

Comparing the Effects of Self-Compassionate, Assertive, and Avoidant Coping Strategies during  
Imagined Social Distress: Implications for Imagery Rescripting

by

Taylor Hudd

A thesis

presented to the University of Waterloo

in fulfilment of the

thesis requirement for the degree of

Master of Arts

in

Psychology

Waterloo, Ontario, Canada, 2018

© Taylor Hudd 2018

### **Author's Declaration**

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that this thesis may be made electronically available to the public.

## Abstract

Imagery Rescripting (IR) is a relatively novel therapeutic intervention for social anxiety (SA) in which patients recall and engage with autobiographical memories of socially distressing events. During the intervention phase of IR, patients are asked to rescript the events of the memory to develop a more satisfying outcome for their “younger self” within that memory. This intervention strategy has been shown to reduce distress when recalling the memory and to yield reductions in SA symptoms at post-intervention and follow-up. However, some patients report significantly fewer positive outcomes than others. It is possible that the effectiveness of outcomes in IR may, at least in part, depend on the methods patients choose to guide their “younger selves” toward more satisfying outcomes within their imagined memory during the intervention phase of IR. With an eye toward gathering foundational data for future studies of IR in clinical samples, the primary goal of the present study was to examine the relative effects of visualizing using avoidant, self-compassionate, or assertive intervention strategies in response to imagined socially distressing situations outside the context of IR. The study measured how each strategy influenced emotional distress and perceived degree of mattering to others, and examined whether the relationship between the type of intervention strategy used and outcomes may be moderated by trait levels of SA. Undergraduate participants ( $N = 258$ ; 67% female) were assigned to one of three conditions in which they were asked to imagine using one of three strategies (avoidance, self-compassion, or assertiveness) in response to five vignettes describing socially distressing events. Results of regression analyses demonstrated that higher levels of SA and having been assigned to the avoidance condition (compared to self-compassion or assertiveness) were both associated with higher levels of emotional distress and negative self-beliefs. When analyses were re-run comparing participants at the upper and lower ends of the SA spectrum, low socially anxious (LSA) participants ( $n = 48$ ) did not differ in outcomes across assigned coping strategies; in contrast, among high socially anxious (HSA) participants ( $n = 41$ ), the use of self-compassionate strategies significantly lowered negative affect compared to the use of avoidance and assertiveness. Implications for IR protocols are discussed within the context of contemporary CBT models of SA.

## **Acknowledgements**

I am grateful for the invaluable guidance and support provided by my supervisor, Dr. David Moscovitch. I would also like to thank my readers, Dr. Elizabeth Nilsen and Dr. Allison Kelly, for taking their time to review and provide helpful suggestions for the thesis.

I would also like to thank my family and cohort members, Olivia, Sydney, Mahsa and Katie, for their unwavering encouragement and positivity.

## Table of Contents

<b>Author’s Declaration</b> .....	<b>ii</b>
<b>Abstract</b> .....	<b>iii</b>
<b>Acknowledgements</b> .....	<b>iv</b>
<b>Table of Contents</b> .....	<b>v</b>
<b>Literature Review</b> .....	<b>1</b>
Social Anxiety Disorder.....	1
Socially Traumatic Memories.....	2
Negative Self-Imagery.....	4
Social Pain.....	4
Dispositional Pain Sensitivity.....	5
Enduring Impact of Social Pain.....	6
Formation of Attitudes and Beliefs Following Socially Distressing Events.....	6
Imagery Rescripting.....	8
Mechanisms of Change in Imagery Rescripting.....	9
Variability in Procedures and Outcomes.....	11
Common Themes During the IR “Intervention” Phase.....	12
<b>The Current Study</b> .....	<b>14</b>
Objectives and Hypotheses.....	14
<b>Methods</b> .....	<b>16</b>
Participants.....	16
General Procedures.....	16
Vignette Characteristics.....	17
Coping Strategy Characteristics.....	17
Condition Assignment.....	18
State Self-Report Measures.....	19
Trait Self-Report Measures.....	20
<b>Data Analytic Plan and Data Preparation</b> .....	<b>20</b>
Data Analysis Plan.....	20
<b>Results</b> .....	<b>22</b>
Equivalence of Condition Groups.....	22
Correlations between Outcome Variables.....	22
Hierarchical Regression Analyses.....	23
Follow-up Analysis: High vs. Low Socially Anxious Groups.....	24
<b>Discussion</b> .....	<b>28</b>
Impact of Conditions on Negative Affect.....	29
Impact of Conditions on Mattering.....	31
Social Pain.....	32
Limitations and Future Directions.....	32
<b>References</b> .....	<b>36</b>
<b>Appendix A: Vignettes and Paired Responses</b> .....	<b>46</b>

