess her definition of self-compassion. The definition of self-compassion earlier in section 1.4 highlights the complex nature of self-compassion. By including negative components in the SCS Neff is attempting to encapsulate the dynamic and responsive nature of self-compassion at times of pain and suffering (K. D. Neff, 2016). Using the total score of the SCS may not reflect the interaction of the positive and negative components. Self-compassion has trait (Neff, 2003 a) and state qualities and can change in relation to current mood (Gilbert et al., 2011), and it may have a role in the regulation of emotions, particularly at times of distress (Gilbert & Choden, 2013).

1.4.1 Theoretical model of emotions (Gilbert, 2009)

Gilbert (2009) proposed a simplified model of affect systems¹ that details three interconnected systems of affect and how they interact to co-regulate each other (see Figure 1.3 below) and the role of each in the autonomic nervous system (ANS). Firstly, the threat system, is concerned with detection and survival of potentially harmful stimuli; the second, the drive system, generates motivation, reward seeking behaviours and feelings of excitement; the third is the soothing system, which promotes feelings of safety and feelings of contentment. These systems are responsible for the physical reactions, cognitions and behaviours associated with each emotional state.

¹ The model of affect systems is based in neuroscience; however, Gilbert reiterates that this is a very simplified overview of emotion systems

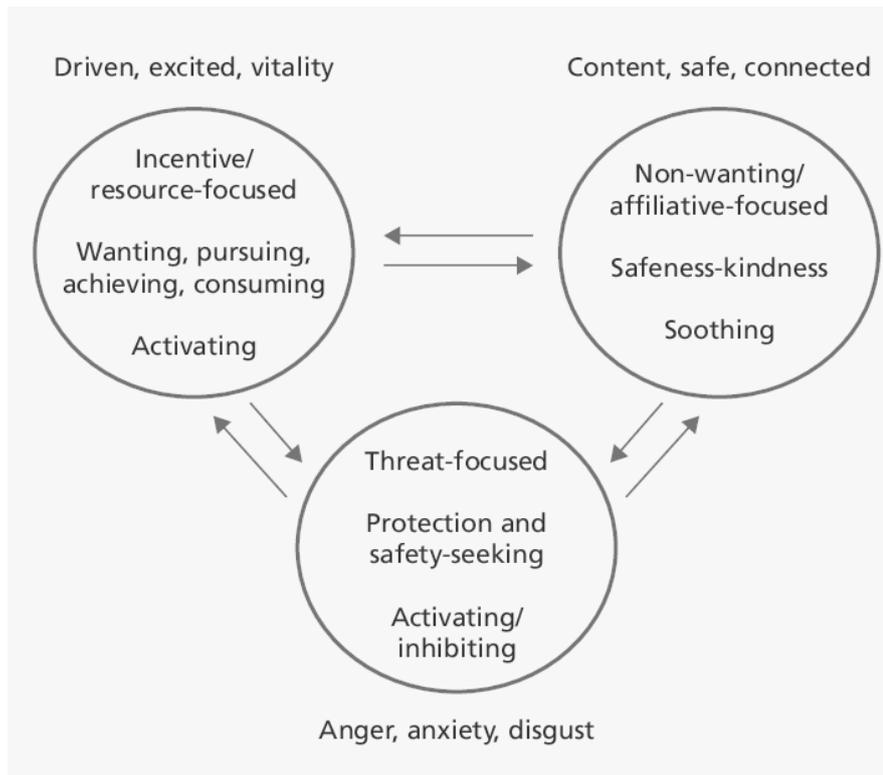


Figure 1.3. Three types of affect regulation system (Gilbert, 2009).

1.4.1.1 Threat system

The primary function of the threat system is to ensure survival. As highlighted earlier, this system is instantly activated on detection of a perceived threat. Detection of a threat activates the sympathetic nervous system (SNS), which releases stress-hormones (epinephrine and norepinephrine), which in turn incite multiple organs concurrently including; dilating pupils, stimulating bronchi in the lungs to increase air exchange, raising heart rate and sending more blood to muscles that might be required to evade the threat, all the while minimising all unnecessary distractions or functions like digestion (Palkovits, 2009).

These physiological changes increase alertness and physiological preparedness to escape a threat which is often described as the 'flight-fight-freeze' response (Watson et al., 2010). The physiological aspects are accompanied by emotional reactions of anger, anxiety, disgust or fear (Gilbert, 2014). Due to its protective functions, the threat system is the easiest of the three systems to activate; SNS activation produces a burst of stress hormones including cortisol from the hypothalamic-pituitary-adrenal (HPA) axis. This stress reaction is designed to be a short-lived response which normalises once the threat has passed (Cozolino, 2006).

The SNS evolved to support the organism's survival (Watson et al., 2010), however, the SNS can be triggered by day-to-day stressors. Consequently, individuals may experience the same emergency full body response in the presence of social stress (Kemeny, 2009) or internal stressors (Oken, Chamine, & Wakeland, 2015). Our ability to ruminate may also activate and maintain the stress reaction (Gilbert & Choden, 2013) rather than allowing it to return to baseline levels. Prolonged activation of this system; for example, in the face of daily stressors, inescapable stress or adverse childhood experiences, can lead to the dysregulation of the HPA axis (Cozolino, 2006; Gilbert, 2017; Mann & Currier, 2010; O'Connor, Green, Ferguson, O'Carroll, & O'Connor, 2018b).

1.4.1.2 Drive system

It is proposed that the drive system is focused towards incentive seeking (Gilbert, 2014). It motivates us to acquire things we want or resources we need (food and shelter, for example). Although the purpose of this system and the resultant feelings are different, this system also activates the SNS which, as discussed above, prepares us for action by increasing our alertness and physiological preparedness. Achieving goals (e.g., get our dream job) can produce very positive feelings including exhilaration and pleasure. This system is associated with increased levels of dopamine; the neurotransmitter associated with pleasure, addiction (Cozolino, 2006), and more recently, the presence of a specific type of dopamine receptor (Dopamine Receptor D4 Gene [DRD4]; Carpenter, Garcia, & Lum, 2011) has been implicated in risk taking behaviours and gambling (Carpenter, Garcia, & Lum, 2011; Clark & Dagher, 2014). When the drive system is engaged, the focus is on acquiring and achieving goals; however, when an individual's efforts are thwarted the threat system is reactivated (Gilbert, 2017) and may result in increased self-critical feelings, hopelessness and defeat (Gilbert, 2014).

1.4.1.3 Soothing system

In contrast to the other systems, it is proposed that the soothing system is associated with contentedness and safeness. As discussed earlier, the soothing system has developed as a pro-social mechanism, which can be activated in situations where comfort is provided by a caregiver (Gilbert, 2017). Subsequently, caring behaviour has a soothing effect on the threat and drive systems.

The soothing system is associated with the parasympathetic branch of the nervous system (PNS) which quietens the threat and drive system and is responsible for the "rest and digest" (Carlson, 2004) phase which is associated with feelings of safeness and of being at rest. As with the other systems, the soothing system can be activated by internal processes. The vagus nerve may also be closely connected to receptor networks

for oxytocin; a neurotransmitter associated with maternal bonding (Gilbert, 2017), subsequently, the vagus nerve may be associated with feelings of compassion. This is the longest of the cranial nerves and has branches in neck, diaphragm and lower abdomen (Carlson, 2004) and is a main protagonist in soothing feelings. Due to its connection to the diaphragm the vagus nerve can be activated through deep or rhythmic breathing (Wang et al., 2010), which in turn reduces heart rate.

This system is associated with feeling relaxed and subsequently helps regulate feelings of threat (Gilbert, 2005) and balances the drive systems.

As highlighted throughout this chapter, there are many events (e.g., adversity in childhood, daily stressors etc.) which can create dysregulation across these systems and lead to an overactivation of the threat or drive systems (Gilbert, 2009). Being unable to generate warmth towards the self may contribute to the maintenance of mood disorders like depression (Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006). However, self-compassion is amenable to change, it can be cultivated as a response at times of distress. Even working towards the development of compassion has been shown to promote feelings of social connectedness, reduce feelings of isolation and lead individuals to experience reductions in level of psychological distress (Gilbert & Irons, 2005).

1.4.2 Self-compassion meditation

Enhancing self-compassion has been shown to be beneficial for both physical and psychological health. Fredrickson, Cohn, Coffey, Pek and Finkel (2008) found that at the end of a six-week course, participants who engaged in compassion meditation reported a reduction in negative mood, had fewer symptoms of illness and rated their social support and life purpose higher than controls did. Similarly, Gilbert and Procter (2006) piloted a 12-week course of Compassionate Mind Training (CMT) with participants who were currently receiving treatment for chronic/complex mental health conditions. All participants had diagnoses of either personality disorders and/or chronic mood disorders. The researchers reported some participants initially had difficulties accessing compassionate feelings towards themselves, including fears that compassion was a weakness, and others encountered feelings of grief and loss when they tried to access compassion. By the end of the 12-week CMT course, participants rated themselves as significantly lower on measures of negative emotions such as feelings of shame and self-criticism and reported improved mood to before the study.

Similar findings were also reported by Braehler, Gumley, Harper, Wallace, Norrie and Gilbert (2013). Their study looked at the effect of a 16-week course of group-based

compassion focused therapy (CFT) compared to treatment as usual (TAU) in patients who had a diagnosis of schizophrenia. At the post-intervention assessment, the CFT group showed increased levels of compassion in comparison with TAU. Additionally, increases in compassion were associated with lower shame, depression and entrapment. The TAU group did not show any significant changes in these measures.

In line with these studies, a recent meta-analysis (Wilson, Mackintosh, Power, & Chan, 2019) found that compassion type therapies produced improvements in symptoms of depression, anxiety and increased levels of self-compassion. However, there was no difference between compassion type therapies and active control groups indicating that improvements in psychopathology and self-compassion are not limited to compassion type treatments.

Research suggests that single session compassion inductions may raise current mood and positivity towards others (Hutcherson et al., 2008) at both implicit and explicit levels. Specifically, Hutcherson and colleagues (Hutcherson et al., 2008) compared a brief 7-minute loving-kindness meditation (LKM; imagine two loved ones standing either side, and directing their love to the participant) to a neutral imagery condition (participants had to imagine two acquaintances and focus on their appearance). The researchers found that on the explicit measures participants in the LKM reported more positive mood, increased general positivity as well as increased feelings of connectedness and positivity towards others. Additionally, those in the LKM condition demonstrated an implicit level bias (assessed using an affective priming task where a face is presented for 315msecs, followed by either a positive or negative word for 1,750 msecs. Faster responses indicate bias towards the prime valence; in this case positive) towards others, and, although not significant, the LKM group showed an increase in self-directed positivity which was not seen in the neutral group; the former reported more positive views of themselves whereas those in the imagery group were slightly more negative towards themselves after the induction.

However, findings around brief compassion focussed imagery is mixed. Another study compared a brief compassion focussed imagery intervention to relaxation imagery in individuals with acquired head injury (Campbell, Gallagher, McLeod, O'Neill, & McMillan, 2019). In this study, no differences were found between the conditions. Indeed, both conditions increased feelings of relaxation, reduced anxiety while no changes in levels of self-compassion were observed. One possible explanation for the mixed findings is that imagery can be challenging for individuals to cultivate if they lack

compassionate experiences to draw on, or they perceive themselves as having poorer ability to create imagery (Naismith, Kerr, Mwale, & Feigenbaum, 2019).

Although research using non-imagery focussed compassion interventions in self-harm is relatively new, it may show promise. For instance, in a group of women who had a history of non-suicidal self-injury, a self-compassion task (value affirmation task) was found to increase aspects of state self-compassion (such as feeling trusting, loving, grateful, joyful) as well as sensitivity to physical pain (Gregory et al., 2017) compared to a neutral condition. Not only does this suggest that self-compassion could have a protective role in non-suicidal self-injury, but it indicates that single session compassion tasks may be useful to explore protective mechanisms underlying these behaviours.

The above studies highlight the complexity of the relationship between self-compassion and psychological wellbeing. Although self-compassion has been associated with greater mental wellbeing (Barnard & Curry, 2011; MacBeth & Gumley, 2012) it can be perceived as a vulnerability or weakness by individuals who experience high levels of shame and self-criticism (Gilbert et al., 2011; Gilbert & Procter, 2006; Mikulincer et al., 2005).

However, adopting a compassionate stance to the self may help individuals to tolerate difficult emotions (Gilbert, 2017; Klimecki, Leiberg, Ricard, & Singer, 2014; Leiberg, Klimecki, & Singer, 2011). Potentially then, self-compassion may ameliorate the impact of personality traits such as self-criticism and perfectionism (O'Connor, 2011; O'Connor & Nock, 2014). Alternatively, the affiliative nature of compassion may indicate it has a role in reducing social threat-based emotions like shame and defeat; potentially indicating self-compassion has a role as a moderator within the motivational phase, or it may operate throughout the pathway.

1.5 Current thesis and aims

This chapter presented the conceptual underpinnings of this thesis. Specifically, it described the IMV model of suicidal behaviour (O'Connor & Kirtley, 2018; O'Connor, 2011) and highlighted key risk factors proposed by the model; secondly, it illustrated the three types of affect regulation system (Gilbert, 2009) and discussed compassion and self-compassion as potential protective factors in ameliorating self-harm/suicidal behaviour. Currently, the extent to which self-compassion fits within the IMV model is not known. It is possible that self-compassion is important within the motivational phase, or it may have an overarching role throughout from the pre-motivational phase to the volitional phase. This considerable gap in our knowledge highlights the need to

investigate self-compassion in the context of the relationship between risk factors and suicidal behaviour within the IMV model.

In summary, this thesis aims to explore the relationship between self-compassion, suicidal ideation and self-harm. To this end, this thesis will focus on three overarching research questions described below.

1.6 Research Questions

The current thesis aims to address the following research questions:

1. What is the nature of self-compassion (as measured by the SCS)?
2. What is the relationship between self-compassion and suicidal ideation or self-harm?
3. Is a brief self-compassion exercise acceptable in individuals with a history of suicidal behaviour/self-harm?

1.7 Thesis structure

In Chapter 2, a systematic review of the extant literature on the relationship between self-compassion (and self-forgiveness) and self-harm and suicidal behaviour is conducted (see Appendix H for paper). Chapter 3 details the methodologies employed in the ensuing empirical studies. Chapter 4 describes a factor analysis of the main self-compassion measure (see Appendix H for paper). Chapters 5, 6 and 7 describe the empirical studies conducted to address the above research questions of the current thesis. While the final Chapter (Chapter 8) is a general discussion which integrates the findings from the empirical studies, drawing overarching conclusions as well as identifying key limitations and suggestions for future research. The first research question is addressed in chapters 4, 5 and 7. Research question 2 is explored in chapters 5 and 7 where self-compassion is investigated in the context of suicidal ideation/ self-harm and selected risk factors from the IMV model through a prospective online study (Chapter 5), and an experimental study (Chapter 7). The third research question is addressed in Chapter 6 which details the development and tests the acceptability of a brief compassion exercise. Chapter 7 extends this research by piloting the use of the compassion exercise as a means of exploring autobiographical memory.

Chapter 2 Self-compassion, Forgiveness, Suicidal ideation and Self-harm: a Systematic review

Background: 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.

Method: 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.

Results: Eighteen 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.

Conclusions: 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.

2.2 Introduction

Suicide is a major public health concern with approximately 804,000 people dying by suicide annually (World Health Organization [WHO], 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 et al., 1999). For the present purposes, self-harm is defined as "self-injury or self-poisoning irrespective of the apparent purpose of the act" (NICE, 2012, p292).

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.

2.2.1 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.

2.2.1.1 Self-compassion and wellbeing

Increasingly, self-compassion has been shown to be associated with physical ($r = .23-.28$; Hall, Row, Wuensch, & Godley, 2013) and psychological wellbeing (positive affect $r = .36$; anxiety $r = -.58$, depression $r = -.46$; see Barnard & Curry, 2011 for review), including reduced emotional burnout and shame ($r = -.6$). Using meta-analytic techniques, MacBeth and Gumley (2012) found higher self-compassion was associated with lower levels of depression, anxiety and stress ($r = -.54$, 95 %CI = $-.57$ to $-.51$). 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 et al., 2013). Even single session compassion inductions have been shown to reduce negative emotions (Arimitsu & Hofmann, 2017), raise mood and increase positivity towards others (Hutcherson et al., 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, Trompetter, 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 et al., 2017; Leiberg et al., 2011; A. Lutz et al., 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.

2.2.1.2 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.

2.3 Methods

2.3.1 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 2.1 for details of the search strategy.

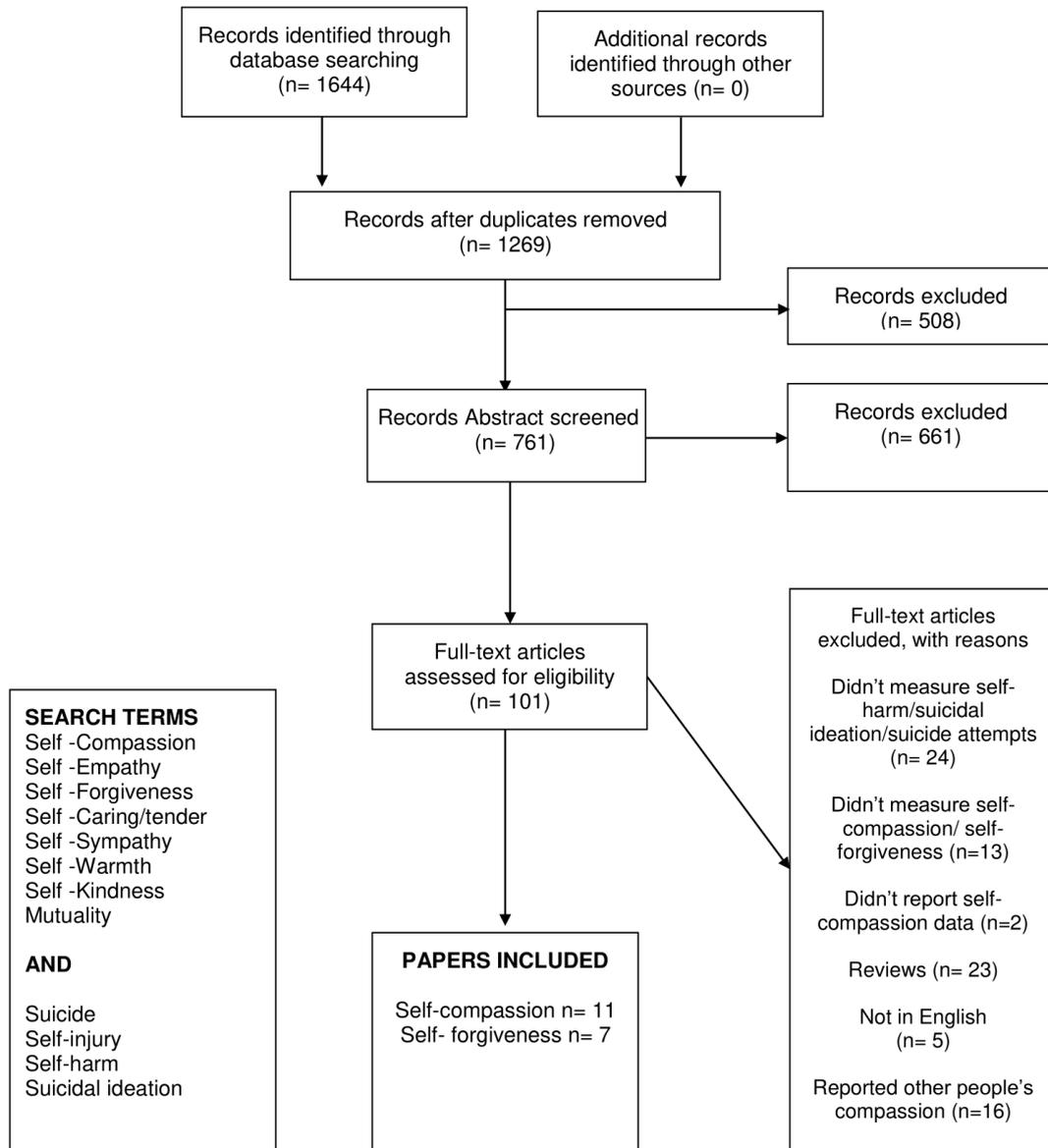


Figure 2.1. Procedure for identifying, screening and determining the eligibility of studies for inclusion in the review.

2.3.1.1 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 researcher in the first instance, with verification from her supervisors.

2.3.2 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 (Appendix A) 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 (Appendix A).

2.4 Results

Eighteen papers were included in the review (see Figure 2.1). 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.

2.4.1 Quantitative studies of self-compassion

Ten studies were included in this section (see Table 2.1); 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.

Table 2.1. Self-compassion Quantitative studies

Study Country Quality assessment (QA) score	Sample	Study design	Measures		Key Findings	Analysis <i>Covariates</i>	Relationship found self- compassion and self-harm
			Self- compassio n	Outcome Measure			
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)	Suicidal ideation and suicide attempts SBQ-R (Osman, Bagge, Gutierrez, Konick, Koooper & Barrios, 2001)	SCS subscales significantly associated with suicidal behaviours ($r= .2$ to $.26$) 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. <i>Gender</i> 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	Cross- sectional; Case controlled Clinical group recruited clinical service;	SCS (Neff, 2003 ab)	Suicidal ideation BSSI (Beck & Steer, 1991)	Clinical group lower self-compassion and higher depression than C group ($P<.05$). Self-compassion negatively correlated with suicidal ideation ($r=-.64$; $p= .002$) and measures of self-cognitions.	Correlations Mann-Whitney U-Tests Cohen D Calculated. <i>None</i>	✓

	Mean age: 45.6, 41.9 respectively Range: 21-66 Ethnicity not reported	data collected interview with clinician. C group from participant pool online.					
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 (.57), than C, M (SD) = 3.25 (.63), $t(62) = -5.68$, $p < .001$, $d = -1.44$) and state ($F(1, 60) = -6.69$, $p = .012$, $d = -.66$) M (SD) = 3.08 (.89), than C M (SD) = 3.60 (.84) self-compassion. Post VA: Self-compassion increased in both SH, M (SD) = 3.52 (.70) versus M (SD) = 2.64 (.85), and C group, M (SD) = 3.77 (.92) versus M (SD) = 3.44 (.75) than neutral condition, M (SD) = 3.04 (.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	Cross-sectional; observational	SCS-SF (Raes et al., 2011)	Suicidal ideation, suicide attempts, NSSI	Factor analysis of SCS-sf; differences between groups for total scores reported. ANOVAS conducted C; SI, SA; NSSI	Correlations Anovas None	✓

	1609 (f=1110; 69%, m=499; 31%) Mean age: 22.74 Range: 18-63 (85% under 25 years old)			Lifetime frequency. Dichotomised score used.			
	European American/White = 59% African American/Black= 13% Hispanic/Latino/ a=13% Asian American= 8% Multiracial= 4% Other= 2%						
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 $p<.001$) Time 2: 137 (26.1%) NSSI, 60 (44.1%) 1 method, 77 (56.2%) multi. Higher SCS less NSSI $r=-.19$ ($p<.001$) Victimisation associated with NSSI at t2. Self-compassion weakened relationship.	Correlations Regressions Correlations: <i>Living Arrangements Parent's Education/Occupation</i> Regressions: <i>T1 NSSI, Bullying,</i>	✓

					Interaction SCS and peer victimisation b-.61, se b= .30, B -.15, $p = .041$ Self-compassion not predictive of NSSI T2.	<i>Gender, Age, Family Cohesion, Self-Compassion Interaction Bullying/SCS</i>	
Jiang et al (2017) China QA=4	Adolescents $n = 658$ (f=264, 4.1%) 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 sq (1, $n=607$)=4.18, $p = .041$, NSSI in 12m younger than those with no NSSI. NSSI group lower family attachment and SCS scores ($p < .001$). 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- <i>Gender, Age</i>	✓

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= .039. No gender diffs NSSIT. C vs NSSI- significant differences (p<.001) all SCS subscales C vs NSSIT significant differences (p<.001) all negative SCS subscales NSSI vs NSSIT; NSSI significant lower common humanity (m=3.27 vs 3.55, p<.01) and self-kindness (m=3.06 vs 3.38, p<.001) than NSSIT.	Chi-Square Mancova Group X Gender Post Hoc Tukey <i>Age</i>	
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= .6% Refused= .3% Native American= .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 <i>None</i>	✓

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 ($r = .3$, $p < .05$). 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% ($p < .05$).	Correlations, Chi-Square (High Vs Low Self-Compassion) Regression <i>Age, Gender</i> <i>2- Emotional Abuse Q Score</i> <i>3 Physical Abuse</i> <i>4 Emotional Neglect</i> <i>5 SCS Score</i>	✓
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	Correlations T-Tests Path Analysis Testing Moderation Effect Self-Comp. Moderation: <i>Gender</i>	✓

All negative subscales significant and
24/25% accounted for
SCS had moderating effect on depression
and NSSI; SCS buffers against depression
and NSSI

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

2.4.1.1 Quality assessment

Methodology quality assessment scores (displayed in Table 2.1) 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.

2.4.1.2 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).

2.4.1.3 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).

2.4.1.4 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).

2.4.1.5 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 ($r = -.2$ to $r = -.26$ positive subscales; $r = .26$ to $r = .28$ 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 ($d = -.64$, $p < .001$; Collett et al., 2016) and suicide attempts ($r = -.3$, $p < .05$; 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.

2.4.1.6 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 ($r = -.37, p < .05$; Tanaka et al., (2011); $d = -.73, p < .001$; 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 $r^2 = 23%$, $B = -.09, p = .028$; mindfulness $r^2 = 24%$, $B = -.08, p = .038$; self-judgement $r^2 = 25%$, $B = .12, p = .009$; isolation $r^2 = 24%$, $B = .11, p = .012$; over-identification with thoughts $r^2 = 25%$, $B = .14, p = .002$).

Self-compassion partially mediated the relationship between negative life events in the last 12 months and suicidal behaviours when gender was controlled for ($F(7,323) = 7.18, p < .001$; Chang et al., 2017), and weakened the relationship between bullying and NSSI ($b = -.61, se = .30, B = -.15, p = .041$) 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 ($B = .20, SE = .05, p < .001$) and paternal closeness ($B = .18, SE = .04, p < .001$). Greater closeness was in turn associated with lower NSSI (maternal, $OR = -1.22, se = .29, p < .001$; paternal, $OR = 1.21, SE = .29, p < .001$). The relationship between peer communication ($B = .14, SE = .07, p = .032$), peer closeness ($B = .21, SE = .04, p < .001$) and NSSI ($OR = -1.48, se = .29, p < .001$) was fully mediated by self-compassion.

2.5 Quantitative studies of self-forgiveness

Seven studies investigated the relationship between self-forgiveness and self-harm or suicidal ideation (see Table 2.2 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 ($n=1$).

Table 2.2. Self-Forgiveness quantitative studies

Study Country Quality assessment (QA) score	Sample	Study Design	Measures		Key Findings	Analysis <i>Covariates</i>	Relationship found self- forgiveness and self-harm
			Self- forgiveness	Outcome Measure			
Bryan et al (2015) USA QA=8	Military; 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 significantly higher SF (M = 27.90, SD = 7.38), C highest (M = 31.23, SD = 6.40). Regressions: SF differentiated SA from C (OR) = .85, [.80, .90], $p < .001$) and SI (OR = .91 [.86, .96], $p < .001$). SF also differentiated SI from C (OR = .93 [.90, .96], $p < .001$). Covariates included SF still differentiated SA from C (AOR) = .90 [.84, .97], $p = .008$), but not SI from C (AOR = .97 [.93, 1.01], $p = .111$). Multinomial logistic regressions SF negatively correlated with PTS, depression severity, SI ($r = -.29$) and SA ($r = -.26$) $p < .05$). SF significant predictor of PTS (adjusted age, gender, military	Correlations, Anovas, Regressions <i>Age, Gender, Trauma History, Post Trauma Stress (Pts), Veteran Status, Depression</i>	✓

				versus veteran status, and depression; $.131, p < .001$), $F(4, 407) = 37.587, p < .001, =R^2 = .180$.		
Chang et al (2014) USA QA=2	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 <i>None</i>	✓
Cheavens et al (2016) USA QA=3	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 <i>Demographic Variables Depression</i>	✓

Hirsch et al (2011) USA QA=3	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. <i>Age, Gender, Ethnicity, Religion, Spirituality, Depression, Forgiveness of Others, Forgiveness by God</i>	✓
Hirsch et al (2012) USA QA=3	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 inward anger, SB, and depression. Inward-anger significantly positively associated, outward-anger significantly negatively associated with SB 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.	Correlations, Regressions, Moderations, <i>Age, Gender, Ethnicity, Religion, Spirituality, Depression, Outward Anger</i>	✓
Nsamenang et al (2013) USA QA=2	Cross-sectional	BMMRS (Fetzer Institute, 2003); Single item	Combined suicidal ideation and	SF significant negative association with SB, depression. Thwarted belongingness and perceived burdensomeness were significant Negatively association with SF	Correlations, Regressions, Mediations,	✓

				suicide attempts	($r = .25, .58, \text{ and } .55, p < .001$, respectively SF indirect relationship SB.	<i>Age, Gender, Ethnicity, Religion, Spirituality, Depression</i>	
				SBQ-R (Osman et al, 2001)	Burdensomeness mediator SF ($r = .25 \text{ to } .28, p = .004$) and of others ($r = .25 \text{ to } .24, p = .017$), 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.		
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%	Cross-sectional	MFS (Mauger, Perry, Freeman, Grove, McBride & McKinney, 1992)	NSSI NSSI subscale of SITBI (Nock et al., 2007) and	Higher NSSI frequency associated with lower SF. Lower SF associated with greater likelihood of NSSI to get rid of unwanted feelings (ANR) (adjusted $r^2 = .35, F_{2,27} = 8.91, p < .001$.) Lower SF significant predictive of NSSI for automatic positive reinforcement (APR), ANR, social positive reinforcement (SPR). Latter	Correlations, Regressions <i>Gender</i>	✓

African American= 6.7% Native American= 3.3% Multiple ethnicities: 3.3%	Functional assessment of NSSI	2 held when sex controlled for. SF only significant contribution to regression SF significant predictor of engaging in NSSI for APR (A= .45, p= .021), and for NSSI for SPR (A= .43, p= .027). Association more frequent NSSI and SF ($r^2 = .609$, $p < .001$), negative relationship.
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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.

2.5.1.1 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.

2.5.1.2 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).

2.5.1.3 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 (E. C. 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).

2.5.1.4 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).

2.5.1.5 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 ($r = -.41$, $p < .01$) in older adults. Moderate to weak associations were found between higher self-forgiveness and suicidal ideation and behaviours in community (Nsamenang et al., 2013; $r = -.28$, $p < .01$; Chang et al., 2014; $r = -.4$, $p < .001$) and student (Hirsch et al., 2011; $r = -.26$, $p < .05$; Hirsch et al., 2012; $r = -.27$, $p < .001$) samples. Similarly, Bryan et al., (2015) found lower levels of suicidal ideation and attempts ($r = -.29$; $r = -.26$ 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 ($r = -.61$, $p = .01$), indicating that individuals who engage in NSSI repeatedly experience lower levels of self-forgiveness.

2.5.1.6 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 ($t = -2.08$, $p < .05$) between

internal anger and suicidal behaviours ($r = .35, p < .001$). 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.

2.6 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 2.3). 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”.

Table 2.3. Qualitative study of Compassion

Study Country Quality assessment (QA) score	Sample	Study Design	Measures		Key Findings
			Self- compassio n	Outcom e	
Sutherland et al (2014) Web based QA=N/A	IPA analysis of SCS themes in 170 NSSI related posts on blog/web sites	Convenience /purposeful sampling	Guided by positive subscales of SCS (Neff, 2003 ab)	NSSI Free respons es	Multiple self-compassion themes extracted from within posts. Self- compassion mostly found in posts regarding recovery from NSSI.

2.7 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; 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; $r = -.19$ Jiang et al., 2016) to strong (self-forgiveness; $r = -.64$; 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 ($r = -.27$ to $-.34$), 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.

2.7.1 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.

Chapter 3 Methodology

Background: Despite major advances in understanding the psychology of suicide and self-harm there are many gaps in our knowledge. In particular, the evidence for factors that may protect against suicide risk is limited. Self-compassion has been shown to be protective against emotional distress more broadly, and as discussed in Chapter 2, higher self-compassion has been associated with lower levels of suicidal ideation and self-harm. However, research into self-compassion and suicide and self-harm is a relatively recent area of research and our understanding of how self-compassion relates to risk factors for self-harm as a whole is limited. Moreover, research in this area has been restricted by the propensity for studies to investigate self-compassion as the total score of the SCS rather than the subscales.

Methods: A range of measures and techniques were used in three different empirical studies to explore the relationship between self-compassion and suicide risk or self-harm. Study 3 employed a longitudinal online self-report survey design using established measures to explore the relationship between self-compassion and risk factors for suicide and self-harm. Some of the measures were then incorporated into the subsequent studies. Studies 4 and 5 were conducted in a laboratory setting and focussed on the development and piloting of a self-compassion exercise (SCM). Study 4 also had a qualitative focus to explore compassion experiences and to gather feedback on the SCM. Feedback from participants was used to adapt the SCM for use in study 5. Study 5 was an experimental study to explore the SCM in relation to autobiographical memory; an established risk factor for suicidality.

Conclusions: The range of methods used in these studies allowed an in-depth evaluation of the relationship between self-compassion and suicidal ideation and self-harm and associated risk factors.

3.2 Introduction

Previous research has identified many factors which can increase an individual's vulnerability to suicidal ideation and self-harm. As a result, a number of well-established measures have been developed to assess these risk factors (e.g., defeat, entrapment, depression, autobiographical memory recall). The Integrated-Volitional Model of suicidal behaviour (IMV O'Connor & Kirtley, 2018; O'Connor, 2011) was used as an overarching framework to guide the selection of measures included in these studies.

In terms of measuring self-compassion, when this programme of research commenced there were relatively few self-compassion measures available. We selected the most widely used measure of self-compassion (Self-Compassion Scale [SCS]; Neff, 2003 a,b). Due to concerns around the factor structure of the SCS (see Chapter 4 for discussion) we conducted a confirmatory factor analysis on the SCS. We found that a bifactorial model was the best fit to our data. This supported the use of the SCS to give an overall compassion score as well as scores on the individual subscales. Previous research (MacBeth & Gumley, 2012; Muris & Petrocchi, 2017) highlighted the need for further investigation into the dimensions of the SCS to explore the role of the different components within mental health, consequently we report on the overall self-compassion and subscales throughout the studies.

Tables 3.1 to 3.3 (below) provide summaries of the measures used and the constructs assessed in each study. All measures are included in Appendix E.

3.2.1 Rationale for developing a self-compassion exercise

Although self-compassion exercises are available online, they have often been developed to be delivered as part of a course or focus on visualisation which some individuals find difficult to engage with (Naismith et al., 2019). To address this, we developed the self-compassion exercise based around the components of compassion (described in section 3.6) for use in Study 4 (Chapter 6), and refined the exercise based on the feedback prior to Study 5 (Chapter 7).

Table 3.1. Constructs and measures used in Study 3

Study 3	Constructs	Measures
Self-compassion and suicidal ideation	Depressive symptoms; Stress; Defeat; Entrapment; Self-compassion; Mindfulness; Resilience; Social comparison; Self-criticism; Lifetime suicidal ideation.	Centre for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977); Perceived Stress Scale-Brief (PSS-Brief; Cohen, Kamarck, & Mermelstein, 1983); The Defeat Scale (Gilbert & Allan, 1998); The Entrapment Scale (Gilbert & Allan, 1998); Self-Compassion Scale (SCS; Neff, 2003a,b); The Five Facet Mindfulness Questionnaire-short form (FFMQ-SF; Bohlmeijer, Klooster, Fledderus, Veehof and Baer, 2011); The Brief Resilience Scale (Campbell-Sills & Stein, 2007); The Social Comparison Scale (Alan and Gilbert, 1995); The Forms of Self-Criticising/Attacking & Self-Reassuring Scale (FSCRS; Gilbert, Clark, Hempel, Miles, and Irons, 2004); Suicidal ideation item from the British Psychiatric Morbidity Survey (Nicholson, Jenkins & Meltzer, 2009) and the Child and Adolescent Self-harm in Europe Survey (Madge et al., 2008).

Table 3.2. Constructs and measures used in Study 4

Study 4	Constructs	Measures
Feasibility study of a brief self-compassion exercise	Depressive symptoms; Defeat; Entrapment; Self-compassion; Mindfulness; Resilience; Social comparison; Self-criticism; Suicidal and non-suicidal thoughts and behaviours; Suicidal ideation; Fear of self-compassion; Submissive compassion; Experiential compassion.	As for Study 3 (see Table 3.1), with items addressing suicidal and non-suicidal thoughts from the British Psychiatric Morbidity Survey (Nicholson, Jenkins & Meltzer, 2009) and the Child and Adolescent Self-harm in Europe Survey (Madge et al., 2008); Suicidal ideation subscale (Suicide Probability Scale (SPS); Cull & Gill, 1988). Fear of Self-compassion subscale (Fear of Compassion scales; Gilbert, McEwan, Matos and Ravis, 2011); Submissive compassion scale (Catarino, Gilbert, McEwan and Baiao; 2014)

Table 3.3. Constructs and measures used in Study 5

Study 5	Constructs	Measures
Self-compassion, autobiographical memory and self-harm	Depressive symptoms; Defeat; Entrapment; Self-compassion; Mindfulness; Resilience; Social comparison; Self-criticism; Suicidal and non-suicidal thoughts and behaviours; Suicidal ideation; Fear of self-compassion; Submissive compassion; Autobiographical Memory; Negative mood induction; Positive mood induction	As for Study 4 (see Table 3.2) with Autobiographical Memory Task (Williams & Broadbent, 1986) and Velten Negative mood induction (Velten, 1968)

3.3 Ethical Considerations

3.3.1.1 Risk assessment and participant safety

Throughout our research the welfare of participants was always our priority. To ensure their safety, we carried out suicide risk assessments at various time points during the research process. Routine time points included recruitment, study visits and during follow up. Further risk assessments were taken if participants became distressed during any phase of the research. A standardised risk assessment form (Appendix F) to assess current levels of suicidal thoughts, intent to end life, current suicide plan and access to means was used. Risk assessments were carried out routinely with all participants who had a history of self-harm. If any of the participants reported experiencing current suicidal ideation or were scored as being at moderate risk of making a suicide attempt on the risk assessment, or indeed, if the researcher had any cause for concern, she took a series of steps to increase participant safety. These included working through a safety plan with participants, providing participants contact details for support organisations (e.g. Samaritans and local mental health charities), encouraging the participant to contact their health or mental health provider for support. For participants considered to be high risk or at imminent risk of making a suicide attempt the researcher contacted her supervisors for further advice.

The risk assessment tool is routinely used in studies run in the Suicidal Behaviour Research Lab (SBRL; University of Glasgow).

3.3.1.2 Researcher safety

Another priority in any research is the safety of the researcher. This is particularly relevant when working with participants who may be currently experiencing emotional distress or are at increased risk of suicide. Researchers are in a unique position as they are often viewed as an impartial ear (i.e. not involved in care provision) and often engage with participants in an observational rather than therapeutic role. Researchers may be exposed to previously untold stories and can experience feelings of guilt, exhaustion and vulnerability (Larkin, 2019). It is important for researchers to be aware of their own wellbeing, and to utilise regular peer and individual supervision. Standard SBRL staff supervision procedures were employed in this research; specifically monthly PhD supervision meetings were arranged with both supervisors (ROC, AG). Given the potential for suicide risk in the participant group, departmental lone worker were adopted; 1) the researcher alerted a colleague from SBRL of each appointment and checked-in with colleague when participant arrived and alerted them by text to anticipated completion time; 2) a colleague checked-in with researcher by text 5

minutes following completion time; 3) a colleague was available and contactable for enacting risk procedures (if needed) and for peer supervision following appointment.

3.4 Psychological Wellbeing Measures

Self-compassion

The Self-Compassion Scale (SCS; Neff, 2003a, b) was used to evaluate self-directed compassion. The SCS has 26 items to assess the components of self-compassion; self-kindness vs. self-judgment (e.g. 'I try to be loving towards myself when I'm feeling emotional pain' vs. 'I'm disapproving and judgmental about my own flaws and inadequacies'); common humanity vs. feelings of isolation (e.g. 'When things are going badly for me, I see the difficulties as part of life that everyone goes through' vs. 'When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world'); mindfulness vs. over-identification with (e.g. 'When something upsets me I try to keep my emotions in balance' vs. 'When I'm feeling down I tend to obsess and fixate on everything that's wrong'). Items are scored on a 1 (Almost never) to 5 (Almost always) Likert-type scale. When calculating an overall self-compassion score, the 3 negative components of compassion are reverse scored. However, they are not reversed when used to calculate subscale scores. We found overall SCS to have excellent internal consistency (Cronbach $\alpha = .92$ to $.95$), and the subscales to have good internal consistency ($\alpha = .72$ to $.95$) across the studies.

Lifetime Mental health

In the laboratory-based studies (Chapters 6 and 7), participants were asked to describe any lifetime symptoms of commonly experienced mental health conditions (e.g. depression, anxiety), any contact they had with health services and any treatments (i.e. Pharmaceutical, Psychological, Holistic) they had received.

Depressive symptoms

Depressive symptoms were measured using the Centre for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977). The CES-D is a widely used 20-item measure assessing frequency of various symptoms of depression experienced in the preceding 7 days on a 0 (Rarely or none of the time) to 3 (Most or all the time) Likert Scale. Symptoms assessed include dysphoria, anhedonia, sleep and fatigue, appetite, worthlessness, agitation (example items include 'I thought my life had been a failure' and 'I was bothered by things that usually don't bother me') and 4 items are reverse

scored and assess positivity (e.g. 'I was happy'). Scores are then totalled to give a score between 0-60 with higher scores indicating higher levels of symptoms. The CES-D showed high internal consistency (Cronbach $\alpha = .87$ to $.95$) across studies.

Stress

Recent stress was assessed in study 3 (Chapter 6) via the Perceived Stress Scale-Brief (PSS-Brief; Cohen, Kamarck, & Mermelstein, 1983). This 4-item measure is a widely used to measure perceptions of stress (e.g. 'In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?') and coping ability (e.g. 'In the last month, how often have you felt that you were unable to control the important things in your life?') on a 0 (Never) to 4 (Very often) Likert-type scale. Concurrent and predictive validities and internal and test-retest reliabilities of the scale have been established (Cohen et al., 1983). Internal consistency was high ($\alpha = .85$) at both time points in study 3.

Social Comparison

The Social Comparison Scale (Alan and Gilbert, 1995). This scale asks people to rate themselves between 1-10 in comparison to how they view other people on a number of bipolar constructs (e.g. Left out [1] vs Accepted [10]; Weaker [1] vs Stronger [10]). A higher score indicates that they compare themselves more favourably in relation to others. The scale had high internal consistency at both time points in study 3 (T1 $\alpha = .92$, T2 $\alpha = .93$).

Mindfulness

Mindfulness; a person's ability to stay present in the moment, was assessed using the Five Facet Mindfulness Questionnaire-short form (FFMQ-SF; Bohlmeijer, Klooster, Fledderus, Veehof and Baer, 2011). This 24-item scale uses a 5 point Likert-type (Never or rarely true, to Very often or always true) scale to establish a person's awareness of their emotions across 5 constructs of mindfulness. These include; their ability to remain objective to thoughts and emotions (non react and non judge); their ability to verbalise their emotions (describe); the extent to which they pay attention to their environment (observe) and their ability to remain in the moment (act with awareness). Responses from the act with awareness describe and 2 items from the describe subscale are reverse score. Example items include; 'I watch my feelings without getting carried away by them (non react)'. In our studies the FFMQ-SF total showed good internal consistency ($\alpha = .82$ to $.86$), while there was more variability across the subscales ($\alpha = .52$ to $.90$).

Fear of Self-Compassion

The fear of self-compassion subscale (Fears of Compassion scales; Gilbert, McEwan, Matos and Rivis, 2011) was used to assess concerns around expressing compassion towards the self. It includes items like 'Getting on in life is about being tough rather than compassionate' and 'I fear that if I am more self-compassionate I will become a weak person'. This 15-item sub-scale has been shown to have good reliability ($\alpha = .86$) when used as a standalone measure. In our studies the subscale showed high internal consistency ($\alpha = .94$ and $.95$).

Submissive compassion

In studies 4 and 5 we assessed motivations for compassion using the Submissive Compassion Scale (Catarino, Gilbert, McEwan and Baiao; 2014). This recently published 10-item scale measures the extent that an individual's motivation for compassion is submissive (i.e. to be liked/avoid rejection e.g. item 'I try to help people as much as I can so that they appreciate me') or genuine. Responses are scored on a 0 (Not at all like me) to 4 (Extremely like me) Likert scale. This measure had good internal consistency in our studies ($\alpha = .89$ and $.91$).

3.4.1 Factors from the IMV model

Defeat

Feelings of defeat/loss of rank were assessed using the Defeat Scale (Gilbert & Allan, 1998). This 16-item self-report measure uses a 0-4 (Never- Always) Likert-type scale to assess feelings of defeat in the preceding 7 days and includes 3 reverse scored items (e.g. I feel that I am a successful person) higher scores indicate higher feelings of defeat. The defeat scale has been found to be significantly correlated with depression and suicidal behaviours (Gilbert & Allan, 1998) and had good internal consistency at both time points in study 3 ($\alpha = .94$ to $.96$).

Entrapment

The Entrapment Scale (Gilbert & Allan, 1998) was used to assess perceptions of entrapment. This 16-item scale uses a 0-4 (Never- Always) Likert-type scale and can be used as a total score to give an overall level of entrapment score or the subscales can be calculated to give a score for levels of internal (feeling trapped one's own thoughts and feelings) and external entrapment (feeling trapped by external situations). The

Entrapment scale had good internal consistency at both time points in study 3 ($\alpha = .95$ and $.96$).

Resilience

The Brief Resilience Scale (Campbell-Sills & Stein, 2007) is a brief measure of resilience that has been adapted from the 25-item Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003). It assesses perceptions of adaptability (e.g. Can deal with whatever comes) and coping ability (Coping with stress can strengthen me). Higher scores show higher perceived resilience. This 10-item version displayed good internal consistency in study 3 ($\alpha = .90$ and $.93$).

Self-criticism

The Forms of Self-Criticising/Attacking & Self-Reassuring Scale (FSCRS; Gilbert, Clark, Hempel, Miles, and Irons, 2004) was used to assess two aspects of self-criticism and the ability to reassure self were assessed using. The 22-item scale uses a 0 (Not at all like me) - 4 (Extremely like me) scale to assess feelings of personal inadequacies (e.g. item 'I feel beaten down by my own self-critical thoughts'), self-hate (e.g. item 'I have a sense of disgust with myself'), along with the person's ability to reassure themselves (e.g. 'I am able to remind myself of positive things about myself'). The overall scale had good internal consistency ($\alpha = .61$ to $.77$) across the studies, and the subscales had excellent consistency ranging from $\alpha = .85$ to $.99$.

Autobiographical Memory

In study 5, we evaluated autobiographical memory via a well-tested version of Williams and Broadbent's (1986) Autobiographical Memory Test (AMT).

Participants were presented with a cue word and allowed a maximum of 30 seconds to think of a specific and personal memory. The task was repeated at different time points (twice for no history group, 3 times for self-harm history group) during the lab visit. Participants were presented with 3 positive words (selected from happy, smile, interested, excited, pleased, hopeful, joyful, friendly, eager) and 3 negative words (selected from hopeless, sad, failure, rejected, grief, defeated, angry, lonely) at each time point. The words were randomised into 4 lists and participants then randomised to one of the 4 options.

The AMT instructions and word orders are in Appendix E.

3.5 Outcome Variables

Self-harm and suicidal thoughts

In studies 4 and 5 (Chapters 6 and 7), lifetime presence of self-harm, suicidal and non-suicidal thoughts were established via interview format. Participants were asked four items adapted from the British Psychiatric Morbidity Survey (Nicholson, Jenkins & Meltzer, 2009) and the Child and Adolescent Self-harm in Europe Survey (Madge et al., 2008). Participants were asked the following questions; Have you ever seriously thought of taking your life, but not actually attempted to do so?; Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way?; Have you ever seriously thought about trying to deliberately harm yourself but not with the intention of killing yourself but not actually done so?; Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself (i.e., self-harm)? A positive response to any of the questions was followed up with questions about when this last occurred, frequency and age of first thought/attempt.

In study 3 (Chapter 5) participants were presented with the suicidal ideation item ('Have you ever seriously thought about trying to deliberately harm yourself but not with the intention of killing yourself but not actually done so?') in self-report format. At Time 2, participants were asked to answer this item in relation to the time since they had taken part in Time 1.

Suicide ideation was assessed in studies 4 and 5 using the 8-item suicide ideation subscale of the Suicide Probability Scale (SPS; Cull & Gill, 1988). The SPS assesses how often people experience thoughts around suicide (e.g. 'I feel it would be less painful to die than to keep living the way things are') on a 0-3 scale (None or the time- Most or all of the time). The SPS high internal consistency (Cronbach $\alpha = .92$) in both studies.

3.6 Experimental Measures

Mood check

In the laboratory studies (studies 4 and 5) participants were asked to rate aspects of their mood "at this moment" on 100mm Visual Analogue Scale (VAS). Participants recorded how self-compassionate, self-critical, sad, happy, relaxed and tense they felt. Responses were anchored on a scale of not at all to extremely (anchoring scale consistent with Johnson, Gooding and Tarrier, 2008).

The VAS provided both a means of assessing baseline and changes in mood throughout the appointment and a manipulation check following the behavioural manipulations.

Compassion card sorting task

A card sorting task based on the procedure developed by Gumley and Macbeth (Gumley & Macbeth, 2014) was used in study 4 to introduce participants to the concept of compassion, explore their conceptualisations of compassion and clarify any misconceptions. This also allowed clarification of the terms used during the compassion meditation.

Words used in the task were generated via discussion with colleagues in the Mental Health & Wellbeing Research Group (University of Glasgow), online thesaurus searches, and responses to social media posts by the PhD supervisors (AG and ROC) asking for people to reply with words related to compassion.

Participants were presented with 20 cards featuring compassion focussed words (e.g. warmth, kindness, openness, empathy, strength, support) and were instructed as follows: “So that we have a shared understanding of what we mean by compassion, I would like you to select the 5 cards you feel best describe compassion. I would also like you to tell me why you feel that word describes compassion and how strongly (on a 0-10 scale) you feel the word describes compassion.”

Experiences of compassion interview and feedback

In Study 4 we asked participants for their feedback on the compassion exercise including how it felt to go through the compassion exercise, any blocks they experienced during the exercise, and any suggestions they may have to improve the meditation. The feedback we received was used to tailor the exercise for use in Study 5.

To broaden our understanding of compassion experiences, we used a semi-structured interview to explore their perceptions and experiences of compassion.

Self-compassion exercise

The self-compassion exercise (SCM) was developed and initially tested in Study 4 then adapted for Study 5 following feedback from participants. The SCM is based around the components of compassion (warmth, kindness, openness, curiosity, strength and courage). The SCM was delivered by the researcher and took around 10 minutes. It began by asking participants to focus on their breathing and then invited participants to explore different components of compassion. Both the SCM tested in Study 4 and the updated version from Study 5 are included in Appendix E.

Relaxation exercise

A time matched progressive muscle relaxation (PMR) exercise was used as the control condition in Study 5 (see Appendix E). During this exercise the researcher asked participants to tense and release individual muscle groups to induce physical relaxation. PMR is a widely used and effective relaxation technique (McCallie, Blum & Hood, 2006) and the exercise we used was a freely available resource found on a resource website for mental health professionals.

Negative Mood Induction Paradigm

A negative mood induction (NMI) was used in Study 5 to temporarily induce a dysphoric state (see Martin, 1990). Similar to previous studies with suicidal adults (Williams et al., 2005, 2008), the NMI consisted of 10 minutes of participants reading negative Velten statements and being asked to reflect on how those statements apply to them. The statements were accompanied by "Russia under the Mongolia Yoke" by Prokofiev played at half speed.

The nature of the task was made fully apparent to participants before they started it. Participants were reminded that if they found it too distressing they could stop the task or study. Additionally, the researcher was vigilant to individuals expressing intense distress and these participants were offered a break from the study.

Positive Mood Induction

In study 5 participants viewed a 10-minute positive mood induction (PMI) to reverse any residual negative affect following the NMI (e.g., Clark & Teasdale, 1983; Frost & Green, 1982). Participants viewed a selection of amusing short videos immediately before debriefing. The PMI has been used in other research in the Suicidal Behaviour Research (Cha et al., 2018).

3.7 Summary

A range of self-report and experimental measures were used throughout this thesis to explore the relationship between self-compassion, suicidal ideation and self-harm. To address the first research question regarding the nature of self-compassion (as measured by the SCS), exploratory and confirmatory factor analyses were conducted in the first instance.

The following chapter uses data from the first empirical study (Chapter 6) to test existing proposed factor structures of the SCS against one derived from an exploratory factor analysis of our data.

Chapter 4 Factor Analysis of the Self-Compassion Scale

Background: The Self-Compassion Scale (SCS) is a widely used measure of self-compassion. The scale is constructed of six factors measuring positive and negative components of compassion. Support for this factor structure has been subject to debate and alternative factor structures have been proposed. We tested the proposed alternative factor structures against existing models of the SCS including one derived from an exploratory factor analysis of our data.

Methods: Data herein were collected as part of the first empirical study described in chapter 5. Respondents completed the full SCS online at two time points; Time 1 (T1) and 2.5 months later (T2). Exploratory (EFA) factor analysis was conducted on the T1 data and confirmatory (CFA) factor analyses were conducted on the T2 data and retested using the T1 data. CFA was used to compare the following models: Neff's original six-factor correlated and higher order models, a single factor, two-factor, five-factor model (as suggested by the EFA) and a bi-factorial model.

Results: Five hundred and twenty-six individuals completed the SCS at T1, and three hundred and thirty-two completed it at T2. The EFA yielded a five-factor model. The bi-factorial model was the best fit to the data followed by the six-factor correlated model. Omega indices were calculated and yielded support for the bi-factorial model of SCS.

Conclusions: The current study supports Neff's (2016) conceptualisation of the SCS as having six distinct factors that are influenced by a concurrent (self-compassion) factor. This indicates that the SCS to give a total score, or to give scores on individual subscales.

4.1 Introduction

The importance of self-compassion has long been recognised in Buddhist and Eastern philosophical traditions, but only recently has its importance as a research construct distinct from other psychological constructs such as mindfulness (Kuyken, Watkins, Holden, White, Taylor, Byford et al., 2010) or self-esteem (Neff & Vonk, 2009) been acknowledged. This has led to considerable growth in research examining the role of self-compassion particularly in the aetiology of both physical and mental wellbeing (Barnard & Curry, 2011). Although researchers such as Gilbert (2009) have suggested definitions of self-compassion, one of the most widely used definitions is that put forward by Neff (2003) who conceptualised self-compassion as follows:

“Being touched by and open to one’s own suffering, not avoiding or disconnecting from it, generating the desire to alleviate one’s suffering and to heal oneself with kindness. Self-compassion also involves offering non-judgmental understanding to one’s pain, inadequacies and failures, so that one’s experience is seen as part of the larger human experience.” (Neff, 2003a, p. 87)

Within this definition, Neff conceptualised self-compassion as being composed of the following three components:

“(a) self-kindness - extending kindness and understanding to oneself in instances of perceived inadequacy or suffering rather than harsh judgment and self-criticism, (b) common humanity - seeing one’s experiences as part of the larger human experience rather than seeing them as separating and isolating, and (c) 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)

Evidence for a link between self-compassion and mental wellbeing is increasing (for review see Barnard & Curry, 2011). What is more, enhancing self-compassion may also have physical health benefits (Hall, Row, Wuensch & Godley, 2013). Self-compassion has been shown to be a more accurate predictor of overall wellbeing than self-esteem (Neff & Vonk, 2009) and it accounted for additional variance in anxiety and depression beyond that explained by self-esteem (Gilbert, 2009). Self-compassion may protect against emotional distress. In a recent meta-analysis, MacBeth and Gumley (2012) found an association between self-compassion and lower levels of depression, anxiety and stress. Although the majority of studies were cross-sectional, the findings suggested

that greater self-compassion was associated with mental wellbeing and that self-compassion may be associated with a reduction in some forms of emotional distress.

The main assessment tool used was the Self-Compassion Scale (SCS; Neff 2003a). Concerns have been raised that by measuring 'negative' components of compassion, the SCS is measuring self-criticism, rumination and social isolation, rather than self-compassion (MacBeth & Gumley, 2012; Muris, 2015). In a more recent meta-analysis, Muris and Petrocchi (2016) found that as the total score includes the negative components then it might lead to an overestimation of the relationship with symptoms of psychopathology as the negative components are more strongly associated with psychopathology ($r = .47$ to $.50$) than the positive components ($r = -.27$ to $-.34$). Neff (2016), however, described self-compassion as requiring an interaction between the positive and negative components of compassion and, as a consequence, she developed the SCS to assess compassion as per her definition (Neff, 2003a).

According to Neff (2003ab, 2016) the SCS has a six-factor structure with three positive and three opposing negative components that are interconnected. Specifically, the SCS assesses: (1.) self-kindness; a person's acceptance of personal flaws and ability to self-soothe in times of distress versus (2.) self-judgement; expressions of self-critical or judgemental beliefs; (3.) common humanity; the recognition of personal shortcomings as something that everyone experiences versus (4.) feelings of isolation; feeling alone in their faults and (5.) mindfulness; maintaining a non-judgemental awareness of thoughts and emotions versus (6.) over-identification with thoughts; becoming overwhelmed and wrapped up in emotions or thoughts. A series of confirmatory factor analyses were then used to evaluate the model fit. These showed that a six-factor correlated model was an 'adequate fit' to the data (NNFI = .90; CFI = .91; Neff, 2003) and a higher order model (NNFI = .88, CFI = .90) was also proposed as a reasonable fit (Neff, 2003) and was initially used to support the use of the SCS to give a total self-compassion score.

Since its original publication, the factor structure of the SCS has received considerable attention: studies have yielded mixed findings with some authors reporting support for the six-factor correlated model (Azizi, Mohammadkhani, Lotfi, & Bahramkhani, 2013; Castilho, Pint-Goveia & Duarte, 2015; Garcia-Campayo, Navarro-Gil, Andres, Montero-Marin, López -Artal & Demarzo, 2014; Lee & Lee, 2010; Mantzouis, Wilson & Giannou, 2013) whereas other studies have been unable to replicate this factor solution (López, Sanderman, Smink, Zhang, van Sonderen, Ranchor, et al., 2015; Petrocchi, Ottaviani & Couyoumdjian, 2013; Williams, Dalgleish, Karl, & Kuyken, 2014). Support for the higher order model has been more sparse with only a few studies reporting it a fit to their data

(Castilho et al., 2015; Cunha, Xavier & Castilho, 2016; Dundas, Svendsen, Wiker, Granli & Schanche, 2016).

As a result, many authors have proposed alternative factor structures which have included a single factor model (i.e., an overarching single self-compassion construct; Deniz, Kesici and Sumer, 2008) and a four factor model where the positive factors are correlated and there is a distinct general negative factor (Zeng, Wei, Oei & Liu, 2016). The most widely proposed model is a two factor solution comprised of self-compassion (total of the positive items) and self-coldness (total of the negative items; Gilbert, McEwan, Matos & Ravis, 2011). This solution has also been found when the SCS has been administered in Dutch (Lopez et al., 2015) and Portuguese (Costa, Maroco, Ferreira & Castilho, 2015) populations. Indeed, the majority of independent studies into the SCS have been carried out cross-culturally with researchers translating the scale (e.g. Greek, Mantzoi, et al., 2013; Iranian, Azizi et al., 2013, and Spanish, Garcia-Campayo et al., 2014) and evaluating the model fit of the adapted scales. This has led to some problems with translating the scale. López et al (2015) for example, had to omit two of the items (self-kindness subscale item 5, 'I try to be loving towards myself when I'm feeling emotional pain'; self-judgment subscale item 21, 'I can be a bit cold-hearted towards myself when I'm experiencing suffering') as the items did not translate into Dutch. This is not an uncommon occurrence as items are worded to suit the culture they are developed in and translation can change the context and meaning of items (Auer, Hampel, Möller & Reisberg, 2000; Behling & Law, 2000). It is not surprising, therefore, that adapting the scale for use in other cultures may slightly alter what is being measured which could affect item/factor loadings.

