

Keeping Others at Arm's Length: Examining the Contribution of Fears of Receiving Compassion
to Safety Behaviour Use and Positivity Deficits in Social Anxiety

by

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Statement of Contributions

Jolie T.K. Ho was the sole author for the General Introduction, Studies 2 and 3, and the General Discussion, which were written under the supervision of Dr. David Moscovitch.

The thesis consists in part of a manuscript that has been published. Exceptions to sole authorship of material are as follows:

Research presented in Study 1:

This research was conducted at the University of Waterloo by Jolie T.K. Ho under the supervision of Dr. David Moscovitch and was based on analysis of data collected by the Anxiety Studies team at the University of Waterloo. Jolie T.K. Ho, Jessica Dumasquier, and Molly Scarfe, contributed to the data analyses. Jolie T.K. Ho wrote the draft manuscript, to which all co-authors contributed intellectual input.

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Abstract

For many people, social relationships are a source of valued support, closeness, and positivity, motivating them to seek out and repeatedly enter social situations to fulfill their fundamental need for social connection (e.g., Baumeister & Leary, 1995). However, despite yearning for social connection, individuals with social anxiety disorder (SAD) struggle to capitalize on social opportunities to foster interpersonal closeness, and experience “positivity deficits” that are reflected in their failure to benefit emotionally from social contexts that others find rewarding (Kashdan, 2004; Kashdan, 2011). Rather than viewing social encounters as pleasurable, they may tend to appraise potentially rewarding social contexts as threatening due to intense fears of publicly exposing their self-perceived flaws and inviting judgment and criticism from others (Moscovitch, 2009). While self-portrayal fears have been shown to drive the use of maladaptive safety behaviours in individuals with SAD (Moscovitch et al., 2013), whether and how they may also contribute to positivity deficits remains unclear. Alongside self-portrayal fears, emerging research suggests that people with SAD also experience elevated fears of receiving compassion from others, eliciting feelings of threat or unfamiliarity when others offer support in the form of kindness, warmth, and affection (Gilbert et al., 2011; Merritt & Purdon, 2020). Like self-portrayal concerns, fears of receiving compassion may function to keep others at arm’s length, which may contribute in important ways to safety behaviour use and positivity deficits in SAD. However, the nature of the relationship between fears of receiving compassion, on one hand, and safety behaviour use and positivity deficits, on the other, has not yet been empirically examined. Furthermore, whether deficits in different subtypes of positivity (i.e., activated positive affect vs. soothing/ safe positive affect) exist amongst socially anxious individuals and their predictors remain unknown.

To address these critical gaps in the literature, my doctoral dissertation presents a series of three novel, methodologically diverse studies to help us gain new insights into the role of fears of receiving compassion in the behavioural and emotional experiences of individuals with symptoms of social anxiety across social contexts. First, I present the results of a cross-sectional, correlational study in which I analyzed the role of fears of receiving compassion on safety behaviour use in participants with SAD, over and above the well-established contribution of fears of negative self-portrayal (Study 1). Next, I extend these findings to investigate immediate emotional and cognitive responses in the moment of receiving compassion from others: in Study 2, I present results from an online study using an experimental written vignette paradigm to examine the effects of trait social anxiety symptoms, fears of negative self-portrayal, and fears of receiving compassion on responses to imagined compassionate feedback after an imagined shame-based social scenario (i.e., being socially rejected or committing a social blunder). Finally, to replicate and extend these findings to naturalistic social contexts, I employed ecological momentary assessment (EMA) via a smartphone app to examine how momentary safety behaviour use in naturalistic social situations impacts different types of momentary positive affect (i.e., activated positive affect vs. soothing/ safe positive affect), and how relations between momentary safety behaviour use and momentary affect across time are moderated by fears of negative self-portrayal and fears of receiving compassion (Study 3). Primary findings across the three studies demonstrated, first, that trait fears of receiving compassion predicted trait safety behaviour use over and above trait fears of negative self-portrayal. Second, trait fears of receiving compassion also influenced immediate, momentary emotional and cognitive responses to imagining receiving expressions of compassion from others after a socially distressing event. Third, momentary levels of both fears of receiving compassion and negative self-portrayal

predicted increased safety behaviour use in naturalistic social interactions, which then predicted increased negative affect and decreased feelings of social safeness. Theoretical and clinical implications of the program of research are discussed, including the role of compassion fears in the conceptualization of safety behaviour use in social anxiety, considerations for improving therapeutic procedures of safety behaviour reduction in CBT protocols, and the importance of targeting specific types of positive affect deficits in treatment of SAD, with an emphasis on devoting special therapeutic attention to social safeness enhancement. I conclude by identifying key questions for future research.

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The years spent working on this research have seen a pandemic, the passing of loved ones, and global events. At the same time, they have been filled with quieter, ordinary moments—spring walks in Waterloo Park, summer mornings at the farmer’s market, and trudging through the snow to orchestra rehearsal. Through it all, there were many times when I wondered what the future would look like. Now it is here, and yet it is also only the beginning.

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General Introduction

Fears of negative self-portrayal drive safety behaviour use for the concealment of self-perceived flaws in SAD

Safety behaviour use in SAD

Seminal cognitive models of social anxiety disorder (SAD) describe how SAD is characterized by an excessive fear of negative evaluation. Specifically, the “self-presentation” model of social anxiety suggests that socially anxious people doubt whether they will be able to make a desired impression (Leary & Kowalski, 1995). Clark and Wells (1995) similarly emphasize the desire of socially anxious individuals to not only make a favourable impression on others, but also to prevent feared consequences such as social rejection and criticism. Indeed, a core problem in social anxiety has long been conceptualized as an over-sensitivity to social threat, compounded by the belief that others have unreasonably high social expectations to be met (Rapee & Heimberg, 1997). Individuals with SAD also overestimate the probability and cost of their feared negative outcomes, which maintains social anxiety by reinforcing the assumption that social situations will result in catastrophic outcomes (Hofmann, 2007).

Subsequently, individuals with SAD either avoid and withdraw from social situations, or they enter social interactions with extreme caution by relying on maladaptive self-protective strategies known as *safety behaviours*. Safety behaviours are used excessively by individuals with SAD with the goal of preventing feared consequences of negative evaluation and social rejection (Salkovskis, 1991). Some common examples of safety behaviours include mentally rehearsing sentences, remaining silent in conversations, or avoiding pauses in speech (Cumming et al., 2009). Clark and Wells' (1995) cognitive model identifies safety behaviours as a maintenance factor of social anxiety because they enable socially anxious individuals to

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misattribute success in social situations to their use. For example, someone who is afraid of being judged for appearing “unintelligent” or “incompetent” in a conversation may excessively mentally rehearse what to say next and attribute their ability to navigate the situation to having carefully planned out their talking points, rather than believing that others may genuinely enjoy their company and be curious about their opinions. Therefore, although socially anxious individuals may believe that safety behaviours can provide them with protection and are necessary to function adequately in everyday life (Meyer et al., 2019), repeated use reinforces perceptions of social threat.

Fears of negative self-portrayal in SAD

Building upon these seminal cognitive models, Moscovitch (2009) conceptualized the core fear in SAD as a *fear of negative self-portrayal* (see Figure 1). That is, individuals with SAD fear exposing “characteristics of self that they perceive as being deficient or contrary to perceived societal expectations or norms” (p. 125) (i.e., self-perceived flaws). Within this framework, the possibility that a self-perceived flaw may be publicly revealed – and thus expose the person as being inadequate – lies at the heart of SAD. Notably, Moscovitch (2009) draws a subtle yet key distinction between the feared stimulus and feared consequence for socially anxious individuals. He argues that negative evaluation, judgment, and rejection are best categorized as feared *consequences* in response to the feared *stimuli* that one’s “true” deficient characteristics will be exposed, and that the self will be portrayed in a negative light. As such, safety behaviours are used not only to prevent the consequence of negative evaluation and judgment, but rather to *conceal* one’s self-perceived flaws and the potential rejection and criticism that would follow the exposure of such characteristics. Continuing the above example, someone who is afraid of being judged for appearing “unintelligent” or “incompetent” may

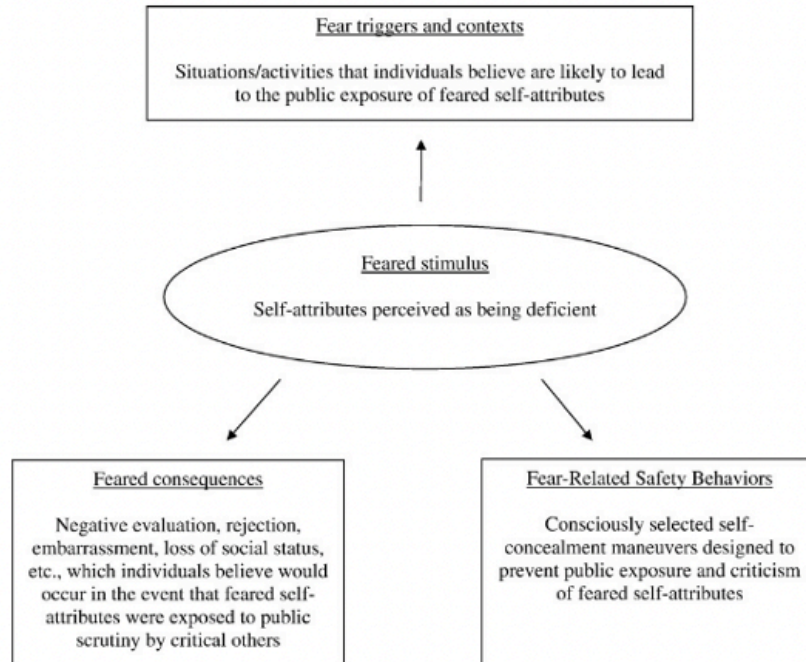
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actually believe that they are unintelligent and incompetent and are driven to use safety behaviours (e.g., excessive mental rehearsal) to conceal this self-perceived flaw.

Fears of negative self-portrayal drive safety behaviour use for the concealment of self-perceived flaws in SAD. The development of the Negative Self-Portrayal Scale, a validated scale to measure concerns about revealing aspects of the self for public scrutiny in anxiety-provoking social situations, revealed that concerns about social competence, concerns about physical appearance, and concerns about signs of anxiety are distinct (non-orthogonal) categories of self-attributes that socially anxious individuals are concerned will be exposed to evaluation by critical others (Moscovitch & Huyder, 2011). Additionally, these fears explained significant variance in the use of self-concealment behaviours over and above that accounted for by social interaction anxiety, social performance anxiety, and depression symptoms (Moscovitch & Huyder, 2011). Separately, participants with a diagnosis of SAD were shown to have higher self-portrayal concerns, which then predicted significant variance in safety behaviour use across diverse contexts, including in daily life and during an in-laboratory speech task (Moscovitch et al., 2013, Moscovitch et al., 2015). As such, safety behaviour use in SAD is driven by fears of revealing self-perceived flaws to others and are employed to prevent a downstream consequence of negative evaluation, judgment, and rejection.

Figure 1

Core Fear Model of Social Anxiety



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Consequences of safety behaviour use in SAD

Although socially anxious individuals employ safety behaviours to conceal self-perceived flaws with the goal of creating a more positive impression, safety behaviours have been shown to ultimately erode social performance. In a study where participants completed a speech performance task, the objective performance of participants with SAD was poorer than that of both anxious and healthy control participants; importantly, self-reported safety behaviour use mediated the relationship between SAD diagnostic status and observers' objective ratings of speech performance (Rowa et al., 2015). Safety behaviour use erodes social performance by requiring socially anxious individuals to engage in self-focused attention by continuously monitoring how they are coming across in a social interaction (e.g., Desnoyers et al., 2017; Leigh et al., 2021), which has been shown to elevate feelings of anxiety (Moscovitch et al., 2013). Safety behaviour use also drives overestimations of poor social performance: socially anxious individuals who use safety behaviours perceive themselves as appearing even more anxious than how they actually appear to others, even after accounting for eroded social performance due to safety behaviour use (McManus et al., 2008).

In addition to negative impacts on social performance, safety behaviour use that is fueled by fears of negative self-portrayal also has relational and interpersonal consequences. Using safety behaviours tends to elicit significantly more negative responses from others (Alden & Bieling, 1998; Alden & Taylor 2004). On the other hand, when socially anxious individuals intentionally drop their safety behaviours, they display a greater increase in social approach behaviour, eliciting more positive reactions from their conversation partners (Taylor & Alden, 2011). Continuing the above example, constant mental rehearsal during a conversation may be used to conceal concerns poor perceived social skills (e.g., appearing “unintelligent” or

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“incompetent”) but such a strategy would also draw socially anxious individuals’ attention away from the social interaction, creating additional anxiety and making them appear cold and aloof if they remain silent while trying to perfect what to say next. Indeed, people engaging in mental rehearsal often appear preoccupied, distracted, or even uninterested in listening to their conversation partners and processing their words and social cues. Thus, safety behaviours used with the goal of concealing self-perceived flaws may feel self-protective but tend to be unproductive for improving social performance and counterintuitively make it more challenging for them to affiliate and connect with others, while leading others to appraise their behaviour and body language negatively.

Despite the positive beliefs that socially anxious individuals hold about safety behaviour use (Meyer et al., 2019), safety behaviour use also increases negative affect and feelings of anxiety. For example, safety behaviour use was shown to increase anxiety and fear during conversations (McManus et al., 2008). Furthermore, safety behaviour use also mediated the relationship between self-portrayal concerns and negative affect, with increased safety behaviour use predicting heightened negative affect and prolonged recovery from this distress even after the speech task had ended (Moscovitch et al., 2013). These findings suggest that although socially anxious individuals may believe that they must rely on safety behaviours to remain protected and concealed, these strategies do not provide relief. Rather, safety behaviours hide socially anxious people from potential public exposure, even despite the elevated distress that doing so causes.

Safety behaviour subtypes have differential impacts on social performance despite both subtypes maintaining social threat

Clark and Wells (1995) proposed that people with SAD rely on two functionally distinct subtypes of safety behaviours: avoidance and impression management behaviours. Though both types of behaviours are driven by fears of self-exposure and subsequent negative evaluation, research has revealed that these safety behaviour subtypes have differential effects on social performance and social threat maintenance.

Avoidance safety behaviours reduce one's involvement in a social situation, for example, by overtly avoiding eye contact or limiting self-disclosure. The underlying motivation is to draw attention away from the self. However, avoidance safety behaviours have a detrimental impact on social performance and have been negatively associated with a conversation partner's desire for future interaction (Plasencia et al., 2011). In prior studies, conversation partners rated socially anxious research participants as appearing more anxious and less likeable, and objective assessors rated participants lower on positivity when avoidance safety behaviours were being used (Gray et al., 2019; see also Rowa et al., 2015). These behaviours are associated with negative impacts for socially anxious individuals themselves: one study found that socially anxious participants who used avoidance strategies rated themselves as feeling more anxious, looking more anxious, and enjoying the conversation less; they also reported less desire to pursue conversation with the same interaction partner in the future (Gray et al., 2019). Therefore, although socially anxious individuals may see avoidance safety behaviours as helpful for concealing self-perceived flaws from others, excessively relying on these behaviours reinforces the belief of being unable to cope without them and continually erodes the quality of social interaction.

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On the other hand, impression management strategies function to control the impression socially anxious people try to make on others by enhancing self-presentation in an inauthentic way, such as by feigning friendliness or using rehearsed phrases in conversation. These strategies distract others from self-perceived flaws by creating a favourable façade that appears warm and agreeable but is in fact a veneer of “innocuous sociability” (Leary & Kowalski, 1995). At first glance, impression management strategies do not have the same harmful social effects that avoidance safety behaviours do. Gray et al. (2019) found that the effects associated with avoidance strategies of rating the self as looking more anxious, enjoying the conversation less, and having reduced desire for a future conversation were not found when impression strategies were being used. Furthermore, impression management strategies were not significantly associated with partner liking in the study by Plasencia et al. (2011). Notably, however, these behaviours did not predict more positive responses from conversation partners, nor did they lower participants’ feelings of social anxiety during the conversation. Most importantly, use of impression management strategies predicted a smaller decrease in the magnitude of the cost of participants’ idiosyncratic feared social outcomes (i.e., “how bad it would be” if participants’ negative predictions of their conversation partner’s responses to them actually occurred) from before to after the interaction, while avoidance safety behaviours did not. Another important consideration is that impression management strategies may have different impacts in different contexts. For instance, in a study comparing the use of safety behaviour subtypes in a speech task (i.e., social performance context) and a conversation task (i.e., social affiliation context), participants with SAD and participants with major depressive disorder used impression management similarly during the speech task, whereas the SAD group used more impression management strategies than the depression group in the social affiliation context (Rassaby et al.,

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2023). Thus, although impression management strategies may have less globally negative effects than avoidance strategies, both safety behaviour subtypes maintain perceptions of social threat by keeping others at arm's length, preventing socially anxious individuals from updating their negative impressions and predictions about their social encounters. Impression management strategies also inhibit the kind of authentic and genuine self-disclosure that is critical for forging deeper social connections (e.g., Voncken & Dijk, 2013).

Although many social anxiety authors distinguish between impression management and avoidance safety behaviours – and I too focus on this distinction in the present studies – it is worth noting that safety behaviour subtypes may be conceptualized and categorized differently by researchers depending on their specific theoretical focus. For example, Moscovitch (2009) argued that safety behaviours can be conceptualized as self-concealment strategies that are functionally related to concerns about social competence, visible signs of anxiety, or physical appearance. To this end, Cuming (2009) identified a unique subtype of safety behaviours related to concealing physical symptoms of anxiety. Furthermore, Cogle and colleagues have recently begun to study appearance-related safety behaviours, which they conceptualized as maladaptive behavioural strategies intended manage a perceived flaw in physical appearance, either by avoiding social situations or by preventing judgment from others (Patel & Cogle, 2024; Wilver et al., 2020). Appearance-related safety behaviours have been implicated in eating disorders and body dysmorphic disorder, as well as in SAD (Levinson et al., 2013; Summers & Cogle, 2016).

SAD is uniquely associated with fears of receiving compassion from others, which could also promote self-concealment through safety behaviour use

Compassion in well-being and psychopathology

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In recent years, research literature has increasingly focused on facets of social anxiety beyond fears of negative evaluation, judgment, and criticism. Specifically, there has been growing recognition of the importance of understanding how positivity is processed in social anxiety. For instance, socially anxious individuals have been shown to not only fear negative evaluation, but also fear positive evaluation (e.g., Weeks & Howell, 2012). This may reflect a fundamental concern with remaining “inconspicuous,” as either positive or negative evaluation from others could attract unwanted attention that would elicit fear and anxiety. Because socially anxious individuals hold unrealistically high social standards for themselves and assume that others hold similarly high standards (Moscovitch & Hofmann, 2007), positive evaluation may be disqualified due to the belief that these standards are impossible to meet.

In parallel with this growing focus on positivity-related processes, there has also been increasing interest in factors that promote positivity and well-being, with social connection playing a central role (e.g., Doorley et al., 2020; Goodman, 2025; Kashdan et al., 2022). This line of work is particularly relevant for socially anxious individuals, for whom social anxiety disrupts affiliative tendencies that foster social connection. One such factor is compassion, which involves relating to oneself and others in a non-judgmental and caring way. Compassion has been extensively researched by Paul Gilbert and Kristin Neff, who offer complementary yet distinct conceptualizations of compassion. Kristin Neff’s conceptualization primarily focuses on compassion towards the self, or *self-compassion*. Neff (2003) defines self-compassion as a self-attitude characterized by: 1) self-kindness, or showing kindness and care towards oneself, 2) mindfulness, or holding a “balanced state of awareness that avoids the extremes of over-identification and disassociation with experience and entails the clear seeing and acceptance of mental and emotional phenomena as it arises,” (p. 88) and 3) common humanity, or the

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recognition that all people share fundamental experiences, emotions, and struggles. Meanwhile, Gilbert (2017) approaches compassion from an evolutionary framework. Gilbert's social mentality theory conceptualizes compassion as a motivation focused on noticing suffering in the self and others, with a commitment to try and alleviate and prevent the suffering. He elaborates three different directions of "flows of compassion," including self-compassion, receiving compassion from others, and expressing compassion towards others.

Self-compassion has been consistently linked with positive mental health outcomes, including decreased levels of psychopathology and increased psychological well-being across both adult and adolescent populations (MacBeth & Gumley, 2012; Marsh et al., 2017). Beyond its association with general well-being, self-compassion has been increasingly recognized as a transdiagnostic target in mental health interventions, with evidence suggesting its relevance across a wide range of psychological difficulties. By fostering adaptive emotional regulation, reducing self-criticism, and enhancing feelings of social connectedness, self-compassion may play a meaningful role in alleviating mental health symptoms and promoting overall well-being (for a review, see Zessin et al., 2015).

However, despite growing interest in compassion-based approaches, particularly those involving self-compassion, further research is required to clarify specific factors involved in compassion-related mechanisms of change (Kirby, 2025). For instance, Cha et al. (2023) recently highlighted that the existing research on compassion has primarily focused on self-compassion, prioritizing intrapersonal over interpersonal or social outcomes of compassion and limiting our understanding of the broader benefits of compassion. The authors argue that existing conceptualizations of compassion have largely been built on the general resource model of self-control (Baumeister et al., 2018; Bratslavsky et al., 1998), which theorizes that all forms of self-

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regulation are based on a general, central resource; this resource is thought to be finite and limited in nature, becoming depleted after use. By drawing heavily upon this model of self-regulation, research thus far has suggested that those who practice higher levels of self-compassion alleviate demands, or “free up” resources, due to reductions in the need to protect the self from criticism (e.g., Sirois, 2015). However, such models do not fully consider external sources of compassion outside the self, such as receiving comfort, care, and kindness from another person, and the impact that expressions of compassion from others can have on the self. Indeed, there has been extensive research on the effects of self-compassion on social anxiety; for instance, individuals with elevated social anxiety symptoms have been shown to benefit from self-compassion inductions in response to recalling a social situation where they felt judged (Siegel & Kocovski, 2020), immediately preceding a speech task inducing anticipatory anxiety (Harwood & Kocovski, 2017), immediately following a speech task that activated post-event processing (Blackie & Kocovski, 2017), and in reducing endorsements of maladaptive self-beliefs and expected use of safety behaviours (Szczygłowski & Kocovski, 2025). Given that socially anxious individuals have been found to benefit from self-compassion, further research is needed to clarify the impacts of receiving compassion from others, and whether and how socially anxious individuals can rely on others as sources of compassion when feelings of distress and anxiety arise.

Fears of receiving compassion in SAD

To benefit from compassion, individuals must be open and receptive to experiences of compassion, kindness, and care. Emerging research suggests that, partly due to early shame-based experiences, some individuals may be fearful of compassion (Gilbert, 2011). This can include fears of compassion toward oneself (self-compassion), fears of receiving compassion

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from others, or fears of expressing compassion toward others. Fears of compassion have been implicated in eating disorders (e.g., Kelly et al., 2014), posttraumatic stress disorder (e.g., Miron et al., 2015), and depressive disorders (e.g., Gilbert et al., 2014).

However, it was not until recently that the association between fears of compassion and anxiety disorders was more closely explored. When examining fears of compassion within anxiety disorders, Merritt and Purdon (2020) found that individuals with clinically significant obsessive-compulsive disorder (OCD), social anxiety disorder (SAD), and generalized anxiety disorder (GAD) exhibited greater fears of receiving compassion and fears of self-compassion than healthy controls, even when controlling for depressed mood. Notably, fears of receiving compassion from others uniquely predicted SAD symptom severity, over and above trait depressive symptoms, fears of self-compassion, and fears of expressing compassion to others. Therefore, alongside fears of exposing self-perceived flaws and becoming vulnerable to judgment and criticism, individuals with SAD also fear expressions of compassion from others. For people with SAD, fears of receiving compassion may consequently contribute to the use of safety behaviours aimed at avoiding visible signs of anxiety or distress—not only to prevent negative evaluation, but also to discourage others from offering support, such as by limiting self-disclosure (Dupasquier et al., 2018). However, empirical research has not yet examined whether fears of receiving compassion represent an additional driver of maladaptive safety behaviour use in SAD, alongside concerns about negative self-portrayal – a gap I aimed to fill in my dissertation.

The role of shame

Why would socially anxious individuals fear receiving warmth and kindness in the form of compassion from others? Fears of compassion are theorized to originate from early affiliative

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experiences where soothing, safeness, and care were not available when needed, instead eliciting feelings such as fear, shame, and loneliness (Gilbert, 2008). For instance, experiences of bullying and criticism may not have been responded to with kindness and care, and individuals may have come to anticipate and have been conditioned to experience feelings of grief, shame, and self-criticism following these kinds of events, rather than to expect a compassionate response when seeking or desiring support from others. Therefore, current experiences of affiliative emotions such as compassion may feel unfamiliar and threatening by reactivating conditioned emotional memories of compassion being either entirely unavailable or unreliably offered in the past during times of emotional need (Gilbert, 2008; Matos et al., 2017). In the context of SAD, these early shame-based experiences are consolidated into autobiographical memories around which maladaptive self-schemas are built (see Moscovitch et al., 2023). Indeed, several theorists have suggested that social anxiety arises from “direct traumatic conditioning,” such as being bullied, teased, or criticized at an early age (e.g., McCabe et al., 2003; Mineka & Zinbarg, 2006; Rapee & Heimberg, 1997), as well as by specific types of parenting characteristics, such as overcontrol and low parental warmth (Garcia et al., 2021). Current experiences of receiving compassion from others might activate and strengthen maladaptive negative schemas linked to early memories of being rejected and criticized, such that compassion from others is interpreted as disingenuous or undeserved, instead of experienced as being safe and soothing. In this way, receiving compassion is closely linked to feelings of shame, which is triggered by viewing the self as lacking, lesser than, or defective, either relative to others or according to one’s own standards (e.g., Lewis, 1971; Tracy, Robins, & Tangney, 2007).

In a recent systematic review of the role of shame in social anxiety, Swee, Hudson, and Heimberg (2021) proposed that shame arises from environmental experiences that predispose

individuals to allocate preferential attentional resources towards detecting social threat, and that shame additionally shapes how socially anxious individuals perceive themselves. They further propose that shame manifests in post-event cognitive processes that maintain social anxiety. Moscovitch (2009) agrees that shame likely predominates during periods of self-focus, such as during post-event processing immediately following exposure of self-perceived flaws. Another reason that receiving compassion may feel threatening in the face of self-exposure is that individuals with SAD may feel undeserving and unworthy due to their overly critical self-views or misinterpret genuine compassion from others as pity—and thus confirmation of having exposed their self-perceived flaws. Importantly, self-criticism has been found to be associated with greater expressive suppression, more self-concealment, and reduced expression of positive emotion (Luoma & Chwyl, 2020). Additionally, relative to individuals low in social anxiety, high socially anxious individuals have lower levels of self-compassion in contexts where social judgment may be more salient than in other types of negative contexts, with differences in levels of self-compassion between contexts mediated by the degree of participants' self-blame (Brassard & Kocovski, 2022). As such, it is worth further examining the role of fears of receiving compassion in self-concealment via safety behaviours and the maintenance of SAD.

A proposed model of fears of receiving compassion as an insidious maintenance factor of social anxiety

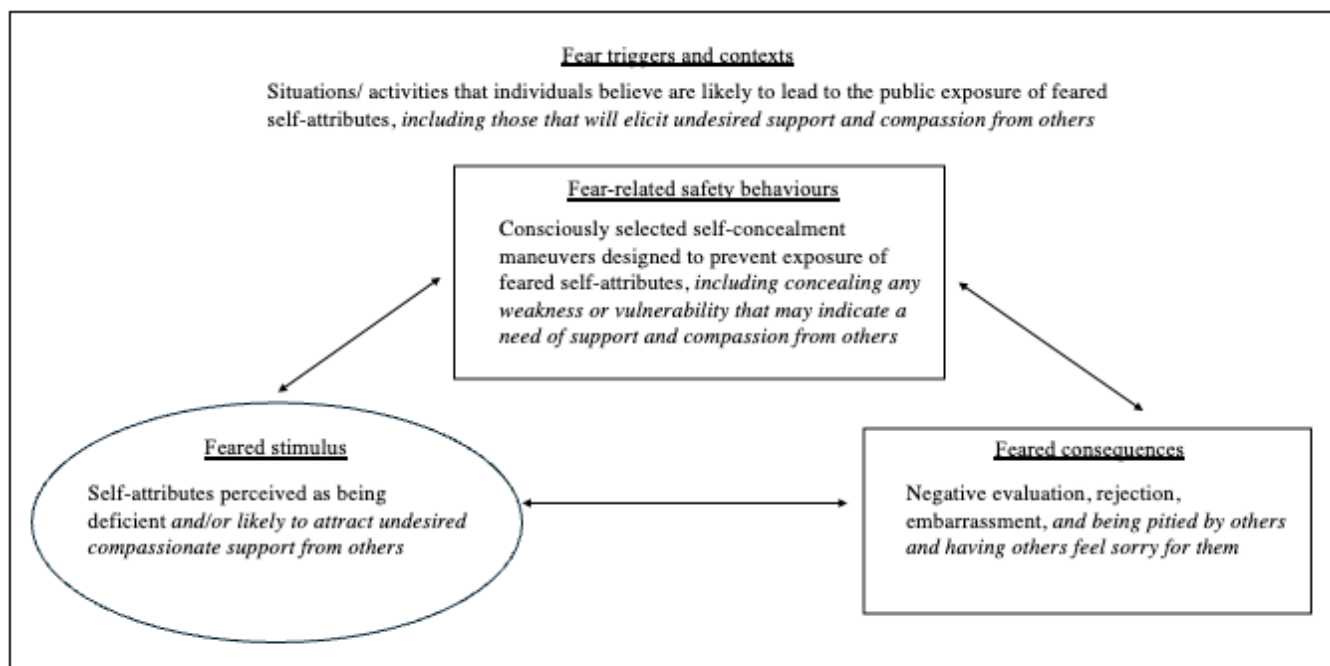
Fears of negative self-portrayal (Moscovitch, 2009) are well established in the literature as a driver of safety behaviours in SAD, aimed at self-concealment to prevent exposure of perceived flaws. Fears of receiving compassion have also been uniquely linked to social anxiety (e.g., Merritt & Purdon, 2020), though the behavioural, cognitive, and emotional mechanisms underlying these specific fears, and their impacts, remain unclear. Extending Moscovitch's

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(2009) core fear model of social anxiety, I propose that fears of receiving compassion are an insidious maintenance factor that operate by fuelling the use of safety behaviours, resulting in negative social and emotional consequences that reinforce social anxiety (Figure 2). Moscovitch (2009) suggested that the feared stimulus in social anxiety is one's self-attributes being perceived as deficient and socially undesirable; I extend this by proposing that the feared stimulus in social anxiety further includes not only exhibiting self-flaws that are socially undesirable to others, but also presenting oneself socially in a manner that could attract others' compassion or pity; for example, by appearing weak or vulnerable in social situations. The original model proposed that these fears are triggered by "situations/activities that individuals believe are likely to lead to the public exposure of feared self-attributes" (p. 125). I suggest that feared contexts in social anxiety may also include situations that could elicit unwanted support or compassion, and that the feared stimulus and its associated safety behaviours and consequences occur within the broader contexts of feared situations. Such contexts may trigger fear-related safety behaviours that keep others at arm's length not only for the purpose of self-concealment of perceived flaws, but also to conceal any expression of weakness or vulnerability that may elicit support and compassion from others. Finally, whereas Moscovitch (2009) emphasizes feared consequences in social anxiety such as negative evaluation, rejection, and embarrassment, I propose that fears of receiving compassion are linked to additional feared consequences that include being pitied by others and having others feel sorry for them.

Figure 2

Proposed Model of Fears of Receiving Compassion as an Insidious Maintenance Factor in Social Anxiety



Emerging research shows that SAD uniquely constrains positive affect in social situations

Positivity deficits in SAD

An emerging body of research has shown that in addition to fearing negative evaluation and judgment, people with SAD fail to experience typical feelings of interpersonal pleasure and to initiate expected reward-seeking behaviour in response to positive social cues – effects known as positivity deficits (Gilboa-Schechtman et al., 2014; Kashdan et al., 2011). Low positive affect is a unique feature of SAD compared to other anxiety disorders (Brown et al., 1998). A study on self-report measures of hedonic functioning revealed that there was a negative association between social interaction anxiety and hedonic deficits (positive subjective experiences and curiosity) and that this relationship was not attributable to covariance with other internalizing conditions, including depression and other anxiety disorders (Kashdan, 2004).

Although existing research has now reliably established the presence of positivity deficits in socially anxious individuals (e.g., Goodman et al., 2021; Kashdan, 2004), specific mechanisms underlying these deficits remain to be investigated. Some potential mechanisms underlying positivity deficits in SAD include socially anxious individuals behaving in ways that lead to decreased opportunities of positivity and pleasure from a conversation or interaction partner; for instance, socially anxious individuals may behave in ways that are more likely to elicit negative responses from other people (Alden & Taylor, 2004), such as being less likely to self-disclose (Dupasquier et al., 2018) or to display affiliative cues such as curiosity (Kashdan, 2002). Another explanation for why socially anxious individuals experience dampened positivity when interacting with others is that socially anxious individuals may not be engaging in interpersonal emotion regulation—that is, relying on others to regulate one's own emotions through the natural give-and-take of close relationships (Zaki & Williams, 2013)—due to their

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tendency to avoid social interactions and become preoccupied by feelings of anxiety and fear when socializing.

In their original comprehensive review and synthesis of the extant research on social anxiety and positivity deficits, Kashdan and colleagues (2011) proposed that socially anxious individuals' tendency to rely excessively on maladaptive self-regulatory strategies depletes valuable attentional resources needed for fully attuning to cues of social pleasure and positivity. One such self-regulatory strategy may be the use of safety behaviours; however, the association between safety behaviour use and positivity deficits remains to be empirically examined. Safety behaviours are an especially suitable starting point for uncovering the mechanisms underlying positivity deficits in SAD, as they are well established as a core maintenance factor of SAD, yet have mostly been researched in the context of consequences for anxiety and distress rather than positivity and well-being.

Furthermore, while nearly all individuals with SAD use and over-rely on safety behaviours, these behaviours are heterogeneous across the population, allowing for the study of positivity deficits across a range of contexts. Thwaites and Freeston (2005) argue that observing a behaviour at the surface level (i.e., the “topology” of a behaviour) is insufficient to differentiate between a maladaptive safety behaviour and an adaptive coping strategy. Rather, they emphasize that the *motivation* behind a behaviour, or its “intention,” along with its “consequence,” must be carefully considered. If safety behaviour use is found to underlie positivity deficits in SAD, then decreased positive affect from socializing may represent an additional “consequence” that can serve as an indicator that a behaviour is being used as a maladaptive safety behaviour to be addressed in therapy. These behaviours may be driven by intentions such as fears of negative evaluation, but may also include fears of receiving compassion, as hypothesized above. As such,

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in addition to understanding which behaviours socially anxious patients are using in anxiety-inducing situations, clinicians must carefully and collaboratively explore the intention and consequences behind those behaviours to differentiate between adaptive coping and maladaptive safety behaviour use.

Positivity deficits do not preclude socially anxious individuals from experiencing social pleasure

Of note, positivity deficits do not entirely preclude socially anxious individuals from experiencing pleasure while socializing. Using experience-sampling methods, Goodman et al. (2021) found that although participants with social anxiety disorder (SAD) reported lower positive affect in both social and non-social situations compared to healthy controls, participants with SAD reported higher positive affect when with others than when alone. Similarly, a recent study in our lab involving a lab-based conversation task between unfamiliar high socially anxious and low socially anxious partners found that overall levels of positive affect increased throughout the conversation task for both high socially anxious and low socially anxious participants; however, high socially anxious participants experienced reduced positive affect and less positive social outcomes than their low socially anxious counterparts (Barber et al., 2021). Taken together, these findings point to within-person effects showing that socially anxious individuals derive some benefit and positivity from social connection relative to being alone, while also demonstrating between-person effects indicating that socially anxious individuals experience overall positivity deficits compared to their low socially anxious counterparts.