## **Literature Review**

Experiences shape individuals' beliefs about what to expect from the self, others and the world around them. Some autobiographical memories are easily forgotten while others seem to remain more accessible, carry greater weight in their personal meaning, and maintain a stronger emotional impact. Over decades, researchers have explored how variables associated with the original event can lead to differences in autobiographical memory encoding and recall; for instance, the type of affect activated during the event, its intensity, and the nature of beliefs directly tied to the memory have been written about extensively in the research literature on Post-Traumatic Stress Disorder (PTSD) (Chukwuorji, Ifeagwazi, & Eze, 2017; Falsetti, Resick, & Davis, 2003; Hathaway, Boals, & Banks, 2010). In recent years, it is becoming clearer that some of the memory processes we attribute to PTSD etiology might have relevance and application for other anxiety disorders, including Social Anxiety Disorder (SAD).

### **Social Anxiety Disorder (SAD)**

The cognitive substrate of SAD has been characterized as a desire to make a favourable impression on others, with considerable doubt about one's ability to do so (Clark & Wells, 1995). Individuals with SAD tend to possess negative self-appraisals regarding their intelligence, appearance, social competence and visible signs of anxiety, and fear that these traits will be revealed during social encounters (Moscovitch, 2009). Researchers have found that these beliefs can take the form of mental self-representations or images (Hackmann, Clark, & McManus, 2000; Ng, Abbott, & Hunt, 2014), which are maintained through a feedback process of monitoring threat cues and overestimating social expectations. Clark and Wells (1995) suggest those with SAD engage in detailed self-monitoring and emotional reasoning during social encounters, which brings awareness to their anxiety symptoms and leads them to believe their

internal feelings of anxiety must represent the way they appear to others. For instance, people with SAD might experience their heart racing and their face feeling hot and assume their internal state is an accurate reflection of what is being projected to the world. Then, an unfavourable prediction regarding their appearance or behaviour is conjured, often in the form of a mental self-image. It has also been suggested that those with SAD disproportionately attend to threatening external cues, such as frowns, signs of boredom or confusion from an audience. These cues further inform their prediction of how they appear to others, and their mental self-representation is ultimately measured up against a perceived audience standard (Rapee & Heimberg, 1997). Because socially anxious (SA) individuals tend to exaggerate audience standards, their unfavourable mental self-representations are unlikely to meet perceived expectations, which creates further threat-induced anxiety and a continued cycle of self and audience-monitoring (Rapee & Heimberg, 1997).

### **Socially Traumatic Memories**

The mechanisms which serve to maintain SA symptoms begin with a pre-existing belief that social situations hold some degree of threat potential, possibly arising from dispositional traits and past experiences (Clark & Wells, 1995). Consequently, researchers have aimed to investigate whether particular moments may have served as pivotal or self-defining experiences in socially anxious individuals' lives that fuel their tendency to perceive threat in social situations. In other words, researchers have endeavored to determine whether highly socially anxious (HSA) individuals tend to report "socially traumatic" events that operate in the context of SAD in similar ways compared to how trauma memories operate within PTSD. To this end, Stemberger, Turner, Beidel, and Calhoun (1995) reported that over half (56%) of a sample of individuals with SAD recalled a distressing social situation that marked the onset of their SA