The incongruity in the factor structures found by previous researchers may suggest that the factor structure of the SCS is not stable and would benefit from further robust analyses. Indeed, Neff (2016) suggested that the higher order structure may not be the most appropriate conceptualisation of compassion. Furthermore, recent studies (e.g. Neff, et al., 2017; Toth-Kiraly, Bothe and Orosz, 2016) have investigated the factor structure further via alternatives to higher order models and instead added a bi-factorial component alongside the six-factors in the SCS model. Bi-factorial modelling assesses covariance between factors that arises from the presence of an overarching factor (in this case self-compassion), whilst allowing the individual factors to retain and account for variance in their own subset of items (Reise, Moore & Haviland, 2010). Neff et al. (2017) found evidence supporting the six-factor correlated model in both non-clinical and clinical populations. In the non-clinical populations the bi-factorial model was a comparable fit to the six-factor solution, however it did not improve the

model fit, consequently the authors suggested that further research using bi-factorial modelling was warranted. Since Neff (2016) suggested a bi-factorial model might best fit the measurement of self-compassion several studies have employed this analysis using translated versions of the SCS in French, Brazilian Portuguese and Hungarian (Kotsou & Lees., 2016; de Souza & Hutz, 2016; Toth-Kiraly et al., 2016). For example, Toth-Kiraly and colleagues (2016) investigated the six-factor correlated and bi-factorial models using the Hungarian version of the SCS. The researchers compared model fit of the six-factor correlated model and the bi-factorial model using Confirmatory Factor Analysis (CFA) and Exploratory Structural Equation Modelling (ESEM; combination of Exploratory and confirmatory factor analysis techniques) and found that when using the CFA neither model was an adequate fit to their data, but when using ESEM both models fitted the data with the bi-factorial model being the best fit to the data. Although the focus on translated versions of the scale is welcome, there have been no independent replications of the bi-factorial model using the English language version of the scale.

With this in mind, the present study aimed to independently investigate the factor structure of the English language version of the SCS using both exploratory and confirmatory factor analytic techniques. Confirmatory factor analysis was used to compare the fit of the emergent exploratory factor structure to the alternative models described in the extant literature including the six-factor correlated model and the higher order model (Neff, 2003 a, b) and the bi-factorial model proposed by Neff et al. (2017). An exploratory factor analysis was employed to explore if there was an alternative model that was a better fit to our data.

4.2 Methods

The analysis presented in this chapter is conducted on data which were collected as part of a larger study. Details of the full study and measures included are discussed in chapter 5.

4.2.1 Participants

Time 1: Six hundred and ninety-eight people commenced the online survey, however, 172 people were excluded from the analysis as they did not complete the SCS. Subsequently, 526 adults were included at Time 1 (T1). Participants were aged between 16-64 years ($M= 23$ years old, $SD=5.4$). Three quarters of the sample (76%; $n=405$) were female, and the sample was predominantly White (90%, $n=473$).

Time 2: Sixty three per cent ($n=332/526$) of participants completed the SCS at Time 2 (T2) 2.5 months later. The mean age for the T2 sample was 24 years old and primarily female ($n=249$, 75%) and 92% identified themselves as White.

4.2.2 Procedure

This study employed a prospective design. Ethical approval was granted by the University of Glasgow College of Medical Veterinary Life Sciences Ethics committee. Participants were recruited by convenience sampling methods. These included emails sent to students and information about the study being shared on social media. The email explained the purpose of the study and included a link to the online survey. The link took potential participants to the full study information page. To ensure informed consent all participants actively selected that they had consented to take part in the study before being able to proceed to the questions. Participants completed the SCS at both time points allowing the stability of self-compassion to be explored across 2.5 months.

4.2.3 Measures

Self-Compassion Scale (SCS; Neff, 2003a, b). The SCS is a 26 item measure assessing the components of self-compassion; self-kindness vs. self-judgment (e.g. 'I try to be loving towards myself when I'm feeling emotional pain' vs. 'I'm disapproving and judgmental about my own flaws and inadequacies'); common humanity vs. feelings of isolation (e.g. 'When things are going badly for me, I see the difficulties as part of life that everyone goes through' vs. 'When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world'); mindfulness vs. over-identification with thoughts (e.g. 'When something upsets me I try to keep my emotions in balance' vs. 'When I'm feeling down I tend to obsess and fixate on everything that's wrong'). Items are scored on a 1 (almost never) to 5 (almost always) Likert-type scale. The scale is most often used to either give an overall compassion score, or to show how someone scores on the individual subscales. When calculating an overall self-compassion score the 3 negative components of compassion are reverse scored, but the items are not reversed when calculating subscale scores.

Test retest coefficients for the subscales were moderately correlated and ranged from $r = .66$ to $.88$. In the present study the total SCS was found to have excellent internal consistency (Time 1 Cronbach's $\alpha = .92$, Time 2 $\alpha = .95$). For both time points internal consistency (see Table 4.4 for full details) for the subscales ranged from fair (mindfulness subscale showing the lowest internal consistency) to good. Test-retest

reliability was established as good for both the overall scale ($r = .87$, $p < .01$, $\alpha = .93$) and the subscales (range $\alpha = .80$ to $.89$).

4.2.4 Statistical Analysis

There are two main forms of factor analysis: exploratory and confirmatory factor analysis. Exploratory factor analysis (EFA) is a data driven process primarily used in the development of questionnaires. In EFA the researcher does not specify the factor structure, allowing related variables to cluster, thus creating factors (Child, 1990). Comrey and Lee (1992) suggested using the following cut-offs to assess item loadings; .32 poor, .45 fair, .55 good, .63 very good, .71 excellent. Confirmatory factor analysis (CFA) is used to further test hypotheses about the internal structure of a measure. In CFA the researcher specifies the model parameters (i.e. number of factors, which variables load on to each factor) a priori and uses CFA to determine how well the data fit to the parameters. CFA is also important in establishing a scale's internal consistency (Albright & Park, 2009). The EFA was conducted on the T1 data using SPSS version 22 and the CFAs were carried out using AMOS graphics (version 22).

4.2.4.1 Missing data

There is no consensus around what percentage of missing data are acceptable, consequently, following a research team meeting, a cut off of 80% was agreed upon as an appropriate cut off for completeness. Subsequently, participants who had completed fewer than 21 items of the scale items were classified as incomplete and their data were omitted from the analysis ($n=172$). Following exclusion of the latter, at both time points 0.08% of participants had missing data on between 1 to 4 items. A missing value analysis established that there was no pattern to the items missed (T1 $\chi^2 = 427.27$, $DF=436$, $P= 6.08$, T2 $\chi^2 = 420.786$, $DF=435$, $P=.679$) and as a result, the missing data were replaced using Expectation-Maximization replacement methods.

Prior to conducting the factor analysis, the data were screened for any variables that were highly correlated to each other ($r > .9$) and potentially indistinguishable from other items (multicollinearity): no variables were found to be correlated over the 0.9 threshold. The sample's sufficiency for factor analysis was also assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. This ranges from 0-1 and Tabachnick and Fidell (2013) suggested that scores over .6 suggest suitability for factor analysis. The KMO for the sample was very good (KMO = .93) and Bartlett's test of sphericity was significant ($\chi^2 (325) = 5944.3$, $p < .05$). All the items correlated with at least one other item at a .3 level, further supporting the data's suitability for factor

analysis. Review of the diagonals on the anti-image correlations showed that they were all over .5 so no items were removed prior to analysis.

The data were assessed for outliers; across both time points 14 univariate and two multivariate cases were found. All analyses were run including and excluding these cases and there were no differences in the results, so the cases were included in the analyses reported here.

Exploratory factor analysis.

The EFA was carried out using Costello and Osborne's (2005) guidelines for best practice for EFA; the maximum likelihood method with oblique rotation (direct oblimin) was selected for the EFA as it allowed for the factors to be related.

Confirmatory factory analysis.

In keeping with the maximum-likelihood method that we employed in the EFA, we assessed the model fit on the Comparative Fit Index (CFI), Tucker-Lewis index (TLI), Standardised Root Mean Square residual (SRMR) and Root Mean Square Error of Approximation (RMSEA). We did not rely upon Chi-square as it has been found to be too sensitive to sample sizes in excess of 250 (Bentler & Bonett, 1980). There is some debate over which cut-offs should be used for the RMSEA to indicate a good model fit. MacCallum, Browne and Sugawara (1996) suggested that between .08 and .10 shows a mediocre fit, and below .08 shows a good fit, although Steiger (2007) has since suggested .07 as the cut off for a good fitting model. There is greater consensus regarding TLI and CFI scores, with .90 indicating an acceptable fit, and a score of over .95 indicating a good fit (Hu & Bentler, 1999). A SRMR value <.08 is considered a good fit (Hu & Bentler, 1999). The Akaike information criterion (AIC) was also used to compare the fit of different models; the model which has the lowest AIC value indicates the best fit to the data. The omega indices were calculated using the Omega software (Watkins, 2013) for the bi-factorial model to estimate the reliability of the overarching self-compassion factor when all variance from the latent factors is removed (Brunner, Nagy & Wilhelm., 2012). This index provides useful information about whether the scores from a specific factor can be interpreted with confidence or if only the total score should be used.

In order to replicate Neff et al.'s (2017) study CFA was used to evaluate the fit of the following series of models: The (1) higher order model (2) six-factor correlated model originally proposed by Neff (2003); (3) the single factor model; (4) two-factor model consisting of self-coldness and self-compassion factors (Gilbert et al., 2011); and (5) the

bi-factorial model testing if the SCS consists of a general self-compassion factor and 6 specific factors (Neff et al., 2017), and finally; (6) the five factor correlated model extracted by EFA from our T1 data.

4.3 Results

Six hundred and ninety eight people started the online survey. Those who did not complete the self-compassion measure ($n= 172$) were excluded from the main analyses. This yielded a sample of 526 adults who completed the SCS at T1. Chi-square tests showed that there were no significant differences on demographic variables between those who completed the SCS at both time points and those who only completed the SCS at baseline. The t-tests revealed no differences between the EFA (T1) and the CFA (T2) samples in age or in any of subscales of the SCS. The majority of participants reported no experience of meditation or mindfulness (T1 $n= 391$ (74%); T2 $n= 262$ (79%)); of those who reported engaging in meditative practices only 20-23 % of people reported practising at least every couple of months.

As shown in Table 4.1 all of the SCS subscales and total score were all significantly inter-correlated, as anticipated. The subscales were moderately to highly correlated. Common humanity showed the lowest associations with the three negative subscales (self-judgement $r=-.33$, perceived isolation $r=-.39$ and over-identification with thoughts $r=-.38$). The SCS total score was most strongly correlated with the self-kindness ($r= .81$) and self-judgement ($r=-.82$) subscales.

Table 4.1. Correlations between subscales and SCS total score

	CH	MFN	SJ	ISO	OID	T
SK	.46	.63	-.67	-.45	-.46	.81
CH	-	.58	-.33	-.39	-.38	.67
MFN	-	-	-.46	-.45	-.53	.77
SJ	-	-	-	.61	.60	-.82
ISO	-	-	-	-	.65	-.77
OID	-	-	-	-	-	-.78
T	-	-	-	-	-	-

$P<0.05$. Self-kindness= SK, Self-judgement =SJ, Common humanity= CH, Perceived isolation= ISO, Mindfulness = MFN, Over-identification= OID, SCS total=T

4.3.1.1 Exploratory factor analysis

The EFA revealed a potential five-factor model with all factors having eigenvalues over 1 and these cumulatively explained 49% of the variance. Parallel Analysis (PA) was used to confirm the factor retention. PA is a recommended procedure to establish factor retention (Courtney, 2013; O'Connor, 2000). PA was conducted using syntax available from O'Connor's website (people.ok.ubc.ca/briocconn/nfactors/nfactors.html).

PA creates correlation matrices by generating random variables and data sets based on the number of variables and sample size of the actual data. The average eigenvalues from the computed correlation matrices are then compared to the eigenvalues from the real data correlation matrix. Factors from the real data can be retained as long as they are greater than the mean eigenvalue generated from the random data matrices. As this was the case for all of our 5 factors we retained the EFA model.

An examination of the item loadings between factors showed 2 items (i.e., with correlations over .3) cross-loaded on more than 1 factor. Item 4 ('When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world') loaded on factors 1 and 5 and item 14 ('When something painful happens I try to take a balanced view of the situation') loaded on to both factors 2 and 3. As these were the only problematic items they were retained in the analysis on the factors they had loaded highest on. Table 4.2 below shows the EFA loadings and factor structure. There were a few items that had lower loadings (around .32 level; Tabachnick & Fidell's (2007) guidance on lowest cut off for factor loadings) on their respective factors but these were not viewed as problematic as they were distributed across the scale rather than clustered on a single factor.

Table 4.2. Factor loadings from Exploratory Factor Analysis

Item	Factor 1- self criticism	Original subscale	Factor loading
1 I'm disapproving and judgmental about my own flaws and inadequacies.		SJ	.81
2 When I'm feeling down I tend to obsess and fixate on everything that's wrong.		OID	.52
6 When I fail at something important to me I become consumed by feelings of inadequacy.		OID	.57
8 When times are really difficult, I tend to be tough on myself.		SJ	.54
11 I'm intolerant and impatient towards those aspects of my personality I don't like.		SJ	.47
16 When I see aspects of myself that I don't like, I get down on myself.		SJ	.58
23 I'm tolerant of my own flaws and inadequacies		SK	.63
26 I try to be understanding and patient towards those aspects of my personality I don't like.		SK	.38

Factor 2- balance/ acceptance		
3	When things are going badly for me, I see the difficulties as part of life that everyone goes through.	CH .52
7	When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.	CH .80
10	When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.	CH .77
14	When something painful happens I try to take a balanced view of the situation.*	MFN .32
15	I try to see my failings as part of the human condition	CH .50
17	When I fail at something important to me I try to keep things in perspective.	MFN .34
Factor 3 -emotional reactivity/ emotion dysregulation		
9	When something upsets me I try to keep my emotions in balance.	MFN .45
20	When something upsets me I get carried away with my feelings.	OID .72
24	When something painful happens I tend to blow the incident out of proportion.	OID .69
Factor 4- self-kindness		
5	I try to be loving towards myself when I'm feeling emotional pain.	SK .60
12	When I'm going through a very hard time, I give myself the caring and tenderness I need.	SK .83
19	I'm kind to myself when I'm experiencing suffering.	SK .83
21	I can be a bit cold-hearted towards myself when I'm experiencing suffering.	SJ -.35
22	When I'm feeling down I try to approach my feelings with curiosity and openness.	MFN .40
Factor 5- isolation		
4	When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.**	ISO .39
13	When I'm feeling down, I tend to feel like most other people are probably happier than I am.	ISO .47
18	When I'm really struggling, I tend to feel like other people must be having an easier time of it.	ISO .45
25	When I fail at something that's important to me, I tend to feel alone in my failure.	ISO .46

*Cross loaded to factor 3 .310, **Cross loaded to factor 1 .346

4.3.1.2 Confirmatory Factor Analysis

Confirmatory factor analyses were run on both the T2 and T1 data and the following series of models reported in Neff et al's (2017) study were evaluated; a single compassion factor; a hierarchical model of compassion (Neff ,2003a); the six-factor correlated model (Neff, 2003a); the two-factor 'self-compassion and self-coldness' model (Gilbert et al., 2011); and the bi-factorial model of self-compassion. In addition to these, we conducted CFA on the five-factor model that emerged from our EFA. Fit statistics for the different factor models are shown in Table 4.3 below.

Table 4.3. Model fit Time 1 and Time 2

Model	CFI	TLI	SRMR	RMSEA	AIC	X ² (df)
Time 1 data (n=526)						
Single factor	.71	.68	.08	.09	2143.9	1987.9 (299)
Two factor	.79	.77	.07	.09	1675.7	1517.7 (298)
Five factor	.85	.84	.07	.07	1299.1	1123.1 (289)
Higher order	.84	.82	.07	.08	1407.	1239.0 (293)
Six factor	.88	.86	.06	.05	1183.8	997.8 (284)
Bi-factorial*	.91	.88	.06	.05	1023.9	787.9 (259)
Time 2 data (n=332)						
Single factor	.77	.75	.08	.11	1673.9	1466.8 (299)
Two factor	.85	.84	.07	.09	1218.3	1060.3 (298)
Five factor	.88	.87	.07	.08	1003.6	879.6 (289)
Higher order	.88	.87	.08	.08	1045.2	877.2 (293)
Six factor	.92	.91	.05	.06	852.23	666.2 (284)
Bi-factorial*	.95	.94	.06	.05	757.67	521.7 (259)

* best fit to the data T1=CFA run using Time 1 data; T2= CFA run using Time 2 data

Using the cut-offs for the fit criteria mentioned above (CFI and TLI $>.9$, SRMR $<.08$, RMSEA $<.07$), it is clear that the single-factor model did not fit the data, nor did the two-factor model (self-compassion and self-coldness items). Examination of the five-factor model showed that although the model was approaching an adequate fit to the data, it did not fulfil the fit criteria. This was the same for the higher order model. The six-factor correlated model was a good fit for the data with all the items loading on their respective factors well (ranging from good .55 to excellent .86, see Table 4.5).

The six-factor correlated model was characterised by all the factors being moderately to highly inter-correlated. Applying Cohen's (1988) cut-offs, the correlations ranged from moderate (.3) to very highly correlated (e.g., perceived isolation and over-identification having the highest correlation at .94). The bi-factorial model was also fitted to establish whether there was an overarching self-compassion factor in addition to the six factors. As shown in Table 4.5, when the overarching self-compassion factor was included in the T2 data, the factor loadings for the majority of the items remained high and all remained above .32 suggesting they loaded well on the self-compassion factor. When the same model was run using the T1 data items 18 ('When I'm really struggling, I tend to feel like other people must be having an easier time of it') and 20 ('When something upsets me I get carried away with my feelings') loaded poorly on the self-compassion factor (.28 and .26, respectively).

The inclusion of the overarching self-compassion factor significantly reduced the variance shared by the factors and, as shown in Table 3, this improved the model fit

across all measurement criteria and improved the AIC from 852.23 in the 6 factor model to 757.67. CFA's using the T1 data revealed a similar pattern, this time however, none of the models fully fitted all of our criteria for a good model fit as the TLI for the bi-factorial model dropped to under .9, but this model remained the closest fit to the data.

Omega indices (ω and ω_H) were calculated for the bi-factorial model (Table 4.4) to assess the reliability (ω) of the subscale scores and the total self-compassion score. These showed that the subscales ranged from ω .80 to .93 and the scale had an overall ω of .96 showing that the subscales were representative of both self-compassion and the six-factors. There was greater variance in the ω_H indices with scores ranging from .05 (self-kindness) to .46 (isolation). The omega indices for the T1 data echoed these results.

Table 4.4. Reliability indices for the Self-Compassion Scale and variance explained in bi-factor model

Sub scale	No of items	Alpha α			Omega ω		Omega H ω_H	
		T1	T2	retest	T1	T2	T1	T2
SCS overall	26	.92	.95	.93	.94	.96	.84	.90
Self-kindness	5	.82	.89	.87	.89	.93	.08	.05
Common humanity	4	.77	.83	.80	.79	.85	.51	.41
Mindfulness	4	.71	.75	.81	.76	.80	.29	.26
Self-judgment	5	.81	.89	.89	.83	.90	.26	.20
Isolation	4	.77	.80	.83	.78	.81	.51	.46
Over-identification	4	.75	.82	.87	.73	.82	.34	.40

No of items number of items on the factors, α Cronbach's alpha, ω coefficient omega, ω_H omega hierarchical, Mean, SD standard deviation

As in Neff et al.'s (2017) paper, we calculated the variance in total scores that is explained by the overarching self-compassion factor (ω_H / ω). In our data 89% of T1 and 94% of T2 variance in total scores resulted from the overarching self-compassion factor.

Table 4.5. Factor loadings of SCS items on subscales for six-factor correlated and bi-factorial model using the Time 1 and Time 2 data

Subscale	T2	T2	T1	T1
	6-factor	bi-factorial	6-factor	bi-factorial
Self-kindness				
5	.71	.79	.67	.78
12	.82	.86	.78	.85
19	.85	.88	.78	.83
23	.71	.76	.61	.63
26	.83	.85	.65	.66

Self-judgement					
1	.82	.74	.70	.59	
8	.76	.71	.69	.58	
11	.76	.69	.64	.56	
16	.81	.70	.73	.58	
21	.75	.72	.66	.60	
Common humanity					
3	.70	.53	.62	.39	
7	.75	.49	.69	.34	
10	.76	.56	.76	.44	
15	.75	.63	.65	.51	
Isolation					
4	.76	.60	.74	.54	
13	.67	.55	.65	.35	
18	.59	.42	.58	.28	
25	.75	.60	.68	.44	
Mindfulness					
9	.55	.39	.52	.33	
14	.78	.62	.73	.58	
17	.73	.65	.69	.57	
22	.58	.61	.57	.60	
Over identification					
2	.81	.62	.77	.54	
6	.75	.64	.70	.45	
20	.70	.40	.54	.26	
24	.64	.44	.58	.31	

4.4 Discussion

The SCS is a widely used measure of self-compassion and its factor structure has received a great deal of research interest. This study provided an independent evaluation of the SCS's factor structure and replicated the models evaluated by Neff et al. (2017). Specifically, the outcomes of this study echo those found in Neff et al.'s (2017) study, in particular the results from her student sample. We found the SCS to be reasonably reliable with both the overall scale and subscales having relatively high internal reliability and good test-retest reliability. Of the models we investigated, we found that the bi-factorial model consisting of the six-factor correlated model and an overarching self-compassion factor was the best fit to our data. This supports Neff's (2016) conceptualisation of self-compassion as having 6 distinct factors that are influenced by a concurrent (self-compassion) factor and the use of the SCS to give both an overall self-compassion score, or to use the scores from individual subscales. The inclusion of a general self-compassion factor accounted for some of the shared variance between factors and improved the model fit across all of our fit criteria (TLI= .94, CFI= .95) and the AIC suggested that this model was the best fitting of all the models. When

we ran the same analyses on the T1 data the bi-factorial model did not fulfil all of our fit criteria ($TLI < .9$), but remained the closest fit to our data. In Neff et al.'s (2017) recent paper, the bi-factorial model was not as good a fit as the six-factor solution in any of the populations, but it still demonstrated an acceptable fit in all of the populations with the exception of the clinical sample. Van Prooijen and Van Der Kloot (2001), however, emphasised that there is never 'one single true model' as data are subject to individual differences.

The omega indices showed further support for the bi-factorial construction of self-compassion as the subscales ranged from $\omega = .80$ to $.93$ and the total score had an ω of $.96$ suggesting that the sub-scales and the overarching scale are representative of both self-compassion and the six-factors. With the inclusion of the overarching self-compassion factor the ω_H indices reduced to between $.05$ (self-kindness) and $.46$ (isolation). Lower ω_H scores indicate that a greater proportion of that factor's variance has been explained by the overarching self-compassion factor rather than the individual factor(s). Self-kindness, for instance, appeared to be comprised largely of self-compassion as the variance reduced by 88% (T2) when the overarching factor was included. We also calculated the percentage variance in total scores (89% of T1 and 94% of T2) explained by the overarching self-compassion factor. Our findings echo the percentages reported by Neff et al. (2017) who found that the general self-compassion factor accounted for 90- 95% of variance across their samples. These omegas indicate that both the scores from the specific factors and from the total score can be interpreted with confidence.

The six factor correlated model was also a good fit to our T2 data and the fit was comparable with previous research (Neff, 2003; $TLI = .9$, $CFI = .91$. Neff et al., 2016: student sample; $TLI = .92$, $CFI = .93$. The present study; $TLI = .92$ and $CFI = .93$). In our model the items loaded well onto the proposed factors with loadings ranging from $.55$ to $.85$. These were comparable to those from the student sample in Neff et al.'s recent paper (2017). Very similar factor loadings were found when the CFA was run on the T1 data. Internal consistency was mostly good within the subscales. However, we found that perceived isolation was highly correlated with the over-identification and self-judgement factors. Correlations of this level ($.94$ and $.90$ respectively) can indicate poor discriminant validity between subscales, but in some, as is probable in this case, they can be indicative of a shared latent variable that impacts upon the scale over and above the impact of the factors (Gaskin, 2016). The inconsistencies in models found by previous research might suggest the latter may be the case and findings from this study support this conjecture.

The five-factor model from our EFA was not supported during the confirmatory procedures from either of our time points, however, this is not an unusual outcome in cross-validation studies as no parameters are set in EFA and the data are allowed to inform the model formation whereas the CFA procedure is run with more restrictions in place (Van Prooijen & Van Der Kloot, 2001). Neither the single factor nor two-factor models fitted our data. This might suggest that the operationalisation of self-compassion is more complicated than it being a single construct or a sum of the positive and negative items. To address concerns regarding the inclusion of the negative components of self-compassion, some research has adopted the two-factor model to measure self-coldness and self-compassion scores (e.g. Gilbert et al., 2011). Although the fit indices were approaching a fit to the data, this model did not reach acceptable levels of fit, therefore we found no support for using the SCS in this way. We found similar outcomes for the higher order model to Neff et al. (2017). In higher order models the overarching factor accounts for all variance between the factors that load on to it. It doesn't allow the factors to retain any individual influence on the model. This does not fit with Neff's (2016) conceptualisation of self-compassion as consisting of both self-compassion and interrelated components.

The lack of fit for the two-factor model should also alleviate some concerns that the SCS may be affected by item scoring method (e.g. López et al., 2015, Muris & Petrocchi, 2016). The fact that the single compassion factor was not a fit to our data supports Neff et al.'s (2017) ascertainment that although the SCS can be used to yield a total score compassion it is not constructed of a single dimension.

Self-compassion is an important psychological construct and it is imperative that we advance our understanding of how it is optimally operationalised. Our findings support the view that compassion is a multi-faceted construct that is more complicated than being comprised exclusively of the positive components of self-compassion. Muris and Petrocchi (2016) however, reported greater associations between the negative components and psychopathology than the positive components of the SCS. These authors highlight the importance that scoring method can have on a scale in that the reverse scored items might serve to inflate the self-compassion score, thus increasing the association between the self-compassion total score and psychopathology. The bifactorial construct of the SCS affords researchers the opportunity to explore the impact of the individual factors as well as the overall total score and address this concern. In the present study, our inter-factor correlations were stronger between negative components of self-compassion than the positive ones. More research needs to be

conducted into the mechanisms underlying the components of self-compassion and to explore how much impact each factor has under various circumstances or populations.

4.4.1 Limitations and Future Directions

The study employed a student sample which was three quarters female. Model fit should be tested across other populations to establish what models of self-compassion are most appropriate in different populations and studies should investigate how gender impacts upon model fit. In future studies, modelling techniques ought to be reflective of the complexity of self-compassion and as such, assess the presence of a shared compassion factor by using bi-factorial and other in-depth structural equation modelling techniques. Factorial and structural modelling techniques are continuing to develop, and in a recent investigation Toth-Kiraly et al., (2016) applied exploratory structural equation modelling techniques to a Hungarian version of the SCS. Applying these techniques to the original language version of the SCS would allow for more rigorous testing of this important construct.

Our study found that the SCS can be used to give subscale totals and to give an overall total compassion score. Despite the scale's extensive use however, we have little understanding of how the six components of the SCS interact with each other and more work needs to be done to understand if all the factors contribute equally to a person's compassion or if one area is potentially more important than another. In this vein, Muris and Petrocchi (2016) also emphasised the need for studies to investigate the predictive value of the different components of the SCS in the aetiology of psychopathology. To facilitate this, research into the SCS needs to move away from cross-sectional studies and employ more prospective designs which would also allow the investigation of the stability of self-compassion over time. Studies could also be designed to determine how self-compassion is affected by the presence of stressful life events, particularly events that increase feelings of self-criticism and failure (e.g. Toth-Kiraly et al., 2016) and allow exploration of the relationship between these and the latent variables of the SCS.

4.4.2 Conclusions

More research emphasis needs to be placed on the positive components of mental health rather than the negative aspects and as such, self-compassion is an important area that deserves much more research attention. Thus far, research into self-compassion has primarily focussed on its association with mental health problems such as depression, anxiety and stress, however, how self-compassion is related to more complex mental health problems including experiences such as paranoia and distressing

voices, self-harm and suicide are worthwhile. Moreover, the role of self-compassion in recovery merits more attention (Anthony, 1993; Leamy et al., 2011). Our research reiterates Neff et al.'s (2017) findings that the SCS can be used as six-factor and bifactorial model, thereby further emphasising the complexity of self-compassion. Our findings also support the use of the SCS to give a total score as suggested by Neff and colleagues (2003ab, 2017). However, in light of Muris & Petrocchi's (2016) recent meta-analysis, further examination of the contributions of the individual factors, particularly the negative factors, to the overall self-compassion score is vital. In sum, further research into this complex construct is needed to establish the impact of the individual components on the models of the SCS and how these components interact within mental health and illness.

The next chapter explores the relationship between self-compassion and core constructs of the motivational phase of the IMV and suicidal ideation.

Chapter 5 Self-compassion and suicidal ideation

Background: Higher levels of self-compassion have been associated with better mental wellbeing across a variety of populations. However, the relationship between self-compassion and suicidal ideation is not fully understood. Consequently, this study aimed to explore the relationship between self-compassion, suicidal ideation and defeat and entrapment; the central tenets of the motivational phase of the integrated motivational volitional (IMV) model of suicidal behaviour (O'Connor, 2011).

Method: Participants were recruited to a prospective online survey and completed a range of psychological measures including the Self-Compassion Scale (SCS; Neff, 2003ab), measures of defeat, entrapment and depressive symptoms at two time points (baseline [Time 1] and 2.5 months later [Time 2]). Lifetime suicidal ideation, frequency and recency of thoughts were assessed. Self-criticism was included to establish criterion-related validity for self-compassion. A series of mediation models was conducted to explore self-compassion's potential role in the motivational phase of the IMV model.

Results: Five hundred and fourteen participants completed the outcome measures at Time 1 (T1), and 269 (52.3%) completed the measures at Time 2 (T2). Self-compassion and self-criticism were assessed for construct agreement and were shown to vary significantly. Analyses were conducted using both the SCS total score and the individual subscales. Cross-sectionally, all the components of the SCS differentiated between the groups univariately however, in the multivariate model, only self-judgment and isolation differentiated between the groups. Prospectively, with the exception of mindfulness and over-identification, the SCS subscales predicted suicidal ideation during follow-up. The self-judgement and isolation subscales partially mediated the relationship between entrapment and suicidal ideation (T1). Self-compassion, self-kindness, self-judgement and isolation all partially mediated the defeat (T1) to entrapment (T2) relationship.

Conclusions: These findings suggest that high levels of self-compassion are associated with lower suicidal ideation and lower levels of psychological distress. The results also indicate that components of self-compassion may have play roles in different areas of the motivational phase of the IMV model. These findings suggest that self-compassion may be an important clinical target as, given the interconnected nature of its components, targeting self-compassion may have diffuse effects on various components of the IMV model.

5.1 Introduction

Around 800,000 people (World Health Organization [WHO], 2014) take their own lives annually. Rates of suicidal ideation are substantially higher with around 10% of people experiencing suicidal ideation at least once in their lives (Nock et al., 2008). Although we know that suicide results from a complex interplay of many factors including psychological factors such as self-criticism, shame, perfectionism, isolation, entrapment and perceived burdensomeness (O'Connor & Nock, 2014), as discussed in Chapter 1, there are many gaps in our knowledge in terms of who, and under what circumstances individuals may be at increased risk of suicidal ideation (Franklin et al., 2017).

This has been, in part, due to previous research not being guided sufficiently by theoretical models. To address this dearth in the evidence base, O'Connor (2011) developed the Integrated Motivational-Volitional (IMV) model of suicidal behaviour (O'Connor, Cleare, Eschle, Wetherall, & Kirtley, 2016; O'Connor & Kirtley, 2018; O'Connor, 2011). The IMV model is a tri-partite (pre-motivational, motivational and volitional phases) diathesis-stress framework which draws on major components from psychopathology, suicidal behaviour research and the health psychology literature. It aims to delineate the final common pathway to suicidal ideation and suicidal behaviour (O'Connor et al., 2016; O'Connor & Kirtley, 2018; O'Connor, 2011).

5.1.1 The Integrated Motivational-Volitional model

The IMV model specifies key factors which contribute to the emergence of suicidal ideation and intent as well as the factors which increase the likelihood that suicidal intent is acted upon. The pre-motivational phase of the IMV model details the background context in which suicidal ideation may develop. The motivational phase then identifies factors which may facilitate the development of suicidal ideation, while the volitional phase details the factors which may increase or decrease the likelihood of an individual acting on their thoughts of suicide. See Chapter 1 for a discussion of all the model components.

The motivational phase pathway is well evidenced (for a review of evidence see O'Connor & Portzky, 2018) with the central tenants, defeat and entrapment, repeatedly being associated with suicidal thoughts and behaviours (O'Connor, 2003; Rasmussen et al., 2010; Taylor, Gooding, Wood, Johnson, et al., 2011). Defeat and humiliation are thought to emerge in the context of social loss or interpersonal rejection (Williams, Doorley, & Esposito-Smythers, 2017). The IMV model then describes the factors which

explain the circumstances that make it more likely that feelings of defeat may transition into entrapment (threat to self-moderators e.g., rumination and problem solving). Threat-to-self moderators (within the motivational phase) include cognitive processes which play a role in an individual's ability to effectively solve interpersonal problems (Williams & Broadbent, 1986) or cope with life's challenges. The presence of threat-to-self moderators may increase the likelihood that feelings of defeat develop into feelings of entrapment.

Feelings of entrapment can stem from external factors (i.e., feel trapped in a situation or relationship) or internal ruminations (i.e., feel trapped by your own self-critical thinking) (Gilbert and Allan, 1998). Internal entrapment in particular may have a crucial role in relation to maintaining suicidal thoughts over time. For example, in a recent study of individuals with bipolar disorder, internal entrapment mediated the defeat and suicidal ideation relationship across a 4-month follow up (Owen et al., 2018). Similarly, in a representative sample of Scottish young adults, internal entrapment mediated the relationship between defeat and suicidal ideation at 12-month follow up (Wetherall et al., 2019). However, how internal entrapment develops and the factors which may ameliorate its impact are not yet fully understood (O'Connor & Portzky, 2018).

Furthermore, the IMV model posits that entrapment is likely to be translated into suicidal ideation and intent in the presence or absence of motivational moderators (e.g., thwarted belongingness, reasons for living, realistic future thinking, social support). These motivational moderators are factors which may help individuals to identify reasons to live and generate potential alternatives to their current unbearable situation. For instance, the absence of positive future thinking has repeatedly been associated with suicidality (Hunter & O'Connor, 2003; O'Connor, Connery, & Cheyne, 2000; O'Connor, O'Connor, O'Connor, Smallwood, & Miles, 2004) and it has been found to predict suicidal ideation 2-3 months following self-harm (O'Connor, Fraser, Whyte, MacHale, & Masterton, 2008). Additionally, perceptions of having little social support (Chang et al., 2017), feelings of not belonging (Van Orden, Witte, Cukrowicz, Braithwaite, Selby, & Joiner, 2010) and feeling like a burden on others (Chu et al., 2017) are implicated in the development of suicidal ideation.

Identification of key *risk* factors in the emergence of suicidal ideation and attempts has, understandably, been prioritised by previous research (Franklin et al., 2017), however research into possible *protective* factors is largely absent despite being crucial (WHO, 2012) to further our understanding of, and potentially reducing, suicidal ideation and behaviours. One such factor, which warrants investigation is self-compassion. Self-compassion has received considerable attention in the aetiology of mental and physical

health in recent years. Indeed, higher levels of self-compassion have been shown to be associated with better physical and mental health, including lower depression, anxiety and stress (MacBeth & Gumley, 2012; Muris & Petrocchi, 2016). However, the relationship between self-compassion and suicidal ideation (see Chapter 2; systematic review for discussion of literature) has been largely overlooked.

5.1.2 Self-Compassion

Self-compassion is a multifaceted construct comprised of both trait (Neff, 2003) and state-like qualities (Gilbert et al., 2011). Additionally, self-compassion is an active process in which an individual feels motivated and has the intention to relieve their own suffering (Jazaieri et al., 2014) and actively extends kindness to themselves in the face of failure or their own shortcomings (Neff, 2003). A self-compassionate approach entails a mindful awareness of thoughts, emotions and experiences that are emotionally painful whilst engaging with painful experiences rather than avoiding them and the recognition that other people have similar experiences rather than feeling isolated by their experiences.

Self-compassion is often assessed using the Self-Compassion Scale (SCS; Neff, 2003ab) which, according to the author, assesses the following six domains of self-compassion; self-kindness vs. self-judgement, common humanity vs. isolation, mindfulness vs. over-identification with thoughts. The inclusion of negative components of self-compassion has sparked debate among researchers in regards to what constructs the SCS actually measures, particularly as the negative components echo self-criticism, rumination and social isolation (MacBeth & Gumley, 2012; Muris, 2016). Concerns have also been raised around using the SCS total score as the negative components are more strongly associated with psychopathology than the positive components (Muris & Petrocchi, 2017); the concern being that including the negative subscales might lead to an overestimation of the relationship between self-compassion and psychopathology. However, Neff (2003 ab) posited that self-compassion reflects a balance of these components rather than an absence of negative components. Numerous studies into the psychometric properties of the SCS (including Chapter 4) have validated its use to provide both a total score and scores on the individual subscales (Cleare, Gumley, Cleare, & O'Connor, 2018; Neff et al., 2019; Neff, Whittaker, & Karl, 2017; Tóth-Király, Bőthe, & Gábor, 2017). However, the majority of studies using the SCS have employed the total score, meaning that less is known about how the components interact (Muris & Petrocchi, 2017), including whether components contribute equally to an individual's

self-compassion; and how they interact with established risk factors for suicidal thoughts and behaviours.

Self-compassion may have a role in the regulation of emotions, particularly at times of distress (Gilbert & Choden, 2013). Through adopting a compassionate stance to oneself, self-compassion may help individuals to tolerate difficult emotions (Gilbert, 2017; Klimecki, Leiberg, Ricard, & Singer, 2014; Leiberg, Klimecki, & Singer, 2011).

In other areas of mental health, self-compassion has been found to be effective at regulating indicators of psychological distress such as shame, self-criticism (Gilbert, 2014), submissive behaviours (Gilbert & Procter, 2006) and reducing negative affect (Kirby, Tellegen, & Steindl, 2017). A recent study found that self-help compassion focussed therapy (CFT) increased self-reassurance (self-compassion) and increased positive affect which in turn decreased depressive symptoms (Sommers-Spijkerman et al., 2018). Additionally, self-compassion reduced levels of self-criticism, which subsequently reduced symptoms of anxiety. Similarly, a recent systematic review (Cleare, Gumley & O'Connor, 2019; see Chapter 2) found that higher levels of self-compassion were related to lower levels negative affect, which in turn were related to lower suicidal ideation and less self-harm. In brief, therefore, the evidence from other areas of mental health research suggests that self-compassion may have a role in ameliorating the impact of the risk factors posited within the motivational phase of the IMV model.

5.2 The Present study

The overarching aim of this study was to investigate the relationship between self-compassion and suicidal ideation in the context of risk factors selected from the motivational phase of the IMV model of suicidal behaviour. However, before doing so, we investigate the construct validity of the SCS, its temporal consistency and the extent to which it assesses self-compassion. Within this context, the current study addressed the following specific aims and hypotheses.

5.2.1 Research aims and hypotheses

1. To explore the construct validity of self-compassion and the subscales in relation to other psychological variables.

Hypothesis 1 (H1): The total self-compassion score and the positive subscales will be related to measures of mindfulness and resilience while the negative subscales will be correlated with measures of psychopathology.

2. To explore the stability of self-compassion over a short follow-up time period.

Hypothesis 2 (H2): Self-compassion will demonstrate acceptable test-retest reliability over a short follow up time period.

3. To investigate the relationship between self-compassion and suicidal ideation.

Hypothesis 3a (H3a): Self-compassion will differentiate between individuals with a history of suicidal ideation and those without. In particular the negative subscales will be more strongly associated with suicidal ideation than the positive subscales.

Hypothesis 3b (H3b): Self-compassion will predict suicidal ideation over time.

4. To investigate the relationship between self-compassion and selected factors from the motivational phase of the IMV model.

Hypothesis 4a (H4a): Self-compassion (T1; total and/or subscales) will act as a threat to self moderator (TSM) and mediate the relationship between defeat (T1) and entrapment (T2).

Hypothesis 4b (H4b): Self-compassion (total and/or subscales) will act as a motivational moderator (MM) and mediate the relationship between entrapment and suicidal ideation.

5.3 Methods

5.3.1 Participants

Time 1: Six hundred and ninety-eight people commenced the online survey, one hundred and sixty-two people were excluded as they did not complete the self-compassion scale, and a further twenty-two were excluded as they had not completed the suicidal ideation question (see Figure 5.1 for participant flowchart). Subsequently, 514 adults were included at T1. Participants were aged between 16-64 years ($M= 22.91$ years old, $SD= 5.76$). Three quarters of the sample (75.1%; $n= 386$) was female, and the sample was predominantly White (90.9%, $n= 467$).

Time 2: Around half of the participants ($n= 269$, 52.3%) completed the main outcome measures at T2 2.5 months later. The mean age for the T2 sample was 23.6 years old, primarily female ($n= 203$, 75.5%) and 91.8% identified themselves as White. Binary logistic regressions showed that none of the T1 measures was associated with non-participation at T2. In terms of demographics, those who completed both time points were significantly older (mean age 23.57, $SD= 6.22$) than those who only completed T1 (mean age 22.18, $SD= 5.14$; $OR= 1.05$, 95% $CI= 1.01$ to 1.09 , $p= .01$).

5.3.2 Procedure

This is a prospective study. T1 data were collected via online survey between 15th April and 1st May 2014, and T2 was completed around 2.5 months later. Participants were primarily students from the University of Glasgow. Participants were recruited through advertisements on social media and emails inviting them to take part. Permission was sought from the heads of Colleges within the University of Glasgow to contact the students within the Schools inviting them to take part. The email explained the purpose of the study and included a link to the online survey. Participants were entered into a prize draw to win 1 of 2 iPad minis as an incentive to participate. Informed consent was obtained from all participants before they could take part in the survey. The final page of the survey provided participants with an information sheet detailing contact information for support organisations. Full ethical approval (Ref: 200130070; appendix B) was granted by the University of Glasgow College of Medical Veterinary Life Sciences (MVLS) Ethics committee.

5.3.3 Measures

Participants completed brief demographic details including age, gender, ethnicity, meditation/ mindfulness experience and employment/student status.

5.3.3.1 Psychological Wellbeing Measures

Full details of all measures can be found in Chapter 3 (Methodology).

Suicidal ideation. The presence of lifetime suicidal ideation was assessed via the following item from the British Psychiatric Morbidity Survey (Nicholson, Jenkins & Meltzer, 2009): “Have you ever seriously thought of taking your life, but not actually attempted to do so?” At T2, participants were asked this in relation to the time since

they took part in the T1 survey. A positive response was followed up with questions about when this last occurred, frequency and age of first thought.

Depressive symptoms. The Centre for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977) was used to assess the presence of recent depressive symptoms. Reliability was high at both time points (T1: Cronbach $\alpha = .92$, T2: $\alpha = .94$).

Stress. Stress was assessed using the Perceived Stress Scale-Brief (PSS-Brief; Cohen, Kamarck, & Mermelstein, 1983). Reliabilities for the scale were good at both time points ($\alpha = .85$ both time points).

5.3.3.2 Factors associated with Psychological Wellbeing

Self-compassion. The Self-Compassion Scale (SCS; Neff, 2003a, b) was used to assess self-compassion. In the present study the SCS was found to have high reliability (T1: $\alpha = .92$, T2: $\alpha = .95$) and the reliability for the subscales ranged from $\alpha = .72$ to $\alpha = .82$ at T1 and $\alpha = .77$ to $\alpha = .89$ at T2.

Defeat. The Defeat Scale (Gilbert & Allan, 1998) was used to assess perceived struggle/loss of rank. The scale demonstrated high reliability in the present study (T1 $\alpha = .94$, T2 $\alpha = .96$).

Entrapment. The Entrapment Scale (Gilbert & Allan, 1998) was used to assess two domains of entrapment: internal entrapment (perceptions of entrapment by one's own thoughts and feelings) and external entrapment (perceptions of entrapment by external situations). Reliability was found to be high at both time points in the current study (T1 $\alpha = .95$, T2 $\alpha = .96$).

Mindfulness. Mindfulness as assessed via the Five Facet Mindfulness Questionnaire-short form (FFMQ-SF; Bohlmeijer, Klooster, Fledderus, Veehof & Baer, 2011). Overall reliability was good in our sample (T1 $\alpha = .83$, T2 $\alpha = .86$) and subscales ranged from $\alpha = .79$ to $\alpha = .86$ at T1 $\alpha = .84$ to $\alpha = .90$ at T2.

Resilience. The Brief Resilience Scale (Campbell-Sills & Stein, 2007) was employed to assess perceptions of resilience. Reliability was found to be high at both time points in the current study (T1: $\alpha = .90$, T2: $\alpha = .93$).

Social comparison. The Social Comparison Scale (Alan and Gilbert, 1995) was used to assess self-other perceptions across a number of different constructs (e.g. compared to

others I am ‘an insider’ to ‘an outsider’. In the current study reliability was found to be high at both time points (T1: $\alpha = .92$, T2: $\alpha = .93$).

Self-criticism/reassurance. The Forms of Self-Criticising/Attacking & Self-Reassuring Scale (FSCRS; Gilbert, Clark, Hempel, Miles, and Irons, 2004) was used to assess two aspects of self-criticism (feelings of personal inadequacies and self-hate) and the ability to reassure self. Due to an omission by the researcher, items 19-22 were excluded from the survey. Subsequently, 18 items of the measure were included. Reliability for the scale was adequate ($\alpha = .70$) at both time points. Reliability for the subscales was high ($\alpha = .85$ to $\alpha = .91$) at T1 and ($\alpha = .87$ to $\alpha = .93$) at T2.

5.3.4 Statistical Analysis

The data were analysed using SPSS version 24 (IBM Corp., Armonk, NY). Mediation analyses were conducted using model 4 of Hayes’ (2015) PROCESS macro for SPSS. The macro tests direct and indirect effects of variables within models using regressions. Additionally, the macro applies bootstrapping (10,000 resamples were used), making the analysis more robust and representative of the population.

Due to the exploratory nature of the study a p-value of $< .05$ was maintained in all analyses. Although this is an area of considerable debate in experimental studies when multiple analyses are conducted (Rubin, 2017), this level was maintained to allow detection of possible signals in the data. Similarly, the multivariate models are presented without and with covarying depressive symptoms, and the prospective analyses are presented with and without covarying for time 1 measures of the respective outcome to explore the extent to which the findings represent the effect of these well-established risk factors.

5.3.4.1 Missing data

Following exclusion of participants who had not completed the SCS or the suicidal ideation item ($n = 184$) the scales were assessed for missingness and if a participant had completed less than 80% of any individual measure they were classified as incomplete and their data for that measure were omitted from the analysis (see Figure 5.1 for number of participants included in the analyses for each measure). As there is no consensus around what percentage of missing data are acceptable, a cut off of 80% was agreed upon as an appropriate cut off for completeness during a research team meeting.

Following exclusion of the latter, missing data were minimal (.17% missing at T1 and .27% missing at T2). A missing value analyses was conducted to establish if there was a pattern to the items missed on any of the scales at either time point. The only measure where the data were not missing completely at random was the defeat scale at T1 ($\chi^2 = 178.5$, $DF = 141$, $p = .018$). We assessed demographics to establish if there were any differences between participants who completed this scale and those who did not. As no differences were found, missing data were replaced using expectation-maximization replacement methods which is suitable for this type of missing data (Tsikriktsis, 2005). We did not replace any missing data for the history of suicidal ideation question. As some participants did not complete all of the measures, the sample sizes vary between the analyses. Figure 5.1 details the flow of participants through the study.

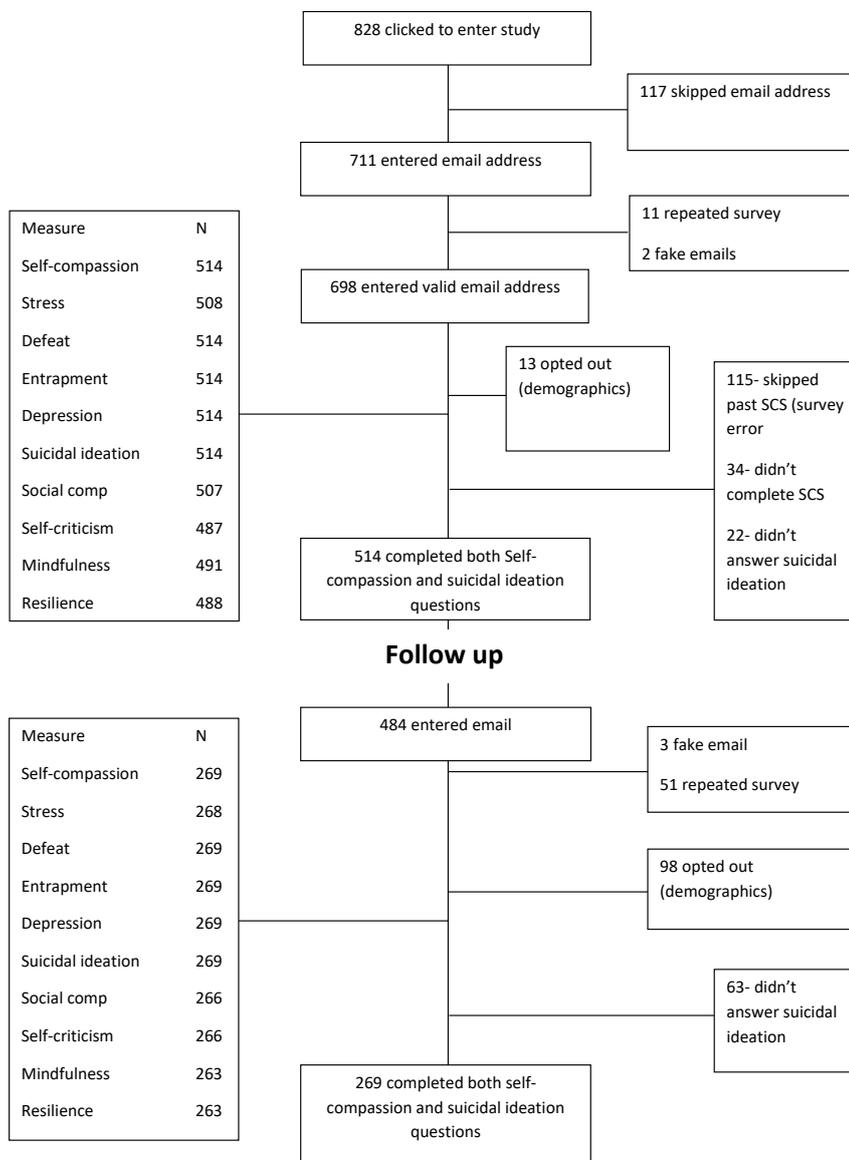


Figure 5.1. Flow diagram of participant attrition and measure completion

5.3.4.2 Analytical strategy

This section details the analyses used to address each of the hypotheses.

H1: Total self-compassion score and the positive subscales will be moderately related with measures of mindfulness and resilience while the negative subscales will be moderately correlated with measures of psychopathology.

Correlation analyses were conducted to examine the associations between all study variables, particularly to establish to what extent self-compassion was related to constructs such as self-criticism and mindfulness.

Bland-Altman plots (Bland & Altman, 1986) were conducted to explore the degree of agreement between the negative self-compassion subscales and the measure of self-criticism. This technique assesses levels of agreement and amount of bias present between two constructs (Giavarina, 2015). Prior to plotting the data single sample *t*-tests are conducted on the mean difference between the measures to assess the amount of variance between the scores, then, in cases where measures are related, a linear regression is then conducted to assess the degree of proportional bias between the measures.

H2: Self-compassion will demonstrate acceptable test- retest reliability over a short follow up period.

In addition to assessing test-retest reliability (Cronbach's alpha) of the SCS total score and the subscales, intra-class correlations (ICC) were calculated using a two-way mixed model for absolute agreement to assess the extent of similarity between the SCS components at T1 and T2. ICC reliability is interpreted in a similar way to Pearson's correlation coefficient, however, where correlations assess associations ICC uses analysis of variance to determine the degree of correlation and agreement and calculate reliability across time points (Koo & Li, 2016).

H3a: Self-compassion will differentiate been individuals with a history of suicidal ideation and those without. In particular the negative subscales will be more strongly associated with suicidal ideation than the positive subscales.

H3b: Self-compassion will predict suicidal ideation over time.

In the first instance, a series of univariate binary logistic regressions were conducted to test *H3a* (cross-sectional) and *H3b* (prospective). Significant variables were then

included in a multivariate binary logistic regression to establish which variables differentiated between the groups when other variables were controlled for.

H4a: Self-compassion (T1; total and/or subscales) will act as a “threat to self moderator” and mediate the relationship between defeat (T1) and entrapment (T2).

H4b: Self-compassion (total and/or subscales) will act as a “motivational moderator” and mediate the relationship between entrapment and suicidal ideation.

Univariate linear logistic regressions were used to explore the relationship between self-compassion, defeat and entrapment cross-sectionally and prospectively. Multivariate linear regressions models were then constructed with subscales which were significant univariately to explore the contribution of the subscales when the others were controlled for. Depressive symptoms were controlled for in cross-sectional analysis, not prospective.

A series of mediation analyses were then conducted using Model 4 of the PROCESS macro (Hayes, 2012) for SPSS to address *H4a* and *H4b*. T1 depressive symptoms were covaried for in all mediations. The mediations addressing *H4a* are prospective, while those for *H4b*, are cross-sectional using the T1 data.

5.4 Results

Five hundred and fourteen adults completed measures at T1. Prior to addressing the study hypotheses, univariate binary logistic regressions were conducted to explore whether the no history (control) and suicidal ideation group differed on any demographic characteristics. Full demographic characteristics of the sample and differences between the groups are detailed in Table 5.1.

5.4.1 Time 1 sample

The sample was comprised predominantly of students ($n= 501, 97.7\%$). Age range of the sample was 16-64 with a mean age of 22.9 ($SD= 5.76$) years old. The sample was primarily white ($n= 467, 93.0\%$), female ($n= 386, 75.7\%$) and heterosexual ($n= 426,$

83.4%). There were no significant gender differences in the demographic characteristics.

In terms of relationship status, the majority of the sample reported not being in a current relationship ($n= 415, 80.9\%$), although most of the sample reported living with someone (e.g., family, partner, flatmate; $n= 416, 80.9\%$). Over three quarters of participants were not religious ($n= 382, 82.0\%$), and most reported having no experience of meditation or mindfulness ($n= 384, 74.9\%$). However, around one third of participants who reported suicidal ideation had experience with mindfulness or meditation ($n= 58, 32.2\%$) compared to one fifth of the no history group ($n= 71, 21.3\%$, OR= .57, 95% CI= .38 to .85, $p= .01$).

Suicidal ideation was reported by around one third of participants ($n= 181, 35.2\%$). Almost half of this group ($n= 88, 48.6\%$) had experienced suicidal thoughts within the last 12 months, including 19 (10.5%) participants reporting ideation in the preceding week. Lifetime frequency of suicidal ideation ranged from 1-1000+ episodes. Between three and ten times was most frequently endorsed ($n= 68, 43.9\%$) by participants; forty-six participants (29.7%) reported experiencing ideation once or twice, and around a quarter of participants reported experiencing thoughts of suicide more than 11 times ($n= 41, 26.4\%$).

There were no gender differences in the rates of suicidal ideation (Men: $n= 35, 28.2\%$; Women: $n= 144, 37.3\%$, OR= .66, 95% CI= .43 to 1.03, $p= .06$), however, men were more likely to have experienced ideation in the last week ($n= 8, 22.9\%$), whereas women ($n= 60, 41.7\%$) were more likely to report ideation longer than a week ago, but within the last 12 months ($n= 8, 22.9\%$; OR= 5.46, 95% CI= 1.69 to 17.61, $p= .005$).

Sexual orientation was significantly associated with suicidal ideation. Specifically, around a quarter ($n= 48, 27.1\%$) of those in the suicidal ideation group reported being lesbian, gay, bisexual, transgender, queer and intersex (LGBTQI) compared to 11% ($n= 37$) of those in the control group (OR = .34, 95% CI = .21 to .54, $p<.001$).

Table 5.1. Sample characteristics, descriptive statistics and univariate binary logistic regression analyses showing differences between control versus suicidal ideation groups

Demographic variable	Total	Control	Ideation	OR	95% CI		P value
	n= 514 N (%)	n= 333 N (%)	n= 181 N (%)		Lower	Upper	
Age M (SD)	22.9 (5.8)	23.2 (6.1)	22.4 (5.1)	.97	.94	1.01	.15
Gender							
Male	124 (24.3)	89 (26.8)	35 (19.7)	.67	.43	1.04	.07
Female	386 (75.7)	234 (73.2)	143 (80.3)				
Sexual orientation							
Heterosexual	426 (83.4)	297 (88.9)	129 (72.9)	.34	.21	.54	<.001**
Gay/lesbian/bisexual/ pansexual	85 (16.6)	37 (11.1)	48 (27.1)				
Ethnicity							
White background	467 (93.0)	305 (93.3)	162 (92.6)	.90	.44	1.83	.77
Other background	35 (7.0)	22 (6.7)	13 (7.4)				
Relationship status							
Single/not married	415 (80.9)	270 (80.8)	145 (81.0)	1.01	.64	1.61	.96
Married/civil partnership	98 (19.1)	64 (19.2)	34 (19.0)				
Current living situation							
Alone	98 (19.1)	65 (19.5)	33 (18.3)	.93	.58	1.48	.76
With someone	416 (80.9)	269 (80.5)	147 (81.7)				
Current student							
Yes	501 (97.7)	324 (97.3)	177 (98.3)	.61	.16	2.28	.46
No	12 (2.3)	9 (2.7)	3 (1.7)				
Religious							
No	382 (82.0)	58 (63.7)	26 (66.7)	1.14	.52	2.51	.75
Yes (practicing)	84 (18.0)						
Mindfulness or meditation							
Neither	384 (74.9)	262 (78.7)	122 (67.8)	.57	.38	.85	<.01*
Med/MFN	129 (25.1)	71 (21.3)	58 (32.2)				
Suicidal ideation recency							
Past week	19 (10.5)	-	19 (10.5)				
Past 12m	69 (38.1)	-	69 (38.1)				
Past 12m	84 (46.4)	-	84 (46.4)				
More than 12m	9 (5.0)	-	9 (5.0)				
Declined to answer							
Suicidal ideation frequency (lifetime)							
1-2	46 (29.7)	-	46 (29.7)				
3-10	68 (43.9)	-	68 (43.9)				
11+	41 (26.4)	-	41 (26.4)				

* $p < .01$, ** $p < .001$

In terms of psychological factors, independent t-tests showed that men and women differed on several of the measures. At T1 women reported lower levels of self-compassion (Women: $M = 72.07$, $SD = 17.46$; Men: $M = 77.7$, $SD = 15.17$), $t(508) = 3.22$, $p < .001$), mindfulness (Women: $M = 77.0$, $SD = 12.48$; Men: $M = 79.6$, $SD = 12.28$), $t(485) = 2.02$, $p = .04$), resilience (Women: $M = 25.8$, $SD = 7.92$; Men: $M = 27.5$, $SD = 8.10$), $t(482) = 2.10$, $p = .04$), and compared themselves less favourably to others (Women: $M = 56.4$, $SD = 17.28$; Men: $M = 61.8$, $SD = 17.43$), $t(501) = 3.05$, $p = .002$) than men. In addition, women reported significantly higher levels of stress (Women: $M = 7.6$, $SD = 3.48$; Men: $M = 6.23$, $SD = 3.35$),

$t(502) = 3.74, p < .001$), depressive symptoms (Women: $M = 18.2, SD = 11.90$; Men: $M = 15.4, SD = 11.03$), $t(508) = 2.33, p = .020$), defeat (Women: $M = 20.1, SD = 12.90$; Men: $M = 17.26, SD = 11.74$), $t(508) = 2.18, p = .03$), entrapment (Women: $M = 17.0, SD = 14.64$; Men: $M = 13.8, SD = 13.81$), $t(508) = 2.17, p = .03$) and self-criticism (Women: $M = 32.1, SD = 9.09$; Men: $M = 30.13, SD = 8.42$), $t(481) = 2.1, p = .04$).