Distinguishing between within-person and between-person effects is therefore crucial for understanding positive affect derived from socializing. Contrary to popular perception, socially anxious individuals crave connection and affiliation just as much as non-socially anxious

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individuals, with social connection identified as a fundamental human need (Baumeister & Leary, 2005; Goodman et al., 2021). If socially anxious individuals can, and do, experience positivity and pleasure from socializing—and, in fact, experience more positive affect when with others than when alone—then research efforts should focus on how these experiences of positive affect can be amplified to improve well-being. Further research is needed to determine how to capitalize on the processes that generate the positivity that socially anxious individuals already experience. Recent research on reward processes in individuals with depression and anxiety indicates that reward processing occurs in several phases, including valuation, anticipation, motivation, consumption, and learning (Craske et al., 2024). Positivity deficits in socially anxious individuals may emerge at any one of these phases, and safety behaviours may also interfere in various ways with these stages.

Social safeness may be a distinct form of positive affect that is lacking in SAD

Importantly, positivity deficits in individuals with SAD may also depend on the type of positive affect being experienced. To operationalize different types of positive affect, Gilbert et al. (2008) factor analyzed a list of positive affect-related adjectives and found three underlying factors: “activated” positive affect (e.g., excited, determined), “relaxed” positive affect (e.g., relaxed, calm, peaceful), and “safe/content” positive affect (e.g., safe, content, secure, warm). Safe/content positive affect (i.e., “social safeness”) had the strongest negative correlations with depression, anxiety, self-criticism, and insecure attachment (Gilbert et al., 2008). In a subsequent 7-day daily diary study, the Social Safeness and Pleasure Scale (SSPS; Gilbert et al., 2009) was used to measure daily feelings of social safeness and connectedness that might arise in response to caring behaviours from others (Kelly et al., 2012); here, social safeness emerged as “operationally distinct” from negative and positive affect measured by the Positive and Negative

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Affect Schedule (PANAS; Watson et al., 1988); in other words, there was high discriminant validity of social safeness, where at the within-person level, there was low shared variance between social safeness and positive/ negative affect as measured by the PANAS. Moreover, Kelly and colleagues (2012) found that social safeness was more strongly related to indicators of vulnerability (i.e., self-criticism, self-esteem, and attachment style) and psychopathology (i.e., depressive symptoms, borderline personality, avoidant personality, and paranoid personality) than were negative affect, positive affect, and perceived levels of social support. In a recent correlational study, both between- and within-person analyses supported social safeness as an affective dimension that is distinct from positive affect and negative affect and found that social safeness was uniquely associated with stress, even after controlling for positive affect and negative affect (Armstrong et al., 2021). In the context of SAD, participants with SAD reported lower levels of relaxed and safe/content positive affect compared to healthy controls, but similar levels of activated positive affect (e.g., feeling excited or determined) in response to both pleasant social and non-social stimuli (Barber & Moscovitch, 2023). Therefore, although positivity deficits have been established in individuals with SAD, it would be helpful to further clarify whether they are driven especially by deficits in the safe/content positive affect subtype.

Summary of gaps in the literature and research questions

In sum, existing research has demonstrated robust associations between fears of negative self-portrayal and the use of maladaptive safety behaviours in SAD (e.g., Moscovitch, 2013; Rowa et al., 2015). The research literature has also established links between social anxiety and fears of receiving compassion (e.g., Merritt & Purdon, 2020), as well as social anxiety and deficits in positive emotionality (e.g., Kashdan, 2004). However, many important questions remain. In particular, it is unclear to what extent fears of receiving compassion might uniquely contribute to safety behaviour use over and above fears of negative self-portrayal, and how much variance in safety behaviour use can be attributed to each of these fears in socially anxious individuals. It is also unclear whether and to what degree fears of negative self-portrayal and fears of receiving compassion might each differentially predict safety behaviour subtypes such as impression management and avoidance safety behaviours.

Additionally, it is unknown how socially anxious individuals respond emotionally and cognitively *in the moment* to expressions of compassion from others. The majority of the literature as reviewed above has conceptualized and operationalized fears of receiving compassion as a trait characteristic. Examining socially anxious individuals' immediate responses to expressions of compassion from others may shed further light on whether and how fears of receiving compassion motivate them to self-conceal, such as through the use of safety behaviours. Also, although positivity deficits are well-established in SAD, the potential role of safety behaviours in maintaining or exacerbating these positivity deficits warrants deeper investigation. Specifically, it remains uncertain whether or how safety behaviour use directly contributes to reductions in positive affect.

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Finally, little is known about how deficits in distinct forms of positive affect—such as activated positive affect relative to safe/content positive affect (i.e., social safeness) may differentially relate to safety behaviours and to the specific fears that motivate their use. Addressing these gaps in the literature has important implications for refining clinical conceptualizations of SAD and for informing the development of more targeted and effective treatment approaches.

Aims of the current program of research

Through a methodologically diverse program of research, I determine whether fears of receiving compassion from others, which has been identified as a factor unique to SAD relative to other anxiety disorders, contribute to increased safety behaviour use—including by subtype—alongside fears of negative self-portrayal. In Study 1, I recruit a community sample of participants who have been assessed as having clinically significant symptoms of SAD to examine these questions using cross-sectional, correlational analyses. In Study 2, I recruit a sample of undergraduate participants across a range of social anxiety symptoms to investigate immediate responses to compassion by using an online experimental written vignette paradigm to explore state-like emotional responses and cognitive appraisals of receiving compassion from others after an imagined social blunder or social rejection in a sample of undergraduate participants. In Study 3, I employ an ecological momentary assessment approach in a separate sample of undergraduate participants across a range of social anxiety symptoms who report on their fears of receiving compassion and momentary affect over 7 days in their daily lives. Study 3 also asks participants to report on their momentary use of safety behaviours, enabling me to examine the impact of fears of receiving compassion on safety behaviour use as well as the impact of safety behaviour use on affect in the moment of a naturalistic social interaction. Study

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3 also asks participants to report on their momentary use of safety behaviours and rate their momentary fears of receiving compassion. While much of the existing research and treatment focuses on decreasing anxiety and distress, this series of studies informs future treatment approaches targeted towards boosting positivity and well-being in socially anxious individuals by investigating the barriers that may prevent socially anxious individuals from being open to and benefiting from compassion that is offered by others.

Study 1: Fears of Receiving Compassion from Others Predict Safety Behaviour Use in Social Anxiety Disorder Over and Above Fears of Negative Self-Portrayal

Background

Individuals with social anxiety disorder (SAD) perceive even benign social opportunities and contexts as threatening (Wong et al., 2014), often relying on the use of *safety behaviours* in an attempt to prevent feared outcomes of negative evaluation and social rejection (Salkovskis, 1991). Safety behaviours have been conceptualized as self-protection and concealment strategies that are employed to mitigate fears of exposing self-perceived negative attributes to others (Moscovitch, 2009). Indeed, individuals with SAD tend to have elevated self-portrayal fears and demonstrate greater use of safety behaviours despite the relative ineffectiveness of these behaviours at relieving anxiety and distress (Moscovitch et al., 2013). When socially anxious participants engage in a conversation while holding in mind a negative self-image, they use more safety behaviours, are more likely to believe that they performed inadequately, and tend to overestimate how poorly they came across to their conversation partner (Hirsch et al., 2004). Thus, fears of negative self-portrayal have been established as playing a key role in the use of safety behaviours amongst individuals with SAD.

Alongside their fears about exposing self-perceived flaws and opening themselves up to criticism, individuals with SAD simultaneously fear expressions of compassion and warmth (Cunha et al., 2015). In particular, fears of *receiving* compassion from others have been found to be unique to SAD: when controlling for depression, fears of receiving compassion were associated with greater symptom severity in participants with SAD, but not in those with obsessive-compulsive or generalized anxiety disorder (Merritt & Purdon, 2020). Fears of receiving compassion have been linked to early shame experiences, and individuals who

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experience greater fears of compassion recall fewer positive, affiliative memories from childhood (Matos et al., 2017; Silva et al., 2019). These experiences are thought to form the foundation for maladaptive social schema that make it difficult for socially anxious individuals to feel safe in their social environments (Kelly & Dumasquier, 2016), leading them to interpret compassion as threatening. In SAD, fears of receiving compassion may specifically centre around related feelings of unworthiness, the belief that needing compassion from others is a sign of weakness, or that compassion is equivalent to pity (Gilbert et al., 2011). Previous research has shown that individuals who fear receiving compassion from others desire to conceal negative experiences from others and perceive sharing and disclosing distress to others as highly risky (Dumasquier et al., 2018). Thus, for people with SAD, fears of receiving compassion may fuel the use of safety behaviours designed to avoid showing signs of anxiety or other forms of personal distress to others not only to prevent negative evaluation but perhaps also to prevent other people from offering support. There is therefore reason to suspect that fears of receiving compassion are linked with self-protective and self-concealing strategies, namely safety behaviours, to avoid or reject displays of warmth and care from others; however, the relationship between fears of receiving compassion and use of safety behaviours has not previously been investigated.

It is also unclear if individuals with SAD resort to different *types* of safety behaviours to avoid expressions of care and concern from others. Clark and Wells (1995) proposed two distinct subtypes of SAD-related safety behaviours: impression management and avoidance. Impression management strategies are employed to tightly control one's impression on others by enhancing self-presentation, such as feigning friendliness or using rehearsed phrases in conversation. Their use creates a favourable façade and distracts from one's actual self. However, impression

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management strategies often come at the cost of authentic, genuine self-disclosure and deep, meaningful social connection by creating a veneer of “innocuous sociability” (Plasencia et al., 2011) and deflecting others away from a socially anxious individual’s “true,” “inadequate” self. In this way, impression management strategies may also allow socially anxious people to conceal underlying feelings of distress and ensure that others do not believe they need any help or compassion.

On the other hand, the goal of avoidance strategies is to reduce one’s involvement in a social situation; for example, by overtly avoiding eye contact or limiting self-disclosure. Like impression management strategies, the underlying motivation of avoidance strategies is often to draw attention away from the self. However, the use of avoidance safety behaviours might have a particularly negative impact on the individuals with SAD who use them. For example, one study found that socially anxious participants who used avoidance strategies perceived themselves as looking more anxious and enjoying the conversation less and reported less desire to pursue further conversation with the same interaction partner in the future (Gray et al., 2019). Avoidance safety behaviours also elicit critical reactions from others: partners rated socially anxious research participants as appearing more anxious and less likeable, and objective assessors rated participants lower on positivity when avoidance safety behaviours were being used (Gray et al., 2019; see also Rowa et al., 2015). Like the motivations that may drive the use of impression management strategies for socially anxious individuals who fear receiving compassion, such individuals may also rely on avoidance safety behaviours to ensure that other people do not notice signs of distress or discomfort or imagined flaws that may prompt unwelcome expressions of compassion.

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In the present study, we examined the relations between self-portrayal fears, fears of receiving compassion, and use of safety behaviours in individuals with a clinical diagnosis of SAD. We hypothesized that self-portrayal fears and fears of receiving compassion would each uniquely explain significant variance in use of safety behaviours. We also hypothesized that fears of receiving compassion would interact with self-portrayal fears to further elevate safety behaviour use, such that socially anxious people with higher levels of both self-portrayal fears and fears of compassion would report the greater reliance on self-protective strategies. Finally, we explored the effects of self-portrayal fears, fears of receiving compassion, and their interaction on the use of avoidance and impression management safety behaviours separately to investigate whether the preferential use of the two safety behaviour subtypes may be differentially related to these two types of underlying fears. Extending our knowledge of the various factors that contribute to safety behaviour use may help to advance treatments targeted at reducing socially anxious individuals' maladaptive over-reliance on social safety behaviours (McManus et al., 2008; Taylor & Alden, 2011).

Research questions & hypotheses

- 1. To what extent do fears of receiving compassion from others contribute to overall safety behaviour use compared to fears of negative self-portrayal in individuals with a clinical diagnosis of SAD?*

I hypothesized that fears of negative self-portrayal and fears of receiving compassion from others would each uniquely explain significant variance in use of safety behaviours. I also hypothesized that fears of receiving compassion would interact with self-portrayal fears to further elevate safety behaviour use, such that socially anxious people with higher levels of both self-portrayal fears and fears of compassion would report greater reliance on self-protective strategies.

2. *To what extent do fears of receiving compassion from others and fears of negative self-portrayal uniquely contribute to safety behaviour use by subtype (avoidance safety behaviours vs. impression management safety behaviours)?*

Given the exploratory nature of the research question, I did not advance specific hypotheses about the effects of fears of negative self-portrayal and fears of receiving compassion on each subtype of safety behaviours.

Methods

Participants

Participants were recruited from the Anxiety Studies participant pool, which consists of community participants who were invited to complete an in-person, face-to-face assessment consisting of a semi-structured diagnostic interview, the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998), and detailed symptom checklists adapted from the Anxiety Disorders Interview Schedule (ADIS; Brown & Barlow, 2014). Assessors consisted of graduate students in clinical psychology who completed intensive coursework and supervised training in DSM nosology, diagnostic interviewing and assessment, and differential diagnosis. After each assessment, the Anxiety Studies team met as a group to review diagnostic information and establish consensus about diagnostic status. Data from participants who were determined to meet diagnostic criteria for SAD according to DSM-IV (APA, 1994) or DSM-5 (APA, 2013) were included in the present study, leading to a sample size of 150 participants. The mean age of the sample was 27.9 (SD = 11.81). A total of 107 (71.3 %) participants identified as female, with the remaining identifying as male (24.7 %), transgender (2.7 %) or non-binary (1.4 %). The majority of participants identified their ethnic or cultural background as White/European (63.3 %), with the remaining identifying as South Asian (12 %), East Asian (9.3 %), Latin

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American (3.3 %), Southeast Asian (2 %), Black (1.3 %), Indigenous or First Nations (1.3 %), West Indian (0.7 %), Arab (0.7 %), Filipino (0.7 %), or Other (5.3 %). One hundred and twenty-seven (84.7 %) participants reported having completed at least some post-secondary education. SAD represented the principal diagnosis for 86 (57.3 %) participants, the co-principal diagnosis for seven (4.7 %) participants, and a secondary diagnosis for 57 (38.0 %) participants. The principal diagnoses of those with a secondary diagnosis of SAD included generalized anxiety disorder (35.1 %), persistent depressive disorder (29.8 %), obsessive compulsive disorder (15.8 %), major depressive disorder (7 %), panic disorder (5.3 %), and agoraphobia, specific phobia, post-traumatic stress disorder, and bulimia nervosa, each representing 1.8 %. One hundred and thirty-two (88.0 %) participants presented with one or more comorbid diagnoses, whereas SAD represented the sole diagnosis for 18 (12 %) participants.

Measures

Fears of negative self-portrayal

The Negative Self-Portrayal Scale (Moscovitch & Huyder, 2011) is a 27-item Likert-type scale that assesses the extent to which individuals fear that specific self-attributes they view as being deficient will be exposed to scrutiny and evaluation by critical others in social situations. Participants are instructed to rate the degree to which they are concerned that certain qualities will become obvious to others in anxiety-provoking situations on a scale from 1 (not at all concerned) to 5 (extremely concerned). The NSPS has previously demonstrated strong internal consistency (Cronbach's $\alpha = .96$), test-retest reliability, convergent validity, and discriminant validity in both undergraduate and clinical samples (Moscovitch & Huyder, 2011), as well as treatment sensitivity (Moscovitch et al., 2015). Cronbach's α in the present sample was .92.

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Fears of receiving compassion from others

Fear of receiving compassion from others was measured using the Fears of Compassion from Others (FOCS-R) subscale of the Fears of Compassion Scales (Gilbert et al., 2011). Participants respond to the degree to which they agree with 13 items (e.g., “Feelings of kindness from others are somehow frightening”), with response options ranging from 0 (do not agree at all) to 4 (completely agree). The FOCS-R has previously demonstrated good internal consistency ($\alpha = .85$) in a sample of 222 undergraduate students (Gilbert et al., 2011), and strong internal consistency ($\alpha = .92$) in a clinical sample of 407 individuals with a range of mood and anxiety concerns (Merritt & Purdon, 2020). Cronbach’s α in the present sample was .87.

Safety behaviour use

The Subtle Avoidance Frequency Examination (SAFE; Cuming et al., 2009) is a 32-item measure that assesses frequency of safety behaviour use. The SAFE is comprised of three nonorthogonal factors: inhibiting/restricting safety behaviours (11 items), active safety behaviours (15 items), and physical symptom management (6 items). In the present study, inhibiting/restricting SAFE items (e.g., “remain silent,” “position yourself so as not to be noticed”) were conceptualized as a measure of avoidance safety behaviours. Conversely, active SAFE items (e.g., “rehearse sentences in your mind,” “ask others about your performance”) were conceptualized as a measure of impression management safety behaviours. Participants were instructed to rate the frequency with which they engage in certain behaviours in social situations on a scale from 1 (never) to 5 (always). Given our research questions and hypotheses surrounding the specific functions of avoidance and impression management safety behaviours, items from the physical symptom management subscale (e.g., “wear clothes or makeup to hide blushing,” “wear cool clothes to prevent sweating”) were not included in analyses of separate

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subscales but were incorporated into analyses of overall use of safety behaviours, which relied on SAFE total scores (see data analytic strategy, below). The total SAFE score was used to assess overall safety behaviour use due to limited research supporting the omission of the physical symptom safety behaviours subscale, and the overall scale demonstrating greater reliability and ecological validity. The SAFE has previously been shown to exhibit strong internal consistency and construct validity, with an overall Cronbach's α of .91 and α values of .87 and .85 for the impression management and avoidance subscales, respectively (Cumming et al., 2009). Cronbach's α values in the present sample were .89 for the complete scale, .85 for avoidance safety behaviours, and .81 for impression management safety behaviours.

Data analytic plan

Hypothesis 1

To determine the unique variance in safety behaviour use explained by fears of negative self-portrayal and fears of receiving compassion, I used multiple linear regression to test the main hypothesis that fears of receiving compassion uniquely contribute to the use of safety behaviours while controlling for their well-established association with self-portrayal fears. Predictor variables were centred based on their respective grand means and entered hierarchically, with self-portrayal fears entered on the first step, fears of receiving compassion on the second step, and their interaction on the third step. Total score on the SAFE was entered as the dependent variable. The conditional effects of fears of receiving compassion on the use of safety behaviours at varying levels of self-portrayal fears were probed using the PROCESS macro (Hayes, 2013). The Johnson-Neyman technique was used to identify the regions of significance for any significant interactions. All collinearity statistics were within acceptable range ($VIF < 4$, tolerance $> .20$; Hair et al., 1995).

Hypothesis 2

To determine the extent to which fears of negative self-portrayal and fears of receiving compassion uniquely contribute to safety behaviour use by subtype, I similarly ran two separate multiple linear regression models with scores from the SAFE avoidance subscale and the SAFE impression management subscale as dependent variables, separately.

Results

The following results are presented as published in Ho et al. (2021).

Descriptive statistics and zero-order correlations

See Tables 1 and 2 for descriptive statistics and zero-order correlations. According to Welch's *t*-test, scores on the NSPS did not differ significantly between participants with SAD as a principal vs. secondary diagnosis, $t(106.62) = 0.870, p = .386$. Additionally, scores on the FOCS-R did not differ, $t(112.10) = 0.823, p = .412$, nor did scores on the SAFE, $t(114.11) = .507, p = .613$.

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Table 1

Study 1 Descriptive Statistics

	<i>M</i>	<i>SD</i>	Scale range
NSPS	80.27	19.69	27 - 135
FOCS-R	24.18	10.08	0 - 52
SAFE	93.21	18.28	32 - 160
Impression management	37.97	7.87	11 - 55
Avoidance	42.68	9.45	15 - 75

Note: NSPS = Negative Self-Portrayal Scale, FOCS-R = Fears of Compassion Scale (fears of receiving compassion), SAFE = Subtle Avoidance Frequency Examination.

Table 2

Zero-order Correlations Between Study 1 Variables

	FOCS -R	SAFE	SAFE- IM	SAFE-A
NSPS	.42**	.69**	.58**	.64**
FOCS-R	-	.47**	.40**	.45**
SAFE		-	.81**	.90**
SAFE-IM			-	.56**
SAFE-A				-

Note: NSPS = Negative Self-Portrayal Scale, FOCS-R = Fears of Compassion Scale (fears of receiving compassion), SAFE = Subtle Avoidance Frequency Examination, A = Avoidance items, IM = Impression Management items. ** $p < .001$

Hypothesis 1: Overall use of safety behaviours

See Table 3 for regression results. Self-portrayal fears significantly predicted overall use of safety behaviours ($R^2 = .466$, $F(1, 148) = 130.978$, $p < .001$), as did fears of receiving compassion on the second step ($\Delta R^2 = .040$, $F(1, 147) = 12.000$, $p = .001$). When fears of receiving compassion was included in the analysis, self-portrayal fears uniquely accounted for 28.6 % of the variability in overall safety behaviour use ($sr^2 = .286$). The self-portrayal fears x fears of receiving compassion interaction on the third step did not result in a significant amount of unique variance explained ($\Delta R^2 = .000$, $F(3, 146) = .117$, $p = .733$), indicating that self-portrayal fears did not moderate the relationship between fears of receiving compassion and overall use of safety behaviours.

Table 3*Multiple Linear Regression Predicting Use of Safety Behaviours Overall and by Subtype*

DV	Step	IV	B	SE B	p value	F change	ΔR^2
SAFE	1	(Constant)	93.213	1.091	< .001		
		NSPS	0.636	0.056	< .001	130.978**	.469
	2	(Constant)	93.213	1.052	< .001		
		NSPS	0.549	0.059	< .001		
		FOCS-R	0.401	0.116	.001	12.000*	.040
	3	(Constant)	93.348	1.127	< .001		
		NSPS	0.544	0.061	< .001		
		FOCS-R	0.405	0.117	.001		
		NSPS x FOCS-R	-0.002	0.005	.733	0.117	.000
	1	(Constant)	42.680	0.597	< .001		
		NSPS	0.305	0.030	< .001	100.475**	.404
		FOCS-R	0.205	0.064	.002	10.419**	.039
		FOCS	0.222	0.063	.001		
		NSPS x FOCS-R	-0.005	0.003	.040	4.306**	.016
	1	(Constant)	37.973	0.527	< .001		
		NSPS	0.230	0.027	< .001	73.420**	.332
		FOCS-R	0.150	0.057	.009	6.923**	.030
		FOCS	0.147	0.057	.011		
		NSPS x FOCS-R	0.001	0.002	.750	0.102	.000

Note: NSPS = Negative Self-Portrayal Scale, FOCS-R = Fears of Compassion Scale (fears of receiving compassion), SAFE = Subtle Avoidance Frequency Examination, A = Avoidance items, IM = Impression Management items. All predictors have been mean centred; * $p < .01$, ** $p < .001$

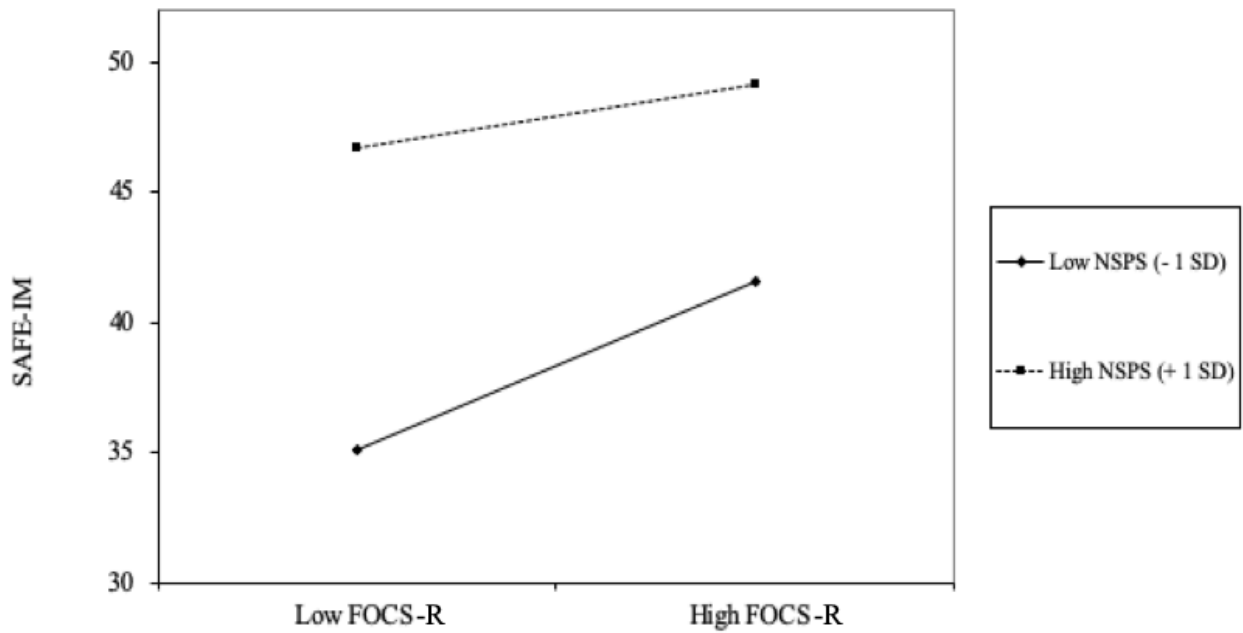
Hypothesis 2: Safety behaviour use by subtype

Use of impression management safety behaviours

Next, we tested whether fears of receiving compassion predicted use of impression management safety behaviours when controlling for self-portrayal fears. Self-portrayal fears significantly predicted use of impression management ($R^2 = .400$, $F(1, 148) = 100.475$, $p < .001$) in step 1, as did fears of receiving compassion on step 2 (R^2 change = .039, $F(1, 147) = 10.419$, $p = .002$). When fears of receiving compassion was included in step 2, self-portrayal fears uniquely accounted for 24.1% of the variability in impression management behaviours ($sr^2 = .241$). There was also a significant self-portrayal fears x fears of receiving compassion interaction on the third step (R^2 change = .016, $F(1, 146) = 4.306$, $p = .040$). Probing of simple slopes revealed that at lower self-portrayal fears (-1 SD), fears of receiving compassion predicted greater use of impression management safety behaviours ($B = .326$, $SE = .086$, $t(145) = 3.806$, $p < .001$), whereas at higher self-portrayal fears (+1 SD), fears of receiving compassion did not significantly predict use of impression management safety behaviours ($B = .117$, $SE = .076$, $t(145) = 1.543$, $p = .125$); see Figure 3. The Johnson-Neyman analysis showed that the relationship between fears of receiving compassion and use of impression management safety behaviours was significant when self-portrayal fears were in the lower 78.00% below a cut-off score of 95.78 on the NSPS, but not for the upper 22.00% who scored above the cut-off.

Figure 3

Moderating Effect of Negative Self-Portrayal on the Relationship Between Fears of Receiving Compassion and Use of Impression Management Safety Behaviours in Individuals with Social Anxiety Disorder



Note: NSPS = Negative Self-Portrayal Scale, FOCS-R = Fears of Compassion Scale (fears of receiving compassion), SAFE-IM = Subtle Avoidance Frequency Examination – Impression Management

Use of avoidance safety behaviours

Finally, we tested the effects of fears of receiving compassion on avoidance safety behaviours when controlling for self-portrayal fears. Self-portrayal fears significantly predicted overall use of safety behaviours ($R^2 = .327$, $F(1, 148) = 73.420$, $p < .001$), as did fears of receiving compassion on the second step (R^2 change = .030, $F(1, 147) = 6.923$, $p = .009$). When fears of receiving compassion was included in step 2, self-portrayal fears uniquely accounted for 20.1% of the variability in the use of avoidance behaviours ($\Delta R^2 = .201$). The interaction between self-portrayal fears and fears of receiving compassion on step 3 was not significant (R^2 change = .000, $F(3, 146) = .102$, $p = .750$), indicating that self-portrayal fears did not moderate the relationship between fears of receiving compassion and use of avoidance safety behaviours.

Discussion

The following discussion has been adapted from Ho et al. (2021).

Results demonstrated that among individuals with a clinical diagnosis of SAD, fears of receiving compassion from others explained unique variance in the use of safety behaviours over and above the contribution of self-portrayal fears. This was true for safety behaviours in general and for both avoidance and impression management subtypes of safety behaviours specifically. In line with my proposed model (Figure 2), these findings emphasize the potential importance of the underlying fear of receiving compassion as a previously overlooked factor that may elevate socially anxious individuals' desire to conceal self-attributes that are likely to attract undesired, compassionate support from others. When others express compassion towards them, people with SAD may feel undeserving and unworthy due to their overly critical self-views, believe that expressions of compassion indicate they are truly deficient, or mistrust that support will be consistently available when needed (Gilbert et al., 2011). Socially anxious individuals may also

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misinterpret genuine concern and compassion from others as pity—and thus confirmation of having exposed their self-perceived flaws (see Moscovitch, 2009), driving them to rely on safety behaviours to either prevent or reject any instances of compassion at all. In other words, fears of receiving compassion may motivate socially anxious people to enact avoidance or impression management designed to keep other people at a safe distance to prevent feared consequences of being pitied and having others feel sorry for them.

At lower levels of self-portrayal fears, fears of receiving compassion positively predicted use of the impression management subtype of safety behaviours. Impression management strategies allow socially anxious individuals to mask their discomfort by appearing friendly and polite while remaining distant and disconnected—for example, by nodding and appearing to listen attentively to the other person as opposed to deeply engaging in an interaction (Schlenker & Leary, 1982). For socially anxious individuals, keeping up this agreeable, albeit superficial, image is preferable to the risk of revealing self-flaws from attempts at more meaningful social interaction. By adjusting self-presentation in this way, socially anxious individuals may also be able to come across as convincingly self-sufficient and less in need of others' social support, preventing others from offering them compassion and enabling them to avoid the experience of receiving compassion and potentially receive the support they genuinely need.

At higher levels of self-portrayal fears, there was a lack of significant conditional effect of fears of receiving compassion on the use of impression management, suggesting that individuals with SAD are primarily driven by fear of exposing self-flaws and are thus more focused on using impression management for self-concealment at all costs than for the prevention of compassion from others. Indeed, self-portrayal fears already accounted for a large amount of variance in impression management ($sr^2 = .241$) in comparison to the unique

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contribution of fears of receiving compassion ($\Delta R^2 = .039$) and its moderating effects ($\Delta R^2 = .016$) in subsequent steps of the regression model. Thus, among individuals with SAD, a fear of negative self-portrayal may represent a more fundamental concern than fears of receiving compassion, with the former taking priority in the use of impression management strategies.

When controlling for self-portrayal fears, fears of receiving compassion also positively predicted use of the avoidance subtype but did not conditionally predict avoidance safety behaviours at varying levels of self-portrayal fears. By attracting as little attention as possible through avoidance strategies, socially anxious individuals may aim to limit chances of exposing their self-flaws to others, and at the same time may conveniently reduce opportunities for others to express compassion towards them. However, since avoidance safety behaviours can lead socially anxious individuals to appear overly anxious (Gray et al., 2019; Rowa et al., 2015)—and thus in need of support—their use may counterproductively elicit unwelcome compassion from others.

By showing that fears of receiving compassion contribute unique variance to safety behaviour use over and above fears of negative self-portrayal, these findings lend support to my proposed model of fears of receiving compassion as an insidious maintenance factor of social anxiety (Figure 2). These findings further reveal a unique interaction between both types of fears in predicting use of impression management strategies in SAD. For people with SAD, elevations in only one of these two fears may be sufficient for increasing use of impression management behaviours, such that for individuals with SAD who are highly fearful of negative self-portrayal, these fears alone drive impression management, regardless of the level of fears of receiving compassion. In contrast, for individuals with SAD who experience lower fears of negative self-portrayal (for example, in more familiar social contexts or while interacting with close others),

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the extent to which they rely on impression management safety behaviours appears to depend on the degree to which they appraise receiving compassion as an imminent threat. However, this interaction was not present for avoidance safety behaviours, with fears of receiving compassion predicting consistent increases in avoidance strategies at every level of fears of negative self-portrayal. Indeed, as mentioned above, impression management strategies may be more effective than avoidance strategies in portraying socially anxious individuals as socially capable and self-sufficient, preventing others from believing they require additional support in the form of compassion and avoiding feeling pitied by others.

Several limitations should be noted. It is possible that safety behaviour use and fears of compassion are associated in bidirectional or more complex ways than the current design permits us to test; for example, greater safety behaviour use may decrease the number of interactions that individuals with SAD have with compassionate others, resulting in decreased familiarity with receiving compassion and creating a general fear of these unfamiliar experiences. In the absence of evidence that their fears are distorted, use of safety behaviours may therefore reinforce fears of compassion from others. I aim to clarify the relationship between safety behaviours and fears of receiving compassion in naturalistic social contexts using EMA methods in Study 3.

As well, the current study focused on avoidance and impression management safety behaviour subtypes, rather than on physical symptom management safety behaviours despite the inclusion of physical symptom management safety behaviours in the overall measures of self-portrayal fears and safety behaviour use. Avoidance and impression management behaviours are generally directly enacted during social interactions to prevent feared negative evaluation. While physical symptom management safety behaviours may also be employed to avoid negative evaluation, they also serve to conceal potential physical signs of anxiety, rather than directly to

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keep others at a relational or interpersonal distance. Future studies should more closely examine the role of physical symptom safety behaviours in social anxiety, including whether they are differentially associated with fears of receiving compassion relative to avoidance and impression management safety behaviours.

Another limitation was that most participants in our sample had at least two clinically significant diagnoses and other symptoms may also have influenced self-portrayal fears, fears of receiving compassion, and safety behaviour use; for instance, fears of receiving compassion have also been linked to depressive symptoms (Merritt & Purdon, 2020; Trindade et al., 2018). Though the safety behaviours we measured using the SAFE are most commonly used by those with SAD, future research could attempt to disentangle the effects of fears of compassion on safety behaviours by comparing individuals with SAD alone versus those with comorbid diagnoses, or examine whether an underlying construct (such as attachment style or early experiences of social rejection) may better explain the association between safety behaviours and fears of receiving compassion beyond DSM-5 diagnosis.

As well, the overrepresentation of females in our sample may limit the generalizability of our findings, as we were unable to investigate any potential moderating effect of gender given the lack of gender diversity in our sample. In the present study, participants who identified as females (making up 71.3% of the sample) did not differ significantly on main measures of fears of negative self-portrayal, fears of receiving compassion, or safety behaviour use relative to all other participants. However, as fears of compassion tend to be associated with masculine role norms (Heath et al., 2017), future research should replicate the present findings using more diverse samples to examine how the effects of fears of compassion may differ across gender identities. Future studies should also more carefully consider the role that cultural differences

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may play in the interpretation of compassion. Furthermore, although the current study was conducted with a clinical sample of participants with SAD, the results may not be generalizable to the general public and only represent the current sample of participants.

Finally, we did not distinguish between treatment-seeking and non-treatment seeking individuals in our sample, as we did not collect data on participants' treatment seeking status. It is possible that fears of compassion from others may be somewhat reduced in treatment-seeking individuals, as their help-seeking could be considered evidence of some openness to receiving compassion from others.

This study carries novel clinical implications by identifying a potential additional factor underlying the maintenance of SAD as a future target for treatment. Fears of receiving compassion may prevent therapeutic recovery for individuals with SAD, as receiving compassion and support from others have been shown to be highly effective emotion regulation tools for reducing symptoms (e.g., Harwood & Kocovski, 2017; Williams et al., 2018) and promoting positive emotions such as social safeness (e.g., Kelly et al., 2012). Learning to accept others' compassion as genuine and well-intentioned may reduce perceptions of social threat for individuals with SAD, encouraging them to reveal their authentic selves for developing deeper and more meaningful relationships.