symptoms. Additionally, Hackmann, Clark, and McManus (2000) discovered that SA individuals tend to experience recurrent negative mental imagery in stressful social situations, and that these images can often be drawn back to a distressing social experience that occurred around the onset of their symptoms. Studies have also shown that HSA people tend to describe these SA-cued memories and images as being more vivid, detailed, and imbued with greater negative affect compared to the negative images and memories described by low socially anxious (LSA) individuals (Moscovitch, Gavric, Merrifield, Bielak, & Moscovitch, 2011; Moscovitch et al., 2018). As well, Erwin, Heimberg, Marx, and Franklin (2006) compared non-anxious controls to individuals with SAD in their responses to socially distressing personal experiences and discovered that those with SAD reported more PTSD-like symptoms (re-experiencing, avoidance and hyperarousal). Although research has consistently shown that SA individual's socially distressing memories differ from non-anxious controls in their emotional and perceptual properties (see Morgan et al. 2010 for review), there are mixed findings with respect to differences in socially distressing memory retrieval bias, with several studies showing that cueing SAD and non-anxious control participants with SA-provoking words and exercises does not reliably elicit group differences in socially distressing memory retrieval (Rapee, McCallum, Melville, Ravenscroft, & Rodney, 1994; Wenzel, Haugen, & Schmutzer, 2003). However, as noted in Morgan et al. (2010), SAD memory studies have used wide-ranging methodologies to elicit socially distressing memories. For instance, Stopa and Jenkins (2007) found that after asking HSA participants to hold a negative self-image in mind during an anxiety-inducing speech task, they more quickly produced a negative memory than when asked to hold a positive self-image in mind. Although this study did not compare HSA and LSA individuals, it is possible that differences in rate or emotional valence of memories retrieved would more reliably emerge



under certain SA-priming conditions. These methodological issues need to be resolved before drawing any firm conclusions about SAD and memory retrieval bias.

### **Negative Self-Imagery**

Apart from exploring the potential etiological role of socially traumatic memories in SAD, researchers have also investigated the enduring and maintaining features of memory-derived negative self-representations, which commonly present in the form of negative self-imagery (Hackmann et al., 2000). According to a recent review of the imagery literature in SA (Ng, Abbott, & Hunt, 2014), evidence from several studies supports the notion that bringing negative imagery to mind during social situations increases anxiety and objectively impairs performance in social situations. One of the central conclusions of this review was that these undesirable outcomes can be elicited in LSA individuals as well; when encouraged to develop and hold a negative self-image in mind, LSA individuals display heightened anxiety and performance impairments similar to HSAs (Ng et al., 2014). These findings suggest it is perhaps not the mere experience of negative images that lies at the root of the problem for HSAs, but that they more frequently and spontaneously recall these images, appraise them as being more meaningful and accurate, and manage them ineffectively compared to LSAs (see Moscovitch et al., 2011; Moscovitch et al., 2018). For example, HSAs report being more likely to suppress or passively accept the images rather than spontaneously alter their features like their LSA counterparts (Moscovitch et al., 2013).

### **Social Pain**

As previously mentioned, HSAs tend to experience more negative affect when recalling memories and images drawn from past socially distressing experiences (Moscovitch et al., 2011; Moscovitch et al., 2018). Negative affect encompasses a broad set of emotions, including anger,

anxiety and shame. Social pain, however, is a more precise form of negative emotion that tends to follow the types of experiences socially anxious people report in these memories (e.g. social exclusion, rejection, or humiliation). The social pain literature outlines a number of ways this affective experience could play an important role in SA etiology and maintenance.

### **Dispositional Pain Sensitivity**

Social pain shares well-established neurological overlap with physical pain. As reviewed below, studies have shown that individuals who display greater sensitivity to physical pain are also more sensitive to social pain, and this sensitivity may be genetically influenced. A number of experimental paradigms have illustrated that the same neural activation patterns displayed in response to physical pain are activated in situations that elicit social pain, such as receiving negative feedback on personal qualities and experiencing social rejection during online games (Eisenberger et al., 2011; Eisenberger, Lieberman, & Williams, 2003). Furthermore, the relationship between physical and social pain sensitivity appears to be reciprocal, as manipulating physical pain experiences can cause parallel changes in social pain sensitivity, and inducing social pain has been shown to heighten physical pain sensitivity (Eisenberger et al., 2010; Master et al., 2009).