At T2 however, the only difference between the genders was that women reported lower self-compassion ($M = 74.1, SD = 19.68$) than men ($M = 79.5, SD = 19.68$), $t(266) = 1.97, p = .05$.

5.4.2 Suicidal ideation during follow-up

Between T1 and T2, 16 (17.2%) of participants reported experiencing suicidal ideation during the preceding last month. Of these 16 participants, over half ($n = 9, 56.3%$) reported suicidal ideation within the last week, a quarter ($n = 4, 25.0%$) within the last two weeks, and three (18.7%) in the last month. Frequency of suicidal ideation since T1 ranged from once or twice ($n = 5, 35.7%$) to 11+ times ($n = 4, 28.6%$). There was no gender difference in prevalence of suicidal ideation at T2.

5.4.3 Construct validity of self-compassion and the subscales in relation to other psychological variables

H1: Total self-compassion score and the positive subscales will be moderately related with measures of mindfulness and resilience while the negative subscales will be moderately correlated with measures of psychopathology.

Correlations (Pearson's r) between all the study variables are presented in Table 5.2 (below). The SCS subscales and total score were moderately to highly inter-correlated. Common humanity showed the lowest associations with the three negative subscales (self-judgement $r = -.33$, perceived isolation $r = -.39$ and over-identification with thoughts $r = -.38$). The SCS total score was most strongly correlated with the self-kindness ($r = .81$) and self-judgement ($r = -.82$) subscales.

Table 5.2. Correlations (Pearson r) of all study variables and subscales

	Self-compassion							Entrapment			Stress	Defeat	Dep	Self-criticism				Scomp	Mindfulness						BRS
	SK	CH	MFN	SJ	ISO	OID	T	T	EXT	INT				T	RS	HS	IS		T	NR	OBS	DES	AA	NJ	
Self-compassion	SK	.48**	.63**	-.66**	-.45**	-.42**	.81**	-.46**	-.39**	-.49**	-.50**	-.47**	-.47**	-.27**	.66**	-.41**	-.54**	.47**	.52**	.42**	.20**	.34**	.31**	.28**	.43**
	CH		.59**	-.33**	-.39**	-.37**	.67**	-.35**	-.29**	-.37**	-.34**	-.39**	-.37**	-.19**	.48**	-.31**	-.37**	.39**	.36**	.37**	.21**	.22**	.18**	.13**	.43**
	MFN			-.43**	-.43**	-.51**	.76**	-.44**	-.40**	-.44**	-.48**	-.48**	-.45**	-.23**	.55**	-.34**	-.45**	.39**	.50**	.50**	.26**	.31**	.26**	.19**	.53**
	SJ				.63**	.60**	-.81**	.58**	.50**	.60**	.57**	.58**	.58**	.55**	-.60**	.53**	.73**	-.53**	-.57**	-.36**	-.05	-.31**	-.47**	-.48**	-.45**
	ISO					.65**	-.78**	.53**	.50**	.49**	.58**	.54**	.52**	.44**	-.48**	.38**	.61**	-.50**	-.51**	-.34**	-.06	-.34**	-.41**	-.37**	-.45**
	OID						-.77**	.49**	.45**	.48**	.55**	.53**	.53**	.51**	-.42**	.41**	.64**	-.41**	-.52**	-.48**	-.10*	-.24**	-.35**	-.37**	-.52**
	T							-.63**	-.55**	-.63**	-.66**	-.65**	-.64**	-.49**	.70**	-.53**	-.74**	.59**	.65**	.53**	.18**	.39**	.44**	.41**	.61**
Entrapment	T							.95**	.92**	.66**	.80**	.78**	.59**	-.61**	.71**	.70**	-.56**	-.64**	-.42**	-.10*	-.35**	-.57**	-.47**	-.62**	
	EXT								.76**	.62**	.72**	.72**	.52**	-.51**	.59**	.62**	-.47**	-.59**	-.35**	-.09	-.33**	-.55**	-.42**	-.54**	
	INT									.62**	.79**	.76**	.59**	-.65**	.76**	.71**	-.59**	-.62**	-.45**	-.10*	-.33**	-.51**	-.45**	-.63**	
	Stress										.78**	.76**	.45**	-.58**	.51**	.63**	-.55**	-.58**	-.45**	-.11*	-.37**	-.44**	-.36**	-.59**	
	Defeat											.85**	.52**	-.66**	.66**	.68**	-.64**	-.63**	-.47**	-.14**	-.38**	-.51**	-.38**	-.66**	
	Dep												.54**	-.65**	.68**	.70**	-.61**	-.65**	-.47**	-.15**	-.36**	-.50**	-.45**	-.64**	
Self-criticism	T													-.19**	.71**	.86**	-.37**	-.43**	-.29**	.06	-.13**	-.42**	-.47**	-.36**	
	RS														-.56**	-.59**	.67**	.64**	.51**	.23**	.45**	.42**	.32**	.66**	
	HS															.66**	-.55**	-.54**	-.38**	-.08	-.27**	-.45**	-.43**	-.54**	
	IS																-.58**	-.63**	-.47**	-.06	-.31**	-.51**	-.52**	-.57**	
	Scomp																	.55**	.39**	.13**	.41**	.42**	.29**	.66**	
Mindfulness	T																			.62**	.40**	.70**	.67**	.60**	.63**
	NR																				.15**	.29**	.17**	.26**	.53**
	OBS																					.22**	.05	-.10*	.26**
	DES																						.36**	.18**	.41**
	AA																							.38**	.39**

NJ	.31**
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* $p < 0.05$, ** $p < 0.01$. Note: T- Total. Self-compassion: SK- self-kindness; CH- common humanity; MFN- mindfulness; SJ- self-judgement; ISO- isolation; OID- over-identification with thoughts. Entrapment: EXT- external; INT- internal. Dep- Depressive symptoms. Self-criticism: RS- reassured self; HS- hated self; IS- insecure self. SCOMP- social comparison. Mindfulness: NR- non-react; OBS- observing; DES- describing; AA- acting with awareness; NJ- nonjudging. BRS- resilience

Applying Cohen's (1988) cut-offs, SCS total score was at least moderately ($r = >.40$) related to most of the other psychological variables. In terms of the motivational phase of the IMV model, the SCS was strongly negatively related to defeat ($r = -.65$), entrapment ($r = -.63$). Self-compassion showed a moderate negative correlation with self-criticism (FSCRS; $r = -.49$). The largest associations were between the SCS total and the reassured self ($r = .70$), and inversely related to insecure self ($r = -.74$) subscales of the FSCRF. SCS total was also strongly related to resilience (BRS; $r = .61$) and mindfulness (FFMQ-SF; $r = .65$). Greater variation was evident for the correlations between the subscales of the SCS and the psychological variables. For instance, as shown in Table 5.2, the SCS mindfulness subscale showed weak ($r = .19$) to moderate ($r = .50$) associations with the non-judgmental subscale and the total mindfulness measure (FFMQ-SF), respectively.

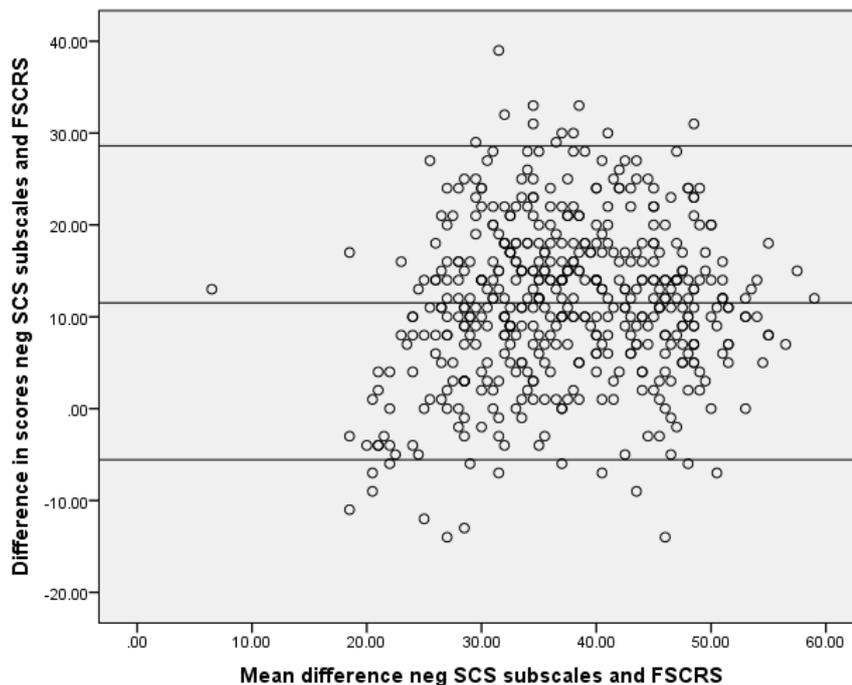


Figure 5.2 Bland-Altman plot comparing scores on the negatively scored self-compassion items and the self-criticism measure

Figure 5.2 displays the Bland-Altman plot (Bland & Altman, 1986) comparing scores on the negatively scored self-compassion items and the self-criticism measure. A single sample t -test indicated that there was significant variance in the mean differences (MD) between the negative subscales and FSCRS score (MD= 11.53, SD= 8.72, $t = (486) = 29.18$, $p < .001$). As highlighted in Figure 5.2, there is no discernible pattern to the distribution

of data, therefore also indicating that these scales assess different constructs. As the constructs appear to be unrelated in our data, linear regressions were not conducted.

Single sample *t*-test also indicated similar results in the MD between total self-compassion and self-criticism score (MD= 41.36, SD= 22.64, $t = (486) = 40.32$, $p < .001$) again indicating that these measures are assessing different construct, subsequently the Bland-Altman plot was not produced.

5.4.4 The stability of self-compassion over a short follow-up time period.

H2: self-compassion will demonstrate reasonable test- retest reliability over a short follow up time period.

The current study found the SCS total score demonstrated high internal consistency (T1: Cronbach $\alpha = .92$, T2: $\alpha = .95$) and internal consistency was good across the subscales ($\alpha = .72$ to $\alpha = .82$ at T1 and $\alpha = .77$ to $\alpha = .89$ at T2) between T1 and T2. Intra-Class Correlations (ICC) also indicated that self-compassion remained stable over a short follow up period. Koo and Li (2016) recommend the following cut offs: $< .5$ poor, $.5$ to $.75$ moderate, $.75$ to $.9$ good, and $> .9$ excellent. As Table 5.3 shows, the subscales all demonstrated good (i.e. $> .75$) reliability and the total score indicated excellent reliability ($> .90$) supporting *H2*.

Table 5.3. Results of Intra-Class Correlations two-way mixed model, Absolute-Agreement Model for the Self-Compassion scale

Self-compassion scale component	ICC	F df (282,282)	95% CI		<i>p</i> value
			Lower	Upper	
SK	.88	8.26	.84	.90	<.001
CH	.79	4.85	.74	.84	<.001
MFN	.81	5.25	.76	.85	<.001
SJ	.89	9.34	.86	.91	<.001
ISO	.84	6.64	.81	.88	<.001
OID	.87	7.60	.83	.90	<.001
T	.92	13.58	.90	.94	<.001

Note: T- SCS Total. Self-compassion: SK- self-kindness; CH- common humanity; MFN- mindfulness; SJ- self-judgement; ISO- isolation; OID- over-identification with thoughts.

5.4.5 The relationship between self-compassion and suicidal ideation.

H3a: Self-compassion will differentiate between those with a history of suicidal ideation and those without. In particular the negative subscales will be more strongly associated with suicidal ideation than the positive subscales.

Univariate logistic regressions (Table 5.4) indicated all the self-compassion subscales and the total score differentiated between the suicidal ideation and control group. As predicted in *H3a*, lower levels of overall self-compassion and the positive subscales were associated with suicidal ideation. The higher scores on the negative subscales of the SCS were also more likely to be associated with suicidal ideation than with the controls. Similarly, suicidal ideation was significantly associated with higher levels of stress, depressive symptoms, defeat, entrapment, social comparison and lower levels of mindfulness and resilience.

Table 5.4. Cross-sectional univariate binary logistic regression analyses differentiating between suicidal ideation and no history groups

Predictor	Total M (SD)	Control M (SD)	Ideation M (SD)	OR	95% CI		<i>p</i> value	
					Lower	Upper		
Self- compassion	SCS (T)	73.43 (17.05)	78.34 (16.14)	65.00 (15.50)	.95	.93	.96	<.001
	SK	13.61 (4.00)	14.54 (3.78)	12.11 (3.70)	.83	.79	.88	<.001
	CH	12.13 (3.49)	12.68 (3.28)	11.14 (3.58)	.88	.83	.93	<.001
	MFN	12.72 (3.08)	13.21 (3.05)	12.07 (2.89)	.87	.81	.92	<.001
	SJ	16.52 (4.35)	15.30 (4.15)	18.59 (3.91)	1.24	1.17	1.30	<.001
	ISO	13.15 (3.70)	12.25 (3.70)	14.94 (3.23)	1.24	1.17	1.32	<.001
	OID	13.36 (3.57)	12.55 (3.55)	14.79 (3.11)	1.22	1.15	1.30	<.001
Stress	7.31 (3.49)	6.35 (3.26)	9.11 (3.18)	1.30	1.22	1.38	<.001	
Dep	17.63 (11.75)	13.62 (9.34)	25.07 (12.15)	1.10	1.08	1.12	<.001	
Defeat	19.51 (12.70)	15.21 (9.68)	27.49 (13.77)	1.09	1.07	1.11	<.001	
Entrapment	T	16.36 (14.51)	11.42 (11.37)	25.85 (14.94)	1.08	1.06	1.02	<.001
	INT	6.27 (6.92)	3.81 (5.13)	10.84 (7.47)	1.18	1.14	1.21	<.001
	EXT	10.09 (8.55)	7.44 (7.18)	15.01 (8.73)	1.12	1.09	1.15	<.001
Self- criticism	T	31.70 (9.03)	28.92 (8.25)	36.83 (8.14)	1.12	1.09	1.15	<.001
	RS	12.76 (5.60)	14.38 (5.14)	9.77 (5.17)	.85	.81	.88	<.001
	HS	3.27 (4.11)	1.61 (2.78)	6.33 (4.40)	1.41	1.32	1.51	<.001
	IS	15.67 (8.35)	12.93 (7.77)	20.73 (6.90)	1.14	1.11	1.18	<.001
SCOMP	57.55 (17.57)	61.90 (15.59)	49.59 (18.29)	.96	.95	.97	<.001	

Mindfulness	T	77.54 (12.50)	80.38 (11.93)	72.20 (11.82)	.94	.93	.96	<.001
	NR	14.45 (4.02)	15.07 (3.91)	13.30 (3.97)	.89	.85	.94	<.001
	OBS	14.05 (3.65)	14.11 (3.71)	13.94 (3.53)	.99	.94	1.04	.633
	DES	16.71 (4.53)	17.23 (4.31)	15.75 (4.78)	.93	.89	.97	<.001
	AA	16.88 (4.18)	17.73 (4.06)	15.27 (3.94)	.86	.82	.90	<.001
	NJ	15.45 (4.33)	16.26 (4.26)	13.93 (4.06)	.88	.84	.92	<.001
	BRS	26.12 (8.02)	27.75 (7.65)	23.11 (7.82)	.93	.90	.95	<.001

Note: T- Total. Self-compassion: SK- self-kindness; CH- common humanity; MFN- mindfulness; SJ- self-judgement; ISO- isolation; OID- over-identification with thoughts. Entrapment: EXT- external; INT- internal. Dep- Depressive symptoms. Self-criticism: RS- reassured self; HS- hated self; IS- insecure self. SCOMP- social comparison. Mindfulness: NR- non-react; OBS- observing; DES- describing; AA- acting with awareness; NJ- nonjudging. BRS- resilience

To identify which of the self-compassion subscales independently distinguished between the groups, a multivariate regression model was conducted (Table 5.5). Consistent with *H3a*, two of the negative subscales, self-judgement (OR= 1.12, 95% CI= 1.03 to 1.19, p = .008) and feelings of isolation (OR= 1.11, 95% CI= 1.02 to 1.20, p = .011), differentiated between the groups. Of the positive subscales, self-kindness differentiated between groups (OR= .92, 95% CI= .85 to .99, p = .038).

Table 5.5. Cross-sectional multivariate binary regression analysis of self-compassion subscales in distinguishing between suicidal ideation and control group.

Predictor	OR	95% CI		p value
		Lower	Upper	
SK	.92	.85	.99	.038*
CH	.98	.91	1.05	.497
MFN	1.05	.95	1.16	.310
SJ	1.12	1.03	1.19	.008**
ISO	1.11	1.02	1.20	.011*
OID	1.05	.97	1.14	.248

* p < .05, ** p < .01 Note: T- Total. Self-compassion: SK- self-kindness; CH- common humanity; MFN- mindfulness; SJ- self-judgement; ISO- isolation; OID- over-identification with thoughts.

However, as Table 5.6 shows, when depressive symptoms were controlled for, all the self-compassion components were rendered non-significant.

Table 5.6. Cross-sectional multivariate regression analysis of self-compassion subscales in distinguishing between suicidal ideation and control group controlling for depressive symptoms.

Predictor	OR	95% CI		p value
		Lower	Upper	
Depressive symptoms	1.08	1.05	1.10	<.001**
SK	.92	.85	1.00	.057
CH	.99	.92	1.07	.846
MFN	1.09	.99	1.21	.096
SJ	1.04	.96	1.13	.345
ISO	1.09	.99	1.18	.056
OID	1.00	.92	1.10	.889

** p < .001 Note: T- Total. Self-compassion: SK- self-kindness; CH- common humanity; MFN- mindfulness; SJ- self-judgement; ISO- isolation; OID- over-identification with thoughts.

A multivariate binary logistic model was then conducted including all the variables in the study to determine the independent effects of variables while controlling for all other variables. As Table 5.7 shows, when all the variables were included, the effect of depressive symptoms became non-significant, however, entrapment (OR= 1.03, 95% CI= 1.00 to 1.06, $p= .048$), self-compassion (OR= .98, 95% CI= .95 to .99, $p= .043$), self-criticism (OR= 1.04, 95% CI= 1.01 to 1.07, $p= .016$) and resilience (OR= 1.05, 95% CI= 1.00 to 1.10, $p= .048$) all remained significantly associated with suicidal ideation.

Table 5.7. Time 1 cross-sectional multivariate regression analysis of factors distinguishing between suicidal ideation and control group.

Predictor	OR	95% CI		p value
		Lower	Upper	
Sexual orientation	.45	.24	.81	.009**
Depressive symptoms	1.03	.99	1.08	.114
Defeat	1.04	.99	1.08	.088
Entrapment	1.03	1.00	1.06	.048*
Self-compassion	.98	.95	.99	.043*
Stress	.99	.88	1.11	.889
Self-criticism	1.04	1.01	1.07	.016*
Social comparison	.99	.97	1.01	.287
Mindfulness	1.01	.99	1.04	.377
Resilience	1.05	1.00	1.10	.048*

* $p < .05$, ** $p < .01$

H3b: Self-compassion will predict suicidal ideation over time.

Univariate binary logistic regressions were conducted to test *H3b*. As Table 5.8 shows, the majority of T1 variables were predictive of suicidal ideation at T2 individually. Suicidal ideation during follow-up was predicted by T1 stress, depressive symptoms, defeat, internal and external entrapment, mindfulness, social comparison and resilience.

Focusing on the components of self-compassion, univariately self-kindness, common humanity, self-judgement and isolation subscales all predicted suicidal ideation during the follow-up, while mindfulness and over-identification with thoughts subscales did not. Of all the other variables, only, the observing and acting with awareness subscales of the mindfulness measure (FFMQ-sf) were not predictive of suicidal ideation prospectively.

Table 5.8. Univariate binary logistic regression analyses of Time 1 variables predicting suicidal ideation during follow-up.

Predictor	Total n= 269	Control n= 253	Ideation n= 16	OR	95% CI		p value
	Mean (SD)	Mean (SD)	Mean (SD)		Lower	Upper	
T	75.08 (19.29)	76.60 (18.77)	56.44 (19.43)	.95	.92	.98	.003**
SK	13.95 (4.50)	14.27 (4.39)	9.25 (4.20)	.79	.69	.92	.002**
CH	12.40 (3.61)	12.70 (3.54)	9.38 (3.77)	.80	.68	.93	.003**
MFN	12.98 (3.18)	13.17 (3.08)	10.69 (3.98)	.86	.73	1.01	.061
SJ	16.20 (4.87)	15.92 (4.81)	19.88 (4.56)	1.19	1.04	1.36	.012*
ISO	13.00 (3.69)	12.73 (3.59)	15.75 (4.02)	1.19	1.02	1.40	.032*
OID	13.05 (3.81)	12.89 (3.80)	15.25 (3.87)	1.08	.93	1.24	.323
Stress	6.60 (3.60)	6.35 (3.43)	11.19 (3.37)	1.27	1.08	1.49	.003**
Dep	16.23 (12.40)	15.01 (11.46)	35.44 (11.57)	1.11	1.06	1.12	<.001***
Defeat	18.72 (14.18)	17.20 (12.85)	42.19 (14.87)	1.07	1.03	1.11	<.001***
Entrapment	16.36 (15.81)	14.56 (14.46)	42.63 (13.09)	1.08	1.04	1.12	<.001***
Internal	6.24 (7.18)	5.33 (6.43)	19.00 (5.24)	1.18	1.09	1.26	<.001***
External	10.12 (9.48)	9.23 (8.91)	23.63 (8.56)	1.12	1.06	1.18	<.001***
Self-criticism	30.29 (9.19)	29.65 (8.89)	40.93 (7.59)	1.08	1.02	1.14	.012*
Reassured self	13.01 (6.26)	13.42 (6.12)	6.13 (4.56)	.80	.72	.90	<.001***
Hated self	2.95 (3.94)	2.51 (3.47)	10.20 (4.31)	1.28	1.15	1.42	<.001***
Insecure self	14.33 (8.66)	13.72 (8.39)	24.60 (6.62)	1.10	1.03	1.18	.006**
Social comparison	56.50 (17.63)	57.55 (17.13)	38.93 (17.10)	.92	.89	.96	<.001***
Mindfulness	78.14 (13.87)	79.00 (13.45)	63.93 (13.36)	.92	.88	.97	<.001***
Non-react	14.60 (4.45)	14.75 (4.42)	12.07 (4.28)	.84	.74	.97	.016*
Observe	13.75 (3.77)	13.81 (3.75)	12.73 (4.22)	.95	.83	1.10	.511
Describe	16.74 (4.90)	16.97 (4.76)	12.87 (5.78)	.84	.75	.95	.006**
Act aware	17.00 (4.42)	17.19 (4.39)	14.00 (3.89)	.90	.80	1.02	1.06
Non judge	16.05 (4.66)	16.28 (4.63)	12.27 (3.47)	.84	.74	.95	.006**
Resilience	26.17 (8.65)	26.77 (8.37)	16.33 (7.23)	.87	.81	.94	<.001***

* $p < .05$, ** $p < .01$, *** $p < .001$ Note: T- Total. Self-compassion: SK- self-kindness; CH- common humanity; MFN- mindfulness; SJ- self-judgement; ISO- isolation; OID- over-identification with thoughts. Dep- Depressive symptoms

A multivariate model testing the ability of the significant T1 SCS subscales in predicting suicidal ideation during follow-up was conducted, controlling for T1 suicidal ideation (Table 5.9). As presented in Table 5.9, the inclusion of T1 suicidal ideation reduced the contribution of the SCS subscales to non-significant levels.

Table 5.9. Multivariate regression analysis of Time 1 self-compassion subscales in predicting suicidal ideation during follow-up, controlling for Time 1 suicidal ideation.

Predictor	OR	95% CI		P value
		Lower	Upper	
Suicidal ideation	.08	.02	4.3	.003*
Self-kindness	.91	.75	1.11	.345
Common Humanity	.87	.73	1.05	.143
Self-judgement	1.01	.84	1.22	.930
Isolation	.95	.77	1.18	.760

* $p < .05$

A multivariate binary logistic regression was then conducted assessing the independent contribution of all the T1 variables in predicting suicidal ideation during follow-up when T1 suicidal ideation was controlled for (Table 5.10 below). As presented below, when all

the variables were included, only suicidal ideation and depressive symptoms remained predictive of suicidal ideation prospectively.

Table 5.10. Multivariate regression analysis of Time 1 variables predicting suicidal ideation during follow-up. Time 1 suicidal ideation controlled for.

Predictor	OR	95% CI		<i>p</i> value
		Lower	Upper	
Suicidal ideation	.12	.02	.76	.024*
Depressive symptoms	1.11	1.00	1.22	.040*
Defeat	.90	.80	1.00	.052
Entrapment	1.07	.99	1.16	.113
Self-compassion	1.04	.98	1.11	.230
Stress	.87	.61	1.24	.430
Self-criticism	.95	.88	1.04	.269
Social comparison	.95	.89	1.01	.077
Mindfulness	.99	.92	1.06	.118
Resilience	.90	.79	1.03	.439

**p* = .05

5.4.6 The relationship between self-compassion and selected factors from the motivational phase of the IMV model.

Prior to testing *H4a* and *H4b*, a series of linear regressions was conducted to establish the relationship between self-compassion, defeat and entrapment.

5.4.6.1 Self-compassion and defeat

Cross-sectionally and prospectively, all the components of the SCS were univariately significantly associated with defeat (see Table 5a in appendix G).

As reported in Table 5.11 (below), a cross-sectional multivariate linear regression (R^2 of .443 ($F(6,507) = 67.198, p < .001$)) was conducted to examine associations between the self-compassion subscales and defeat. When the SCS subscales were entered simultaneously, self-judgement, feelings of isolation, over-identification with thoughts and mindfulness subscales remained significantly associated with defeat.

Table 5.11. Cross-sectional multivariate linear regression model of associations between self-compassion subscales and T1 defeat

Predictor	B	β	95% CI	
			Lower	Upper
Self-kindness	.03	.009	-.30	.36
Common Humanity	-.27	-.07	-.57	.04
Mindfulness	-.75	-.18	-1.15	-.35
Self-judgement	.89	.31	.59	1.20
Isolation	.58	.17	.25	.90
Over-identification	.43	.12	-.09	.77

Note: B = unstandardized beta; β = the standardized beta; **95% CI** = $p < .001$

The significant subscales were then included in a model with depressive symptoms (Table 5.12). The model had an R^2 of .739 ($F(5, 508) = 291.152, p < .001$) and self-judgement, feelings of isolation and mindfulness subscales remained significantly associated with defeat.

Table 5.12. Cross-sectional multivariate linear regression model of associations between self-compassion subscales and T1 defeat controlling for depressive symptoms

Predictor	B	β	95% CI	
			Lower	Upper
Depressive symptoms	.78	.72	.72	.84
Mindfulness	-.36	-.08	-.58	-.14
Self-judgement	.21	.07	.02	.39
Isolation	.29	.08	.07	.51
Over-identification	.02	.005	-.21	.25

Note: B = unstandardized beta; β = the standardized beta; **95% CI** = $p < .001$

In the prospective multivariate model (Table 5.13; R^2 of .354 ($F(6, 276) = 26.744, p < .001$), T1 self-judgement, isolation and over-identification with thoughts predicted feelings of defeat at T2.

Table 5.13. Multiple linear regression model of self-compassion subscales predicting T2 defeat

Predictor	B	β	95% CI	
			Lower	Upper
Self-kindness	-.25	-.07	-.78	.28
Common Humanity	-.27	-.07	-.76	.22
Mindfulness	-.67	-.15	-1.33	-.02
Self-judgement	.76	.24	.27	1.25
Isolation	.58	.15	.03	1.12
Over-identification	.31	.08	-.25	.87

Note: B = unstandardized beta; β = the standardized beta; **95% CI** = $p < .001$

However, as shown in Table 5.14 (below) when T1 depressive symptoms and T1 defeat were included as covariates in the model with the significant subscales, ($R^2 = .623$ ($F(5,268) = 91.193, p < .001$) this reduced all SCS subscales associations to non-significant levels.

Table 5.14. Multiple linear regression model of self-compassion subscales predicting T2 defeat controlling for T1 depressive symptoms and defeat

Predictor	B	β	95% CI	
			Lower	Upper
Depressive symptoms	.31	.51	.13	.49
Defeat	.57	.26	.40	.73
Self-judgement	.111	.04	-.23	.45
Isolation	.17	.05	-.25	.59
Over-identification	.04	.009	-.38	.45

Note: B = unstandardized beta; β = the standardized beta; 95% CI = $p < .001$

5.4.6.2 Self-compassion and entrapment

Cross-sectionally and prospectively, all the components of the SCS were univariately significantly associated with entrapment (see Table 5b in appendix G).

A cross-sectional multivariate linear regression was conducted on the T1 data to examine associations between the self-compassion subscales and entrapment. As shown in Table 5.16, self-judgement, feelings of isolation, over-identification with thoughts and mindfulness subscales were significantly associated with T1 entrapment (R^2 of .407 ($F(6, 507) = 59.623, p < .001$).

Table 5.16. Multiple linear regression model of cross-sectional associations between self-compassion subscales and entrapment

Predictor	B	β	95% CI	
			Lower	Upper
Self-kindness	-.02	.20	-.40	.36
Common Humanity	-.21	.18	-.57	.14
Mindfulness	-.71	.24	-1.18	-.25
Self-judgement	1.11	.18	.76	1.47
Isolation	.71	.19	.33	1.09
Over-identification	.31	.20	-.09	.71

Note: B = unstandardized beta; β = the standardized beta; 95% CI = $p < .001$

As Table 5.16 shows, when depressive symptoms were included in a model with the significant subscales, the mindfulness, self-judgement and isolation subscales remained significantly associated with entrapment cross-sectionally. The model had an R^2 of .643 ($F(5, 508) = 185.954, p < .001$) and is presented in table 5.16 below.

Table 5.16. Multiple linear regression model of cross-sectional associations between self-compassion subscales and entrapment

Predictor	B	β	95% CI	
			Lower	Upper
Depressive symptoms	.79	.64	.70	.87
Mindfulness	-.31	-.07	-.61	-.02
Self-judgement	.45	.13	.20	.69
Isolation	.41	.11	.12	.71
Over-identification	-.11	-.03	-.42	.20

Note: B = unstandardized beta; β = the standardized beta; 95% CI = $p < .001$

In the prospective multivariate model (Table 5.17), self-judgement and isolation remained predictive of T2 entrapment. The model had an R^2 of .381 ($F(6, 265) = 27.146, p < .001$). A linear regression also indicated that T1 self-compassion total score predicted of T2 entrapment ($B = -.534, R^2 = .365, \beta = -.606, F(1, 270) = 156.536$ 95% CI -.618 to -.450).

Table 5.17. Multiple linear regression model of Time 1 self-compassion predicting Time 2 entrapment

Predictor	B	β	95% CI	
			Lower	Upper
Self-kindness	-.10	-.03	-.70	.50
Common Humanity	-.41	-.09	-.96	.14
Mindfulness	-.70	-.14	-1.43	.03
Self-judgement	.99	.29	.45	1.54
Isolation	.84	.20	.22	1.45
Over-identification	.13	.03	-.51	.76

Note: B = unstandardized beta; β = the standardized beta; 95% CI = $p < .001$

Self-judgment and isolation subscales were then included in a model with T1 depressive symptoms and entrapment (Table 5.18 below; R^2 of .704 ($F(4, 267) = 161.930, p < .001$) however, only depressive symptoms and entrapment remained predictive.

Table 5.18. Multiple linear regression model of T1 self-compassion subscales predicting Time 2 entrapment controlling for T1 depressive symptoms and entrapment

Predictor	B	β	95% CI	
			Lower	Upper
Depressive symptoms	.30	.22	.14	.45
T1 entrapment	.67	.62	.54	.79
Self-judgement	.08	.02	-.25	.40
Isolation	.12	.03	-.26	.51

H4a: Self-compassion (T1; total and/or subscales) will act as a threat to self moderator and mediate the relationship between defeat (T1) and entrapment (T2).

To test hypotheses 4a and 4b, a series of mediation analyses were run examining self-compassion as a threat to self moderator (TSM) (H4a), and as a motivational moderator (MM) (H4b). Depressive symptoms were controlled for in all the mediation analyses.

A linear regression, conducted to test the direct effect of the model, showed that higher feelings of defeat (T1) were associated with higher entrapment T2 ($B = .403$, $t = 5.434$, 95% CI .318 to .680) when depressive symptoms were controlled for.

A series of prospective mediation analyses were carried out to test the role of self-judgement, isolation and self-compassion total in the defeat- entrapment relationship (see Figure 5.3 for models). The mediation pathways for the three models are displayed in Table 5.19 below.

Only T1 self-compassion total and the isolation subscale mediated the prospective defeat and entrapment relationship. As Panel A in Figure 5.3 shows, self-compassion (SCS total) was negatively associated with defeat ($B = -.506$, $t = -4.180$, 95% CI = $-.7440$ to $-.267$, $p < .001$) and entrapment ($B = -.111$, $t = -2.423$, 95% CI = $-.202$ to $-.021$, $p < .016$). Before self-compassion was entered into the model, defeat and entrapment were significantly related ($B = .443$, $t = 4.715$, CI = $.258$ to $.628$, $p < .001$), and remained significant ($B = .499$, $t = 5.434$, CI = $.318$ to $.680$, $p < .001$) when self-compassion was included in the model, suggesting self-compassion partially mediated this relationship.

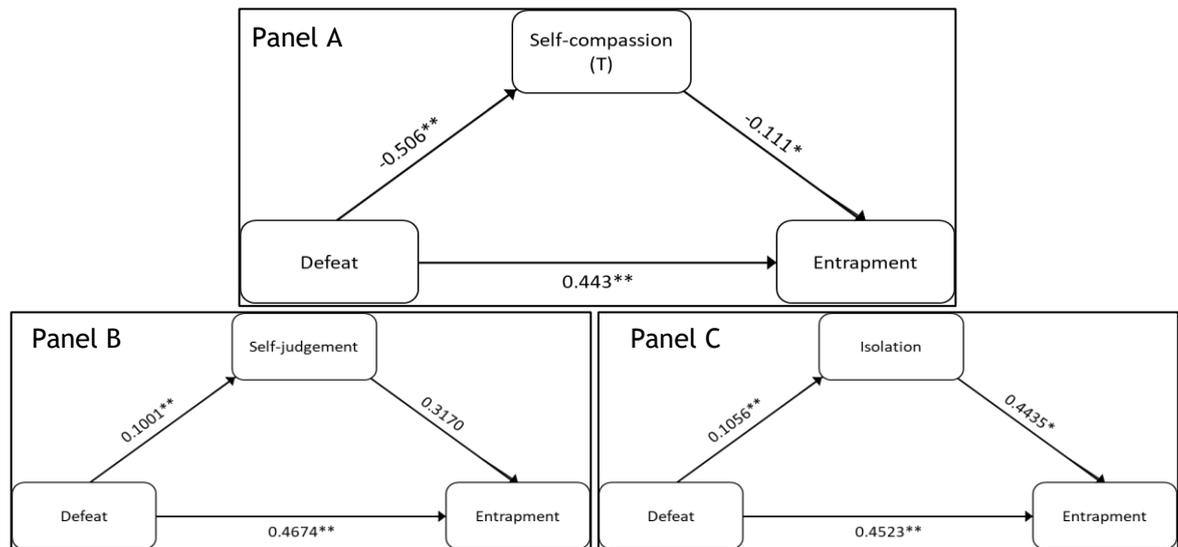


Figure 5.3. Testing H4a: Prospective mediation analysis of self-compassion and subscales as possible threat to self moderators Note: * $p < .05$, ** $p < .001$

Similarly, when the model with the isolation subscale was run (Panel C), defeat and entrapment were associated ($B = .452$, $t = 4.840$, 95% CI = .268 to .636, $p < .001$) and this relationship remained significant when isolation was included ($B = .499$, $t = 5.434$, 95% CI = .318 to .680, $p < .001$). Isolation was associated with both defeat ($B = .106$, $t = 3.705$, 95% CI = .049 to .162, $p < .001$) and entrapment ($B = .444$, $t = 2.274$, 95% CI = .059 to .827, $p = .024$) and partially mediated the defeat and entrapment relationship. Self-judgment did not mediate the defeat entrapment relationship (Panel B; $B = .032$, $SE = .021$, 95% CI = -.005 to .079).

Table 5.19. Mediation pathways T1 defeat and T2 entrapment, controlling for depressive symptoms

Indirect effects	B	SE	95 % CI	
			Lower	Upper
SCS total score	.058	.017	.027	.095
Self-judgment	.032	.021	-.005	.079
Isolation	.047	.022	.008	.095

Note: 95% CI in bold indicates mediation

H4b: Self-compassion (total and/or subscales) will act as a motivational moderator and mediate the relationship between entrapment and suicidal ideation.

Due to the small number of individuals reporting suicidal ideation between baseline and follow-up ($n = 16$, 5.9%) a series of cross-sectional mediation analyses were conducted to test H4b (see Figure 5.4 for models).

A multivariate binary logistic regression was conducted to address H3a (reported earlier in this chapter) and assessed the independent associations between the self-compassion subscales to suicidal ideation (see Table 5.5). The subsequent mediations report on the three subscales (and total score) which remained significant in the model, namely self-kindness, self-judgment and isolation. Similarly, a univariate logistic regression (reported Table 5.4) showed that entrapment was significantly associated with suicidal ideation (OR, 1.08, 95% CI 1.06 to 1.02, $p < .001$) to prior to self-compassion being included in the model.

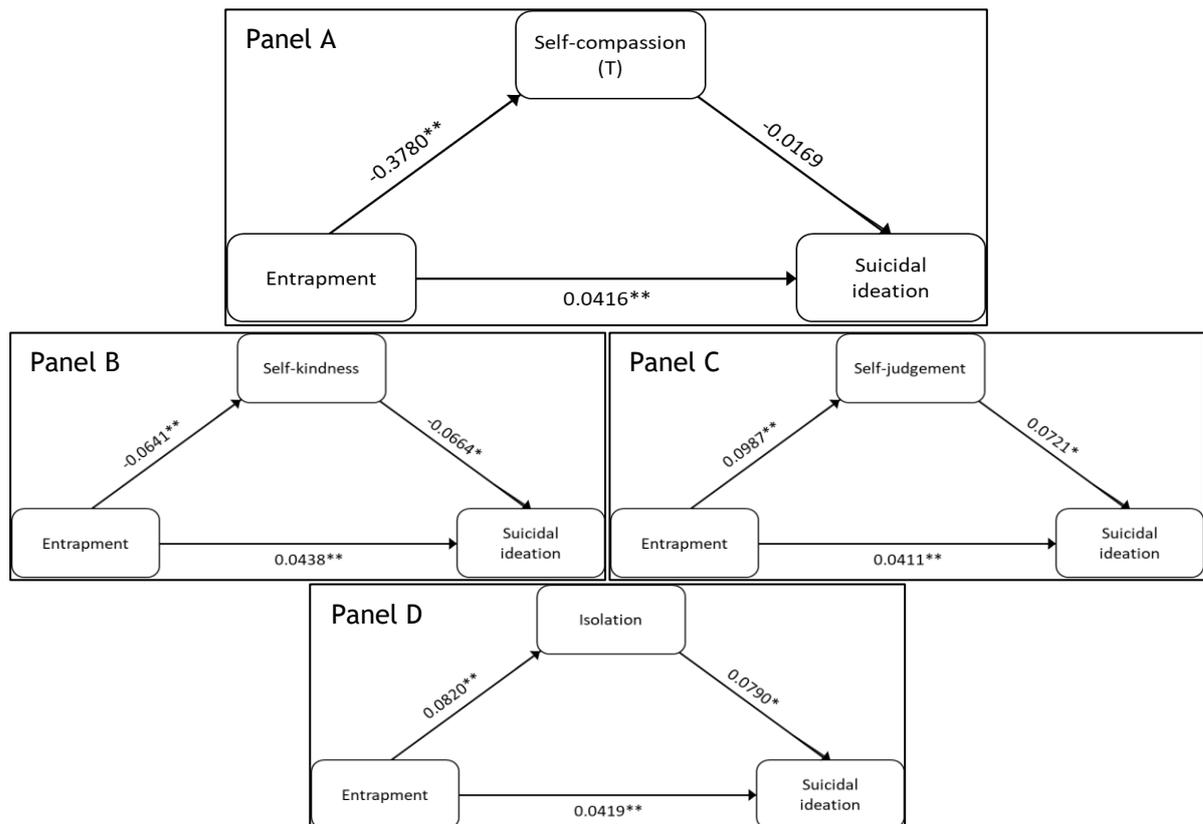


Figure 5.4. Cross-sectional mediation analysis of self-compassion and subscales in the relationship between entrapment and suicidal ideation Note: * $p < .05$, ** $p < .001$

Self-kindness (Panel B) partially mediated the entrapment to suicidal ideation relationship ($\beta = .004$, $SE = .003$, 95% CI = .0001 to .0100). In this model, entrapment and suicidal ideation were significantly associated ($\beta = .044$, $t = 3.869$, 95% CI = .022 to .066, $p < .001$). Self-kindness was negatively associated with entrapment ($\beta = -.064$, $t = -3.763$, 95% CI = -.098 to -.031, $p = .0002$) and suicidal ideation ($\beta = -.066$, $t = -2.072$, 95% CI = -.129 to -.004, $p = .038$). The relationship between entrapment and suicidal ideation remained significant when self-kindness was included in the model indicating that self-kindness partially mediated this relationship.

Table 5.20 below reports the indirect effects (mediation) of each of the aspects of self-compassion. Self-compassion total score (Panel A) did not mediate the entrapment and suicidal ideation relationship.

Table 5.20. Mediation pathway (entrapment to suicidal ideation)

<i>Indirect effects</i>	B	SE	95 % CI	
			Lower	Upper
SCS total	.006	.004	-.0008	.0145
Self-kindness	.004	.003	.0001	.0100
Self-judgment	.007	.004	.0006	.0152
Isolation	.007	.003	.0005	.0134

Note: 95% CI in bold indicates mediation

Self-judgement (Panel C) was associated with both entrapment ($B = .099$, $t = 5.852$, 95% CI = .066 to .132, $p < .001$), and suicidal ideation ($B = .072$, $t = 2.208$, 95% CI = .008 to .136, $p = .027$) and entrapment was associated with suicidal ideation ($B = .041$, $t = 3.582$, 95% CI = .019 to .064, $p = .0003$). When included in the model self-judgement partially mediated the entrapment and ideation relationship ($B = .007$, $SE = .004$, 95% CI = .0006 to .0152). The isolation subscale (Panel D) also mediated this relationship ($B = .007$, $SE = .003$, 95% CI = .0005 to .0134). Isolation was significantly associated with entrapment ($B = .082$, $t = 5.425$, 95% CI = .0523 to .1117, $p < .001$) and suicidal ideation ($B = .079$, $t = 2.169$, 95% CI = .0076 to .1504, $p = 0.030$). Entrapment and suicidal ideation remained significantly associated when isolation was included in the model ($B = .042$, $t = 3.676$, 95% CI = -.0196 to .0642, $p = .0002$).

5.5 Discussion

The current study aimed to investigate the relationship between self-compassion and suicidal ideation within the context of risk factors selected from the motivational phase of the Integrated Motivational-Volitional model of suicidal behaviour (IMV; O'Connor & Kirtley, 2018; O'Connor, 2011). Table 5.21 summarises the specific aims and aligned hypotheses.

Table 5.21. Aims and hypotheses of the current research.

Aim	To explore the construct validity of self-compassion and the subscales in relation to other psychological variables.
H1	<i>The total self-compassion score and the positive subscales will be related to measures of mindfulness and resilience while the negative subscales will be correlated with measures of psychopathology.</i>
Aim	To explore the stability of self-compassion over a short follow-up period.
H2	<i>Self-compassion will demonstrate acceptable test-retest reliability over a short follow up period.</i>
Aim	To investigate the relationship between self-compassion and suicidal ideation.
H3a	<i>Self-compassion will differentiate between individuals with a history of suicidal ideation and those without. In particular the negative subscales will be more strongly associated with suicidal ideation than the positive subscales.</i>
H3b	<i>Self-compassion will predict suicidal ideation over time.</i>
Aim	To investigate the relationship between self-compassion and selected factors from the motivational phase of the IMV model.
H4a	<i>Self-compassion (T1; total and/or subscales) will act as a threat to self moderator and mediate the relationship between defeat (T1) and entrapment (T2).</i>
H4b	<i>Self-compassion (total and/or subscales) will act as a motivational moderator and mediate the relationship between entrapment and suicidal ideation.</i>

Self-compassion was assessed using the self-compassion scale (SCS; Neff, 2003ab). Given the concerns expressed that by including 'negative' constructs, the SCS total score actually measures self-criticism, rumination and social isolation (Gilbert, McEwan, Matos, & Rivis, 2011; MacBeth & Gumley, 2012; Muris & Petrocchi, 2017) the construct validity of the SCS was explored (H1). As anticipated, we found that the SCS was moderately correlated with measures of self-criticism (inversely), mindfulness and resilience. Construct divergence assessed between the SCS and a measure of self-criticism (FSCRS; Gilbert, Clark, Hempel, Miles, & Irons, 2004) indicated that these measures were assessing independent constructs. Whilst these findings support the assertion that the SCS is measuring a construct separate to self-criticism, the results should be interpreted with caution as four items of the FSCRS were mistakenly omitted by the researcher. Subsequently, the FSCRS used may not accurately reflect self-criticism as measured by the full scale.

As discussed in Chapter 2, the majority of research looking at self-compassion and suicidal ideation and self-harm has been cross-sectional. Subsequently, the stability of this construct has not been well explored. In line with *H2*, all the SCS components demonstrated good internal consistency and reliability over a short follow-up period. Intra-Class Correlations (ICC) showed that the SCS had high test-retest reliability. However, it should be noted that the time period between completing the measures was relatively short (2.5 months) and may not reflect the stability of self-compassion. Additionally, as no measure of life events was included in the study, the stability of self-compassion in the context of life events or even daily stressors cannot be commented on. We experienced a high attrition at follow-up with around 50% of participants completing the measures at both time points. Although there were no significant differences in scores on the measures between those who completed both time points and those who opted out, it is still possible that there was a risk of bias in our T2 sample (Dumville, Torgerson, & Hewitt, 2006). As the study contained self-compassion in the title, there is a potential that the T2 sample reflects individuals who are interested in or have higher self-compassion than those who opted out. Future studies incorporating larger, more diverse samples over longer follow-up periods would allow an exploration of self-compassion (or the components) over time as well as how they affect the relationship between risk factors and suicidal ideation. Additionally, employing 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.

Previous research has called for studies to report on the individual SCS subscales in an effort to increase our understanding of *how* the components of self-compassion contribute to psychological distress (Cleare, Gumley, Cleare, & O'Connor, 2018; Neff, Whittaker, & Karl, 2017) and *under what circumstances* each component is most important. In line with previous research, we found that the negative subscales were generally more strongly associated with suicidal ideation than the positive subscales were; supporting *H1*. Throughout the current study, the negative self-compassion components were repeatedly found to be associated with suicidal ideation, defeat and entrapment.

Cross-sectionally, the components of self-compassion differentiated between the suicidal ideation and control group (*H3a*). Specifically, individuals with a history of suicidal ideation were more likely to endorse higher levels of the negative subscales and lower levels on the positive subscales and overall self-compassion.

The SCS subscales were simultaneously included in a regression model to test the independent contribution of each of the subscales while controlling for the others. As expected, two of the negative subscales -self-judgement and isolation- remained associated with suicidal ideation. The self-kindness subscale remained inversely associated with suicidal ideation. When depressive symptoms were included in the model, all contributions from the SCS subscales became non-significant. However, self-kindness and isolation subscales appeared to be approaching significance. In the model with all total scores from all the study variables, self-compassion, entrapment, self-criticism and resilience remained significant predictors when sexual orientation and depressive symptoms were controlled for. As these constructs are all components within the motivational phase of the IMV-model, this finding is in line with previous research (O'Connor & Kirtley, 2018; O'Connor & Portzky, 2018; Wetherall, Robb & O'Connor, 2018). However, this may indicate that self-compassion would also be well placed in the motivational phase.

With the exception of the mindfulness and over-identification with thoughts subscales of the SCS, all of the other T1 subscales predicted suicidal ideation during follow-up (*H3b*). Again, when depressive symptoms were included, none of the subscales predicted suicidal ideation. This may have been contributed to by the use of a binary suicidal ideation outcome and only sixteen individuals reporting suicidal ideation during the follow-up period.

Cross-sectionally, the mindfulness subscale was associated with defeat, while over-identification (mindfulness's negative counterpart) predicted T2 defeat. This is in line with previous studies which have associated rumination (i.e. over-identification with thoughts) with defeat (O'Connor & Williams, 2014). Self-judgement and isolation subscales of the SCS were found to be associated with defeat and entrapment cross-sectionally when depressive symptoms were controlled.

Defeat and entrapment are repeatedly implicated in the aetiology and course of psychological distress (Gilbert & Allan, 1998; Morrison & O'Connor, 2008; O'Connor & Portzky, 2018; O'Connor, 2011; Owen et al., 2018), and are the core constructs implicated in the development of suicidal ideation within the IMV model (O'Connor, 2011; O'Connor & Kirtley, 2018). Subsequently, a series of mediation models testing self-compassion as a threat to self moderator (TSM) (*H4a*) and as a motivational moderator (MM) (*H4b*) were conducted. The findings herein offer partial support for both hypotheses. Our results indicated that self-compassion (SCS total) may be a TSM while self-judgement and self-kindness may be MM. The isolation subscale partially mediated both relationships, reiterating the pervasiveness of feeling socially isolated in suicidality (O'Connor & Nock, 2014; Joiner, 2005; Van Orden, 2015).

Individually, the findings present a confusing picture. However, taken as a whole, these findings may suggest that the components of self-compassion potentially influence multiple parts of the pathway to emergence of suicidal ideation. The affiliative nature of compassion may buffer individuals high in self-compassion by helping them feel more connected to others through their experiences which would ameliorate feelings of social isolation. Similarly, given self-compassion's association with emotional regulation (Gilbert, 2017; Klimecki, Leiberg, Ricard, & Singer, 2014; Leiberg, Klimecki, & Singer, 2011), self-compassion may reduce feelings such as shame and defeat, in turn reducing entrapment and subsequently reducing the likelihood that thoughts of suicide emerge.

However, our findings could also suggest that self-compassion is not situated in the motivational phase. As self-compassion is thought to develop within a secure attachment framework (MacBeth & Gumley, 2012), self-compassion could be placed in the pre-motivational phase of the IMV model. In this case, lower levels of self-compassion would contribute to an individual's psychological vulnerability for developing suicidal ideation in the future. In line with the IMV model, for an individual with low self-compassion, the presence of a stressor would increase the likelihood that the individual transitions into the motivational phase (O'Connor, 2011).

This is the first study to explore self-compassion within the context of the IMV model and more research is needed to understand the relationship between the constructs within the IMV model and the mechanisms that self-compassion may help regulate emotions at times of distress (Gilbert & Choden, 2013). Frameworks like the IMV model allow researchers to posit testable pathways between self-compassion and suicidal ideation. Despite the increase in research into self-compassion and suicide and self-harm, the majority of the research to date has been cross-sectional (Cleare, Gumley, O'Connor, 2019). Large scale prospective studies are required to explore self-compassion in the context of factors from throughout the IMV model. Specifically, studies exploring whether self-compassion has a direct impact on the core constructs within the IMV pathway, or an indirect effect through impacting moderators (such as TSM and MM) throughout the pathway could allow researchers insight into the mechanisms which underlie self-compassion and how these constructs may be applied to ameliorate suicide risk and support recovery.

Ideally, self-compassion research should reflect the complexity of the construct and investigate it as both a state and trait. For instance, experimental studies focusing on changing different aspects of self-compassion could be designed to explore whether one area of compassion has more impact on risk factors than another and under what

circumstances would provide greater insight into the mechanisms underlying the relationship with suicidal ideation.

5.5.1 Limitations

The findings of this research should be considered in the context of several limitations. Firstly, as the data were collected online, all measures were self-report, therefore the responses could have been affected by an individual's tendency towards impression management (Leary, 2001) as well as memory biases. The latter may be particularly relevant in regards to the reporting of suicidal ideation, which can be susceptible to mis-reporting (Mars et al., 2016). An additional consideration is that suicidal ideation was assessed via a single binary item and participants were not asked about severity and duration of the ideation or the individual's intention to act on the thoughts. Subsequently, the intensity and severity of ideation may vary greatly between individuals. Additionally, the number of participants who reported suicidal ideation was relatively small which restricted the subgroup analyses that could be conducted.

Also, the technical glitch related to the SCS completion is another limitation: during the study design phase, the measures were compiled into two different orders. When the measures were reordered, the researcher neglected to update the online 'skip logic' for questionnaire completion resulting in many of first two hundred participants being skipped past the Self-Compassion Scale and suicidal ideation question which impacted upon the quantity of usable data. Only 16 participants reported experiencing suicidal ideation during the follow-up, meaning *H4b* was tested using cross-sectional mediation analysis. Consequently, we can draw no conclusions in terms of determining the directionality of the relationship. In the prospective mediation analyses (defeat to entrapment), T1 entrapment or depressive symptoms was not controlled in the analyses for as when this was included in the model none of the other variables remained significant. The broader challenge was the amount of residual variance to be explained at follow-up was modest as result the present sample size was not suffice to allow for controlling for T1 entrapment and depressive symptoms .

The current research is an attempt to understand the role of the individual components of self-compassion in relation to key components of the IMV model in respect of suicidal ideation. In doing so, a high volume of analyses were conducted on a relatively small sample. Additionally, to reduce the volume of extra analysis, the relationship between self-compassion and other important risk factors have been neglected (i.e. depressive symptoms and stress). Although these are important omissions, the relationship

between these constructs is well documented (for a detailed review see MacBeth & Gumley, 2012).

Within our study, belonging to a sexual minority remained associated with suicidal ideation and this relationship held when included in multivariate models. Again, further exploration of the relationship between self-compassion and sexual orientation in this sample was omitted due to the volume of analyses. However, the findings herein indicate that this is an important area for future research to address. Further research into self-compassion and suicidal ideation in sexual minorities could allow insight into the potential mediating role of self-compassion in relation to risk factors and the promotion of mental wellbeing. For instance, the ameliorating effect of compassionate mind training on shame (Gilbert, 2006) could indicate that self-compassion could be a useful tool in reducing the impact of factors such as internalised stigma.

Additionally, given the sample was comprised of mainly young, white, female students, the results may not be generalisable to other populations. Given that research has previously identified gender differences in levels of self-compassion (Yarnell et al., 2015), with women expressing lower levels of self-compassion than men, our findings may have been skewed by the high proportion of females in the study. Future studies may wish to stratify recruitment to achieve a more balanced sample to allow more in-depth exploration of the relationship between gender, self-compassion and suicidal ideation.

5.5.2 Conclusions

Self-compassion is an important construct to consider in relation to psychological distress. Our findings that self-compassion may have a role throughout the IMV model of suicidal behaviour indicate that self-compassion could be an important target for intervention. As self-compassion can be developed through meditation type exercises, it is possible that developing self-compassion may have pervasive effect on multiple risk factors in the development of suicidal ideation. Brief self-compassion exercises could potentially be useful in exploring the role of self-compassion in suicidal ideation and self-harm.

The following section describes a study exploring the acceptability of a single session self-compassion exercise.

Chapter 6 Feasibility study of a brief self-compassion exercise

Background: Suicide and self-harm result from a complex interplay of factors including biological, cognitive and psychological factors. Psychological factors such as self-criticism, shame, perfectionism, isolation, entrapment are repeatedly implicated in suicide risk. The development of self-compassion has been associated with reductions in threat-based emotions such as shame and feelings of self-criticism. Self-compassion can be cultivated through meditations with even single session meditations appearing to produce brief changes in affect. Therefore, single session meditations may represent a mechanism to explore how psychological factors contribute to suicide risk. However, there are limited single session compassion exercises available and only one previous study has explored the use of a single session exercise in individuals with a history of self-harm. Consequently, the aims of this study were twofold: 1) to assess the feasibility and acceptability of a brief, single session compassion exercise (SCM) to individuals with and without a history of self-harm; 2) to explore participants' understanding and experiences of compassion (to and from others, and self-compassion).

Method: Eight participants (four with a history of self-harm and four with no history [control group]) took part in a guided SCM developed for this study. Participants were asked for feedback on the SCM which was used to refine the exercise for use in a pilot study (Chapter 7). Current affect (self-compassion, self-criticism, happiness, sadness, relaxation and tension) was recorded via visual analogue scales (VAS) immediately before and after the SCM. Experiences of compassion were explored through a semi-structured interview. In addition to mental health history, participants completed measures of self-compassion, mindfulness, self-criticism and fears of compassion.

Results: Following the SCM, increases in self-compassion, reductions in self-criticism and sadness were observed for the whole sample. Feedback highlighted two main areas for change within the SCM including internal to external focus shifts. In terms of experiences of compassion, participants found it easier to recall times when they had shown compassion to other people than receiving it from others, or times when they had shown compassion to themselves. Mann-Whitney U tests indicated that participants in the self-harm group scored lower on the self-kindness and common humanity subscales of the self-compassion scale than those in the control group.

Conclusion: Participants indicated that the SCM was acceptable and no negative effects were reported. Changes in pre/post SCM VAS scores suggested that even a brief SCM

may increase self-compassion and reduce self-criticism indicating that further research in this area is warranted to explore the utility of this exercise on a larger scale.

6.1 Introduction

Self-harm, defined as “self-injury or self-poisoning irrespective of the apparent purpose of the act” (NICE, 2012, p292) is a complex phenomenon which encompasses self-harm with suicidal or non-suicidal intent. It is usually driven by multiple motives and reasons (Armitage et al., 2016), indeed the behaviour can serve multiple functions for individuals. Functions of self-harm fall into two overarching categories; 1) interpersonal (e.g. communicating distress to others), and 2) intrapersonal (e.g. regulation of emotions) with the latter being most commonly reported by studies (Taylor et al., 2018). Within intrapersonal functions self-harm is often cited as a form of affect regulation, self-punishment, and experiential avoidance (Klonsky, 2007; Taylor et al., 2018). Self-harm is often associated with self-criticism (O’Connor & Nock, 2014), feelings of inadequacy and self-loathing (Adams, Rodhan, & Gavin, 2005).

Self-harm then, may function as a maladaptive form of self-soothing for some individuals (Van Vliet & Kalnins, 2011). Compassion-focussed interventions support individuals to engage with themselves in a warm, understanding and non-judgmental way (Gilbert, 2017) and may be well placed to address the intrapersonal functions of self-harm. Self-compassion encompasses both trait and state characteristics and higher trait self-compassion has been associated with lower levels of psychological distress including depression, anxiety (MacBeth & Gumley, 2012), suicidal ideation and self-harm (Cleare, Gumley, & O’Connor, 2019). Given the associations between self-compassion and mental wellbeing, interventions which aim to develop compassion for self and others have attracted attention.

As highlighted in the introduction (Chapter 1), the literature indicates that engaging in compassion meditations over several weeks can have physical and psychological health benefits (e.g., Braehler et al., 2013; Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Gilbert & Procter, 2006). Similarly, a recent meta-analysis of compassion intervention studies (Kirby, 2017) found that increases in self-compassion, mindfulness and wellbeing, along with reductions in depression, anxiety and psychological distress remained when control conditions were included in the analyses.

However, even brief compassion-type training may have positive effects on an individual's affect. For instance, Hutcherson and colleagues (Hutcherson et al., 2008) found that, compared to a neutral image condition (imagining two relative strangers and focus on their appearance), participants who took part in a seven minute loving-kindness meditation (LKM; a form of compassion induction; imagining two loved ones standing either side, and directing their love to the participant) reported increased positive mood, feelings of connectedness and greater positivity towards others and in general on both explicit and implicit measures following the exercise. Similarly, a compassion exercise (in which participants were instructed to reflect on a personal weakness in a compassionate and understanding way) was shown to enhance compassionate feelings towards the self and increase motivation to address perceived weaknesses (Breines & Chen, 2012).