**Study 2: The Role of Social Anxiety and Fears of Receiving Compassion in Response to
Compassionate Feedback Following an Imagined Socially Distressing Event**

Background

In Study 1, I examined how fears of receiving compassion from others predicted safety behaviour use over and above the contribution of fears of negative self-portrayal in a sample of participants with clinically significant symptoms of SAD. While Study 1 identified trait fears of receiving compassion as an additional factor associated with the tendency to use more safety behaviours in general, and impression management safety behaviours specifically, much remains unknown about how these fears play out immediately upon receiving compassion in the moment of a social interaction. By investigating people's immediate responses—both emotional and cognitive—to receiving compassion, Study 2 is designed to extend the findings from Study 1 in specific social contexts. In so doing, I aim to clarify factors that prompt greater use of safety behaviours while socializing among individuals with social anxiety. Furthermore, given that the feared consequences in social anxiety (i.e., exposure of self-perceived flaws) typically elicit emotions of shame and embarrassment, Study 2 aims to examine whether compassion has differential impacts on these two self-conscious emotions in socially anxious individuals.

Although prototypical conceptualizations of compassion characterize compassion as a positive emotion (Keltner & Lerner, 2010; Shaver et al., 1987), research has shown that actual emotional reactions in response to others' suffering induce increased levels of both compassion and unpleasant affect (Condon & Feldman Barrett, 2013). However, there is significantly less research on the emotional experiences of *recipients* of compassion. One study examining participants' emotional responses to empathic comments via both self-report ratings and fMRI results found that participants reported decreased negative feelings when negative feedback was

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followed by empathic compared to unempathic comments; more specifically, the effect of reducing negative feelings was stronger for emotional empathy (which may more closely resemble compassion) than for cognitive empathy (Seehausen et al., 2016). It is unclear how individuals who fear receiving compassion may respond to compassionate displays from others.

Compassion from others is typically elicited in response to suffering or distress (Gilbert, 2011). For socially anxious individuals, rejection, embarrassment, and loss of social status are catastrophic feared consequences and core threats (Zlotnick & Huppert, 2025) that are closely linked to feelings of *shame*, a self-conscious emotion arising from negative self-evaluation and internal, stable attributions of failure (for a review, see Swee et al., 2021). Extending existing cognitive-behavioural models, Moscovitch (2009) proposed that individuals with SAD fear exposing “characteristics of self that they perceive as being deficient or contrary to perceived societal expectations or norms,” (p.125), and that feared consequences of judgment and rejection will occur if those self-perceived flaws are exposed for potential scrutiny by evaluative others. The prospect of self-exposure would be expected to elicit distressing emotions that are closely linked to feelings of shame (e.g., Moscovitch et al., 2013). However, for individuals with higher social anxiety, it is unclear whether receiving compassion and its core elements of mindfulness, self-kindness, and common humanity would be expected to alleviate such distress, or whether the mindful awareness and noticing of suffering inherent to compassion would perhaps be experienced by socially anxious individuals as catastrophic exposure of self-perceived flaws, and thus shameful. Therefore, extending Study 1 by assessing feelings of shame, in addition to negative affect, will enable us to gather a more complete picture of what it is like emotionally for socially anxious individuals to receive compassion from others.

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Embarrassment is another self-conscious emotion closely linked with shame. Although there is no definitive consensus on whether the two constructs are distinct, research has shown that shame and embarrassment differ in several important ways (for a review, see Crozier, 2014). Shame is typically thought of as more intense and persistent than embarrassment (e.g., Ho et al., 2004; Rochat, 2009). Shame also “reaches to the core or centre of the self” and involves negative self-evaluation, while embarrassment only reaches the “outer” or “public” self and highlights discrepancies between these public aspects and other people’s evaluations (Ho et al., 2004; Tracy & Robins, 2004). Similarly, Heywood (2002) suggests that embarrassment occurs when you know or suspect that someone else is aware of your failure to meet standards, while shame occurs when you are aware of your own failure to meet standards. Importantly, embarrassment and shame also elicit different reactions from other people: others often react to embarrassment with acceptance and laughter but respond to shame with scorn and rejection (Buss, 2001). It is unclear how displays of compassion from others would influence feelings of embarrassment relative to feelings of shame.

Furthermore, studies have shown that people with higher social anxiety, including SAD, exhibit “positivity deficits” insofar as they fail to experience typical feelings of interpersonal pleasure and to initiate expected reward-seeking behaviour in response to positive social cues (Gilboa-Schechtman et al., 2014; Kashdan et al., 2011). It is unclear whether individuals with SAD also exhibit positivity deficits in response to compassionate displays from others, especially since compassion is unique in acknowledging suffering and distress, as detailed above. Study 2 will attempt to answer this question. Relatedly, past research has proposed that people have both a positive affect regulation system that is active when they anticipate and achieve rewards and successes, and a related yet distinct system for regulating feelings of social safeness, including

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contentment, calmness, and soothing (Depue & Morrone-Strupinsky, 2005; Gilbert et al., 2008).

Within this dual system perspective, restoring a sense of social safeness may be especially important for adaptive emotion regulation in individuals who have had early shame-based experiences (e.g., bullying, parental criticism) where soothing, safeness, and care were not consistently available when needed. Such individuals, including those with elevated social anxiety symptoms, may experience feelings of fear when receiving compassion from others due to negative beliefs or schemas they hold about their own worth and/or others' reliability and trustworthiness; for example, such individuals may feel insecure about receiving compassion because they believe that such compassion will be inconsistent, untrustworthy, or undeserved (Matos et al., 2017). Study 2 will specifically measure social safeness alongside other indicators of positive affect within the context of receiving compassion.

Finally, it is unclear how socially anxious individuals—who fear compassion—cognitively appraise and interpret displays of compassion received from others. One possibility is that socially anxious individuals may misinterpret genuine concern and compassion from others as pity—and thus confirmation of having exposed their self-perceived flaws—leading to increased negative and decreased positive beliefs about the self. It is also unclear how socially anxious individuals may appraise others after receiving compassion; for instance, whether they would have more positive beliefs about others for offering compassion, more negative beliefs about others for their expressions of “pity,” or greater feelings of dissonance resulting from a combination of both. Since little is known about socially anxious individuals' immediate reactions to compassion, further research is needed to determine the links between social anxiety symptoms, fears of receiving compassion, and the emotional responses and cognitive appraisals that arise when compassion is received.

Present Study: Aims and hypotheses

In the present study, I examine how compassion is received in the face of a socially distressing event that elicits feelings of either embarrassment (elicited by social blunders) or shame (elicited by social rejection; see details below). In securely attached individuals, compassion promotes affiliative emotions with soothing and calming qualities, creating safe and positive feelings about the self and others (e.g., Depue & Morrone-Strupinsky, 2005; Rockliff et al., 2008). However, for the reasons noted above, it is possible that receiving compassion might exacerbate rather than alleviate distress for those with higher social anxiety.

In the present study, I sought to address the limitations of previous research from our lab (e.g., Gupta, 2023) and expand upon Study 1, which investigated trait associations between fears of receiving compassion and social anxiety symptoms. The aims of the current study were: (a) to examine the impact of compassion on socially anxious individuals' momentary affective responses to events designed to elicit embarrassment versus shame, (b) to examine socially anxious individuals' momentary affective responses to receiving compassion from others in the aftermath of social distress, extending to feelings of shame and social safeness; and (c) to examine participants' immediate cognitive appraisals associated with receiving compassion, including both positive and negative beliefs about the self and others.

A between-subjects experimental design was used in an online vignette study to compare immediate responses to imagined compassionate feedback in the aftermath of two types of imagined social distress: social blunders and social rejection. Social blunders tend to elicit embarrassment (Moscovitch et al., 2012; Moscovitch et al., 2015) while social rejection tends to elicit shame (e.g., Gilbert, 1997; Tangney, 1995). By comparing responses to compassion in the face of these two types of socially distressing events, I aim to determine the extent to which

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compassion may uniquely impact feelings of embarrassment and shame that accompany the desire for self-concealment that is characteristic of social anxiety.

All hypotheses were pre-registered on the Open Science Framework (<https://osf.io/sk56w/overview>). First, I hypothesized that imagined social rejection will elicit higher levels of state shame and negative affect, and lower levels of state positive affect and social safeness, relative to imagined social blunders, and that these effects will be larger for those with higher levels of trait social anxiety and trait fear of receiving compassion. Second, I hypothesized that imagining receiving compassionate feedback after a shame-based event will decrease state shame and state negative affect, as well as increase state positive affect and social safeness. These changes may be larger for those with higher levels of trait social anxiety and trait fear of receiving compassion, potentially due to a greater contrast against early experiences where compassion may not have been readily available; since those with high social anxiety and fears of receiving compassion are expected to experience much higher shame and negative affect paired with lowered positive affect and social safeness immediately after the socially distressing event (Hypothesis 1), compassionate feedback may be more impactful for these individuals. Based on Hypothesis 1, I also predicted that these changes may also be larger in response to imagining oneself being socially rejected compared to imagining oneself committing social blunders. Third, I hypothesized that imagining receiving compassionate feedback would increase positive emotional valence and decrease emotional arousal, and that these changes may be larger for social rejection, relative to social blunders. Finally, no specific hypotheses were advanced regarding how imagined compassionate feedback may be cognitively appraised and interpreted, as this was an exploratory question.

Methods

Participants

Participants ($N = 401$) were undergraduate students recruited from the psychology research participant pool at the University of Waterloo in Ontario, Canada during the winter (January to April) of 2024. Of the 401 participants who completed the study, 44 participants failed checks at the beginning of the study ensuring that they could complete the study in a quiet, private location and that they would be able to listen to audio instructions on their device, and their responses were excluded given that they were not permitted to proceed to complete the rest of the study at this stage. The study also included ten attention check items embedded throughout in the form of directed queries (e.g., “Please select *not at all*”) and participants who answered fewer than eight items correctly ($n = 60$) were removed from the study. Although there are currently no standard recommendations for exclusion cutoffs based on attention checks in the research literature, such attention checks are commonly used to detect inattentive respondents and improve data quality (Abbey & Meloy, 2017), and may be “catching” participants that habitually provide low-quality responses rather than those who are momentarily fatigued or distracted (Perfecto & O’Donnell, 2025). In the present study, the cutoff of 8 out of 10 correct attention checks resulted in a sample size with sufficient statistical power for the planned analyses. The final sample size was $N = 297$, with $n = 147$ randomly assigned to the blunder condition and $n = 150$ randomly assigned to the rejection condition by Qualtrics (Qualtrics, Provo, UT). Sample characteristics are described in Table 4. Participants across the two conditions did not differ significantly on trait measures of social anxiety or fears of receiving compassion. Unexpectedly, those assigned to the blunder condition had slightly lower ratings of valence at Time 0 before the condition manipulation took place ($M = 4.71$, $SD = 1.55$) relative to

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the rejection condition ($M = 4.35$, $SD = 1.26$, $t(295) = 2.68$, $p = .004$). The two conditions did not differ on ratings of arousal at Time 0 before the manipulation took place.

Procedures

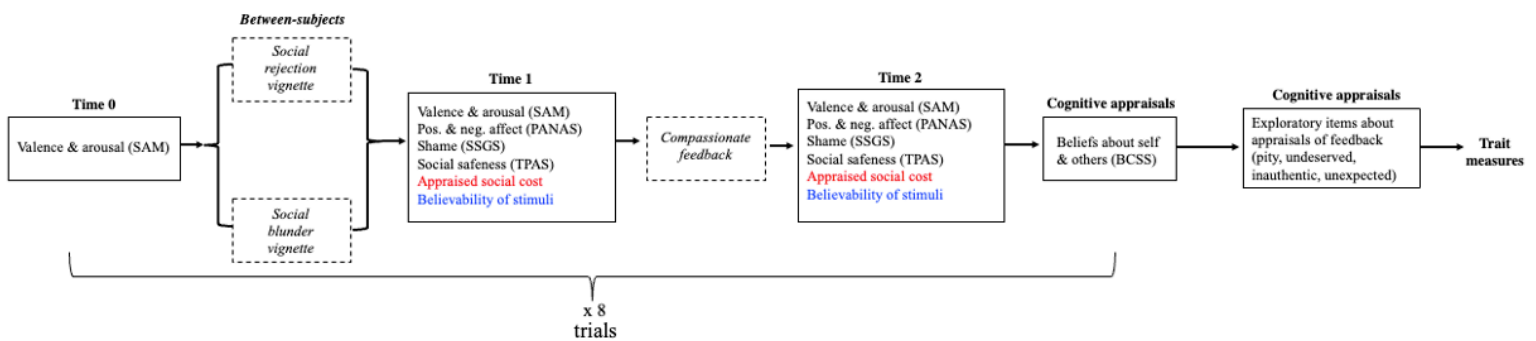
See Figure 4 for a flow diagram of full study procedures. The online study was conducted using Qualtrics (Qualtrics, Provo, UT). After completing informed consent, participants were randomly assigned to either the blunder condition or the rejection condition in a between-subjects design. The study followed a 2 (condition: blunder vs. rejection; between-subjects) x 3 (time: pre-vignette vs. post-vignette, post-feedback; within-subjects) mixed design. Participants were presented with eight trials. In each trial, they provided a baseline rating (Time 0, pre-vignette) of their emotional valence and arousal, each on single item visual-analog scales. Then, participants read a vignette and were asked to imagine themselves as the main character in the event (either committing a social blunder or experiencing social rejection). Next, participants were asked to complete ratings of state emotional responses (i.e., emotional valence and arousal, shame, social safeness, and positive and negative affect) and cognitive appraisals (social cost and believability) in response to the vignette (Time 1, post-vignette). Participants then read compassionate feedback in response to the imagined event and were asked to imagine receiving the feedback from the other character in the vignette. Then, they re-rated state emotional responses and cognitive appraisals (Time 2, post-compassion). Finally, participants were also asked to complete ratings related to beliefs about themselves and others, holding the compassionate feedback in mind that they received in the imagined scenario. After completing eight trials within their assigned condition, participants completed a variety of trait measures; this between-subjects design was employed to prevent contamination of study conditions and reduce the likelihood that exposure to multiple conditions would influence responses, thereby

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maximizing internal validity of condition comparisons. Participants were asked to complete trait measures after the study trials to minimize potential bias and reduce awareness of the study's full purpose. Finally, participants were fully debriefed.

Figure 4

Flow Diagram of Study 2 Procedures



Study materials

The appendix contains all vignettes used in the present study. The series of vignettes used in the present study consisted of vignettes adapted from previous studies (Gupta, 2023; Moscovitch et al., 2012) as well as novel vignettes that were developed in a validation study, with an independent sample of participants, conducted expressly for the purpose of creating and testing study stimuli. See the appendix for details and procedures of the validation study conducted to develop and validate the study stimuli.

Measures

Trait questionnaires

Trait social anxiety. Trait social anxiety symptoms were measured using the Social Phobia Inventory (SPIN; Connor et al., 2000). The SPIN is a 17-item questionnaire that assesses the spectrum of fear, avoidance, and physiological symptoms of social anxiety within the past week. Respondents use a five-point Likert scale, ranging from 0 (*not bothersome at all*) to 4 (*extremely bothersome*) with possible scores ranging from 0 to 68. The SPIN has been shown to be an excellent measure of social anxiety, with good test-retest stability, internal consistency, convergent validity, and discriminant validity (Antony et al., 2006; Connor et al., 2000). Cronbach's α in the present sample was .94.

Trait fears of receiving compassion. Trait levels of fears of receiving compassion from others were measured using the Fears of Receiving Compassion from Others subscale of the Fears of Compassion Scales (FOCS; Gilbert et al., 2011). Cronbach's α in the present sample was .92.

State affective measures

State valence and arousal. Emotional valence and arousal before (at Time 0) and after (at Time 1) imagining the socially distressing event, and again after receiving a compassionate response after the event (at Time 2) were measured using the Self-Assessment Manikin (SAM; Bradley & Lang, 1994), a pictorial assessment that captures the emotional or affective reactions to a wide variety of stimuli on three dimensions, each represented by a single pictorial item. These items include affective pleasure (valence), arousal, and dominance (Bucks et al., 2005; Bradley & Lang, 1994). The three dimensions of emotional reactions are measured using single-item, picture-oriented Likert scales. In the present study, a 9-point pictographic Likert scale was used to measure valence (1 = unpleasant and 9 = pleasant) and arousal (1 = frantically excited and 9 = calm) associated with the social blunders and the support provided following the blunder. The dominance subscale was not administered.

State positive affect (positive affect) and negative affect. State positive affect and negative affect after the socially distressing event at Time 1 and after receiving compassionate feedback at Time 2 were measured using the 10-item international Positive and Negative Affect Scales – Short Form (I-PANAS-SF; Thompson, 2007), of which 5 items measure negative affect (i.e., “hostile,” “ashamed,” “upset,” “afraid,” “nervous”) and 5 items measure positive affect (i.e., “alert,” “inspired,” “determined,” “attentive,” “active”), rated on a 5-point Likert scale. In a series of initial validation studies in a sample of 407 participants from 38 different countries, the positive affect subscale of the I-PANAS-SF was shown to have an internal consistency of $\alpha = .80$, and the negative affect subscale had an acceptable internal consistency of $\alpha = .74$ (Thompson, 2007). Later studies have also confirmed the factorial invariance of the I-PANAS-SF across cultures and in a sample of 423 university students from different cultures, the positive

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affect subscale had internal consistency of $\alpha = .75$ and for the negative affect subscale, $\alpha = .80$. Cronbach's α for the two scales in the present sample were $\alpha = .83$ for the positive affect subscale and $\alpha = .91$ for the negative affect subscale.

State social safeness. After participants imagined the socially distressing event at Time 1 and again after they imagined receiving a compassionate response at Time 2, state feelings of social safeness were measured using the social safeness subscale of the Types of Positive Affect Scale (TPAS; Gilbert et al., 2008), which consists of four items (e.g., “safe,” “secure,” “warm,” and “content”), mirroring the format of the PANAS where single adjectives are rated on a 5-point Likert scale. Armstrong et al. (2021) established that social safeness was factorially distinct from positive and negative affect as measured by the PANAS, and in their cross-sectional sample of 2223 North American community participants, McDonald's omega for the social safeness items was 0.88. In a sample of 48 participants with SAD and 48 non-anxious community control participants with no history of psychiatric disorders, internal consistency of the social safeness items ranged between $\alpha = .86$ to $\alpha = .92$ (Barber & Moscovitch, 2023). Cronbach's α in the current sample was $\alpha = .93$.

State shame. After imagining themselves in the socially distressing event at Time 1 and after receiving a compassionate response for the imagined scenario at Time 2, participants rated their levels of state shame using the shame subscale of the State Shame and Guilt Scale (SSGS; Marschall et al., 1994), which consists of five items (e.g., “I want to sink into the floor and disappear”) rated on a 5-point Likert scale. Cronbach's α in the present sample was $\alpha = .91$.

State appraisal measures

Perceived social cost. Estimated social cost is a “specific expression of the dysfunctional beliefs about the potential outcome of a social encounter” (Hofmann, 2007, p. 8). Extending

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prior research of social cost following an imagined social blunder (see Moscovitch et al., 2012), after imagining either the social blunder or rejection according to assigned condition at Time 1 and again after imagining the compassionate response at Time 2, participants rated a single item along a Likert scale ranging from 0 to 4: “How socially costly was the event?” and again after imagining receiving a compassionate response from the other character: “Now taking the other character’s response into consideration, how socially costly was the event?”

Schemas about self and others. After the end of each compassionate response at Time 2, participants reported on beliefs about themselves and others using the Brief Core Schema Scale (BCSS; Fowler et al., 2006), which contains four subscales: positive self-schemas (e.g., “I am valuable”), positive schemas about others (e.g., “Other people are accepting”), negative self-schemas (e.g., “I am a failure”), and negative schemas about others (e.g., “Other people are harsh”). The scale showed good internal consistency across the four subscales: $\alpha = .94$ for positive self-schemas, $\alpha = .94$ for positive schemas about others, $\alpha = .93$ for negative self-schemas, and $\alpha = .96$ for negative schemas about others. Schemas about the self and others were not measured at Time 0 or Time 1.

Data analytic strategy

Hypothesis 1

To test the hypothesis that imagined social rejection and social blunders would differentially elicit state affective outcomes (state positive affect and negative affect, social safeness, and shame), independent sample *t*-tests were run for Time 1 variables (immediately after reading the vignette) to compare between the two between-subjects conditions (rejection vs. blunder). To further test the moderating roles of trait social anxiety and trait fear of receiving compassion on the effects of condition on affect, separate hierarchical multiple linear regression

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models (one for each Time 1 variable as the outcome) were run with the following predictors: condition (rejection vs. blunder), trait social anxiety, trait fears of receiving compassion, and their two-way and three-way interactions. The models were fitted in a stepwise manner to examine the incremental value of adding predictors and whether they significantly contributed to unique variance.

Hypothesis 2

To test the hypothesis that imagining receiving compassionate feedback after an imagined shame-based event (rejection or blunder) would decrease state shame and negative affect while increasing state social safeness and positive affect, 2x2 mixed ANOVAs (condition: rejection vs. blunder, time: Time 1 vs. Time 2) were conducted for each of these four variables. To further test the moderating role of trait social anxiety and trait fears of receiving compassion, separate hierarchical multiple linear regression models for each of the four dependent variables were run with the following predictors: condition (rejection vs. blunder), trait social anxiety, trait fears of receiving compassion, and their two-way and three-way interactions. As above, the models were fitted in a stepwise manner to determine which variables and interactions contributed significant incremental variance. The corresponding Time 1 variable of each outcome was included as a covariate. Supplementary analyses without controlling for Time 1 can be found in Appendix C.

Hypothesis 3

To test the hypothesis that imagining receiving compassionate feedback after an imagined shame-based event (rejection or blunder) would increase emotional valence and decreases emotional arousal, 2x2 mixed ANOVAs (condition: rejection vs. blunder, time: Time 1 vs. Time 2) were conducted. Similarly, to further test the moderating role of trait social anxiety

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and trait fears of receiving compassion, separate hierarchical multiple linear regression models were run. Supplementary analyses without controlling for Time 1 can be found in Appendix C.

Exploratory Analyses

To explore how the imagined compassionate feedback after the imagined socially distressing event was cognitively appraised, separate multiple linear regression models were conducted for the outcomes of social cost and schemas about self and others with the following predictors: condition (rejection vs. blunder), trait social anxiety, trait fears of receiving compassion, and their two-way and three-way interactions. The models were fitted in a stepwise manner to determine which variables and interactions contributed significant unique variance. Supplementary analyses without controlling for Time 1 can be found in Appendix C.

Data Analytic Method

Analyses were conducted in IBM SPSS Statistics and in R version 4.4.0 (R Core Team, 2024). No scale had more than 5% missing data and Little's MCAR test determined that the missing data were missing completely at random (MCAR); thus, these data were imputed using expectation maximization (EM). For two-way and three-way interactions, simple slopes were probed using the *reghelper* package (Hughes & Beiner, 2023).

The data were examined for outliers. Univariate outliers were identified using standardized z-scores (defined as values lying ± 3 standard deviations or more away from the mean), with 5.4% of cases exceeding this threshold. Multivariate outliers were assessed using Mahalanobis distance ($\chi^2(df = 23)$, $p < .001$), with 2.4% of cases exceeding the cutoff. Sensitivity analyses were conducted using 5–95% winsorized variables to evaluate the robustness of findings to extreme values. Results were largely consistent with the primary analyses, with no changes in the direction or interpretation of effects. Minor fluctuations in p-values around the

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conventional significance threshold were observed for a small number of effects; however, these did not alter the overall pattern of results. As such, all primary analyses were conducted using the original, untransformed data.

Results

Table 4 presents descriptive statistics by condition.

Table 4.

Study 2 Descriptive Statistics by Condition

	Overall Mean (SD)	Blunder Mean (SD)	Rejection Mean (SD)	Statistical Test
<i>N</i>	297	147	150	
Age	20.48 (4.42)	20.51 (4.38)	20.46 (4.49)	$t(270) = 0.08, n.s.$
Gender				$\chi^2(5) = 4.16, n.s.$
Woman (cis or trans)	210 (70.7%)	106 (72.1%)	104 (69.3%)	
Man (cis or trans)	57 (19.2%)	28 (19.1%)	29 (19.3%)	
No response (missing)	17 (5.7%)	8 (5.4%)	9 (6.0%)	
Prefer not to answer	9 (3.0%)	4 (2.7%)	5 (3.0%)	
Gender queer /	4 (2.0%)	1 (0.07%)	3 (2.0%)	
Gender non-conforming /				
Gender non-binary				
Ethnicity				$\chi^2(8) = 5.22, n.s.$
White/European	113 (38.1%)	55 (37.4%)	58 (38.7%)	
South Asian	54 (18.2%)	30 (20.4%)	24 (16.0%)	
East Asian	44 (14.8%)	19 (12.9%)	25 (16.7%)	
Decline to answer	18 (6.1%)	10 (6.8%)	8 (5.3%)	
No response (missing)	17 (5.7%)	8 (5.4%)	9 (6.0%)	
Arab/West Asian/North African	14 (4.7%)	9 (6.1%)	5 (3.3%)	
Black/Afro-Caribbean	14 (4.7%)	7 (4.8%)	7 (4.7%)	
Other not listed	10 (3.4%)	3 (2.0%)	7 (4.7%)	
Southeast Asian	8 (2.7%)	3 (2.0%)	5 (3.3%)	
Latin American	5 (1.7%)	3 (2.0%)	2 (1.3%)	
Trait variables				
SPIN	30.51 (16.09)	29.11 (15.80)	31.88 (16.31)	$t(295) = -1.48, n.s.$
FOCS-R	18.77 (11.48)	18.09 (11.67)	19.44 (11.29)	$t(295) = -1.02, n.s.$
Time 0				
Valence	4.53 (1.10)	4.71 (1.55)	4.35 (1.26)	$t(295) = 2.86^*$
Arousal	2.72 (1.53)	2.62 (2.00)	2.82 (1.77)	$t(295) = -1.15, n.s.$

Table 4 (continued).*Study 2 Descriptive Statistics by Condition*

Time 1				
Valence	--	2.91 (1.72)	2.08 (1.40)	--
Arousal	--	4.78 (2.20)	4.61 (2.23)	--
PANAS - positive	--	1.55 (0.93)	1.13 (0.84)	--
PANAS – negative	--	1.53 (1.06)	1.83 (1.08)	--
Social safeness	--	1.00 (1.01)	0.71 (0.89)	--
Shame	--	6.18 (5.73)	9.12 (5.99)	--
Social cost	--	1.78 (1.26)	2.42 (1.17)	--
Time 2				
Valence	--	4.90 (1.72)	4.29 (1.64)	--
Arousal	--	3.22 (2.06)	3.51 (1.90)	--
PANAS – positive	--	1.53 (0.95)	1.41 (0.93)	--
PANAS – negative	--	1.53 (1.06)	1.20 (0.95)	--
Social safeness	--	1.81 (1.04)	1.40 (1.01)	--
Shame	--	3.38 (4.55)	5.47 (5.09)	--
Social cost	--	1.22 (1.12)	1.78 (1.11)	--
Schema				
Positive self	--	11.06 (6.61)	10.16 (6.00)	--
Negative self	--	3.29 (4.94)	6.98 (5.92)	--
Positive other	--	14.24 (5.47)	10.78 (5.53)	--
Negative other	--	3.37 (4.90)	8.81 (6.74)	--

Note: SPIN = Social Phobia Inventory, FOCS-R = Fears of Receiving Compassion Scale – Receiving subscale, PANAS = Positive and Negative Affect Schedule, $*p < .05$. *t*-tests were not conducted comparing blunder and rejection conditions for equivalence from Time 1 onwards due to the condition manipulation.

Hypothesis 1: Post-vignette (Time 1) socio-affective outcomes

Regression results are presented in Table 5.

Positive affect

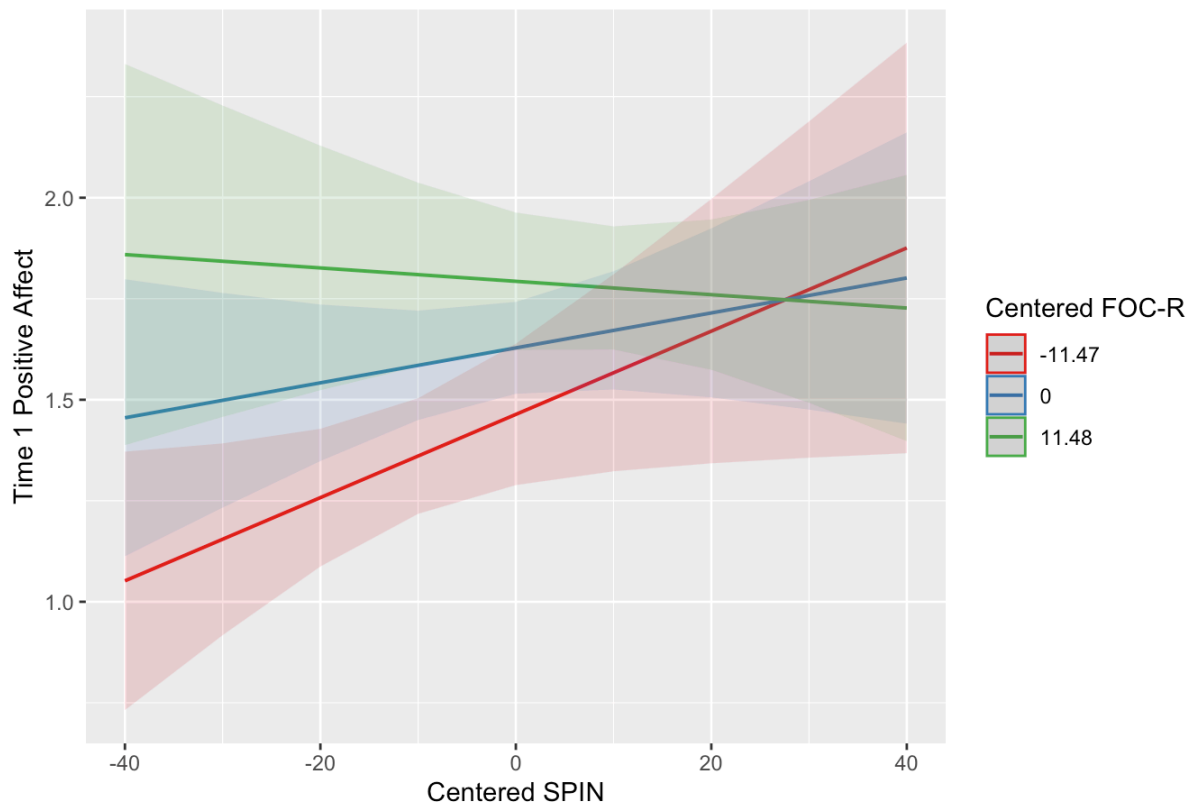
An independent samples *t*-test showed that participants assigned to the rejection condition reported significantly lower state positive affect at Time 1 ($M = 1.13$, $SD = 0.605$) relative to those in the blunder condition ($M = 1.55$, $SD = 0.729$), $t(295) = 5.45$, $p < .001$. The model including the main effects and two-way interaction explained significant unique variance ($R^2 = .17$, $F(6, 290) = 9.962$, $p < .001$). Hierarchical multiple linear regression revealed that including the three-way interaction between condition, trait social anxiety, and trait fears of receiving compassion did not significantly explain additional variance over and above the model with main effects and two-way interactions of these variables ($\Delta R^2 = 0.00$, $F(1, 289) = .121$, $p = .728$). As reported in the *t*-test above, the rejection condition predicted significantly less positive affect at Time 1 relative to the blunder condition ($B = -0.44$, $\beta = -.31$, $p < .001$). There was also a significant positive main effect of fears of receiving compassion on state positive affect at Time 1 ($B = 0.01$, $\beta = .24$, $p = .013$). Furthermore, there was a significant two-way interaction between trait social anxiety and trait fears of receiving compassion on state positive affect at Time 1 ($B = -0.001$, $\beta = -.14$, $p = .009$) (Figure 5). Probing of simple slopes revealed a significant positive conditional effect of fears of receiving compassion on positive affect at low trait social anxiety ($B = 0.02$, $SE = 0.006$, $t(290) = 3.60$, $p < .001$), but not at high trait social anxiety, such that when trait social anxiety was high, positive affect was similar across all levels of fears of receiving compassion ($B = 0.01$, $SE = 0.007$, $t(290) = 0.87$, $p = .383$). In contrast, when trait social anxiety was low, state positive affect differed depending on fears of receiving compassion across conditions. Furthermore, when fears of receiving compassion was low, there

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was a positive conditional effect of trait social anxiety on Time 1 positive affect ($B = 0.01$, $SE = 0.005$, $t(290) = 3.00$, $p = .037$), but not when fears of receiving compassion were high ($B = 0.00$, $SE = 0.005$, $t(290) = 0.353$, $p = .725$).

Figure 5

Simple Slopes at Varying Levels of Trait Social Anxiety and Trait Fears of Receiving Compassion Predicting Time 1 (Post-Rejection or Blunder Vignette) Positive Affect



Note: SPIN = Social Phobia Inventory, FOC-R = Fears of Receiving Compassion Scale – Receiving subscale. Variables have been mean-centered.

Negative affect

An independent samples t-test showed that participants assigned to the rejection condition reported significantly greater state negative affect at Time 1 ($M = 1.83$, $SD = 0.84$) compared to those in the blunder condition ($M = 1.52$, $SD = 0.78$), $t(295) = 3.28$, $p < .001$. Hierarchical multiple linear regression revealed that including the three-way interaction between condition, trait social anxiety, and trait fears of receiving compassion did not significantly explain additional variance over and above the model with main effects and two-way interactions of these variables ($R^2 = .32$, $F(6, 290) = 22.37$, $p < .001$). As seen in Table 5, the rejection condition predicted significantly more negative affect relative to the blunder condition, along with significant main effects of trait social anxiety and trait fears of receiving compassion significantly predicting greater negative affect. There was also a significant two-way interaction between condition and trait social anxiety (Figure 6), such that trait social anxiety was a stronger predictor of increased negative affect in the rejection condition relative to the blunder condition, though simple slopes revealed that trait social anxiety positively predicted negative affect in both conditions (blunder: $B = 0.016$, $SE = 0.005$, $t(290) = 3.47$, $p < .001$; rejection: $B = 0.028$, $SE = 0.004$, $t(290) = 6.76$, $p < .001$). The two-way interactions between condition and trait fears of receiving compassion was also significant (Figure 7), and probing of simple slopes found that higher trait fears of receiving compassion predicted increased negative affect in the blunder condition ($B = 0.02$, $SE = 0.006$, $t(290) = 3.83$, $p < .001$), but not in the rejection condition ($B = -0.01$, $SE = 0.006$, $t(290) = -1.80$, $p = .072$).