Additionally, physical and social pain appear to be more easily or intensely activated in some individuals. In one study, participants who reported higher physical pain following a painful heat stimulation were also more likely to report higher social pain following a social exclusion (Eisenberger, Jarcho, Lieberman, & Naliboff, 2006). This relationship remained after controlling for trait neuroticism and trait anxiety, which implies the result was not accounted for by a general negative reporting style (Eisenberger et al., 2006). In fact, there is evidence to suggest this sensitivity may be genetically predisposed, at least in part, as research has shown

that individuals who possess a particular opioid receptor gene reported higher levels of pain sensitivity (Chou et al., 2006) and those who possessed this gene were also more likely to report heightened rejection sensitivity in self-report and neural measures (Way et al., 2009).

### **Enduring Impact of Social Pain**

Studies have shown that socially painful events maintain an experiential impact that distinguishes them from memories of physically painful events. People are readily able to recall and re-experience profound instances of emotional pain felt at the time of social betrayals that occurred decades prior (Hansson, Jones, & Fletcher, 1990). People also demonstrate a unique ability to re-experience the pain of feeling socially injured, whereas the emotions and sensations of physical pain are typically recalled but not re-experienced in memories relating to physical pain (Chen, Williams, Fitness, & Newton, 2008). Social pain can also maintain a lasting impact by increasing reported SA in subsequent social interactions. Fung and Alden (2016) discovered that social pain mediated the relationship between a standardized social exclusion and participants' ratings of SA in anticipation of a subsequent social interaction. Furthermore, in a follow up study, these researchers successfully ameliorated social pain by prophylactically administering acetaminophen, which reduced anticipatory SA for the next social interaction (Fung & Alden, 2016).

### **Formation of Attitudes and Beliefs Following Socially Distressing Events**

Research has shown that HSAs tend to rely on excessively negative interpretations and derive negative self-beliefs from socially distressing events. Indeed, individuals with SAD are more likely to consider socially painful autobiographical memories to be central to their self-identity (O'Toole et al., 2016). These findings suggest that the memory of exclusion, rejection, or humiliation can become an important source of information for HSA individuals, which they

use to navigate expectations of themselves and others around them. To this end, Merrifield, Balk, and Moscovitch (2013) discovered that negative self-appraisals mediated the relationship between recalled childhood teasing and SA symptoms, accounting for 51% of the effect, in a clinical sample of participants with anxiety disorders. These findings were correlational in nature, but some cautious speculations can be drawn from this study, including the possibility that individuals who arrived at self-depreciating conclusions in response to childhood teasing (e.g. that they are unattractive, unintelligent, or socially incompetent) may also be more likely to report higher levels of SA symptoms.

Socially anxious individuals are also more likely to develop expectations about their social value from socially distressing events. Flett et al (2016) revealed that the degree to which participants believed they *mattered* to others mediated the relationship between childhood maltreatment and SA, suggesting that HSA individuals were more inclined to interpret childhood maltreatment as evidence that they are not important and valued by others. Perceived sense of mattering captures social value across three domains, including the degree to which respondents believe others: (a) are aware of them (e.g. *“In a social gathering, no one would recognize me”*), (b) deem them to be important (e.g. *“People would sometimes inconvenience themselves to help me”*), and (c) rely on them (e.g. *“People would tend to rely on me for support”*). This construct exemplifies the types of core beliefs that lie at the foundation of SAD. Although some researchers propose that the fundamental core of SAD is comprised of negative self-appraisals with an accompanied fear of revealing one’s perceived flaws to evaluative others (Moscovitch, 2009), other researchers note that HSA individuals tend to place themselves within a social rank hierarchy in which they view others as being significantly less flawed and more superior (Aderka et al., 2009; Weisman et al., 2011). From this perspective, problematic core beliefs in SA may be

best described as interpersonal in nature (e.g. “everyone is better than me” as opposed to “I am a bad person”). Indeed, sense of mattering has been shown to account for variance in constructs closely related to SA over and above the effects of self-esteem, highlighting the significance of the interpersonal hierarchy in SA pathology (Cha, 2016).