Compassion interventions may have soothing physiological effects (Gilbert, 2017) including reducing levels of stress hormones (cortisol) and increasing heart rate variability (Rockliff, Gilbert, McEwan, Lightman, & Glover, 2008) which are associated with feelings of calmness and safety (Porges, 2007). Compassion exercises may also provide a potential tool for exploring mechanisms underlying risk factors associated with self-harm and suicide. For instance, a compassion exercise (values affirmation task; participants selected most important personal value [e.g. artistic skills/creativity, independence] and wrote brief discussion on why value was important to them) was found to increase sensitivity to physical pain in females with a history of self-harm (Gregory et al, 2017). That is, participants who received the compassion exercise became aware of the discomfort sooner and perceived it as more painful than those in the control group.

As discussed in Chapter 1 (Introduction, section 1.2 IMV), reduced sensitivity to physical pain has been highlighted as a volitional moderator and may increase the likelihood that thoughts of suicide are acted upon (O'Connor, 2011; O'Connor & Kirtley, 2018). The mindful component of self-compassion may help people be present in the moment (Neff, 2003a) making them more aware of their current experiences and could increase their sensitivity to pain which, potentially ameliorating this volitional moderator.

Although the research into brief compassion exercises is limited, the available literature may indicate that compassion exercises could be useful in modifying other risk factors for suicide and self-harm. For instance, self-compassion may help individuals to tolerate difficult emotions (Gilbert, 2017; Klimecki, Leiberg, Ricard, & Singer, 2014; Leiberg, Klimecki, & Singer, 2011) and ameliorate social threat-based emotions like shame and defeat (Barnard & Curry, 2011).

However, there is limited literature reporting on single session exercises. This may, in part, be because despite its benefits, developing compassion can be challenging for some, especially those with high self-criticism (Gilbert et al., 2006). An additional complication is that single session exercises often focus on imagery (e.g. Hutcherson et al., 2008; Rockliff et al., 2008) which, although these can be highly effective at provoking emotive responses (Holmes & Mathews, 2010), can be challenging to cultivate safely in a short timeframe (Naismith et al., 2019). For example, the development of compassionate imagery is often based on memories of encounters with kind and caring people which can lead to negative feelings and frustration who individuals have no memories of kind and caring people (Gilbert, 2010; Gilbert & Irons, 2005; Gilbert & Procter, 2006). Another issue which may hinder the development of compassion is that individuals sometimes do not understand what self-compassion means (Mayhew & Gilbert, 2008), and consequently they are unable to access it. Gumley and MacBeth (2014) carried out interviews which focussed on compassion in narratives of individuals with psychosis which emphasised the importance of both interviewer and interviewee having a shared understanding of compassion.

Subsequently, this study aimed to assess the feasibility and acceptability of a brief, single session compassion exercise (SCM) developed for this study. Participants were asked for feedback on the SCM and this was adapted accordingly. The second aim of the study was to explore participants' understanding and experiences of offering compassion to others, receiving compassion from others and extending compassion to themselves.

6.2 Methods

6.2.1 Procedure

Prior to conducting the study ethical approval was granted by the University of Glasgow's College of Medical Veterinary Life Sciences Ethics committee (Ref: 200140040; see Appendix B).

A variety of recruitment methods were employed. The study was advertised on the website Gumtree, social media and emails advertising the study were sent to postgraduate student courses within University of Glasgow. Initially recruitment to the study was challenging. Following feedback from a male participant who felt the advert

sounded “hippy” and wondered if some viewers would find this off-putting, the advert was reworded to have less emphasis on compassion (see Appendix C for both versions of the advert).

Persons who responded to the advert were contacted by phone and the researcher explained the study in full. A purposive sampling method was employed to ensure the groups were balanced by gender and that participants met the inclusion criteria for the groups (i.e., participants in the control group had to have no history of any mental health concerns).

Participants attended a 1-hour appointment at the Health Lab at the University of Glasgow. Participants were provided with written and oral information about the study and all participants provided written informed consent to take part. Permission was sought from participants to audio record the appointment. The card sorting task (see below), SCM and feedback along with compassion experiences were transcribed and transcripts were anonymised.

It was emphasised that participation was voluntary and that participants could stop the study at any time without giving a reason. Following completion of the study, suicide risk assessments were completed with the self-harm group and all participants were provided with a support sheet containing information regarding support websites and telephone lines (see Appendix F). Participants received £15 as compensation for their time.

6.2.2 Participants

As there is no definitive guidance for selecting the appropriate sample size for exploratory/pilot qualitative research we opted for a lower recruitment target to allow for in-depth data analysis. We followed Creswell (1998, p.64; between five and twenty-five participants) and Morse (1994, p.225; at least six participants) as guidelines for deciding upon our sample size.

Subsequently, eight participants took part in the study; four (male $n=2$, female $n=2$) had no history of mental health problems or self-harm and four (male $n=2$, female $n=2$) had a lifetime history of any self-harm. Full demographic characteristics of the sample are outlined in Table 6.1 in the results section.

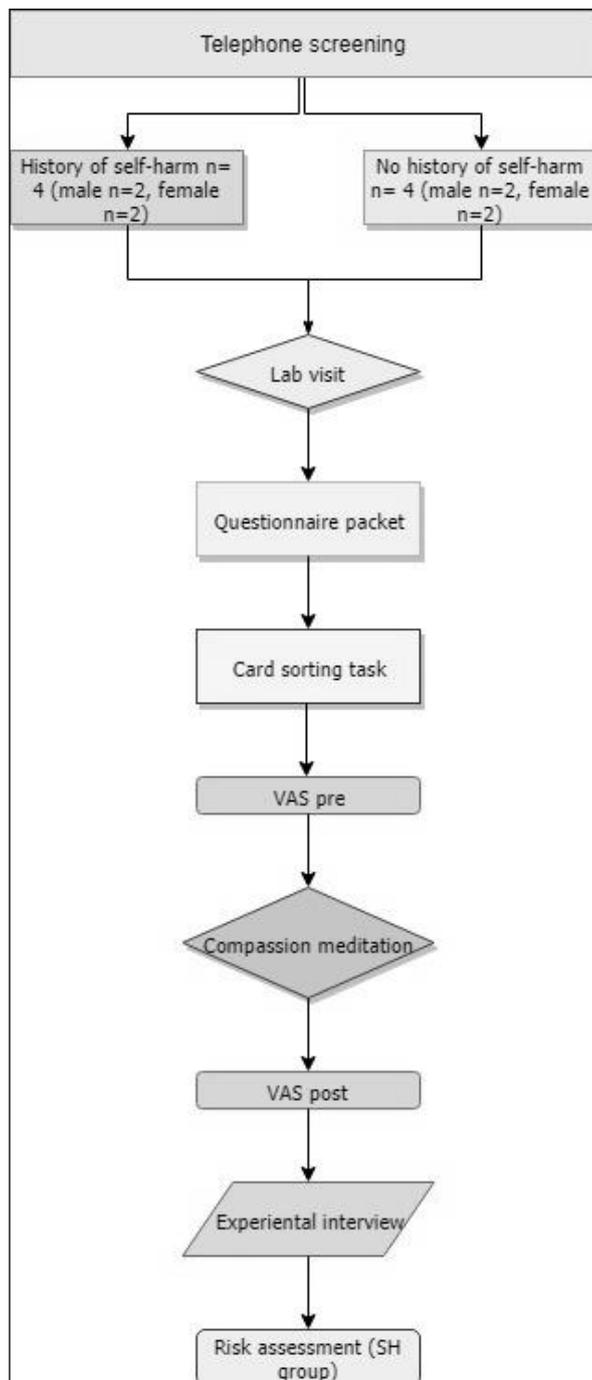


Figure 6.1 Flow diagram of participant recruitment and study procedure

6.2.3 Measures

Participants completed brief demographics including age, gender, ethnicity, marital status, student status, and previous mindfulness and meditation experience. Participants also completed the following measures (please see Methodology in Chapter 3 for full details of all the measures and appendix E).

6.2.3.1 Psychological Wellbeing Measures

Self-harm. Self-harm history was assessed using items taken from the British Psychiatric Morbidity Survey (Nicholson, Jenkins & Meltzer, 2009) and the Child and Adolescent Self-harm in Europe Survey (Madge et al., 2008). Participants were asked the following 4 questions; “Have you ever seriously thought of taking your life, but not actually attempted to do so?”; “Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way?”; “Have you ever seriously thought about trying to deliberately harm yourself but not with the intention of killing yourself but not actually done so?”; “Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself (i.e., self-harm)?” A positive response to any of the questions was followed up with questions about when this last occurred, frequency and age of first thought/attempt.

Mental Health. Lifetime mental health was recorded using the following: “Have you ever experienced XX (e.g. depression/anxiety)? If yes, have you ever received a diagnosis of XX?” Conditions assessed included depression, anxiety and bipolar disorder. Full details can be found in Chapter 3; Methodology. Participants were also asked to describe any treatment they had received for mental health conditions, including medication, psychological treatment or hospitalisation.

Suicidal ideation. The 8-item suicidal ideation subscale of the Suicide Probability Scale (SPS; Cull & Gill, 1988) was used assess recent thoughts around suicide. The scale showed high reliability (Cronbach $\alpha = .92$).

Depressive symptoms. The Centre for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977) was used to assess the presence of recent depressive symptoms. The scale had high internal consistency in our study (Cronbach $\alpha = .87$).

Self-compassion. The Self-Compassion Scale (SCS; Neff, 2003a, b) was used to assess self-compassion. In the current study, the overall SCS demonstrated high internal consistency (Cronbach $\alpha = .95$), and the subscales ranged from $\alpha = .78$ to $.93$.

Mindfulness. Mindfulness was assessed via the Five Facet Mindfulness Questionnaire-short form (FFMQ-SF; Bohlmeijer, Klooster, Fledderus, Veehof and Baer, 2011). Reliability for the overall scale was good ($\alpha = .82$); the subscales ranged from $\alpha = .52$ to $.87$.

Self-criticism/reassurance. The Forms of Self-Criticising/Attacking & Self-Reassuring Scale (FSCRS; Gilbert, Clark, Hempel, Miles, and Irons, 2004) was used to assess two aspects of self-criticism (feelings of personal inadequacies and self-hate) and the ability to reassure self. Reliability for the overall scale was $\alpha = .77$ and the subscale demonstrated high reliability ($\alpha = .87$ to $.99$).

Fear of self-compassion. The Fear of Self-Compassion subscale (Fear of Compassion scales; Gilbert, McEwan, Matos and Rivis, 2011) was used to measure concerns around self-compassion. The sub-scale was found to have high reliability in our sample ($\alpha = .95$).

Submissive Compassion. Motivations for compassion were measured via the Submissive Compassion Scale (Catarino, Gilbert, McEwan and Baiao, 2014). The scale showed high reliability in our study ($\alpha = .91$).

6.2.4 Experimental measures

Visual Analogue Scales. Six 100mm Visual Analogue Scales (VAS) were used as a manipulation check before and after the SCM “At this moment I feel...” happy, sad, self-compassionate, self-critical, relaxed and tense. Responses were anchored on a scale of not at all to extremely (anchoring scale consistent with Johnson, Gooding and Tarrier, 2008).

6.2.4.1 Card sorting task

A card sorting task based on procedures developed by Gumley and Macbeth (Gumley & Macbeth, 2014) was used to introduce participants to the concept of compassion, explore their conceptualisations of compassion and clarify any misconceptions.

Participants were presented with 20 cards featuring compassion related words (e.g. warmth, kindness, openness, empathy, strength, support) and were instructed as follows: “So that we have a shared understanding of what we mean by compassion, I would like you to select the 5 cards you feel best describe compassion. I would also like you to tell me why you feel that word describes compassion and how strongly (on a 0-10 scale) you feel the word describes compassion.”

6.2.4.2 Self- compassion exercise

A self-compassion exercise (SCM), based around the components of compassion (warmth, kindness, openness, curiosity, strength and courage) was assessed in this study. The first 2-3 minutes were spent focussing on breathing. Participants were then invited to imagine how it would feel to experience the individual components of compassion towards other people as well as towards themselves and how these qualities be visibly displayed. The SCM took between 8-10 minutes and, with permission, was recorded. See Appendix E for SCM transcript.

6.2.5 Interview

6.2.5.1 Self-compassion exercise feedback

Participants were asked the following questions regarding the SCM: “Did you have any expectations of how you would feel during/ after the SCM?”; “How did it actually feel to go through compassion SCM?”; “Did you find it easy to stay with the SCM?”; “Do you remember experiencing any blocks to it?” and finally: “Do you have any comments or suggestions for improving the SCM or card sorting task?”.

6.2.5.2 Experiences of compassion

Participants took part in a semi-structured interview to explore their perceptions and experiences of compassion (Gumley & Macbeth, 2014). Specifically, participants were asked the following questions: “I wonder if you could tell me about a time when you have expressed or shown compassion to another person?”; “Can you tell me about a time that another person expressed compassion towards you?”; “Can you tell me about a time where you expressed compassion towards yourself?”.

When participants described events these questions were followed with “What is it about your experience that is compassionate for you?”

6.2.6 Statistical Analysis

The quantitative data were analysed using SPSS 22 (IBM Corp., Armonk, NY).

6.2.6.1 Missing data

The scales were assessed for missingness and no missing data were found.

6.2.6.2 Analytical strategy

Quantitative data

Given the small sample, non-parametric tests were used to explore any signals in the data in terms of differences between the groups. It was felt that these exploratory analyses may point to potential differences which are easier to identify than relying on simple graphical representation. Chi-squares were conducted to explore demographic characteristics of the groups. Mann-Whitney U tests were used to assess differences between the groups on measures. Wilcoxon tests were conducted to assess the data for signals of change pre-post SCM.

Qualitative interviews

A simple thematic analysis informed approach was applied to the interviews. Thematic analysis is presented as a flexible and useful tool to explore participant's perspectives (Braun & Clarke, 2006). Thematic analysis affords the identification of patterns in transcripts and is an iterative process where themes are identified through careful reading and re-reading of the transcripts (Fereday & Muir-Cochrane, 2006). In line with this, the interviews were transcribed by the researcher and the transcriptions read over to allow familiarisation with the data. A more detailed analysis of the transcripts followed in two parts. Firstly, feedback themes from participants were extracted and organised into categories relating to environmental and meditation factors. To increase reliability of the analysis, half the transcripts (n=4) were reviewed by the researcher's supervisor (AG).

6.3 Results

6.3.1 Sample and Participant Characteristics

Eight participants took part in the study; four had a history of self-harm, and four had no history of self-harm. The groups were balanced by gender. Age of the sample ranged from 20-40 years old.

All participants were white European and seven (87.5%) identified themselves as heterosexual. Four participants (50%) were in a relationship, three were (37.5%) single

and one person was married (12.5%). Three participants in the control group were students (37.5%) and there was one student (12.5%) in the self-harm group. None of the participants in the control group had any experience of mindfulness but one participant in this group reported practising meditation a couple of times a month. In the self-harm group one participant practised mindfulness every day and meditated several times a week and another practised meditation a couple of times a month. Table 6.1 details the demographic characteristics by group.

Table 6.1. Descriptive statistics and Chi-square analysis comparing control group vs. self-harm group on demographic variables

Variable N (%)	Control N (%)	Self-harm N (%)	Chi square tests of independence
<i>Ethnicity</i>			
White European	4 (100)	4 (100)	(n/a)
<i>Sexual orientation</i>			
Heterosexual	4 (100)	3 (75)	$\chi^2(1, n=8) = 1.14, p = .285, \phi = .378$
Bisexual	0	1 (25)	
<i>Relationship status</i>			
Single	1 (25)	2 (50)	$\chi^2(1, n=8) = 1.33, p = .513, \phi = .408$
Relationship	2 (50)	2 (50)	
Married	1 (25)	0	
<i>Studying</i>	3 (75)	1 (25)	
<i>Religion</i>			
Christian (not practicing)	1 (25)	0	$\chi^2(1, n=8) = 1.14, p = .285, \phi = -.378$
<i>Meditation</i>	1 (25)	2 (50)	$\chi^2(1, n=8) = .53, p = .465, \phi = .258$
<i>Practice frequency</i>			
1x per week-monthly	1 (25)	1 (25)	$\chi^2(1, n=3) = .75, p = .386, \phi = -.500$
Several times per week		1 (25)	
<i>Mindfulness</i>	0	1 (25)	$\chi^2(1, n=8) = 1.14, p = .285, \phi = .378$
<i>Practice frequency</i>			
Daily	0	1 (25)	n/a

Mann-Whitney U Tests revealed no significant gender differences on any of the measures. Additionally, no differences were found between groups on measures of depression, submissive compassion, fears of compassion or mindfulness (see Table 6.2).

As displayed in Table 6.2, the self-harm group had lower scores on the self-kindness and common humanity subscales of the SCS (Neff, 2003). The groups also differed on scores of the hated self subscale of the FSCRS.

Table 6.2. Mann-Whitney U Tests of differences psychological between self-harm and no-self harm groups

Variable	Range	No history <i>Mdn</i>	Self-harm <i>Mdn</i>	<i>U</i>	<i>Z</i>	Effect size (<i>r</i>)	<i>P</i> value
Self-compassion (T)	42- 111	91.00	59.00	2.00	-1.73	-.61	.083
Self-kindness	5 -21	19.00	9.00	1.00	-2.02	-.71	.043*
Common Humanity	8- 19	15.00	9.50	1.00	-2.03	-.72	.042*
Mindfulness	10- 18	15.00	13.00	5.00	-.89	-.32	.372
Self-judgement	5- 21	16.50	10.00	3.00	-1.46	-.52	.144
Isolation	4- 16	12.00	9.50	3.00	-1.45	-.51	.146
Over-identification	4 -17	13.00	11.00	3.50	-1.32	-.47	.189
Depressive symptoms	2- 23	6.50	9.00	5.00	-.89	-.31	.375
Fears of compassion	1- 34	2.50	31.50	4.00	-1.17	-.41	.243
Submissive compassion	8 -35	22.00	24.00	6.00	-.58	-.20	.564
Self-criticism	27- 62	35.50	55.50	1.50	-1.89	-.67	.059
Reassured self	11- 31	25.00	15.00	2.50	-1.64	-.58	.102
Hated self	0- 15	0.00	11.00	1.00	-2.08	-.74	.037*
Insecure self	4- 36	6.50	29.50	2.50	-1.60	-.57	.110
Mindfulness	64- 99	90.50	78.00	3.00	-1.44	-.52	.149
Non-react	11- 20	16.00	14.50	7.50	-.15	-.05	.884
Observing	10- 20	17.50	12.50	3.50	-1.31	-.46	.191
Describe	12- 25	19.00	17.00	8.00	.00	0	1.000
Act aware	13- 22	18.50	16.00	2.50	-1.64	-.58	.102
Non judge	11- 20	18.00	14.50	5.00	-.88	-.31	.381

* $p < .05$ Note: *Mdn*- median; *U*- Mann-Whitney U test

6.3.1.2 Visual Analogue Scales

No significant differences were found between genders or groups on the baseline VAS scores. A Wilcoxon signed rank test on the whole sample revealed significant increases in self-compassion and relaxation and reductions in levels of self-criticism, sadness, and tension were observed from pre- to post- SCM (Table 6.3, below).

Table 6.3. VAS change pre to post- SCM for all participants.

VAS measure	<i>Mdn</i> pre	<i>Mdn</i> post	<i>Z</i>	<i>r</i>	<i>p</i> value
Self-compassion	57.0	76.0	-2.37	.84	.018*
Self-criticism	40.5	16.0	-2.52	.89	.012*
Sadness	7.5	2.5	-2.52	.89	.012*
Happiness	71.0	86.0	-1.68	.60	.093
Relaxed	74.5	86.5	-2.10	.74	.036*
Tense	16.5	3.0	-2.52	.89	.012*

* $p < 0.05$, Note: VAS= 100mm, *Mdn*- median

The data were explored for signals of change in VAS scores within each of the groups. As displayed in Table 6.4, although there were no significant changes observed in either group, the data indicates that VAS scores changed in expected directions for both groups.

Table 6.4. Pre/post SCM VAS changes by group

Group	VAS measure	<i>Mdn pre</i>	<i>Mdn post</i>	<i>Z</i>	<i>r</i>	<i>p value</i>
control	Self-compassion	68.0	82.0	-1.60	.8	.109
	Self-criticism	44.5	14.0	-1.83	.92	.068
	Sadness	5.5	2.0	-1.83	.92	.068
	Happiness	81.5	90.0	-1.46	.73	.144
	Relaxed	74.5	91.5	-1.83	.92	.068
	Tense	18.5	2.0	-1.84	.92	.066
Self-harm	Self-compassion	39.0	58.0	-1.83	.92	.068
	Self-criticism	40.5	19.5	-1.83	.92	.068
	Sadness	12.0	3.0	-1.83	.92	.068
	Happiness	69.5	78.5	-.73	.37	.465
	Relaxed	74.0	77.0	-.73	.37	.465
	Tense	16.5	6.0	-1.83	.92	.068

6.3.2 Participant Feedback

This section discusses participants' feedback on taking part in the study. Two main categories of feedback emerged from the analysis of the transcript: environmental and SCM. Participant feedback and our proposed responses/solutions for implementation in study 5 (Chapter 7) are summarised in Table 6.5 and in-depth discussed below.

Table 6.5. Participant feedback and proposed solutions

Area	Feedback	Solution
Environment	Room too clinical/sterile	Pictures for walls
	Overhead light too bright	Adjustable lamp
	Room cramped	Rearranged furnishings
SCM	Too many focus shifts	Removed external (chair) focus
	Compassion abstract/difficult to apply to self	Wording changed to 'imagine yourself being filled with'

6.3.3 Environmental

This section discusses participants' feedback related to the room where the appointment was carried out.

The main area which featured in feedback from participants was regarding the size and 'clinical feel' of the room used for the study. Although room size was outside our control, we addressed feedback by minimising furniture in the room and dressing the walls with pictures and used a lamp to provide softer lighting instead of using the overhead strip lamp (see Figure 6.2 in Appendix G for before and after images).

However, some participants also fed back that they did not feel the room impacted upon how they engaged with the SCM. One person felt it was easier to connect with the SCM because the environment was less distracting.

6.3.4 Self-compassion exercise feedback

This section focusses on the SCM and the associated participant feedback. See Appendix E for original SCM transcript and the revisions made following feedback.

The SCM took, on average, 8.2 minutes (range 6.4 -9.4 minutes) and started with 2-3 minutes focussing on the breath and feelings of contact with external foci to help participants feel grounded.

A participant who was a regular mindfulness practitioner felt more silences were needed to facilitate a deeper meditative experience. In response to this, we increased the duration of the silences for Study 5 by 5 seconds each. It was felt this additional time would allow a balance for people who were experienced meditators whilst not being daunting for those with no meditation experience.

As summarised in Table 6.5 above, two main areas emerged from feedback around the SCM; 1) Too many focus shifts during the exercise; 2) the abstract nature of compassion and the difficulties relating compassion to the self.

6.3.4.1 Shifting focus

This was the main area of the SCM that featured in the feedback. Table 6.6 below details the original wording, feedback received and subsequent changes made.

During the breathing introduction participants were asked to focus on their breath, then to move their attention to the chair they were sitting on, then to return their focus to their breathing once again. This shift was included to help participants feel grounded during the exercise. However, two of the participants found the internal/external/internal shift confusing and distracted them from the exercise. To address this, we removed the focus shift and extended the time spend focussing on the breath including extending the silences within this part of the exercise.

Similarly, participants reported finding shifting focus from another person to themselves challenging. Based on participants' feedback, this was reworded for the main study, where we asked participants to imagine themselves as being filled with each of the components of compassion (see Appendix E).

Table 6.6. The challenges around shifting focus within the SCM: feedback and subsequent changes

Focus shift	Original wording	Feedback	Update
Internal/external	<p>“As you notice your breathing, just allow it to slow down to a pace where you can notice the breath entering your body...I’d like you now to notice your body; notice the feeling of your feet on the floor and of your body against the chair... all the time just keeping your steady, gradual rhythm of breathing ... again when your mind wanders, that’s fine. Just notice this and gently bring it back to rhythm of your breathing.”</p>	<p>“{I} found it hard to grasp ...from paying attention to your chair to paying attention to things inside your mind... the breathing bit makes you kinda erm....not pay anything to the room” Ps 07, SH</p> <p>“I know there's only a certain amount of time, but feeling feet on the ground and feeling yourself on the chair and that felt really fast concentrating on my breath... it was fast it ungrounded me a little bit or something because of the quickness” Ps 04, NH</p>	<p>“As you notice your breathing, just allow it to slow down to a pace where you can notice the breath entering your body, and as it enters your body, the feeling of the breath going into your stomach and your stomach expanding (20s).</p> <p>And at top of a breath, when you have a full lung, just hold it for a moment; just pause your breath and then breathe out exhaling slowly and gradually (20s).”</p>
Other/self	<p><i>“Notice what it feels like to have feelings of warmth towards other people and how it feels to have them towards yourself; just imagine how it would appear on your face to have those feelings here and now”</i></p>	<p>“when you told me to think about warmth to somebody else and I was kind of like thinking about feeling warmth for somebody else and it was kind of harder to like get to the next bit, transfer it” Ps 07, SH</p>	<p>“As you focus on your breathing, I’d like you to imagine yourself as being filled with warmth and kindness and how this would appear on your face and in your posture. Notice how your body feels being filled with warmth and kindness”</p>

NH=No history group, SH=Self-harm group

6.3.4.2 Compassion can be abstract

We had anticipated that participants might have misunderstandings about the nature of compassion, consequently, we included the card sorting task to open a discussion around compassion and allow clarification of any misconceptions around the topic. We continued this strategy in the SCM by presenting compassion in terms of its components (i.e., warmth, kindness, courage, curiosity) rather than referring to compassion during the SCM. However, during feedback from participants we emphasised how abstract a concept compassion can be.

Overall, participants reported finding the SCM easy to engage with and follow. None of the participants reported increased negative affect following the SCM, however participants sometimes experienced blocks to parts of it; particularly the application of the components of compassion to themselves. For example, one participant said:

“When I try to think about being compassionate towards myself I just hit a kinda wall. But I can feel it, compassion, but when I try to turn it in there’s like, nothing.” (Ps 01, SH).

Others had never thought about compassion in relation to themselves:

“When you were asking how it was to feel compassion for other people was easier than thinking about compassion for myself...I had to think about that one for longer than the others...I don’t have a lot of compassion for myself, I’m quite hard on myself a lot...it’s actually the first time in I think my whole life someone’s actually asked me to think about myself compassionately.” (Ps 03, SH).

6.3.5 Experiences of compassion

This section discusses the various processes employed to explore participants’ experiences and understanding of compassion. In the first instance, a card sorting task was utilised as a discursive tool to help clarify what is meant by compassion. The words selected during the task and average strength of association of the words with compassion are detailed in Table 6.7 below. The most often selected words were empathy, kindness, support and a non-judgemental attitude. The majority of participants felt these words were integral components of compassion. Curiosity, self-recognition, self-enactment, courage and strength were not selected.

Table 6.7. Words selected in the card sorting task

Word selected	No times selected (/8)	Average strength of association (/10)
Empathy	6	9
Non-judgemental	6	7
Kindness	5	8
Support	5	8
Understanding	4	8
Love	3	9
Caring	3	8
Openness	3	7
Forgiving	2	8
Acceptance	1	7
Nurturing	1	7
Warmth	1	7

To further explore experiences of compassion, participants were asked: i) what compassion meant to them; ii) to tell us about a time that they've shown compassion to another person; iii) a time when someone had shown them compassion; iv) and a time when they had expressed compassion to themselves. The questions were asked in this order as it can be easier to recall memories of expressing compassion towards others than receiving it or showing it to the self (Gilbert et al., 2011).

6.3.5.1 “Before you came in today, what was your understanding of compassion / what did it mean to you?”

The intangible nature of compassion was very apparent throughout the interview:

“I feel like I should have, it's I don't feel certain about what it means, ...I feel like I want a definition of it and that...bothers me that I don't know for sure what it is.” (Ps 04, NH).

Some participants' definitions of compassion described compassion as an active process rather than just being something that occurs passively:

“Compassion to me is quite an abstract {concept}... Love and, kindness, I think there is, there is, there is an activity, within kindness... compassion, for me begins to define itself... kindness is a process... open-mindedness is, yeah, you open your mind... compassion to me has to be something that ... you can sort of do. It's an active, em, so I would em, shift my definition from the abstract as possible.” (Ps 06, SH).

Only one of the participant's definitions included aspects of self-compassion:

"comforting someone or yourself with something that troubles you." (Ps 05, NH).

Most participants reported that the study had no impact on their understanding of compassion. One person, however, reported that it had refreshed their awareness of compassion:

"I feel more ... connected to it or something...feel that it's quite a special something." (Ps 04, NH).

For another it was the first time they had considered self-compassion:

"Self-compassion as a concept. I'd always apply it, think of it as something that's applied to others as opposed to something that's applied to yourself." (Ps 08, NH).

In the next part of the interview participants were asked to think of specific examples in response to the situational compassion questions. If they were unable to think of a response the researcher proceeded to the next question.

6.3.5.2 "I wonder if you could tell me about a time when you have expressed or shown compassion to another person?"

There was a strong sense of connectedness and common humanity in response to this question. Supporting loved ones (friends, family) at times of distress also featured strongly in responses. Participants emphasised the importance of listening and of trying to understand another's situation as an extension of compassion towards the other. Two participants (one from control, one from self-harm group) were unable to think of specific examples in response to any of the situational questions, however, both participants spoke more generally of times when they had supported friends at difficult times.

Another participant talked about making another feel less alone:

"the idea of making sure that person is less alone even for a moment...the reminder that there's something good in your life if something bad happens but not for the idea that I want to be liked, on the contrary, because I know it helps people when they know there is someone even if, they, they just stand next to each other, just the idea

of someone being there for you, without speaking, without needing to say a word.” (Ps 05, NH; response to stranger.)

Some participants acknowledged the active element of compassion and discussed the “effort in” (Ps 04, NH) compassion; having a desire to understand another’s situation as well as the intention to support the other. Sometimes this was in the form of putting another’s welfare before your own:

“he got the news that his dad had died back home so it was really important to be compassionate and basically just be there as much as I could and whatever he needed to do you know... just had to put my own, coz I was starting to feel a bit crap myself before that, but then when that happened it was just like putting my own problems out the window because it was so much more important to be there for him.” (Ps 01, SH, response to friend’s distress).

6.3.5.3 “Can you tell me about a time that another person expressed compassion towards you?”

“Towards me? Let me think, I mean not people are not compassionate...some people have a hard time dealing with life on their own.” (Ps 05, NH)

Participants found it more challenging to recall times when they had received compassion from another person. Three male participants (two NH and one SH group) were unable to provide specific examples in answer to this question.

Empathy, physical and emotional support and openness were frequently mentioned in responses:

“last night, my boyfriend just being very loving and physically affectionate and ... just being supportive and ... appreciating my difficulties and him just kind of telling me he understands them and telling me he appreciates me...{And what is it about that that is compassionate for you?} that he has kind of like kind of given time and energy and extended himself to kind of see how things are for me and has noticed all of this and has truly from his heart.” (Ps 04, NH)

Receiving compassion from another can be challenging. For instance, one male participant, when discussing compassion from a friend, gave the impression of compassion being acceptable within societal parameters:

“he showed as much kindness, as he needed to without an over-generosity to me...two men don't need to be that caring to each other but I think he was as caring as two men would allow each other to be the we weren't in a flirtatious relationship or anything.” (Ps 06, SH. Compassion from a friend)

6.3.5.4 “Can you tell me about a time where you expressed compassion towards yourself?”

This was the most challenging question and provoked a range of responses. Four participants (two control group, two self-harm group) were unable to recall any time when they had shown themselves any sort of compassion. Three male participants could not think of any specific examples, and provided more generalised responses including engaging in retail therapy which *“makes life more exciting”* (Ps 08, NH), or reassuring themselves when they were not feeling great. For participants who could think of responses, a sense of kindness and self-soothing featured in examples:

“it's not something that happens a lot; I'd been on benefits for about 6 months and I felt as if everything I'd done had been wrong for months and I came out the interview I really had to force myself to take a moment to be proud of myself and think that I'd done a good job and when I'm sick as well my diabetes isn't great erm, that's a time where I'm like right, just go easy on yourself and be more caring towards yourself because you're not well. So probably when I'm sick is when I'm most compassionate towards myself.” (Ps 03, SH)

Self-compassion also appeared to soothe the inner-critic for one participant:

“it's kind of giving love to the part of me that has been working really hard and it's acknowledging that and appreciating that and saying and the compassion is kind of being warm towards that and the self-critical bit might be saying you should be working, but the compassionate is bigger and saying no it's ok.” (Ps 04, NH)

Others spoke of being understanding and forgiving to themselves when they experienced thoughts they felt they shouldn't be having:

“{In response to friend's illness} you actually try not to feel pity but...your inner state is generating thoughts all the time and when they go through the filter of you know coming out through your consciousness is to do with cultural norms or ... your own character and, it, it's fine to have thoughts.” (Ps 06, SH).

Another participant portrayed an absence of self-compassion and was unable to think of any time when they had comforted themselves:

“I’m not sure that’s ever happened to be honest. I’m just like really hard on myself all the time to be honest...I’m just really unforgiving. I’m more likely to give myself a slap.” (Ps 01, SH).

6.4 Discussion

The primary aim of this study was to assess the feasibility and acceptability of a brief, single session SCM developed for this study. Overall, the SCM appeared to be acceptable to participants with and without a history of self-harm. Feedback around the SCM highlighted that internal to external focus shift during the ‘focus on the breath’ was distracting rather than beneficial and this was removed. Feedback also highlighted the unfamiliar nature of compassion and the challenges directing this inward. As a result of the feedback the instructions were reworded to ‘imagine yourself being filled with’ to make it easier to engage with self-compassion.

Crucially, no participants reported negative experiences of the SCM. Previous research using a single session compassion-focussed imagery found that while half of the participants displayed increased heart rate variability and decrease in cortisol levels; indicative of feeling relaxed. Whereas for participants who had high self-criticism, the imagery had the opposite effect and they displayed reduced heart rate variability and a non-significant change in cortisol levels which may indicate that they perceived the exercise as more of a threat than a pleasant experience (Rockliff et al., 2008). Various barriers to compassion have been identified including disengaging with imagery focussed meditations due to limited visualisation abilities or the absence of a compassionate other (Naismith et al., 2019), perceiving the development of compassion as daunting and aversive (Gilbert et al., 2011). As these were key concerns during the study design, the SCM did not require visualisation or feature an identified compassionate other. In addition, the SCM directed individuals to imagine directing compassion towards others before towards themselves which may reduce barriers to compassion (Naismith et al., 2019).

We continued this approach in addressing the study’s second aim and asked participants to recall their experiences of offering compassion to others in the first instance. As

anticipated, participants were able to generate a greater number of specific memories for times they had shown compassion to another person than times they had received compassion from either another or shown it to themselves. The main themes which emerged from responses were around feeling connected to others and feelings of kindness towards others. These both feature in definitions of self-compassion (e.g. Neff 2003a,b) and echo findings from other studies (e.g. Pauley & McPherson, 2010) which explored understandings of compassion in clinical populations.

Participants found it much easier to recall where they had offered compassion to others. Responses to the compassion from others and compassion to the self were much more challenging.

There are several potential reasons for this. For instance, although it did not feature in participant responses, self-compassion may be considered self-indulgent (Neff, 2011) or perceived as a weakness (Gilbert et al., 2011) by some individuals which may have limit responses. Two male participants were unable to think of any specific examples in relation to any of the questions. This could be a result of cultural norms in which the concept of compassion does not fit with hegemonic masculinity (Kirby & Kirby, 2017). For instance, the language Ps 06 (male) uses (e.g. “two men don’t need to be that caring to each other”) doesn’t feel wholly accepting of compassion. Additionally, self-compassion may be perceived as less threatening to women than men (Smeets, Neff, Alberts and Peters, 2014). However, the abstract nature of compassion may also be a contributing factor as its’ intangible nature may make it difficult to extract examples.

Despite the abstractness of compassion, our study indicates that a SCM appears to be acceptable and safe for use with individuals with and without a history of self-harm.

6.4.1 Challenges and limitations

The study has several limitations. First and foremost, the potential for participation bias must be considered. The participants may have had an interest in compassion which could be why no one reported any negative experiences of the SCM. Similarly, although participants were asked if they experienced any barriers to the SCM they were not explicitly asked if they had experienced any negative reactions during the SCM. Additionally, participants were asked to describe their experiences of compassion in relation to self and others, however, the study presented a good opportunity to explore barriers to self-compassion which was not utilised. To fully understand this complex

construct future studies may wish to explore any negative conceptions or experiences associated with compassion.

In spite of recruiting a small sample, initially the recruitment proved challenging, particularly for males. For instance, six individuals did not attend their appointment for the study and of these five were male. As discussed above, the misconceptions and intangible nature of compassion may have contributed to the recruitment difficulties. However, recruitment improved following re-wording of the study advert to have less emphasis on compassion after a male participant fed back that the advert sounded “hippy”.

In light of the fact that the aim of this study was to assess the feasibility and acceptability of a brief SCM in people with a history of self-harm, the research may have benefited from a greater focus on patient and public involvement (PPI) in the development of the study and the SCM. For instance, studies which have included PPI have been found to increase participant uptake in clinical trials (Crocker et al., 2018). Indeed, it is possible that recruitment challenges could have been minimised by employing appropriate PPI involvement. Future studies may benefit greatly from including PPI as standard throughout all stages of study development and execution.

Despite the limitations of the study, feedback from participants indicated that they found the SCM acceptable and the VAS scores showed signals of change across self-compassion and self-criticism indicating that piloting the SCM in a larger sample was warranted.

Participant feedback was incorporated in the SCM, and the following chapter presents the study piloting the SCM to investigate mechanisms involved in autobiographical memory recall.

Chapter 7 Self-compassion, autobiographical memory and self-harm

Background: Overgeneral memory (OGM) can lead to difficulties in emotional regulation, has been repeatedly observed in clinically depressed adults and is associated with increased suicide risk. Interventions, such as mindfulness, have shown promise in improving recall specificity. One important component of mindfulness-based interventions is self-compassion. As a result, this study aimed to pilot the use of a brief self-compassion exercise explore the relationship between self-compassion and autobiographical memory and self-harm.

Method: Participants with [self-harm group] or without a lifetime history of self-harm [control group] were recruited to an experimental study designed to test whether a self-compassion or relaxation exercise could be used to explore autobiographical memory to explore the underlying mechanisms of autobiographical memory. All participants completed the Autobiographical Memory Test (AMT) before and after a negative mood induction (NMI). Following this, those in the self-harm group were randomised to either a relaxation (PMR) or self-compassion (SCM) exercise. The AMT was re-administered following this.

Results: Sixty-one individuals participated in the study (20 control group, and 41 self-harm group). During AMT Time 1, significantly higher levels of negative OGM were observed in the self-harm group compared to the control group. Following NMI there was an increased latency to recall of specific memories across the whole sample. Following PMR and SCM, a main effect was observed in recall latency to negative cues; specifically, there were non-significant decreases following the SCM and increases following the PMR. Additionally, although non-significant, increases in specific memories were observed following the SCM while no change was observed in the PMR group. Mediation models testing the role of self-compassion in the relationship between OGM and suicidal ideation indicated that overall self-compassion, mindfulness, self-judgment, isolation and over-identification with thoughts subscales all mediated this relationship. Comparing measures of self-compassion and self-criticism indicated significant divergence between the constructs.

Conclusions: Although a high proportion of the findings were non-significant, opposing trends in the data were observed for the PMR and SCM. This may indicate that these exercises operate differentially within autobiographical memory and suggest that exercises such as the SCM and PMR could be used to increase our understanding of OGM, and potentially, how to ameliorate it.

7.1 Introduction

Suicide and self-harm are the result of a complex interplay of social, clinical, cultural, developmental and psychological factors that accumulate in such a way that an individual considers self-harm or suicide to be a viable option (O'Connor & Portzky, 2018). In recent decades, psychological factors have attracted a lot of research attention. It is well established that certain individual differences factors (e.g. social support, resilience and self-esteem) can provide individuals with some protection against the impact of stressful life events whilst others (such as high levels of perfectionism, self-criticism, and impaired problem-solving) contribute to the aetiology and course of psychological distress and suicide risk (O'Connor & Nock, 2014). Although there have been considerable advances in our understanding of the psychology of self-harm and suicide risk, there are, still many gaps in our knowledge with respect to how different risk factors interact. Therefore, in the present study we focus on two important risk and resilience factors. The first, overgeneral autobiographical memory (OGM) is important as it has been implicated in impaired social problem solving (Dudai & Carruthers, 2005; Williams & Broadbent, 1986) and can lead to difficulties in emotional regulation (Williams, 1996). OGM has been observed as a risk-marker for depression in adolescents (Young, Bellgowa, Bodurka, & Drevets, 2013) and is repeatedly observed in clinically depressed adults (Van Vreeswijk & De Wilde, 2004; Williams et al., 2007) and is associated with suicide risk (Kaviani, Rahimi, & Naghavi, 2004). The second, self-compassion, has been associated with lower levels of depression, anxiety and stress in both adolescent (Marsh, Chan, & MacBeth, 2018) and adult populations (MacBeth & Gumley, 2012). Although both of these factors have been studied independently, they have rarely been studied together. Consequently, this study aimed to investigate the nature of the relationship between self-compassion, autobiographical memory and self-harm (regardless of intent).

7.1.1 Autobiographical memory

Autobiographical memories contain personal episodic (e.g. the first time we ever rode a bike) and semantic (our knowledge about our world) memories. Consequently, autobiographical memories also fulfil a crucial role in problem solving (Williams, 1996) as replaying, reflecting on and relating past events to current situations shapes how we respond to daily problems and stressful life events (Fivush, 2011). Specific autobiographical memories are particularly useful in problem solving as they contain detailed recollections of singular, specific events (e.g., when I took the dog for a walk

yesterday). Conversely, the challenge with OGM, is that they omit the depth of information that specific memories contain, in that the memories tend to lack details of when or where. OGM then, are more likely to essentially provide an overview of events from the past, they are extended memories (e.g., when I was on holiday), or groups of events which happened repeatedly (categorical memories; e.g., every time I walk the dog). One's ability to effectively recall autobiographical memories can be indicative of psychological health and studies have consistently observed OGM in individuals with depression, hopelessness and suicidality (Van Vreeswijk & De Wilde, 2004; Williams, 1996). One theory is that OGM recall has a role in emotion regulation as it enables the avoidance of specific painful memories (Henderson, Hargreaves, Gregory, & Williams, 2002). However, subsequent studies have highlighted that OGM recall is not discriminant and does not only affect painful memories, but affects all specific recollections including positive memories (Van Vreeswijk & De Wilde, 2004). By impeding the recollection of specific details from past experiences, the particulars of positive experiences are not available to be used as references for effective coping strategies (Williams et al., 2007), leading to impaired problem solving (Dudai & Carruthers, 2005; Williams & Broadbent, 1986) and reducing the availability of coping strategies (Williams et al., 2007). The presence of OGM is also posited to bias the valence of available memories, leading to an over-representation of negative memories (Williams & Broadbent, 1986), consequently OGM recall is now a recognised risk factor for suicidality (e.g. Kaviani et al., 2004). One hypothesis is that in the period leading up to an individual attempting suicide they experience an increase in OGM which in turn, reduces the accessibility of coping strategies and may bias the valence of memories they can access leading to an over representation of negative memories, greater feelings of burdensomeness and feelings of entrapment (Williams & Broadbent, 1986). As discussed in Chapter 1, due to its pernicious relationship with depression and suicidal ideation, OGM has been placed as a 'threat- to- self' moderator in the IMV (O'Connor, 2011).

Williams, Barnhofer, Crane, Hermans, Raes, Watkins & Dalgleish (2007) proposed the Car-FA-X model to encapsulate 3 pathways that may contribute to the development of OGM: 1) Capture and Rumination (CAR) (defined as negative self-beliefs that capture a person and lead to rumination); 2) Functional Avoidance (FA) (defined as avoiding painful memories to reduce emotional distress. This is reinforced by repetition and subsequently this generalises to other memories); 3) Impairment in Executive Control (X) (defined as an impairment in one's ability to maintain working memory and prevent irrelevant information interfering with memories). It is argued that individuals

experiencing depression may be captured early on in memory retrieval by negative self-beliefs, which leads to rumination; activation of these memories strengthens the connection to the memory, making them more accessible next time (Williams et al., 2007). Through minimising details in memories, OGM may provide a buffer from the distress associated with the recollections. In addition, impaired executive control may reduce the individual's ability to focus on the specific memory retrieval, and reduce their ability to prevent unrelated ideas interfering with specific memories (Dalgleish et al., 2007).

7.1.2 Assessing autobiographical memory

In their seminal study, Williams and Broadbent (1986) developed the Autobiographical Memory Task (AMT) to assess autobiographical memory in individuals experiencing depression or who had self-harmed. During the task participants were shown positively (e.g., interested, happy) or negatively (e.g., angry, lonely) valenced cue words individually and asked to tell the researcher a specific memory related to the word within a 60 second time limit. They discovered that individuals who were depressed or suicidal provided more OGM and less specific memories than controls with no mood disorder. This finding has been replicated by subsequent studies and increased OGM recall has been observed across a range of clinical populations including individuals diagnosed with eating disorders, post-traumatic stress (McNally, Lasko, Macklin & Pitman, 1995) and emotionally unstable personality disorder (Dritschel & Williams, 1988; Kuyken, Howell, & Dalgleish, 2006).

7.1.2.1 Manipulating memory biases

Due to the interplay between emotional state and memory specificity, studies have induced temporary mood states in order to explore the mechanisms underlying OGM. Negative mood induction (NMI) tasks have repeatedly been found to be effective at reducing memory specificity in both non-clinical (Au Yeung, Dalgleish, Golden, & Schartau, 2006; Maccallum, McConkey, Bryant, & Barnier, 2000) and clinical populations (Begovic et al., 2017). Given the pernicious association between OGM and depression, mood inductions present researchers with the opportunity to try to 'reverse' overgenerality. Watkins and colleagues (Watkins, Teasdale, & Williams, 2000) recruited a sample of depressed participants and compared which of two mood inductions could reduce levels of OGM. The authors compared a rumination task (focussing on symptoms,

emotions and self) to a distraction condition (focussing on objects external to self). Participants within each mood induction were then randomised to receive either a decentring task (nine Socratic questions highlighting the transience of mood states; each question was scrambled and included an additional word) or a control task (nine control questions; each question was scrambled and included an additional word). The authors found that the distraction task reduced OGM whilst the rumination task did not. In the second phase, the decentring task was found to reduce the number of OGM participants generated and this was independent of the mood induction received. These results suggest that recall can be influenced by cognitive state at time of recall and that OGM recall is malleable by even brief experimental measures.

7.1.3 Self-compassion

As discussed in Chapter 1, self-compassion has been described as a balance of six components: self-kindness and self-judgement; common humanity and feelings of isolation; mindfulness and overidentification with thoughts (Neff, 2003ab).

Self-kindness entails extending unconditional support, understanding and warmth to the self, rather than being critical or judging the self harshly in the face of shortcomings. Common humanity is feeling connected to others through the recognition that our experiences, imperfections and failures are all part of the shared human experience, rather than feeling isolated by one's experiences. To do this, the individual requires a mindful approach to their experiences. That is, a non-judgemental, balanced awareness of their thoughts in the present; neither ignoring nor ruminating on aspects of oneself or experience.

These elements interact to create a self-compassionate mind set (Neff, 2003; Barnard & Curry, 2011). For instance, feeling connected to others may reduce feelings of isolation and lead to individuals feeling more positive about themselves. The presence of self-compassion has been associated with lower levels of psychological distress including depression, anxiety (MacBeth & Gumley, 2012), suicidal ideation and self-harm (Cleare, Gumley, & O'Connor, 2019). Compassion can be developed through meditations, and the development of compassion is associated with reductions in negative emotions such as shame and self-criticism (Gilbert & Procter, 2006), reductions in symptoms of physical illness and higher social support and higher life purpose (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008).

Although the research is limited, some research has found that single session compassion exercises reduce negative emotions (Arimitsu & Hofmann, 2017), raise mood and increase positivity towards self others (Hutcherson, Seppala, & Gross, 2008) which may indicate that single session compassion tasks may be useful to explore mechanisms underlying OGM.

As yet, the relationship between self-compassion, autobiographical memory and self-harm have not been investigated. In terms of the Car-FA-X model (Williams et al., 2007), self-compassion, has been shown to reduce feelings of shame and self-criticism (Gilbert et al., 2006) and help people tolerate difficult emotions (Gilbert, 2017; Klimecki, Leiberg, Ricard, & Singer, 2014; Leiberg, Klimecki, & Singer, 2011) which may reduce the likelihood of the individual being caught up in the capture and rumination phase (CAR). The mindful aspect of compassion may reduce the functional avoidance of OGM (FA).

7.2 The Present study

The current chapter extends on Chapter 6 by piloting the utility of the brief self-compassion exercise (SCM) compared to a progressive muscle relaxation exercise (PMR) as a means of exploring the mechanisms underlying OGM. In this study, we also explored the impact of a negative mood induction on autobiographical memory recall and self-compassion in people with and without a history of self-harm. Specifically, based on the previous research, the study tested the following hypotheses.

7.2.2 Research aims and hypotheses

1. To investigate the relationship between self-compassion and autobiographical memory recall.

Hypothesis 1 (H1): Post negative mood induction, participants with a history of self-harm will report increased OGM recall compared to controls.

Hypothesis 2 (H2): Following SCM or PMR, the SCM group will report significant increases in self-compassion compared to the PMR group

Hypothesis 3 (H3): Self-compassion practice will affect the length of time taken to recall memories. Given this is an experimental hypothesis, we are not setting a direction.

Hypothesis 4 (H4): Self-compassion practice will reduce the number of OGM.

Hypothesis 5 (H5): Self-compassion (measured on Self-Compassion Scale [SCS] Neff, 2003ab) will mediate the relationship between autobiographical memory recall and suicidal ideation.

2. To investigate the relationship between self-compassion, suicidal ideation and self-harm.

Hypothesis 6 (H6): Self-compassion will differentiate between individuals with a history of self-harm and those without.

3. To explore the nature of self-compassion.

Hypothesis 7 (H7): Self-compassion will demonstrate divergence from criticism.

7.3 Method

7.3.2 Participants

Sixty-one participants took part in the study; 20 participants (males $n= 10$, 50%; females $n= 10$, 50%) had no history of mental health problems (control group) and 41 (males $n= 21$, 52%; females $n= 20$, 48%) had a lifetime history of at least one episode of self-harm (self-harm group). We employed the NICE (2012) definition of self-harm as “self-injury or self-poisoning irrespective of the apparent purpose of the act”. The sample had a mean age of 28.4 ($SD= 9.5$) years old, and the age range was 18- 54. The sample was predominantly White ($n= 49$, 80.3%). As gender differences are often apparent in the self-compassion literature (Neff, 2003b) we endeavoured to stratify the groups by gender.

7.3.3 Procedure

This is a cross-sectional, experimental study. Prior to conducting the study ethical approval was obtained from the University of Glasgow College of Medical Veterinary Life Sciences Ethics committee (Ref 200150016; Appendix B). The study was advertised on the website Gumtree, social media and emails advertising the study were sent to postgraduate student courses within University of Glasgow (see Appendix C for advert). After responding to the advert, the researcher contacted all prospective participants and explained the study in full. A purposive sampling method was employed to ensure the groups were balanced by gender and that participants met the inclusion criteria for the groups. Specifically participants were eligible to take part if they had ever self-harmed (regardless of intent), or in the control group, that they had no history of any mental health problems.

Participants attended a 1.5 hour appointment at the SBRL Health Lab at Gartnavel Royal Hospital. Participants were provided with written and oral information about the study and all participants provided written informed consent to take part. Permission was sought from participants to audio record the experimental section (AMT and SCM/PMR) of the appointment. AMT responses were transcribed and transcripts were anonymised.

During the Lab visit (see Figure 7.1 for study procedure) participants completed the self-report questionnaires and mental health history. Additionally, they completed the baseline assessment of their mood states (VAS T1) along with the first part of the AMT (AMT T1). All participants then completed the NMI, immediately followed by the second VAS (VAS T2) and AMT (AMT T2). The control group were then debriefed regarding the study aims and viewed a 10-minute positive mood induction (PMI). Those in the self-harm group were randomised to either self-compassion (SCM) or relaxation (PMR) practice before completing the final VAS (VAS T3) and AMT (AMT T3), and finally, debriefed.

It was emphasised that participation was voluntary and that participants could stop the study at any time without giving a reason. During the debrief, suicide risk assessments were completed with the self-harm group and all participants were provided with a support sheet containing information regarding support websites and telephone lines (see Appendix F).

Participants were compensated £15 for taking part in the appointment.

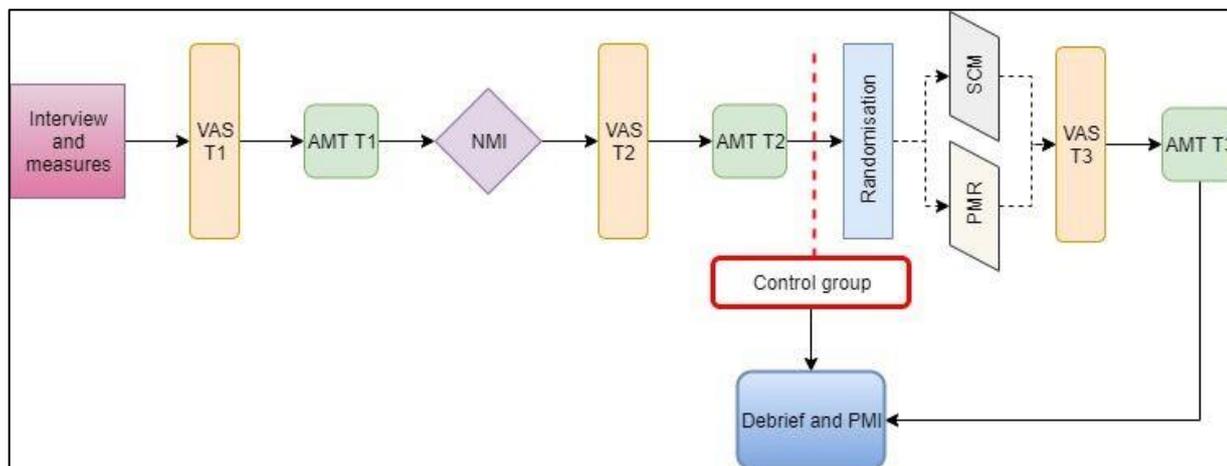


Figure 7.1 Full study procedure diagram

Note: VAS= Visual analogue scale; AMT= Autobiographical Memory Task; NMI= Negative Mood Induction; PMR= Progressive Muscle Relaxation; SCM= Self-compassion exercise; PMI= Positive Mood Induction

7.3.4 Measures

The following participant characteristics were recorded: age, gender, ethnicity, marital status, student status, and previous mindfulness and meditation experience.

7.3.4.1 Psychological Wellbeing Measures

Self-harm. Self-harm history was assessed using items taken from the British Psychiatric Morbidity Survey (Nicholson, Jenkins & Meltzer, 2009) and the Child and Adolescent Self-harm in Europe Survey (Madge et al., 2008). Participants were asked the following 4 questions: “Have you ever seriously thought of taking your life, but not actually attempted to do so?”; “Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way?”; “Have you ever seriously thought about trying to deliberately harm yourself but not with the intention of killing yourself but not actually done so?”; “Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself (i.e., self-harm)?” A positive response to any of the questions was followed up with questions about when this last occurred, frequency and age of first thought/attempt.

Mental Health. Lifetime mental health was recorded using the following: “Have you ever experienced XX (e.g. depression/ anxiety)? If yes, have you ever received a diagnosis of XX (e.g. depression/ anxiety)?” Conditions assessed included depression, anxiety and bipolar disorder. Full details can be found in Chapter 3; Methodology. Participants were also asked to describe lifetime treatment they had received for mental health conditions, including medication, psychological treatment or hospitalisation.

Suicidal ideation. The 8-item suicidal ideation subscale of the Suicide Probability Scale (SPS; Cull & Gill, 1988) was used to assess recent thoughts around suicide. The scale showed high reliability (Cronbach $\alpha = .92$).

Depressive symptoms. The Centre for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977) was used to assess the presence of recent depressive symptoms. Internal consistency was high in the current study (Cronbach $\alpha = .95$).

4.4.2.1 Factors associated with Psychological Wellbeing

Self-compassion. The Self-Compassion Scale (SCS; Neff, 2003a, b) was used to assess self-compassion. In the current study, the overall SCS demonstrated high internal consistency ($\alpha = .93$) and the subscales ranged from $\alpha = .76$ to $.89$.

Mindfulness. Mindfulness was assessed via the Five Facet Mindfulness Questionnaire-short form (FFMQ-SF; Bohlmeijer, Klooster, Fledderus, Veehof and Baer, 2011). Reliability was good in our sample (overall $\alpha = .82$; subscales from $\alpha = .75$ to $.85$ this study).

Self-criticism/reassurance. The Forms of Self-Criticising/Attacking & Self-Reassuring Scale (FSCRS; Gilbert, Clark, Hempel, Miles, and Irons, 2004) was used to assess two aspects of self-criticism (feelings of personal inadequacies and self-hate) and the ability to reassure self. Reliability for the overall scale was adequate ($\alpha = .61$), but reliability for the subscales was good ($\alpha = .85$ hated self; $\alpha = .91$ for reassured self and insecure self).

Fear of self-compassion. The Fear of Self-Compassion subscale (Fear of Compassion scales; Gilbert, McEwan, Matos and Ravis, 2011) was used to measure concerns around self-compassion. It was found to have high reliability in our sample ($\alpha = .94$).

Submissive Compassion. Motivations for compassion were measured via the Submissive Compassion Scale (Catarino, Gilbert, McEwan and Baiao, 2014). The scale showed good reliability in our sample (Cronbach $\alpha = .89$).

7.3.5 Experimental measures

Visual Analogue Scales. Six 100mm Visual Analogue Scales (VAS) were used as a manipulation check at various time points throughout the study (see Figure 7.1). “At

this moment I feel...” happy, sad, self-compassionate, self-critical, relaxed and tense. Responses were anchored on a scale of not at all to extremely (anchoring scale consistent Johnson, Gooding and Tarrier, 2008).

7.3.5.1 Negative Mood Induction (NMI) Paradigm

Negative mood was induced using a 10-minute Velten mood induction (Velten, 1968) following the first part of the AMT. Participants were presented with a series of negative statements (e.g. “I just can’t make up my mind; It’s so hard to make simple decisions; I’ve doubted that I’m a worthwhile person”) and instructed to imagine “how you would feel if found yourself saying each of them to a close friend”. The statements were accompanied by “Russia under the Mongolia Yoke” by Prokofiev played at half speed. This procedure is similar to those used in studies producing evidence for mood-activated psychological processes in depression (see Clark, Beck, & Alford, 1999) and prior studies involving participants with varied suicide histories (Williams et al., 2005, 2008; Cha et al, 2018).

7.3.5.2 Autobiographical Memory Task

This study used a well-tested version of Williams and Broadbent’s (1986) Autobiographical Memory Task (AMT). Participants were presented with 6 words at each time point. Prior to the study commencing, the words had been randomised into 4 orders via an online randomiser (Research Randomizer; Urbaniak & Plous, 2013), and participants were then randomised to receive one of the 4 orders. Words were presented one at a time to participants on a computer screen and the word spoken by the experimenter. Participants were requested to recall a specific and personal memory in response to positive (happy, smile, interested, excited, pleased, hopeful, joyful, friendly, eager) and negative (hopeless, sad, failure, rejected, grief, defeated, angry, lonely) cue words within a 30 second time limit. In line with Williams and Dirtschel’s (1992) coding, memories were then coded as specific; a memory of an event or incident which occurred within a 24 hour window (e.g., excited: “I was excited when we arrived at our hotel the first day of our holiday”), overgeneral; a memory of an event which occurred over an extended period of time or a generalised event (e.g., excited: “I’m always excited when I’m on holiday”). Additionally, we recorded ‘no responses’ for when participants were unable to recall any memory. With participant’s permission, the AMT was audio recorded and transcribed verbatim. To establish interrater reliability an

external rater; trained in AMT procedures, independently rated a subset (25%) of the anonymised and blinded transcripts. Kappa statistic was subsequently performed to determine consistency among raters and showed Kappa= .79 ($p < 0.01$) substantial agreement.

7.3.5.3 Self-compassion and relaxation exercises

Prior to the start of study recruitment an online randomisation programme (Research Randomizer; Urbaniak & Plous, 2013) was used to generate an allocation list for the relaxation or self-compassion exercise. To reduce the potential for experimenter bias, randomisations were sealed into envelopes and opened at the end of AMT T2.