Figure 6

Conditional Effects at Varying Levels of Trait Social Anxiety by Condition Predicting Time 1 (Post-Rejection or Blunder Vignette) Negative Affect

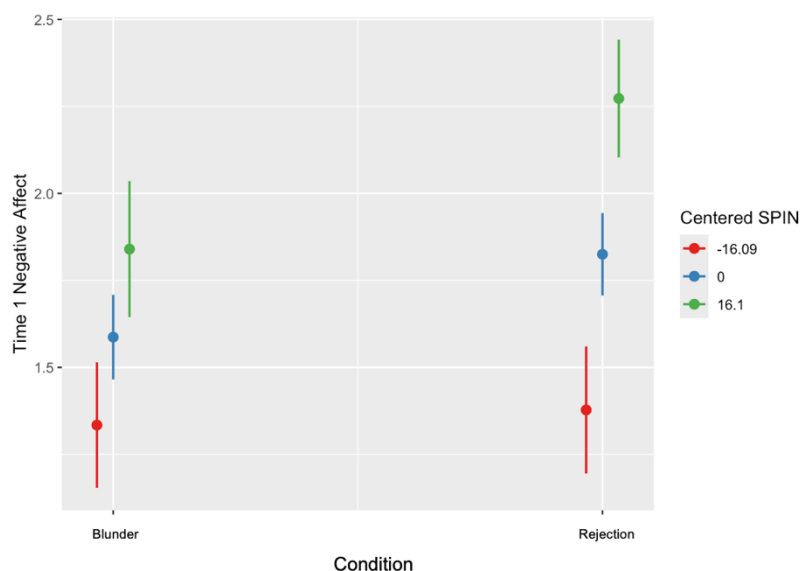
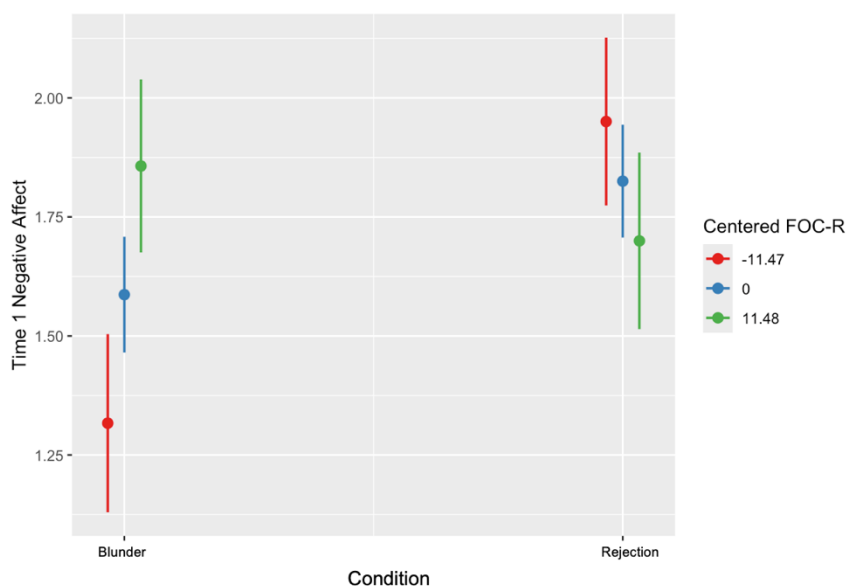


Figure 7

Conditional Effects at Varying Levels of Trait Fears of Receiving Compassion by Condition Predicting Time 1 (Post-Rejection or Blunder Vignette) Negative Affect



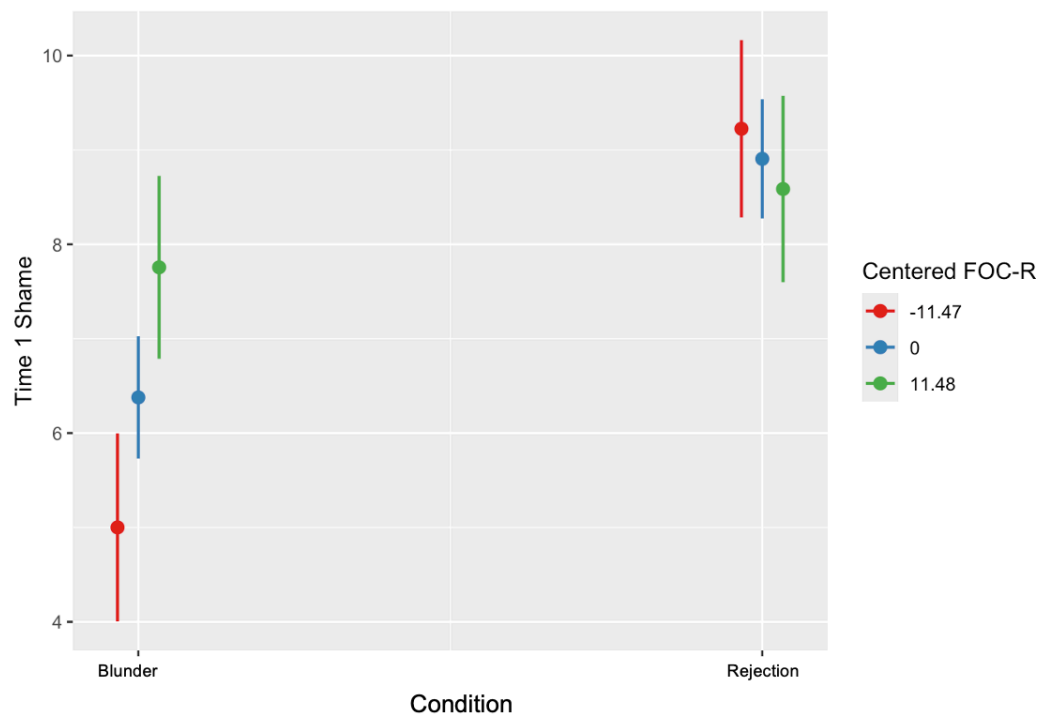
Shame

An independent samples t-test showed that participants assigned to the rejection condition reported significantly greater state shame at Time 1 ($M = 9.12$, $SD = 4.61$) than those in the blunder condition ($M = 6.15$, $SD = 4.42$), $t(295) = 5.66$, $p < .001$. Hierarchical multiple linear regression revealed that including the three-way interaction between condition, trait social anxiety, and trait fears of receiving compassion did not significantly explain additional variance over and above the model with main effects and two-way interactions of these variables ($R^2 = .41$, $F(6, 296) = 34.10$, $p < .001$). As seen in Table 5, the rejection condition predicted significantly greater levels of shame relative to the blunder condition, along with significant positive main effects of trait social anxiety and trait fears of receiving compassion. There was also a significant two-way interaction between condition and trait fears of receiving compassion (Figure 8), such that trait fears of receiving compassion positively predicted shame in the blunder condition (simple slope: $B = 0.12$, $SE = 0.033$, $t(290) = 3.67$, $p < .001$), but not in the rejection condition (simple slope: $B = -0.03$, $SE = 0.032$, $t(290) = -0.86$, $p = .389$).

Figure 8

Conditional Effects at Varying Levels of Trait Fears of Receiving Compassion by Condition

Predicting Time 1 (Post-Rejection or Blunder Vignette) Shame



Social safeness

An independent samples t-test showed that participants assigned to the rejection condition reported significantly less state social safeness at Time 1 ($M = 0.71$, $SD = 0.71$) relative to those in the blunder condition ($M = 1.00$, $SD = 0.83$), $t(295) = 3.32$, $p < .001$).

Hierarchical multiple linear regression revealed that entering main effects of condition and trait social anxiety explained 12% of the variance in Time 1 social safeness ($R^2 = .12$, $F(2, 294) = 20.71$, $p < .001$), but that further including the main effect of trait fears of receiving compassion or any two-way and three-way interactions between variables did not significantly explain further unique variance in the model. As seen in Table 5, the rejection condition predicted significantly lower levels of social safeness relative to the blunder condition, and there was also a significant negative main effect of trait social anxiety on social safeness at Time 1, such that higher social anxiety predicted lower social safeness.

Table 5

Results From Final Step of Hierarchical Linear Regression for Condition, Trait Fears of Receiving Compassion, and Trait Social Anxiety Predicting Socioaffective Outcomes at Time 1 (Post-Vignette)

	Positive Affect (T1)			Negative Affect (T1)			Shame (T1)			Social Safeness (T1)		
	B	β	<i>p</i>	B	β	<i>p</i>	B	β	<i>p</i>	B	β	<i>p</i>
(Intercept)	1.63	--	<.001	1.587	--	<.001	6.378	--	<.001	0.987	--	<.001
Condition	-0.44	-.313	<.001	0.238	.145	.003	2.528	.266	<.001	-0.256	-.164	.003
(rejection)												
SPIN	0.004	.099	.307	0.016	.306	<.001	0.116	.395	<.001	-0.014	-.297	<.001
FOC-R	0.014	.235	.013	0.024	.327	<.001	0.120	.290	<.001			
Con. x SPIN	-0.011	-.180	.058	0.012	.170	.049	0.042	.102	.202			
Con. x FOC-R	-0.011	-.128	.169	-0.034	-.335	<.001	-0.148	-.250	.002			
SPIN x FOC-R	-0.001	-.144	.009	0.000	-.053	.289	0.000	.007	.875			
Con. x SPIN x FOC-R												

Note: Condition is dummy-coded with the Blunder condition as the reference group. T1 = Time 1 (post-vignette), Con. = abbreviation for “condition;” SPIN = Social Phobia Inventory; FOC-R = Fears of Compassion Scale – Receiving subscale.

Hypothesis 2: Post-compassion (Time 2) socio-affective outcomes post-compassion

To test the hypothesis that imagining compassionate feedback after an imagined shame-based event (rejection or blunder) decreases state negative affect and shame while increasing state positive affect and social safeness, 2x2 repeated measures ANOVAs (condition: rejection vs. blunder, time: Time 1 vs. Time 2) were conducted. See Figure 9 for raw means across timepoints by condition. To further test the moderating role of trait social anxiety and trait fears of receiving compassion on these associations, hierarchical multiple linear regression models were run with main effects, two-way interactions, and the three-way interaction included in a stepwise manner. The corresponding Time 1 variable was also included as a covariate.

Positive affect

A 2x2 repeated measures ANOVA revealed that there was a significant main effect of condition on positive affect at Time 2, $F(1, 295) = 12.46, p < .001$, and a significant main effect of time on positive affect at Time 2, $F(1, 295) = 30.78, p < .001$. There was also a significant interaction between condition and time, $F(1, 295) = 37.74, p < .001$. Simple main effects analysis using paired t -tests revealed that for those in the rejection condition, positive affect increased significantly from imagining being rejected at Time 1 ($M = 1.13, SD = 0.06$) to receiving compassion at Time 2 ($M = 1.41, SD = 0.06$), $t(149) = -8.26, p < .001$, but not for those in the blunder condition (Time 1: $M = 1.56, SD = 0.06$; Time 2: $M = 1.54, SD = 0.06$), $t(146) = 0.41, p = .676$. Independent t -tests reveal that demonstrates that this effect was driven by lower positive affect at Time 1 after imagining being rejected than committing a blunder ($t(295) = -5.45, p < .001$). At Time 2, there was no longer a significant difference in positive affect between the two conditions, $t(296) = 0.13, p = .135$.

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Regression results are provided in Table 6. The model with Time 1 positive affect as a covariate and main effects of condition, trait social anxiety, trait fears of receiving compassion and their two-way interactions explained 71% of the unique variance in Time 2 positive affect, $R^2 = .71$, $F(7, 289) = 98.66$, $p < .001$. Including the three-way interaction between condition, trait social anxiety, and trait fears of receiving compassion did not significantly improve the model fit. There was a significant main effect of condition such that those in the rejection condition reported greater positive affect relative to those in the blunder condition, reflecting the relative increase in positive affect from time 1 to time 2 for those in the rejection condition only, as described above. There was also a significant positive main effect of trait fears of receiving compassion on Time 2 positive affect. Finally, there was a significant two-way interaction between condition and trait fears of receiving compassion (Figure 10), and probing simple slopes revealed that after controlling for Time 1 positive affect, trait fears of receiving compassion significantly predicted higher Time 2 positive affect in the blunder condition ($B = 0.008$, $SE = 0.004$, $t(289) = 2.15$, $p = .032$), whereas this association was not significant in the rejection condition ($B = -0.005$, $SE = 0.004$, $t(289) = -1.50$, $p = .134$).

Figure 9

Raw Means of Positive Affect, Negative Affect, Social Safeness, and Shame from Time 1 (Post-Rejection or Blunder Vignette) to Time 2 (Post-Compassionate Feedback) By Condition

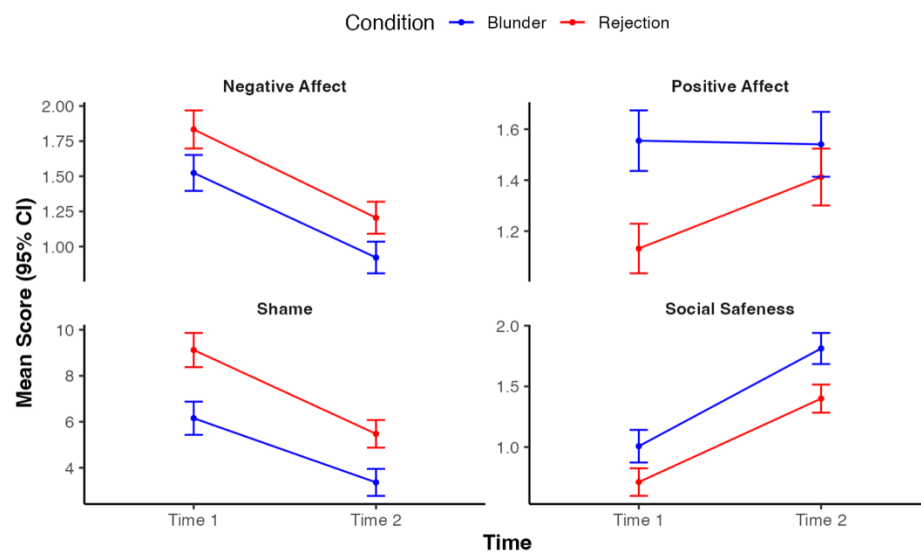
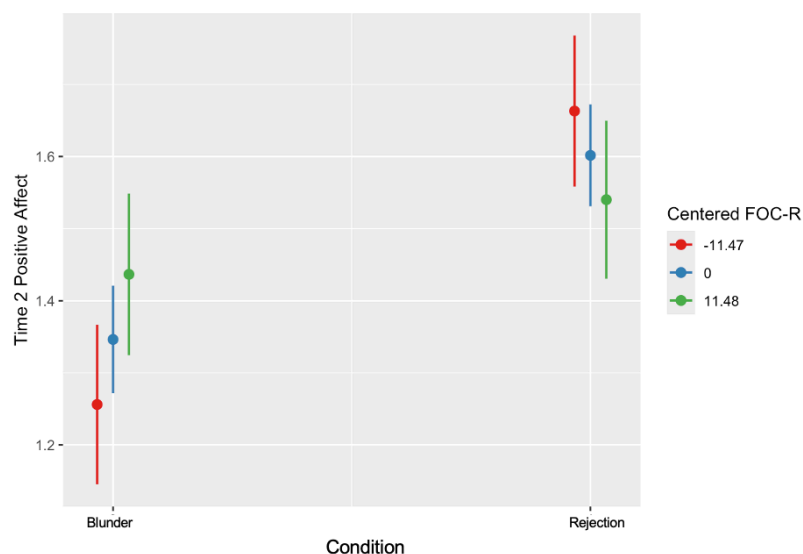


Figure 10

Conditional Effects at Varying Levels of Trait Fears of Receiving Compassion by Condition Predicting Time 2 (Post-Compassionate Feedback) Positive Affect



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Negative affect

A 2x2 repeated measures ANOVA revealed that there was a significant main effect of condition on negative affect at Time 2, $F(1, 295) = 12.54, p < .001$, and a significant main effect of time on negative affect at Time 2, $F(1, 295) = 516.15, p < .001$. However, there was no significant interaction between condition and time, $F(1, 295) = 0.24, p = .626$. While negative affect decreased significantly from Time 1 to Time 2 in both conditions, negative affect was consistently higher in the rejection condition relative to the blunder condition across both timepoints (before and after imagining compassionate feedback).

As shown in Table 6, the model with Time 1 negative affect as a covariate and main effects of condition, trait social anxiety, and trait fears of receiving compassion explained 70% of the unique variance in Time 2 negative affect, $R^2 = .70, F(7, 289) = 96.93, p < .001$. Including two-way interactions and the three-way interaction between predictors did not significantly improve model fit and were thus excluded. After accounting for Time 1 negative affect, there were no significant main effects of condition or trait social anxiety on Time 2 negative affect, but there was a significant positive main effect of trait fears of receiving compassion.

Shame

A 2x2 repeated measures ANOVA revealed that there was a significant main effect of condition on shame at Time 2, $F(1, 295) = 31.33, p < .001$, and a significant main effect of time on shame at Time 2, $F(1, 295) = 467.89, p < .001$. There was also a significant interaction between condition and time, $F(1, 295) = 8.289, p = .004$. Simple main effects analysis revealed that for those in the rejection condition, shame decreased significantly from before imagining compassionate feedback at Time 1 ($M = 9.12, SE = 0.37$) to afterwards at Time 2 ($M = 5.47, SE = 0.30$). There was a similar pattern in the blunder condition (Time 1: $M = 6.15, SE = 0.37$;

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Time 2: $M = 3.36$, $SE = 0.30$), though the magnitude of this change over time was smaller than in the rejection condition.

As shown in Table 6, the model with Time 1 shame as a covariate and main effects of condition, trait social anxiety, and trait fears of receiving compassion explained 70% of the unique variance in Time 2 shame, $R^2 = .71$, $F(4, 292) = 182.07$, $p < .001$. Including two-way interactions and the three-way interaction between predictors did not significantly improve model fit and were thus excluded. After accounting for Time 1 shame, there were no significant main effects of condition or trait social anxiety on Time 2 shame, but there was a significant positive main effect of trait fears of receiving compassion, such that increases in trait fears of receiving compassion predicted increased feelings of shame.

Social safeness

A 2x2 repeated measures ANOVA revealed significant main effects of condition ($F(1, 295) = 19.39$, $p < .001$) and time ($F(1, 295) = 430.62$, $p < .001$) on social safeness, such that in both conditions, social safeness increased significantly from before imagining compassionate feedback at Time 1 (rejection: $M = 0.71$, $SE = 0.06$; blunder: $M = 1.00$, $SE = 0.06$) to after imagining compassionate feedback at Time 2 (rejection: $M = 1.40$, $SE = 0.06$; blunder: $M = 1.81$, $SE = 0.06$). There was no significant interaction between condition and time, $F(1, 295) = 2.66$, $p = .104$.

As shown in Table 6, the model with Time 1 social safeness as a covariate and main effects of condition, trait social anxiety, trait fears of receiving compassion and their two-way interactions explained 51% of the unique variance in Time 2 social safeness, $R^2 = .51$, $F(7, 289) = 43.43$, $p < .001$. Including the three-way interaction between condition, trait social anxiety, and trait fears of receiving compassion did not significantly improve the model fit. There was a

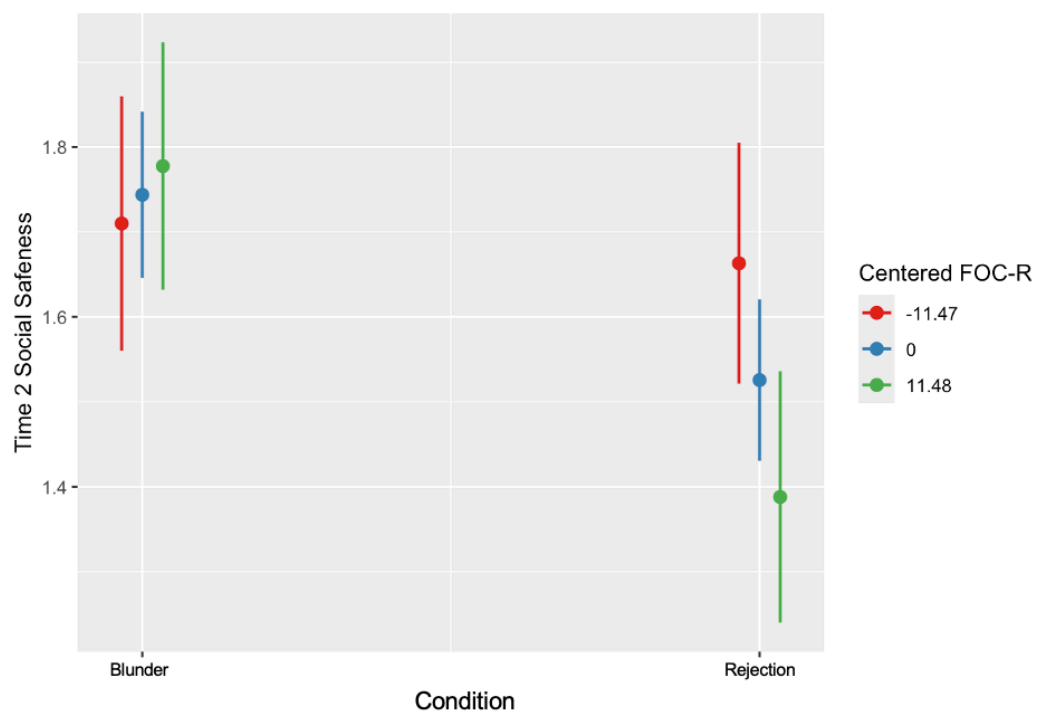
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significant main effect of condition, such that those in the rejection condition reported significantly less social safeness at Time 2 than those in the blunder condition after accounting for levels of social safeness at Time 1. There was also a significant two-way interaction between condition and trait fears of receiving compassion (Figure 11). Probing of simple slopes revealed that there was a significant negative conditional effect of trait fears of receiving compassion on social safeness in the rejection condition ($B = -0.01$, $SE = 0.004$, $t(289) = -2.48$, $p = .013$), but not in the blunder condition ($B = 0.00$, $SE = 0.00$, $t(289) = 0.60$, $p = .548$).

Figure 11

Conditional Effects At Varying Levels of Trait Fears of Receiving Compassion by Condition

Predicting Time 2 (Post-Compassionate Feedback) Social Safeness



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Table 6

Regression Results for Condition, Trait Fears of Receiving Compassion, and Trait Social Anxiety Predicting Socioaffective Outcomes at Time 2 (Post-Compassion) While Controlling for Time 1 (Post-Vignette)

	Positive Affect (T2)			Negative Affect (T2)			Shame (T2)			Social Safeness (T2)		
	B	β	p	B	β	p	B	β	p	B	β	p
(Intercept)	0.146	--	.039	-	--	.184	-0.371	--	.165	1.193	--	<.001
				0.080								
T1 variable	0.895	.849	<.001	0.662	.768	<.001	0.613	.765	<.001	0.642	.643	<.001
Condition (rejection)	0.255	.173	<.001	0.066	.046	.159	0.217	.029	.390	-0.218	-.140	<.001
SPIN	-0.002	-.045	.438	0.001	.033	.435	0.015	.062	.148	0.001	.026	.729
FOC-R	0.008	.122	.032	0.006	.099	.012	0.025	.076	.048	0.003	.043	.548
Con. x SPIN	0.000	-.003	.965							-0.004	-.053	.465
Con. x FOC-R	-0.013	-.143	.011							-0.015	-.154	.032
SPIN x FOC-R	0.000	.013	.700							0.000	-.053	.212
Con. x SPIN x FOC-R												

Note: Condition is dummy-coded with the Blunder condition as the reference group. T1 = Time 1 (post-vignette), Con. = abbreviation for “condition;” SPIN = Social Phobia Inventory; FOC-R = Fears of Compassion Scale – Receiving subscale.

Hypothesis 3: Post-compassion (Time 2) emotional valence and arousal

Valence

Table 7 contains complete regression results for Hypothesis 3. The model with Time 1 valence as a covariate and main effects of condition and trait social anxiety explained 21% of unique variance in Time 2 shame, $R^2 = .21$, $F(3, 293) = 25.52$, $p < .001$. Further including the main effect of trait fears of receiving compassion or two-way and three-way interactions did not significantly explain additional unique variance in the model. After accounting for Time 1 valence, there was a significant main effect of condition on emotional valence, such that those in the rejection condition reported lower positive (higher negative) valence than those in the blunder condition at Time 2 after imagining compassionate feedback. There was also a significant negative main effect of trait social anxiety, such that trait social anxiety predicted lower positive (higher negative) valence at Time 2.

Arousal

As shown in Table 7, the model with Time 1 valence as a covariate and main effects of condition and trait social anxiety explained 48% of unique variance in Time 2 shame, $R^2 = .48$, $F(3, 293) = 90.07$, $p < .001$. Further including the main effect of trait fears of receiving compassion or two-way and three-way interactions did not significantly explain additional unique variance in the model. After accounting for Time 1 arousal, there was a significant main effect of condition on arousal, such that those in the rejection condition reported greater emotional arousal than those in the blunder condition at Time 2 after imagining compassionate feedback. There was also a significant positive main effect of trait social anxiety, such that trait social anxiety predicted greater emotional arousal at Time 2.

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Table 7

Regression Results for Condition, Trait Fears of Receiving Compassion, and Trait Social Anxiety Predicting Arousal and Valence at Time 2 (Post-Compassion) While Controlling for Time 1 (Post-Vignette)

	Arousal (T2)			Valence (T2)		
	B	β	<i>p</i>	B	β	<i>p</i>
(Intercept)	0.594	--	.007	4.104	--	<.001
T1 variable	0.552	.618	<.001	0.266	.273	<.001
Condition (rejection)	0.361	.130	.002	-0.355	-.169	.003
SPIN	0.011	.132	.005	-0.011	-.176	.002
FOC-R						
Con. x SPIN						
Con. x FOC-R						
SPIN x FOC-R						
Con. x SPIN x FOC-R						

Note: Condition is dummy-coded with the Blunder condition as the reference group. T1 = Time 1 (post-vignette), T2 = Time 2

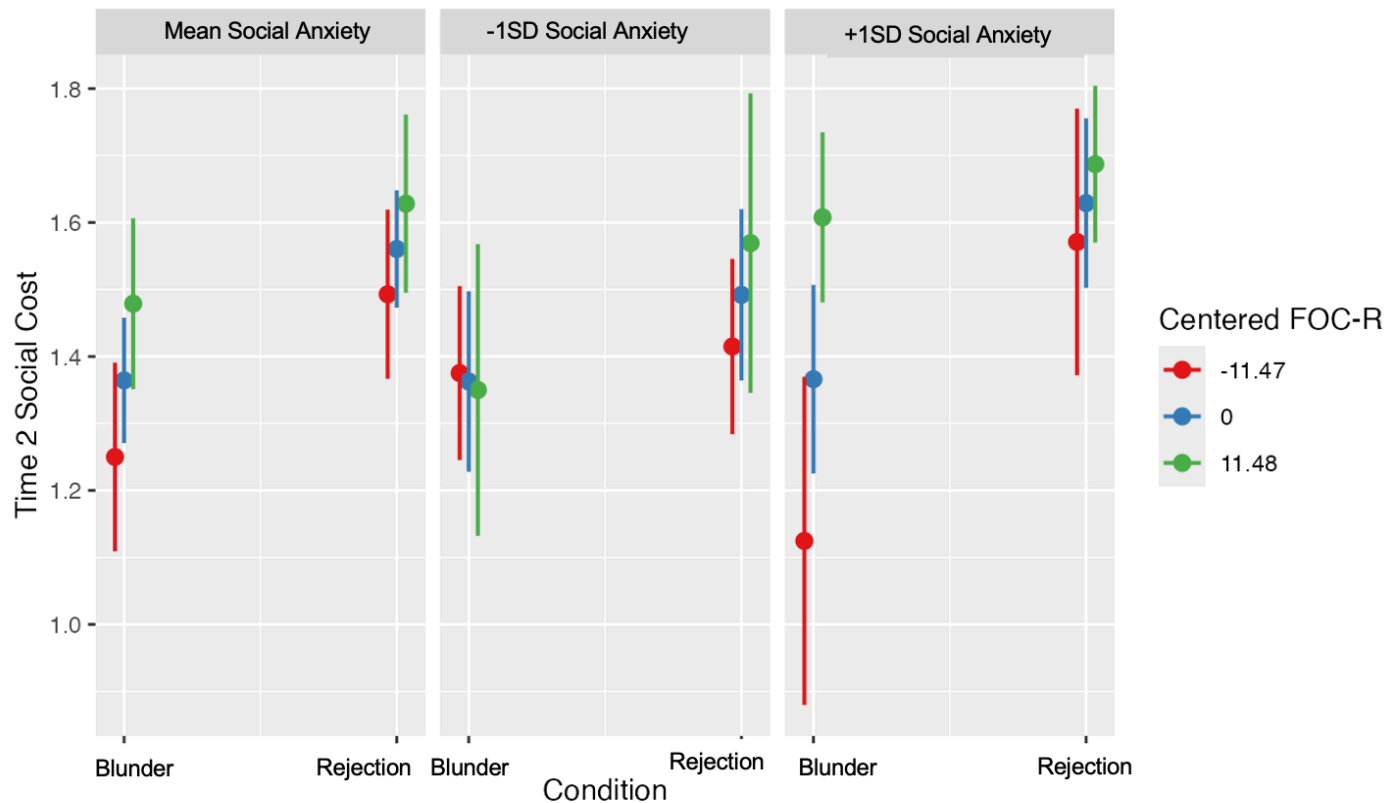
(post-compassion) Con. = abbreviation for “condition;” SPIN = Social Phobia Inventory; FOC-R = Fears of Compassion Scale – Receiving subscale.

Hypothesis 4: Post-compassion (Time 2) cognitive outcomes***Social cost***

Table 8 contains the complete regression results for Hypothesis 4. The model with Time 1 social cost as a covariate along with the main effects of condition, trait social anxiety, trait fears of receiving compassion, and their two-way and three-way interactions explained 65% of unique variance, $R^2 = .65$, $F(8, 288) = 66.24$, $p < .001$. After accounting for Time 1 social cost, there were significant main effects of condition and trait fears of receiving compassion, as well as a significant two-way interaction between condition and trait social anxiety. There was also a significant three-way interaction between condition, trait fears of receiving compassion, and trait social anxiety (Figure 12). Probing of simple slopes indicated that in the blunder condition, for those with high trait social anxiety, trait fears of receiving compassion had a positive conditional effect on estimated social cost of the imagined blunder after imagining compassionate feedback, such that greater trait fears of receiving compassion predicted increased estimates of how socially costly a blunder was, $B = 0.02$, $SE = 0.006$, $t(288) = 3.52$, $p < .001$; however, there was no significant conditional effect of trait fears of receiving compassion for those with high trait social anxiety in the rejection condition. Furthermore, for those with high trait fears of receiving compassion in the blunder condition, trait social anxiety had a positive conditional effect on estimated social cost, $B = 0.01$, $SE = 0.004$, $t(288) = 2.04$, $p = .042$; however, there was no significant conditional effect of trait social anxiety for those with high fears of receiving compassion in the rejection condition.

Figure 12

Conditional Effects At Varying Levels of Trait Fears of Receiving Compassion and Trait Social Anxiety by Condition Predicting Social Cost Appraisals (at Time 2, Post-Compassionate Feedback)



Positive self-schemas

As shown in Table 8, the model with the main effects of condition and trait social anxiety explained 8% of unique variance in positive self-schemas after imagining compassionate feedback, $R^2 = .08$, $F(2, 294) = 12.87$, $p < .001$. Further including the main effect of trait fears of receiving compassion and two-way and three-way interactions did not significantly explain further unique variance in the model and were thus excluded. There was no significant main effect of condition on positive self-schemas. There was a significant negative main effect of trait social anxiety on positive self-schemas.

Positive schemas about others

As shown in Table 8, the model with the main effects of condition, trait social anxiety, and trait fears of receiving compassion explained 17% of unique variance in positive schemas about others after imagining compassionate feedback, $R^2 = .17$, $F(3, 293) = 19.46$, $p < .001$. Further including the two-way and three-way interactions between variables did not significantly explain further unique variance in the model and were thus excluded. There was main effect of condition, such that those in the rejection condition reported significantly lower positive beliefs about others after imagining compassionate feedback relative to those in the blunder condition. There was also a significant negative main effect of trait fears of receiving compassion on positive schemas about others. There was no main effect of trait social anxiety.

Negative self-schemas

See Table 8 for regression results. The final model including the main effects of condition, trait fears of receiving compassion, trait social anxiety and their two-way and three-way interactions explained 44% of unique variance in negative self-schemas after imagining compassionate feedback, $R^2 = .44$, $F(7, 289) = 32.51$, $p < .001$. There was a significant main

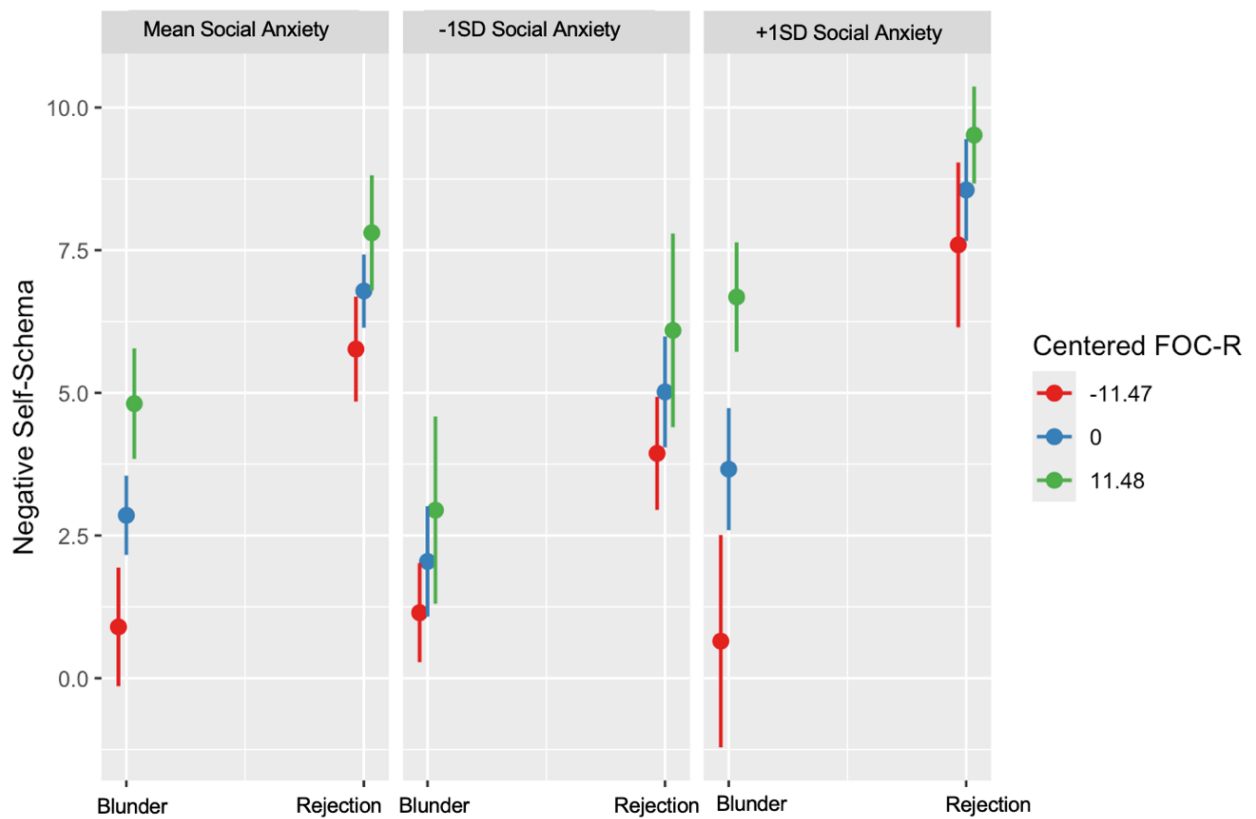
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effect of condition, such that those in the rejection condition reported greater negative beliefs about the self, relative to those in the blunder condition. There were also significant main effects of trait fears of receiving compassion and trait social anxiety, with both fears each predicting higher levels of negative self-schemas. Furthermore, there was a significant two-way interaction between trait fears of receiving compassion and trait social anxiety, as well as a significant three-way interaction between condition and trait predictors such that at average and high trait social anxiety, trait fears of receiving compassion predicted greater negative self-schemas in the blunder condition, whereas trait fears of receiving compassion did not significantly predict negative self-schemas within the rejection condition (Figure 13). Meanwhile, at low trait social anxiety, trait fears of receiving compassion did not have a significant conditional effect on negative self-schemas in either condition.