### **Imagery Rescripting**

Given that socially distressing autobiographical memories likely play an important role in the formation and maintenance of SA symptoms, therapeutic interventions that directly address and work within “socially traumatic” memories could yield meaningful clinical benefits when treating SAD. Imagery Rescripting (IR) is a type of intervention that researchers and clinicians have used to guide modification of HSA individuals’ memory-derived negative core beliefs. In this technique, the patient is asked to bring a meaningful, SA-related autobiographical memory to mind. The probes for eliciting such a memory can vary. Often, patients are asked to consider thoughts or emotions that they currently experience while entering or anticipating situations that evoke SA (Reimer & Moscovitch, 2015; Wild & Clark, 2011). IR proceeds in three phases. In the first phase, patients are asked to recall and re-experience that memory from a first-person present-tense perspective in as much detail as possible. In phase two, they are instructed to recall the same memory, but as an onlooker from their current adult perspective, at which time they are asked to mentally travel back in time to help their “younger self” alter the course of events within that memory in whatever ways they wish to make the outcomes more satisfying for the younger self. Finally, in the third phase, like in phase one, they are instructed to recall the memory again from their younger self’s perspective, but this time they are asked to use their imagination to incorporate the new information from phase two into their recollection of the event. The intervention ends with a discussion about what was learned during the process.

Compared to non-active (e.g., waitlist) control groups, IR has been shown to yield strong reductions in distress while recalling the negative autobiographical memory and very large reductions in SA symptoms – outcomes that are on par with cognitive restructuring when compared directly within a single session design (Frets et al., 2014; Nilsson, Lundh, & Viborg, 2012; Norton & Abbott, 2016; Reimer & Moscovitch, 2015).

### **Mechanisms of Change in IR**

There are a number of possible mechanisms through which IR might work to modify SA symptoms. High socially anxious individuals tend to describe SA-cued memories as readily accessible and personally meaningful (Hackmann et al., 2000; O'Toole et al., 2016). If changes in core beliefs during IR contribute to SA symptom reduction, then discussing personal memories might provide more direct access to those core beliefs and increase opportunities to address and challenge them. Indeed, Çili and Stopa (2015) discovered evidence to suggest that when individuals retrieve highly emotional, self-relevant memories, this process activates their current working models of self, which could make those working models more accessible and amenable to discussion (see also Conway & Pleydell-Pearce, 2000). Moreover, Reimer and Moscovitch (2015) found that IR led to significant changes in core beliefs about the self and others, and that reductions in the strength of negative core beliefs about the self were uniquely related to changes in symptoms of SA. Additionally, during IR, patients are asked to re-live and fully engage with the emotions and upsetting details of the past event by acknowledging, verbalizing and re-experiencing those features (Wild & Clark, 2011). For HSA individuals, this process may help to facilitate improvements in their emotion regulation strategies. HSA individuals frequently engage in experiential avoidance (EA)—the tendency to ignore or distract oneself from unpleasant internal experiences—which has been linked to more negative

interpretations during (Sarfan, Cody, & Clerkin, 2018) and following (Levin, Haeger, & Smith, 2017) socially distressing events. Accordingly, limiting the degree to which HSAs avoid unpleasant aspects of socially distressing memories might attenuate negative interpretations of these autobiographical events.

IR also requires that the patient vary their narrative perspective while recalling their memory, which may facilitate some degree of cognitive flexibility and increase the likelihood of developing novel insights about the situation. For instance, during the initial first-person narrative stage, individuals frequently state that their SA-related memories hold negative meaning about themselves. However, they will often later express compassion and understanding toward the younger self when describing events from the sidelines from the perspective of their current, older self.