7.3.5.4 Self-compassion exercise

A brief self-compassion exercise (SCM) developed for this study (see Chapter 6 for development and feasibility study) was used as the self-compassion condition. The practice was based around the components of compassion (warmth, kindness, openness, curiosity, strength and courage). It began by asking participants to focus on their breathing and then invited participants to explore different components of compassion.

7.3.5.5 Relaxation exercise

A progressive muscle relaxation (PMR) exercise was used as the control condition. During this exercise the experimenter asked participants to tense and release individual muscle groups to induce physical relaxation. PMR is widely used within various psychological therapies (Carr & McNulty, 2006) and is an effective relaxation technique (McCallie, Blum & Hood, 2006) and the exercise we used was a freely available resource (www.therapistaid.com/therapy-worksheet/progressive-muscle-relaxation-script) from a resource website for mental health professionals.

7.3.5.6 Positive mood induction

To diffuse any residual negative affect following negative mood inductions (e.g., Clark & Teasdale, 1983; Frost & Green, 1982), all participants viewed a 10-minute positive mood induction to conclude their lab visit. Participants viewed a selection of amusing

short videos immediately before debriefing. The positive mood induction has been used in other research in the Suicidal Behaviour Research lab.

7.3.6 Statistical analysis

All statistical analyses were conducted using SPSS v.24 (IBM Corp., Armonk, NY). Mediations were tested using Hayes (2016) PROCESS macro for SPSS. The macro uses regressions to test direct and indirect effects of variables within models. Additionally, the macro applies bootstrapping (10,000 resamples were used), making the analysis more representative of the population.

Due to the exploratory nature of the study a p-value of $<.05$ was maintained in all analyses. Although this is an area of considerable debate in experimental studies when multiple analyses are conducted (Rubin, 2017), this level was maintained to allow detection of possible signals in the data. Similarly, the multivariate models are presented without and with covarying depressive symptoms to explore the extent to which the findings represent the effect of these well-established risk factors.

7.3.6.1 Missing data

A missing values analysis was conducted for all variables. There is no consensus around what percentage of missing data are acceptable, consequently, following a research team meeting, a cut off of 80% was agreed upon as an appropriate cut off for completeness. Scales were assessed and showed that missing data were minimal (0.14%); all participants had completed more than 80% of each measure and were therefore included in all analysis. Missing value analyses established that there was no pattern to the items missed on any of the scales. As a result, the missing data were replaced using Expectation-Maximization replacement methods.

7.3.6.2 Autobiographical Memory Task analysis

The literature is inconclusive on whether valence of cue is important in autobiographical memory recall (Van Vreeswijk & De Wilde, 2004). Subsequently, we examined recall to positive and negative cues separately as well as reporting overall recall as a single factor. In addition to latency of memory recall, as described above, we coded AMT responses in line as specific, categorical, extended, or no response.

As there is no universally agreed way to deal with non-responses and some previous studies include them as OGM, whereas others exclude them. Although our non-responses were low, including them may produce a false representation OGM (Van Vreeswijk & De Wilde, 2004), consequently we omitted non-responses from the analyses.

7.3.6.3 Analytical strategy

This section details the analyses used to address each of the hypotheses. The first aim of this exploratory study is “to investigate the relationship between self-compassion and autobiographical memory recall”, consequently both significant and non-significant findings are reported.

H1: Post negative mood induction, participants with a history of self-harm will report increased OGM recall compared to controls.

In the first instance, independent t-tests were conducted to explore if any differences existed between the groups in T1 AMT and VAS data. Paired t-tests were then conducted to assess changes any changes in mood (VAS scores) following the NMI. A series of repeated measures ANCOVAs were then run to test *H1*.

H2: Following SCM or PMR, the SCM group will report significant increases in self-compassion compared to the PMR group

H3: Self-compassion practice will affect the length of time taken to recall memories. Given this is an experimental hypothesis, we are not setting a direction.

H4: Self-compassion will reduce the number of OGM.

H5: Self-compassion (SCS) will mediate the relationship between autobiographical memory recall and suicidal ideation.

Analyses for *H2*, *H3* and *H4* were conducted within the self-harm group, comparing the PMR to SCM.

Repeated measures ANOVAs were conducted to assess *H2* to evaluate changes on VAS scores from pre- to post-practice.

To test *H3* and *H4*, a series of ANCOVA analyses (controlling for depressive symptoms) were run to investigate changes in AMT recall following PMR or SCM.

To test *H5*, the PROCESS macro (Hayes, 2016) was used to test a series of mediation analyses on the whole sample. In the first instance, a series of linear regressions were conducted to establish whether AMT and self-compassion were related to suicidal ideation.

H6: Self-compassion will differentiate between individuals with a history of self-harm and those without.

The analyses for *H6* was conducted using the whole sample.

A series of univariate binary logistic regressions were conducted to explore which demographic and psychosocial variables differentiated between the self-harm and control groups. Variables which differentiated between the groups univariately were included in a multivariate binary logistic regression to establish which variables differentiated between the groups when other variables were controlled for.

H7: Self-compassion will demonstrate divergence from self-criticism

Bland-Altman plots (Bland & Altman, 1986) were conducted to test the relationship between self-criticism and self-compassion. These scatter plots are used to display differences between measurements. Single sample *t*-tests are conducted on the mean difference between two measures to assess the amount of variance between the scores, then, in cases where measures are related, a linear regression is then conducted to assess the degree of proportional bias between the measures.

7.4 Results

The results section is organised around the study hypotheses and aims.

Prior to addressing the study hypotheses, univariate binary logistic regressions were conducted to explore whether the no history (control) and self-harm group differed on any demographic characteristics. Full demographic characteristics of the sample and differences between the groups are provided in Table 7.1 (below).

Table 7.1. Descriptive statistics and univariate binary logistic regression analyses comparing control group vs. self-harm group on demographic variables.

Demographic variable	Total n= 61 n (%)	Control n= 20 n (%)	Self-harm n= 41 n (%)	OR	95% CI		p value
					Lower	Upper	
Age M (SD)	28.4 (9.5)	26.75 (8.72)	30.05 (9.86)	1.04	.98	1.11	.21
Gender							
Male	31 (51.6)	10 (50)	21 (51.2)	1.05	.36	3.06	.93
Female	30 (49.4)	10 (50)	20 (48.8)				
Sexual Orientation							
Heterosexual	48 (78.7)	19 (95)	29 (70.7)	.13	.02	1.06	.06
Gay/Lesbian/Bisexual/Pansexual	13 (21.3)	1 (5)	12 (29.3)				
Ethnicity							
White Background	49 (80.3)	18 (90)	31 (75.6)	.34	.07	1.75	.20
Other Background	12 (19.7)	2 (10)	10 (24.4)				
Relationship status							
Single/Not Married	37 (60.7)	13 (65)	24 (58.5)	.76	.25	2.31	.63
Relationship/Married/ Civil Partnership	24 (39.3)	7 (35)	17 (41.5)				
Education							
Student	27 (44.3)	13 (65)	14 (34.1)	3.58	1.17	11.00	.03*
Not student	34 (55.7)	7 (35)	27 (65.9)				
Religious							
Yes	16 (26.2)	6 (30)	10 (24.4)	1.33	.40	4.40	.64
No	45 (73.8)	14 (70)	31 (75.6)				
Mindfulness or meditation							
Yes	25 (41)	7 (35)	18 (43.9)	.69	.23	2.08	.51
No	36 (59)	13 (65)	23 (56.1)				
Current living situation							
Alone	11 (18)	5 (25)	6 (14.6)	.51	.14	1.95	.33
With someone	50 (82)	15 (75)	35 (85.4)				

* $p < 0.05$. Note: OR= Odds Ratio, 95% CI = 95% Confidence interval

As Table 7.1 shows, the only difference between groups was that individuals in the control group were more likely to be students ($n= 13, 65\%$) than members of the self-harm group ($n= 14, 34.1\%$; $OR= 3.58, 95\% CI= 1.17$ to $11.0, p= .03$).

7.4.2 Self-compassion and autobiographical memory recall.

This section details the analyses to address *H1*. The analyses were conducted using the whole sample and the portion of the study referred to is displayed in Figure 7.2 (below).

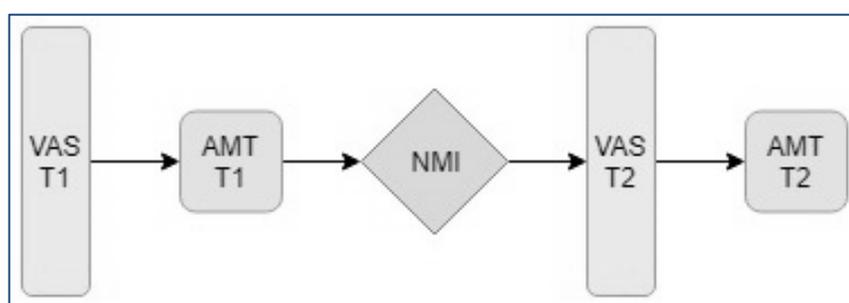


Figure 7.2. Experimental component: Impact of a negative mood induction on autobiographical memory recall Note: VAS= Visual analogue scale; AMT= Autobiographical Memory Task

Mood was assessed via a series of visual analogue scales (VAS) throughout the study. This section reports on VAS from pre (VAS T1) to post (VAS T2) NMI before discussing the autobiographical memory task.

7.4.2.1 Time 1 mood

Independent t-tests indicated that the control group reported higher levels of self-compassion (controls: $M= 56.20, SD= 27.32$; self-harm: $M= 39.56, SD= 26.42, t(60)= 2.28, p= .026$) and happiness (controls: $M= 68.50, SD= 21.23$; self-harm $M= 50.12, SD= 25.83, t(60)= 2.76, p= .008$) and lower self-criticism (controls: $M= 38.70, SD= 27.31$; self-harm: $M= 59.2, SD= 24.34, t(60)= 2.96, p= .004$) than the self-harm group. Additionally, the self-harm group reported marginally higher feelings of sadness (self-harm: $M= 30.59, SD= 29.88$; controls: $M= 18.50, SD= 19.16, t(60)= 1.91, p= .062$), higher levels of tension (self-harm: $M= 38.78, SD= 27.36$; controls: $M= 24.80, SD= 26.98, t(60)= 1.88, p= .065$) and felt less relaxed (self-harm: $M= 59.56, SD= 25.91$; controls: $M= 72.70, SD= 20.33, t(60)= 1.99, p= .052$) at T1, however, these differences were not significant.

7.4.2.2 Negative mood induction and mood

Paired samples t-tests comparing VAS T1 and VAS T2 indicated that the NMI produced changes in mood. Specifically, significant decreases were observed in feelings of self-compassion (pre: $M= 45.02$, $SD= 27.63$; post: $M= 35.16$, $SD= 27.28$) $t(60)= 3.49$, $p= .001$), happiness (pre: $M= 56.15$, $SD= 25.75$; post: $M= 36.93$, $SD= 25.86$) $t(60)= 6.79$, $p<.001$) and relaxation (pre: $M= 63.87$, $SD= 24.84$; post: $M= 47.36$, $SD= 26.69$) $t(60)= 4.58$, $p<.001$). Additionally, participants reported significantly higher levels of sadness (pre: $M= 26.62$, $SD= 27.28$; post: $M= 54.02$, $SD= 29.91$) $t(60) = 7.55$, $p<.001$) and self-criticism (pre: $M= 49.87$, $SD= 26.39$; post: $M= 59.9$, $SD= 30.06$) $t(60) = 2.34$, $p= .023$) following the NMI. There were no differences in tension pre to post (pre: $M= 34.2$, $SD= 27.81$; post: $M= 42$, $SD= 25.10$) $t(60) = .73$, $p= .471$).

7.4.2.3 Time 1 Autobiographical Memory Task

Table 7.2 displays details of the T1 AMT responses. At T1, 59.0% of responses ($n= 216$) were coded as specific. Participants in the control group ($M= 4.15$, $SD= 1.23$) recalled more specific autobiographical memories than the self-harm group ($M= 3.3$, $SD= 1.35$, $OR= .61$, $95\%CI= .39$ to $.95$, $p= .03$). Indeed, 69.2% ($n= 83$) of control group responses were specific compared to 54.1% ($n= 133$) of recollections in the self-harm group.

As the numbers of responses coded as categorical (17.5 %, $n= 64$), extended (17.8%, $n= 65$) or unclear (1.1%, $n= 4$) memories were relatively small, they were collated into an ‘overgeneral’ memories category. There were 17 incidents (4.6% controls: $n= 8$; self-harm: $n= 9$) where participants gave no response.

Participants in the self-harm group were more likely to display OGM to negative cues than the control group (self-harm: $M= 1.37$, $SD= .97$; control: $M= .65$, $SD= .75$; $OR 2.6$, $95\% CI= 1.27$ to 5.32 , $p= .009$). This remained significant after controlling for the number of specific memories ($OR= 4.13$, $95\% CI= 1.06$ to 16.13 , $p= .04$).

Univariate binary logistic regression analyses showed no differences in latency to recall between groups for any cue valence or memory type.

Table 7.2. Univariate binary logistic regression of AMT T1 features differentiating between groups.

Cue Valence	Autobiographical memory measure	Total M (SD)	Control M (SD)	Self-harm M (SD)	OR	95% CI		p value
						Lower	Upper	
Overall	No. specific memories	3.59 (1.36)	4.15 (1.23)	3.30 (1.35)	.61	.39	.95	.03*
	Latency specific memories	8.15 (3.89)	9.05 (2.00)	7.71 (4.23)	.92	.80	1.05	.21
	No. overgeneral memories	2.15 (1.42)	1.45 (1.23)	2.49 (1.4)	1.82	1.1	2.87	.01*
	Latency overgeneral memories	6.92 (4.49)	6.70 (5.32)	8.88 (5.31)	1.02	.90	1.15	.79
Positive	No. specific memories	1.85 (.87)	2.05 (.83)	1.76 (.89)	.67	.35	1.27	.22
	Latency specific memories	8.76 (4.48)	9.75 (4.69)	8.24 (4.34)	.93	.82	1.05	.23
	No. overgeneral memories	1.02 (.90)	.80 (.83)	1.12 (.93)	1.52	.81	2.87	.19
	Latency overgeneral memories	8.17 (4.81)	8.82 (4.21)	7.93 (5.06)	.96	.84	1.11	.60
Negative	No. specific memories	1.74 (.95)	2.1 (.91)	1.56 (.92)	.51	.27	.97	.04*
	Latency specific memories	7.76 (4.86)	8.84 (4.58)	7.18 (4.79)	.93	.83	1.05	.24
	No. overgeneral memories	1.13 (.96)	.65 (.75)	1.37 (.97)	2.6	1.27	5.32	.01*
	Latency overgeneral memories	8.35 (4.44)	9.90 (4.70)	7.88 (4.33)	.91	.77	1.06	.21

* $p < .05$, ** $p < .001$; Note: Latency measured in seconds (secs)

7.4.2.4 Time 2 Autobiographical Memory Task

Repeated-measures ANCOVAs (depressive symptoms controlled for) indicated that following the NMI there were no significant differences between the control and self-harm groups for the number of specific memories recalled, and no difference in OGM between the groups (see Table 7.3). There were 26 (7.1%; control $n= 12$; self-harm $n= 14$) non-responses at AMT T2.

Following the NMI, latency to recall specific memories increased significantly with the largest increases were seen in responses to positive cues. Although there was no significant interaction between group and latency, as Table 7.3 shows, the latency increase appears to be more pronounced in the control group.

Table 7.3. Repeated measures ANCOVA showing changes in Autobiographical memory pre- to post negative mood induction.

Cue Valence	Autobiographical memory measure	T1 <i>M (SD)</i>		Post NMI <i>M (SD)</i>		F (1,58)	Effect size (η^2)	<i>p</i> value
		Control	Self-harm	Control	Self-harm			
Overall	No. specific memories ¹	4.15 (1.23)	3.30 (1.35)	3.65 (1.53)	3.12 (1.38)	2.56	.42	.115
	<i>Specific memories x group</i> ²					.07	.001	.797
	Latency specific memories ¹	9.05 (2.00)	7.71 (4.23)	11.05 (3.50)	8.05 (4.09)	5.37	.085	.024*
	<i>Specific latency x group</i> ²					2.03	.005	.576
	No. overgeneral memories ¹	1.45 (1.23)	2.49 (1.4)	1.75 (1.48)	2.54 (1.45)	2.13	.035	.150
	<i>Overgeneral memories x group</i> ²					.002	.000	.967
	Latency overgeneral memories ¹	6.70 (5.32)	8.88 (5.31)	6.40 (4.52)	8.88 (5.31)	2.05	.034	.158
	<i>Overgeneral latency x group</i> ²					2.78	.046	.101
Positive	No. specific memories ¹	2.05 (.83)	1.76 (.89)	2.05 (.89)	1.54 (.95)	.28	.005	.596
	<i>Positive specific memories x group</i> ²					.51	.009	.477
	Latency specific memories ¹	9.75 (4.69)	8.24 (4.34)	11.53 (4.38)	8.92 (4.84)	6.89	.121	.011*
	<i>Specific latency x group</i> ²					.37	.007	.547
	No. overgeneral memories ¹	.80 (.83)	1.12 (.93)	.75 (.85)	1.32 (1.01)	.06	.001	.804
	<i>Overgeneral memories x group</i> ²					.45	.008	.507
	Latency overgeneral memories ¹	8.82 (4.21)	7.93 (5.06)	8.85 (3.76)	8.47 (3.48)	.07	.003	.788
	<i>Overgeneral latency x group</i> ²					.39	.125	.060
Negative	No. specific memories ¹	2.1 (.91)	1.56 (.92)	1.55 (.95)	1.63 (.94)	2.70	.045	.106
	<i>Negative specific memories x group</i> ²					1.11	.019	.297
	Latency specific memories ¹	8.84 (4.58)	7.18 (4.79)	10.59 (5.46)	8.29 (4.94)	3.22	.068	.079
	<i>Specific latency x group</i> ²					.06	.001	.813
	No. overgeneral memories ¹	.65 (.75)	1.37 (.97)	1.05 (.99)	1.22 (.85)	3.42	.056	.070
	<i>Overgeneral memories x group</i> ²					.29	.005	.594
	Latency overgeneral memories ¹	9.90 (4.70)	07.88 (4.33)	8.34 (4.38)	9.35 (6.14)	2.57	.079	.119
	<i>Overgeneral latency x group</i> ²					1.55	.048	.227

**p* < .05; Note: η^2 = Eta squared, ¹ main effect, ² two-way interaction.

7.4.2.5 Self-compassion vs. relaxation exercise

The following section addresses *H2* to *H4* and focusses on participants within the self-harm group (see Figure 7.3 for study diagram), as such, it starts with an overview of the sample.

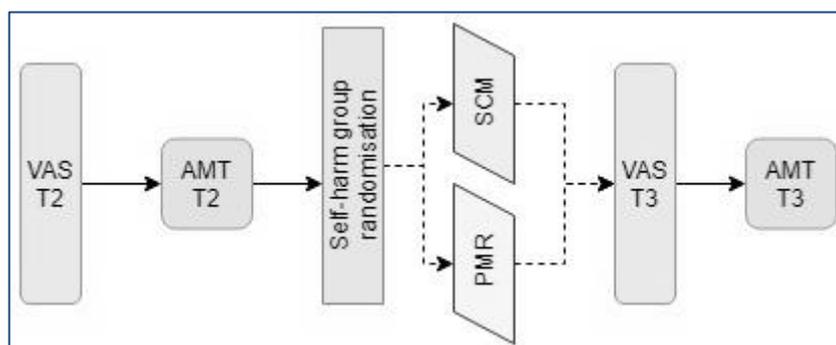


Figure 7.3. Experimental component: Exploring the utility of a self-compassion exercise on autobiographical memory recall. Note: VAS= Visual analogue scale; AMT= Autobiographical Memory Task; PMR= Progressive Muscle Relaxation; SCM= Self-compassion exercise

7.4.2.6 Self-harm group characteristics

Within the self-harm group, 17 participants (41.5%) reported a lifetime history of nonsuicidal self-injury (NSSI), 8 participants (19.5%) attempted suicide (SA) previously, and the remaining 16 participants (39%) reported both NSSI and suicide attempt (Both group) previously. In terms of self-harm episodes, the lifetime frequency ranged from 1-200 episodes. The majority of participants ($n= 26$, 63.4%) reported that they had not self-harmed in the last 12 months. Around three quarters ($n= 32$, 78%) of participants reported having at least one mental health diagnosis; while 50% of this group had been diagnosed with 2 conditions ($n= 16$), and around one third ($n= 10$, 24.4%) were diagnosed with 3 or more mental health conditions. The most common dual diagnosis was depression and anxiety ($n= 25$, 81%). Twenty-five (81%) participants were currently receiving treatment for their mental health; most frequently participants were prescribed psychotropic medication ($n= 21$, 84%) and half of these participants ($n= 10$) were in regular contact with a mental health professional for medication checks ($n= 3$) or adjunct therapy ($n= 7$). Thirteen participants had been in hospital previously for mental health conditions (31.7%); self-harm was the primary reason for attendance (lifetime attendance $n= 10$, 76.9%; attendance in last 12 months $n= 4$, 9.8%).

7.4.2.7 SCM, PMR and mood

The average duration of the SCM was 9.48 minutes (range 8.20 - 10.30 mins), while the PMR took 9.10 minutes (range 7.59 - 10.32 mins) on average.

This section addresses *H2*, investigating the effect of the PMR and SCM on mood (as rated the visual analogue scores), specifically, it compares VAS scores from after the NMI (VAS T2) to those following the PMR and SCM exercises (VAS T3). Repeated measures ANOVA's were run to compare the effect of the PMR and SCM on VAS scores. Looking at the sample as a whole, significant increases were observed for self-compassion (VAS T2: $M= 28.22$, $SD= 27.1$; VAS T3: $M= 50.83$, $SD= 27.77$, $F(1, 37)= 19.24$, $\eta^2= .34$, $p<.001$), happiness (VAS T2: $M= 28.83$, $SD= 23.73$; VAS T3: $M= 56.95$, $SD= 26.11$, $F(1, 37)= 22.90$, $\eta^2= .38$, $p<.001$) and relaxation (VAS T2: $M= 41.37$, $SD= 27.03$; VAS T3: $M= 75.51$, $SD= 21.32$, $F(1, 37)= 45.78$, $\eta^2= .55$, $p<.001$). Significant reductions in self-criticism (VAS T2: $M= 65.73$, $SD= 30.15$; VAS T3: $M= 39.61$, $SD= 26.87$, $F(1, 37)= 21.26$, $\eta^2= .37$, $p<.001$), sadness (VAS T2: $M= 60.51$, $SD= 29.38$; VAS T3: $M= 25.61$, $SD= 25.21$, $F(1, 37)= 43.40$, $\eta^2= .54$, $p<.001$) and tension (VAS T2: $M= 48.61$, $SD= 25.45$; VAS T3: $M= 20.93$, $SD= 21.07$, $F(1, 37)= 27.05$, $\eta^2= .42$, $p<.001$) were observed. Table 7.4 (below) reports the ANOVA exploring between group differences. Contrary to *H2*, there were no interactions (mood x group) between the groups and mood.

Table 7.4. Repeated measures ANOVA showing changes in visual analogue scores pre- to post negative mood induction.

VAS	Post NMI M (SD)		Post Practice M (SD)		F (1,39)	η^2	p value
	PMR	SCM	PMR	SCM			
S.comp ¹	30.95 (30.56)	25.62 (23.70)	53.40 (28.01)	48.38 (27.99)	31.92	.45	<.001
<i>S.comp x group</i> ²					.002	.00	.969
S.crit ¹	62.40 (32.19)	68.90 (28.50)	34.05 (21.18)	44.90 (26.11)	24.41	.40	<.001
<i>S.crit x group</i> ²					.18	.004	.678
Sadness ¹	54.25 (29.23)	66.48 (48.94)	17.05 (17.50)	33.76 (28.94)	62.68	.62	<.001
<i>Sadness x group</i> ²					.26	.007	.614
Happy ¹	35.45 (25.24)	22.52 (20.86)	63.90 (22.68)	50.33 (27.94)	31.55	.45	<.001
<i>Happy x group</i> ²					.004	.00	.949
Relaxed ¹	45.40 (24.09)	37.52 (29.64)	76.80 (19.04)	74.29 (23.69)	49.56	.56	<.001
<i>Relaxed x group</i> ²					.31	.008	.583
Tense ¹	50.55 (23.73)	46.76 (27.44)	16.25 (15.75)	25.38 (24.68)	40.13	.507	<.001
<i>Tense x group</i> ²					2.16	.05	.150

Note: VAS= 100mm, S.comp- Self-compassion; S.crit- Self-criticism; η^2 -effect size, ¹main effect, ²two-way interaction.

7.4.2.8 SCM, PMR and memory

During the final AMT (T3), there were 17 (6.9%) non-responses, 100 (40.7%) OGM responses and 120 (52.4%) specific responses. To address *H3* and *H4*, ANCOVAs (depressive symptoms controlled for) were conducted investigating the effect of the PMR and SCM on autobiographical memory recall. As indicated in Table 7.5 (below), there was a significant main effect for latency to recall of negative specific memories (*H3*). Specifically, the PMR took longer to recall specific negative memories, whereas there was a slight decrease in latency for those in the SCM.

Additionally, there was a significant interaction between practice group and recall latency for positive specific memories ($F(1, 38) = 4.89, \eta^2 = .149, p = .035$). There was no main effect on latency ($F(1, 38) = .84, \eta^2 = .029, p = .366$) suggesting participants responded differently depending on whether they received the SCM or PMR. Specifically, latency to recall of specific memories in response to positive cues increased following the SCM (post NMI: $M = 9.62, SD = 5.68$; post SCM: $M = 11.73, SD = 6.49$) whereas latency slightly decreased following the PMR (post NMI: $M = 8.81, SD = 4.25$; post SCM: $M = 7.25, SD = 4.67$).

There were no significant differences between the PMR or SCM on number of specific or OGM recalled for either valence or overall memories. However, the data may indicate that there was a small increase in overall specific memories in the SCM group (post NMI: $M = 3.14, SD = 1.23$; post SCM: $M = 3.19, SD = 1.78$) while there was no change in the number of specific memories produced in the PMR group (post NMI: $M = 3.10, SD = 1.55$; post SCM: $M = 3.10, SD = 1.86$). Contrary to *H4*, the number of OGM reported by SCM group appears to increase overall (post NMI: $M = 2.38, SD = 1.32$; post SCM: $M = 2.44, SD = 1.76$), and in response to positive cues (post NMI: $M = 1.19, SD = 1.08$; post SCM: $M = 1.33, SD = 1.16$). However, OGM to negative cues decreased following the SCM (post NMI: $M = 1.24, SD = .77$; post SCM: $M = 1.10, SD = 1.04$).

Table 7.5. ANCOVAS comparing AMT features between groups post negative mood induction vs. post SCM and PMR

Cue Valence	Autobiographical memory measure	Post NMI <i>M (SD)</i>		Post Practice <i>M(SD)</i>		F (1,38)	Effect size (η^2)	<i>p</i> value
		PMR	SCM	PMR	SCM			
Overall	No. specific memories ¹	3.10 (1.55)	3.14 (1.23)	3.10 (1.86)	3.19 (1.78)	1.43	.036	.239
	<i>Specific memories x group</i> ²					.55	.014	.463
	Latency specific memories ¹	7.65 (3.36)	8.43 (4.73)	9.05 (6.00)	8.24 (5.13)	1.99	.05	.166
	<i>Specific latency x group</i> ²					.03	.001	.872
	No. overgeneral memories ¹	2.7 (1.59)	2.38 (1.32)	2.50 (1.36)	2.44 (1.76)	.38	.010	.543
	<i>Overgeneral memories x group</i> ²					.004	<.001	.948
	Latency overgeneral memories ¹	8.70 (4.17)	9.05 (6.31)	10.30 (6.29)	8.57 (6.45)	.81	.021	.374
	<i>Overgeneral latency x group</i> ²					1.96	.049	.170
Positive	No. specific memories ¹	1.55 (.95)	1.52 (.98)	1.60 (.99)	1.48 (1.17)	.35	.009	.556
	<i>Specific memories x group</i> ²					.01	<.001	.907
	Latency specific memories ¹	8.81 (4.25)	9.62 (5.68)	7.25 (4.67)	11.73 (6.49)	.84	.029	.366
	<i>Specific latency x group</i> ²					4.89	.149	.035*
	No. overgeneral memories ¹	1.45 (.95)	1.19 (1.08)	1.25 (1.97)	1.33 (1.16)	.29	.007	.596
	<i>Overgeneral memories x group</i> ²					.25	.007	.618
	Latency overgeneral memories ¹	8.58 (4.15)	8.07 (3.73)	11.53 (7.07)	9.45 (6.47)	1.15	.054	.297
	<i>Overgeneral latency x group</i> ²					.13	.003	.722
Negative	No. specific memories ¹	1.65 (1.04)	1.62 (.87)	1.5 (1.1)	1.76 (1.09)	1.54	.039	.222
	<i>Specific memories x group</i> ²					2.31	.057	.137
	Latency specific memories ¹	7.60 (3.22)	9.04 (6.19)	12.53 (7.53)	8.17 (5.31)	4.43	.129	.044*
	<i>Specific latency x group</i> ²					2.39	.074	.133
	No. overgeneral memories ¹	1.20 (.95)	1.24 (.77)	1.30 (1.08)	1.10 (1.04)	1.03	.026	.316
	<i>Overgeneral memories x group</i> ²					1.48	.037	.232
	Latency overgeneral memories ¹	9.11 (5.68)	7.40 (3.89)	9.72 (5.97)	7.94 (4.17)	.20	.010	.659
	<i>Overgeneral latency x group</i> ²					4.15	.098	.049*

**p*<.05 Note: PMR- Progressive muscle relaxation; SCM- self-compassion exercise; η^2 -effect size ¹ main effect, ² two-way interaction.

7.4.2.9 Autobiographical memory and recent suicidal ideation

Logistic regressions were conducted to investigate the association between the components of AMT T1 and recent suicidal ideation in the whole sample. As Table 7.6 (below) shows, only the number of negative OGM recalled was significantly associated with recent suicidal ideation ($B= 1.76$, $OR .30$, $95\% CI= .30$ to 3.2 , $p= .02$), however, this became non-significant when depressive symptoms were included in the analysis.

Table 7.6. Logistic regression of AMT features associated with recent suicidal ideation

Cue Valence	Autobiographical memory measure	F (1,59)	R ²	B	95% CI		p value
					Lower	Upper	
Overall	No. specific memories	3.76	.06	-1.02	2.06	.03	.06
	Latency specific memories	1.30	.02	.21	-.16	.58	.26
	No. overgeneral memories	3.63	.06	.95	-.05	1.95	.06
	Latency overgeneral memories	.29	.005	.09	-.24	.41	.60
Positive	No. specific memories	.88	.02	-.78	-2.45	.89	.35
	Latency specific memories	.38	.01	.10	-.23	.44	.54
	No. overgeneral memories	.23	.004	.39	-1.23	2.01	.63
	Latency overgeneral memories	.05	-.02	.04	-.33	.41	.82
Negative	No. specific memories	3.20	.05	-1.35	-2.86	.16	.08
	Latency specific memories	.69	.006	.14	-.20	.48	.41
	No. overgeneral memories	5.81	.09	1.76	.30	3.22	.02*
	Latency overgeneral memories	.32	.02	-.12	-.26	.31	.58

* $p < .05$

To address *H5*, mediation models using model 4 of the PROCESS macro (Hayes, 2016) were conducted. The first model tested the role of overall self-compassion and is displayed in Figure 7.4. The model indicated that OGM was negatively associated with self-compassion ($\beta= -7.042$, $t= -2.560$, $95\% CI= -12.546$ to -1.538 , $p= .013$) and self-compassion was negatively associated with suicidal ideation ($\beta= -.149$, $t= -5.155$, $95\% CI= -.207$ to $-.091$, $p < .001$). When self-compassion was included in the model, the direct relationship between negative OGM and suicidal ideation became non-significant ($\beta= .712$, $t= 1.108$, $95\% CI= -.575$ to 1.999 , $p= .273$), indicating that self-compassion mediated this relationship ($\beta = 1.048$, $SE= .059$, $95\% CI= .375$ to 1.869).

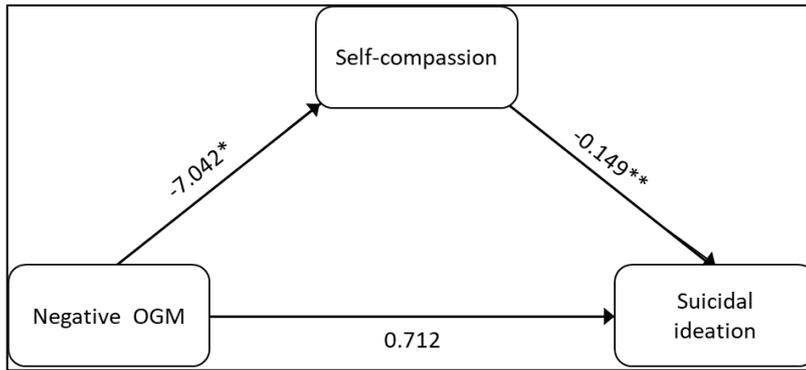


Figure 7.4. Mediation analysis of self-compassion in the relationship between overgeneral negative memory recall and suicidal ideation (n= 41). Note: ** $p < .001$, * $p < .05$; OGM= Overgeneral memory recall

Further mediation models were conducted to explore the role of self-compassion subscales on the negative OGM - suicidal ideation relationship. As detailed in the panels in Figure 7.5 neither self-kindness (Panel C; $\beta = .573$, $SE = .384$, 95% CI= $-.086$ to 1.426) nor common humanity (Panel E; $\beta = .149$, $SE = .232$, 95% CI= $-.215$ to $.719$) mediated this relationship.

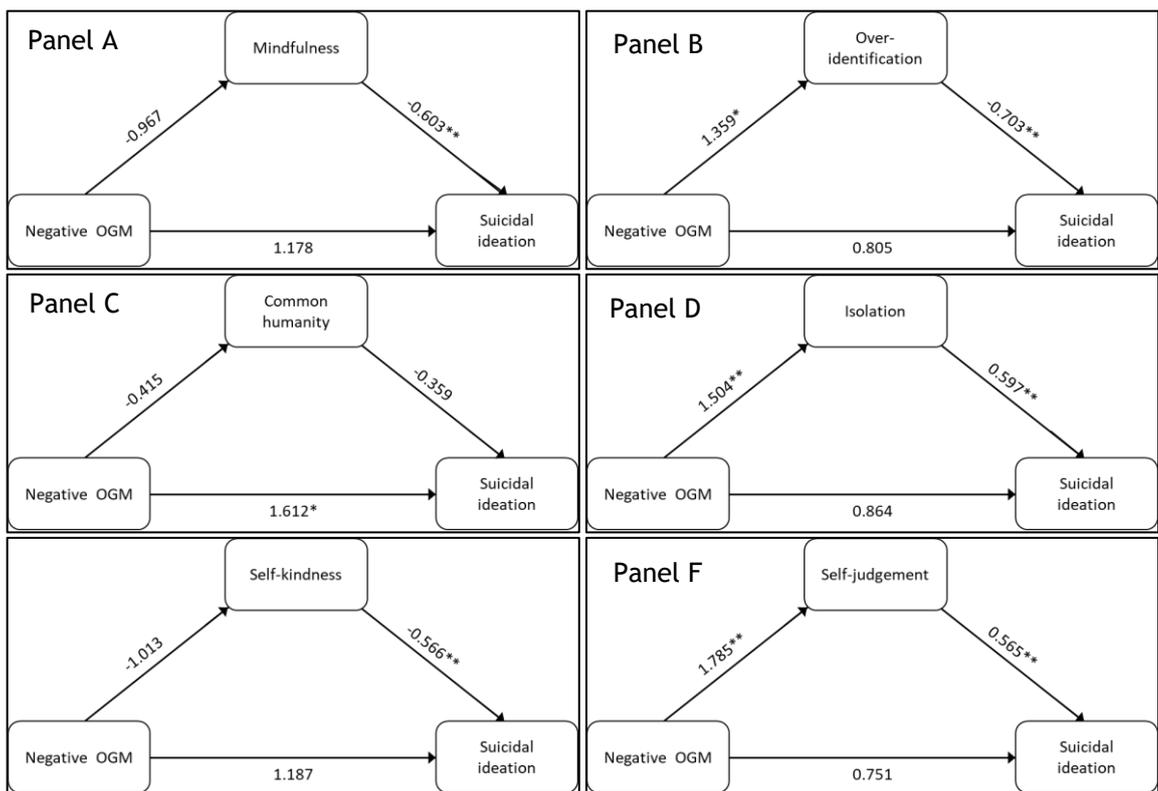


Figure 7.5. Mediation analysis of self-compassion subscales in the relationship between overgeneral negative memory recall and suicidal ideation (n= 41). Note: * $p < .05$, ** $p < .01$; OGM= Overgeneral memory recall

As indicated in panel A, mindfulness had a mediating role in this relationship ($\beta = .583$, $SE = .064$, 95% CI= $.005$ to $.216$). Within this model OGM and mindfulness were negatively associated, and this relationship was approaching significance ($\beta = -.967$, $t = -1.980$, 95%

CI= -1.944 to .010, $p = .052$). Mindfulness and suicidal ideation were significantly, negatively associated ($\beta = -.603$, $t = -3.352$, 95% CI= -.963 to -.243, $p = .001$). Including mindfulness in the model reduced the direct relationship between OGM and suicidal ideation to non-significant ($\beta = 1.178$, $t = 1.691$, 95% CI= -.216 to 2.572, $p = .096$).

Similarly, all the negative subscales mediated the relationship. OGM and over-identification with thoughts (Panel B) were significantly associated ($\beta = 1.359$, $t = 2.511$, 95% CI= .276 to 2.442, $p = .014$). In turn, over-identification with thoughts was significantly associated with suicidal ideation ($\beta = .703$, $t = 4.646$, 95% CI= -.400 to -1.006., $p < .001$) and mediated the OGM - suicidal ideation relationship ($\beta = .955$, SE= .419, 95% CI= .260 to 1.894) such that its inclusion reduced the association to non-significant levels ($\beta = .805$, $t = 1.122$, 95% CI= -.519 to 2.130., $p = .228$).

In the fourth model (Panel D), isolation was associated with both OGM ($\beta = 1.504$, $t = 2.672$, 95% CI= .378 to 2.630, $p = .009$) and suicidal ideation ($\beta = .597$, $t = 3.946$, 95% CI= .294 to .900, $p < .001$). Isolation mediated the OGM - suicidal ideation relationship ($\beta = .898$, SE= .368, 95% CI= .274 to 1.704) and reduced the association to non-significant levels ($\beta = .862$, $t = 1.245$, 95% CI= -.524 to 2.249, $p = .218$).

OGM and self-judgement were significantly associated ($\beta = 1.785$, $t = 2.716$, 95% CI= .470 to 3.100, $p = .008$), and self-judgement was significantly associated with suicidal ideation ($\beta = .565$, $t = 4.500$, 95% CI= -.314 to -.817, $p < .001$). Self-judgment mediated the OGM - suicidal ideation association ($\beta = 1.009$, SE= .361, 95% CI= .400 to 1.811) and reduced the association to non-significant levels ($\beta = .751$, $t = .126$, 95% CI= .314 to .817, $p = .269$). However, depressive symptoms are not included in these analyses as they rendered all mediations non-significant.

7.4.3 Self-compassion and self-harm

The current section addresses *H6*. Subsequently, it explores the differences between the control and self-harm groups on the psychological measures. Univariate binary logistic regressions exploring differences between the control group and the self-harm group are reported in Table 7.7. The self-harm group reporting higher levels of

depressive symptoms, self-criticism, fears of compassion, recent suicidal ideation and lower levels of mindfulness and self-compassion than the control group.

Table 7.7. Univariate binary logistic regression analyses of psychological measures differentiating between control and self-harm group.

Predictor	Total M (SD)	Control M (SD)	Self-harm M (SD)	OR	95% CI		p value	
					Lower	Upper		
Self-criticism	Dep	22.89 (14.79)	12.65 (10.71)	27.88 (13.99)	1.09	1.04	1.15	.001**
	SI	5.03 (5.63)	1 (1.3)	7 (5.9)	7.79	1.26	2.55	.001**
	T	44.13 (9.53)	39.7 (8.7)	46.3 (9.2)	1.09	1.02	1.16	.013*
	IS	18.82 (8.55)	13.7 (7.87)	21.32 (7.79)	1.12	1.04	1.21	.002**
	RS	10.59 (5.94)	15.26 (4.56)	8.31 (5.18)	.76	.65	.88	.001**
	HS	5.85 (4.72)	2.16 (2.19)	7.56 (4.62)	1.5	1.19	1.88	.001**
Self-compassion	T	68.25 (21.3)	82.8 (19.23)	61.15 (18.66)	.94	.91	.98	.001**
	SK	12.1 (5)	14.35 (4.72)	10.98 (4.79)	.86	.77	.98	.018*
	SJ	17.7 (5.1)	14.6 (4.78)	19.3 (4.58)	1.22	1.08	1.39	.002**
	CH	11.1 (3.7)	12.7 (3.13)	10.32 (3.8)	.83	.71	.98	.02*
	ISO	13.3 (4.4)	10.35 (4.43)	14.73 (3.61)	1.31	1.12	1.53	.001**
	MFN	11.6 (3.7)	13.55 (3.02)	10.71 (3.68)	.79	.66	.94	.008*
	OID	13.5 (4.2)	10.9 (3.84)	14.83 (3.75)	1.3	1.1	1.51	.002**
Sub comp	19.6 (9.14)	19.7 (7.7)	19.5 (9.85)	.99	.94	1.06	.95	
Mindfulness	FOC	21.8 (15.6)	13.2 (14.8)	26 (14.3)	1.06	1.02	1.11	.004**
	T	72.9 (12.7)	79.8 (12.37)	69.61 (11.66)	.93	.88	.98	.007**
	NR	13.6 (3.8)	14.7 (3.2)	13.05 (4.05)	.89	.77	1.03	.12
	OBS	13.8 (3.9)	13.45 (3.65)	13.92 (4.14)	1.03	.90	1.18	.66
	DES	15.4 (4.4)	17.9 (4.2)	14.24 (4.0)	.79	.68	.93	.004**
	AA	16.2 (4.1)	17.9 (2.89)	15.34 (4.4)	.84	.72	.98	.03*
NJ	13.9 (5.2)	15.9 (5.5)	13.05 (4.81)	.90	.80	1.0	.051	

* $p < 0.05$, ** $p < 0.01$ Dep- Depressive symptoms. SI- Suicidal ideation. Self-criticism: RS- reassured self; HS- hated self; IS- insecure self. SCOMP- social comparison. Mindfulness: NR- non-react; OBS- observing; DES- describing; AA- acting with awareness; NJ- nonjudging. Sub comp- submissive compassion. FOC- Fears of self-compassion. T - Total.

Next, the independent effects of each variable were assessed in a multivariate binary logistic regression analysis. However, as Table 7.8 shows, when all predictors (total scores from measures were used) were included in a multivariate model controlling for depression and recent suicidal ideation, only recent suicidal ideation remained significant.

Table 7.8. Multivariate binary regression analysis of factors differentiating between the control and self-harm group.

<i>Model Variable</i>	OR	95% CI		<i>p</i> value
		Lower	Upper	
Depressive symptoms	1.02	.93	1.11	.75
Suicidal ideation	1.64	1.04	2.58	.03*
Self-criticism	.95	.86	1.05	.35
Self-compassion	.97	.92	1.03	.31
Fears of compassion	.99	.92	1.06	.79
FFMQ T	.99	.92	1.06	.72

* $p < .05$.

To further explore the self-compassion and self-harm history, all the SCS subscales were entered into a multivariate binary logistic regression. However, as detailed in Table 7.9, none of the subscales differentiated between the groups when the others were included.

Table 7.9. Multivariate binary regression analysis of self-compassion subscales differentiating between the control and self-harm group.

<i>Model Variable</i>	OR	95% CI		<i>p</i> value
		Lower	Upper	
Self-kindness	1.02	.81	1.28	.87
Common humanity	1.01	.77	1.33	.95
Mindfulness	.88	.63	1.24	.47
Self-judgement	1.06	.81	1.39	.67
Isolation	1.17	.89	1.52	.26
Over-identification	1.04	.80	1.37	.77

7.4.4 The nature of self-compassion

The final hypothesis (*H7*) addressed in the current study relates to exploring the nature of self-compassion. Correlation analysis (Pearson's r) of the study variables are presented in Table 7.10. Applying Cohen's (1988) cut-offs, SCS total score was at least moderately ($r > .40$) related to the scale totals scores. The SCS subscales and total score were highly inter-correlated (lowest $r = .72$). In terms of correlations between the subscales, common humanity and self-judgement ($r = -.37$) showed the lowest associations). In terms of relationship between the components of the SCS, the positive subscales were negatively correlated with their respective negative component (self-kindness vs. self-judgement, common humanity vs. isolation, mindfulness vs. overidentification with thoughts).

All the psychological measures (self-compassion, submissive compassion, self-criticism, mindfulness and fears of self-compassion) were significantly correlated with suicidal ideation and depressive symptoms in the expected directions. The submissive compassion scale and the common humanity subscale of the SCS were the only variables that were not significantly correlated.

Table 7.10. Correlations between variables

	SI	Dep	FSCRS	Self-compassion						FOC	Sub comp	
				T	SK	CH	MFN	SJ	ISO			OID
Dep	.78**	-										
FSCRS	.64**	.61**	-									
T	-.60**	-.60**	-.62**	-								
SK	-.54**	-.47**	-.46**	.81**	-							
CH	-.27*	-.30*	-.26*	.72**	.51**	-						
MFN	-.45**	-.42**	-.34**	.80**	.65**	.76**	-					
SJ	.56**	.57**	.63**	-.85**	-.67*	-.37*	-.45**	-				
ISO	.51**	.59**	.60**	-.84**	-.51*	-.49*	-.51**	.80**	-			
OID	.57**	.52**	.65**	-.86**	-.54*	-.50*	-.67**	.74**	.75**	-		
FOC	.59*	.65**	.62**	-.69**	-.59*	-.40*	-.52**	.64**	.63**	.58**	-	
Sub comp	.34**	.35**	.34**	-.43**	-.26	-.20	-.33**	.43**	.47**	.40**	.33**	-
Mindfulness	-.46**	-.57**	-.48**	.59**	.38**	.43**	.55**	-.44**	-.53**	-.58**	-.42**	-.36**

* $p < 0.05$, ** $p < 0.01$ Dep- Depressive symptoms. SI- Suicidal ideation. FSCRS- Self-criticism. SCOMP- social comparison. FOC- Fear of self-compassion, Sub comp submissive compassion, T - Total. Self-compassion: SK- self-kindness; CH- common humanity; MFN- mindfulness; SJ- self-judgement; ISO- isolation; OID- over-identification with thoughts.

7.4.4.1 Self-compassion and self-criticism

To assess the degree of agreement between self-criticism and self-compassion (*H7*), a Bland-Altman plot (Bland & Altman, 1986) was constructed. This technique assesses the overlap between two constructs through comparing the mean difference between the measures. Firstly, single sample t-test indicated that there was significant variance in the scores ($MD= 24.11$, $SD= 28.19$, $t= (60) = 6.68$, $p<.001$) showing significant disagreement between the constructs assessed by the SCS and the FSCRS. This was confirmed using a linear regression indicated a significant degree of proportional bias was present ($B= .29$, $t (1, 59) = 2.36$, $95\% CI .14$ to 1.72 , $p= .022$) meaning the scales are not assessing the same construct. As Figure 7.6 shows, there is no pattern to the distribution of data points.

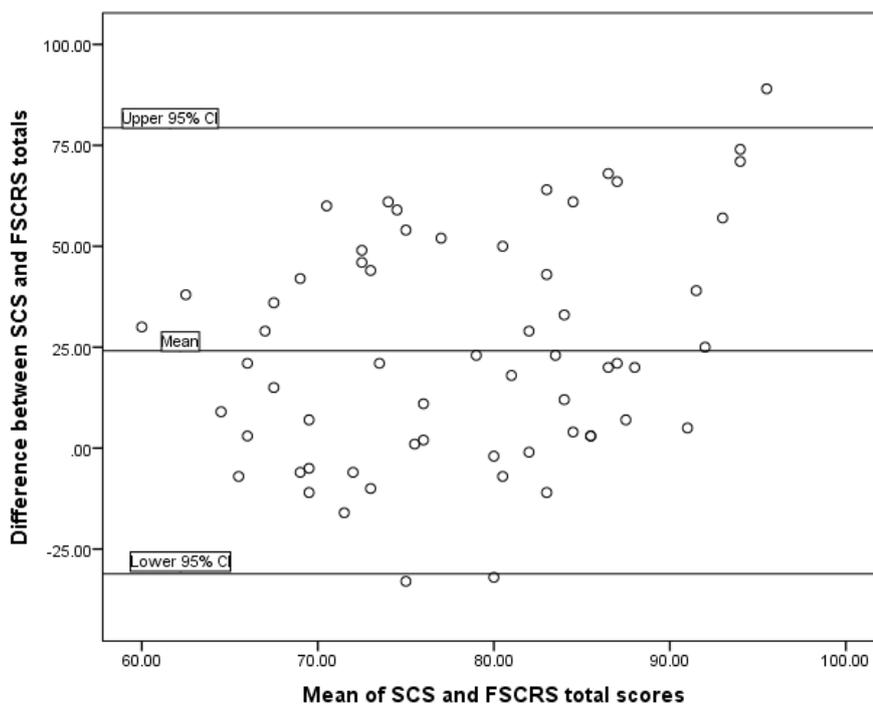


Figure 7.6. Bland- Altman scatter plot showing extent of agreement between measures.

Note: SCS- Self-Compassion Scale (Neff, 2003 ab); FSCRS- Forms of Self-Criticising/Attacking & Self-Reassuring Scale (Gilbert et al., 2004).

7.5 Discussion

The overarching aim of this study was to explore the utility of the brief self-compassion exercise developed in Chapter 6 as a means of exploring the underlying mechanisms of OGM. Table 7.11 summarises the specific aims and aligned hypotheses.

Table 7.11. Aims and hypotheses of the current research.

Aim	To investigate the relationship between self-compassion and autobiographical memory recall
H1	<i>Post negative mood induction, participants with a history of self-harm will report increased OGM recall compared to controls.</i>
H2	<i>Following SCM or PMR, the SCM group will report significant increases in self-compassion compared to the PMR group.</i>
H3	<i>Self-compassion exercise will affect the length of time taken to recall memories.</i>
H4	<i>Self-compassion will reduce the number of overgeneral memories.</i>
H5	<i>Self-compassion (SCS) will mediate the relationship between autobiographical memory recall and suicidal ideation.</i>
Aim	To investigate the relationship between self-compassion, suicidal ideation and self-harm.
H6	<i>Self-compassion will differentiate between individuals with a history of self-harm and those without.</i>
Aim	To explore the nature of self-compassion.
H7	<i>Self-compassion will demonstrate divergence from self-criticism.</i>

As OGM recall has previously been shown to be increased by negative mood inductions in a range of populations (Au Yeung et al., 2006; Begovic et al., 2017; Maccallum et al., 2000) we used a Velten mood induction (Velten, 1968) to induce temporary negative mood state. Although the NMI appeared to produce expected changes in mood (i.e. self-compassion, happiness and relaxation significantly decreased whilst feelings of sadness increased), contrary to *H1*, we found no significant increases in number of OGM pre to post NMI. However, following the NMI, there was a significant increase in recall latency for specific memories, which was particularly pronounced in the recall of specific memories to positive cues. Although not significant, the data suggests that the control group experienced the greatest increases. This may indicate that the NMI was effective in reducing the availability of positive memories.

However, despite witnessing some modest changes in OGM overall, it may be that the NMI used in this study was not provocative enough to produce changes in memory recall in individuals with a history of self-harm. The music used in this study was “Russia under the Mongolian Yoke” played at half speed which has been found to produce dysphoric states in individuals in remission from depression (Segal et al., 2006). Although we recorded each participant’s mental health diagnosis, recency of diagnosis or episode is unknown. This may be an important factor to consider in terms of emotional regulation. Indeed, participants with historic self-harm or mood disorder may have developed other ways to cope with negative emotions and, therefore, reduce the impact of a lab-based mood inductions. Similarly, we did not explore participants’ contextual associations (e.g. circumstances or context an individual relates to the music) with the music (Sloboda & Juslin, 2001). In the context of the present study, some participants reported that they had fought the impact of the NMI. Others expressed that although they could relate to the content of the NMI, the exercise made them reflect positively on their current situation as they had come past these feelings.

Although previous research identified Velten mood induction techniques as being effective for inducing negative mood (Gerrards-Hesse, Spies & Hesse, 1994), it could be that other mood induction methods could have been more relevant to this study. For instance, in a comparison of four mood induction procedures (event recall [negative, positive or neutral] while listening to affect congruent music; guided imagery, viewing negative, positive or neutral images while listening to affectively congruent music; adopting affect related facial expressions, body postures, and vocal expressions) the authors found that viewing images of a particular affect accompanied by music was more effective than the others methods at producing negative mood (Zhang, Yu & Barrett, 2014).

Ultimately, these findings add to the mixed findings in the literature. Future studies comparing the impact of different types of mood inductions in individuals with a range of self-harm histories may be of value in understanding which aspects of mood inductions are pertinent to influencing recall. Additionally, to explore potential mechanisms of how music-based mood inductions influence mood, future studies may wish to explore participants’ contextual associations. Although NMIs have been effectively used to explore autobiographical memory recall in previous studies, the changes in recall have not always been consistent. For instance, some studies have even reported reduced OGM (Debeer, Hermans, & Raes, 2009), whilst others have found or no difference in recall following a mood induction (Raes, Pousset, & Hermans, 2004).

In line with *H2*, increases in self-compassion were observed following the meditation exercises, however, this effect was evident across the whole sample. There was no

difference in self-harm as a function of group (i.e., randomised to the PMR or SCM condition). As a result, H2 was not supported. Previous research has shown that individuals who experience high self-criticism (Gilbert et al., 2006) find developing compassion difficult experience barriers to its development. Although no participant in the present study reported experiencing blocks to either the PMR or SCM, it is important to note that we did not measure this directly. However, we did observe increases in positive and reductions in the negative items on the visual analogue scales, which suggests otherwise.

Indeed, our findings that both the SCM and PMR produced comparable effects is in line with recent research which found that although compassion-related therapies (e.g. Compassion focussed therapy, Mindfulness, Acceptance and Commitment Therapy) increased levels of self-compassion and reduced symptoms of psychopathology, there were no differences between compassion related therapy groups and active control conditions (Wilson et al., 2019). This could indicate that the SCM was effective at producing changes in mood, but as we opted to use an efficacious control condition, with a similar introduction (i.e. focus on breathing) this may have masked any effects of the SCM. Future studies, exploring self-compassion exercises may wish to evaluate them against different types of such exercises. This could allow researchers to understand what the active ingredients of brief meditation-type exercises are. For instance, studies may wish to design and compare non-breath focussed interventions to establish how important the nature of the auditory instructions is.

Both exercises herein used breathing exercises to settle participants into the exercise. As the vagus nerve is activated through deep or rhythmic breathing (Wang et al., 2010) and its activation reduces heart rate, producing soothing feelings, it is possible that it was activated in both groups leading to significant changes across the whole sample.

7.5.2.1 Self-compassion and autobiographical memory

To our knowledge, this is the first study to use a brief self-compassion exercise to explore changes in autobiographical memory. Subsequently, we did not formulate directional hypotheses regarding the SCM's impact on recall latency (H3). Nonetheless, following both the PMR and SCM, changes in latencies to generate specific memories in response to negative cues were observed.

Moreover, there were interactions between group and latency to recall specific memories for positive cues: following the PMR, group latency decreased, whereas it increased following the SCM. However, in terms of the negative cues, there were

significant increases in latencies to recall of specific memories following the PMR; there was a modest and non-significant reduction following the SCM.

In terms of *H4*, our findings offer partial support. Although the results did not reach statistical significance, the data are suggestive of a trend in support of this hypothesis in that there was no change in number of specific memories following the PMR, but a slight increase in specific memories following the SCM. This trend was more pronounced in relation to negative cues as those the SCM group recalled more specific negative memories and fewer negative overgeneral memories than those in the PMR group following the SCM.

These latter findings could indicate that even a brief self-compassion meditation might help individuals' access specific memories even if they are painful. Compassion focused therapy supports individuals to become tolerant of negative emotions (Gilbert & Procter, 2006) and it may be that compassion can work towards reducing avoidance of specific painful memories (Henderson et al., 2002).

However, our findings regarding the role of self-compassion in autobiographical memory are overall inconclusive. There are a few factors which may have contributed to this.

Firstly, our means of administration of the AMT may have affected our findings. We attempted to make the AMT as rigorous as possible and reduce any potential experimenter bias by displaying the cues on a computer screen and audio recording AMT responses. This, in addition to the provision of specific and detailed instructions has been associated with higher rates of specific responses (Van Vreeswijk & De Wilde, 2004) and may have contributed to our high rate of specificity at AMT T1. Furthermore, to avoid an over-estimation of overgeneral memories (Van Vreeswijk & De Wilde, 2004), we excluded non-responses from our overgeneral category. As it is not always clear in other studies how non-responses were managed, this may have contributed to variations in findings across studies as they may have been treated as overgeneral memories in some studies but not in others.

Although this was an experimental study, our modest sample size limited the subgroup analysis we were able to carry out. For instance, there may be differences in the memory recall of individuals who reported suicidal self-harm versus those who reported non-suicidal self-harm versus those who had had self-harmed once and those who reported multiple episodes.

Given the variability in self-harm histories amongst our sample, this may have contributed to the findings in several ways. Firstly, we recruited participants solely based on their self-reported self-harm history, regardless of the severity and recency of their self-harm. Consequently, our sample is comprised of those with a mixed self-harm history with around 40% ($n= 17$) having engaged in NSSI only, or both NSSI and a suicide attempt (39%, $n= 16$); in addition, eight (19.5%) participants reported having made a suicide attempt in their lifetime. As recruitment was based on self-reported experiences, we did not set a minimum in respect of the number of previous episodes, self-harm severity or recency; as a result we recruited on the basis of lifetime history of self-harm. For some participants, self-harm occurred only once, many years previously, indeed over half of the participants ($n= 24$, 63.4%) reported that their last episode of self-harm was over 12 months ago. Consequently, there was considerable heterogeneity within the self-harm group which likely added to the statistical noise in the dataset. Future studies on autobiographical memory should focus on participants with different histories of suicide attempts and non-suicidal self-harm as this will provide a more complex understanding of the relationship between autobiographical memory and self-harm.

It is important to highlight that this was an exploratory study and the overarching aim of the afore mentioned hypotheses was to explore the relationship between self-compassion and autobiographical memory recall. To this end, we included analyses of the other components of autobiographical memory recall rather than just overgeneral memories. Given the exploratory nature of the study, caution should be exercised when interpreting the findings extracted from a relatively small sample.

7.5.2.2 The relationship between self-compassion, suicidal ideation and self-harm.

Logistic regressions indicated that the number of negative overgeneral memories recalled was the only aspect of AMT associated with suicidal ideation we included this in our mediation models (*H5*). It should be noted however, that depressive symptoms were not controlled for in the mediation models as their inclusion reduced the OMG to suicidal ideation relationship to non-significant levels. As hypothesised, this relationship was mediated by self-compassion. Specifically, when self-compassion was present, the relationship between OGM and suicidal ideation was reduced to non-significance. Four of the six SCS subscales also mediated this relationship. Consistent with other self-compassion research, which has highlighted that the negative (compared to the positive) SCS subscales have stronger associations with psychopathology (MacBeth & Gumley, 2012; Muris & Petrocchi, 2017), the three negative components all mediated this relationship. However,

mindfulness also influenced this relationship. Given that mindfulness is a particular way of paying attention; remaining present and accepting the current experience rather than becoming overwhelmed by emotions or thoughts (Shapiro, Astin, Bishop, & Cordova, 2005) it is not unexpected that mindfulness was associated with a weakening of the OGM and suicidal ideation relationship. Indeed, mindfulness-based cognitive therapy has been shown to significantly reduce OGM (Heeren, Van Broeck, & Philippot, 2009; Teasdale et al., 2000) in comparison to standard psychological interventions. Although OGM is a recognised marker for mood disorders and suicide risk (Kaviani et al., 2004; O'Connor, 2011; Van Vreeswijk & De Wilde, 2004; Williams, 1996), how it contributes to this risk is less well understood. Brief meditation-type exercises may offer a means to explore this.