Figure 13

Conditional Effects At Varying Levels of Trait Fears of Receiving Compassion and Trait

Social Anxiety by Condition Predicting Negative Self-Schemas

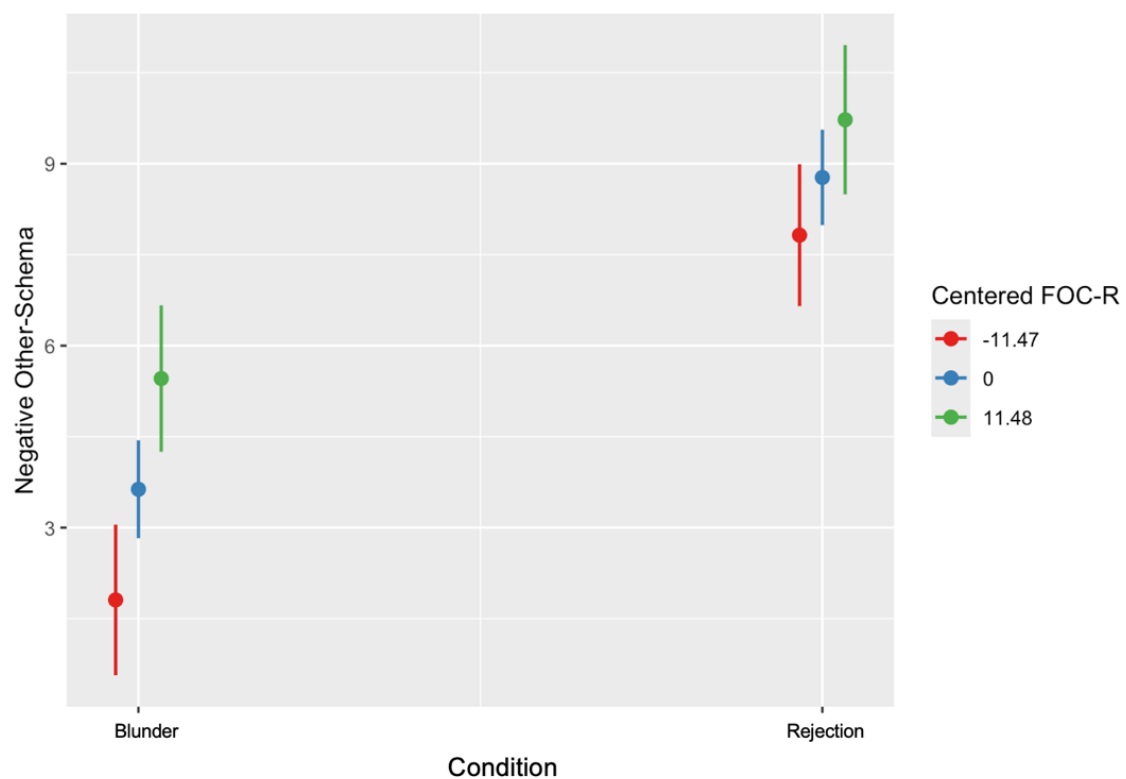


Negative schemas about others

See Table 8 for regression results. The model including the main effects of condition, trait fears of receiving compassion, trait social anxiety, and their two-way interactions explained 33% of the unique variance in negative schemas about others, $R^2 = .33$, $F(2, 293) = 46.86$, $p < .001$. Including the three-way interactions between predictors did not significantly explain additional unique variance and was thus excluded from the final model. There was a significant main effect of condition, such that those in the rejection condition reported a higher level of negative beliefs about others compared to those in the blunder condition. There was also a significant positive main effect of trait fears of receiving compassion. Finally, there was also a significant two-way interaction between condition and trait fears of receiving compassion (Figure 14), such that for those in the rejection condition, there was a positive conditional effect of trait fears of receiving compassion on negative schemas about others in that greater trait fears of receiving compassion predicted increased negative beliefs about others, $B = 0.09$, $SE = 0.03$, $t(290) = 3.14$, $p < .001$, but no conditional effect in the blunder condition, $B = -0.03$, $SE = 0.03$, $t(290) = -0.85$, $p = 0.394$.

Figure 14

Conditional Effects At Varying Levels of Trait Fears of Receiving Compassion and Trait Social Anxiety by Condition Predicting Negative Schemas About Others



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Table 8

Regression Results for Condition, Trait Fears of Receiving Compassion, and Trait Social Anxiety Predicting Schema-related Outcomes at Time 2 (Post-Compassion) While Controlling for Time 1 (Post-Vignette)

	Social Cost			Positive Self-Schema			Positive Other-Schema			Negative Self-Schema			Negative Other-Schema		
	B	β	p	B	β	p	B	β	p	B	β	p	B	β	p
(Intercept)	-0.055	--	.530	10.959	--	<.001	14.186	--	<.001	2.854	--	<.001	3.633	--	<.001
T1 variable	0.677	.714	<.001												
Condition	0.196	.125	.004	-0.678	-.064	.252	-3.382	-.360	<.001	3.931	.415	<.001	5.141	.460	<.001
(rejection)															
SPIN	0.000	.002	.973	-0.090	-.271	<.001	0.010	.034	.598	0.050	.171	.034	-0.026	-.074	.394
FOC-R	0.010	.146	.020				-0.079	-.192	<.001	0.170	.413	<.001	0.159	.326	<.001
Con. x SPIN	0.004	.061	.323							0.060	.146	.062	0.111	.231	.007
Con. x FOC-R	-0.004	-.042	.502							-0.082	-.138	.073	-0.076	-.0109	.188
SPIN x FOC-R	0.001	.170	.003							0.006	.234	<.001	-0.002	-.054	.266
Con. x SPIN x FOC-R	-0.001	-.149	.013							-0.006	-.201	.008			

Note: Condition is dummy-coded with the Blunder condition as the reference group. T1 = Time 1 (post-vignette), Con. = abbreviation for

“condition;” SPIN = Social Phobia Inventory; FOC-R = Fears of Compassion Scale – Receiving subscale. Schemas were not measured at T1; as such, there is no T1 variable included for schema outcomes in the models.

Discussion

Using validated written vignettes and imagined scenarios, I sought to examine immediate, momentary emotional and cognitive responses to receiving compassion from others in the face of a socially distressing event. I also examined the potential moderating roles of trait social anxiety and trait fears of receiving compassion. Social rejection, which is typically experienced as more shame-inducing, was compared to social blunders, which are typically experienced as more embarrassing, but may still be associated with some degree of shame. Both rejection and blunders represent fear triggers and contexts for those with social anxiety by potentially leading to public exposure of feared self-attributes, including those that may elicit undesired support and compassion from others (Figure 2). This comparison facilitated closer investigation of the impact of receiving compassion on feelings of shame and decreased safeness and extends previous research on socially anxious people's responses to social blunders.

Hypothesis 1: Post-vignette (Time 1) socio-affective outcomes

The first hypothesis was partially supported in that immediately after imagining the socially distressing scenario, those in the rejection condition reported less positive affect than those in the blunder condition. Interestingly, there was no main effect of trait social anxiety on positive affect, nor was there a moderating effect of trait social anxiety on the association between condition and positive affect, indicating that the rejection condition predicted lowered positive affect relative to the blunder condition across all levels of trait social anxiety and trait fears of receiving compassion, perhaps due to the stronger social pain associated with rejection relative to blunders (see below for discussion of results showing higher negative affect and shame following rejection than following blunders). The non-significant main effect of social anxiety also suggests that lower positive affect as a result of the socially distressing event was

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experienced by universally participants across the social anxiety continuum, irrespective of one's trait levels of social anxiety. The literature has attributed positivity deficits in socially anxious individuals to difficulties with attending to and processing positive and rewarding aspects of socializing (e.g., Kashdan, 2004; Kashdan et al., 2011). These positivity deficits may not be observable in response to the rejection and blunder vignettes in the current study because the scenarios presented were intended to be unambiguously distressing. As well, the lack of moderating effect suggests that lowered positive affect as a result of social rejection (relative to social blunder) is likely a universal experience that persists across both low and high socially anxious people. Indeed, neuroimaging research has shown that experiences of exclusion activate similar brain areas as physically painful experiences (for a review, see Eisenberger, 2012) due to such experiences directly contradicting the fundamental human need to belong (Leary & Baumeister, 1995).

Unexpectedly, there was a significant main effect of trait fears of receiving compassion such that those with higher fears of receiving compassion reported *more* positive affect than those with lower fears of receiving compassion, and this was true after exposure to both rejection and blunders, regardless of condition. Gilbert (2011) theorized that fears of receiving compassion stem from early shame-based experiences where comfort and soothing were not consistently available from others in the face of distress; potentially, those who fear receiving compassion from others have come to anticipate or expect socially distressing experiences, thus experiencing less negative impact on positive affect in the face of blunder or rejection.

Consistent with hypotheses and previously described literature on the social pain of exclusion and rejection, participants in the rejection condition reported decreased social safeness relative to those in the blunder condition upon imagining the scenario. There was also a main

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effect of trait social anxiety such that less social safeness was reported with increasing trait social anxiety, when participants were exposed to either rejection or blunders. Although few, if any, studies have explicitly linked social anxiety to decreased feelings of social safeness, socially anxious individuals' hypervigilance and overestimates of interpersonal threat have been well-researched. A core problem in social anxiety has long been conceptualized as an over-sensitivity to social threat, compounded by the belief that others have unreasonably high social expectations to be met (Moscovitch & Hofmann, 2007; Rapee & Heimberg, 1997). This over-sensitivity amplifies threat perceptions by heightening self-focused attention, negative self-perception, and post-event processing, and lowering perceived emotional control and perceived social skills (Hofmann, 2007). Socially anxious individuals also have difficulty disengaging their visual attention from negative social cues (Buckner et al., 2010) and are more sensitive to detecting facial cues of anger and disgust (Gutierrez-Garcia & Calvo, 2017). As such, over-sensitivity and hypervigilance towards threat cues likely decrease feelings of social safeness in socially anxious individuals when faced with a socially distressing situation, such as the vignettes in the present study.

Furthermore, those in the rejection condition reported greater negative affect and greater shame relative to those in the blunder condition. There was also a significant main effect of social anxiety on both negative affect and shame, such that those with greater trait social anxiety reported higher levels of both relative to those with lower social anxiety; however, there was no significant interaction between trait social anxiety and condition for these outcomes, indicating that this pattern was similar across both the blunder and rejection conditions. These findings are consistent with past research on socially anxious people's feelings of negativity and shame in response to imagined social blunders. Moscovitch et al. (2012) exposed low and high socially

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anxious individuals to imagined blunder scenarios and found that high socially anxious individuals rated blunders as significantly more embarrassing and shameful relative to low socially anxious individuals. The present study reveals that this pattern endures across imagined rejection scenarios.

There were also significant main effects of trait fears of receiving compassion on both negative affect and shame, such that trait fears of receiving compassion predicted both greater negative affect and shame post-scenario. However, there were also notable moderating effects such that at high trait fears of receiving compassion, those in the blunder condition reported similar levels of shame and negative affect as those in the rejection condition, suggesting that for those with high fears of receiving compassion, an embarrassing blunder felt just as shame-inducing and impactful as being socially rejected. Meanwhile, at low trait fears of receiving compassion, those in the blunder condition experienced less negative affect and shame than those in the rejection condition. People with high trait fears of receiving compassion may experience more shame and negative affect immediately after imagining themselves committing a blunder or being rejected due to early experiences where compassion and care were not consistently available and coming to expect that the same will be the case in the present moment (e.g., Gilbert, 2011). These types of early experiences may also teach people to be highly self-critical or blame themselves for being vulnerable to criticism and rejection (i.e., self-blame), thus generating more negative affect and shame. Indeed, Gilbert and Miles (2000) found that self-blame was positively correlated with depression, social anxiety, and unfavourable social comparison, where blaming others for faults and criticism (i.e., other-blame) was negatively correlated with shame and hostility. Alternatively, people who fear receiving compassion from others may be able to recognize that the other characters in the scenario would probably react by

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offering them compassion and kindness and may, as a result, experience increased negative affect and shame in anticipation of this kind of compassionate response due to feeling undeserving of such care, or interpreting such anticipated responses as pity and thus reflective of their own weaknesses.

Hypothesis 2: Post-compassion (Time 2) socio-affective outcomes post-compassion

The second hypothesis focusing on emotional responses after imagining receiving compassion from the other character in the vignette was also partially supported. I expected participants in both conditions to experience an increase in positive affect after receiving compassion, but results showed an unexpected main effect of condition on positive affect such that participants in the rejection condition reported significantly higher positive affect at Time 2 than those in the blunder condition when controlling for baseline (Time 1) positive affect, indicating a greater shift in positive affect from Time 1 to Time 2 for those in the rejection condition. Supplementary analyses in Appendix C (Table C1) show that when not accounting for positive affect at Time 1, fears of receiving compassion predict greater positive affect after receiving compassion at Time 2. More specifically, this effect is driven by those with high fears of receiving compassion in the blunder condition.

Why might imagining receiving compassion after being painfully rejected predict greater residualized positive affect than imagining receiving compassion after an embarrassing social blunder? This may be due to participants in the rejection condition starting with lower positive affect at Time 1 relative to those in the blunder condition at Time 1, given the greater impact of rejection on positive affect. Thus, the lower starting levels of positive affect in the rejection condition may have allowed for more “room” for the influence of compassion than in the blunder condition.

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Another possibility is that within the rejection condition, the compassionate response may have induced a feeling of *relief*, which has been conceptualized as a counterfactual emotion that arises from the discrepancy between how things may have turned out compared with how they actually did (Graham et al., 2022). Graham et al. (2022) conceptualized two key categories of relief: counterfactual relief, where a worse outcome that could have occurred did not in fact occur, and temporal relief, which is experienced when something unpleasant comes to an end. In the present study, participants may have experienced counterfactual relief if they anticipated continued rejection or a worsening of the scenario, as well as temporal relief due to the compassionate response signaling the temporal end of a socially distressing event. Thus, within the rejection condition, participants may have experienced greater increases in positive affect after the compassionate response regardless of level of trait fears of receiving compassion. Within the blunder condition, this experience of counterfactual relief may only have been more evident for those with high trait fears of receiving compassion, thus resulting in higher positive affect post-compassion amongst this group, who also experienced blunders as similarly shameful to rejection post-scenario (see discussion of Hypothesis 1). However, because the present study did not assess participants' predictions of what would happen next in the scenario after the socially distressing event, this explanation represents a plausible but speculative interpretation of the data. That is, for people who are highly fearful of receiving compassion, experiences of increased positive affect following compassionate displays from others may be driven by feelings of relief around preventing a potentially worse outcome rather than by genuine openness to receiving support and relying on others for kindness and care.

The emotion of relief remains understudied. The overlap between relief and positive affect has been researched primarily in the context of physical pain in patients suffering from

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chronic pain. On the one hand, pain relief has been associated with diminished negative affect (e.g., Bresin & Gordon, 2013; Bresin et al., 2010) while others have argued that relief is better represented as increased positive affect resulting from successful threat avoidance and therefore fits with the definition of reward (e.g., Porreca & Navratilova, 2017). Leknes et al. (2012) conducted an experiment where participants were assigned to one of two conditions: a “relative relief context” condition, where participants were exposed to either intense pain or moderate pain, or a “control context” condition, where participants were exposed to either moderate pain or a non-painful warm sensation. They found evidence of a “hedonic flip,” such that that normally aversive, moderate pain would elicit more positive hedonics and higher reward activation in the “relative relief context” condition—in other words, hedonic feelings towards moderate pain shifted from negative in the “control context condition” to positive in the “relative relief context” condition. Indeed, recent research indicates that the relief experienced after successfully avoiding a threat is experienced as rewarding and may motivate future avoidance (e.g., Leng et al., 2022; Papalini, Ashoori et al., 2021). In the present study, a version of the “hedonic flip” may be at play. The rejection condition was associated with significantly greater negative affect and shame relative to the blunder condition; therefore, those in the rejection condition may have reported greater residualized positive affect after receiving compassionate feedback relative to those in the blunder condition due to increased levels of relief at receiving compassion rather than anticipated criticism or humiliation. Meanwhile, since social blunders elicited less negative affect and shame compared to social rejection to begin with, receiving a compassionate response may not have been experienced as nearly as relieving or positive across all levels of trait fears of receiving compassion. Within the blunder condition, participants highly fearful of compassion may have reported more positive affect than those low in fears of

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receiving compassion due to a greater expectancy violation and anticipating a more critical reaction.

There was no main effect of trait social anxiety on positive affect after participants received compassion, nor did trait social anxiety moderate positive affect after they received compassion in either condition. This lack of effect may be attributable to positivity deficits amongst socially anxious people, who do not experience typical reward and connection in response to positive stimuli (e.g., Gilboa-Schechtman, 2014; Kashdan, 2004; Kashdan et al., 2011). However, whether these deficits extend specifically to receiving compassion has not been previously explored, and because by definition compassion involves mindful awareness and acknowledgment of distress and suffering, it may not be considered unilaterally positive or socially rewarding in nature.

There was also a main effect of condition on social safeness post-compassion, where those in the rejection condition reported significantly less social safeness than those in the blunder condition after accounting for levels of social safeness post-scenario, suggesting that compassionate feedback may have been more effective in restoring social safeness after an embarrassing blunder than after social rejection. It is also possible that social rejection depletes social safeness to the extent that compassion cannot as effectively recover feelings of safety and security.

Notably, there was a moderating effect of trait fears of receiving compassion such that, within the rejection condition, those with high trait fears of receiving compassion had the lowest levels of social safeness post-compassion; meanwhile, within the blunder condition, there was no significant difference in social safeness across levels of trait fears of receiving compassion. This suggests that lowered social safeness in the rejection condition (relative to the blunder condition)

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may have been driven by those high in fears of receiving compassion. After accounting for social safeness at Time 1, compassionate feedback at Time 2 predicted the least social safeness for those high in fears of receiving compassion in the rejection condition, despite these individuals reporting comparable levels of broader positive affect as those low in trait fears of receiving compassion. This indicates that fears of receiving compassion may be specifically linked with dampened social safeness in the aftermath of compassion, rather than in activated positive affect or positivity more broadly. While relief in the form of increased positive affect may be specifically linked to having avoided a worse outcome, social safeness requires people to experience feeling soothed and to derive these feelings from expressions of compassion from others, which may be particularly challenging for individuals who fear compassion based on past shame-based experiences. There was once again no moderating role of trait social anxiety, suggesting that trait fears of receiving compassion predict emotional responses to compassion over and above social anxiety symptoms. When Time 1 (post-vignette) levels of social safeness were not controlled for, supplementary analyses (Appendix C, Table C1) showed that those in the rejection condition experienced lower social safeness than those in the blunder condition, regardless of trait fears of receiving compassion and trait social anxiety. This suggests that the negative impact of rejection may persist despite receiving compassion, and that trait fears of receiving compassion may influence changes in social safeness in following compassionate responses from others.

With respect to the effects of compassion on negative affect and shame, results showed that across both conditions trait fears of receiving compassion significantly predicted both greater residualized negative affect and shame after imagining compassionate feedback and after accounting for negative affect and shame post-scenario, while trait social anxiety did not.

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Including the interaction between condition and fears of receiving compassion did not contribute to unique variance in the model. For people high in trait fears of receiving compassion, compassionate feedback may be associated with smaller reductions in negative affect and shame arising from a socially distressing event, potentially due to feelings of unfamiliarity or mistrust that the compassion being offered is genuine or deserved (Gilbert et al., 2013). When Time 1 (post-vignette) levels of social safeness were not controlled for, supplementary analyses (Appendix C, Table C1) showed that those in the rejection condition continued to experience higher levels of negative affect than those in the blunder condition following the compassionate response, and that this was also predicted by increased trait social anxiety and increased trait fears of receiving compassion.

Hypothesis 3: Post-compassion (Time 2) emotional valence and arousal

The third hypothesis regarding emotional valence and arousal post-compassion was also partially supported: after accounting for post-scenario (Time 1) levels of valence and arousal, receiving compassion at Time 2 predicted lowered valence (less positive, more negative) and increased arousal for those in the rejection condition and for high socially anxious participants. Interestingly, condition and trait social anxiety symptoms together in the model explained the most variance in post-compassion emotional valence and arousal, while further including trait fears of receiving compassion in the model did not, surprisingly, add significant explanatory power. Receiving compassion in the aftermath of social rejection elicited visceral emotional reactions that participants rated as being both more negatively valenced and more intensely arousing than receiving compassion after a social blunder.

These results are contrasted against results from Hypothesis 2, where the compassionate response at Time 2 predicted increased positive affect for those in the rejection condition relative

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to those in the blunder condition. One possibility is that when asked to rate emotional valence via a single pictorial measure, those in the rejection condition felt that their experience was overall negative or may interpret compassion from others as pity, while continuing to feel relief (in the form of increased positive affect as captured by the PANAS) that the response from others was not worse than it was. These findings point towards a nuanced and complex emotional landscape when it comes to receiving compassion from others in the face of social distress.

Exploratory analyses: Post-compassion (Time 2) cognitive outcomes

The fourth research question regarding appraisals of compassionate feedback in the aftermath of a blunder or rejection was advanced as exploratory. Consistent with literature indicating social connection as a fundamental need (Leary & Baumeister, 1995), there was a significant main effect of condition on social cost after integrating compassionate feedback, such that those in the rejection condition rated the experience of rejection as significantly more costly than that of committing a blunder, even after imagining compassionate feedback. Notably, there was also a significant three-way interaction between condition, trait fears of receiving compassion, and trait social anxiety symptoms in predicting appraisals of social cost after participants received compassion: at high trait social anxiety symptoms within the rejection condition, the scenario was appraised as similarly costly irrespective of their levels of trait fears of receiving compassion; meanwhile, within the blunder condition, individuals with high trait social anxiety who also had high trait fears of receiving compassion appraised their imagined blunder as being significantly more costly than those with low fears of receiving compassion.

There was also a similar pattern of results in predicting negative self-schemas after receiving compassion: specifically, participants in the rejection condition had significantly more negative self-schemas than participants in the blunder condition after receiving compassion, and

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this difference between conditions was greatest at high levels of trait social anxiety. Furthermore, there was a significant three-way interaction such that at high levels of trait social anxiety in the rejection condition, negative self-schemas remained high regardless of trait fears of receiving compassion. These results suggest that, following compassionate responses, individuals with high trait social anxiety appraised social rejection as socially costly and as contributing substantially to their negative self-views, regardless of their level of fears of receiving compassion. In contrast, following compassionate responses to a social blunder, only those who were high in both trait social anxiety and fears of receiving compassion appraised the event as costly and as reinforcing negative beliefs about themselves. Those who were high in trait social anxiety but low in fears of receiving compassion reported less negative appraisals of their blunders in this context. This finding builds upon past research from our lab and others which found that high socially anxious people appraise their own blunders as being more embarrassing and inappropriate than low socially anxious people (Moscovitch et al., 2012; Bas-Hoogendam et al., 2018), and suggests that such effects may be driven specifically by the subgroup of socially anxious individuals who are also high in fears of receiving compassion from others, and that socially anxious people with low fears of compassion benefit more from compassionate displays. In contrast, and in support of past research (e.g., Hudd & Moscovitch, 2020), socially anxious individuals may be particularly sensitive to the negative personal and social consequences of rejection, irrespective of their levels of fear of compassion, and their negative appraisals of rejection (relative to blunder) and its meaning for the self would be impervious to change in the face of receiving others' compassionate responses, no matter how open they may be to such compassion.

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What mechanism might explain how compassionate feedback reduces negative appraisals of social blunders in socially anxious individuals with lower fears of receiving compassion? Using written blunder vignettes, Fung et al. (2016) found that “direct defocusing” – being directly provided with blunder-unrelated information as part of the vignette – reduced cost appraisals across all levels of social anxiety. A compassionate response likely shares some similarities with direct defocusing; for instance, expressions of common humanity inherent to compassion might support people in reducing cost estimates after considering how others may have reacted similarly in their position and lead them to integrate different perspectives on the scenario into their appraisals.

Of note, there was no main effect of condition on positive self-schemas, indicating that positive self-beliefs following a compassionate response after a social blunder or after social rejection did not significantly differ. However, there was a significant negative main effect of trait social anxiety, such that high socially anxious individuals endorsed less positive self-beliefs compared to low socially anxious individuals after imagining receiving compassionate feedback, regardless of assigned condition, suggesting that compassionate feedback may not effectively restore positive self-beliefs for high socially anxious individuals.

The newly developed Schema Congruent and Incongruent Learning (SCIL) model (Moscovitch et al., 2023) specifies the neurocognitive and psychological processes underlying schema-based learning and how these processes apply to socially anxious individuals. According to the SCIL model, the activation of maladaptive self-schemas during a socially threatening experience (in the present study, via an imagined social blunder or social rejection) facilitates the encoding of negative event details that strengthen the schema (i.e., schema-congruent learning); however, simulating meaningful positive memories while the negative schema is active can

challenge the active schema and trigger a prediction error, thereby facilitating schema-incongruent learning. Recent research from our lab has found that following social exclusion, deeply processing a positive autobiographical memory can boost positive affect and self-beliefs in socially anxious individuals (Moscovitch et al., 2024). However, socially anxious individuals may not be similarly integrating positive components of compassionate feedback into their self-schema. Compassionate feedback may need to be further personalized to have a strong impact on positive self-beliefs—in the present study, all participants received a standardized compassionate response following each blunder and rejection scenario, which may not have been personally meaningful. Indeed, Moscovitch et al. (2024) found that enhancing positive affect and self-beliefs required challenging the active negative schema with episodic memory simulations that were personally meaningful and self-relevant, whereas the effects were less impactful and beneficial when participants focused on the surface-level perceptual details of positive memories without linking to self-relevant meaning. Future research could examine the effects of in-person, real-life instances of receiving compassion from others in an individualized, personally meaningful way that would be likely to increase the salience of the positive components of compassion. As compassion from others may only be effective in boosting positive self-beliefs if it also facilitates prediction error and new learning about the self, asking participants to engage with the compassionate feedback and process ways in which it applies to them may also simulate this type of self-relevant learning.

Meanwhile, there was a significant main effect of condition on positive beliefs about others after imagining compassionate feedback, such that those in the rejection condition had weaker positive beliefs about others relative to those in the blunder condition. Those who have been rejected may continue to experience the sting of rejection and therefore be less likely to

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have positive beliefs about others following compassionate feedback, relative to those who received a compassionate response after a social blunder. While there was no significant main effect of trait social anxiety on positive schemas about others, there was a main effect of trait fears of receiving compassion across both conditions such that higher trait fears predicted weaker positive beliefs about others. Those with higher trait fears of receiving compassion may hold fewer positive beliefs about others after compassionate feedback regardless of whether the situation that elicited feedback was an embarrassing blunder or socially painful rejection. While Gilbert et al. (2013) theorized that receiving compassion may trigger feelings of grief arising from previous experiences of kindness and care being unavailable, results from the present study suggest that these fears may also influence attitudes and beliefs about others, such as viewing others in a more negative light or doubting others' intentions in offering such compassion.

Summary and Conclusions

Summary of findings

As hypothesized, compared to social blunder scenarios, social rejection scenarios were experienced as less positive and socially safe as well as more negative and shameful. Consequently, imagining receiving compassionate feedback immediately after the scenario elicited different emotional and cognitive responses depending on whether the feedback followed a blunder or rejection, and differed between individuals with low and high trait fears of receiving compassion. Specifically, after controlling for levels of positive affect immediately after the scenario, participants in the rejection condition experienced higher residualized positive affect than those in the blunder condition after receiving compassion, regardless of trait fears of receiving compassion; meanwhile, within the blunder condition, those with higher trait fears of receiving compassion experienced greater positive affect compared to those with lower trait

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fears. Furthermore, participants in the rejection condition who were high in trait fears of receiving compassion reported the lowest levels of social safeness following the imagined compassionate response. Although levels of negative affect and shame following the imagined compassionate response did not significantly differ by condition or trait social anxiety, greater trait fears of receiving compassion were associated with higher levels of both negative affect and shame. Taken together, these findings suggest that trait fears of receiving compassion are associated with emotional and interpersonal experiences following an imagined compassionate response to a socially distressing event, being linked to elevated negative affect and shame while showing differential associations across subfacets of positivity (i.e., activated positive affect and social safeness).

Notably, results from the current study highlight a distinction between feelings of positive affect and social safeness after imagining receiving compassionate feedback, where individuals with low trait fears of receiving compassion in the blunder condition reported the lowest residualized increase in positive affect, while those in the blunder condition with high fears of receiving compassion along with those in the rejection condition irrespective of levels of trait fears of receiving compassion reported similar levels of increased residualized positive affect when compassion was provided. Downward counterfactuals, where compassionate feedback represents an outcome much better than what the participant expected given the initial socially distressing scenario (Graham et al., 2022), may be playing an important role in generating feelings of relief that are experienced in the current study as increases in positive affect; indeed, within the research literature on physical pain, when measured via both neurobiological and self-report measures, relief has been conceptualized as a form of reward for avoiding a worse threat (e.g., Leknes et al., 2012). Notably, across both conditions, there was

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similar or greater positive affect amongst those with high trait fears of receiving compassion relative to those with low trait fears following the compassionate response; those who fear compassion may have been expecting negative feedback regardless of condition and felt pleasantly surprised or relieved when the response they received in the scenario was a compassionate rather than critical one.

However, the finding that those high in trait fears of receiving compassion reported the least social safeness upon imagining compassionate feedback after rejection suggests that positive affect and social safeness do not necessarily go hand-in-hand. One may experience positive affect (associated with pleasant surprise or relief) without experiencing similar levels of social safeness (associated with content, soothing, and calm). This finding further addresses questions about whether social safeness is best subsumed under the umbrella of positive affect, or if it is a related yet unique sub-facet of positivity—social safeness, while positively valenced, is likely distinct from activated positive affect and feelings of reward, including feelings of reward that arise from avoiding threat. These findings also lead to questions around whether social safeness is necessary to experience genuine positivity and social pleasure associated with interacting; indeed, without a feeling of safeness and security first established, socially anxious people—particularly those highly fearful of compassion—may be quick to discount or disconfirm positive aspects of a social situation, despite feeling briefly relieved that the situation did not go as poorly as they anticipated. In overcoming positivity deficits, socially anxious individuals should attend to whether they are experiencing true social enjoyment and rewards, or simply relief at having avoided social threat or preventing a worse outcome.

Results also suggest that cognitive appraisals of the overall scenario after receiving compassionate feedback, particularly negative beliefs about the self and appraisals of social cost,

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are moderated by both trait fears of receiving compassion and trait social anxiety symptoms. In particular, within the rejection condition, ratings of negative self-schema and social cost remain high regardless of trait fears of receiving compassion. One possibility is that trait social anxiety is the primary driver of cost estimates and beliefs about the self (e.g., Hofmann, 2007), while trait fears of receiving compassion have a greater impact on how compassion is emotionally processed in the moment in a way that is not necessarily mutually exclusive (Gilbert et al., 2008).

Limitations

Although this study sought to address shortcomings of past research from our lab, it is not without limitations. First, while the social scenario vignettes were validated on a large, independent sample representative of the final study sample, the nature of the study design limits ecological validity. The study was only able to assess responses to imagined compassionate feedback rather than actual compassionate displays from others in in-person interactions, and participants' ability to imagine the scenarios in the vignettes may have varied based on traits such as theory of mind and imagery skills. Future studies should examine in-person compassionate interactions either in a lab-based setting or via monitoring of naturalistic interactions.

Next, participants were not asked post-scenario what they anticipated the other character's feedback would be like before being asked to imagine receiving the feedback; therefore, it is difficult to determine whether the feedback differed from expectations and the level of surprised or relief involved. On the other hand, one concern was that directly assessing feedback expectations would lead to demand characteristics that would then influence participants' reactions to imagining the compassionate feedback. Relatedly, a recent systematic

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review of self-report measures of shame noted that many, if not all, current measures of shame require additional research to meet criteria for recommended use, including more strongly establishing reliability and validity and examining whether measures add incremental validity beyond other established measures of global negative self-concept (Lear et al., 2022). Future studies could include qualitative measures to more deeply understand participants' interpretations of the compassionate feedback.

Furthermore, the present study focused on responses to compassionate feedback in the face of either a social blunder or social rejection. This design allowed for comparisons of how compassion is received in response to situations that are generally perceived as more embarrassing (i.e., social blunder) relative to those that are typically experienced as more shameful (i.e., social rejection). However, because participants in both conditions (rejection and blunder) received compassionate feedback immediately following the initial scenario, the extent to which effects at Time 2 are attributable to the specific impact of compassion rather than other factors, such as the mere passage of time, needs to be interpreted with caution. Inclusion of a non-compassionate, control feedback condition (e.g., a neutral feedback condition) would strengthen the study and allow for more robust, definitive conclusions to be drawn about the impact of the active components of compassion in response to shame-based scenarios. Careful consideration should be given to the development and components of such a neutral feedback condition for both ecological and content validity. A useful starting point may be to compare the effects of the compassionate response to the mere passage of time. If employing a non-compassionate, control feedback condition, it may be more ecologically valid for someone to not notice a social blunder or intentionally choose not to comment on it, rather than provide a response that is not comforting or caring. Also, since neutral feedback may be inherently

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ambiguous in tone and intent, particularly in a vignette study design where participants cannot rely on tone of voice or facial expressions, close attention needs to be paid to what kind of response can adequately serve as a control condition against compassionate feedback. Future research should replicate and extend the present findings by including an ecologically valid and operationally rigorous control condition to fully disentangle the influence of compassion in response to a shame-based event.

Another limitation concerns the significant differences in valence ratings between conditions at baseline (Time 0), prior to the condition manipulation. It is unclear why participants assigned to the blunder condition had significantly more positive valence ratings relative to those in the rejection condition, when participants in the two conditions did not differ from one another along any other trait or baseline measures. Although this could be due to randomization imbalance, another plausible explanation is that because the valence rating is a single-item measure rated based on a pictogram, there could be lower reliability relative to a multi-scale measure, inflating the likelihood of spurious between-group differences at baseline. Future research should consider using multi-item scales or including multiple baseline assessments. Future studies could also increase sample sizes, particularly if following a similar between-subjects design, to reduce the likelihood of baseline imbalances across conditions.

Finally, this study was conducted on a sample of undergraduate participants across a range of social anxiety symptoms, and thus may not be generalizable to with a clinical sample of participants with SAD. Future studies should include participants with clinically significant social anxiety symptoms; furthermore, to investigate the impact of early shame-based experiences in relation to fears of receiving compassion, participants could be asked to report on these experiences to be included in analyses. Recruitment of an undergraduate sample also limits

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the generalizability of the findings to the broader adult population, as the characteristics of university students (e.g., age range, mental and physical health status, educational context, early life experiences, and sociodemographic variables) may constrain the extent to which the observed effects extend to more diverse community populations.

Clinical implications

This study carries clinical implications for the use of compassion in treatment. First, the findings suggest that compassion may not be universally therapeutic at the start of treatment. Whether compassionate responses are experienced as helpful appears to depend heavily on the client's prior interpersonal experiences and on how the compassionate display is interpreted in the moment. For clients with histories of neglect, criticism, or inconsistent caregiving, compassion may evoke discomfort, mistrust, or feelings of inadequacy rather than soothing, preventing them from fully experiencing the emotional benefits of compassion from others. Clinicians therefore need to assess clients' relational histories and beliefs about compassion, and to introduce compassionate interventions in a gradual, intentional, and individualized manner rather than assuming they will be inherently beneficial.

Second, the results highlight the value of distinguishing between positive affect and social safeness, as they may play distinct roles in anxiety reduction and learning during exposure. Positive affect may reflect momentary pleasure or relief, whereas social safeness involves a deeper sense of being accepted, protected, and non-threatened in a social context. Clinically, it may be useful to have clients rate their levels of perceived social safeness alongside anxiety and other emotional states during exposure exercises. This could help therapists better understand which emotional processes are facilitating or interfering with therapeutic change.

Third, the findings underscore the importance of examining feelings of relief during exposure and clarifying what is actually being learned. Relief may signal adaptive learning (e.g., “I can tolerate this situation and remain safe”), but it may also reflect non-therapeutic processes such as avoidance, reassurance-seeking, or the perceived removal of threat. Careful attention to the timing and meaning of relief responses can help clinicians determine whether exposure is promoting inhibitory learning or inadvertently reinforcing maladaptive beliefs.

Future directions

Although the present study was a first step towards a deeper understanding of how compassion is immediately received in the moment by socially anxious individuals, future research should prioritize examining these processes in in-person, naturalistic social interactions. Furthermore, the downstream effects and momentary behavioural consequences of fearing compassion from others need to be further clarified; for example, does receiving compassion lead to employment of self-concealing strategies such as safety behaviours, and if so, what are the immediate impacts of these behaviours on socializing? In Study 3, I aim to address these questions using an ecological momentary assessment (EMA) design to examine naturalistic social interactions over a 7-day period.

Study 3: Predictors and Impacts of Safety Behaviour Use in Naturalistic Social Interactions: An Ecological Momentary Assessment (EMA) Study

Background

Individuals with social anxiety disorder (SAD) fear exposing self-attributes they deem flawed and that would portray them in a negative light (i.e., fears of negative self-portrayal) due to worries about being judged and rejected (Moscovitch 2009; Moscovitch et al., 2013). As a result, socially anxious individuals attempt to conceal self-perceived flaws through the use of safety behaviours (Moscovitch & Huyder, 2011), enabling them to cautiously enter social situations without fully revealing their “flawed,” authentic selves.

Alongside fears of negative self-portrayal, fears of receiving compassion have been shown to be uniquely elevated in SAD compared to other anxiety disorders such as generalized anxiety disorder and obsessive-compulsive disorder (Merritt & Purdon, 2020). In Study 1 (Ho et al., 2021), which was conducted with a sample of community participants whose symptoms met criteria for a DSM-5 diagnosis of SAD, fears of receiving compassion uniquely predicted safety behaviour use over and above the effect of fears of negative self-portrayal. One possible explanation is that anxious individuals may misinterpret compassion as pity and subsequently employ safety behaviours to keep others at arm's length, perhaps to avoid the experience of pity and associated feelings of inferiority, while simultaneously working to conceal self-perceived flaws. This was further explored in Study 2, which investigated immediate emotional responses to, and cognitive appraisals of, compassion via validated written vignettes. Findings from Study 2 revealed that individuals high in trait fears of receiving compassion experienced greater changes in positive affect but lower increases in social safeness after imagining compassionate

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feedback, possibly reflecting temporary feelings of relief that the feedback could have been even worse but without genuinely alleviating distress and restoring safeness.

However, Study 1 was correlational and cross-sectional in design, and Study 2 employed imagined scenarios, limiting generalization of results to naturalistic, day-to-day social interactions of socially anxious individuals. Furthermore, Study 1 also only allowed for analysis of trait-level variables between persons, rather than accounting for within-person variation across time or across social interactions. Whether there exists a meaningful distinction between trait-level and momentary fears of receiving compassion, and whether these fears have distinct predictive effects on momentary safety behaviour use is unknown. Thus, continued investigation into the impact of fears of negative self-portrayal and fears of receiving compassion on safety behaviour use, particularly in naturalistic social interactions as they unfold in real life, can help clarify underlying mechanisms of safety behaviour use and, ultimately, inform clinical interventions.

Although safety behaviour use may be believed by users to provide them with effective concealment and protection, past studies have demonstrated the use of safety behaviours is associated with negative emotional consequences for socially anxious individuals. For example, in a behavioural study on a clinical sample of individuals with a principal diagnosis of SAD, Moscovitch et al. (2013) found that safety behaviour use during a laboratory speech task mediated the relationship between pre-speech fears of negative self-portrayal and heightened post-speech negative affect, suggesting that socially anxious individuals may be motivated to use safety behaviours despite their distressing impact.

Kashdan et al. (2011) theorized that safety behaviour use depletes self-regulatory resources needed for attending to positive aspects of social situations, which may lead not only to

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increases in negative affect but also to observed deficits in positive affective experiences within interpersonal contexts that provide opportunities for enhanced social reward. Supporting Kashdan's hypothesized outcomes, a 2-week EMA study found that individuals with SAD reported lower positive affect and greater negative affect across both social and nonsocial situations compared to healthy controls; however, these positive affect deficits were situational, as within-group analyses revealed that participants with SAD reported significantly greater positive affect when they were socializing compared to when they were alone (Goodman et al., 2021). Similarly, Barber and Moscovitch (2023) found that individuals with SAD and healthy control participants only differed on measures of positive affect when it was analyzed as discrete subfacets consisting of *relaxed*, (e.g., "peaceful," "calm"), *content* (e.g., "secure," "warm"), and *activated* (e.g., "energetic," "enthusiastic") positive affect (Gilbert et al., 2008), with participants in the SAD group reporting lower levels of relaxed and content positive affect than those in the healthy control group. However, in response to both social and nonsocial positive stimuli, both participants with SAD and healthy controls experienced similar increases in activated positive affect as well as total positive affect when it was measured as a unitary construct. These context- and measurement-specific results of positive affect reactivity across both studies suggest a more nuanced conclusion about positivity deficits than suggested by Kashdan et al. (2011).

Given these mixed findings about the nature of positivity deficits in SAD, further research is needed to determine the relations between social anxiety symptoms, safety behaviour use, and experiences of positive affect within various contexts. In particular, we need to clarify whether social anxiety may be associated with deficits in specific aspects or sub-facets of positivity (see Armstrong et al., 2021; Barber & Moscovitch, 2023; Gilbert et al., 2018), and

whether positivity deficits may emerge in certain types of contexts but not in others (Goodman et al., 2021).

Aims and hypotheses

The aims of the current study are (a) to investigate the relative strength of the associations between fears of negative self-portrayal and fears of receiving compassion, on one hand, and safety behaviour use, on the other, in daily interactions, and (b) to examine how safety behaviour use impacts social and affective outcomes. A longitudinal, ecological momentary assessment (EMA) framework was used to capture naturalistic social interactions in a sample of undergraduate participants across a range of social anxiety symptoms. Over the course of 7 days, participants were prompted 5 times per day at quasi-random intervals to complete various momentary measures pertaining to their experiences during their most recent social interaction that day, including momentary fears of negative self-portrayal, momentary fears of receiving compassion, and degree of momentary safety behaviour use, along with affective outcomes including momentary positive affect, momentary negative affect, and momentary social safeness.

All hypotheses were pre-registered on the Open Science Framework (<https://osf.io/k2nxt>). First, I hypothesized that fears of receiving compassion will uniquely contribute to safety behaviour use over and above fears of negative self-portrayal, particularly in individuals with high levels of trait social anxiety (Hypothesis 1). Next, given that trait-like and momentary fears of receiving compassion and negative self-portrayal have not previously been directly compared, I tentatively hypothesized that trait-like fears of negative self-portrayal and fears of receiving compassion would predict the majority of the unique variance in momentary safety behaviour use over and above both types of momentary fears; however, since it remains unknown whether fears of receiving compassion represents more of a stable or fluctuating

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characteristic, this hypothesis is exploratory in nature (Hypothesis 2). Finally, I hypothesized that momentary safety behaviour use would predict deficits in momentary positive affect, social safeness, enjoyment, and connectedness arising from naturalistic social interactions even after controlling for trait levels of social anxiety and, further, that individuals with high trait levels of social anxiety will experience even greater deficits in these areas compared to those with low trait levels of social anxiety (Hypothesis 3). This hypothesis differs slightly from the pre-registered version, which did not account for trait safety behaviour use. However, including trait safety behaviour use (alongside momentary safety behaviour use) is essential for disaggregating levels of effect. Specifically, its inclusion allows us to determine whether momentary deviations predict the outcome above and beyond the between-person (trait-level) association.

Methods

Participants

Sample characteristics are described in Table 9. Participants ($N = 215$) were undergraduate students recruited from the psychology research participant pool at the University of Waterloo in Ontario, Canada during the fall (September to December) of 2024. Two participants who had all baseline questionnaire data missing and eight participants who did not initiate any momentary prompts were excluded, leading to a final sample size of $N = 205$.

Table 9*Study 3 Sample Characteristics*

<i>N</i>	205
Gender	
Woman	144 (70.2%)
Man	41 (20.0%)
Nonbinary	6 (2.9%)
Transman, transwoman, or genderfluid	3 (1.5%)
Preferred not to answer or no response	11 (5.4%)
Race/ Ethnicity	
White/European	69 (33.7%)
South Asian	56 (27.3%)
East Asian	28 (13.7%)
Arab/West Asian/North African	9 (4.4%)
Black/Afro-Caribbean	6 (2.9%)
Southeast Asian	9 (4.4%)
Latin American	5 (2.4%)
Identified with more than one ethnicity	21 (10.2%)
Preferred not to answer or no response	2 (1.0%)
<i>M</i> _{age} (<i>SD</i>)	19.70 (1.69)

Procedures

Participants were recruited to participate in a study advertised as “Using a smartphone diary app to track daily social interactions of university students” so as not to reveal the full aims of the study. After providing informed consent, participants were instructed to download the *ESMira* app (Lewetz & Steiger, 2024) – a decentralized, open-source application designed by researchers for collecting experience sampling data for research purposes – onto their smartphones and were provided with a unique code to log-in to the study interface. Next, participants were directed to complete a baseline questionnaire comprised of a series of trait measures (described below). After completing trait measures, participants were provided with instructions for the EMA portion of the study and the opportunity to complete a practice prompt. Next, participants were prompted 5 times per day for 7 days at quasi-random intervals (randomly within every 2-hour interval) and in a signal-contingent manner to complete momentary measures. In each prompt, participants were asked whether they had engaged in a social interaction since the last prompt was received. Participants who answered “yes” were then directed to complete momentary measures about their most recent social interaction; those who answered “no” did not complete any further items and were led to the end of the prompt. At the end of 7 days, participants received instructions on how to delete the smartphone app and were also debriefed on the full aims of the study.

Participants received 1.5 course credit for their participation in the study. As incentive to respond to as many momentary prompts as possible, they were also guaranteed \$2/day valued in Amazon gift cards for completing at least 1 daily prompt and an additional \$0.50 for each subsequent daily prompt for up to a maximum of 5 prompts per day. Thus, in addition to course credit, participants were eligible to receive up to \$4.00 per day valued in Amazon gift cards

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(maximum of \$28.00 over the course of the 7-day study period). Those who completed 80% or more of prompts (28 out of 35 total prompts over the course of the 7 days) were further eligible to enter a draw for one grand prize of a \$100 Amazon gift card.

Measures

Baseline questionnaires

Trait social anxiety symptoms. The Social Phobia Inventory (SPIN; Connor et al., 2000) consists of 17 items assessing the degree of physiological arousal, avoidance, and fear experienced during social situations in the past week on a Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). Internal consistency was high in the present sample (Cronbach's $\alpha = .92$) with a mean of 31.41 ($SD = 13.76$), with a total score value of 39 and above representing a reliable clinical cutoff score (see Kudryk et al., 2024).

Trait fears of negative self-portrayal. The Negative Self-Portrayal Scale (NSPS; Moscovitch & Huyder, 2011) is a 27-item Likert-type scale that assesses the extent to which individuals fear that specific self-attributes they view as being deficient will be exposed to scrutiny and evaluation by critical others in social situations. Cronbach's α for the total score in the present sample was .96.

Trait fears of receiving compassion. Trait fears of receiving compassion from others was measured using the 13-item Fears of Compassion from Others (FOCS-R) subscale of the Fears of Compassion Scales (Gilbert et al., 2011). Cronbach's α in the present sample was .93.

Trait safety behaviour use. Trait safety behaviour use was measured using the 32-item Subtle Avoidance Frequency Examination (SAFE; Cuming et al., 2009), which lists common safety behaviours (e.g., “remained silent,” “rehearsed sentences in your mind”) along three

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nonorthogonal factors: inhibiting/restricting safety behaviours (11 items), active safety behaviours (15 items), and physical symptom management (6 items). The SAFE has previously been shown to exhibit strong internal consistency and construct validity, with an overall Cronbach's α of .91. Cronbach's α in the present sample was .96 for the complete scale.

Momentary questionnaires

As described in the Procedures section above, momentary questionnaires were only completed if participant responded “yes” to the initial prompt of whether they had any social interactions since receiving the last prompt.

Momentary fears of receiving compassion from others. Participants rated their agreement with the statements “I tried to keep my distance from others even when I knew they were kind” and “Feelings of kindness and care from others were somehow frightening” on a scale of 1 (*not at all fearful*) to 5 (*extremely fearful*). These items were adapted from the trait measure of fears of receiving compassion from others (Gilbert et al., 2011); specifically, from the items with the highest factor loadings in the original scale development. The number of items was limited to two to reduce participant burden over repeated measures. Given the multilevel nature of the momentary data (repeated measures within participants), both $RkRn$ (reliability of the mean of k items across n occasions, or between-person reliability) and the Rcn (reliability of a single composite at one occasion, or within-person reliability) are reported. Existing literature indicates that within-person reliability tends to be lower than between-person reliability due to greater fluctuations within an individual across multiple timepoints (for an overview of within-person reliability, see Nezlek, 2017). The measure showed excellent between-person reliability ($RkRn = .99$) and moderate to fair within-person reliability ($Rcn = .59$).

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Momentary fears of negative self-portrayal. The 27 items of the NSPS were displayed to participants as a checklist and they were asked to select self-aspects they were “concerned would become obvious to other people.” Participants were asked to select all aspects that applied, or to select “none” if none applied. Then, on a Likert scale ranging from 0 (*not at all concerned*) to 4 (*extremely concerned*), participants rated “how much [they] were concerned about being judged by others for the above aspects.” As the single Likert-scale item was used, no reliability value is reported.

Momentary safety behaviour use. Participants were displayed the 32 items of the Subtle Avoidance Frequency Examination (SAFE; Cuming et al., 2009), a measure that traditionally assesses frequency of safety behaviour use on a Likert scale for each item (e.g., “remained silent,” “rehearsed sentences in your mind”). In this momentary measure, items were adapted into a checklist and participants were told that “some people do the following things when they feel anxious in social situations.” They were then asked to select which of the behaviours they did in the most recent social interaction (as many as applicable), or to select “none” if none of the behaviours applied. Next, participants rated “how much they did these things during the social interaction” on a Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). As the single Likert-scale item was used, no reliability value is reported.

Momentary positive and negative affect. The 10-item International Positive and Negative Affect Short-Form (I-PANAS-SF; Thompson, 2007) was developed based on Watson and colleagues’ original 20-item Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), with 5 items assessing positive affect (“active,” “attentive,” “alert,” “determined,” “inspired”) and 5 items assessing negative affect (“hostile,” “ashamed,” “upset,” “afraid,” “nervous”). Due to human error during the smartphone app questionnaire programming process,

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the item “determined” from the positive affect subscale was hidden from all participants even when a social interaction was reported, and thus only 4 items comprised the subscale. Both subscales showed strong reliability at the between and within-person level (PA: $RkRn = .98$, $Rcn = .98$; NA: $RkRn = .95$, $Rcn = 1.00$).

Momentary social safeness. Momentary social safeness was assessed using the social safeness subscale of the Types of Positive Affect Scale (TPAS; Gilbert et al., 2008), which is comprised of 4 items where single adjectives are rated on a 5-point Likert scale (“safe”, “secure”, “warm”, “content”). This measure had strong reliability both between and within persons ($RkRn = .97$, $Rcn = .99$).

Momentary social reward. Momentary social reward was assessed using two Likert-scale items rating enjoyment of the social interaction (i.e., “How much did you enjoy the interaction?”) and level of social connectedness (i.e., “How connected did you feel to the other person/ people in the interaction?”) on a scale of 0 (*not at all*) to 4 (*extremely*). Between-person reliability was strong ($RkRn = .94$) and within-person reliability was fair ($Rcn = .64$).

Data analytic strategy

Missing data

All analyses were conducted in R version 4.4.0 (R Core Team, 2024). As mentioned above, the original sample size was $N = 215$. Two participants who had all baseline questionnaire data missing and eight participants who did not initiate any momentary prompts were excluded, leading to a final sample size of $N = 205$. Patterns of missing data for the baseline data and the momentary data were separately examined using the *nanian* package (Tierney & Cook, 2023). The baseline data had a total of 3.9% data missing across all variables. Apart from optional text-

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based demographic items (i.e., when participants were given an opportunity to self-identify on characteristics such as ethnicity and gender), no variable exceeded 6% missing. Given the categorical nature of some demographic items (dummy-coded items), a non-parametric MCAR test was conducted. The null hypothesis that the data were MCAR was accepted at the 0.05 significance level ($p = .080$).

For the momentary data for prompts where a social interaction was endorsed, there was a total of 3.8% data missing across all momentary variables. For variables used in the primary analyses, no variable exceeded 4% data missing. Given the categorical nature of the checklist items for momentary fears of negative self-portrayal and momentary safety behaviour use, a non-parametric MCAR test was conducted. The null hypothesis of MCAR was rejected at the 0.05 significance level ($p = .011$), indicating that missing data may not have been MCAR, potentially attributable to the item “determined” from the positive affect subscale not being displayed to participants in the survey, which may impact reliability of the measure of momentary positive affect.

MCAR data were imputed using random forest imputation with the *missForest* package (Stekhoven, 2022). Random forest imputation was used because it does not assume normality or require specification of parametric models (see Hong & Lynn, 2020).

Primary analyses

Primary analyses used linear mixed effects models (LMEM) conducted with the *lme4* package (Bates et al., 2015). Trait independent variables were grand-mean-centered and momentary independent variables were within-person-centered. Dependent variables were treated as raw, uncentered outcomes. The data follow a nested, three-level structure, with

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prompts nested within days nested within individuals. However, the variability attributable to days was negligible ($ICC < .05$); therefore, two-level models were fitted, with prompts (Level 1) nested within individuals (Level 2). To test the first hypothesis that fears of receiving compassion would uniquely contribute to safety behaviour use over and above fears of negative self-portrayal, the first set of LMEMs was fitted to examine the main effects of fears of trait/momentary negative self-portrayal, trait/momentary fears of receiving compassion, and trait social anxiety on safety behaviour use. This set of LMEMs was also used to test the second hypothesis that trait fears would contribute greater unique variance in safety behaviour use than momentary fears. To test the final hypothesis that trait levels of both types of fears would predict the majority of unique variance in safety behaviour use, a second set of LMEMs was fitted to analyze the main effects of momentary safety behaviour use on affective outcomes (i.e., positive affect, negative affect, social safeness, and social reward). In the LMEMs conducted, regression coefficients for trait variables represent between-person effects. Regression coefficients for momentary variables represent average within-person effects; in other words, the effect represents the difference in the dependent variable for every 1-unit increase in the momentary independent variable (representing 1 unit above a participant's within-person average) within a given prompt.

Results

Study compliance and rates of social interaction

Participants were prompted 5 times per day over 7 days, allowing 35 opportunities to complete prompts. The mean compliance rate across participants was 65.71%, indicating that an average of 22 to 23 prompts were completed out of 35 opportunities. A total of 4715 prompts were responded to by the sample over the study period. Of these, 2748 were recorded as social

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interactions used in the final analyses, meaning that on average, each participant recorded 13.40 social interactions. Of the prompts each participant completed, a mean of 62.15% were recorded as social interactions. Prompts where participants responded “no” to experiencing a social interaction since the last prompt were not included in the analyses and were not considered to be missing entries.

Descriptive statistics and zero-order correlations

Descriptive statistics for trait variables are provided in Table 10, while descriptive statistics for state variables (both across all timepoints and pooled within-persons) are provided in Table 11. Trait and momentary bivariate correlations are provided in Tables 12 and 13, respectively.

Table 10*Study 3 Descriptive Statistics for Trait Variables*

	Mean	SD	Median	Minimum	Maximum	Scale Range
SPIN	31.41	13.76	30.5	0	65	0 - 68
NSPS	40.98	25.61	39.5	0	107	0 - 108
FOC-R	18.45	11.98	17	0	52	0 - 52
SAFE	46.58	27.22	45	0	126	0 - 128

Note: SPIN = Social Phobia Inventory; NSPS = Negative Self-Portrayal Scale; FOC-R = Fears of Receiving Compassion Scale – Receiving subscale; SAFE = Subtle Avoidance Frequency Examination.

Table 11*Study 3 Descriptive Statistics for Momentary Variables*

	Grand mean	SD of grand mean	Mean of within-person means	SD (within-person mean)	Pooled within-person SD	Range of possible scores
NSPS concern	0.65	0.96	0.76	0.69	0.42	0 – 4
FOC-R	0.66	1.37	0.88	1.18	0.77	0 – 8
SB degree	0.62	0.98	0.73	0.77	0.45	0 – 4
Positive affect	6.56	3.58	6.56	2.48	1.07	0 – 16
Negative affect	1.94	3.14	2.44	2.70	1.62	0 – 20
Social safeness	10.01	4.07	9.78	2.63	1.34	0 – 20
Social reward	4.30	2.30	4.20	1.34	0.74	0 – 8

Note: NSPS concern = Momentary degree of fears of negative self-portrayal; FOC-R = Momentary fears of receiving compassion; SB degree = Degree of momentary safety behaviour use.

Table 12*Study 3 Bivariate correlations for Trait Variables*

	Trait SPIN	Trait NSPS	Trait FOC-R	Trait SAFE
Trait SPIN	--			
Trait NSPS	0.74*	--		
Trait FOC-R	0.64*	0.66*	--	
Trait SAFE	0.72*	0.78*	0.72*	--

Note: * $p < .001$, SPIN = Social Phobia Inventory, NSPS = Negative Self-Portrayal Scale, FOC-R = Fears of Receiving Compassion Scale – Receiving subscale, SAFE = Subtle Avoidance Frequency Examination.

Table 13*Study 3 Bivariate Correlations for Momentary Variables*

	1	2	3	4	5	6	7
1. NSPS concern	--	.64***	.35***	.12***	.49***	-.34***	-.32***
2. SB degree	.83***	--	.37***	.03*	.50***	-.38***	-.35***
3. FOC-R	.54***	.57***	--	-.06**	.40***	-.33***	-.28***
4. Positive affect	.07	.06	.15*	--	.06**	.28***	.26***
5. Negative affect	.69***	.63***	.67***	.25***	--	-.46***	-.40***
6. Social safeness	-.22**	-.27***	-.22***	.52***	-.20***	--	.70***
7. Social reward	-.30***	-.30***	-.28***	.28***	-.29***	.69***	--

Note: Within-person correlations are above the diagonal, between-person correlations are below the diagonal. * $p < .05$, ** $p < .01$, *** $p < .001$. NSPS concern = Momentary fears of negative self-portrayal; SB degree = Momentary degree of safety behaviour use, FOC-R = Momentary fears of receiving compassion.

Primary Analyses

Hypothesis 1: Fears of negative self-portrayal and fears of receiving compassion predicting momentary safety behaviour use

To test the hypothesis that momentary and trait fears of receiving compassion uniquely contribute to momentary safety behaviour use over and above fears of negative self-portrayal, a series of nested linear mixed effects models (LMEMs) was fitted with safety behaviour use as the outcome variable. First, a null model with a random intercept for participant and no fixed effects was fitted. Second, trait social anxiety was included in the model as a covariate. Third, grand-mean-centered trait fears of negative self-portrayal and trait fears of receiving compassion were included as between-person fixed effects. Fourth, within-person-centered momentary fears of negative self-portrayal and momentary fears of receiving compassion were included as within-person fixed effects, along with inclusion of random slopes for momentary variables and their interaction. Finally, all possible two-way interactions between trait and momentary predictors (including all possible two-way cross-level interactions) were included, along with random slopes for lower-level, momentary variables (Heisig & Schaeffer, 2019). Nested model comparison was conducted using deviance tests to determine whether the addition of predictors significantly improved model fit. Non-significant two-way interactions removed from the model and the best-fitting model according to the deviance test was retained (Snijders & Bosker, 2012).

See Table 14 for regression results. Variance partitioning indicated that safety behaviour use varies between and within individuals. The intraclass correlation (ICC) from the null model (i.e., the random intercept model) indicated that 37% of the variance in safety behaviour use was due to individual differences. Including trait social anxiety in the model significantly improved model fit, $\chi^2(1) = 33.47, p < .001$. Further including trait fears of negative self-portrayal and trait

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fears of receiving compassion also significantly improved model fit, $\chi^2(2) = 15.16, p < .001$, as did including fixed effects for momentary levels of both types of fears and their random slopes, $\chi^2(7) = 1595.08, p < .001$. Next, adding all possible two-way interactions, including cross-level interactions, did not significantly improve model fit, $\chi^2(3) = 4.31, p = .240$. After non-significant two-way interactions were removed, the model fit improved significantly, $\chi^2(5) = 20.83, p < .001$. The final model retained included fixed effects of trait social anxiety, trait fears of negative self-portrayal, trait fears of receiving compassion, momentary fears of negative self-portrayal, momentary fears of receiving compassion, and the two-way same-level interaction between trait fears of negative self-portrayal and trait fears of receiving compassion.

Trait fears of negative self-portrayal and trait fears of receiving compassion each significantly predicted increased safety behaviour use, as well as momentary levels of both types of fears (see Table 14). The two-way, same-level interaction between trait fears of negative self-portrayal and trait fears of receiving compassion was significant (see Figure 15). Probing of simple slopes revealed that at high levels (+1SD) of trait fears of receiving compassion, trait fears of negative self-portrayal did not significantly predict safety behaviour use ($B = 0.004, SE = 0.003, 95\% CI = -0.002 - 0.009, t(210) = 1.35, p = .169$). Meanwhile, at low (-1SD) trait fears of receiving compassion, trait fears of negative self-portrayal predicted increased safety behaviour use ($B = 0.01, SE = 0.003, 95\% CI = 0.003 - 0.017, t(207) = 3.09, p = .002$). Johnson-Neyman testing (see Figure 16) showed that the positive simple slope for fears of negative self-portrayal is significant when trait fears of receiving compassion are in the lower 62% of values. This suggests that when trait fears of receiving compassion are high, safety behaviour use also remains high regardless of trait levels of negative self-portrayal concerns. On the other hand,

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when trait fears of receiving compassion are lower (i.e., in the lower 62% of values), increased safety behaviour use is driven by greater levels of trait fears of negative self-portrayal.

Figure 15

Two-Way Interaction Between Trait Fears of Negative Self-Portrayal and Trait Fears of Receiving Compassion in Predicting Safety Behaviour Use

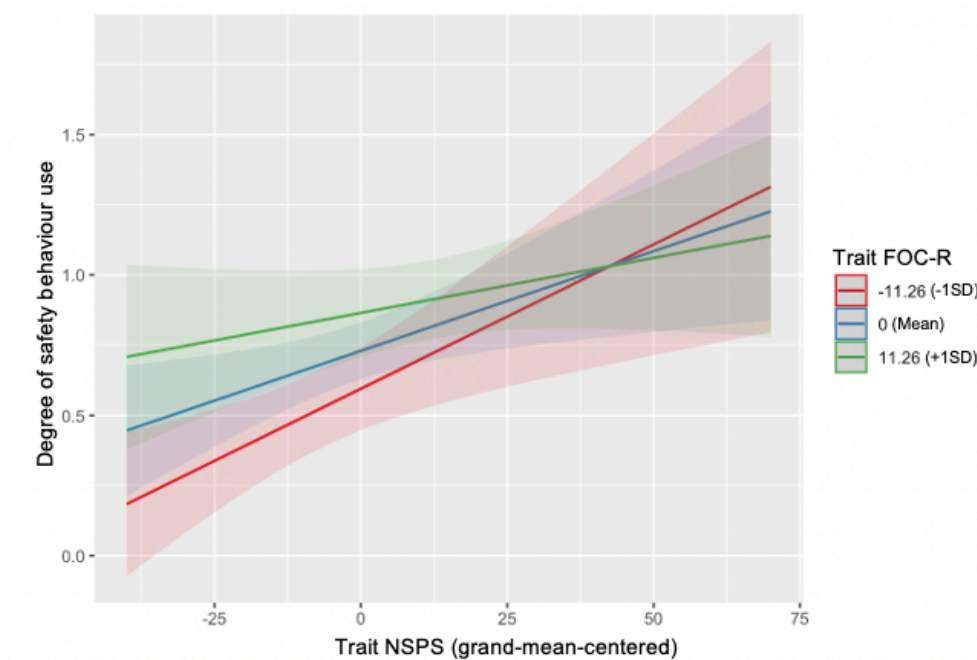


Figure 16

Johnson-Neyman Plot of Simple Slope of Trait Fears of Negative Self-Portrayal at Varying Levels of Trait Fears of Receiving Compassion Predicting Safety Behaviour Use

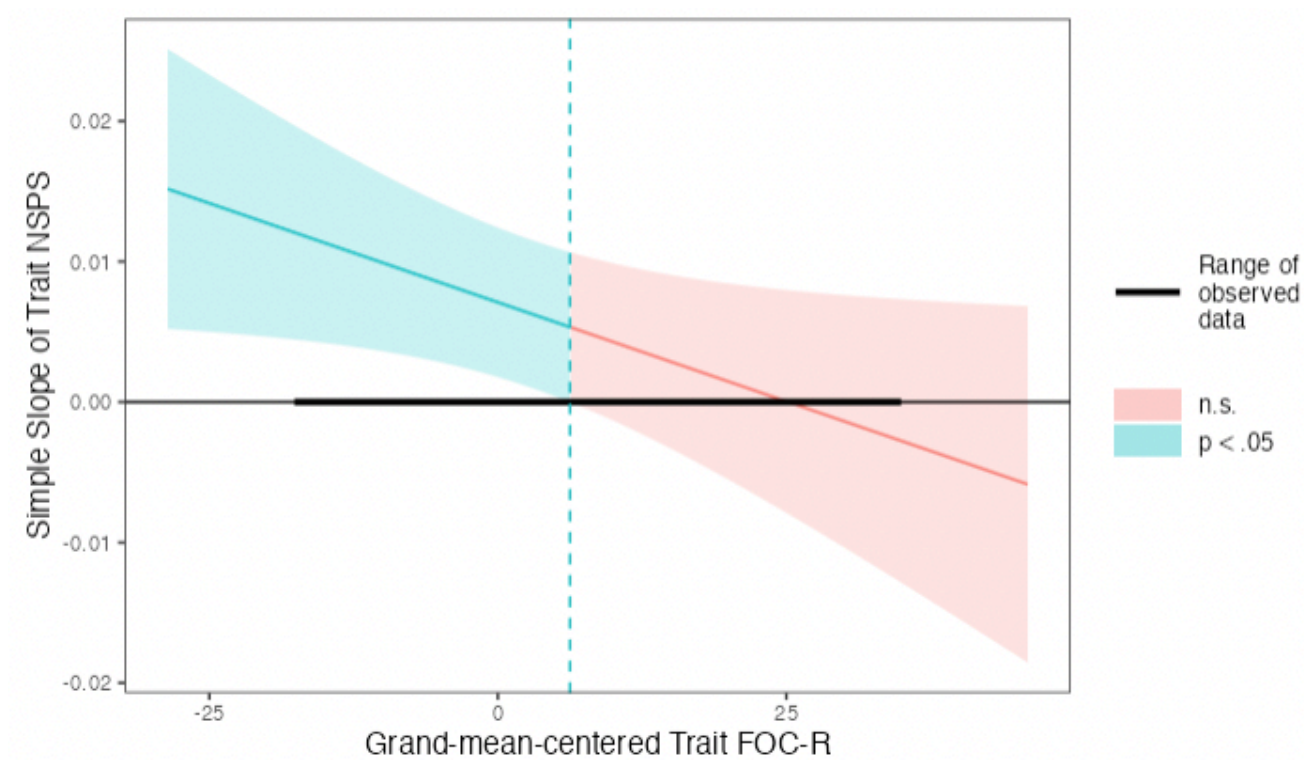


Table 14*LMEM For Fears of Negative Self-Portrayal and Fears of Receiving Compassion**Predicting Safety Behaviour Use*

Predictors	<i>B</i>	95%CI	β	Std. 95%CI	<i>p</i>
(Intercept)	0.73	[0.63 – 0.83]	0.11	[0.01 – 0.22]	<.001
Trait SPIN	0.00	[-0.00 – 0.01]	0.07	[-0.07 – 0.20]	.327
Trait NSP	0.01	[0.00 – 0.01]	0.18	[0.05 – 0.31]	.009
Trait FOC-R	0.01	[0.00 – 0.02]	0.14	[0.02 – 0.25]	.020
Momentary NSP	0.54	[0.49 – 0.59]	0.44	[0.39 – 0.48]	<.001
Momentary FOC-R	0.16	[0.11 – 0.20]	0.16	[0.12 – 0.20]	<.001
Trait NSP x Trait FOC-R	-0.00	[-0.00 – -0.00]	-0.08	[-0.16 – -0.00]	.039
Random Effects					
σ^2	0.31				
τ_{00} Participant	0.36				
τ_{11} Participant.MomentaryNSPS	0.06				
τ_{11} Participant.MomentaryFOC-R	0.04				
τ_{11} Participant.MomentaryNSPxMomentaryFOC-R	0.02				
ρ Intercept.MomentaryNSP	0.31				
ρ Intercept.MomentaryFOC-R	-0.08				
ρ Intercept.MomentaryNSPxMomentaryFOC-R	-0.08				
Conditional ICC	0.58				
N_{id}	205				
Observations	2748				
Marginal R^2 / Conditional R^2	0.328 / 0.717				

Note: SPIN = Social Phobia Inventory, NSP = Negative Self-Portrayal, FOC-R = Fears of Compassion – Receiving. σ^2 = Residual variance; τ_{00} Participant = Random intercept variance; τ_{11} Participant.MomentaryNSPS = Random slope variance for momentary NSP; τ_{11} Participant.MomentaryFOC-R = Random slope variance for momentary FOC-R; τ_{11} Participant.MomentaryNSPSxMomentaryFOC-R = Random slope variance for momentary NSP x momentary FOC-R interaction; ρ = Correlation/ standardized covariance.

Hypothesis 2: Comparing effects of momentary and trait levels of both fears on momentary safety behaviour use

To test the second hypothesis that trait levels of both types of fears would predict the majority of unique variance in safety behaviour use over and above momentary fears, variance from the previous model was decomposed into differences within-persons (R^2_{within}) and differences between-persons (R^2_{between}) and examined separately. Since these variance components are calculated from separate pools of variability, the proportion of variance explained within individuals (at Level 1) and between individuals (at Level 2) cannot be directly compared, nor can the standardized effect sizes. Furthermore, these values are distinct from marginal R^2 and conditional R^2 reported in the model, which pool variance across levels and represent R^2 attributable to fixed effects and random effects, respectively.

R^2_{within} and R^2_{between} were computed from the model's variance components by comparing residual within-person (σ^2) and between-person (τ^2) variance in the null model (i.e., model with random intercept for participants and no predictors) to the full model (see Table 14 for regression results from full model). Within-person predictors (i.e., momentary variables) accounted for 53% ($R^2_{\text{within}} = 0.53$) of the variance in prompt-to-prompt fluctuations. Meanwhile, between-person predictors explained negligible variance across participants ($R^2_{\text{between}} = 0.00$), indicating that, although trait-level predictors were statistically significant, the total between-person variability in momentary safety behaviour use was small, so these predictors accounted for little residual variance at the participant level.