In line with *H6*, levels of self-compassion varied as a function of self-harm history. Specifically, participants in the self-harm group scored lower on self-compassion overall and on the positive subscales but had higher scores on the negative subscales. However, none of the subscales differentiated between the groups when the subscales were included in a model with suicidal ideation and depressive symptoms.

The correlational analyses showed that the negative subscales of the SCS were moderately associated (all effect sizes were $r > .5$) with depressive symptoms and suicidal ideation. Whereas, there was more variability in the strength of the relationship between the positive subscales, suicidal ideation and depressive symptoms. This is consistent with previous self-compassion research which highlighted the importance of investigating the subscales independently as the negative subscales have stronger associations with psychopathology than the positive ones (MacBeth & Gumley, 2012; Muris & Petrocchi, 2017; Muris, van den Broek, Otgaar, Oudenhoven, & Lennartz, 2018). Indeed, the stronger association with the negative elements and suicidal ideation and depressive symptoms is not unexpected. The presence of self-coldness and critical thoughts (self-judgement), rumination (overidentification with thoughts) and loneliness (isolation) are repeatedly implicated in the aetiology of psychological distress (O'Connor & Nock, 2014).

7.5.2.3 The nature of self-compassion

In light of the stronger associations between negative subscales and psychopathology, concerns have been expressed that including the negative subscales reflects self-criticism rather than measuring self-compassion (Gilbert et al., 2011). We addressed this in two ways. Firstly, to avoid an overestimation of the relationship between self-compassion and symptoms of psychopathology (Muris & Petrocchi, 2017), we

investigated the components of the SCS (Neff, 2003 ab) independently. Secondly, construct divergence between the SCS and self-criticism (measured by the FSCRS [Gilbert, Clark, Hempel, Miles, & Irons, 2004]) was assessed (*H7*). We found significant divergence between scores on these scales, indicating that these measures tap distinct constructs. However, future research may wish to compare the SCS to other measures of self-criticism.

This study represents a first step in research in exploring how and under what circumstances the components of self-compassion contribute to a proponent of psychological distress. Further experimental research, which reflects the dynamic nature of self-compassion, are necessary to understand whether one area of compassion has more impact on risk factors for self-harm and suicidal ideation and the mechanisms underlying these relationships.

7.6 Clinical implications

The results of this study are potentially important clinically. First and foremost, the SCM produced changes in mood which were comparable to those produced by the relaxation exercise. This is particularly noteworthy given the difficulties associated with developing compassion in people with high self-criticism; a known risk factor for self-harm. This could indicate that compassion exercises constructed around the components of compassion and focussing on self to others, then others to self followed by self to self relating could lessen barriers to developing self-compassion. Additionally, given the SCM didn't involve imagery, this could reduce barriers for individuals who struggle with mental imagery. The signals in our data suggest that self-compassion has an opposite effect on autobiographical memory to relaxation. Additionally, although nonsignificant, memory specificity increased following the SCM, potentially indicating that self-compassion may reduce OGM. Given the pernicious relationship between OGM, depression and suicide larger studies exploring similar self-compassion exercises may be warranted.

7.6.2 Limitations

Although the current research had many strengths, it is important to note several limitations of the study. Firstly, the negative mood induction only had an effect in the control group, which may suggest that it was not strong enough to change mood in the self-harm group. However, it could be that members of the self-harm group have developed strategies to minimise the impact of negative mood. Future research should address the

extent to which individuals with a self-harm history employ different approaches to manage negative mood.

As noted above, another potential limitation was the sample size. Although the self-harm group had 41 participants, the study design included a within participants randomisation, meaning that each arm of the study had around 20 participants. In addition, within the sample, there was considerable heterogeneity and our sample size minimised the subgroup analysis we could carry out. Future studies should investigate the extent to which autobiographical memory biases are present in subgroups including those who self-harm with/without intent and take into consideration the recency and frequency of self-harm.

Another limitation relates to the cross-sectional study design. For example, as the mediation analyses related to self-compassion, overgeneral recall and suicidal ideation were cross-sectional, it is not possible to draw any conclusions in terms of causality or direction of effect. Given the strong correlation between depression and suicidal ideation, within the current sample, it was not possible to control for depression during these analysis without wiping out almost all of the potential explainable variance.

In terms of the study design, participants in the self-harm group had to complete the autobiographical memory task at 3 points, which may have affected their performance on the task. For example, participants may have become practised at the task by the second time point and therefore no changes were evident at the third-time point as the task was too easy.

Another consideration is regarding the AMT stimuli used. The AMT stimuli were randomised to create 4 lists, and participants were then randomised to receive one of the list orders containing a mixture of positive and negative stimuli. As a result, we cannot say for certain that the stimuli presented were equivalent between participants or at each time point. Future research may wish to establish the arousal and intensity of each stimuli in the first instance and ensure participants are presented with equivalent lists at each time point.

The current research is an attempt to understand the role of the individual components of self-compassion in relation to autobiographical memory and self-harm. Subsequently, a high volume of analyses were conducted on a small sample. To reduce the volume of extra analysis, the relationship between self-compassion and other constructs have been omitted (i.e. mindfulness, fears of compassion and submissive compassion).

7.6.2.1 Conclusions

Self-compassion is a potentially important construct to consider in relation to psychological distress, which has primarily been investigated in observational studies. Our data may suggest that brief self-compassion exercises can increase specific autobiographical memories. Given the malleable nature of self-compassion, this could represent an intervention point to reduce the pernicious effect of overgeneral autobiographical memory. However, more experimental studies in larger samples are required to investigate the mechanisms underpinning the components of self-compassion and how these can be applied to ameliorate risk factors such as overgeneral memory for psychological distress.

Chapter 8 General Discussion

Background: The current chapter synthesises the main findings from three studies conducted within this thesis and discusses these in the context of previous research, challenges and future directions.

Methods: The findings from the three studies presented herein are evaluated within the context of the three overarching research questions set out in Chapter 1: 1) What is the nature of self-compassion (as measured by the Self-Compassion Scale [SCS; Neff 2003a, b]); 2) What is the relationship between self-compassion and suicidal behaviour or self-harm?; and 3) Is a brief self-compassion exercise acceptable to individuals with a history of suicidal behaviour/self-harm? The strengths and limitations of the studies are appraised along with future directions.

Results: In Chapter 4, the current research found a bifactorial factor structure to be the best fit to data for the SCS; supporting the use of the total score as well as the subscales. In Chapters 5 and 7, there was evidence that the SCS was significantly different from self-criticism, indicating that the SCS measures more than the absence of self-criticism. Levels of self-compassion differentiated between those with and without a history of suicidal ideation and self-harm in the empirical studies. In Chapter 5, mediation analysis suggested that overall self-compassion may act as a motivational moderator in the IMV model, while self-kindness and self-judgement may be threat to self moderators. In Chapter 7, overall self-compassion, mindfulness, self-judgment and over-identification with thoughts mediated the overgeneral autobiographical memory and suicidal ideation relationship. The isolation subscale mediated all the pathways tested from the motivational phase of the IMV model emphasising the pervasive impact of perceived social isolation on suicidal ideation and self-harm. Although the self-compassion exercise appeared acceptable to participants (Chapter's 6 and 7), its utility to explore autobiographical memory (Chapter 7) is unclear.

Conclusions: The current research employed a variety of statistical, observational and experimental methods to conduct an in-depth exploration of the SCS, and of the role of self-compassion more generally in suicide and self-harm. It makes the following contributions to the self-compassion literature: 1) it contributes to the understanding of the self-compassion construct as assessed by the SCS; 2) it extends the experimental research into self-compassion through using a brief self-compassion exercise to explore autobiographical memory; 3) it situates the role of self-compassion in the aetiology of self-harm and suicidal ideation within the context of a theoretical model for suicidal

behaviour. Our findings indicate that self-compassion may have a role within the motivational phase of the IMV model of suicidal behaviour and may provide an important target for interventions in suicide and self-harm. Wider implications are also discussed.

8.2 Main Findings

The overarching aim of this thesis was to explore the role of self-compassion in the aetiology of suicidal thoughts and self-harm (including suicidal and non-suicidal self-injury). The following section discusses the findings from the studies in relation to the specific research questions detailed in Chapter 1 (Section 1.5).

8.1.1 What is the nature of self-compassion (as measured by the SCS)?

We addressed the first aim in three ways: 1) we explored the factor structure of the SCS (Neff, 2003a, b); 2) we assessed construct divergence between the SCS and a measure of self-criticism; and 3) we assessed the stability of self-compassion over a short follow-up period.

Exploratory (EFA) and confirmatory (CFA) factor analysis techniques were used to assess the factor structure of the SCS in our data. The EFA yielded a five-factor solution. CFA was then used to compare our model fit of the five-factor model against five other solutions: Neff's original 6-factor correlated and higher-order models; a single-factor, two-factor, and a bi-factorial model (see Chapter 4). Our findings confirmed that a bifactorial model was the best fit to the current data. This suggested that the SCS measured six distinct factors, but they were concurrently influenced by an overarching factor, namely self-compassion. The current research supported using the SCS to yield either an overall self-compassion score, or to provide scores on the individual subscales. Based on these findings, we explored the role of self-compassion overall and the individual subscales in subsequent analyses.

In light of the concerns around what construct the SCS is assessing, Bland-Altman plots (Bland & Altman, 1986) were calculated in the empirical studies (Chapters 5 and 7) to establish the degree of agreement between the SCS and self-criticism (FSCRS; Gilbert, Clark, Hempel, Miles, & Irons, 2004). In both studies a significant degree of variability was observed between the negative SCS subscales and the FSCRS suggesting that the measures of self-compassion and self-criticism were not assessing the same constructs. This is important since one of the major criticisms of the SCS is that the inclusion of the negative subscales means that the scale assesses two constructs (self-criticism and self-compassion) meaning the total score cannot be used. This, in conjunction with the findings from the factor analysis were important as they do not support the widely used two-factor model of the SCS (Gilbert, McEwan, Matos, & Rivas, 2011) to give a 'self-compassion' and 'self-criticism' score.

In Chapter 5, the SCS demonstrated high test-retest reliability across a short follow-up of 2.5 months (Chapter 5) suggesting that self-compassion was relatively stable over a short-term follow up.

8.1.2 What is the relationship between self-compassion and suicidal behaviour or self-harm?

A systematic review of the literature (Chapter 2) highlighted that higher self-compassion was repeatedly associated with lower levels of suicidal ideation, self-harm and lower levels of associated risk-factors. The empirical studies (Chapters 5 and 7) in the current research further investigated these relationships through univariate and multivariate analyses. To this end, a series of mediation analyses were conducted to explore the relationship between self-compassion and selected risk factors from the motivational phase of the Integrated Motivational-Volitional model of suicidal behaviour (IMV; O'Connor, 2011; O'Connor & Kirtley, 2018).

The following sections summarise the key results from the cross-sectional analyses (Section 8.1.2.1) and the prospective analyses (Section 8.1.2.2).

8.1.2.1 Cross-sectional analyses

Cross-sectionally, the self-compassion total score and the subscales were significantly correlated with depressive symptoms, self-criticism (Chapters 5 and 7) and resilience, stress, defeat and entrapment (Chapter 5) in the expected directions univariately. Stronger associations were observed between the negative subscales (self-judgement, isolation and overidentification with thoughts) and risk factors (e.g., defeat, entrapment, depressive symptoms) than between the positive subscales (self-kindness, common humanity and mindfulness) and any variables.

The different components of self-compassion differentiated individuals with and without a history of suicidal ideation in Chapter 5 and between those with and without a history of self-harm in Chapter 7. Specifically, those with a history of suicidal ideation or self-harm scored higher on the negative components and lower on the positive components and were lower on total self-compassion than those with no history of suicidal ideation (Chapter 5) or self-harm (Chapter 7). This adds to the growing body of literature emphasising the association between higher self-compassion and greater wellbeing.

Cross-sectional mediation analyses in Chapter 5 showed that self-kindness, self-judgement and isolation subscales partially mediated the entrapment-suicidal ideation relationship. Self-compassion total, all the negative subscales and the mindfulness subscale were all found to mediate the relationship between negative overgeneral recall and suicidal ideation (Chapter 7). Common humanity did not mediate any of the relationships investigated.

Chapter 7 investigated the effect of a brief self-compassion exercise (SCM) vs. a progressive muscle relaxation exercise (PMR) on autobiographical memory recall in individuals with a history of self-harm. Changes in recall latency varied by group. Specifically, following the SCM, participants took longer to recall specific memories in response to positive cues while those in the PMR group took less time to recall these memories. In response to negative cues however, although changes were not-significant, recall latency decreased following the SCM, and increased following the PMR. Additionally, although again non-significant, the overall number of specific memories recalled increased in the SCM while no change was observed in the PMR group. These findings are non-significant, which may be a consequence of the pilot study being underpowered. The signals in the data could indicate that these exercises activate different memory mechanisms, however, a larger study would be required to explore their role more fully. The data potentially suggests that brief compassion exercises may be useful in understanding overgeneral autobiographical memory and subsequently, how to reduce this.

8.1.2.2 Prospective analyses

In Chapter 5, overall self-compassion, self-kindness, self-judgement, common humanity and isolation were univariately associated with suicidal ideation at T2, 2.5 months later. Additionally, overall self-compassion and the isolation subscale mediated the prospective relationship between defeat and entrapment. Common humanity did not mediate any of the relationships investigated.

8.1.3 Is a brief self-compassion exercise acceptable to individuals with a history of suicidal behaviour/self-harm?

Our findings from chapters 6 and 7 suggest that participants found the brief self-compassion exercise acceptable. Although some participants found it challenging to be compassionate to themselves, none of the participants reported feeling more negative or upset following the exercise. Participants suggested minor changes to the exercise ahead of further piloting. Similarly, when the self-compassion exercise was piloted in

Chapter 7 increases in positive mood (on visual analogue scale) were observed or all participants.

8.3 Interpretation of results

8.1.4 Nature of Self-Compassion (as measured by the SCS)

The SCS (Neff, 2003 a, b) is a widely used measure of self-compassion; the factor structure of which has attracted a lot of research attention in recent years (see Chapter 4 for discussion). As discussed in Chapters 1 and 4, the SCS was developed to measure Neff's definition of self-compassion, which describes self-compassion as a balance of the positive and negative aspects of self-relating. Subsequently, the SCS was developed to assess the interaction between positive and negative components of compassion and, according to Neff, it can be used to provide an overall self-compassion score or scores for the individual subscales (Neff, 2003a, b). As detailed in Chapter 3 (Methods), to calculate the total score, the negative subscales are reverse scored before being totalled with the positive subscales. To assess the subscales individually, scores are not reversed.

However, concerns have been expressed that by including the negative components, the total score of the SCS reflects self-criticism rather than compassion (Gilbert, McEwan, Matos, & Ravis, 2011; MacBeth & Gumley, 2012; Muris, Otgaar, & Pfattheicher, 2019; Muris & Petrocchi, 2017). In addition, the negative subscales frequently demonstrate stronger associations with psychological distress (MacBeth & Gumley, 2012; Muris & Petrocchi, 2017), prompting concerns around use of the SCS total score. Researchers have queried whether the inclusion of the negative subscales inflates the total score, leading to an overestimation of self-compassion's relationship with other constructs. Additionally, a recurrent criticism of self-compassion research is that studies primarily use the SCS total score thereby limiting our understanding of which elements of self-compassion are most important under what circumstances (Seonaid Cleare, Gumley, & O'Connor, 2019b; Muris & Petrocchi, 2017).

To address these concerns, some researchers have encouraged the use of the subscales rather than the total SCS score (MacBeth & Gumley, 2012; Muris & Petrocchi, 2017), others have suggested using a 2-factor model where the positive items are included as a self-compassion factor while the negative items reflect self-criticism (Gilbert et al., 2011). However, there is no consensus in the field. For example, although some researchers report finding support for the 2-factor model (Brenner et al., 2017, 2018;

López et al., 2015), the original 6-factor or bifactorial model (Neff et al., 2019; Veneziani, Fuochi, & Voci, 2017), and others support find for alternative models (Coroiu et al., 2018; Deniz et al., 2008). Given these inconsistencies, the first step in this thesis was to conduct an independent analysis of the SCS's factor structure (Chapter 4). As discussed in chapter 4, our factor analysis indicated that the bifactorial model of the SCS (Neff, 2003 ab) was the best fit to our data, thereby supporting the use of the total score and the use of the subscales. Consequently, all analyses reported herein assessed the role of both the total self-compassion score as well as the scores for each of the six subscales.

To further address the concerns around using the SCS to yield a self-compassion (positive items) and a self-criticism (negative items) score rather than an overall score, a measure of self-critical thoughts (FSCRS; Gilbert, Clark, Hempel, Miles, & Irons, 2004) was included in the current research. In the empirical studies (chapters 5 and 7) the degree of overlap between the negative subscales of the SCS and the FSCRS was assessed using Bland-Altman plots (Bland & Altman, 1986). These plots indicated that there was indeed a significant amount of difference (i.e. very little overlapping variance) between the measures, suggesting that these scales measure distinct constructs.

Taken together the current research suggests that, in line with Neff's (2003a, b, 2015, 2017) assertions, even though the SCS includes negative components, the SCS is measuring a construct which is distinct from self-criticism (or the absence thereof). However, as discussed in chapters 1 and 2, there are various definitions of self-compassion (Jazaieri et al., 2014) and as the SCS was developed to assess Neff's (2003) conceptualisation of self-compassion, it is possible that this does not reflect the true nature of self-compassion.

As discussed throughout these studies, the SCS was selected as it is the most widely used measure of self-compassion available. However, Neff's (2003 a, b; Neff, 2018) conceptualisation of self-compassion, as requiring a balance of positive and negative components, has been controversial (see Chapter 4 for discussion). The main concern expressed is that the negative 'uncompassionate' items (Muris, Otgaar, Meesters, Heutz, & van den Hombergh, 2019) reflect psychopathology rather than an absence of compassion and their inclusion inflates the total SCS score (MacBeth & Gumley, 2012; Muris, Otgaar, & Pfattheicher, 2019; Muris & Petrocchi, 2017). Subsequently, we explored the individual components of the SCS, however, it could be that Neff's definition, and therefore the SCS, does not encapsulate self-compassion.

For example, recent research using the SCS found the link between self-compassion and other-focused compassion to be weak or absent (Neff & Pommier, 2013; Pommier, 2010 respectively). This could indicate that compassion for others and self-compassion are separate constructs, or it may be indicative of problems with the how these constructs are currently defined and measured (Strauss et al., 2016). Given the complex nature of self-compassion, self-report measures may not be the most effective methodology to understand this construct.

As with any self-report measure, the SCS can only record what is observable (Dewar, Pullin, & Tocheris, 2011) within the definition of the constructs and the items proposed by the measure. Subsequently, the SCS cannot assess important aspects of compassion such as underlying motivations or attitudes (Gilbert, 2014; Jazaieri, McGonigal, Jinpa, Doty, Gross, & Goldin, 2014), tone of internal voice (Heriot-maitland, Mccarthy-jones, Longden, & Gilbert, 2019) and how the components of self-compassion respond in the presence of stress or mood changes to regulate emotions.

In a sample of individuals with psychosis, for instance, no correlations were found between compassion narratives and the SCS (Gumley & Macbeth, 2014). Although disagreement between interview and self-report measures is not uncommon (Riggs et al., 2007), this could indicate that the SCS does not fully reflect the complexity of self-compassion. In another study that compared interview and self-report measures for assessing borderline personality disorder (Hopwood et al., 2008), the researchers found that a combination of methods was optimal. In order to fully understand self-compassion as a construct, future research may benefit from using different techniques such as experimental or qualitative approaches or a combination of methods, to facilitate a more reflective understanding of such a complex area, in particular which components are most important to a person's self-compassion and when.

8.1.5 The role of self-compassion in suicidal ideation and self-harm

As anticipated, the findings from the current research indicate that levels of self-compassion differ between individuals with history of self-harm or suicidal ideation and individuals without. Specifically, in both empirical studies (chapters 5 and 7) individuals with a history of self-harm or suicidal ideation reported lower overall self-compassion, lower scores on the positive subscales (self-kindness, common humanity, mindfulness) and higher scores on the negative subscales (self-judgement, isolation and over-identification with thoughts) than those without such history.

The findings from our analyses are in keeping with the extant literature on self-compassion, suicidal ideation and self-harm. As discussed in Chapter 2, and in the wider mental health literature, higher levels of self-compassion are associated with better psychological wellbeing (Barnard & Curry, 2011; MacBeth & Gumley, 2012; Zessin et al., 2015). However, the studies conducted as part of the current research are the first to investigate the relationship between self-compassion and suicidal ideation and self-harm within the context of a theoretical model of suicidal behaviour.

The risk factors we focused on were selected from the motivational phase of the Integrated Motivational Volitional model of suicidal behaviour (IMV; O'Connor, 2011; O'Connor & Kirtley, 2018, see Figure 8.1). Specifically, in Chapter 5 self-compassion was explored as a 'threat to self moderator' (TSM; between defeat and entrapment) and as a 'motivational moderator' (MM; between entrapment and suicidal ideation), and in Chapter 7 the relationship between self-compassion and autobiographical memory (AMT), a well-established TSM, was explored observationally and experimentally.

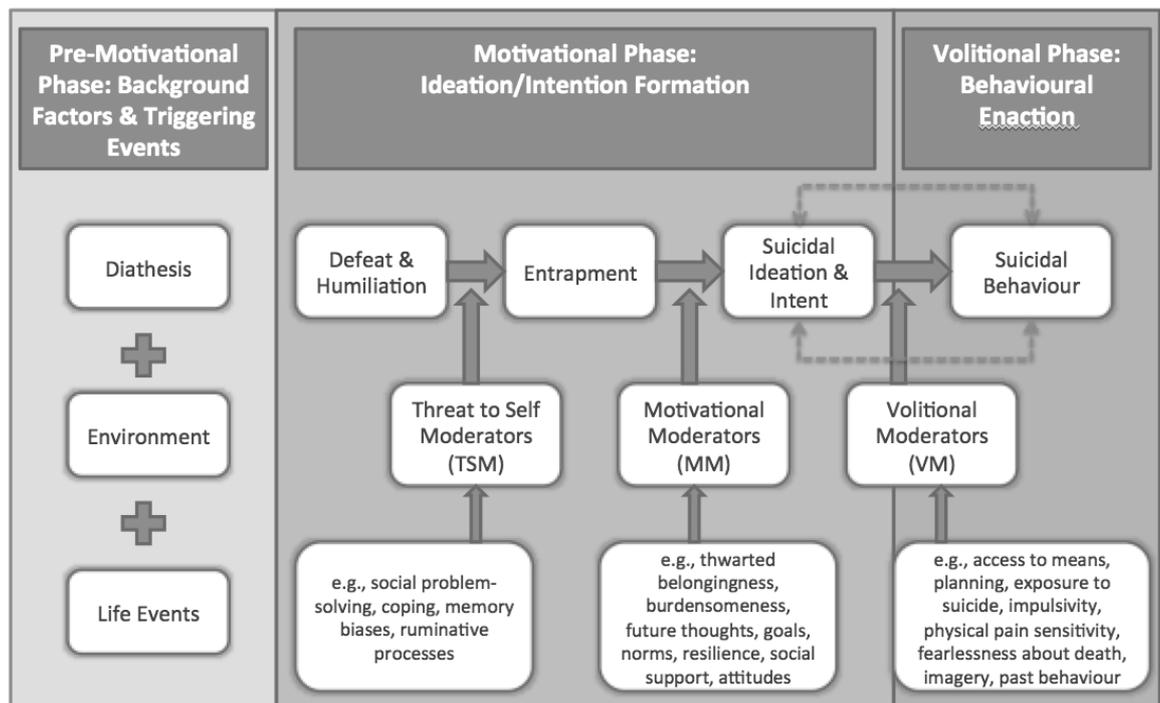


Figure 8.1. The Integrated Motivational-Volitional (IMV) model of suicidal behaviour (O'Connor & Kirtley, 2018)

In all of the statistical models tested, feelings of isolation either partially or fully mediated the relationships. The first pathway tested was isolation as a mediator of the defeat and entrapment relationship; the latter being core protagonists in the emergence of suicidal ideation (O'Connor & Portzky, 2018). As defeat is a social threat-based emotion thought to arise following social loss or rejection (Williams, Doorley, & Esposito-Smythers, 2017), it is unsurprising that feeling isolated mediated the transition

from defeat to entrapment. However, the likelihood that defeat would develop into entrapment was reduced by the presence of higher levels of self-compassion. As discussed in Chapter 1, self-compassion is thought to develop within a secure attachment framework (MacBeth & Gumley, 2012). In such cases, individuals who are self-compassionate have the ability to self-soothe in times of stress, thereby supporting emotional regulation and reducing the likelihood that defeat is translated into entrapment. Interestingly, total self-compassion did not mediate the entrapment and suicidal ideation relationship. While isolation, self-kindness and self-judgement subscales mediated the relationship between entrapment and suicidal ideation cross-sectionally. Self-judgement appears closely related to internal entrapment (e.g., feel trapped by one's own self-critical thinking) (Gilbert and Allan, 1998) as it is characterised by self-blame and internalising distress, whereas self-kindness may ameliorate entrapment as it's offering the self-soothing support at times of emotional distress or hardship (Neff, 2003).

Given that feelings of social isolation (O'Connor & Nock, 2014) and of not belonging (Joiner, 2005; Van Orden, 2015) are repeatedly implicated in suicide risk it is not surprising that isolation has an influence throughout all the selected pathways from the IMV model. In line with the MMs in the IMV model, isolation mediated the relationship between entrapment and suicidal ideation. Additionally, in Chapter 7, isolation mediated the relationship between negative overgeneral memory recall (TSM moderator) and suicidal ideation cross-sectionally. As discussed in Chapter 7, overgeneral memory recall biases the valence of available memories, creating an overrepresentation of negative memories, leading to reduced accessibility of coping strategies and impaired social problem solving (Dudai & Carruthers, 2005; Williams & Broadbent, 1986). This in turn, promotes more feelings of burdensomeness and entrapment (Williams & Broadbent, 1986).

Autobiographical memories are intrinsically linked to experiences from social interactions which shape an individual's self-perception (Bluck, 2003; Wilbers, Deuker, Fell, & Axmacher, 2012). The other SCS negative subscales namely, self-judgement and over-identification with thoughts, also mediated this relationship. This is consistent with the Capture and Rumination (CAR) components of the Car-FA-X model of overgeneral memory (Williams et al., 2007) which describes individuals as being captured by negative self-beliefs which then lead to rumination. Consistent with the CAR-FA-X model, the mindfulness subscale mediated this relationship indicating that in the presence of overgeneral negative recall, having a mindful awareness of thoughts and being present in the moment reduced the association with suicidal ideation. This, in

line with other research (Watkins et al., 2000), could indicate that the ruminative element is an important feature in overgeneral negative recall. When depressive symptoms were included in the models, these accounted for all the relationships. Given the established associations between overgeneral memories and depression (Dritschel & Williams, 1988; Williams & Broadbent, 1986; Williams, 1996), it is possible that the models were in fact testing the role of components of depression (i.e. role of self-criticism, isolation and rumination) in this relationship.

To explore the mechanisms underlying autobiographical memory recall in self-harm, a self-compassion exercise (SCM) was developed and tested relative to a progressive muscle relaxation (PMR) exercise.

Following the SCM, the latency to recall specific memories in response to positive cues increased, whereas it decreased for those in the PMR group. However, this trend was reversed when the recall of specific memories to negative cues; with those in the PMR group demonstrating an increase in latency to recall while latency to recall reduced in the SCM group. Although there was no significant change in the number of specific memories recalled across any cue valence, following the SCM, the number of specific memories recalled, while no change was seen following the PMR. Specifically, following the SCM, the number of specific memories increased in response to negative cues; while the opposite trend was observed following the PMR.

Although these are preliminary data, the findings could be signalling that following the SCM, participants were more able to tolerate painful memories or experiences than those in the PMR group. In light of the brevity of the SCM used, these results indicate that studies investigating different durations and methods of delivery (e.g. pre-recorded) of similar exercises may be worthwhile in this population. Additionally, as the study was developed to pilot the SCM, the sample was small, more extensive studies could allow greater insight into the mechanisms of this possible effect.

In addition, these results could suggest that self-compassion has a role to play throughout the motivational phase of the IMV model. The current research combined with the available literature may indicate that brief self-compassion exercises could be useful in manipulating other risk factors for suicide and self-harm. Manipulating self-compassion in research settings could enable us to understand how and under which circumstances the different components of self-compassion interact and impact upon one another. This could provide greater insight into who is mostly likely to be affected (positively or adversely) by self-compassion and the mechanisms which may facilitate therapeutic change and how these can be most effectively used.

Exploring self-compassion within the pathway of the motivational phase of the IMV model of suicidal behaviour (O'Connor, Cleare, Eschle, Wetherall, & Kirtley, 2016; O'Connor & Kirtley, 2018; O'Connor, 2011) may allow insight into how the components interact with the facets of the model and ultimately lead to understanding of how self-compassion can be applied to ameliorate risk. In Chapter 6, the self-compassion components were found to mediate the prospective defeat to entrapment relationship. Given that defeat can be induced in laboratory settings (Johnson, Husky, Grondin, & Mazure, 2008; Pegg, Deakin, Anderson, & Elliott, 2006), future studies using brief self-compassion exercise to explore possible mechanisms to ameliorate the transition to entrapment may be of value.

8.1.6 Is a brief self-compassion exercise acceptable to individuals with a history of suicidal behaviour/self-harm?

As detailed in Chapter 6, feedback from participants indicated that the self-compassion exercise was acceptable for use in individuals with a history of self-harm. Importantly though, during the feasibility phase, a couple of areas, particularly around shifting focus were identified by participants for rewording prior to the piloting phase. For instance, a couple of participants (see Chapter 6 for full discussion) reported finding directing compassion inwards challenging.

Although compassion meditations are an integral component of compassion-related therapies (Crane, 2008; Gilbert, 2014) they are often utilised as a component of interventions in therapeutic environment rather than conducted as standalone exercises. As discussed in Chapter 6, directing compassion inwards, or cultivating self-compassion can be difficult. Particularly for individuals who experience high levels of self-criticism and shame (Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006; Gilbert & Procter, 2006). As high levels of self-criticism have been implicated in suicide risk (O'Connor & Nock, 2014) it was important to work with participants to develop a safe brief exercise which was acceptable to individuals who may experience high self-criticism and easy to engage with.

For instance, the single session exercises which do exist tend to focus on using imagery to induce feelings of compassion (e.g. Hutcherson et al., 2008; Rockliff et al., 2008). Although imagery can be highly effective at provoking emotive responses (Holmes & Mathews, 2010), the literature regarding brief or single session compassion focussed imagery is mixed. With one study reporting significant results compared to a neutral

condition (Hutcherson et al, 2008), whereas another found no difference between compassion focussed or relaxation imagery in individuals (Campbell et al., 2019). Individuals may find imagery distracting as they can feel they're not doing it right and get caught up trying to visualise an appropriate image (Naismith et al., 2019). Additionally, the development of compassionate imagery is often based on memories of encounters with kind and caring people. When individuals cannot recall encounters of this type (Gilbert, 2010; Gilbert & Irons, 2005; Gilbert & Procter, 2006) this can lead to negative feelings and frustration. The self-compassion exercise herein was developed to offset these barriers where possible and subsequently, focussed on reflecting on feeling the components of compassion (e.g. warmth, kindness, courage, curiosity) another person before reflecting them inwards.

Encouragingly, none of the participants in either study reported feeling more negative after the compassion exercise. Indeed, the current research supports the emerging evidence that single session compassion exercises can reduce negative emotions (Arimitsu & Hofmann, 2017), raise mood and increase positivity towards the self and others (Hutcherson, Seppala, & Gross, 2008).

In Chapters 6 and 7, there was evidence of increases in positive mood and decreases in negative mood with no participants reporting feeling more negative following the self-compassion exercise. However, in Chapter 7, the changes in mood were apparent across the whole sample regardless of whether participants received the self-compassion (SCM) or relaxation (PMR) exercise. As discussed in section 8.1.5 (above), it could be that the mechanisms underlying how the SCM and PMR produce effects vary, which would be difficult to detect using a VAS scale.

Additionally, in Chapter 7 the PMR and SCM exercises were closely matched in terms of the focus on the breathing introduction. It is thought that deep or rhythmic breathing (Wang et al., 2010) stimulates the vagus nerve which, in turn, reduces heart rate and promotes feelings of safeness and of being at rest (Carlson, 2004). The vagus nerve may also be closely connected to receptor networks for oxytocin; a neurotransmitter associated with maternal bonding (Gilbert, 2017). Subsequently, activation of the vagus nerve may be associated with feelings of compassion. Future studies which focus on identifying what components of meditations are necessary for it to be effective could provide valuable insight into the mechanisms underlying these exercises.

Our findings that the changes produced by SCM and PMR were comparable is in line with recent research in this field. For instance, a recent study (Noone & Hogan, 2018) compared an online mindfulness meditation to a placebo meditation and found that

after 6 weeks of practice both groups reported increases in feeling more mindful and ability to think critically, but no effect of group was observed. Similarly, in a very recent meta-analysis (Wilson et al., 2019) the authors found that compassion-related therapies (e.g. Compassion focussed therapy, Mindfulness, Acceptance and Commitment Therapy) increased levels of self-compassion and reduced symptoms of psychopathology. However, there were no differences between the compassion related therapy groups and active control conditions. In the current research both conditions increased positive and decreased negative mood, but neither condition produced significantly greater changes than the other. However, further research is needed to explore whether there are differences in *how* these exercises facilitate changes.

In sum, our findings suggest that the brief self-compassion exercise was acceptable to participants with a history self-harm. However, the results should be interpreted with caution as the sample size was small (only 25 participants with self-harm history across Chapters 6 and 7). Additionally, in Chapter 7 participants were not explicitly asked for feedback on the meditation and theoretically, some may have experienced increased negative emotions and not expressed them.

The current research supports Neff's (2003 a, b) assertion that self-compassion consists of 6-interweaved components, which contribute to a distinct construct.

The studies herein investigated self-compassion in relation to moderators from within the motivational phase of the IMV model. Our findings may suggest that the components of self-compassion operate throughout the motivational phase of the IMV model. On the other hand, as self-compassion is thought to develop during early childhood (MacBeth & Gumley, 2012), which in the context of the IMV model, could place it as a premotivational factor, meaning it may then exert influence across all phases of the IMV model (O'Connor & Kirtley, 2018). Furthermore, Gregory et al.'s (2018) study indicated that self-compassion may have a role ameliorating a volitional phase variable (pain sensitivity). 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. Brief self-compassion exercises may offer a safe and easily administrable means to explore how self-compassion might be effectively applied to ameliorate the impact of risk factors, and ultimately reduce the risk of suicidal ideation. Targeting self-compassion potentially presents a means of regulating and balancing moderators throughout the IMV pathway. Ultimately, further research is needed to establish this.

8.4 Strengths and Limitations of studies

One of the main strengths of the current studies is that the key variables investigated were guided by a theoretical model of suicidal behaviour which maps testable pathways to suicidal ideation and behaviour. Theoretically-driven studies which test different components of models may be particularly beneficial in exploring the mechanisms which underlie the relationship between risk/protective factors and self-harm/suicidal ideation. In trying to understand the role of all of the components of self-compassion within the motivational phase of the IMV model led to mediation models being repeatedly conducted on a relatively small sample. Although other more appropriate methods of testing multiple paths exist (e.g., structural equation modelling), this was not possible given the small sample size.

Another strength of this programme of research was the exploratory nature of the studies herein, however, the research was subsequently limited in the depth that relationships could be explored. For instance, although measures of social comparison and mindfulness were included in studies 3 and 5 it was beyond the scope of this work to explore these relationships. Similarly, some important constructs such as anxiety were not measured.

As discussed previously in section 8.1.4, self-report measures can only assess what is observable (Dewar, Pullin, & Tocheris, 2011) within the context of the construct that the scale is designed to assess. Consequently, the reliance on self-report measures throughout this programme of research must be considered a limitation in trying to understand the complexities of self-compassion.

Across studies, our participant samples were comprised mainly of young, white, students meaning that the results may not be generalisable to other populations.

Additionally, low statistical power is a potential key limitation of the autobiographical memory study reported in Chapter 7. It was not possible to detect small effects in our study. The comparison of the PRM and SCM was conducted within the self-harm group meaning comparisons were run on very small numbers, potentially masking significant differences between the conditions.

However, the combination of observational and experimental methodologies used to reflect the complex construction of self-compassion is a strength. The development of the self-compassion exercise may be both a strength and a weakness. Firstly, the

exercise was developed to avoid having to cultivate imagery as this can be challenging and distracting for individuals (Naismith et al., 2019). Moreover, developing the exercise allowed us to focus on the elements of self-compassion (warmth, kindness, courage, openness, curiosity) rather than using exercises which focus on compassion more generally. Although our exercise may have been more representative of the construct of self-compassion, individuals are often unsure about what compassion actually is therefore a more general exercise may be more in line with their interpretations of self-compassion. As discussed in Chapter 6, none of the participants attributed courage and strength to self-compassion. Additionally, this study may have benefited from the inclusion of patient and public involvement (PPI) throughout the development of the SCM and the design of the study. Future studies may benefit greatly from including PPI as standard throughout all stages of study development and execution.

In Chapter 5, suicidal ideation was assessed via a binary item to reflect presence or absence of such thoughts. Investigating presence or absence of suicidal ideation means that no information regarding the intensity of the thoughts was collected and may have contributed to floor effects in the data as suicide related thinking will have been missed. This may have contributed to the very low rates of suicidal ideation recorded at T2 which meant that only cross-sectional mediations could be conducted. Future studies should include continuous measures of suicidal ideation to avoid floor effects.

Chapter 7 focussed on autobiographical memory and self-compassion. To avoid overburdening participants, measures such as defeat, entrapment and stress were omitted, restricting the exploration of self-compassion's role as a threat to self-moderator. Future studies may wish to focus on the relationship between these factors, AMT and self-compassion.

This leads to the overarching strength and limitation of the research herein. The studies herein attempted to reflect the complex nature of self-compassion and explore it in the context of the motivational phase of the IMV model. Future studies would benefit from using statistical techniques to explore *where* in the IMV model self-compassion may fit, and *how* it relates to specified moderators and the core constructs. This could be used to identify the specific part of the pathway within the IMV model to then experimentally test the effect of self-compassion on the specific facets.

8.4 Clinical and research implications

The findings of this research suggest that self-compassion is an important factor to consider when assessing suicide risk and may potentially act as a buffer against emergent risk.

Firstly, our findings from the factor analysis of the SCS indicate that the scale can be used to give subscale scores and a total self-compassion score. This, combined with our findings that the negative components of the SCS are measuring a construct separate to self-criticism, is valuable as it indicates that self-compassion is more than the absence of self-criticism.

Inspecting the components individually may provide further insight into a range of factors which span self and interpersonal relations as well as cognitive processes to give an overview of how well the individual is regulating their emotions. For example, assessing scores on the perceived isolation subscale could allow insight into both how trapped the individual is feeling, and to what extent they are experiencing memory biases. Moreover, including the SCS into clinical assessment could allow insight into multiple risk factors such as the presence of rumination and self-blame while concurrently assessing the presence of coping mechanisms including mindfulness and the ability to self-soothe. Looking at the scores on the individual subscales could allow clinicians to quickly identify potential client specific intervention points. Additionally, the interplay between the subscales and different risk factors emphasises the importance of exploring the subscales individually in these contexts to understand how these components a) balance to reflect self-compassion, and b) influence risk factors. As self-compassion can be developed through meditations, this may suggest that using compassion focussed meditations may impact multiple risk factors simultaneously.

Our findings indicate that a brief self-compassion exercise can be used safely in people with a history of self-harm. This is valuable because, in terms of research, it may provide a means of exploring mechanisms underlying how and under what circumstances which of the components self-compassion are most important. In terms of clinical practice, it suggests that self-compassion exercises which don't focus on imagery may be effective in increasing self-compassion.

8.5 Future directions

The SCS was first published in 2003, and the construct validity of the scale is still widely debated. A possible future study could be to conduct a large survey comparing the SCS with validated measures of self-criticism, rumination, loneliness and mindfulness. Additionally, including other measures of self-compassion to assess validity. Techniques such as structural equation modelling (SEM) testing causal pathways represents a rigorous approach to testing for mediated relationships among constructs or variables particularly when multiple items have been used to capture the focal constructs (Hox & Bechger, 1998). Conducting SEM with the SCS and variables from all phases of the IMV model may allow insight into how the components of self-compassion interact with risk factors to increase or reduce suicide risk. Larger studies designed to explore differences in self-compassion between subgroups of individuals in different populations would again help further our understanding of how the components of self-compassion interact.

Additionally, there is a call for development of alternative measures of self-compassion which also reflect the intentional and behavioural dimensionality of self-compassion (Gilbert, 2010; Jazaieri et al., 2014; Neff, 2003a,b). However, it is possible that these elements of compassion cannot be fully captured by self-report measures and future studies may wish to use experimental and qualitative studies to explore the elements.

Studies 2 and 3 (chapters 6 and 7) indicated that brief self-compassion exercises are acceptable and safe to use in participants with a history of self-harm. Brief exercises like these present a great opportunity to explore which components of compassion are most important and when. Future studies may wish to further develop compassion exercises (e.g. duration of overall exercise, duration of breathing, tailored wording) and test the efficacy of different modes delivery. Exploring the effects of compassion exercises on moderators informed by IMV model, may allow understanding of the mechanisms of change within the suicidal pathway.

The studies herein investigated self-compassion in relation to moderators from within the motivational phase of the IMV model. Our findings may suggest that the components of self-compassion operate throughout the motivational phase of the IMV model. On the other hand, as self-compassion is thought to develop during early childhood (MacBeth & Gumley, 2012), which in the context of the IMV model, could place it as a premotivational factor, meaning it may then exert influence across all phases of the IMV model (O'Connor & Kirtley, 2018). Furthermore, Gregory et al.'s (2018) study indicated

that self-compassion may have a role ameliorating a volitional phase variable (pain sensitivity). 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. Brief self-compassion exercises may offer a safe and easily administrable means to explore how self-compassion might be effectively applied to ameliorate the impact of risk factors, and ultimately reduce the risk of suicidal ideation. Targeting self-compassion potentially presents a means of regulating and balancing moderators throughout the IMV pathway. Ultimately, further research is needed to establish this. Furthermore, is the first exploration of self-compassion within the context of a theoretical model of suicidal behaviour. It is important to note that not only do other models of suicidal behaviour exist (e.g. the interpersonal-psychological theory of suicidal behaviour [IPT]; Joiner, 2005; Van Orden et al., 2010), but there are other conceptualisations of compassion and self-compassion which should also be investigated. Furthermore, it is crucial that future studies investigate these relationships within more complex mental health problems including people experiencing as paranoia and distressing voices to fully understand the role of self-compassion in mental health problems and how it might be applied to ameliorate suicide risk and support recovery.

8.6 Conclusions

Self-compassion appears to be an important factor to consider in mental health and in suicide risk. The literature has repeatedly highlighted that higher levels of self-compassion are associated with better psychological wellbeing. An increased focus on the positive components of mental health is required, and self-compassion presents an important area that deserves much more research attention. As such, the current research provides an in-depth and timely investigation into self-compassion. The studies reported herein found higher levels of self-compassion differentiated between individuals with or without histories of suicidal ideation or self-harm. Components of self-compassion also mediated the relationship between key components of the motivational phase of the IMV model. Consequently, self-compassion may present a key target for the development of interventions in self-harm and suicide.

Appendix A Quality Assessment

Systematic Review Self-compassion, Self-forgiveness and Suicidality Quantitative study quality Assessment Framework

	Criteria/Rate	0	1	2	Current Study
1.	Design	Cross-sectional	Case-control	Prospective, Randomised Controlled Trials.	
2.	Was the number of participants calculated in advance for statistical power?	No	Yes	-	
3.	Statistical Power	No mention of a power calculation	Power calculation reported, but sufficient power not achieved	Power achieved	
4.	Suicidal Ideation/Behaviour Assessment	Non-validated scale; Self-report; Single question.	Hospital admission for suicide attempt; items from validated diagnostic / rating scale	Clinical interview; full validated scale (e.g. ISAS, SITBI, DSHI)	
5.	Sample Suicidal Ideation/Behaviour	Mixed group of suicidal and non-suicidal self-harming participants	Homogenous groups of either suicidal individuals	-	
6.	Self-compassion/ self-forgiveness Assessment	Non-validated scale; Self-report; Single question	Validated scale/instrument	-	
7.	Appropriate Choice of Comparison Group	No group free from self-harm. <i>E.g. includes self-harm ideators, those who have previously self-harmed or no comparison group.</i>	One case group with no personal history of suicidal thoughts or behaviours.	-	
8.	Confounding Variables <i>(Will require some judgement on behalf of the rater as studies will have done this to differing degrees)</i>	No attempt to control for confounding factors in recruitment or analyses.	Accounts for basic confounding variables either during recruitment or analysis. <i>E.g. age, gender.</i>	Accounts for basic and additional confounding variables either during recruitment or analysis. <i>[e.g. medication use/substance abuse, physical health, comorbid psychiatric conditions (depression, etc.)].</i>	
9.	Can the results be generalized outside the study context?	No	Yes	-	
Total:					

Systematic Review Self-compassion, Self-forgiveness and Suicidality

CASP Checklist: 10 questions to help you make sense of a Qualitative research

1. Was there a clear statement of the aims of the research?

Yes No Unclear

HINT: Consider

- What was the goal of the research? • Why it was thought important? • Its relevance

2. Is a qualitative methodology appropriate?

Yes No Unclear

HINT: Consider

- If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants • Is qualitative research the right methodology for addressing the research goal?

3. Was the research design appropriate to address the aims of the research?

Yes No Unsure

HINT: Consider

- If the researcher has justified the research design (E.g. have they discussed how they decided which method to use)?

4. Was the recruitment strategy appropriate to the aims of the research?

Yes No Unclear

HINT: Consider

- If the researcher has explained how the participants were selected
- If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study
- If there are any discussions around recruitment (e.g. why some people chose not to take part)

5. Was the data collected in a way that addressed the research issue?

Yes No Unclear

HINT: Consider

- If the setting for data collection was justified
- If it is clear how data were collected (e.g. focus group, semi-structured interview etc.)
- If the researcher has justified the methods chosen
- If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews were conducted, or did they use a topic guide)?
- If methods were modified during the study. If so, has the researcher explained how and why?
- If the form of data is clear (e.g. tape recordings, video material, notes etc)
- If the researcher has discussed saturation of data

6. Has the relationship between researcher and participants been adequately considered?

Yes No Unclear

HINT: Consider

- If the researcher critically examined their own role, potential bias and influence during (a) Formulation of the research questions (b) Data collection, including sample recruitment and choice of location
- How the researcher responded to events during the study and whether they considered the implications of any changes in the research design

7. Have ethical issues been taken into consideration?

Yes No Unclear

HINT: Consider

- If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained
- If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)
- If approval has been sought from the ethics committee

8. Was the data analysis sufficiently rigorous?

Yes No Unclear

HINT: Consider

- If there is an in-depth description of the analysis process
- If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data?
- Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process
- If sufficient data are presented to support the findings
- To what extent contradictory data are taken into account
- Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation

9. Is there a clear statement of findings?

Yes No Unclear

HINT: Consider

- If the findings are explicit
- If there is adequate discussion of the evidence both for and against the researchers arguments
- If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)
- If the findings are discussed in relation to the original research question

10. How valuable is the research?

Yes No Unclear

HINT: Consider

- If the researcher discusses the contribution the study makes to existing knowledge or understanding e.g. do they consider the findings in relation to current practice or policy?, or relevant research-based literature?
- If they identify new areas where research is necessary
- If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used

Appendix B Ethics approvals

study 1

From: "ResearchEthicsSystem@glasgow.ac.uk" <ResearchEthicsSystem@glasgow.ac.uk>

Date: Monday, 24 February 2014 14:44

To: Rory O'Connor <Rory.OConnor@glasgow.ac.uk>

Subject: Research Ethics Application Approved [Self-compassion and Psychological Wellbeing]-[200130070]

Dear Professor Rory OConnor,

The following research ethics application has been approved:

Project Title	Self-compassion and Psychological Wellbeing
Application Number	200130070
Committee	College of Medical Veterinary and Life Sciences
Submitted By	Professor Rory OConnor

study 2

From: "ResearchEthicsSystem@glasgow.ac.uk" <ResearchEthicsSystem@glasgow.ac.uk>

Date: Thursday, 19 February 2015 09:34

To: Rory O'Connor <Rory.OConnor@glasgow.ac.uk>

Subject: Research Ethics Application Approved [Investigating the Relationship between Compassion and Suicide Risk: Piloting a brief compassion meditation]-[200140040]

Dear Professor Rory OConnor,

The following research ethics application has been approved:

Project Title	Investigating the Relationship between Compassion and Suicide Risk: Piloting a brief compassion meditation
Application Number	200140040
Committee	College of Medical Veterinary and Life Sciences
Submitted By	Professor Rory OConnor

study 3

From: "ResearchEthicsSystem@glasgow.ac.uk" <ResearchEthicsSystem@glasgow.ac.uk>

Date: Wednesday, 18 November 2015 09:33

To: Seonaid Cleare <s.cleare.1@research.gla.ac.uk>

Subject: Research Ethics Application Approved [Mood, Memory and Suicide Risk]-[200150016]

Dear Seonaid Cleare,

The following research ethics application has been approved:

Project Title	Mood, Memory and Suicide Risk
Application Number	200150016
Committee	College of Medical Veterinary and Life Sciences
Submitted By	Professor Rory OConnor

Appendix C Recruitment

study 1 advert

Self-compassion and Psychological Wellbeing study

Researchers at Glasgow University are seeking adults (16 years or older) to participate in an online study aimed at understanding thoughts and feelings people experience that are related to psychological well-being and self-compassion.

- Eligible participants will be entered into a prize draw to win high street shopping vouchers or an iPad mini for participation in this confidential study.
 - Participation involves completing a range of questionnaires online.
 - To learn more, please visit the study webpage www.surveymonkey.com/s/wellbeingandselfcompassion. Alternatively, you can e-mail s.cleare.1@research.gla.ac.uk
-

Original study 2 adverts

Control advert

The Relationship between Compassion and Suicide Risk: Piloting a brief compassion meditation.

Researchers at Glasgow University are seeking adults (18 years or older) to participate in a study piloting a brief compassion meditation.

- Eligible participants will receive £15 for participation in this confidential study.
- Participation involves one visit to Glasgow University to complete questionnaires as well as a compassion meditation and brief interview.

To learn more, please contact Seonaid on xxx Or e-mail
s.cleare.1@research.gla.ac.uk

Self-harm history advert

Have you experienced thoughts or feelings related to suicide?

The Relationship between Compassion and Suicide Risk: Piloting a brief compassion meditation.

Researchers at Glasgow University are seeking adults (18 years or older) to participate in a study piloting a brief compassion meditation.

- Eligible participants will receive £15 for participation in this confidential study.
- Participation involves one visit to Glasgow University to complete questionnaires as well as compassion meditation and brief interview.

To learn more, please contact Seonaid on xxx Or e-mail
s.cleare.1@research.gla.ac.uk

study 2 adverts following feedback

Thinking styles and wellbeing

Researchers at Glasgow University are seeking adults (18 years or older) to participate in a study piloting a brief compassion meditation.

- Eligible participants will receive £15 for participation in this confidential study.

- Participation involves one visit to Glasgow University to complete questionnaires as well as a compassion meditation and brief interview.

To learn more, please contact Seonaid on xxx Or e-mail
s.cleare.1@research.gla.ac.uk

Suicidal History ad

Thinking styles and wellbeing
Have you experienced thoughts or feelings related to suicide?

Researchers at Glasgow University are seeking adults (18 years or older) to participate in a study piloting a brief compassion meditation.

- Eligible participants will receive £15 for participation in this confidential study.

- Participation involves one visit to Glasgow University to complete questionnaires as well as compassion meditation and brief interview.

To learn more, please contact Seonaid on xxx Or e-mail
s.cleare.1@research.gla.ac.uk

study 3 Text for adverts

Control ad

Investigating the Relationship between Mood, Memory and Suicide Risk

Researchers at Glasgow University are seeking adults (18 years or older) to participate in a study exploring mood, memory and suicide risk

- Eligible participants will receive £15 for participation in this confidential study.

- Participation involves: one visit to Glasgow University to complete a series of questionnaires, word association tasks and measures of mood

- To learn more, please contact Seonaid on xxx Or e-mail
s.cleare.1@research.gla.ac.uk

Suicidal History ad

Have you experienced thoughts or feelings related to suicide?

Investigating the Relationship between Mood, Memory and Suicide Risk

Researchers at Glasgow University are seeking adults (18 years or older) to participate in a study looking at the relationship between compassion, memory and suicide risk.

- Eligible participants will receive £15 for participation in this confidential study.

Participation involves: one visit to Glasgow University to complete a series of questionnaires, word association tasks and measures of mood

To learn more, please contact Seonaid on xxx Or e-mail
s.cleare.1@research.gla.ac.uk

Phone Screen (studies 2 and 3)

Interviewer: _____

Date: _____

Investigating the Relationship between Mood, Memory and Suicide Risk

PART A

Thank you for calling.

Just so you know, this is about a five - to ten minute phone screen. I'll first describe the study and then, if you are interested, ask a few questions to see if you are eligible for participation.

Ok, great! Before I explain the study to you, I should note that the few questions I'm going to eventually ask you are about sensitive topics so you might want to be in a private room.

Everything that you tell me during this phone call is confidential; HOWEVER, I must let you know that if you tell me that you are at imminent risk of harm, I must take the necessary steps to ensure your safety, such as contacting emergency services. Is this OK with you?

In case we get disconnected, could I take down your contact information at this point?

Name: _____

Address: _____

Phone	Number:	(Home/	Mobile)

Email Address: _____

Note: *Email is not a secure means of communication and please only provide your email address if you are willing to receive an email from the Glasgow University Psychology Dept.*

Ok great. Let me tell you a little bit about the study but please stop me along the way if you have any questions.

This study is looking at how mood and memory may be associated with suicide risk, but you don't have to hurt yourself in the past to take part. It is *crucial* that you are able to meet with myself for about an hour at our lab (either Glasgow University's Gartnavel campus or within Hillhead). So far does this sound like something you could do?
[If yes, continue]

To give you a more specific description: During your visit you will fill out some questionnaires, take part in some lab based tasks looking at mood including a brief negative mood induction (temp reduce your mood) and memory and you may be randomized to take part in a brief relaxation-type exercise. Due to the nature of this research, some of the questions will be related to thoughts and feelings around self-injury and suicide. You will receive £15 for completing this part of the study as compensation for your time. We would then contact you in 4 weeks' time to see how you're doing, and ask you a few questions about your thoughts, feelings, and experiences since visiting us in the lab. Some of these questions will again have to do with self-injurious behaviors. So far, does this sound like something you may be interested in? Do you have any questions?"

[If not interested]:Ok, well thank you for your time. Please don't hesitate to call back if you change your mind or have any questions.

[If the person is interested]: Great! Then I would like to ask you a few questions to see if this study is appropriate for you. We are looking for people with specific traits to participate (for instance, people of a specific age, gender, and history of past experiences). There are no right or wrong answers, but we are asking them to see if you are a match with this particular study. Some of the questions will be related to any history of self-harm. Do you have any questions for me before we begin?

Age (must be 18 or older)_____

Male/Female

What area do you live in?_____

Do you have any special requirements? *E.g. wheelchair access*

Do you currently practice any form of meditation/mindfulness?

Have you ever received any treatment for any mental health conditions?

PART B

[Suicide Ideation]

Have you ever had thoughts about actually killing yourself?

If so, when was the last time?

And what did you find yourself thinking [timeframe] ago? (e.g., if you had to put your thoughts into words?) **[If actual desire to kill self (vs. not exist, not live), qualifies as suicidal]**

[If yes, provide details]

[Suicide Attempt]

Have you ever actually attempted to kill yourself?

If so, when was the last time?

[If yes, provide details] Can you give me some more information about what happened?

[If they have attempted suicide in the past then a Risk Assessment must be completed GO TO PART E]

[Current Suicidality]

Currently, how would you rate your desire to live, with “10” being you really want to be alive and “0” being you very much want to be dead? **[If answered 3 or less, read small paragraph below, and then go on to risk assessment PART E]**

Do you have any plan or intent to kill yourself at this time? **[If yes, read small paragraph below, and then go on to risk assessment PART E]**

IF DESIRE TO LIVE 3 OR LESS OR INTENT/PLAN TO KILL ONESELF: I am concerned to hear that you are currently having these thoughts. In our study, we are going to ask you about some things that may be difficult to talk about. Given you are currently feeling like you want to die, what I would like to do is first make sure you have someone to talk to about getting help, and we can talk more about the study later on.

Appendix D Informed Consent material

study 1 Information sheet



University of Glasgow | College of Medical,
Veterinary & Life Sciences

Participant Information Sheet (Version 1, 20 January 2014)

Title of Project: Self-compassion and Psychological Wellbeing study

You are being invited to complete an online survey which will ask you about your recent experiences, thoughts and feelings. Approximately 550 people will be taking part in this study.

This study is being carried out as part of a research degree by Seonaid Cleare at University of Glasgow.

What will participation involve?

There are two phases to this online study. The first part of the study should take between 20 - 30 minutes to complete. You will be asked questions about recent experiences, thoughts and feelings. Some of these questions will relate to your mood and emotions, including both positive (e.g., how resilient you are) and negative thoughts you may have (e.g., thoughts of self-harm). Please answer the questions honestly. All information you give is anonymous and confidential.

At the end of the survey you will be entered into a prize draw to win High street vouchers. The prize draw will take place when recruitment to the study is complete. The second part of the study will involve a follow-up survey 2- 3 months later. This phase will be shorter than time 1 and will involve answering some of the survey questions again and it will take around 15- 20 minutes to complete.

By taking part in the first part of the study, you are not committed to taking part in the follow-up survey. Even if you agree now, you are free to say 'no' if you decide that you do not want to take part in the second part of the study when you are contacted.

If you do decide to take part in the follow-up survey you will be entered into a prize draw to win an iPad mini.

What happens to the information collected?

Your participation and all of the information you provide in this study will remain strictly confidential. All records will be stored in a secure manner so as to protect the confidentiality of your information.

Any personal information collected as part of the study, including your name and email address, will be held separately to your answers and will never be linked to what you tell us in the survey. This information is only required for the purpose of the prize draw. At the end of the study, all personal information will be destroyed once all the data have been analysed.

It will not be possible to identify any particular individuals or addresses in the results. The results will be analysed and published in the form of a thesis.

A summary of the results will be available at the end of the study. If you would like information about what we found, please contact Seonaid Cleare (s.cleare.1@research.gla.ac.uk).

Is participation compulsory?

Your participation in this study is completely voluntary. You can withdraw at any point if you wish to do so without giving a reason and you do not have to answer any questions that you do not want to.

What are the risks of the research?

As with all research that asks about people's health and wellbeing, there is a small possibility that some of the questions may lead you to think about certain experiences in your life that you find upsetting. You are free to stop the survey at any point. At the end of the survey, you will be sent a list of contacts that you can get in touch with if you would like more information, or would like to talk to someone, about any of the issues covered in the survey.

If you have any questions, require more information or want to find out about the study outcome please email me.

Researcher Name: Seonaid Cleare: s.cleare.1@research.gla.ac.uk

Alternatively you may contact my supervisors:

Prof Rory O'Connor: rory.oconnor@glasgow.ac.uk

Prof Andrew Gumley: Andrew.Gumley@glasgow.ac.uk

Thank you for taking the time to read this information sheet!

study 1 Participant Consent

* information presented on-screen once participant has clicked through to hosting website

(Version 1, 20.01.2014)

Title of Project: Self-compassion and Psychological Wellbeing study

Name of Research student: Seonaid Cleare

Please check box to confirm that:

- I have read and understand the information sheet dated **20th January 2014 (Version 1)** for the above study.
- I am over 16 years old.
- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without penalty.
- I agree to the researcher keeping my contact details for the purposes of contacting me again in two-three months' time, for the follow up part of the study.

- I agree to take part in the above study.



study 2 Participant Information Sheet (Version 1, 19.01.15)

The Relationship between Compassion and Suicide Risk: Piloting a brief compassion meditation.