Hypothesis 3: Momentary safety behaviour use predicting momentary affective outcomes

In separate models, trait and momentary safety behaviour use, along with their cross-level interaction, were used to predict positive affect, negative affect, social safeness, and social reward. Trait social anxiety was also included in each model as a Level 2 predictor. For each dependent variable, a series of nested LMEMs was fitted. First, a null model was fitted. Next, grand-mean-centered trait social anxiety was entered as a Level 2 predictor, followed by grand-mean-centered trait safety behaviour use (as measured by the SAFE scale). Afterwards, within-person-centered momentary safety behaviour use, along with the random slope for momentary safety behaviour use, were included. Finally, the cross-level interaction between trait and momentary safety behaviour use was included in the model. Nested model comparison was conducted using deviance tests to determine whether the addition of predictors significantly improved model fit. Non-significant interaction terms were removed and the best-fitting model according to the deviance test was retained (Snijders & Bosker, 2012).

Positive affect. The intraclass correlation (ICC) from the null model (i.e., the random intercept model) indicated that 42% of the variance in momentary positive affect was due to individual differences. Including trait social anxiety in the model did not significantly improve model fit, $\chi^2(1) = 0.39, p = .534$. Next, the fixed effects of trait safety behaviour use and momentary safety behaviour use were included, as well as the random slope of momentary safety behaviour use. The deviance test indicated that this model significantly improved model fit, $\chi^2(4) = 25.15, p < .001$. Including the cross-level interaction between trait and momentary safety behaviour use did not significantly improve model fit, $\chi^2(1) = 0.32, p = .573$, and thus was not retained in the model.

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See Table 15 for regression results. Trait social anxiety, trait safety behaviour use, and momentary safety behaviour use each did not significantly predict positive affect.

Negative affect. The intraclass correlation (ICC) from the null model indicated that 41% of the variance in momentary negative affect was due to individual differences. Including trait social anxiety in the model significantly improved model fit, $\chi^2(1) = 35.82$, $p < .001$, as did subsequently including trait safety behaviour use, $\chi^2(1) = 9.61$, $p < .001$. Further including momentary safety behaviour use and the corresponding random slope significantly improved model fit, $\chi^2(3) = 819.27$, $p < .001$, but including the two-way, cross-level interaction between trait and momentary safety behaviour use did not, $\chi^2(1) = 1.03$, $p = .309$. Therefore, the cross-level interaction was not retained. See Table 15 for regression results. In the retained model, trait social anxiety and trait safety behaviour use each significantly predicted increased negative affect when socializing. Additionally, momentary safety behaviour use also significantly increased negative affect when socializing.

Social safeness. The intraclass correlation (ICC) from the null model indicated that 32% of the variance in momentary social safeness was due to individual differences. Similar to the models predicting negative affect, the deviance test indicated that the model with fixed main effects for trait social anxiety and trait safety behaviour use, along with the fixed main effect of momentary safety behaviour use and its random slope, was the best fit, $\chi^2(3) = 441.24$, $p < .001$. Including the cross-level interaction between trait and momentary safety behaviour use did not significantly improve model fit. See Table 15 for regression results. In the retained model, trait social anxiety and trait safety behaviour use did not significantly predict feelings of social safeness when socializing. However, momentary safety behaviour use significantly predicted decreased feelings of social safeness when socializing.

Social reward (i.e., social enjoyment and connection). The intraclass correlation (ICC) from the null model indicated that 19% of the variance in momentary social reward was due to individual differences. The deviance test indicated that the model with the fixed effects of trait social anxiety and trait safety behaviour use, along with momentary safety behaviour use and its random slope, was the best fit, $\chi^2(3) = 372.58, p < .001$. Including the cross-level interaction between trait and momentary safety behaviour use did not significantly improve the model fit, and thus was not retained in the model. See Table 15 for regression results. Trait social anxiety and trait safety behaviour use did not significantly predict social reward. However, momentary safety behaviour use significantly predicted decreased feelings of social reward when socializing.

Table 15

LMEMs for Trait Social Anxiety, Trait Safety Behaviour Use, and Momentary Safety Behaviour Use Predicting Positive Affect, Negative Affect, Social Safeness, and Social Reward.

	Positive affect			Negative affect			Social safeness			Social reward		
Predictors	B	95%CI	p	B	95%CI	p	B	95%CI	p	B	95%CI	p
(Intercept)	6.52	[6.18–6.85]	<.001	2.25	[1.96-2.55]	<.001	9.84	[9.49-10.18]	<.001	4.26	[4.10-4.43]	<.001
Trait SPIN	-0.01	[-0.05-0.02]	.464	0.04	[0.01-0.07]	.018	-0.03	[-0.07-0.00]	.068	0.01	[-0.01-0.02]	.545
Trait SB	0.01	[-0.01-0.02]	.563	0.02	[0.01-0.04]	.002	0.00	[-0.01-0.02]	.671	-0.01	[-0.01-0.00]	.179
Momentary SB	0.12	[-0.03-0.28]	.122	1.52	[1.33-1.71]	<.001	-1.55	[-1.77 - -1.33]	<.001	-0.91	[-1.04 - -0.79]	<.001
Trait SB x Mom. SB												
Random Effects												
σ^2	6.96			4.50			9.10			3.64		
τ_{00} Participant	5.15			4.00			5.29			1.05		
τ_{11} Participant.momSB	0.26			0.83			0.81			0.25		
ρ_{01} Participant	-0.55			0.33			-0.35			-0.60		
Conditional ICC	0.43			0.50			0.39			0.25		
N Participant	205			205			205			205		
Observations	2748			2748			2748			2748		
Marginal R ² / Conditional R ²	0.002/0.434			0.212/0.607			0.098/0.449			0.098/0.322		

Note: In models where further inclusion of the cross-level interaction between trait and momentary safety behaviour use did not significantly improve model fit, the interaction has been omitted. SPIN = Social Phobia Inventory; SB = Degree of safety behaviour use. σ^2 = Residual variance; τ_{00} Participant = Random intercept variance; τ_{11} Participant.momSB = Random slope variance for momentary SB use; ρ = Correlation/ standardized covariance.

Discussion

By extending Studies 1 and 2 to examine the daily, naturalistic social interactions of socially anxious individuals via multiple momentary prompts per day, results of the present study advance our understanding of how fears of negative self-portrayal and fears of receiving compassion contribute to momentary safety behaviour use, as well as how momentary safety behaviour use influences various socio-affective outcomes, such as positive and negative affect, social safeness, and social reward.

The first hypothesis was partially supported in that trait and momentary fears of negative self-portrayal, as well as trait and momentary fears of receiving compassion, all contributed to safety behaviour use across levels of trait social anxiety, uniquely and in interaction. The association between trait fears of negative self-portrayal and safety behaviour use was moderated by trait fears of receiving compassion; however, there were no significant cross-level interactions between trait fears and momentary fears, nor was there any significant two-way interaction between momentary fears. Probing the significant two-way interaction between trait fears of negative self-portrayal and trait fears of receiving compassion revealed that trait fears of negative self-portrayal predict increased momentary safety behaviour use when socializing, particularly when trait fears of receiving compassion are lower. When both trait fears were high, momentary safety behaviour use remained consistently high. Thus, trait fears of negative self-portrayal may be the main driver behind momentary safety behaviour use unless heightened fears of receiving compassion are also present.

Furthermore, in partial support of the second hypothesis, fears of negative self-portrayal and fears of receiving compassion predicted momentary safety behaviour use differently in their trait (between-person) and momentary (within-person) forms: at the within-person level,

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momentary fears of negative self-portrayal and momentary fears of receiving compassion explained 53% of variance in prompt-to-prompt fluctuations of safety behaviour use. Meanwhile, between-person predictors explained negligible variance across participants. This may reflect that between-person differences in momentary safety behaviour use were relatively small compared to within-person fluctuations across different instances of socializing. Additionally, the inclusion of random slopes in the model may have redistributed between-person variance into slope heterogeneity rather than intercept variance. While these variance components could not be directly compared due to representing separate pools of variability, these findings suggest that fluctuations in momentary safety behaviour use primarily occurs within-person (i.e., state-driven), rather than between-persons (i.e., trait driven). The implications of this difference will be further discussed below.

The final set of hypotheses regarding the impact of momentary safety behaviour use on socio-affective outcomes when socializing was largely supported, except for the hypothesis that momentary safety behaviour use would predict momentary positive affect. Rather, trait social anxiety, along with trait and momentary safety behaviour use each had no significant main effect on momentary positive affect, and including the cross-level interaction between trait and momentary safety behaviour use did not significantly improve model fit. Meanwhile, consistent with hypotheses, momentary safety behaviour use significantly predicted heightened negative affect and lowered social safeness and social reward; of note, these outcomes were not predicted by trait social anxiety or trait safety behaviour use.

Importantly, these results build upon those of Study 1 and continue to build upon my proposed model of fears of receiving compassion as an insidious maintenance factor in social anxiety. First, they replicate the findings that fears of negative self-portrayal and fears of

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receiving compassion each contribute to unique variance in safety behaviour use after accounting for trait social anxiety symptoms, further underscoring fears of receiving compassion as a significant factor underlying the maintenance of social anxiety and future target for clinical intervention alongside fears of negative self-portrayal. Second, these results extend those of Study 1 by differentiating associations of trait versus momentary fears, as described below.

Unlike in Study 1, the present study revealed an interaction between trait levels of both types of fears, revealing that at high levels of trait fears of receiving compassion, trait fears of negative self-portrayal did not significantly predict momentary safety behaviour use, while at low trait fears of receiving compassion, trait fears of negative self-portrayal positively predicted momentary safety behaviour use. This suggests that people who tend to be high on trait fears of receiving compassion are more likely to use more safety behaviours in social situations regardless of their level of concern about negative self-portrayal. One possibility for this difference in interaction between Studies 1 and 3 is that Study 1 was conducted with a sample of participants with clinically significant levels of social anxiety who overall had higher levels of trait fears of negative self-portrayal, while Study 3 was conducted with a sample of undergraduate participants across a range of social anxiety symptoms.

These results also build upon findings from Study 2 showing that positive affect (specifically, *activated* positive affect) and social safeness are differentially impacted. Study 2 demonstrated the differential effects of fears of receiving compassion on activated positive affect versus social safeness upon imagining a compassionate response after an imagined socially distressing event; the present study extends these conclusions by demonstrating that safety behaviour use in the moment of a social interaction does not influence activated positive affect,

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but significantly lowers feelings of social safeness, further suggesting that positivity needs to be distinguished by its subfacets.

The study design also permitted us to compare the effects of trait and momentary fears in predicting safety behaviour use. While I tentatively hypothesized that trait levels of both types of fears would predict the majority of unique variance in momentary safety behaviour use over and above momentary fears, results demonstrated that both trait and momentary fears of both negative self-portrayal and receiving compassion significantly contributed to momentary safety behaviour use. Furthermore, the cross-level interactions between trait and state fears were not significant, suggesting that, regardless of trait levels of both fears, participants react similarly to fluctuations in state fears. When decomposing the variance components by level, within-person predictors accounted for 53% of variance between prompts. Meanwhile, between-person predictors explained negligible variance in safety behaviour use across participants, though remained significant. Safety behaviour use when socializing appears to be strongly driven by momentary fears of negative self-portrayal and momentary fears of receiving compassion. In other words, the immediate concerns a person has about revealing self-perceived flaws in the moment of an anxiety-provoking social interaction contributes to greater variability in safety behaviour use than the general perceived concern about revealing such flaws when asked to reflect on typical reactions in social situations. Similarly, immediate feelings of compassion and warmth from others as being unfamiliar and threatening when socializing contributes to greater variability in safety behaviour use than overall attitudes towards compassion from others. Pinpointing the contextual details of a social interaction (e.g., type of social setting, closeness and familiarity with other people in the interaction) could help determine when the prospect of exposing certain self-perceived flaws becomes particularly salient and driving safety behaviour

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use more strongly, as well as whether particular self-portrayal concerns about specific self-perceived flaws tend to drive the use of specific safety behaviours more strongly than others.

Consistent with past research on the role of safety behaviours in predicting distress and negative affect (i.e., Moscovitch et al., 2013) and in line with hypotheses, momentary safety behaviour use predicted heightened negative affect when socializing. This finding lends further support to the view presented by Moscovitch and colleagues (2013) that although safety behaviours may appear to offer temporary relief from anxiety, individuals employ them—despite the negative affect and distress doing so causes—perhaps to address fears of negative self-portrayal by concealing self-perceived flaws, or to mitigate fears of receiving compassion by keeping others at arm's length to prevent the feared consequence of what would be perceived as pity or undeserved social support. However, the *actual* consequence of safety behaviour use may be increased negative emotions. Indeed, Meyer et al. (2019) found that individuals are more likely to use safety behaviours when endorsing certain positive beliefs about their use. For example, the belief that safety behaviours improve distress tolerance and social functioning whilst reducing the likelihood of catastrophic social outcomes may help individuals justify their use of safety behaviours despite the subsequent negative affect they experience as a result of their use.

Surprisingly, however, increased momentary safety behaviour use did not predict reduced positive affect, in contrast to my hypothesis, which was based on Kashdan et al.'s (2011) self-regulatory model linking safety behaviour use to deficits in positive affect. However, use of momentary safety behaviours did predict reductions in other measures of positivity. First, momentary safety behaviour use predicted decreased ratings of social reward, which in the present study was operationalized as the degree to which an individual enjoyed and felt socially

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connected during a social interaction. This result draws from repeated measures of naturalistic, organic social interactions to extend previous literature demonstrating hedonic deficits in social anxiety (e.g., Kashdan & Farmer, 2004) and specifically links safety behaviour use to these deficits, as theorized by Kashdan et al. (2011). It also illuminates use of safety behaviours as a potential mechanism underlying deficits in reward consumption and responsiveness, as noted extensively by Craske and colleagues (e.g., Craske et al., 2019) and others (for a review, see Craske et al., 2024) in samples of individuals with depression, trauma, and anxiety disorders, including SAD.

Consistent with hypotheses, momentary safety behaviour use also predicted decreased momentary social safeness, including after accounting for trait safety behaviour use. According to Gilbert and colleagues' (2008) tripartite model of affect, the social safeness system is conceptualized as distinct from both positive and negative affect systems and derives feelings of peace and safety from affiliative and attachment processes (see also Armstrong et al., 2021). Our findings suggest that although socially anxious individuals may employ safety behaviours with the motivation to alleviate fears of negative self-portrayal (via self-concealment) or alleviate fears of receiving compassion (via preventing instances of warmth and support from others), doing so appears to result in lowered feelings of contentment, warmth, and security in the moment of socializing. This is an important and novel finding because research on positivity deficits in social anxiety has focused almost exclusively on hedonic deficits (i.e., Kashdan and Farmer, 2004) or on positivity as conceptualized by Tellegen, Watson, and Clark's (1999) positive/ negative affect model and other similar two-dimensional models of affect, which do not consider different subfacets of positive affect (i.e., *activated* vs. *relaxed* vs. *content* positive affect) that have been shown to be discrete and show distinct patterns between individuals with

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SAD and healthy controls (Barber & Moscovitch, 2023). Taken together with the finding that momentary safety behaviour use did not have a significant main effect on positive affect (in this study, closely mapping on to *activated* positive affect), social safeness may be emerging as a previously overlooked outcome negatively impacted by safety behaviour use, even if safety behaviours allow for tentative approach of social situations in the face of anxiety. Although some researchers have suggested that judicious use of safety behaviours may serve as a helpful first step for socially anxious patients to approach feared situations and to reduce treatment dropout (e.g., Milosevic and Radomsky, 2013; Rachman et al., 2007; Tutino et al., 2020), these findings suggest that judicious use of safety behaviours in certain social contexts may be more detrimental than expected for therapeutic gains by eroding feelings of social safeness. These findings also highlight decreased social safeness as yet another actual consequence of employing safety behaviours (in addition to increased negative affect) when socially anxious individuals attempt to prevent feared consequences that include being pitied by others.

Limitations

Although this study has many strengths, including replication and extension of Studies 1 and 2 using an ecological momentary assessment design to account for within- and between-person variation over time and to examine naturalistic daily social interactions, it is not without limitations. First, although results support the hypotheses that fears of negative self-portrayal and of receiving compassion each contribute to momentary safety behaviour use, which in turn contribute to key changes in socio-affective outcomes within each daily event, the models focused on concurrent effects and did not account for individual trajectories of constructs over time, lagged effects (i.e., how safety behaviour use at one prompt may influence socio-affective outcomes at the next prompt), or even mediational effects, which would more clearly establish

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directionality of effects as well as causal relationships between sequential cycles in activated fears, degree of safety behaviour use, and socio-affective outcomes. Such analyses would be best handled by a SEM framework such as Dynamic SEM (DSEM; Asparouhov et al., 2018; Hamaker et al., 2018), a novel analytic strategy which allows for modeling of observed and latent variables, as well as SEMs over time, enabling both time-specific and individual-specific random effects to be specified in tandem. The data from the present study could be used to conduct such analyses in the future. Future studies may also opt to manipulate safety behaviour use experimentally or via clinical intervention to examine causal effects as they unfold in real time.

Second, measures had to be adapted to be suitable for momentary prompts, which reduced participant burden but potentially impacted reliability and validity. Single-item measures were used for momentary degree of safety behaviour use and momentary degree of fears of negative self-portrayal, limiting the ability to determine internal consistency of these constructs despite reducing participant burden (see Allen et al., 2022 for more information). The measure of momentary fears of receiving compassion was adapted from the two highest factor-loaded items from the trait version of the scale; however, there is a strong need and gap within EMA research to develop and validate items specifically for the purposes of EMA, rather than to adapt directly from trait measures. As well, these items may inadvertently be measuring behaviour rather than attitudes (i.e., in particular, “I tried to keep my distance from others even when I knew they were kind”). Additionally, human error in study programming led the item “determined” to be excluded from the momentary measure of positive affect, influencing the pattern of missing data and potentially reducing reliability of the measure. Replication is necessary for determining the validity and reliability of these momentary measures for use in EMA research.

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Third, the present study was conducted with a non-clinical sample of undergraduate participants across a normally distributed range of trait social anxiety symptoms, limiting generalizability of findings to clinical samples of patients with SAD. The study should be replicated with either a clinical sample of patients with SAD or a suitably sized analogue sample for sufficient statistical power (see Kudryk et al., 2024). The demographics of the current sample may also limit generalizability with the majority (70.2%) of the sample comprising of cisgender women and certain ethnic identities being underrepresented (e.g., Indigenous, Black, and Southeast Asian individuals). Additionally, since all participants were undergraduate students, there may have been limited variability in the types of social interactions they were encountering, further restricting the generalizability of findings to the broader adult population.

Finally, all measures in the study were based on participants' self-report, which is vulnerable to demand characteristics and memory bias. Future EMA studies may consider incorporating objective measures such as wearable sensors for physiological measures while future lab-based studies could use behavioural coding or computerized facial affect coding alongside self-report measures. For instance, with automated software using the Facial Action Coding System (FACS; Ekman & Friesen, 1978), participants with SAD have been shown to smile less frequently and less intensely relative to control participants as they interacted with a confederate; as well, lower smiling was associated with others' lower desire for future interaction with participants (Pearlstein et al., 2019). As such, combining objective or observer measures with self-report would help paint a richer picture of social interactions as they unfold in the moment. The present study was also unable to further explore potential factors contributing to unexplained between-person variance in the results. Such factors may include genetic and biological variance unable to be captured by the present study. Future research could consider

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integrating self-report measures with objective measures such as neuroimaging, biomarkers, and actigraphy from wearables.

Clinical implications

Despite limitations, this study uniquely links fears of negative self-portrayal and fears of receiving compassion to increased safety behaviour use. Momentary safety behaviour use was also shown to negatively impact socio-affective outcomes. Notably, safety behaviours were associated with reduced momentary social safeness—but not broader positive affect—highlighting the importance of targeting feelings of warmth, contentment, and security in interventions for social anxiety, rather than hedonism alone. While cognitive-behavioural tasks often focus on anxiety reductions when dropping safety behaviours, clinicians may also encourage clients to attend to changes in social safeness and interaction quality, particularly in response to compassion from others, to challenge beliefs that safety behaviours are protective.

Additionally, behavioural experiments and exposure exercises may be strengthened by having clients predict and then evaluate experienced positivity to disconfirm negative expectations. Psychoeducation on different forms of positivity (e.g., activated vs. soothing positive affect) and how to identify them through emotional, bodily, and cognitive cues may further support socially anxious individuals in engaging in social interactions that feel genuinely safe and soothing.

Conclusions

Extending Studies 1 and 2 by using EMA to examine naturalistic social interactions over a 7-day period, the present study found that both trait and momentary fears of negative self-portrayal and fears of receiving compassion predict greater momentary safety behaviour use. In

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turn, momentary safety behaviour use predicted lowered momentary social safeness and reward and heightened negative affect. Unexpectedly, momentary safety behaviour use did not have a significant impact on momentary positive affect when measured as a broad construct using the PANAS, which generally encompasses activated forms of positive affect. However, momentary safety behaviour use did have significant negative consequences for feelings of social safeness, represented by soothing/ content positive affect. Socially anxious individuals who fear exposing self-perceived flaws or fear receiving compassion and kindness from others may employ safety behaviours in the moment of socializing in attempts to conceal themselves, perhaps due to interpreting compassion as pity or as a sign that they have indeed portrayed themselves in a negative light. However, socially anxious people may not realize that despite intending to serve a self-protective function, safety behaviour use in fact decreases feelings of social safeness and social reward, while heightening negative affect. Future research should more formally investigate the potential mediational role of safety behaviour use between fears of negative self-portrayal and fears of receiving compassion on the one hand, and immediate socio-affective outcomes on the other, to forward clinical interventions that could help socially anxious individuals become more receptive to and emotionally benefit from compassion from others.

General Discussion

Summary of results

Using diverse methodologies, the three studies presented examined the impact of fears of receiving compassion on emotional, cognitive, and behavioural responses both at the trait and momentary levels. At the momentary level, these results encompassed both imagined, simulated scenarios of receiving compassion from others and naturalistic social interactions.

Within a cross-sectional, correlational framework conducted with a sample of participants with clinically significant symptoms of SAD, Study 1 found that trait fears of receiving compassion from others predicted trait use of safety behaviours over and above trait fears of negative self-portrayal. This was the case across safety behaviours overall, and when analyzed by safety behaviour subtype (i.e., impression management and avoidance). Specifically, there was an interaction between the two fears in predicting impression management safety behaviours: when trait fears of negative self-portrayal were high, impression management safety behaviour use remained high across all levels of trait fears of receiving compassion. This suggests that for people with SAD, elevations in only one of the two fears (namely, fears of negative self-portrayal) may be sufficient for driving the use of impression management safety behaviours, where people present a façade of “innocuous sociability” (Schlenker & Leary, 1982) in the face of social threat.

To extend these findings to immediate emotional and cognitive responses to receiving compassion from others, Study 2 involved an online experimental paradigm where participants imagined receiving compassion from others following an imagined socially distressing experience (social rejection or social blunder). Results showed that trait fears of receiving compassion influenced reactions to receiving compassion immediately following a socially

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distressing experience—even when imagined—by driving up negative affect and shame.

Furthermore, imagining actually receiving compassion exerted differential effects on sub-facets of positivity: surprisingly, those with higher trait fears of receiving compassion reported greater positive affect than those with low trait fears of receiving compassion after receiving compassion in response to imagining social rejection. On the other hand, within the rejection condition, those with high trait fears of receiving compassion reported the lowest levels of social safeness after receiving compassion. Increased positive affect following a compassionate response in those high in fears of receiving compassion may be attributable to feelings of relief at having avoided a worse outcome, rather than genuine feelings of positivity and warmth. As for cognitive appraisals of compassion, results suggest that after receiving a compassionate response, people with high trait social anxiety appraised social rejection as socially costly and as contributing to negative self-schemas, regardless of whether they also had high fears of receiving compassion. In contrast, only those who were both high in trait social anxiety and fears of receiving compassion appraised social blunders as being costly and contributing to negative beliefs.

Further replicating and extending these findings to naturalistic social interactions in daily life, Study 3 employed ecological momentary assessment to examine fears of negative self-portrayal, fears of receiving compassion, and safety behaviour use in the moment of socializing, and their impacts on momentary affect. Replicating results from Study 1, Study 3 found that trait fears of negative self-portrayal and trait fears of receiving compassion predicted increased momentary safety behaviour use. Momentary levels of both fears also each uniquely and significantly predicted greater momentary safety behaviour use. Meanwhile, momentary safety behaviour use predicted increased momentary negative affect. Additionally, while momentary safety behaviour use did not significantly predict activated positive affect, it predicted decreased

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feelings of social safeness (i.e., feelings of being soothed, content, and secure) and decreased social rewards (i.e., enjoyment and connection).

Fears of receiving compassion as a novel predictor of safety behaviour use alongside fears of negative self-portrayal

This program of research found that fears of receiving compassion uniquely predicted safety behaviour use in socially anxious individuals, providing support for my proposed model of fears of receiving compassion as an insidious maintenance factor in social anxiety (Figure 2). In Study 1, fears of receiving compassion were shown to predict safety behaviour use at the trait level. Meanwhile, in Study 3, momentary fears were shown to predict greater safety behaviour use within a given instance of socializing, even after accounting for momentary fears of negative self-portrayal and trait social anxiety symptoms. Taken together, these findings suggest that in addition to fears of exposing self-perceived flaws (Moscovitch, 2009), socially anxious individuals may also employ safety behaviours to conceal self-attributes that are likely to attract undesired compassionate support from others by keeping others at arm's length.

How and why do fears of receiving compassion predict increased safety behaviour use? Although Studies 1 and 3 were both correlational in nature, and Study 2 did not measure safety behaviour use, results from Study 2 may nevertheless provide some insight into potential mechanisms that link receiving compassion with the use of safety behaviours and subtle avoidance. That is, immediately after imagining compassion from others in response to social distress, people high in trait fears of receiving compassion reported greater increase in negative affect and shame. Although those high in trait fears of receiving compassion also experienced greater increases in positive affect in response to compassion, particularly in the blunder condition, these feelings may be best represented by relief rather than activating positive affect

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that would motivate further approach behaviour. Thus, these feelings may drive people to employ safety behaviours to keep others at what they perceive to be a safe social and emotional distance.

Apart from emotional and affective responses to compassion, cognitive interpretations and appraisals of compassion may also play an important role in driving safety behaviour use. Exploratory analyses from Study 2 show that after receiving a compassionate response, people with high trait social anxiety appraised social rejection as being socially costly and contributing to negative views of themselves, regardless of whether they also had high fears of receiving compassion. Meanwhile, only those who were both high in trait social anxiety and fears of receiving compassion interpreted social blunders as being costly and as contributing to negative beliefs about themselves. While preliminary exploratory analyses suggest that trait fears of receiving compassion and trait social anxiety interact to predict negative self-schemas and appraisals of heightened social cost, further research is needed to investigate cognitive appraisals of compassion and whether individuals who fear compassion may be interpreting it as pity rather than genuine support.

Over time, individuals high in fears of receiving compassion may learn to expect heightened negative affect and shame as a result of kind and compassionate displays and employ safety behaviours to pre-emptively avoid eliciting compassion from others. This is consistent with social mentality theory (Liotti & Gilbert, 2012), which suggests that synchronous experiences of soothing lead to a “care-oriented” mentality where people learn how to apply these experiences to themselves. People high in fears of receiving compassion may not have had sufficient soothing experiences, and rather have come to see compassion as unfamiliar, exposing,

and threatening. Future research should include assessment of early shame-based experiences and their impact to more precisely determine how these fears develop.

Safety behaviours as a potential mechanism behind positivity deficits in SAD

Study 3 found that momentary safety behaviour use predicts decreased social safeness and increased negative affect during the same occasion of socializing. Existing literature has theorized that safety behaviours fuel positivity deficits in SAD by detracting from self-regulatory resources needed to attend to positive experiences in social interactions (Kashdan et al., 2011). Since social safeness is theorized to arise in response to affiliation (Gilbert 2005, 2008), safety behaviours may contribute to deficits in social safeness through self-focused attention (Leigh et al., 2021) that detracts from processing external cues of soothing and content.

However, Study 3 did not directly measure self-focused attention and self-regulatory resources, and thus additional possibilities for how safety behaviours contribute to these deficits should be entertained. One possibility is that safety behaviours erode social performance, having a negative impact on how others respond and affiliate with the socially anxious individual. Past literature has shown that interaction partners rate the interaction more poorly and feel less connected when safety behaviours are being used (e.g., McManus et al., 2008; Rowa et al., 2015). More recent research has specifically emphasized the importance of curiosity and felt authenticity in generating positivity from socializing: when a high socially anxious individual interacted with a low socially anxious conversation partner, the negative impacts of social anxiety carried over to the conversation partner, predicting lower partner ratings of positive affect and less positive social outcomes (e.g., desire for future interaction, closeness, and quality of interaction), mediated by decreased curiosity and felt authenticity (Barber et al., 2021). Thus, safety behaviours may decrease social safeness by influencing the dynamic of the social

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interaction and making it less likely that the other person will behave and respond in ways to foster a sense of soothing, content, and warmth.

As for momentary safety behaviour use predicting negative affect in Study 3, this finding is consistent with past research from our lab that safety behaviour use mediates the relationship between social anxiety and negative affect in a laboratory-based speech task (Moscovitch et al., 2013). Rather than alleviating anxiety, safety behaviours may be used to conceal self-perceived flaws—and ward off displays of compassion from others—despite the distress they cause. Safety behaviour use has also been shown to maintain perceptions of threat, which may further serve to increase negative affect in the moment of socializing. Future research should more closely examine how exactly safety behaviours drive up negative affect and distress when socializing, specifically in the context of avoiding receiving compassion from others. One possibility is that socially anxious individuals experience greater self-blame, which refers to the extent to which a negative outcome is attributed to personal failings (Janoff-Bulman, 1979); indeed, self-blame has been associated with social anxiety (Gilbert & Miles, 2000) and found to mediate the relationship between recalling a time of burnout and decreased self-compassion (Brassard & Kocovski, 2022). Socially anxious individuals who excessively and inappropriately blame themselves for how others respond to them may resort to safety behaviours to try and manage and control the outcome of a social interaction, or may blame themselves for needing compassion from others in the first place. Another possibility raised by Luoma and Chwyl (2020) is that socially anxious people hold self-critical views that signal to themselves that they are undesirable and inferior to others (see also Moscovitch, 2009); these perceptions of low social rank and threatened belonging may in turn increase the need to continue self-monitoring and concealing self-perceived flaws (via safety behaviour use) to prevent them from being

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exposed to others. Indeed, decreased social safeness and increased negative affect may represent actual consequences of safety behaviour use that socially anxious individuals use in attempts to prevent feared consequences of being judged and rejected, in addition to being pitied by others and having others feel sorry for them.

Furthermore, Study 1 revealed a distinction between safety behaviour subtypes, and found that greater fears of receiving compassion predicted greater use of *impression management* safety behaviours when fears of negative self-portrayal were low. This effect was not present in predicting avoidance subtype safety behaviours. It is possible that fears of receiving compassion and fears of negative self-portrayal prompt socially anxious individuals to employ different types of safety behaviours depending on the context. Fears of receiving compassion from others may be uniquely linked to impression management safety behaviours by putting up a front that communicates to others that compassion (interpreted as pity) is not needed. Meanwhile, avoidance safety behaviours may function more as concealment of self-perceived flaws. Future research should further clarify the impact of each safety behaviour subtype on social and emotional outcomes, including positive affect and social safeness. Although not tested directly in the current program of research, impression management safety behaviours may have less of an impact on activated positive affect relative to avoidance safety behaviours. Avoidance safety behaviours typically entail social withdrawal that cuts off potential social connection and social rewards. As such, avoidance safety behaviours are more likely to interfere with the adoption of affiliative goals that serve to enhance activated positive affect (Barber & Moscovitch, 2021). Meanwhile, impression management safety behaviours may maintain a façade of “innocuous sociability” (Plasencia et al., 2011) that continues to facilitate some degree of social connection. Future research should more closely and carefully test the impact and actual consequences of

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different types of safety behaviours on social and emotional outcomes including activated positive affect, social safeness, negative affect, and shame.

Differential impacts of safety behaviours on subfacets of positivity

Studies 2 and 3 both found that fears of receiving compassion had negative consequences for feelings of social safeness, but not for activated positive affect; in fact, Study 2 showed that fears of receiving compassion additionally drove greater increases in activated positive affect in the face of imagining a compassionate response. However, many studies examining positivity deficits in socially anxious individuals have conceptualized positive affect as activated positive affect, including feeling “active,” “inspired,” “alert,” and “determined.” Recent evidence suggests that subfacets of positivity may be differentially impacted in socially anxious individuals, such that socially anxious individuals experience deficits in *relaxed* and *content* positive affect reactivity relative to healthy controls specifically in response to social versus non-social stimuli, but not deficits in *activated* positive affect reactivity (Barber & Moscovitch, 2022). This is a crucial distinction that provides us key information as to how exactly socially anxious individuals may be deficient in some, but not all aspects of positivity. Studies 2 and 3 each extend these results to immediate emotional reactions to imagined and naturalistic social stimuli, respectively. Future studies should examine whether feelings of social safeness can facilitate reductions in safety behaviour use, or whether feelings of social safeness are a prerequisite to broader positivity, including activated positive affect when socializing.

Moreover, Study 3 found that decreased social safeness in the moment of socializing was facilitated by safety behaviour use. Despite endorsing positive beliefs about safety behaviour use (Meyer et al., 2019), socially anxious individuals may only experience a temporary, fleeting sense of security and concealment from using safety behaviours despite these behaviours actually

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decreasing feelings of soothing, safeness, and contentment. Furthermore, safety behaviours may not fully prevent people from experiencing activated positive affect from socializing, and socially anxious people may still derive some enjoyment when interacting with others relative to being alone (Goodman et al., 2021); however, they may do so without a sense of emotional trust or security. In this way, social interaction may be experienced as rewarding but not restorative, reinforcing continued reliance on safety behaviours.

Why, then, may socially anxious individuals continue to rely on safety behaviours despite their detrimental effects on feelings of social safeness and contentment? One possibility is that safety behaviours provide a false or short-lived sense of relief in the moment. Although these behaviours may temporarily reduce perceived threat or exposure, this relief is likely fleeting and may come at the cost of diminished soothing and affiliative emotional states. Consistent with this, positive beliefs about safety behaviours predict increased use, as socially anxious individuals often view them as necessary to function adequately in everyday social situations (Meyer et al., 2019). Thus, safety behaviours may be negatively reinforcing by alleviating immediate discomfort while simultaneously undermining the development of deeper emotional security.

An important avenue for future research is to clarify whether social safeness is a prerequisite for broader positive emotional experiences, including activated positive affect, or whether these emotional states can occur independently. Relatedly, the role of relief warrants further examination. Craske and colleagues (2008, 2014, 2018), as well as Moscovitch et al. (2023), theorize that threat prediction error drives corrective learning such that an exposure will be therapeutic to the extent that the patient's fears do not come true. From a learning perspective, relief may be understood as arising from *negative* prediction error—that is, when a negative

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outcome is expected but does not happen, or when the eventual outcome is better than expected. In this sense, relief reflects a “better than expected” outcome, rather than the presence of safeness, reward, or social connection. This distinction may help explain why safety behaviour use persists: by reducing perceived threat, safety behaviours may reliably produce relief, while doing little to promote social safeness or more expansive positive emotional experiences. Over time, this may limit opportunities for learning that fosters feelings of social connection and trust and promotes longer-term wellbeing. Indeed, within the literature on the relationship between relief and reward-learning processes, avoidance behaviour (such as safety behaviours used by socially anxious individuals) is thought to be reinforced by feelings of relief due to its positive valence (Rosenberg et al., 2024).