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the study? This study aims to pilot a brief compassion meditation. I would also like to ask you some questions to find out about what compassion means to you and get your feedback on the study. This study is being carried out as part of a research degree by Seonaid Cleare at University of Glasgow. The study will take approximately 1 hour.

Why have I been chosen to participate? You were chosen to take part in this study because you replied to the advertisement that we placed requesting participants. Based on the responses that you gave us in our initial telephone conversation, we asked you to come into the lab and take part in the study. Approximately 8 people will be taking part in this study.

Do I have to take part? It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time and without giving a reason.

What will happen to me if I take part?
There are two parts to today's visit.

Part 1: Questionnaires.

In the first part you will be asked to complete some questionnaires that will measure your thoughts, mood and emotions. Some of these questions will be related to mood, negative thoughts you may have (e.g., thoughts of self-harm) and behaviours. This will take 10-12 minutes to complete. All information you give is anonymous and confidential. You will then be asked to rate your mood on a set of scales before and after the compassion meditation.

Compassion meditation

This begins with a card sorting task where you will be asked to select cards with words on them that you associate with compassion. This task will help us have a shared understanding of what we mean by compassion. You will then take part in a brief (approximately 10 minutes) compassion meditation. This meditation type exercise focusses on exploring feelings associated with compassion. *With your permission the compassion induction will be audio recorded to allow the researcher's administration of the tasks to be assessed for reliability.*

Part 2: Interview and feedback.

As a final part to your visit we would like to invite you to share what compassion means to you.

We would also like to get your feedback on the study and in particular on the compassion meditation.

The feedback will be used to help develop the study methods for use in a larger trial. *With your permission the final interview will be audio recorded to allow the researcher to transcribe your views after the study.*

You will receive £15 in cash in compensation for your time and to contribute to your journey costs.

What are the possible disadvantages and risks of taking part? As with all research that asks about people's health and wellbeing, there is a small possibility that some of the questions may lead you to think about certain experiences in your life that you find upsetting. You are free to stop the study at any point. If the researcher deems that you are unduly distressed by the study they will end the study. If you feel any distress or negative emotions after the study we would ask you to get in touch with the researcher or one of the services on the list of useful contacts that we will provide you with.

What are the possible benefits of taking part? You will receive no direct benefit from taking part in this study. The information that is collected during this study will give us a better understanding of the relationship between compassion and suicide risk.

Will my taking part in this study be kept confidential? All information which is collected about you, or responses that you provide, during the course of the research will be kept strictly confidential. You will be identified by an ID number, and any information about you will have your name and address removed so that you cannot be recognised from it. Please note that assurances on confidentiality will be strictly adhered to unless evidence of wrongdoing is uncovered. In such cases the University may be obliged to contact relevant statutory bodies/agencies, including the Police.

What will happen to the results of the research study? The results will be analysed and published in the form of a thesis and published in academic journals. At the end of the study, all personal information will be destroyed once all the data have been analysed. We will also produce a summary of the results which will be available to you once we have finished collecting and analysing the data from the study. If you would like information about what we found, please contact Seonaid Cleare (s.cleare.1@research.gla.ac.uk). You will not be personally identified in any report/publication which results from this study.

Who is organising and funding the research? This research is being carried out as part of a research degree by Seonaid Cleare at University of Glasgow Funding for the study is coming from funds available to Prof Rory O'Connor and Prof Andrew Gumley.

Who has reviewed the study? The project has been reviewed by the College of Medicine, Veterinary and Life Sciences Ethics Committee at the University of Glasgow.

Contact for Further Information If you have any questions, require more information or want to find out about the study outcome please email me.

Researcher Name: Seonaid Cleare: s.cleare.1@research.gla.ac.uk
Alternatively you may contact my supervisors:

Prof Rory O'Connor: rory.oconnor@glasgow.ac.uk

Prof Andrew Gumley: Andrew.Gumley@glasgow.ac.uk

Thank you for taking the time to read this information sheet!

study 2 Participant Consent



University of Glasgow | College of Medical,
Veterinary & Life Sciences

(Version 1, 06.11.2014)

Title of Project: The Relationship between Compassion and Suicide Risk: Piloting a brief compassion meditation.

Participation Identification Number: _____

Name of Researcher(s): Seonaid Cleare

Please initial box

I confirm that I have read and understand the information sheet dated 06.11.2014 (version 1) for the above study and have had the opportunity to ask questions.

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.

I give my permission for the researcher to audio record today's session.

I agree to take part in the above study.

Name of participant

Date

Signature

Researcher

Date

Signature

(1 copy for subject; 1 copy for researcher)

study 3 Participant Information Sheet (SH group)



University of Glasgow | College of Medical,
Veterinary & Life Sciences

(Version 1, 08.09.15)

Mood, Memory, and Suicide Risk

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the study? You are being invited to take part in a study that aims to better understand how meditation affects autobiographical memory recall. This study is being carried out as part of a research degree by Seonaid Cleare at University of Glasgow.

Participation will take approximately an hour and a quarter.

Why have I been chosen to participate? You have been chosen to take part in this study because you replied to an advertisement that we placed requesting participants. Based on the responses that you gave to us in our initial telephone conversation, we asked you to come into the lab and take part in the study.

Approximately 60 people will be taking part in this study.

Do I have to take part? It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time and without giving a reason.

What will happen to me if I take part? There are two parts to today's visit.

Part 1: Questionnaires.

In the first part you will be asked to complete some questionnaires that will measure your thoughts, mood and emotions. Some of these questions will be related to mood, negative thoughts you may have (e.g., thoughts of self-harm) and behaviours. This will take 10-15 minutes to complete. All information you give is anonymous and confidential.

Part 2: Meditation and mood

Throughout this section of the study you will be asked to rate your mood on a set of scales.

For the first part you will be asked to take part in a memory task where you will be shown a series of words and will have 30 seconds to describe a memory related to each word.

Next you will be asked to watch a brief (10 minutes) mood induction that has been designed to temporarily lower your mood.

This will be followed by completing the memory task again.

You will then be randomly assigned to take part in one of two different types of meditation (10-15 minutes).

Both types of meditation begin with a card sorting task where you will be asked to select cards with words on them (these words will be associated with compassion or relaxation). Next, you will be asked to do exercises focusing on compassion or exercises focusing on muscle relaxation. All of these exercises will be completed while seated.

This will be followed by the final part of the memory task.

With your permission the memory tasks and compassion induction will be audio recorded to allow the researcher's administration of the tasks to be assessed for reliability.

What are the possible disadvantages and risks of taking part? As with all research that asks about people's health and wellbeing, there is a small possibility that some of the questions may lead you to think about certain experiences in your life that you find upsetting. You are free to stop the study at any point. If the researcher deems that you are unduly distressed by the study they will end the study. If you feel any distress or negative emotions after the study we would ask you to get in touch with the researcher or one of the services on the list of useful contacts that we will provide you with.

What are the possible benefits of taking part? You will receive no direct benefit from taking part in this study. The information that is collected during this study will give us a better understanding of the relationship between meditation, memory and suicide risk.

Will my taking part in this study be kept confidential? All information which is collected about you, or responses that you provide, during the course of the research will be kept strictly confidential. You will be identified by an ID number, and any information about you will have your name and address removed so that you cannot be recognised from it. Please note that assurances on confidentiality will be strictly adhered to unless evidence of serious harm, or risk of serious harm, is uncovered. In such cases the University may be obliged to contact relevant statutory bodies/agencies.

What will happen to the results of the research study? The results will be analysed and published in the form of a thesis and published in academic journals. At the end of the study, all personal information will be destroyed once all the data have been analysed. We will also produce a summary of the results which will be available to you once we have finished collecting and analysing the data from the study. If you would like information about what we found, please contact Seonaid Cleare (s.cleare.1@research.gla.ac.uk).

You will not be personally identified in any report/publication which results from this study.

Who is organising and funding the research? This research is being carried out as part of a research degree by Seonaid Cleare at University of Glasgow. Funding for the study is coming from general funds available to Prof Rory O'Connor and Prof Andrew Gumley.

Who has reviewed the study? The project has been reviewed by the College of Medicine, Veterinary and Life Sciences Ethics Committee at the University of Glasgow.

Contact for Further Information If you have any questions, require more information or want to find out about the study outcome please email me.

Researcher Name: Seonaid Cleare: s.cleare.1@research.gla.ac.uk

Alternatively you may contact my supervisors:

Prof Rory O'Connor: rory.oconnor@glasgow.ac.uk

Prof Andrew Gumley: Andrew.Gumley@glasgow.ac.uk

Thank you for taking the time to read this information sheet!

study 3 Participant Information Sheet (controls)



University of Glasgow | College of Medical,
Veterinary & Life Sciences

(Version 1, 08.09.15)

Mood, Memory and Suicide Risk

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the study? You are being invited to take part in a study that aims to better understand how meditation affects autobiographical memory recall. This study is being carried out as part of a research degree by Seonaid Cleare at University of Glasgow.

Participation will take approximately 1 hour.

Why have I been chosen to participate? You have been chosen to take part in this study because you replied to an advertisement that we placed requesting participants. Based on the responses that you gave to us in our initial telephone conversation, we asked you to come into the lab and take part in the study.

Approximately 60 people will be taking part in this study.

Do I have to take part? It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time and without giving a reason.

What will happen to me if I take part? There are two parts to today's visit.

Part 1: Questionnaires.

In the first part you will be asked to complete some questionnaires that will measure your thoughts, mood and emotions. Some of these questions will be related to mood, negative thoughts you may have (e.g., thoughts of self-harm) and behaviours. This will take 10-15 minutes to complete. All information you give is anonymous and confidential.

Part 2: Meditation and mood

Throughout this section of the study you will be asked to rate your mood on a set of scales.

For the first part you will be asked to take part in a memory task where you will be shown a series of words and will have 30 seconds to describe a memory related to each word.

Next you will be asked to watch a brief (10 minutes) mood induction that has been designed to temporarily lower your mood.

This will be followed by completing the memory task again.

At the end of the survey, the researcher will ask you whether you would be willing to help out with the next phase of the research.

With your permission the memory tasks will be audio recorded to allow the researcher's administration of the tasks to be assessed for reliability.

What are the possible disadvantages and risks of taking part? As with all research that asks about people's health and wellbeing, there is a small possibility that some of the questions may lead you to think about certain experiences in your life that you find upsetting. You are free to stop the study at any point. If the researcher deems that you are unduly distressed by the study they will end the study. If you feel any distress or negative emotions after the study we would ask you to get in touch with the researcher or one of the services on the list of useful contacts that we will provide you with.

What are the possible benefits of taking part? You will receive no direct benefit from taking part in this study. The information that is collected during this study will give us a better understanding of the relationship between memory and suicide risk.

Will my taking part in this study be kept confidential? All information which is collected about you, or responses that you provide, during the course of the research will be kept strictly confidential. You will be identified by an ID number, and any information about you will have your name and address removed so that you cannot be recognised from it. Please note that assurances on confidentiality will be strictly adhered to unless evidence of serious harm, or risk of serious harm, is uncovered. In such cases the University may be obliged to contact relevant statutory bodies/agencies.

What will happen to the results of the research study? The results will be analysed and published in the form of a thesis and published in academic journals. At the end of the study, all personal information will be destroyed once all the data have been analysed. We will also produce a summary of the results which will be available to you once we have finished collecting and analysing the data from the study. If you would like information about what we found, please contact Seonaid Cleare (s.cleare.1@research.gla.ac.uk). You will not be personally identified in any report/publication which results from this study.

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Researcher Name: Seonaid Cleare: s.cleare.1@research.gla.ac.uk

Alternatively, you may contact my supervisors:

Prof Rory O'Connor: rory.oconnor@glasgow.ac.uk

Prof Andrew Gumley: Andrew.Gumley@glasgow.ac.uk

Thank you for taking the time to read this information sheet!

study 3 Participant consent



University of Glasgow | College of Medical,
Veterinary & Life Sciences

Mood, Memory and Suicide Risk

Participation Identification Number: _____

Name of Researcher(s): Seonaid Cleare

Please initial box

I confirm that I have read and understand the information sheet dated 08.09.2015 (version 1) for the above study and have had the opportunity to ask questions.

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.

I give my permission for the experimenter to audio record today's session

I agree to take part in the above study.

Name of participant *Date* *Signature*

Researcher *Date* *Signature*
(1 copy for subject; 1 copy for researcher)

Appendix E study measures

Self-report measures

Demographics (all studies)

1. Age: _____

2. Please identify your race/ethnicity (Circle one below)

- 1) Scottish 2) Irish 3) Northern Irish 4) English 5) Welsh 6) Asian
 7) Pakistani 8) Indian 9) Chinese 10) Bangladeshi 11) Caribbean
 12) African 13) other: _____ 999) prefer not to answer

3. What is your current marital status? (Circle one below)

- 1) single 4) divorced 7) other: _____
 2) married/cohabiting 5) widowed 999) prefer not to answer
 3) separated 6) common-law marriage

4. Who do you currently live with? (Circle all that apply below)

- 1) live alone 9) halfway/ group home
 2) with spouse / common law partner 10) residential treatment center
 3) with partner 11) psychiatric hospital
 4) with own children 12) academic institution
 5) with parents 13) homeless/ shelter
 6) with siblings 14) other _____
 7) with extended family 999) unknown
 8) with roommate/companion

4. Are you currently studying? Yes/ No If yes, what are you
 studying? _____

5. Are you religious? Yes/ No If yes, what is your religion? _____
 Are you actively religious? No/Yes
 If Yes: How often do you practice? Daily, several times a week, once a week, monthly,
 less than monthly, less frequently

6. Do you practice mindfulness, or any other form of meditation?

Mindfulness Yes/ No

Any form of meditation? Please specify _____

Yes: How often do you practice? Daily, several times a week, once a week, monthly, less
 than monthly, less frequently.

Questionnaires

Self-compassion scale (all studies)

Please read each statement carefully before answering. Please circle one number on each row to show how often you behave in the stated manner:

	Almost never	Occasionally	Some of the time	Often	Almost always
I'm disapproving and judgmental about my own flaws and inadequacies.	1	2	3	4	5
When I'm feeling down I tend to obsess and fixate on everything that's wrong.	1	2	3	4	5
When things are going badly for me, I see the difficulties as part of life that everyone goes through.	1	2	3	4	5
When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.	1	2	3	4	5
I try to be loving towards myself when I'm feeling emotional pain.	1	2	3	4	5
When I fail at something important to me I become consumed by feelings of inadequacy.	1	2	3	4	5
When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.	1	2	3	4	5
When times are really difficult, I tend to be tough on myself.	1	2	3	4	5
When something upsets me I try to keep my emotions in balance.	1	2	3	4	5
When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.	1	2	3	4	5
I'm intolerant and impatient towards those aspects of my personality I don't like.	1	2	3	4	5
When I'm going through a very hard time, I give myself the caring and tenderness I need.	1	2	3	4	5
When I'm feeling down, I tend to feel like most other people are probably happier than I am.	1	2	3	4	5
When something painful happens I try to take a balanced view of the situation.	1	2	3	4	5
I try to see my failings as part of the human condition.	1	2	3	4	5
When I see aspects of myself that I don't like, I get down on myself.	1	2	3	4	5
When I fail at something important to me I try to keep things in perspective.	1	2	3	4	5
When I'm really struggling, I tend to feel like other people must be having an easier time of it.	1	2	3	4	5
I'm kind to myself when I'm experiencing suffering.	1	2	3	4	5
When something upsets me I get carried away with my feelings.	1	2	3	4	5
I can be a bit cold-hearted towards myself when I'm experiencing suffering.	1	2	3	4	5
When I'm feeling down I try to approach my feelings with curiosity and openness.	1	2	3	4	5

I'm tolerant of my own flaws and inadequacies.	1	2	3	4	5
When something painful happens I tend to blow the incident out of proportion.	1	2	3	4	5
When I fail at something that's important to me, I tend to feel alone in my failure.	1	2	3	4	5
I try to be understanding and patient towards those aspects of my personality I don't like.	1	2	3	4	5

Depressive symptoms Ces-d (all studies)

Below is a list of the ways you might have felt or behaved. Please circle a number for each row to tell me how often you have felt this way during the PAST WEEK.

During the past week	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
I was bothered by things that usually don't bother me.	0	1	2	3
I did not feel like eating; my appetite was poor.	0	1	2	3
I felt that I could not shake off the blues even with help from my family or friends.	0	1	2	3
I felt I was just as good as other people.	0	1	2	3
I had trouble keeping my mind on what I was doing.	0	1	2	3
I felt depressed.	0	1	2	3
I felt that everything I did was an effort.	0	1	2	3
I felt hopeful about the future.	0	1	2	3
I thought my life had been a failure.	0	1	2	3
I felt fearful.	0	1	2	3
My sleep was restless.	0	1	2	3
I was happy.	0	1	2	3
I talked less than usual.	0	1	2	3
I felt lonely.	0	1	2	3
People were unfriendly.	0	1	2	3
I enjoyed life.	0	1	2	3
I had crying spells.	0	1	2	3
I felt sad.	0	1	2	3
I felt that people dislike me.	0	1	2	3
I could not get "going"	0	1	2	3

Mindfulness FFMQ (all studies)

Below is a collection of statements about your everyday experience. Please circle a number for each row to show how often you have had each experience in THE LAST MONTH. Please answer according to what really reflects your experience rather than what you think your experience should be.

	Never or very rarely true	Not often true	Sometime true sometimes not true	Often true	Very often or always true
I'm good at finding the words to describe my feelings	1	2	3	4	5
I can easily put my beliefs, opinions, and expectations into words	1	2	3	4	5
I watch my feelings without getting carried away by them	1	2	3	4	5
I tell myself that I shouldn't be feeling the way I'm feeling	1	2	3	4	5
it's hard for me to find the words to describe what I'm thinking	1	2	3	4	5
I pay attention to physical experiences, such as the wind in my hair or sun on my face	1	2	3	4	5
I make judgments about whether my thoughts are good or bad.	1	2	3	4	5
I find it difficult to stay focused on what's happening in the present moment	1	2	3	4	5
when I have distressing thoughts or images, I don't let myself be carried away by them	1	2	3	4	5
generally, I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing	1	2	3	4	5
when I feel something in my body, it's hard for me to find the right words to describe it	1	2	3	4	5
it seems I am "running on automatic" without much awareness of what I'm doing	1	2	3	4	5
when I have distressing thoughts or images, I feel calm soon after	1	2	3	4	5
I tell myself I shouldn't be thinking the way I'm thinking	1	2	3	4	5
I notice the smells and aromas of things	1	2	3	4	5
even when I'm feeling terribly upset, I can find a way to put it into words	1	2	3	4	5
I rush through activities without being really attentive to them	1	2	3	4	5
usually when I have distressing thoughts or images I can just notice them without reacting	1	2	3	4	5
I think some of my emotions are bad or inappropriate and I shouldn't feel them	1	2	3	4	5
I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow	1	2	3	4	5
when I have distressing thoughts or images, I just notice them and let them go	1	2	3	4	5
I do jobs or tasks automatically without being aware of what I'm doing	1	2	3	4	5
I find myself doing things without paying attention	1	2	3	4	5

I disapprove of myself when I have illogical ideas	1	2	3	4	5
--	---	---	---	---	---

Self-criticism (all studies)

When things go wrong in our lives or don't work out as we hoped, and we feel we could have done better, we sometimes have *negative and self-critical thoughts and feelings*. These may take the form of feeling worthless, useless or inferior etc. However, people can also try to be supportive of themselves. Below are a series of thoughts and feelings that people sometimes have. Read each statement carefully and circle the number that best describes how much each statement is true for you.

When things go wrong for me:	Not at all like me	A little bit like me	Moderately like me	Quite a bit like me	Extremely like me
I am easily disappointed with myself.	0	1	2	3	4
There is a part of me that puts me down.	0	1	2	3	4
I am able to remind myself of positive things about myself.	0	1	2	3	4
I find it difficult to control my anger and frustration at myself.	0	1	2	3	4
I find it easy to forgive myself.	0	1	2	3	4
There is a part of me that feels I am not good enough.	0	1	2	3	4
I feel beaten down by my own self-critical thoughts.	0	1	2	3	4
I still like being me.	0	1	2	3	4
I have become so angry with myself that I want to hurt or injure myself.	0	1	2	3	4
I have a sense of disgust with myself.	0	1	2	3	4
I can still feel lovable and acceptable.	0	1	2	3	4
I stop caring about myself.	0	1	2	3	4
I find it easy to like myself.	0	1	2	3	4
I remember and dwell on my failings.	0	1	2	3	4
I call myself names.	0	1	2	3	4
I am gentle and supportive with myself.	0	1	2	3	4
I can't accept failures and setbacks without feeling inadequate.	0	1	2	3	4
I think I deserve my self-criticism.	0	1	2	3	4
I am able to care and look after myself.	0	1	2	3	4
There is a part of me that wants to get rid of the bits I don't like.	0	1	2	3	4
I encourage myself for the future.	0	1	2	3	4

I do not like being me.

0

1

2

3

4

Defeat scale (study 1)

Below is a series of statements which describe how people can feel about themselves. Read each item carefully and select the number that best describes how you have felt in the LAST WEEK. Please do not omit any item.

SCALE

0 = NEVER 1 = RARELY 2 = SOMETIMES 3 = MOSTLY (a lot) 4 = ALWAYS

1	I feel that I have not made it in life	0	1	2	3	4
2	I feel that I am a successful person.	0	1	2	3	4
3	I feel defeated by life.	0	1	2	3	4
4	I feel that I am basically a winner.	0	1	2	3	4
5	I feel that I have lost my standing in the world.	0	1	2	3	4
6	I feel that life has treated me like a punch-bag.	0	1	2	3	4
7	I feel powerless.	0	1	2	3	4
8	I feel that my confidence has been knocked out of me.	0	1	2	3	4
9	I feel able to deal with whatever life throws at me.	0	1	2	3	4
10	I feel that I have sunk to the bottom of the ladder	0	1	2	3	4
11	I feel completely knocked out of action.	0	1	2	3	4
12	I feel that I am one of life's losers.	0	1	2	3	4
13	I feel that I have given up.	0	1	2	3	4
14	I feel down and out	0	1	2	3	4
15	I feel that I have lost important battles in life.	0	1	2	3	4
16	I feel that there is no fight left in me.	0	1	2	3	4

Entrapment (study 1)

For each of the following attitude statements indicate the extent to which you think it represents your own view of yourself. Read each item carefully and select the number that best describes the degree to which each statement is Like You. Please do not omit any item.

0 = Not at all 1 = A little bit 2 = Moderately 3 = Quite a bit 4 =

Extremely

like me

like me

like me

like me

like

me

1	I am in situation I feel trapped in.	0	1		2	3	4
2	I have a strong desire to escape from things in my life.	0	1		2	3	4
3	I am in a relationship I can't get out of	0	1		2	3	4
4	I often have the feeling that I would just like to run away.	0	1		2	3	4
5	I feel powerless to change things.	0	1		2	3	4
6	I feel trapped by my obligations	0	1		2	3	4
7	I can see no way out of my current situation.	0	1		2	3	4
8	I would like to get away from other more powerful people in my life.	0	1		2	3	4
9	I have a strong desire to get away and stay away from where I am now	0	1		2	3	4
10	I feel trapped by other people.	0	1		2	3	4
11	I want to get away from myself.	0	1		2	3	4
12	I feel powerless to change myself.	0	1		2	3	4
13	I would like to escape from my thoughts and feelings.	0	1		2	3	4
14	I feel trapped inside myself.	0	1		2	3	4
15	I would like to get away from who I am and start again	0	1		2	3	4
16	I feel I'm in a deep hole I can't get out of	0	1		2	3	4

Stress (PSS-4) study 1

INSTRUCTIONS:

The questions in this scale ask you about your feelings and thoughts during THE LAST MONTH. In each case, please select HOW OFTEN you felt or thought a certain way.

		Never	Almost Never	Sometimes	Fairly often	Very often
1	In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
2	In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
3	In the last month, how often have you felt that things were going your way?	0	1	2	3	4
4	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Suicidal ideation question (study 1)

1A	Have you ever seriously thought of taking your life, but not actually attempted to do so? 1) Yes 2) No (if no, filters will take participant to item 2A) 3) Would rather not say
B	When did you last <u>think</u> about taking your life? 1) The past week 2) The past year 3) Longer ago 4) Would rather not say
C	And, how many times has this occurred? ____ Would rather not say
D	And, how old were you the first time you had this thought? ____ Would rather not say

Brief Resilience Scale (study 1)

Please read each item below and select a number to indicate to what extent you feel the statement describes you.

		Not true at all				True nearly all the time
1	Able to adapt to change	0	1	2	3	4
2	Can deal with whatever comes	0	1	2	3	4
3	Tries to see humorous side of problems	0	1	2	3	4
4	Coping with stress can strengthen me	0	1	2	3	4
5	Tend to bounce back after illness or hardship	0	1	2	3	4
6	Can achieve goals despite obstacles	0	1	2	3	4
7	Can stay focused under pressure	0	1	2	3	4
8	Not easily discouraged by failure	0	1	2	3	4
9	Thinks of self as strong person	0	1	2	3	4

10	Can handle unpleasant feelings	0	1	2	3	4
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Social Comparison Scale (study 1)

Please select the number at the point which best describes the way in which you see yourself in **comparison to others**.

For Short 1 2 3 4 5 6 7 8 9 10 Tal example:
l

If you select 3 this means you see yourself as shorter than others; if you select 5 (middle) about average; 7 somewhat taller.

Select one number on each line according to how you see yourself in relationship to others.

In relationship to others I feel:

Inferior	1	2	3	4	5	6	7	8	9	10	Superior
Incompetent	1	2	3	4	5	6	7	8	9	10	More competent
Unlikeable	1	2	3	4	5	6	7	8	9	10	More likeable
Left out	1	2	3	4	5	6	7	8	9	10	Accepted
Different	1	2	3	4	5	6	7	8	9	10	Same
Untalented	1	2	3	4	5	6	7	8	9	10	More talented
Weaker	1	2	3	4	5	6	7	8	9	10	Stronger
Unconfident	1	2	3	4	5	6	7	8	9	10	More confident
Undesirable	1	2	3	4	5	6	7	8	9	10	More desirable
Unattractive	1	2	3	4	5	6	7	8	9	10	More attractive
An outsider	1	2	3	4	5	6	7	8	9	10	An insider

Suicide probability scale (studies 2 and 3)

Listed below are a series of statements that some people might use to describe their feelings and behaviours. Please read each statement and determine how often the statement is true for you. For each statement please circle the number to indicate how often you feel the statement applies to you.

	None or a little of the time	Some of the time	Good part of the time	Most or all of the time
I think of things too bad to share with others.	0	1	2	3
In order to punish others, I think of suicide.	0	1	2	3
I need to punish myself for things I have done or thought.	0	1	2	3
I feel the world is not worth continuing to live in.	0	1	2	3
I feel people would be better off if I were dead.	0	1	2	3
I feel it would be less painful to die than to keep living the way things are.	0	1	2	3
I have thought of how to do myself in.	0	1	2	3
I think of suicide	0	1	2	3

Submissive compassion scale (studies 2 and 3)

The statements below relate to ways in which one interacts with other people. We know that there are many reasons for being caring such as: being moved by others distress, enjoying being helpful, to avoid conflicts or to be liked. We are interested in these different reasons. So read each reason for being caring and consider how important that reason is for you, and how 'like you' it would be to act for that reason.

Please read each statement carefully before answering and circle the number that best describes how much each statement is true for you.

	Not at all like me	A little bit like me	Moderately like me	Quite a bit like me	Extremely like me
I try to help people as much as I can so that they appreciate me.	0	1	2	3	4
I make an effort to always be there for others so that they think I'm important in their lives.	0	1	2	3	4
I try to show that I care for other people's feelings so that they see me as thoughtful and sensitive.	0	1	2	3	4
I pay attention to others so that they see me as a caring person.	0	1	2	3	4
I worry that if I am not caring enough, people will reject me.	0	1	2	3	4
I always put the needs of others on top of mine, because that's what it takes to be loved.	0	1	2	3	4
I try to do what others want so I won't be alone.	0	1	2	3	4
When I am caring for others, I hope they will see me as a nice person	0	1	2	3	4
I try to be caring and helpful to avoid arguments and conflicts	0	1	2	3	4
I agree to help but can regret the demands on me later	0	1	2	3	4

Fears of self-compassion (studies 2 and 3)

Below are a series of statements that we would like you to think carefully about and then circle the number that best describes how each statement fits you. Please use this scale to rate the extent that you agree with each statement:

	Don't agree at all	Disagree slightly	Neither agree or disagree	Agree slightly	Completely agree
I feel that I don't deserve to be kind and forgiving to myself	0	1	2	3	4
If I really think about being kind and gentle with myself it makes me sad	0	1	2	3	4
Getting on in life is about being tough rather than compassionate	0	1	2	3	4
I would rather not know what being 'kind and compassionate to myself' feels like	0	1	2	3	4
When I try and feel kind and warm to myself I just feel kind of empty	0	1	2	3	4
I fear that if I start to feel compassion and warmth for myself, I will feel overcome with a sense of loss/grief	0	1	2	3	4
I fear that if I become kinder and less self-critical to myself then my standards will drop	0	1	2	3	4
I fear that if I am more self-compassionate I will become a weak person	0	1	2	3	4
I have never felt compassion for myself, so I would not know where to begin to develop these feelings	0	1	2	3	4
I worry that if I start to develop compassion for myself I will become dependent on it	0	1	2	3	4
I fear that if I become too compassionate to myself I will lose my self-criticism and my flaws will show	0	1	2	3	4
I fear that if I develop compassion for myself, I will become someone I do not want to be	0	1	2	3	4
I fear that if I become too compassionate to myself others will reject me	0	1	2	3	4
I find it easier to be critical towards myself rather than compassionate	0	1	2	3	4
I fear that if I am too compassionate towards myself, bad things will happen	0	1	2	3	4

Studies 2 and 3 Mental health history interview questions

Mental Health history Interview questions

1) Medication

Are you currently taking ANY regular medication?:

	Medication	Dose	Frequency
1)	_____	_____	_____
2)	_____	_____	_____
3)	_____	_____	_____
4)	_____	_____	_____
5)	_____	_____	_____

→ Do you currently, or have you ever experienced any of the following: {if yes; do you have a diagnosis of XXX?

	Ever experienced		Diagnosis	
	Yes	No	Yes	No
a. Depression	Yes	No	Yes	No
b. Attention or hyperactivity disorder (ADD or ADHD)	Yes	No	Yes	No
c. Problems with irritability or anger	Yes	No	Yes	No
d. Manic-depression, mania, or bipolar disorder	Yes	No	Yes	No
e. Panic attacks	Yes	No	Yes	No
f. Other problems with anxiety (nerves, worries, fears, obsessions, compulsions)	Yes	No	Yes	No
g. Alcohol or drug problems	Yes	No	Yes	No
h. Any other emotional problems:	Yes	No	Yes	No

Have you ever been hospitalized due to any mental health reasons? 0) no 1) yes
999) Unknown

If "yes": a) How many times have you been hospitalized for these reasons?

b) When was the last time? _____

Have you received treatment for mental health in the 6 months? (e.g., seen a psychologist or taken anti-depressant medication) 0) no 1) yes
999) Unknown

If "yes": What sort of treatment did you receive? _____

If "no"; Have you ever received treatment for mental health? (e.g., seen a psychologist or taken anti-depressant medication)

If "yes": What sort of treatment did you receive? _____

1A	Have you ever seriously thought of taking your life, but not actually attempted to do so? Yes No Would rather not say
B	When did you last <u>think</u> about taking your life? The past week The past year Longer ago Would rather not say
C	And, how many times has this occurred? ____ Would rather not say
D	And, how old were you the first time you had this thought? __ Would rather not say

2A	Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way? Yes No Would rather not say
B	When did you last attempt to take your life? The past week The past year Longer ago Would rather not say
D	And, how many times have you made an attempt to take your life? ____
E	And, how old were you the first time you made an attempt? ____ Would rather not say
3A	Have you ever seriously thought about trying to deliberately harm yourself but not with the intention of killing yourself but not actually done so? Yes No Would rather not say
B	When did you last think about trying to harm yourself in this way? The past week The past year Longer ago Would rather not say
C	And, how many times has this occurred? ____ Would rather not say
D	And, how old were you the first time you had this thought? ____ Would rather not say
4A	Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself? (i.e., self-harm) Yes No Would rather not say
B	When did this last occur? The past week The past year Longer ago Would rather not say
C	And, how many times has this occurred? ____ Would rather not say
D	And, how old were you the first time you harmed yourself? ____ Would rather not say

study 3 AMT instructions

In this task, I am going to show you some words one at a time and I'd like you to think of an event that happened to you which the word reminds you of. The event could have happened recently (yesterday, last week) or a long time ago. It might be an important event or trivial event. Just one more thing: the memory you recall should be a specific event—an event that lasted less than a day, and occurred at a particular time and place. So if I said the word “good”—it would not be OK to say, “I always enjoy a good party,” because that does not mention a specific event. But it would be OK to say “I had a good time at Jane’s party” (because that is a specific event). It is important to try to retrieve a different memory or event for each cue word, but if you can’t think of an example we can just move on to the next word.

I will show you it on a card like this (show example), and I will speak the word. Once I have said the word I will start this stop watch and you will have 30 seconds to start giving me details of an event that happened to you which the word reminds you of. Does this make sense so far?

{Yes} great! Let us try some words for practice. {No} explain again and use a practice card to illustrate example.

Allow the participant a practice trial. *‘Ok, so your first practice word is XXX (show card) and you have 30 seconds to start telling me about an event that happened to you which XXXX reminds you of.. Allow the participant to tell you the memory and prompt if necessary. If not adequate response explain task again and give an example for another word.*

Practice Trial Responses:

- *If the memory recalled is detailed and specific “That’s great! You’ve got the right idea because [insert summary of memory] is a specific event that happened at a particular time and place”*
- *If the memory recalled is overgeneral, state “That’s quite a general event. Can you give me more details/ think of a more specific event that [XXX] reminds you of”.*
- *If memory recalled is about how another person reacted “You’ve got the right idea because it’s a specific event that happened at a particular time and place, but could you tell about a time you personally experienced XXX*

Before the task

Check that the participant understands the task and answer any questions that they have.

Items will be administered in a randomised order. Administer each item using the following procedure:

Ok, first of all I’d like you to tell me about an event that happened to you which XXXX reminds you of. [Show participant cue card and verbalise word]. Allow the participant to tell you the memory. If they can’t think of anything ‘that’s ok, we can just move on to the next word’

{Show next word and if they still can’t think of anything check they understand the task.}

Note. Prior to recruitment, an online randomiser was used to produce 4 orders of words, which were delivered to participants in blocks of 6 trials (Table 1). The 4 orders were randomised and participant numbers allocated sequentially.

Table ii. AMT cue randomisation

	Order 1	Order 2	Order 3	Order 4
☞ ☞ ☞ ☞ ☞ ☞	17 eager	5 Pleased	1 happy	1 Happy

	13 guilty	8 Failure	17 eager	17 Eager
	18 defeated	6 hopeless	15 hopeful	10 Grief
	1 happy	17 Eager	13 guilty	12 Lonely
	15 hopeful	9 Rejected	6 hopeless	3 Interested
	10 grief	4 excited	8 failure	13 Guilty
Block 2	9 rejected	3 Interested	7 sad	14 Joyful
	5 pleased	2 Smile	10 grief	6 Hopeless
	14 joyful	14 Joyful	3 interested	5 Pleased
	12 lonely	12 Lonely	2 smile	7 Sad
	3 interested	10 Grief	11 angry	4 Excited
	11 angry	11 Angry	4 excited	18 Defeated
Block 3	16 friendly	16 friendly	18 defeated	8 Failure
	4 excited	7 sad	14 joyful	2 Smile
	7 sad	15 hopeful	16 friendly	11 Angry
	8 failure	13 guilty	9 rejected	16 Friendly
	2 smile	18 defeated	12 lonely	9 Rejected
	6 hopeless	1 happy	5 pleased	15 Hopeful

Progressive Muscle Relaxation Script

Thanks again for taking part in the study.

Progressive muscle relaxation is an exercise that reduces stress and anxiety in your body by having you slowly tense and then relax each muscle. This exercise can provide an immediate feeling of relaxation, but it's best to practice frequently. With experience, you will become more aware of when you are experiencing tension and you will have the skills to help you relax. During this exercise each muscle should be tensed, but not to the point of strain. If you have any injuries or pain, you can skip the affected areas. Pay special attention to the feeling of releasing tension in each muscle and the resulting feeling of relaxation. Let's begin.

Sit back or lie down in a comfortable position. Shut your eyes if you're comfortable doing so.

Begin by taking a deep breath and noticing the feeling of air filling your lungs. Hold your breath for a few seconds. *(brief pause)*

Release the breath slowly and let the tension leave your body.

Take in another deep breath and hold it. *(brief pause)*

Again, slowly release the air.

Even slower now, take another breath. Fill your lungs and hold the air. *(brief pause)*

Slowly release the breath and imagine the feeling of tension leaving your body.

Now, move your attention to your feet. Begin to tense your feet by curling your toes and the arch of your foot. Hold onto the tension and notice what it feels like. *(5 second pause)*

Release the tension in your foot. Notice the new feeling of relaxation.

Next, begin to focus on your lower leg. Tense the muscles in your calves. Hold them tightly and pay attention to the feeling of tension (5s)

Release the tension from your lower legs. Again, notice the feeling of relaxation.

Remember to continue taking deep breaths.

Next, tense the muscles of your upper leg and pelvis. You can do this by tightly squeezing your thighs together. Make sure you feel tenseness without going to the point of strain. (5 second pause)

And release. Feel the tension leave your muscles.

Begin to tense your stomach and chest. You can do this by sucking your stomach in.

Squeeze harder and hold the tension. A little bit longer. (5s)

Release the tension. Allow your body to go limp. Let yourself notice the feeling of relaxation.

Continue taking deep breaths. Breathe in slowly, noticing the air fill your lungs, and hold it. (brief pause)

Release the air slowly. Feel it leaving your lungs.

Next, tense the muscles in your back by bringing your shoulders together behind you. Hold them tightly.

Tense them as hard as you can without straining and keep holding (5 second pause)

Release the tension from your back. Feel the tension slowly leaving your body, and the new feeling of relaxation. Notice how different your body feels when you allow it to relax.

Tense your arms all the way from your hands to your shoulders. Make a fist and squeeze all the way up your arm. Hold it.

(5 second pause)

Release the tension from your arms and shoulders. Notice the feeling of relaxation in your fingers, hands, arms, and shoulders. Notice how your arms feel limp and at ease.

Move up to your neck and your head. Tense your face and your neck by distorting the muscles around your eyes and mouth.

(5 second pause)

Release the tension. Again, notice the new feeling of relaxation.

Finally, tense your entire body. Tense your feet, legs, stomach, chest, arms, head, and neck. Tense harder, without straining. Hold the tension. (5 second pause)

Now release. Allow your whole body to go limp. Pay attention to the feeling of relaxation, and how different it is from the feeling of tension.

Begin to wake your body up by slowly moving your muscles. Adjust your arms and legs.

Stretch your muscles and open your eyes when you're ready.

Original Self-Compassion Exercise (study 2)

Thanks again for taking part in the study.

Ok, so in the next part we are going to engage in a meditation type exercise that focusses on exploring feelings associated with compassion.

So to start off we'll off spend a little bit of time getting settled down by focussing on settling your breathing, then settling your body

Once we've done that for a few minutes, I'll then invite you to explore qualities of compassion, so to see yourself as having the different qualities of compassion that were covered in the card sorting task. This exercise will take around 10 minutes.

OK, so before we start try to get yourself into a comfy position. When I do this exercise I try to find a position where I'm sitting quite straight in the chair, not slouched or slumped and have both feet flat on floor. It's not a relaxation exercise so try to sit with your back strong and upright. Rest your hands in a way that feels comfy; so you could try rest them on your knees or your lap; open or closed. Whatever feels most comfortable for you.

This exercise is focussing on your attention, you might find it helpful to have your eyes closed, if you feel comfortable to. If you'd prefer you can focus on a point in the middle distance {on floor or wall}.

If you become uncomfortable at any point just stop- that's fine.

Do you have any questions before we start?

Breathing (~3 mins)

Ok, so just take a moment to get into a comfortable position in your seat.

First thing I'd like you to do is to bring your awareness to your breathing. Just begin to notice your breathing, notice as you breathe in, and notice as you breathe out, and just become aware of the rhythm of your breathing. {And if it feels ok to, close your eyes}

30s pause

As you notice your breathing, just allow your breathing (it) to slow down to a pace where you can notice the breath entering your body, and as it enters your body, the feeling of the breath going into your tummy and your tummy expanding (10s). At top of your breath, when you have a full lung, just hold it for a moment; pause your breath and then breathe out exhaling slowly and gradually (10s).

When you are noticing the rhythm of your breathing, it's just noticing the rhythm of your breathing- there's no right or wrong. If you notice mind wandering, just notice it's away and gently and kindly bring it back to rhythm of your breathing (30s).

I'd like you now to just notice your body; notice the feeling of your feet on the floor and of your body against the chair (10s). Notice how you are grounded to the chair that you're on and just keeping a steady, gradual rhythm of breathing. Again if your mind wanders, that's fine. Just notice this and gently bring it back to rhythm of your breathing (30s).

So now we are going to explore some of the qualities of compassion, and an important aspect of compassion is the warmth and kindness that we have for others aswell as for ourselves.

As you focus on your breathing, just soften the expression on your face and imagine yourself as having feelings of warmth and kindness for others and imagine having them for yourself. Notice what it feels like to have feelings of warmth towards other people and imagine what it would feel like to have them towards yourself and imagine how it would appear on your face and how it feels to have those feelings here and now (20s). And again when your mind wanders that's fine, just notice it and return it with warmth to the here and now.

Now imagine yourself as a kind person. Imagine how this might appear to others in your expression and in your posture (20s).

And again when your mind wanders that's fine, just notice it and return it with warmth and kindness to the here and now.

In the spirit of warmth and kindness imagine yourself as having curiosity to the experiences of others and curiosity to your own experiences. And of having an openness to these experiences. Just imagining now how this feels, how it would appear to others in your expression and in your posture (20s).

And again when your mind wanders notice with curiosity where it has wandered to, and with warmth and kindness return it to the here and now.

Along with these qualities of compassion comes strength and courage. Now imagine yourself as having the strength and courage to be open, kind, curious and warm to others and imagine having the strength and courage to be open, kind, curious and warm to yourself (20s).

Just take a minute now to imagine how it feels to have all these qualities of compassion (10s); to feel having strength, courage, openness, curiosity, warmth and kindness, and how these qualities would come across in your facial expression and your posture (30s).

And when your attention wanders, notice with curiosity where it has wandered to, and with warmth and kindness return it to the here and now (30s).

We are now coming to the end of the exercise. So we'll gently start to shift your awareness from inside yourself, and just start to bring your attention to things around you. Notice any noises in the room around you, become aware of the chair that you're sitting on, bringing your attention back into the room in 5...4...3...2...1

Self-compassion exercise following feedback

OK, so just before we get in to this if I could get you to get yourself into a comfortable position. When I do this exercise I try to encourage people to kind of sit more upright in the chair and it's not a relaxation exercise so if you can have your back quite straight and supported by the chair. And obviously you can place your hands somewhere in your lap or hold them somewhere you find quite comfy

If you feel comfortable enough to you're welcome to close your eyes, but if you don't feel comfortable to you can obviously focus on a point on the wall (or a plug socket) And again if you become uncomfortable at any point just let me know and we can stop Breathing (-3 mins)

Ok, so if you just take a moment to get into a comfortable position.

And the first thing I'd like you to do is to bring your awareness to your breathing. Just begin to notice your breathing, notice as you breathe in, and notice as you breathe out, and just become aware of the breathing, the rhythm of your breathing. **10s pause** And when you're noticing the rhythm of your breathing, it's just noticing it; there's no right or wrong 20secs. If you notice mind wandering, that's fine just gently bring it back to rhythm of your breathing (30s).

And as you notice your breathing, just allow it to slow down to a pace where you can notice the breath entering your body, and as it enters your body, the feeling of the breath going into your stomach and your stomach expanding (20s). And at top of a

breath, when you have a full lung, just hold it for a moment; just pause your breath and then breathe out exhaling slowly and gradually (20s).

Just keeping your steady, gradual rhythm of breathing (10S). And again when your mind wanders, that's fine. Just gently bring it back to rhythm of your breathing (30s).

So now I'm going to invite you to explore some of the qualities of compassion, and an important aspect of compassion is the warmth and kindness that we have for other people as well as for ourselves.

So as you focus on your breathing, I'd like you to imagine yourself as being filled with warmth and kindness and how this would appear on your face and in your posture.

Notice how your body feels being filled with warmth and kindness (10s).

And again when your mind wanders that's fine, just notice it and gently return it to the here and now.(10s)

And In the spirit of warmth and kindness imagine yourself as having curiosity to the experiences of other people and curiosity to your own experiences. And I'd like you to imagine having an openness to these experiences. Just imagine now how this would feel, how it would appear to others in your expression and in your posture (10s).

And again when your mind wanders that's fine, just notice this and gently bring it back to the here and now. (15s)

Along with these qualities of compassion comes strength and courage. I'd like you now to imagine yourself as having the strength and courage to be open, kind, curious and warm to others, and to imagine as having the strength and courage to be open, kind, curious and warm to yourself (20s).

Just take a minute now to imagine how it feels to have all these qualities of compassion (10s); so to feel having strength, courage, openness, curiosity, warmth and kindness, and how these qualities would come across in your facial expression and your posture (10s).

And again when your mind wanders that's fine, just notice this and gently bring it back to the here and now. (20s).

We are now coming to the end of the exercise. So we'll gently start to shift your awareness from inside yourself, and just start to bring your attention to things around you. Notice any noises in the room around you, become aware of the chair that you're sitting on, bringing your attention back into the room in 5...4...3...2...1

Appendix F Risk assessment documents

Suicide Risk Assessment Protocol

Risk factors for suicide (Interviewer complete known sections on own)

- Male gender (females more attempts, males more completions)
- Ethnicity (white attempt & complete more than others)
- Age ≥ 16 years?
- Current psychiatric disorder?
 - Current mood disorder (MDD, Bipolar)
 - Current substance use disorder (alcohol, drugs)
 - Current psychotic disorder
 - Current personality disorder (esp. BPD or ASPD)
- Suicide history
 - Previous suicide attempt (yes/no)
 - Family history of suicide attempts/completions (yes/no)?
 - Current suicidal ideation (0-10 scale)?
 - Current plan (yes/no)?
 - Access to lethal means (firearm, drugs, etc)?
 - Current intent (On scale 0 - 10, what is your current intent to kill yourself ? ___)
- Other risk factors
 - Recent loss, separation/divorce/break-up?
 - Impulsiveness?
 - Hopelessness about the future?
 - Current distress, irritability, agitation or other “abnormal” mental state
 - Depressed mood (On scale 0 - 10 [0 = neg, 10 = pos] how would you rate your current mood? ___)

NOTES :

Protective factors & Safety plan:

- In treatment? If so, is clinician aware of risk? _____
- Family/roommate/friends aware of risk? _____
- [IF YES TO ACCESS] Means restriction (firearms, drugs, family/social support/monitoring)? _____
- Presence of children in the home, spouse/partner, or other positive relationships?
- Steps taken to increase subject safety (check all that apply):

LOW RISK == No past attempt or current SITB:

- Validated subject's feelings
- Encourage S to contact clinician if distressed or in need of help in future
- Provide referrals as needed

MODERATE RISK == Past attempt, but intent ≤ 6

- (check all completed above)
- S articulated own safety plan (i.e., what to do if thoughts/urges increase)
- Provided S with emergency contact numbers (999, find # of own clinician, Samaritans, Breathing Space and from list of referrals)

HIGH RISK == Current SI present, and intent 7-8, but no plan or access to lethal means

- (check all completed above)
- Encourage S to immediately contact support(s) and clinician(s)/psychiatric emergency services to inform of risk
- Call Rory O'Connor (**must do**)

IMMINENT RISK == Current suicidal intent (7-8 with specific plan/access or 9-10 regardless of plan)

- (check all completed above)
- Call Rory O'Connor (**must do**)
- S tells/calls clinician and/or people in support network to inform them of level of risk and enlist their assistance in getting subject to a clinician (**preferable**)
- If in lab: S should not leave alone. They can leave with family member/friend, experimenter should accompany S to Hospital Emergency Department (**must do**)
- If on the phone: Subject should not remain at home alone. Experimenter tells/calls clinician and/or people in support network to inform them of level of risk and enlist their assistance in getting the S to a clinician (**must do**)
- If an ambulance is being sent, stay on the phone with the S until the ambulance arrives.
- If S refuses to do the above: call 999 and inform of subject's location and risk level.

NOTES:

Assessor: _____ Date: _____

Risk Assessment Notes

Psychiatric Disorder:

1. Are you currently diagnosed with a psychiatric disorder, such as mood disorder (MDD, Bipolar), substance use disorder (alcohol or drugs), psychotic disorder, or personality disorder (BPD, Antisocial Personality Disorder)?

Suicide History:

2. Do you have a history of any suicide attempts? (Y= safety plan (SP))
3. Do you have a family history of suicide attempts or completions?
4. How would you rank your current thoughts of suicide on a scale of 0-10, where zero is having no thoughts at all and 10 is having very serious thoughts? (1+ SP)
5. Do you currently have a plan to kill yourself? (If YES, ask #6)
6. Do you currently have access to lethal means, such as firearms or drugs?
7. How would you rank your current intent to kill yourself on a scale of 0-10, where zero is no intent and 10 is serious or high intent? (1=SP)

Other risk factors:

1. Have you experienced any recent loss, such as separation, divorce, break-up, bereavement?
2. How impulsive would you say you are currently on a scale of 0-10, where zero is not impulsive at all and 10 is very impulsive?
3. How hopeless would you say you are about the future on a scale of 0-10, where zero is low in hopelessness or not hopeless and 10 is high in hopelessness?
4. How distressed, irritable or agitated are you right now on a scale of 0-10, where zero is not at all and 10 is very/highly?
5. How would you rate your current mood on a scale of 0-10, where zero is negative mood and 10 is positive mood?
[For 0-10 scale answers, ask participant if that is about average for them]

Notes:

Protective Factors:

1. Are you currently in treatment? Is your clinician aware that you currently have...
2. Are any of your family, friends, or flatmates aware that you currently have...
3. (IF they have a plan) You mentioned that you have a plan and that you have access to _____. Is there anyone who might be able to help you restrict access to lethal means?
4. Do you live alone or with others? Who do you live with?

Validate: Validate level of thoughts, intent, etc.

Ok, [name], so you mentioned that you have been having some _____ and I'm just going wondering, have you ever heard of a safety plan? A safety plan is a series of steps that one has in place either to act on in a life-threatening situation, or if you are feeling suicidal. It's a plan that could keep you from acting on your _____.

So when you are experiencing these _____, what are some coping mechanisms that maybe you use to make yourself feel better? *[This can also be a hobby or an interest that they find helps to take their mind off things, e.g. basketball, watching films, etc. If they have an interest and say that it helps, praise strategy, e.g. it's really good that you find going for a good run helps you calm down and feel better.]*

And in an emergency situation, who might you contact? You mentioned that _____ knows about _____. Would you feel comfortable contacting them? Let's say they weren't able to pick up the phone...is there anyone else you might feel comfortable contacting? *[If they mentioned a friend who knew in #2, then maybe ask their name to further engage. If GP or therapist, find out how often the participant sees them. Try and gauge their availability, e.g. if participant phoned them in a state of distress, would they be able to respond quickly and maybe give them an emergency appointment, or would they have to wait a long time to see/speak with them? Maybe also ask if they feel comfortable talking to their therapist/GP about their suicidal thoughts. If not, try and find other potential sources of support, e.g. family, friends, etc.]*

Can you think of any steps you could take if talking to them doesn't help? Also keep in mind that you can always call a hotline, such as The Samaritans or Breathing Space, or go to the nearest A&E department, or call 999.

Support sheet

At some time in all of our lives we feel down, depressed or blue. If you are feeling down, or are worried about something and would like to speak to someone, please see the list of organisations below.

You may also wish to contact your GP or another healthcare professional.

If you think your life or someone's life is in danger you should visit an emergency department or call an ambulance by dialling 999.

NHS 24. Health Information and Self Care Advice for Scotland

NHS 24 provides comprehensive up-to-date health information and self-care advice for people in Scotland. If your GP surgery is closed and you can't wait until it opens, you can call NHS 24. They will direct you to the right care for you or the person you are calling for. This may be to your local Health Board's out of hours services, Accident and Emergency department, or the Scottish Ambulance Service. If appropriate, they may recommend some steps you can take to look after yourself at home.

www.nhs24.com

Tel: 111

Samaritans

Samaritans is available 24 hours a day to provide confidential emotional support for people who are experiencing feelings of distress or despair, including those which may lead to suicide.

www.samaritans.org.uk

Tel: 116 123

Breathing Space

Breathing Space is a free and confidential phonenumber service for any individual, who is experiencing low mood or depression, or who is unusually worried and in need of someone to talk to. The phonenumber is open 24 hours at weekends (6pm Friday - 6am Monday) and from 6pm to 2am on weekdays (Monday - Thursday).

www.breathingspacescotland.co.uk Tel: 0800 83 85 87



Queen Elizabeth University Hospital Emergency Department 1345 Govan Road, Glasgow G51 4TF

The Emergency Department prioritise people who have a serious injury or accident or who have a sudden serious illness or medical condition. If you think that a life is at risk you should call 999 right away.

Tel: 0141 211 2000

Scottish Association for Mental Health (SAMH)

SAMH is a Scottish mental health charity which operates an information service from Monday to Friday between the hours of 2pm and 4pm. Information service staff and volunteers can answer general mental health enquiries, advise you on your rights and signpost you to your local services.

www.samh.org.uk

Tel: 0800 917 3466

Glasgow University Counselling and Psychological Services

During your time at university, you may experience personal and emotional issues that impact on your academic work and your enjoyment of university life. Counselling and Psychological Services offer a confidential space for you to explore and reflect on these issues without being judged, and to help you develop ways of overcoming your difficulties.

www.gla.ac.uk/services/counselling

Tel: 0141 330 4528

Penumbra

Penumbra is a Scottish mental health charity, working to improve mental wellbeing across the nation. They provide a wide range of services which offer hope and practical steps towards recovery. Penumbra offers a variety of services to support those experiencing mental ill health.

www.penumbra.org.uk

Tel: 0131 475 2380

Appendix G Supplementary analysis

Self-compassion and defeat

Table 5a Univariate analysis of Time 1 self-compassion and components and Defeat (Time 1 and time 2)

	Predictor	B	B	95% CI
Defeat Time 1	Self-compassion Total	-.49	-.65	-.53 to -.44
	Self-kindness	-1.47	-.46	-1.71 to -1.23
	Common Humanity	-1.44	-.39	-1.72 to -1.15
	Mindfulness	-1.99	-.48	-2.30 to -1.68
	Self-judgement	1.67	.57	1.46 to 1.87
	Isolation	1.88	.54	1.63 to 2.13
	Over-identification	1.89	.53	1.62 to 2.13
Defeat Time 2	Self-compassion Total	-.48	-.60	-.55 to -.40
	Self-kindness	-1.64	-.48	-1.98 to -1.29
	Common Humanity	-1.49	-.38	-1.91 to -1.07
	Mindfulness	-2.03	-.45	-2.50 to -1.55
	Self-judgement	1.64	.53	1.33 to 1.96
	Isolation	1.87	.49	1.48 to 2.56
	Over-identification	1.84	.48	1.44 to 2.24

Table 5b Univariate analysis of self-compassion and components and Entrapment (Time 1 and time 2)

	Predictor	B	B	95% CI
Entrapment Time 1	Self-compassion Total	-.53	-.62	-.59 to -.47
	Self-kindness	-1.65	-.46	-1.93 to -1.38
	Common Humanity	-1.47	-.35	-1.81 to -1.34
	Mindfulness	-2.08	-.44	-2.45 to -1.72
	Self-judgement	1.89	.57	1.66 to 2.13
	Isolation	2.07	.53	1.79 to 2.36
	Over-identification	1.98	.49	1.68 to 2.29
Entrapment Time 2	Self-compassion Total	-.54	-.61	-.62 to -.46
	Self-kindness	-.79	-.47	-2.18 to -1.40
	Common Humanity	-1.7	-.39	-2.17 to -1.24
	Mindfulness	-2.17	-.43	-2.71 to -1.64
	Self-judgement	1.89	.54	1.55 to 2.24
	Isolation	2.17	.51	1.74 to 2.61
	Over-identification	2.10	.48	1.61 to 2.50

Before



Following feedback



Figure 6.2. Lab room used for SCM feasibility study showing original set up and following feedback

Appendix H Publications

Mindfulness
DOI 10.1007/s12671-017-0803-1



ORIGINAL PAPER

An Investigation of the Factor Structure of the Self-Compassion Scale

Seonaid Cleare¹ · Andrew Gumley¹ · Chris J. Cleare² · Rory C. O'Connor¹

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Abstract The Self-Compassion Scale (SCS) is the most widely used measure of self-compassion. The scale is constructed of six factors measuring positive and negative components of compassion. Support for this factor structure has been subject to debate and alternative factor structures have been proposed. We tested the proposed factor structures against existing models of the SCS including one derived from an exploratory factor analysis of our data. Respondents ($n = 526$) completed the original version of the SCS online at two time points, at baseline (time 1) and 2.5 months later ($n = 332$, time 2). Exploratory factor analysis (EFA) was carried out on time 1 data and confirmatory factor analyses (CFA) were conducted on time 2 data and retested using time 1 data. The EFA yielded a five-factor model. CFA was used to compare the following models: Neff's original six-factor correlated and higher-order models; a single-factor, two-factor, five-factor model (as suggested by the EFA) and a bi-factorial model. The bi-factorial model was the best fit to the data followed by the six-factor correlated model. Omega indices were calculated and yielded support for the bi-factorial model of SCS. In conclusion, this study supports the use of the six-factor scoring method of the SCS and the use of an overarching self-compassion score.

Keywords Self-compassion scale · Factor analysis · Factor structure · Bi-factorial · Omega

Introduction

The importance of self-compassion has long been recognised in Buddhist and Eastern philosophical traditions but, only recently, has its importance as a research construct distinct from other psychological constructs such as mindfulness (Kuyken et al. 2010) or self-esteem (Neff and Vonk 2009) been acknowledged. This has led to considerable growth in research examining the role of self-compassion particularly in the aetiology of both physical and mental well-being (Barnard and Curry 2011). Although researchers such as Gilbert (2009) have suggested definitions of self-compassion, one of the most widely used definitions is that put forward by Neff (2003b) who conceptualised self-compassion as follows:

Being touched by and open to one's own suffering, not avoiding or disconnecting from it, generating the desire to alleviate one's suffering and to heal oneself with kindness. Self-compassion also involves offering non-judgmental understanding to one's pain, inadequacies and failures, so that one's experience is seen as part of the larger human experience. (Neff 2003b, p. 87)

Within this definition, Neff conceptualised self-compassion as being composed of the following three components:

- (a) self-kindness – extending kindness and understanding to oneself in instances of perceived inadequacy or suffering rather than harsh judgment and self-criticism,
- (b) common humanity – seeing one's experiences as part

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of the larger human experience rather than seeing them as separating and isolating, and (c) mindfulness – holding one's painful thoughts and feelings in balanced awareness rather than over-identifying with them in an exaggerated manner (Neff and Lamb 2009, p. 864)

Evidence for a link between self-compassion and mental well-being is increasing (for review see Bamard and Curry 2011). What is more, enhancing self-compassion may also have physical health benefits (Hall et al. 2013). Self-compassion has been shown to be a more accurate predictor of overall well-being than self-esteem (Neff and Vonk 2009) and it accounted for additional variance in anxiety and depression beyond that explained by self-esteem (Gilbert 2009). Self-compassion may protect against emotional distress. In a recent meta-analysis, MacBeth and Gumley (2012) found an association between self-compassion and lower levels of depression, anxiety and stress. Although the majority of studies were cross-sectional, the findings suggested that greater self-compassion was associated with mental well-being and that self-compassion may be associated with a reduction in some forms of emotional distress.

The main assessment tool used was the Self-Compassion Scale (SCS; Neff 2003a). Concerns have been raised that by measuring 'negative' components of compassion; specifically that the SCS is measuring self-criticism, rumination and social isolation, rather than self-compassion (MacBeth and Gumley 2012; Muris 2015). In a more recent meta-analysis, Muris and Petrocchi (2017) found that as the total score includes the negative components, then it might lead to an overestimation of the relationship with symptoms of psychopathology as the negative components are more strongly associated with psychopathology ($r = .47$ to $-.50$) than the positive components ($r = -.27$ to $-.34$). Neff (2016), however, described self-compassion as requiring an interaction between the positive and negative components of compassion and, as a consequence, she developed the SCS to assess compassion as per her definition (Neff 2003b).

According to Neff (2003a, b, 2016), the SCS has a six-factor structure with three positive and three opposing negative components that are interconnected. Specifically, the SCS assesses the following: (1) self-kindness: a person's acceptance of personal flaws and ability to self-soothe in times of distress versus (2) self-judgement: expressions of self-critical or judgemental beliefs; (3) common humanity: the recognition of personal shortcomings as something that everyone experiences versus (4) feelings of isolation: feeling alone in their faults and (5) mindfulness: maintaining a non-judgemental awareness of thoughts and emotions versus (6.) over-identification with thoughts: becoming overwhelmed and wrapped up in emotions or thoughts. A series of confirmatory factor analyses were then used to evaluate the model fit. These showed that a six-factor correlated model was an 'adequate fit'

to the data (Non-normed fit index (NNFI) = 0.90; Comparative Fit Index (CFI) = 0.91; Neff 2003a, b) and a higher-order model (NNFI = 0.88, CFI = 0.90) was also proposed as a reasonable fit (Neff 2003a, b) and was initially used to support the use of the SCS to give a total self-compassion score.

Since its original publication, the factor structure of the SCS has received considerable attention: studies have yielded mixed findings with some authors reporting support for the six-factor correlated model (Azizi et al. 2013; Castilho et al. 2015; Garcia-Campayo et al. 2014; Lee and Lee 2010; Mantzios et al. 2013) whereas other studies have been unable to replicate this factor solution (López et al. 2015; Petrocchi et al. 2013; Williams et al. 2014). Support for the higher-order model has been more sparse with only a few studies reporting it a fit to their data (Castilho et al. 2015; Cunha et al. 2016; Dundas et al. 2016).

As a result, many authors have proposed alternative factor structures which have included a single-factor model (i.e. an overarching single self-compassion construct; Deniz et al. 2008) and a four factor model where the positive factors are correlated and there is a distinct general negative factor (Zeng et al. 2016). The most widely proposed model is a two-factor solution comprised of self-compassion (total of the positive items) and self-coldness (total of the negative items; Gilbert et al. 2011). This solution has also been found when the SCS has been administered in Dutch (López et al. 2015) and Portuguese (Costa et al. 2015). Indeed, the majority of independent studies into the SCS have been carried out cross-culturally with researchers translating the scale into Greek (Mantzios et al. 2013), Iranian (Azizi et al. 2013), and Spanish (Garcia-Campayo et al. 2014) and evaluating the model fit of the adapted scales. This has led to some problems with translating the scale. López et al. (2015), for example, had to omit two of the items (self-kindness subscale item 5, 'I try to be loving towards myself when I'm feeling emotional pain'; self-judgement subscale item 21, 'I can be a bit cold-hearted towards myself when I'm experiencing suffering') as the items did not translate into Dutch. This is not an uncommon occurrence as items are worded to suit the culture they are developed in and translation can change the context and meaning of items (Auer et al. 2000; Behling and Law 2000). It is not surprising, therefore, that adapting the scale for use in other cultures may slightly alter what is being measured which could affect item/factor loadings.

The incongruity in the factor structures found by previous researchers may suggest that the factor structure of the SCS is not stable and would benefit from further robust analyses. Indeed, Neff (2016) suggested that the higher-order structure may not be the most appropriate conceptualisation of compassion. Furthermore, recent studies (e.g. Neff et al. 2017; Tóth-Király et al. 2016) have investigated the factor structure further via alternatives to higher-order models and instead added a bi-factorial component alongside the six factors in the SCS

model. Bi-factorial modelling assesses covariance between factors that arises from the presence of an overarching factor (in this case, self-compassion), whilst allowing the individual factors to retain and account for variance in their own subset of items (Reise et al. 2010).

Neff et al. (2017) found evidence supporting the six-factor correlated model in both non-clinical and clinical populations. In the non-clinical populations, the bi-factorial model was a comparable fit to the six-factor solution; however, it did not improve the model fit. Consequently, the authors suggested that further research using bi-factorial modelling was warranted. Since Neff (2016) suggested a bi-factorial model might best fit the measurement of self-compassion, several studies have employed this analysis using translated versions of the SCS in French, Brazilian Portuguese and Hungarian (Kotsou and Leys 2016; de Souza and Hutz 2016; Tóth-Király et al. 2016). For example, Tóth-Király et al. (2016) investigated the six-factor correlated and bi-factorial models using the Hungarian version of the SCS. The researchers compared model fit of the six-factor correlated model and the bi-factorial model using confirmatory factor analysis (CFA) and exploratory structural equation modelling (ESEM; combination of exploratory and confirmatory factor analysis techniques) and found that when using the CFA, neither model was an adequate fit to their data, but when using ESEM, both models fitted the data with the bi-factorial model being the best fit to the data. Although the focus on translated versions of the scale is welcome, there have been no independent replications of the bi-factorial model using the English language version of the scale.

With this in mind, the present study aimed to independently investigate the factor structure of the English language version of the SCS using both exploratory and confirmatory factor analytic techniques. Confirmatory factor analysis was used to compare the fit of the emergent exploratory factor structure to the alternative models described in the extant literature including the six-factor correlated model and the higher-order model (Neff 2003a, b) and the bi-factorial model proposed by Neff et al. (2017). An exploratory factor analysis was employed to explore if there was an alternative model that was a better fit to our data.

Method

Participants

Five hundred twenty-six adults completed the SCS at time 1 (t1). Participants were aged between 16 and 64 years ($M = 23$ years old, $SD = 5.4$). Three quarters of the sample (76%; $n = 405$) were female, and the sample was predominantly White (90%, $n = 473$). Sixty-three per cent ($n = 332/526$) of participants completed the SCS at time 2 (t2),

2.5 months later. The mean age for the t2 sample was 24 years old and primarily female ($N = 249$, 75%) and 92% identified themselves as White.

Procedure

This study employed a prospective design. Ethical approval was granted by the University of Glasgow College of Medical, Veterinary & Life Sciences Ethics committee. Participants were recruited by convenience sampling methods. These included emails sent to students and information about the study being shared on social media. The email explained the purpose of the study and included a link to the online survey. The link took potential participants to the full study information page. To ensure informed consent, all participants actively selected that they had consented to take part in the study before being able to proceed to the questions. Participants completed the SCS at both time points allowing the stability of self-compassion to be explored across 2.5 months.

Measures

Self-Compassion Scale The SCS is a 26-item measure assessing the components of self-compassion: self-kindness versus self-judgement (e.g. 'I try to be loving towards myself when I'm feeling emotional pain' vs. 'I'm disapproving and judgmental about my own flaws and inadequacies'); common humanity versus feelings of isolation (e.g. 'When things are going badly for me, I see the difficulties as part of life that everyone goes through' vs. 'When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world') and mindfulness versus over-identification with thoughts (e.g. 'When something upsets me I try to keep my emotions in balance' vs. 'When I'm feeling down I tend to obsess and fixate on everything that's wrong'). Items are scored 1 (almost never) to 5 (almost always) on a Likert-type scale. The scale is most often used to either give an overall compassion score, or to show how someone scores on the individual subscales. When calculating an overall self-compassion score, the three negative components of compassion are reverse scored, but the items are not reversed when calculating subscale scores.

Test-retest coefficients for the subscales were moderately correlated and ranged from $r = .66$ to $.88$. In the present study the total SCS was found to have excellent internal consistency (time 1 Cronbach's $\alpha = .92$, time 2 $\alpha = .95$). For both time points, internal consistency (see Table 4 for full details) for the subscales ranged from fair (mindfulness subscale showing the lowest internal consistency) to good. Test-retest reliability was established as good for both the overall scale ($r = .87$, $P < 0.01$, $\alpha = .93$) and the subscales (range $\alpha = .80$ – $.89$).

Data Analyses

There are two main forms of factor analysis: exploratory and confirmatory factor analysis. Exploratory factor analysis (EFA) is a data-driven process primarily used in the development of questionnaires. In EFA, the researcher does not specify the factor structure, allowing related variables to cluster, thus creating factors (Child 1990). Comrey and Lee (1992) suggested using the following cut-offs to assess item loadings: 0.32 poor, 0.45 fair, 0.55 good, 0.63 very good and 0.71 excellent. CFA is used to further test hypotheses about the internal structure of a measure. In CFA, the researcher specifies the model parameters (i.e. number of factors, which variables load on to each factor) a priori and uses CFA to determine how well the data fit to the parameters. CFA is also important in establishing a scale's internal consistency (Albright and Park 2009). The EFA was conducted on the t1 data using SPSS version 22 and the CFAs were carried out using AMOS graphics (version 22).

Missing Data Participants who had completed fewer than 21 items of the scale items (80%) were classified as incomplete and their data were omitted from the analysis ($n = 162$). Following exclusion of the latter, at both time points, 0.08% of participants had missing data on between 1 and 4 items. A missing value analysis established that there was no pattern to the items missed (t1 $\chi^2 = 427.27$, $DF = 436$, $P = 6.08$; t2 $\chi^2 = 420.786$, $DF = 435$, $P = 0.679$), and as a result, the missing data were replaced using expectation-maximisation replacement methods.

Prior to conducting the factor analysis, the data were screened for any variables that were highly correlated to each other ($r > .9$) and potentially indistinguishable from other items (multicollinearity): no variables were found to be correlated over the 0.9 threshold. The sample's sufficiency for factor analysis was also assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. This ranges from 0 to 1 and Tabachnick and Fidell (2013) suggested that scores over 0.6 suggest suitability for factor analysis. The KMO for the sample was very good (KMO = 0.93) and Bartlett's test of sphericity was significant ($\chi^2 (325) = 5944.3$, $P < 0.05$). All the items correlated with at least one other item at a 0.3 level, further supporting the data's suitability for factor analysis. Review of the diagonals on the anti-image correlations showed that they were all over 0.5 so no items were removed prior to analysis.

The data were assessed for outliers; across both time points, 14 univariate and two multivariate cases were found. All analyses were run including and excluding these cases and there were no differences in the results, so the cases were included in the analyses reported here.

Exploratory Factor Analysis The EFA was carried out using Costello and Osborne's (2005) guidelines for best practice for EFA; the maximum-likelihood method with oblique rotation (direct oblimin) was selected for the EFA as it allowed for the factors to be related.

Confirmatory Factor Analysis In keeping with the maximum-likelihood method that we employed in the EFA, we assessed the model fit on the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), standardised root mean square residual (SRMR) and root mean square error of approximation (RMSEA). We did not rely upon chi-square as it has been found to be too sensitive to sample sizes in excess of 250 (Bentler and Bonett 1980). There is some debate over which cut-offs should be used for the RMSEA to indicate a good model fit. MacCallum et al. (1996) suggested that 0.08–0.10 shows a mediocre fit, and below 0.08 shows a good fit, although Steiger (2007) has since suggested 0.07 as the cut-off for a good fitting model. There is greater consensus regarding TLI and CFI scores, with 0.90 indicating an acceptable fit, and a score of over 0.95 indicating a good fit (Hu and Bentler 1999). A SRMR value < 0.08 is considered a good fit (Hu and Bentler 1999). The Akaike information criterion (AIC) was also used to compare the fit of different models; the model which has the lowest AIC value indicates the best fit to the data. The omega indices were calculated using the Omega software (Watkins 2013) for the bi-factorial model to estimate the reliability of the overarching self-compassion factor when all variance from the latent factors is removed (Brunner et al. 2012). This index provides useful information about whether the scores from a specific factor can be interpreted with confidence or if only the total score should be used.

In order to replicate Neff et al.'s (2017) study, CFA was used to evaluate the fit of the following series of models: the (1) higher-order model, (2) the six-factor correlated model originally proposed by Neff (2003a, b), (3) the single-factor model, (4) the two-factor model consisting of self-coldness and self-compassion factors (Gilbert et al. 2011), (5) the bi-factorial model testing if the SCS consists of a general self-compassion factor and six specific factors (Neff et al. 2017) and finally (6) the five-factor correlated model extracted by EFA from our t1 data.

Results

Six hundred and ninety-eight people started the online survey. Those who did not complete the self-compassion measure ($n = 162$) were excluded from the main analyses. This yielded a sample of 526 adults who completed the SCS at time 1 (t1). Chi-square tests showed that there were no significant differences on demographic variables between those who completed the SCS at both time points and those who only completed

the SCS at baseline. The *t* tests revealed no differences between the EFA (t1) and the CFA (t2) samples in age or in any of subscales of the SCS. The majority of participants reported no experience of meditation or mindfulness (t1 *N* = 391 (74%); t2 *N* = 262 (79%)); of those who reported engaging in meditative practices, only 20–23% of people reported practising at least every couple of months.

As shown in Table 1, all of the SCS subscales and total score were all significantly inter-correlated, as anticipated. The subscales were moderately to highly correlated. Common humanity showed the lowest associations with the three negative subscales (self-judgement $r = -.33$, perceived isolation $r = -.39$ and over-identification with thoughts $r = -.38$). The SCS total score was most strongly correlated with the self-kindness ($r = .81$) and self-judgement ($r = -.82$) subscales.

Exploratory Factor Analysis The EFA revealed a potential five-factor model with all factors having eigenvalues over 1 and these cumulatively explained 49% of the variance. Parallel analysis (PA) was used to confirm the factor retention. PA is a recommended procedure to establish factor retention (Courtney 2013; O'Connor 2000). PA was conducted using the syntax available from O'Connor's website (people.ok.ubc.ca/briocconn/nfactors/nfactors.html).

PA creates correlation matrices by generating random variables and data sets based on the number of variables and sample size of the actual data. The average eigenvalues from the computed correlation matrices are then compared to the eigenvalues from the real data correlation matrix. Factors from the real data can be retained as long as they are greater than the mean eigenvalue generated from the random data matrices. As this was the case for all of our 5 factors, we retained the EFA model.

An examination of the item loadings between factors showed two items (i.e. with correlations over 0.3) cross-loaded on more than one factor. Item 4 ('When I think about my inadequacies, it tends to make me feel more separate and

cut off from the rest of the world') loaded on factors 1 and 5 and item 14 ('When something painful happens I try to take a balanced view of the situation') loaded on to both factors 2 and 3. As these were the only problematic items, they were retained in the analysis on the factors they had loaded the highest on. Table 2 below shows the EFA loadings and factor structure. There were a few items that had lower loadings (around 0.32 level; Tabachnick and Fidell's (2013) guidance on the lowest cut-off for factor loadings) on their respective factors, but these were not viewed as problematic as they were distributed across the scale rather than clustered on a single factor.

Confirmatory Factor Analysis Confirmatory factor analyses were run on both the t2 and t1 data and the following series of models reported in Neff et al.'s (2017) study were evaluated: a single compassion factor, a hierarchical model of compassion (Neff 2003a), the six-factor correlated model (Neff 2003a), the two-factor 'self-compassion and self-coldness' model (Gilbert et al. 2011) and the bi-factorial model of self-compassion. In addition to these, we conducted CFA on the five-factor model that emerged from our EFA. Fit statistics for the different factor models are shown in Table 3.

Using the cut-offs for the fit criteria mentioned above (CFI and TLI > 0.9, SRMR < 0.08, RMSEA < 0.07), it is clear that the single-factor model did not fit the data nor did the two-factor model (self-compassion and self-coldness items). Examination of the five-factor model showed that although the model was approaching an adequate fit to the data, it did not fulfil the fit criteria. This was the same for the higher-order model. The six-factor correlated model was a good fit for the data with all the items loading on their respective factors well (ranging from good 0.55 to excellent 0.86, see Table 5).

The six-factor correlated model was characterised by all the factors being moderately to highly inter-correlated. Applying Cohen's (1988) cut-offs, the correlations ranged from moderate (0.3) to very highly correlated (e.g. perceived isolation and over-identification having the highest correlation at 0.94). The bi-factorial model was also fitted to establish whether there was an overarching self-compassion factor in addition to the six factors. As shown in Table 5, when the overarching self-compassion factor was included in the t2 data, the factor loadings for the majority of the items remained high and all remained above .32 suggesting they loaded well on the self-compassion factor. When the same model was run using the t1 data, items 18 ('When I'm really struggling, I tend to feel like other people must be having an easier time of it') and 20 ('When something upsets me I get carried away with my feelings') loaded poorly on the self-compassion factor (.28 and .26, respectively).

The inclusion of the overarching self-compassion factor significantly reduced the variance shared by the factors, and as shown in Table 3, this improved the model fit across all

Table 1 Correlations between subscales and SCS total score

	CH	MFN	SJ	ISO	OID	SCS total
SK	.464	.630	-.673	-.449	-.462	-.805
CH	–	.584	-.333	-.389	-.381	-.666
MFN	–	–	-.457	-.446	-.529	-.769
SJ	–	–	–	.614	-.602	-.819
ISO	–	–	–	–	-.651	-.772
OID	–	–	–	–	–	-.783
SCS total	–	–	–	–	–	–

$P < 0.05$

SK self-kindness, SJ self-judgement, CH common humanity, ISO perceived isolation, MFN mindfulness, OID over-identification

Table 2 Factor loadings from exploratory factor analysis

Item	Factor 1—self-criticism	Original subscale	Factor loading
1	I'm disapproving and judgmental about my own flaws and inadequacies.	SJ	.807
2	When I'm feeling down I tend to obsess and fixate on everything that's wrong.	OID	.517
6	When I fail at something important to me I become consumed by feelings of inadequacy.	OID	.571
8	When times are really difficult, I tend to be tough on myself.	SJ	.542
11	I'm intolerant and impatient towards those aspects of my personality I don't like.	SJ	.474
16	When I see aspects of myself that I don't like, I get down on myself.	SJ	.576
23	I'm tolerant of my own flaws and inadequacies.	SK	.628
26	I try to be understanding and patient towards those aspects of my personality I don't like.	SK	.378
	Factor 2—balance/acceptance		
3	When things are going badly for me, I see the difficulties as part of life that everyone goes through.	CH	.516
7	When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.	CH	.801
10	When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.	CH	.769
14	When something painful happens I try to take a balanced view of the situation.*	MFN	.322
15	I try to see my failings as part of the human condition.	CH	.500
17	When I fail at something important to me I try to keep things in perspective.	MFN	.343
	Factor 3—emotional reactivity/emotion dysregulation		
9	When something upsets me I try to keep my emotions in balance.	MFN	.453
20	When something upsets me I get carried away with my feelings.	OID	.723
24	When something painful happens I tend to blow the incident out of proportion.	OID	.693
	Factor 4—self-kindness		
5	I try to be loving towards myself when I'm feeling emotional pain.	SK	.604
12	When I'm going through a very hard time, I give myself the caring and tenderness I need.	SK	.833
19	I'm kind to myself when I'm experiencing suffering.	SK	.833
21	I can be a bit cold-hearted towards myself when I'm experiencing suffering.	SJ	-.353
22	When I'm feeling down I try to approach my feelings with curiosity and openness.	MFN	.404
	Factor 5— isolation		
4	When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.**	ISO	.391
13	When I'm feeling down, I tend to feel like most other people are probably happier than I am.	ISO	.465
18	When I'm really struggling, I tend to feel like other people must be having an easier time of it.	ISO	.448
25	When I fail at something that's important to me, I tend to feel alone in my failure.	ISO	.460

*Cross-loaded to factor 3 .310, **Cross-loaded to factor 1 .346

measurement criteria and improved the AIC from 852.23 in the six-factor model to 757.67. CFA's using the t1 data revealed a similar pattern; this time, however, none of the models fully fitted all of our criteria for a good model fit as the TLI for the bi-factorial model dropped to under 0.9, but this model remained the closest fit to the data.

Omega indices (ω and ω_H) were calculated for the bi-factorial model (Table 4) to assess the reliability (ω) of the subscale scores and the total self-compassion score. These showed that the subscales ranged from ω .80 to .93 and the scale had an overall ω of .96 showing that the subscales were representative of both self-compassion and the six factors. There was greater variance in the ω_H indices with scores ranging from .05 (self-kindness) to .46 (isolation). The omega indices for the t1 data echoed these results.

As in Neff et al.'s (2017) paper, we calculated the variance in total scores that is explained by the overarching self-compassion factor (ω_H/ω). In our data, 89% of t1 and 94% of t2 variance in total scores resulted from the overarching self-compassion factor.

Discussion

The SCS is a widely used measure of self-compassion and its factor structure has received a great deal of research interest. This study provided an independent evaluation of the SCS's factor structure and replicated the models evaluated by Neff et al. (2017). Specifically, the outcomes of this study echo those found in Neff et al.'s (2017) study, in particular the

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Table 3 Model fit time 1 and time 2

Model	CFI	TLI	SRMR	RMSEA	AIC	χ^2 (DF)
Time 1 data (<i>N</i> = 526)						
Single-factor	.71	.68	.08	.09	2143.9	1987.9 (299)
2-factor	.79	.77	.07	.09	1675.7	1517.7 (298)
5-factor	.85	.84	.07	.07	1299.1	1123.1 (289)
Higher-order	.84	.82	.07	.08	1407.0	1239.0 (293)
6-factor	.88	.86	.06	.05	1183.8	997.8 (284)
Bi-factorial ^a	.91	.88	.06	.05	1023.9	787.9 (259)
Time 2 data (<i>N</i> = 332)						
Single-factor	.77	.75	.08	.11	1673.9	1466.8 (299)
2-factor	.85	.84	.07	.09	1218.3	1060.3 (298)
5-factor	.88	.87	.07	.08	1003.6	879.6 (289)
Higher-order	.88	.87	.08	.08	1045.2	877.2 (293)
6-factor	.92	.91	.05	.06	852.23	666.2 (284)
Bi-factorial ^a	.95	.94	.06	.05	757.67	521.7 (259)

^a Best fit to the data t1 = CFA run using time 1 data; t2 = CFA run using time 2 data

results from her student sample. We found the SCS to be reasonably reliable with both the overall scale and subscales having relatively high internal reliability and good test-retest reliability. Of the models we investigated, we found that the bi-factorial model consisting of the six-factor correlated model and an overarching self-compassion factor was the best fit to our data. This supports Neff's (2016) conceptualisation of self-compassion as having six distinct factors that are influenced by a concurrent (self-compassion) factor and the use of the SCS to give both an overall self-compassion score, or to use the scores from individual subscales. The inclusion of a general self-compassion factor accounted for some of the shared variance between factors and improved the model fit across all of our fit criteria (TLI = 0.94, CFI = 0.95) and the AIC suggested that this model was the best fitting of all the models. When we ran the same analyses on the t1 data, the bi-factorial model did not fulfil all of our fit criteria (TLI < 0.9),

but remained the closest fit to our data. In Neff et al.'s (2017) recent paper, the bi-factorial model was not as good a fit as the six-factor solution in any of the populations, but it still demonstrated an acceptable fit in all of the populations with the exception of the clinical sample. Van Prooijen and Van Der Kloot (2001), however, emphasised that there is never 'one single true model' as data are subject to individual differences.

The omega indices showed further support for the bi-factorial construction of self-compassion as the subscales ranged from $\omega = .80$ to $.93$ and the total score had an ω of $.96$ suggesting that the subscales and the overarching scale are representative of both self-compassion and the six factors. With the inclusion of the overarching self-compassion factor, the ωH indices reduced to between $.05$ (self-kindness) and $.46$ (isolation). Lower ωH scores indicate that a greater proportion of that factor's variance has been explained by the overarching self-compassion factor rather than the individual factor(s). Self-kindness, for instance, appeared to be comprised largely of self-compassion as the variance reduced by 88% (t2) when the overarching factor was included. We also calculated the percentage variance in total scores (89% of t1 and 94% of t2) explained by the overarching self-compassion factor (Table 5). Our findings echo the percentages reported by Neff et al. (2017) who found that the general self-compassion factor accounted for 90–95% of variance across their samples. These omegas indicate that both the scores from the specific factors and from the total score can be interpreted with confidence.

The six-factor correlated model was also a good fit to our t2 data and the fit was comparable with previous research (Neff 2003a, b: TLI = 0.9, CFI = 0.91. Neff et al., 2017: student sample: TLI = 0.92, CFI = .93. The present study: TLI = 0.92 and CFI = 0.93). In our model, the items loaded well onto the proposed factors with loadings ranging from $.55$ to $.85$. These were comparable to those from the student sample in Neff et al.'s recent paper (Neff et al. 2017). Very similar factor loadings were found when the CFA was run on the t1 data. Internal consistency was mostly good within the subscales. However, we found that perceived isolation was highly correlated with

Table 4 Reliability indices for the Self-Compassion Scale and variance explained in bi-factor model

Scales	No. of items	Alpha α			Omega ω		Omega H ωH		M (SD)	
		t1	t2	Retest	t1	t2	t1	t2	t1	t2
SCS overall	26	.92	.95	.93	.94	.96	.84	.90	2.82 (.65)	3.07 (.32)
Self-kindness	5	.82	.89	.87	.89	.93	.08	.05	2.72 (.79)	2.8 (.86)
Common humanity	4	.77	.83	.80	.79	.85	.51	.41	3.03 (.86)	3.09 (.87)
Mindfulness	4	.71	.75	.81	.76	.8	.29	.26	3.17 (.76)	3.23 (.73)
Self-judgement	5	.81	.89	.89	.83	.9	.26	.20	3.33 (.85)	3.27 (.93)
Isolation	4	.77	.80	.83	.78	.81	.51	.46	3.31 (.92)	3.26 (.89)
Over-identification	4	.75	.82	.87	.73	.82	.34	.40	3.37 (.89)	3.29 (.94)

No. of items number of items on the factors, α Cronbach's alpha, ω coefficient omega, ωH omega hierarchical, M Mean, SD standard deviation

the over-identification and self-judgement factors. Correlations of this level (0.94 and 0.90 respectively) can indicate poor discriminant validity between subscales, but in some, as is probable in this case, they can be indicative of a shared latent variable that impacts upon the scale over and above the impact of the factors (Gaskin 2016). The inconsistencies in models found by previous research might suggest the latter may be the case and findings from this study support this conjecture.

The five-factor model from our EFA was not supported during the confirmatory procedures from either of our time points; however, this is not an unusual outcome in cross-validation studies as no parameters are set in EFA and the data are allowed to inform the model formation whereas the CFA procedure is run with more restrictions in place (van Prooijen and van der

Kloot 2001). Neither the single-factor nor two-factor models fitted our data. This might suggest that the operationalisation of self-compassion is more complicated than it being a single construct or a sum of the positive and negative items. To address concerns regarding the inclusion of the negative components of self-compassion, some research has adopted the two-factor model to measure self-coldness and self-compassion scores (e.g. Gilbert et al. 2011). Although the fit indices were approaching a fit to the data, this model did not reach acceptable levels of fit; therefore, we found no support for using the SCS in this way. We found similar outcomes for the higher-order model to Neff et al. (2017). In higher-order models, the overarching factor accounts for all variance between the factors that load on to it. It does not allow the factors to retain any individual influence on the model. This does not fit with Neff's (2016) conceptualisation of self-compassion as consisting of both self-compassion and interrelated components.

The lack of fit for the two-factor model should also alleviate some concerns that the SCS may be affected by the item scoring method (e.g. López et al. 2015, Muris and Petrocchi 2017). The fact that the single compassion factor was not a fit to our data supports Neff et al.'s (2017) ascertainment that although the SCS can be used to yield a total score compassion, it is not constructed of a single dimension.

Self-compassion is an important psychological construct and it is imperative that we advance our understanding of how it is optimally operationalised. Our findings support the view that compassion is a multi-faceted construct that is more complicated than being comprised exclusively of the positive components of self-compassion. Muris and Petrocchi (2017), however, reported greater associations between the negative components and psychopathology than the positive components of the SCS. These authors highlight the importance that the scoring method can have on a scale in that the reverse scored items might serve to inflate the self-compassion score, thus increasing the association between the self-compassion total score and psychopathology. The bi-factorial construct of the SCS affords researchers the opportunity to explore the impact of the individual factors as well as the overall total score and address this concern. In the present study, our inter-factor correlations were stronger between negative components of self-compassion than those between the positive ones. More research needs to be conducted into the mechanisms underlying the components of self-compassion and to explore how much impact each factor has under various circumstances or populations.

Limitations and Future Directions

The study employed a student sample which was three quarters female. Model fit should be tested across other populations to establish what models of self-compassion are most

Table 5 Factor loadings of SCS items on subscales for six-factor correlated and bi-factorial model using time 1 and time 2 data

Subscale	t2 6-factor	t2 bi-factorial	t1 6-factor	t1 bi-factorial
Selfkindness				
5	.71	.79	.67	.78
12	.82	.86	.78	.85
19	.85	.88	.78	.83
23	.71	.76	.61	.63
26	.83	.85	.65	.66
Selfjudgement				
1	.82	.74	.70	.59
8	.76	.71	.69	.58
11	.76	.69	.64	.56
16	.81	.70	.73	.58
21	.75	.72	.66	.60
Common humanity				
3	.70	.53	.62	.39
7	.75	.49	.69	.34
10	.76	.56	.76	.44
15	.75	.63	.65	.51
Isolation				
4	.76	.60	.74	.54
13	.67	.55	.65	.35
18	.59	.42	.58	.28
25	.75	.60	.68	.44
Mindfulness				
9	.55	.39	.52	.33
14	.78	.62	.73	.58
17	.73	.65	.69	.57
22	.58	.61	.57	.60
Over-identification				
2	.81	.62	.77	.54
6	.75	.64	.70	.45
20	.70	.40	.54	.26
24	.64	.44	.58	.31

appropriate in different populations and studies should investigate how gender impacts upon model fit. In future studies, modelling techniques ought to be reflective of the complexity of self-compassion and, as such, assess the presence of a shared compassion factor by using bi-factorial and other in-depth structural equation modelling techniques. Factorial and structural modelling techniques are continuing to develop, and in a recent investigation, Tóth-Király et al. (2016) applied exploratory structural equation modelling techniques to a Hungarian version of the SCS. Applying these techniques to the original language version of the SCS would allow for more rigorous testing of this important construct.

Our study found that the SCS can be used to give subscale totals and to give an overall total compassion score. Despite the scale's extensive use, however, we have little understanding of how the six components of the SCS interact with each other and more work needs to be done to understand if all the factors contribute equally to a person's compassion or if one area is potentially more important than another. In this vein, Muris and Petrocchi (2017) also emphasised the need for studies to investigate the predictive value of the different components of the SCS in the aetiology of psychopathology. To facilitate this, research into the SCS needs to move away from cross-sectional studies and employ more prospective designs which would also allow the investigation of the stability of self-compassion over time. Studies could also be designed to determine how self-compassion is affected by the presence of stressful life events, particularly events that increase feelings of self-criticism and failure (e.g. Tóth-Király et al. 2016), and allow exploration of the relationship between these and the latent variables of the SCS.

More research emphasis needs to be placed on the positive components of mental health rather than the negative aspects, and as such, self-compassion is an important area that deserves much more research attention. Thus far, research into self-compassion has primarily focussed on its association with mental health problems such as depression, anxiety and stress; however, how self-compassion is related to more complex mental health problems including experiences such as paranoia and distressing voices, self-harm and suicide is worthwhile. Moreover, the role of self-compassion in recovery merits more attention (Anthony 1993; Leamy et al. 2011). Our research reiterates Neff et al.'s (2017) findings that the SCS can be used as the six-factor and bi-factorial model, thereby further emphasising the complexity of self-compassion. Our findings also support the use of the SCS to give a total score as suggested by Neff and colleagues (Neff 2003a, b, Neff et al. 2017). However, in light of Muris and Petrocchi (2017) recent meta-analysis, further examination of the contributions of the individual factors, particularly the negative factors, to the overall self-compassion score is vital. In sum, further research into this complex construct is needed to establish the impact of the individual components on the models

of the SCS and how these components interact within mental health and illness.

Authors' Contributions SC designed and executed the study, analysed the data and wrote the paper. AG and RCOC were supervisors who collaborated on the study design and data analysis plan, and editing of the final manuscript. CJC assisted with the data analysis and editing of the final manuscript.

Compliance with Ethical Standards Ethical approval was granted by the University of Glasgow College of Medical Veterinary Life Sciences Ethics committee. To ensure informed consent, all participants actively selected that they had consented to take part in the study before being able to proceed to the questions.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Conflict of Interest The authors declare that they have no conflict of interest.

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Self-compassion, self-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. Eighteen 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.

KEYWORDS

self-compassion, self-forgiveness, self-harm, suicidal ideation, suicide attempt

1 | INTRODUCTION

Suicide is a major public health concern, with approximately 804,000 people dying by suicide annually (World Health Organization [WHO], 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 nonsuicidal 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" (National Institute for Health and Care Excellence [NICE], 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 tripartite (premotivational, motivational, and volitional phases) diathesis-stress framework that 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, and negative life events) in which self-harm ideation may develop. The motivational phase highlights factors that 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 and 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 and 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, such as shame and defeat, thereby suggesting that self-compassion is a moderator within the motivational phase or it may operate throughout the pathway.

1.1 | What is self-compassion?

Compassion is a multifaceted construct, which develops within a secure attachment framework (MacBeth & Gumley, 2012), and has been conceptualized 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 on the Buddhist conceptualization 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 individuals have the intention and motivation to adopt and apply a compassionate mindset to themselves (Jazaieri et al., 2014). For instance, self-compassion entails accepting

Key practitioner message

- 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.

personal shortcomings 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, 2003a, b; 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 judgement 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, 2003a; Barnard & Curry, 2011); for instance, feeling connected to others reduces feelings of isolation, leading to individuals feeling more positive about themselves.

1.2 | Measuring self-compassion

The most widely used measure of self-compassion is the Self-Compassion Scale (SCS; Neff, 2003b). Neff (2003a, b, 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, 2003b). 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, & Ravis, 2011); however, this model has not been supported by subsequent analyses (Cleare et al., 2018; Neff et al., 2019).

1.3 | Self-compassion and well-being

Increasingly, self-compassion has been shown to be associated with physical ($r = .23$ to $.28$; Hall, Row, Wuensch, & Godley, 2013) and psychological well-being (positive affect $r = .36$; anxiety $r = -.58$; and depression $r = -.46$; see Barnard & Curry, 2011 for review), including reduced emotional burnout and shame ($r = -.6$). Using meta-analytic techniques, MacBeth and Gumley (2012) found higher self-compassion was associated with lower levels of depression, anxiety, and stress ($r = -.54$, 95% CI $[-0.57, -0.51]$). Both the review and meta-analysis emphasize 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), populations with depression (Gilbert & Procter, 2006), schizophrenia spectrum disorders with psychotic features (Braehler et al., 2013) and forensic mental health inpatient populations (Laitwaite et al., 2009). 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 well-being, 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 showed that self-compassion mediated the relationship between

anxiety and well-being (Sommers-Spijkerman, Trompetter, Schreurs, & Bohlmeijer, 2018) through increasing positive affect, which subsequently reduced levels of depressive symptoms. Compassion-focussed therapy also reduced self-criticism, which in turn reduced symptoms of anxiety. Indeed, studies using functional magnetic resonance imaging 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 and 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.

1.4 | What is self-forgiveness?

Self-forgiveness can be conceptualized 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 recognizing 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, Webb, and 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 well-being 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 that has investigated the relationship between self-compassion/self-forgiveness and self-harm and suicidal ideation.

2 | METHODS

2.1 | 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.

2.2 | Inclusion and exclusion criteria

To be eligible for inclusion, studies had to (a) assess self-compassion or related term; (b) assess self-harm (with or without suicidal intent) or suicidal ideation; and (c) 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.

2.3 | Data extraction

Demographic characteristics, study design, and 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, Ferguson, Green, O'Carroll, and O'Connor (2016) was used to assess study rigour. This scale has nine areas for consideration (e.g., study design and statistical power/considerations;

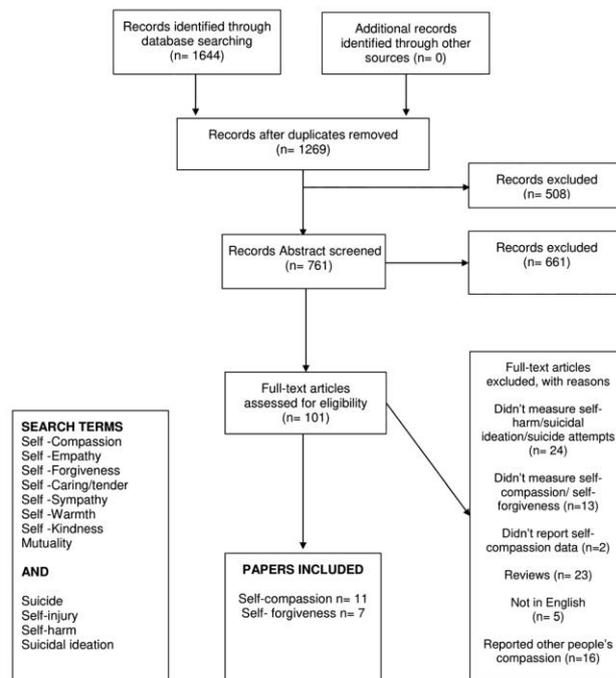


FIGURE 1 Procedure for identifying, screening, and determining the eligibility of studies for inclusion in the review

sample details, comparison group, and compassion construct assessment) allowing calculation for an overall score for the study ranging from 0 to 13. For example, a score of "0" is assigned to cross-sectional studies, case-controlled studies are assigned a score of "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 nonvalidated 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.

3 | RESULTS

Eighteen papers were included in the review (see Figure 1). Eleven studies addressed self-compassion (eight cross-sectional, two longitudinal, and one 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 to assess the self-compassion in blog posts related to self-harm.

3.1 | Quantitative studies of self-compassion

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

3.2 | Quality assessment

Methodology quality assessment scores (see Table 1 for details) ranged from 2 to 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 et al., 2017; Xavier et al., 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.

3.3 | Sample characteristics

The combined sample size was 4,345 participants, with a mean age of 20.9 years old (range = 11–66 years old); 58.6% ($n = 2,547$) of participants were female. Five studies were conducted in North America (Chang et al., 2017; Gregory et al., 2017; Hayes et al., 2016; Rabon, Sirois, & Hirsch, 2018; Tanaka et al., 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 et al.'s (2011) sample reported diverse ethnic backgrounds (27% White, 31.3% Black, and 27.8% dual/multiple ethnicity). Two studies were conducted in China (Jiang et al., 2016; Jiang, You, Zheng, et al., 2017; Jiang, You, Ren, et al., 2017) and two in Europe (Collett et al., 2016; Xavier et al., 2016). Collett et al. (2016) carried out a case-controlled study, comparing a clinical population (experiencing persecutory delusions $n = 21$) with 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).

3.4 | Assessment of self-compassion

The 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 SCS short form (Raes et al., 2011). The SCS short form includes two items from each of the original subscales. In addition to the SCS, Gregory et al. (2017) measured state self-compassion (participants rated how trusting, loving, grateful, and joyful they were feeling) before and after a values affirmation task.

3.5 | 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, You, Zheng, et al., 2017; Jiang, You, Ren, et al., 2017; Tanaka et al., 2011). Although Hayes et al. (2016) recorded lifetime suicidal ideation, suicide attempts, and NSSI, they reported a dichotomized 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; Beck & Steer, 1991 in Collett et al., 2016) and self-harm (Risk-taking and Self-harm Inventory for Adolescents Portuguese; Xavier et al., 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*).

TABLE 1 Self-compassion quantitative studies

Study, country, quality assessment (QA)	Measures		Key findings	Analysis
	Sample	Outcome Measure		
Chang et al. (2017), 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%	Self-compassion SCS (Neff, 2003a, b)	Study design Cross-sectional; observational Combined suicidal ideation and suicide attempts SBQ-R (Osman, Bagge, Gutierrez, Konick, Kooper & Barrios, 2001) SCS subscales significantly associated with suicidal behaviours ($r = .2$ to $.26$) in expected directions. SC potential mediator of NLE last 12 months and SBQ-R score. NLE negatively related to common humanity ($\beta = -.11$), which in turn was negatively related to suicidal behaviours ($\beta = -.13$). 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, Pugh, Waite, and Freeman (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	Self-compassion SCS (Neff, 2003a, b)	Study design Cross-sectional; Case controlled Suicidal ideation Clinical group recruited clinical service; data collected interview with clinician. C group from participant pool online.	Correlations Mann-Whitney U- Tests Cohen D calculated. None
Gregory, Glazer, and Berenson (2017), USA QA = 6	Students $N = 64$; all female. SH = 32; C = 32 Mean age: 19.4 Range: 18–22 White = 89.1%	Self-compassion SCS (Neff, 2003a, b) State self-compassion trusting, loving, grateful, joyful (not at all-extremely)	Study design Cross-sectional; experimental Self-harm Item from the SNAP-2 (Clark, 2003; item 17a) assessed repeated engagement deliberate physical self-injury. 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.	Correlations T-tests Correlations MANCOVA 2x5 Design VAS Joyful Trait Compassion

(Continues)

TABLE 1 (Continued)

Study, country, quality assessment (QA) score	Sample	Study design	Measures		Outcome Measure	Key findings	Analysis	
			Self-compassion	Self-compassion			Covariates	Covariates
Hayes, Lockard, Janis, and Locke (2016), USA QA = 3	Students registered with mental health services, 1,609 (<i>f</i> = 1,110; 69%, <i>m</i> = 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, Pommier, Neff, & Van Gucht, 2011)	Self-compassion	Suicidal ideation, suicide attempts, NSSI Lifetime frequency. Dichotomised score used.	Values affirmation produce the greatest gains in state self-compassion among individuals with low in trait self-compassion. 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 (<i>f</i> = 225, 43%) Mean age: 12.97 Range: 11–16 Ethnicity not reported	Longitudinal	SCS (Neff, 2003a, b)	Self-compassion	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 (<i>r</i> = -.3) and being bullied (<i>r</i> = -.27; both <i>p</i> < .001) Time 2: 137 (26.1%) NSSI, 60 (44.1%) 1 method, 77 (56.2%) multi. Higher SCS, less NSSI <i>r</i> = -.19 (<i>p</i> < .001) Victimisation associated with NSSI at T2. Self-compassion weakened relationship. Interaction SCS and peer victimisation B-.61, SE B = .30, β = -.15, <i>p</i> = .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, You, Zheng et al. (2017), China QA = 4	Adolescents <i>N</i> = 658 (<i>f</i> = 264, 40.1%)	Cross-sectional	SCS (Neff, 2003a, b)	Self-compassion	NSSI	91 (13.8%) engaged in NSSI. Females more likely to engage in NSSI, 17.8% vs. 11.86%; χ^2 (1, <i>N</i> = 607) = 4.18,	Chi-square MANCOVA Mediation	

(Continues)

TABLE 1 (Continued)

Study, country, quality assessment (QA)	Measures		Study design	Sample	Outcome Measure	Key findings	Analysis Covariates
	Self-compassion	Self-compassion					
Jiang, You, Ren, et al. (2017), China QA = 4	SCS (Neff, 2003a, b)	Self-compassion	Cross-sectional	Adolescents <i>N</i> = 606 (<i>f</i> = 38.8%); authors did not report <i>n</i> .	Item asking presence or absence NSSI 12m	<p><i>p</i> = .041, NSSI in 12m younger than those with no NSSI.</p> <p>NSSI group lower family attachment and SCS scores (<i>p</i> < .001). NSSI group lower feelings trust, communication, and closeness than C.</p> <p>NSSI (mean = 2.97) significantly lower levels of self-compassion, <i>F</i>(1, 504) = 35.56, <i>p</i> < .001, .07; no list group (mean = 3.37)</p> <p>Attachment and NSSI: self-compassion mediated the relationship maternal/paternal closeness and NSSI. Also mediated the relationship between peer communication/closeness and NSSI.</p>	Univariate tests Mediation—gender, age
Rabon et al. (2018), USA QA = 2	SCS-sf (Raes et al., 2011)	Self-compassion	Cross-sectional	Students <i>N</i> = 356 (<i>f</i> = 242, 68%) Mean age: 21.44 Range: not reported White = 83.1% Black/African American = 8.5% Asian = 4.2% Other = 2%	Combined suicidal ideation and suicide attempts SBQ-R (Osman et al., 2001)	<p>Group breakdown: C 422 (154 <i>f</i>); NSSIT 98 (39<i>f</i>); NSSI 86 (42<i>F</i>)</p> <p>Females more likely than male NSSI (<i>n</i> = 42); 17.87% vs. 11.86% (<i>p</i> = .44); chi sq (2, <i>N</i> = 606) = 4.27, <i>p</i> = .039.</p> <p>No gender diffrs NSSIT.</p> <p>C vs. NSSI- significant differences (<i>p</i> < .001) all SCS subscales</p> <p>C vs. NSSIT significant differences (<i>p</i> < .001) all negative SCS subscales</p> <p>NSSI vs NSSIT: NSSI significant lower common humanity (<i>m</i> = 3.27 vs. 3.55, <i>p</i> < .01) and self-kindness (<i>m</i> = 3.06 vs. 3.38, <i>p</i> < .001) than NSSIT.</p>	Chi-Square MANCOVA, group x gender post hoc Tukey Age

(Continues)

TABLE 1 (Continued)

Study	Measures		Key findings		Analysis Covariates
	Sample	Study design	Self-compassion	Outcome Measure	
country, quality assessment (QA) score					
	Multiracial = 1.1% Hispanic = 0.6% Refused = 0.3% Native American = 0.3%				
Tanaka, Wekerle, Schmuck, and Paglia-Boak (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, 2003a, b)	Suicide attempts Item asking presence or absence 12h	Lower SCS score greater association with SA ($r = -.3, p < .05$). 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% ($p < .05$). 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, Pinto-Gouveia, and Cunha (2016) Portugal QA = 5	Adolescents 643 (F = 332, 51.6%) Mean age: 15.24, range: 12–18 Ethnicity: not reported	Cross-sectional	SCS (Neff, 2003a, b)	NSSI RTSHIA (Vrouva, Fonagy, Fearon, & Rousow, 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

Abbreviations: ANOVA, analysis of variance; BSSI, Beck scale for suicidal ideation; C, no history of any suicidality; MANCOVA, multivariate analysis of covariance; NLE, negative life events; NSSI, nonsuicidal self-injury; NSSIT, nonsuicidal self-injurious thoughts; RTSHIA, Risk-taking and Self-harm Inventory for Adolescents; SA, history of suicide attempt; SB, suicidal behaviours (not specified/multiple constructs measured); SBQ-R, Suicidal Behaviours Questionnaire-R; SC, self-compassion; SCS, Self-Compassion Scale; SCS-sf, Self-Compassion Scale Short Form; SF, self-forgiveness; SH, any self-harm regardless of intent; SI, history of suicide ideation; SNAP-2, Schedule for Nonadaptive and Adaptive Personality-2; VA, values affirmation.

3.6 | 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 et al. (2017) reported small associations between the subscales ($r = -.2$ to $r = -.26$, positive subscales; $r = .26$ to $r = .28$, 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 and Xavier et al., 2016, respectively). Lower self-compassion was associated with higher suicidal ideation ($d = -0.64$, $p < .001$; Collett et al., 2016) and suicide attempts ($r = -.3$, $p < .05$; Tanaka et al., 2011), with 16.4% of individuals with low self-compassion reporting suicide attempts compared with 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, 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, may be protective in NSSI.

3.7 | 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 ($r = -.37$, $p < .05$; Tanaka et al., 2011; $d = -0.73$, $p < .001$; Collett et al., 2016). Similarly, in serial mediation analyses, Rabon et al. (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, $r^2 = 23\%$, $B = -.09$, $p = .028$; mindfulness, $r^2 = 24\%$, $B = -.08$, $p = .038$; self-judgement, $r^2 = 25\%$, $B = .12$, $p = .009$; isolation, $r^2 = 24\%$, $B = .11$, $p = .012$; over-identification with thoughts, $r^2 = 25\%$, $B = .14$, $p = .002$).

Self-compassion partially mediated the relationship between negative life events in the last 12 months and suicidal behaviours when gender was controlled for, $F(7,323) = 7.18$, $p < .001$ (Chang et al., 2017), and weakened the relationship between bullying and NSSI ($B = -.61$, $SE = .30$, $\beta = -.15$, $sr^2 = .001$, $p = .041$) 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, You, Zheng, et al., 2017) including greater feelings of maternal ($B = .20$, $SE = 0.05$, $p < .001$) and paternal closeness ($B = .18$, $SE = 0.04$, $p < .001$). Greater closeness was in turn associated with lower NSSI (maternal, $OR = -1.22$, $SE = 0.29$, $p < .001$; paternal, $OR = 1.21$, $SE = 0.29$, $p < .001$). The relationship between peer communication ($B = .14$, $SE = 0.07$, $p = .032$), peer closeness ($B = .21$, $SE = 0.04$, $p < .001$), and NSSI ($OR = -1.48$, $SE = 0.29$, $p < .001$) was fully mediated by self-compassion.

3.8 | 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 United States, were cross-sectional, and used self-report measures. A range of populations was examined: student ($n = 2$), community ($n = 2$), adolescent ($n = 1$), military ($n = 1$), and older adults ($n = 1$).

3.9 | 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, Theriault, & Bryan, 2015; Westers et al., 2012) used validated outcome measures, all studies were self-reports. Measures of self-forgiveness were used in three studies (Bryan et al., 2015; Cheavens et al., 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, Webb, Cukrowicz, & Hirsch, 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), which used the Self Injurious Thoughts and Behaviours Interview (SITBI; Nock et al., 2007) to assess the presence of suicidal ideation and suicide attempts in active and veteran military personnel currently enrolled in college.

3.10 | Sample characteristics

The collated sample size was 1,329, with a mean age of 35 years old (range = 12–78 years). Overall, 57% ($n = 758$) of participants were female; however, whereas the majority of studies were composed of 70–78% female participants, Bryan et al.'s study sample was 69% male (Bryan et al., 2015). Four of the samples were predominantly White (81.4%, Bryan et al., 2015; 93%, Chang et al., 2014; 93%, Cheavens et al., 2016; and 94%, Nsamenang et al., 2013). Participants in the remaining three studies were from diverse ethnic backgrounds, and White/Caucasians made up 17% and 19% (Hirsch et al., 2011 and Hirsch et al., 2012, respectively) and 56.7% of the samples (Westers et al., 2012).

TABLE 2 Self-forgiveness quantitative studies

Study, country, quality assessment (QA) score	Measures			Analysis		
	Sample	Study Design	Self-forgiveness		Outcome Measure	Key Findings
Bryan et al (2015), USA QA = 8	Military services active and veterans enrolled in college 476 (M = 69%) Mean age: 36.2 Range: 19–76 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 et al., 2005)	Suicidal ideation and attempts STBI (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 ($r = -.29$) and SA ($r = -.28$) $p < .05$. SF significant predictor of PTS (adjusted age, gender, military versus veteran status, and depression); $.131, p = .001$, $F(4, 407) = 37.587, p = .001, R^2 = .180$.	Correlations, Anovas, Regressions Age, Gender, Trauma History, Post-Trauma Stress (PT), Veteran Status, Depression
Chang, Kahle, Yu, and Hirsch (2014), USA QA = 2	Community sample 101 (F = 71%) Mean age: 42.18 Range: 18–64 Ethnicity: White = 93%	Cross-sectional	Two items: BMIRIS (Fetzer Institute, 2003)	Combined suicidal ideation and suicide attempts	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
Cheavens, Culrow/cz, Hansen, and Mitchell (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 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	Correlations, regression, moderation Demographic variables depression

(Continues)

TABLE 2 (Continued)

Study, country, quality assessment (QA) score	Measures			Key Findings	Analysis	
	Sample	Study Design	Self-forgiveness			Outcome Measure
Hirsch, Webb, and Jeglic (2011) USA QA = 3	<p>Student 158 (F = 123, 78%)</p> <p>Mean age: 19.58</p> <p>Ethnicity:</p> <ul style="list-style-type: none"> White = 17% Hispanic = 46% Black = 23% Asian = 4% American Indian/Alaskan native = 2% Other = 6% 	Cross-sectional	<p>BMMRS (Fetzer Institute, 2003); Single item</p>	<p>Combined suicidal ideation and suicide attempts</p> <p>SBQ-R (Osman et al., 2001)</p>	<p>All forgiveness associated with SB. SF significant negatively association with SB and depression</p> <p>SF mediated depression and SB relationship. Mediation: Higher SF, lower SB effect. Fully accounted for by indirect effect of depression (higher SF, lower depression)</p> <p>Mediations: SF and depression predictive of SB</p> <p>Forgiveness of others related to lower SB regardless of depression symptoms</p> <p>Forgiveness of others and SF both predictive of SB.</p>	<p>Regressions, mediations.</p> <p>Age, gender, ethnicity, religion, spirituality, depression, forgiveness of others, forgiveness by God.</p>
Hirsch et al. (2012) USA QA = 3	<p>Student 372 (F = 260, 70%)</p> <p>Mean age: 19.6</p> <p>Ethnicity: White = 19%</p> <p>Hispanic = 41%</p> <p>Black = 26%</p> <p>Asian = 6%</p> <p>American Indian/Alaskan native = 1%</p> <p>Other = 7%</p>	Cross-sectional	<p>BMMRS (Fetzer Institute, 2003); Single item</p>	<p>Combined suicidal ideation and suicide attempts</p> <p>SBQ-R (Osman et al., 2001)</p>	<p>SF significant negative association with inward anger, SB, and depression. Inward-anger significantly positively associated, outward-anger significantly negatively associated with SB</p> <p>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.</p>	<p>Correlations, regressions, moderations, age, gender, ethnicity, religion, spirituality, depression, outward anger</p>
Nsamenang et al (2013) USA QA = 2	<p>Primary care, rural community.</p> <p>Uninsured 101 (F = 71, 71%)</p> <p>Mean age: 42.18</p> <p>Range: 18–64</p> <p>Ethnicity:</p> <ul style="list-style-type: none"> White = 94% 	Cross-sectional	<p>BMMRS (Fetzer Institute, 2003); Single item</p>	<p>Combined suicidal ideation and suicide attempts</p> <p>SBQ-R (Osman et al., 2001)</p>	<p>SF significant negative association with SB, depression. Thwarted belongingness and perceived burdensomeness were significant</p> <p>Negatively association with SF (r.25, .58, and .55, p<.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 associated with forgiveness of self (r = -.48, p = .001); mediations</p> <p>Higher SF > lower dep/burdensomeness/t belongingness>lower SB</p>	<p>Correlations, regressions, mediations.</p> <p>Age, gender, ethnicity, religion, spirituality, depression</p>

(Continues)

TABLE 2 (Continued)

Study, country, quality assessment (QA) score	Measures			Key Findings	Analysis
	Sample	Study Design	Self-forgiveness Outcome Measure		
Westers, Rehtuss, Olson, and Biron (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, 1992) NSSI NSSI subscale of SITBI (Nock et al., 2007) and Functional assessment of NSSI	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. Higher NSSI frequency associated with lower SF. Lower SF associated with greater likelihood of NSSI to get rid of unwanted feelings (ANR; adjusted $r^2 = 0.35$, $F(2,27) = 8.91$, $p = .001$) Lower SF significantly predictive of NSSI for APR, ANR, SPR. Latter 2 held when sex controlled for. SF only significant contributor to regression. SF significant predictor of engaging in NSSI for APR (A = 0.45, $p = .021$), and for NSSI for SPR (A = 0.43, $p = .027$). Association more frequent NSSI and SF ($r(25) = .609$, $p = .001$), negative relationship.	Correlations; regressions gender

Abbreviations: APR, automatic positive reinforcement; BMIRS, Brief Multidimensional Measure of Religiosity and Spirituality; C, no history of any suicidality; GSIS-SI, Geriatric Suicide Ideation Scale; HFS-S, Heartland Forgiveness Scale; MFS, Mauger Forgiveness Scale; NSSIT, nonsuicidal self-injurious thoughts; PB, perceived burdensomeness; SA, history of suicide attempt; SB, suicidal behaviours (not specified/multiple constructs measured); SBQ-R, Suicidal Behaviours Questionnaire-R; SC, self-compassion; SF, self-forgiveness; SF-HSF, self-forgiveness subscale of the Heartland Forgiveness Scale; SH, any self-harm regardless of intent; SI, history of suicide ideation; SITBI, Self-Injurious Thoughts and Behaviours Interview; SPR, social positive reinforcement.

3.11 | Assessment of self-forgiveness

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

3.12 | 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., 2015; Westers et al., 2012) employed the SITBI (Nock et al., 2007); however, Westers et al. (2012) focussed on the NSSI subscale. The final study (Cheavens et al., 2016) assessed suicidal ideation (Geriatric Suicide Ideation Scale; Heisel & Flett, 2006).

3.13 | 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 ($r = -.41, p < .01$) in older adults. Moderate to weak associations were found between higher self-forgiveness and suicidal ideation and behaviours in community (Nsamenang et al., 2013; $r = -.28, p < .01$; Chang et al., 2014; $r = -.4, p < .001$) and student (Hirsch et al., 2011; $r = -.26, p < .05$; Hirsch et al., 2012; $r = -.27, p < .001$) samples. Similarly, Bryan et al., (2015) found lower levels of suicidal ideation and attempts ($r = -.29, r = -.26$, 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 sociodemographic characteristics (including age, gender, and 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 to communicate 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 ($r = -.61, p = .01$), indicating that individuals who engage in NSSI repeatedly experience lower levels of self-forgiveness.

3.14 | 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 symptomatology was controlled for. 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 ($t = -2.08, p < .05$) between internal anger and suicidal behaviours ($r = .35, p < .001$). Chang et al. (2014) found that higher self-forgiveness reduced the association between domestic abuse and suicidal behaviours by 34%, reducing the relationship to nonsignificant levels.

3.15 | Qualitative study of self-compassion

One qualitative study met inclusion criteria. Sutherland, Dawczyk, De Leon, Cripps, and Lewis (2014) used a selective sampling methodology to extract writings expressing positive components of the SCS (self-kindness, common humanity, and mindfulness; Neff, 2003) from web/blog posts describing NSSI experiences (Table 3). The authors explored the data using Interpretive Phenomenological Analysis techniques. A total of 170 posts were included from 27 websites (24 discussions and 3 blog sites) primarily based in the United States and the United Kingdom. Due to the nature of the study, no demographic data were available, and it was not possible to determine respondent residence, gender, and NSSI information (e.g., NSSI method and frequency) and whether the posts were written by different individuals or multiple posts were written 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, reflecting individuals' 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."

4 | 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

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, 2003a, b)	NSSI Free responses	Multiple self-compassion themes extracted from within posts. Self-compassion mostly found in posts regarding recovery from NSSI.	Not applicable

Abbreviations: IPA, Interpretive Phenomenological Analysis; NSSI, nonsuicidal self-injury; SCS; Self-Compassion Scale.

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; $r = -.19$ Jang et al., 2016) to strong (self-forgiveness; $r = -.64$; Bryan et al., 2015). Our findings echo those from related populations that have also shown associations between higher levels of self-compassion and lower psychopathology and greater psychological well-being (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, 2003a, b) 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 et al., 2018; Neff et al., 2017). Muris and Petrocchi (2017) suggest that as the scale includes negative components that have stronger associations with psychopathology ($r = .47$ to $.50$) than the positive components ($r = -.27$ to $-.34$), using the total score may lead to an overestimation of the strength of the relationship. Consequently, the authors emphasize 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) that found that the self-compassion manipulation had a greater effect in the self-harm group and increased pain sensitivity; participants reported pain faster and felt more intense pain 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 composed of female students, making it difficult to generalize 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 a 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 four items assessing (a) ideation in the last 12 months, (b) expressions of suicidality to another person, (c) likelihood of a future suicide attempt, and (d) 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., 2018). 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 et al.'s (2014) findings that expressions of self-compassion were primarily related to recovery from NSSI resonates with Westers et al.'s (2012) findings that higher self-forgiveness was reported by individuals who engaged in NSSI less frequently. However, as Sutherland et al. 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 minimizing the impact of the event (Enright, 1996; Fisher & Exline, 2006; Hall & Fincham, 2005; Tangney, Boone, & Dearing, 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 those of MacBeth and Gumley (2012) and Zessin et al. (2015), which found associations between higher levels of self-compassion and lower psychopathology and greater psychological well-being. 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, 2011; O'Connor & Kirtley, 2018). 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 in 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 (2017) 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.

4.1 | 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 with 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 to investigate the role of self-compassion within specific circumstances and may be particularly beneficial in exploring the mechanisms that 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 (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 standardized 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 and 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 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 that 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.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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