Finally, it remains unclear whether social safeness and activated positive affect should be conceptualized as subfacets of a broader positive affect construct or as discrete, distinct emotional experiences. This distinction has been obscured by the longstanding tendency to operationalize “positive affect” primarily in terms of activated states such as enthusiasm and alertness. Emerging work suggests that socially anxious individuals may be selectively impaired in low-arousal, affiliative forms of positivity (Armstrong et al., 2021; Barber & Moscovitch, 2023; Kelly et al., 2012), highlighting the need for greater conceptual precision. Differentiating between these emotional systems may be critical for understanding how social anxiety is maintained and for identifying more targeted intervention pathways.

The role of relief in response to receiving compassion from others

Unexpectedly, in Study 2, trait fears of receiving compassion predicted greater residualized change in positive affect when imagining a compassionate response after social rejection relative to social blunder. Within the rejection condition, the compassionate response

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may have induced a feeling of relief that was then captured as positive affect on the PANAS. This has raised the possibility that people who are highly fearful of receiving compassion may experience increased positive affect following compassionate displays from others driven by feelings of relief around preventing a potentially worse outcome, rather than by genuine openness to receiving support and relying on others for kindness and care.

Although Study 3 did not assess affect before and after social interactions and therefore could not account for baseline levels of affect, results revealed that momentary safety behaviour use had no significant effect on activated positive affect, while predicting decreased momentary social safeness and reduced social reward. In Study 3, social reward was operationalized as enjoyment of the interaction and feelings of connection with others while socializing. The absence of an effect on activated positive affect may reflect the presence of competing emotional experiences, such that transient feelings of relief associated with safety behaviour use offset simultaneous deficits in enjoyment and connection.

This pattern may help explain why momentary safety behaviours were not associated with decreases in activated positive affect despite their negative consequences for social safeness and social reward. One possibility is that by primarily regulating threat and discomfort through cautious approach, safety behaviours produce relief without facilitating affiliation. As a result, socially anxious individuals may feel less distressed and sufficiently “okay” to continue interacting, without experiencing deeper enjoyment, connection, or emotional safeness. In this way, safety behaviours may maintain social functioning at a minimal level while constraining access to more rewarding and meaningful social experiences.

Strengths and Limitations

This thesis has a number of strengths. First, it examines the relationships between fears of receiving compassion, safety behaviour use, and resulting emotions and affect across a diverse range of methodologies. These include a cross-sectional, correlational study (Study 1), an experimental written vignette paradigm (Study 2), and finally, an examination of naturalistic social interactions via ecological momentary assessment (Study 3). To our knowledge at the time of writing, only one other study to date has very recently examined the relationship between social anxiety, self-compassion, and shame in an ecological context (Lear et al., 2026) using a daily diary study sampling participants once per day. The use of ecological momentary assessment in the current study allows for fine-grain examination of multiple social interactions over the course of each day, as temporally close to the interaction as possible.

Second, results are replicated and extended across studies. Study 1 identified trait fears of receiving compassion as a novel predictor of trait safety behaviour use alongside trait fears of negative self-portrayal in a sample of participants with clinically significant SAD. Study 2 extends these findings by investigating affective responses and cognitive appraisals after receiving compassion from others to clarify immediate processes in the moment. Study 2 also investigated the role of a compassionate response on different types of socially distressing events that may elicit different levels of shame (i.e., social rejection vs. social blunders), further building on past research on these topics, including past studies from our lab (e.g., Fung et al., 2016; Hudd & Moscovitch, 2021; Hudd & Moscovitch, 2022; Moscovitch et al., 2012; Moscovitch et al., 2015), about how socially anxious people respond to committing an embarrassing social blunder or react in the aftermath of painful, shame-inducing social exclusion. Study 3 replicates results from Study 1 at the momentary level, as well as extends our

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understanding of the links between social anxiety, self-portrayal and self-compassion fears, and use of safety behaviours to naturalistic social contexts, thereby enhancing ecological validity. Taken together, the three studies robustly demonstrate how fears of receiving compassion predict safety behaviour use, and the emotional, cognitive, and behavioural consequences of fearing compassion from others. Furthermore, these studies contribute to the existing literature on positivity deficits in socially anxious individuals by disentangling different subtypes of positivity (i.e., activated positive affect vs. social safeness) and the differential effects of safety behaviour use on these subtypes.

Notwithstanding these strengths, the present studies also have important limitations. Although Study 1 was conducted with a sample of participants with clinically significant SAD, Studies 2 and 3 were conducted with convenience samples of undergraduate participants. This sampling method allowed for larger sample sizes to provide ample statistical power, across a range of social anxiety symptoms; however, it limits generalizability of findings from Studies 2 and 3 to clinical samples, as well as to the broader population of adults. Future research should investigate the immediate and momentary responses of individuals with SAD to receiving compassion.

Second, the studies conducted lend early support to the theoretical model I proposed in Figure 2 as an extension of Moscovitch's (2009) core fear model of social anxiety. I proposed that fears of receiving compassion from others constitute an insidious maintenance factor of social anxiety through a potential mediational mechanism, by which fears of negative self-portrayal and fears of receiving compassion predict safety behaviour use, which in turn predicts emotional, cognitive, and behavioural responses. Studies 1 and 3 found that fears of negative self-portrayal and fears of receiving compassion predict increased safety behaviour use at trait

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and momentary levels, and Study 3 determined that momentary safety behaviour use fuels shame and negative affect while simultaneously eroding feelings of social safeness. Meanwhile, Study 2 inferred that fears of receiving compassion are associated with greater feelings of relief in the face of receiving support immediately after a socially distressing event, which likely reinforces avoidance through safety behaviour use. This theoretical model is also consistent with existing literature, including past research showing that social anxiety symptoms predict greater safety behaviour use, which in turn predicts greater negative affect (Moscovitch et al., 2013). However, the series of studies did not directly test mediational effects, and more robust and rigorous examination of causality and directionality of effects is needed, potentially by reanalyzing Study 3 data with statistical methods such as multilevel SEM or dynamic SEM, or in future work by manipulating fears of self-portrayal or receiving compassion directly and examining the impact on the use of safety behaviours, or by manipulating safety behaviours directly and examining emotional outcomes.

Third, the current research did not fully account for additional factors that may influence pre-existing beliefs about compassion. Cultural norms likely play a strong role in individuals' interpretations of compassion. For instance, cross-cultural comparisons of compassion have found that American participants wish to avoid feeling negative emotions more than German participants do, resulting in Americans interpreting sympathy messages with a greater focus on the positive as more compassionate and Germans interpreting sympathy messages with a greater focus on the negative as more compassionate (Koopmann-Holm et al., 2021). As another example, people in collectivistic cultural contexts may be less likely to ask for social support compared to people in individualistic contexts because those in collectivistic cultures are more concerned about negatively affecting their relationships (e.g., Kim et al., 2006). As a result, those

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in collectivistic cultures may interpret compassion from others as a signal that they have bothered or burdened others in some way. As such, future research should examine the extent to which fears of receiving compassion vary according to cultural norms. The present studies also did not assess for participants' early shame-based experiences to determine whether these may correlate with fears of receiving compassion, which would provide useful context for socially anxious individuals' schemas about the self and others when it comes to processing expressions of compassion from others. Furthermore, prediction error and any associated feelings of relief were not directly measured in the studies and were inferred as potential reasons for increases in positive affect after receiving compassion, particularly in Study 2. Future research should measure both anticipated and actual levels of affect before and after receiving compassion from others to further clarify these effects. Depressive symptoms may also play a key role alongside social anxiety and fears of receiving compassion, and future research should more carefully consider the role of depression and mood-related co-morbidities in the emotional and cognitive impact of receiving compassion from others. Finally, this thesis focused on fears of receiving compassion from others, specifically in the context of social anxiety. However, examination of other "flows of compassion" (Gilbert, 2011), notably directing compassion towards the self (i.e., self-compassion) and displaying compassion towards others, should be included in future research for a comprehensive understanding of how compassion-related mechanisms and processes within social anxiety.

Clinical Implications

This program of research yields clinical implications for the treatment of social anxiety. First, findings from all three studies suggest that clinicians should keep in mind the possibility that clients with SAD may fear receiving supportive and compassionate responses from others

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that may be interpreted as undeserving or threatening. Emotionally, compassion from others may be experienced as unsafe and potentially shameful, increasing self-concealment through the use of safety behaviours. Clinicians working with socially anxious clients should attend to the importance of developing an environment of social safeness and security within which therapeutic change is able to take place.

It could also be informative to employ cognitive strategies such as the downward arrow technique (Beck et al., 1979) to explore the core fear underlying receiving compassion from others, and whether these fears may be associated with early shame-based memories where compassion and care were not reliably available. Imagery rescripting, a therapeutic technique that aims to modify negative mental self-representations (Holmes et al., 2007; Morina et al., 2017), may also be an effective intervention for addressing these early shame-based memories. Indeed, research from our lab has shown imagery rescripting to be effective for updating negative memory-derived core beliefs (see Reimer & Moscovitch, 2015; Romano et al., 2020). Incorporating compassion into rescripted memories and images to enable clients to imaginably experience self-kindness and self-soothing may be a key component of updating negative and strengthening positive self-beliefs (Romano et al., 2021).

Notably, prompted by results in Study 2 that those high in fears of receiving compassion unexpectedly showed residualized increases in activated positive affect in response to compassion after being socially rejected, the emotion of *relief* needs to be carefully considered and addressed within clinical contexts. Socially anxious clients who fear receiving compassion from others may experience positive affect, particularly activated positive affect in response to kindness and care, and clinicians should explore with clients whether this arises from rewards associated with approaching a social situation, or rewards from avoiding a worse social threat.

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This is not to label positive emotions associated with relief as unilaterally maladaptive; rather, it is possible that with repeated exposure and processing of new learning, rewards associated with feelings of relief from avoiding a social threat may evolve into rewards derived from feelings of enjoyment and social connection as clients practice social approach.

The experience of relief as a positive emotion may arise from *expectancy violation*, in other words, the mismatch between a predicted threat and the actual threat of the occurrence. Indeed, expectancy violation has been identified as a key transdiagnostic factor in promoting learning in exposure therapy (Johnco et al., 2025; Moscovitch et al., 2023; Pittig et al., 2022). However, expectancy violation alone—and any associated positive emotion of relief—may not be sufficient for new therapeutic learning to take place. Socially anxious individuals, especially those with high levels of fears of receiving compassion originating from early shame-based experiences, may discount the positive aspects of compassion and struggle to interpret compassionate displays as genuine and deserved, despite initial feelings of positive affect. In addition to examining the cognitive attributions clients are making to account for threat expectancy violations, clinicians are encouraged to focus on guiding clients to establish social relationships and environments that feel socially safe (such as through close and intimate connections with trusted friends, family members, or partners) in overcoming positivity deficits in social anxiety, and be cautious not to conflate social rewards with rewards associated with avoiding a worse threat.

More generally, a client's reaction to compassionate displays within the therapeutic relationship should also be attended to in the moment to determine whether displays that may be intended as warm and kind in the therapeutic context are being received as such or perceived as disingenuous after a brief feeling of relief. Gilbert (2011) wrote that when people feel shame

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during therapy, they tend to “go blank, show submissive crouched body postures, avoid topics, become anxious or angry, or point-blank refuse to reveal” (p. 331). Therapists should become familiar with their clients’ displays of shame in the therapy room to begin to help “de-shame” these experiences through nonjudgmental, caring curiosity and gather more information about the client’s thoughts or emotions. Gilbert (2011) also suggests addressing shame via psychoeducation, providing validation, and reducing self-blame.

From Study 3, the finding that momentary safety behaviour use is specifically associated with decreased momentary social safeness, but not activated positive affect, emphasizes a need to focus not only on feelings of hedonism, but also of content, warmth, and security when intervening on positivity deficits in social anxiety. Cognitive-behavioural intervention tasks that involve reducing safety behaviour use and decreasing self-focused attention when socializing tend to ask clients to focus on observed discrepancies in their levels of anxiety or distress between employing versus dropping safety behaviours (e.g., McManus, 2008). Clinicians could also guide clients to attend to feelings of social safeness and security when highlighting the differences in the quality of social interaction when using versus dropping safety behaviours, especially in response to compassionate displays from others, emphasizing to clients that continued safety behaviour use may in fact decrease momentary social safeness despite beliefs to the contrary.

Additionally, when designing behavioural experiments and exposure exercises, clinicians may also guide clients in making predictions about their anticipated levels of positivity and guide them to compare the predictions to the actual, experienced degree of positivity to disconfirm previous expectations and facilitate new learning via the mechanism of prediction error (Moscovitch et al., 2023). Psychoeducation about the different types of positivity (e.g., activated

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positive affect vs. content/ soothing positive affect) and how to differentiate between them through awareness of emotions, physical sensations, and thoughts could also be useful for empowering socially anxious clients to approach social opportunities to genuinely connect with others in a way that feels safe and soothing.

Apart from cognitive-behavioural interventions to address fears of compassion and feelings of shame, Emotion-Focused Therapy is also a promising avenue with an emerging body of literature addressing EFT for social anxiety disorder. EFT for SAD aims to “fundamentally restructure shame” by activating new, adaptive emotions in its place (Shahar, 2020). While CBT focuses on managing what EFT proponents would refer to as the “secondary” fear and anxiety that arise in response to the potential for experiences of shame in social situations, EFT attempts to directly access and restructure the shame-based cognitive-affective scheme. For socially anxious clients that fear receiving compassion from others in the face of shame, engaging in therapeutic tasks such as a two-chair dialogue where compassion is gradually introduced as an alternative to shame may help address emotions that stem from socially distressing situations.

Compassion-Focused Therapy (CFT) techniques can also be employed to create feelings of social safeness and more directly address fears of compassion. In CFT, compassionate mind training involves body-based practices for grounding and stability, as well as imagery-based interventions for fostering feelings of safeness (Kirby, 2025). One goal of CFT is learning how to embody an “ideal compassionate self” who then works to shift the self away from self-criticism and self-attacking, and towards compassionate encouragement. CFT also addresses feelings of shame, including working with shame-based memories through imagery. Imagery of the “ideal compassionate self” and “ideal compassionate other” may help socially anxious individuals foster a sense of safeness and soothing within themselves and prepare them to receive

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compassion from others by combating feelings of shame that may be triggered by kindness from others. This may take place via schema-congruent and -incongruent learning, as proposed by Moscovitch and colleagues (2023), where schema-incongruent learning triggers prediction error that stimulates hippocampus-dependent mechanisms. Thus, mental images of an “ideal compassionate” self or other in CFT may sufficiently challenge the appraisal and knowledge represented within the existing schema (e.g., of self-criticism or shame) to enable schema-incongruent learning to take place.

Conclusions

These three methodologically diverse and rigorous studies advance our understanding of the links between fears of negative self-portrayal, fears of receiving compassion, and safety behaviour use in socially anxious individuals. These studies replicate past research showing that fear of exposing one's self-perceived flaws drives concealment in the form of safety behaviours (e.g., Moscovitch et al., 2013). They also provide evidence that fears of receiving compassion from others additionally predict increased safety behaviour use in socially anxious individuals, extending to both the trait and momentary levels. Finally, expanding upon existing theories of how self-regulatory strategies contribute to positivity deficits in SAD (e.g., Kashdan, 2011), this program of research reveals that using safety behaviours in the moment of socializing predicts increased negative affect and decreased social safeness, with no significant effects on activated positive affect.

In addition to these key contributions, the present findings have also raised important additional questions. For instance, the role of relief in social situations and the distinction between relief and other positive emotions should be further explored in the context of social anxiety. Specifically, do feelings of relief reflect a true prediction error indicating that feared

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expectations did not come true, thereby promoting new learning, or do they provide a false sense of security that interfere with integrating compassion from others into the self-schema? Do feelings of relief enhance or dampen the learning that takes places during behavioural experiments? Furthermore, these studies built upon existing research on positivity deficits in SAD by making a key distinction between activated positive affect on one hand, and warm, content, and soothing positive affect (i.e., social safeness), on the other, prompting the question: how can barriers to social safeness best be addressed therapeutically in socially anxious individuals who fear compassion from others?

This research has also established that momentary safety behaviour use contributes to these reductions in social safeness. However, continued investigation into underlying causal mechanisms and their directionality would continue to promote our understanding of these associations. Do fears of receiving compassion predict safety behaviour use, which then in turn predict lowered social safeness and heightened negative affect, or do these feelings first arise in response to receiving compassion from others before prompting safety behaviour use in the moment of socializing? These questions should be pursued in future avenues of research to further our understanding of the interplay between fears of compassion, fears of negative self-portrayal, and safety behaviour use that lead socially anxious individuals to keep others at arm's length.

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Appendices

Appendix A: Validation study for the development of novel vignettes for Study 2

The purpose of the validation study was to develop novel vignettes that distinctly represented blunders and rejection, as well as develop responses to the vignettes that represented compassion, and to ensure face and content validity of all vignettes and responses before their use in the present study. The goal of the validation study was to develop 8 vignettes for each condition (blunder and rejection), as well as corresponding compassionate responses.

Vignettes were created for the blunder and rejection conditions. Vignettes in the blunder condition portrayed the main character violating social norms and “unintentionally behaving in ways that violate culturally accepted rules of social etiquette and conduct” (Moscovitch et al., 2012); for instance, dropping a coffee cup or misinterpreting a dress code. Vignettes in the rejection condition portrayed the main character being socially excluded; for example, being left out of a conversation or being rejected by a group of people. Across both conditions, the events were described as being explicitly noticed by other characters to control for how participants would respond to and interpret different elements of the vignette. Next, compassionate feedback in response to each vignette was composed based on four main criteria in line with Neff’s conceptualization of compassion (Neff, 2003b): 1) acknowledgment of suffering, 2) common humanity (i.e., embracing the common human experience), 3) distress tolerance (i.e., the extent to which the response tolerated uncomfortable feelings), and 4) motivation to help. Neutral feedback in response to each vignette was also created by creating a generic response that omitted each of these four components. In the study, participants each responded to 8 vignettes. The neutral responses did not contain the four elements of compassion described above and were included in the validation study to provide a social response to the vignette against which the

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effects of the compassionate responses could be compared. However, the subsequent main study that used the validated vignettes included compassionate responses only without the neutral control condition.

A total of 12 blunder vignettes and 12 rejection vignettes, along with corresponding compassionate and neutral responses, were created for the validation study. As noted above, neutral responses were created only for use in the validation study as a comparison condition to test the content validity of the compassionate responses. The vignettes were designed to vary in terms of the participant's imagined relationship with the other character who was providing the compassionate feedback in the scenario; this included a mix of whether the character offering feedback was a close other (i.e., friend), an acquaintance (i.e., co-worker or classmate), or stranger that the participant had never met before. Due to the specificity of family dynamics, family members were not included as characters.

The validation study that was conducted prior to the main study comprised of an independent sample of $N = 318$ undergraduate participants across a range of social anxiety symptoms were presented with a random subset of 4 of the 12 vignettes from each condition, followed by either a neutral or compassionate response. Thus, the validation study followed a 2 (vignette condition: blunder vs. rejection) $\times$ 2 (feedback: neutral vs. compassionate feedback) within-subjects design. Each unique combination of vignette (rejection or blunder) and feedback (compassionate or neutral) was responded to by $n = 53$ participants. As such, each unique combination of vignette condition by response condition (vignette: rejection vs. blunder, response: compassionate vs. neutral) was responded to by a subset of the sample. This enabled comparison of the compassionate and neutral responses to each vignette for the purposes of ensuring content validity of the responses.

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Participants in the validation study were asked to rate the vividness with which they were able to imagine each vignette and the believability of each vignette if it were to happen in real life. They were also asked to classify each vignette as blunder, rejection, neither, or both. For the compassionate and neutral feedback, participants were asked to rate each along the four main criteria of compassion (acknowledgment of suffering, common humanity, distress tolerance, motivation to help), as well as the believability of another person responding in such a way in real life. Eight vignettes with the highest combined believability ratings and accuracy of classification were selected from each condition of the validation study to be included in the present study. Compassionate feedback was confirmed to have significantly higher ratings along the four main criteria relative to the neutral feedback.

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Appendix B: Study 2 Vignettes

Social blunders

No.	Vignette	Compassionate Feedback
B1	You are on your way to class when your mom calls you. You answer the phone, and after speaking to her for a few minutes while walking to your classroom, you say goodbye and hang up. After entering the classroom, you say hello to the professor and accidentally call her “mom” in front of the entire class, loud enough for everyone to hear.	As you take your seat, the classmate next to leans over and says, “Hey, we all get words and names mixed up from time to time. It makes sense that you would feel embarrassed, but I’m sure everyone will forget about it in no time.”
B2	You are at a coffeeshop with a group of friends. As you walk back to your seat with your cup of coffee, you accidentally drop your mug with a loud crash, breaking the mug and spilling coffee all over the floor. Several people in the coffeeshop turn around to look at you.	After making it back to your seat, one of your friends says, “I can tell that made you uncomfortable—it happens to the best of us, and everyone knows it was just an accident. I’m sure everyone will forget about it soon.”
B3	You are attending a dinner event for work, and assuming that the dress code would be casual, show up wearing a t-shirt and shorts. Meanwhile, everyone else is wearing formal attire. Your co-workers glance at your outfit as you take your seat, and you realize that you must have misinterpreted how formal the event would be.	Later while on your way to the washroom, you pass by one of the waiters, who says to you, “I’d feel out of place too if I had misunderstood the dress code. Personally, I don’t think it matters that much and if it makes you feel any better, you look like the most comfortable one here.”
B4	You are at the mall with your friend over the weekend. As the two of you are walking together, you see someone that you know in the distance and wave at them excitedly to get their attention. Several people walk past and see you waving. The person you are waving at eventually turns to look at you, and you realize that you were mistaken and that it was actually a stranger.	Your friend turns to you with a smile and says, “I’m sorry that isn’t who you thought it was—it happens to me all the time! I always feel really awkward for a moment but it normally passes quickly. Do you want to pick the next store we go to?”
B5	You are at the library, planning to get some studying done. A few minutes later, you call your friend to ask a question about an assignment. Although you believed you were whispering, you unknowingly talk too loudly on the phone, disturbing the quiet atmosphere and leading others to turn around and look at you.	After hanging up, a stranger sitting near you leans over and says, “You look worried about what everyone else is thinking—I would be too, though I’m sure they’ll forget about in a second. I wish I could help with your question about the assignment, but I don’t think I’m in that class.”
B6	While waiting to check out at the grocery store, a long line of people begin to form behind you. As you reach the cashier to pay for your groceries, you struggle to find your wallet, though you’re sure you brought it with you. The cashier worker and several people in line behind you watch as you frantically search your pockets and bag for your wallet, slowing down the line.	Someone standing in line behind you taps you on the shoulder and says, “You look like you’ve had a chaotic morning—I’m sure it’s frustrating to be in a rush and not be able to find what you need. It’s okay, take your time.”

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B7	You arrive at a restaurant for a date. After you and your date are seated, a waiter comes by and asks what you would like to order. This is your first time at this restaurant, and you are not familiar with the menu. The restaurant is somewhat noisy, and you speak loudly so that the waiter can hear you. As you order, several people at neighboring tables glance over at you. The waiter confirms your order by repeating the name of the dish back to you, and you realize you have horribly mispronounced the name of the dish.	After the waiter leaves, your date says, “Hey, we all mispronounce words sometimes—I can tell from your face that you feel bad about it. I don’t know why they give the dishes here such confusing names. We can go somewhere else next time, if you’d prefer.”
B8	You are taking notes on your laptop during class as the professor is lecturing about a serious and challenging topic. Suddenly, a message notification pops up on your laptop, showing that your friend has sent a funny message. Before you can stop yourself, you laugh out loud during a pause in the lecture. Several people turn around to look at you, before returning to taking notes.	A classmate sitting next to you whispers, “You seem worried about disrupting the class—I don’t think the professor heard you, and I bet everyone else will forget about it in a few moments. I’ve definitely gotten distracted in these long lectures before too.”
B9	You are at a social event for work, and you and your co-workers decide to go to the bar and order some drinks. You take your drinks and try to find a seat at a nearby table. As you turn around, you bump into someone. Before you realize it, your drink has spilled all over their outfit. They instinctively shriek, catching the attention of most people in the room. You look up and realize the person you spilled the drink on is your boss.	A few moments later, one of your co-workers who had just been standing right next to your boss comes and sits down next to you. She says, “I saw what happened just now, and just want to make sure you’re okay. I’m sure you feel terrible... accidents can happen to anyone. Maybe I can get another drink for you.”
B10	Your professor sends an email to everyone in your class with instructions for an upcoming exam. You realize that you had already scheduled an important doctor’s appointment for the same time as the exam, and that it was the only time the doctor had available. You decide to email the professor back to ask if you would be able to take a make-up exam. After hitting “send,” you realize that you actually clicked “reply all” and your email has been sent to the entire class.	Your professor replies to your email privately, saying, “In case you weren’t aware, it seems you sent your message to the entire class. It can feel embarrassing but I’m sure everyone will understand it was an accident and ignore the message. I’ll have to check my schedule to see when would be a good time for us to meet and discuss your rescheduling request.”
B11	You are out to lunch with your team at work to welcome some new co-workers. You introduce yourself to one of the new co-workers and have a long conversation with them throughout the meal. At the end of the lunch, they kindly let you know that you have been calling them the wrong name the entire time, loud enough for the entire team to hear.	On your way out of the restaurant, a different co-worker comes up to you and says, “Hey, I can see how badly you feel about getting our new co-worker’s name wrong. I’m terrible with names, we all just do our best. Next time I’ll suggest we all wear nametags when there are a bunch of new people, just to make things a little easier for everyone.”
B12	You are at a high school reunion when you see an acquaintance with someone you don’t recall having	A few moments later, your friend who was one of the people standing nearby

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	met before, and assume he is the acquaintance’s boyfriend. You walk over to say hello and ask how long they have been dating. After a few awkward glances, the acquaintance tells you that the person is not her boyfriend, but her stepbrother who you have met once or twice before, many years ago. Several people who are standing nearby turn around and look in your direction and giggle, having overheard your conversation.	enough to hear taps you on the shoulder and says, “I can tell you feel bad about that—don’t worry, there are so many people here who I haven’t seen in so long, I’m sure I’ll end up having a few mix-ups myself. You can sit over here with me for a bit if you’d like.”
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Social rejection

No.	Vignette	Compassionate Feedback
R1	You and your classmates make plans to go to the movies together tomorrow night. The next day, they tell you that the plans have been cancelled. You decide to go see the movie with a different friend instead. At the movie theater, you see your classmates there from afar and you realize they decided to see the movie after all, without you. At that moment, one of them looks over at you without saying hello, before turning around and entering the theater with the others. You tell your friend what happened.	Your friend says, "I can't believe they came after they told you they cancelled. I can imagine how terrible that must feel. Let's get some popcorn and enjoy the movie anyways, or I'd be fine with leaving if you prefer."
R2	You go to dinner at a nice restaurant for a date. The restaurant is busy, and the tables are arranged closely together. Near the end of your dinner, your date tells you that they are no longer going to continue going out with you because they have decided that the two of you are not compatible and they would rather be dating someone else. They then get up and leave before dessert.	A stranger sitting at the neighbouring table who heard the conversation leans over and says to you, "I'm sorry that it didn't turn out the way you hoped. I can see that you look disappointed, which makes total sense. Hopefully you're able to find someone who values you for who you are."
R3	You are at a meeting for a student group that you joined at the start of the term in hopes of making new friends. The student group announces that they will host a social event over the weekend, and that those interested should speak with one of the leaders to register at the end of the meeting. When you get in line to register, the leader tells you that the social event is open to "members only," loud enough for everyone to hear. However, they allow the few people behind you to register, even though they joined the student group at the same time as you.	On your way out of the meeting, one of the new members who had been in line right behind you and was allowed to register for the event approaches you and says, "I'm not sure if they made a mistake, but I know I would feel hurt to be excluded like that when joining a new club. I hope they reconsider how they organize their social events in the future."
R4	At a work meeting, your manager asks for new ideas for an upcoming company project. Several co-workers share their ideas and are met with smiles and nods from the group. When it's your turn, you proudly share your idea, which you believe to be unique and innovative. After speaking, you are met with silence and blank stares. Your manager quickly redirects everyone's attention to the next agenda item for the meeting without further discussing your idea.	After the meeting, the co-worker who was sitting next to you approaches you and says, "I saw how discouraged you looked when the manager reacted to your idea and just brushed it aside. I would feel the same way too, especially if I had put myself out there like that. Hopefully you get another chance to share your idea soon."
R5	You attend a networking event hoping to make new connections. After approaching several people and attempting to start conversation, you realize that they are ignoring you, and having lively conversations with others instead. Your	Your co-worker walks over to you and says, "I always find these kinds of events tough. It can be hard to start conversations when it feels like everyone already knows each other. I

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	co-worker, who is also attending the event, looks over at you from across the room and sees you standing alone.	wish all of us made more of an effort to introduce ourselves to new people. Anyways, have a good night”
R6	While spending time with some high school classmates during your winter break from university, you suggest a game night to everyone, an activity you frequently did together in high school. You are excited to spend more time with them and play some board games, just like old times, but one by one, they each decline your invitation. They tell you about their other plans, without inviting you to any of them.	One of your friends comes up to you afterwards and says, “I can tell you really wished that everyone would be able to get together for game night again—it can be so hard to organize these things with so many people. I’m sorry I can’t make it, but it was a great idea.”
R7	You and a colleague walk over to two of your co-workers during your break while one of them is discussing a new project that they are working on. They are talking about how overwhelming the workload is going to be, and you offer to assist them on their project. One of them tells you that they would prefer to work on it independently, and that given your level of experience, he does not believe you would be able to help them very much anyways.	As you and your colleague are walking away, he turns to you and says, “I can’t believe they turned your offer down like that. I know it can be upsetting to feel unwanted but they don’t know what they’re missing out on. Anyways, I’d love to hear more about your experience sometime.”
R8	You are visiting your friend in a new city and are having trouble finding their house. You see someone standing in a group of people at a bus stop nearby and ask them if they can direct to your friend’s address. They look at you silently and then turn away with saying anything.	Another person who was at the bus stop and heard your question comes up to you after and says, “Wow, that was rude. I know how annoying it can feel to be ignored, and you look pretty lost. I wish I could help, but I’m new to the city too. Perhaps there’s someone else here who would be willing to show you the way.”
R9	You go to an event repeatedly advertised by your university faculty. You are hoping to meet new people in your program but when you arrive everyone seems to know one another. You try to talk to one person, but they end the conversation quickly and return to their group without inviting you to join them there.	As you are about to leave the event, someone in one of your classes approaches you and says, “Hi there, I recognize you from class. I noticed how everyone was sticking to their own groups, and how that can feel really isolating—I felt that way too. Maybe we can plan to look for each other at the next event.”
R10	During a team meeting, your boss requests someone from the team to join the social committee. You see this as an opportunity to meet new people and volunteer during the meeting to join the committee. You realize after the meeting that another one of your co-workers has also signed up and that you were outvoted for the committee.	After the meeting, the co-worker who was sitting next to you in the meeting approaches you and says, “I saw that you were eager to join the social committee and I know it must feel so discouraging to get outvoted. I wish there was something I could do to help.”

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R11	You have been talking to your co-workers about organizing a social gathering to reset after a busy week. You decide to invite everyone to happy hour at a nearby bar on Friday. You send a message inviting your coworkers, but everyone declines the invite and is unable to attend.	A co-worker contacts you afterwards, "I heard that you were organizing a happy hour gathering but people were unable to attend. It can be frustrating organizing a big group event and to feel like everyone is too busy to hang out. If you let me know a bit sooner next time, I'll definitely try to make it."
R12	During a break in a lecture, you see some classmates hanging out in the hallway in a tightly knit circle, conversing and laughing. You walk up to them to say hi and join the discussion. They all ignore you and continue to talk in their circle.	A couple minutes later one of your friends who is also in the class and was standing nearby in the hallway taps you on the shoulder and says "Hey, I noticed how some of the others in the class ignored you just now. I don't think they meant to do that, but I know that can still feel awful. I'd be happy to sit together during the next break."

Appendix C: Study 2 Analyses Predicting Time 2 Outcomes Without Controlling for Time 1 Variables

Appendix C includes regression results from Study 2 for Time 2 (post-compassion) dependent variables without controlling for Time 1 (post-vignette). In models of Time 2 outcomes without controlling for Time 1, coefficients reflect associations between predictors and the Time 2 (post-compassion) outcome, unadjusted for levels at Time 1 (post-vignette) immediately after the condition manipulation. This specification captures raw post-compassion (final) outcome levels, allowing for comparisons of between-person differences in Time 2 outcomes. However, it does not estimate change from pre- to post-compassion levels, as prior outcome levels are not included as a covariate.

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Table C1

Regression Results for Condition, Trait Fears of Receiving Compassion, and Trait Social Anxiety Predicting Socioaffective Outcomes at Time 2 (Post-Compassion) Without Controlling for Time 1 (Post-Vignette)

	Positive Affect (T2)			Negative Affect (T2)			Shame (T2)			Social Safeness (T2)		
	B	β	p	B	β	p	B	β	p	B	β	p
(Intercept)	1.60	0.17	<.001	0.95	-0.16	<.001	3.54	-0.23	<.001	1.84	0.30	<.001
Condition (rejection)	0.14	-0.19	.097	0.22	0.32	.002	1.76	0.46	<.001	-0.38	-0.49	<.001
SPIN	0.00	0.04	.697	0.02	0.37	.001	0.10	0.42	<.001	-0.01	-0.15	.119
FOC-R	0.02	0.32	.001	0.01	0.16	.010	0.05	0.16	.005	0.00	0.05	.618
Con. x SPIN	-0.01	-0.22	.115							-0.01	-0.13	.323
Con. x FOC-R	-0.02	-0.36	.009							-0.01	-0.16	.247
SPIN x FOC-R	0.00	-0.10	.056							-0.00	-0.07	.204
Con. x SPIN x FOC-R												

Note: Condition is dummy-coded with the Blunder condition as the reference group. Con. = abbreviation for “condition;” SPIN = Social Phobia Inventory; FOC-R = Fears of Compassion Scale – Receiving subscale. All trait independent variables have been grand-mean-centered.

Table C2

Regression Results for Condition, Trait Fears of Receiving Compassion, and Trait Social Anxiety Predicting Arousal and Valence at Time 2 (Post-Compassion) Without Controlling for Time 1 (Post-Vignette)

	Arousal (T2)			Valence (T2)		
	B	β	<i>p</i>	B	β	<i>p</i>
(Intercept)	3.26	--	<.001	4.88	--	<.001
Condition (rejection)	0.21	0.15	.163	-0.57	-0.54	<.001
SPIN	0.03	0.40	<.001	-0.02	-0.26	<.001
FOC-R						
Con. x SPIN						
Con. x FOC-R						
SPIN x FOC-R						
Con. x SPIN x FOC-R						

Note: Condition is dummy-coded with the Blunder condition as the reference group. T2 = Time 2 (post-compassion) Con. =

abbreviation for “condition;” SPIN = Social Phobia Inventory; FOC-R = Fears of Compassion Scale – Receiving subscale. All trait independent variables have been grand-mean-centered.

Table C3

*Regression Results for Condition, Trait Fears of Receiving Compassion, and Trait Social Anxiety
Predicting Social Cost at Time 2 (Post-Compassion) Without Controlling for Time 1 (Post-Vignette)*

	Social Cost (T2)		
	B	β	<i>p</i>
(Intercept)	1.19	-0.39	<.001
Condition (rejection)	0.57	0.73	<.001
SPIN	0.01	0.27	.003
FOC-R	0.02	0.29	.001
Con. x SPIN	0.00	0.07	.557
Con. x FOC-R	-0.02	-0.34	.006
SPIN x FOC-R	0.00	0.12	.106
Con. x SPIN x FOC-R	-0.00	-0.14	.164

Note: Condition is dummy-coded with the Blunder condition as the reference group. Con. = abbreviation for “condition;” SPIN = Social Phobia Inventory; FOC-R = Fears of Compassion Scale – Receiving subscale. All trait independent variables have been grand-mean-centered.