Patients undergoing IR are also exposed to salient opportunities to develop novel insight when asked to alter the course of events within the memory in a way that makes the experience more satisfying for their younger selves. One of the goals of this activity is to provide an opportunity to learn more about what the younger self needed and how that might have been achieved. Although it is commonly noted by IR researchers that the patient will achieve optimal outcomes if they are able to experience “self-empowerment” during this phase of the intervention (Arntz & Weertman, 1999; Watson, Rapee, & Todorov, 2016), self-empowerment can take many forms. Arntz and Weertman (1999) suggest the patient can experience self-empowerment by exercising power of choice by deciding on their preferred method of intervention, while Watson, Rapee and Todorov (2016) hypothesized that particular methods of intervention are more likely to result in a heightened sense of empowerment than others. For example, patients might achieve a sense of empowerment by asserting their needs in the face of

conflict, such as by having the patient's younger self stand up to a bully/perpetrator or by enlisting help in doing so from their older self. Finally, some researchers have proposed that the intervention phase of IR, whereby patients are instructed to alter the course of events in their memory, will lead to clinical improvements to the extent that it reduces the accessibility of the original memory and its negative features (Wheatley, Hackmann & Brewin, 2009). This goal is informed by the "retrieval competition hypothesis," as outlined in a seminal theoretical paper by Brewin (2006) in which he suggests that negative and positive memories compete with each other for cued activation and highlights that the power of effective therapy lies in helping patients to create new positive or neutral memories that can successfully compete with negative memories. Thus, some researchers have proposed that altering the imagery content of negative memories could make the negative content in those memories less accessible, perhaps by creating new, detailed, positive imagery content that is liable to win the retrieval competition (Wheatley, Hackmann & Brewin, 2009). Further research would be required to support the veracity of these claims.

### **Variability in Procedures and Outcomes**

Despite favourable overall outcomes, clinical research on IR has shown that some participants do not respond to the intervention immediately or do not maintain positive outcomes at follow-up (Frets et al., 2014; Moscovitch et al., 2011). Certainly, non-responders are not uncommon in the SAD treatment literature (Davidson et al. 2004; Otto et al. 2000; Rapee et al. 2009). When treatment protocols are delivered in a standardized format, patient factors (e.g. comorbid depression, treatment expectancy; Chambless, Tran, & Glass, 1997) can be reasonably expected to influence outcomes. Beyond these patient factors, there may also be components of the IR protocol itself that contribute to variability in patient outcomes. Much of the IR protocol



remains constant across patients, with key components such as repeating exposure to the negative internal experiences associated with the memory, varying perspective-taking, and altering the content of the memory to make it more satisfying for the younger self. However, a critical component that may contribute to changes in SA symptoms is significantly less standardized. That is, the manner in which patients *choose to intervene* within the memory in order to make the situation more satisfying for their younger selves is ultimately left up to their discretion and can vary considerably. As described below, this could account for some of the observed variability in treatment response.

### **Common Themes During the IR “Intervention” Phase**

Clinical experience and research have shown that patients most frequently choose to incorporate *avoidant*, *self-compassionate*, and/or *assertive* strategies in order to alter the course of events for their imagined younger self within their socially distressing memories (Norton & Abbott, 2016; Wild & Clark, 2011). An example of avoidance may reveal itself as a patient’s expressed desire to have their older self protect their younger self from ever becoming exposed to the source of conflict in the first place, perhaps by taking their younger self by the hand and leading him/her away from threat to a new location. Socially anxious individuals frequently avoid sources of perceived social threat in their day-to-day lives, which can provide temporary relief but can also shape their beliefs by reinforcing their perceived inability to cope with challenging social situations (Moscovitch et al., 2013). For this reason, therapists may often wish to guide patients toward alternate possibilities, such as self-compassionate or assertive intervention strategies. However, the therapist may be more likely to provide support rather than strong guidance during this phase of IR, as it is generally assumed that patients will receive

greater therapeutic benefit if they are supported in taking ownership over their choice of intervention strategy (Arntz & Weertman, 1999).

As previously stated, compassionate and assertive strategies are often preferred or encouraged during the intervention phase of IR. Self-compassion has been described as using thoughts or behaviours that are informed by: *self-kindness*—patience and kindness toward oneself in light of failures or mistakes; *common humanity*—the understanding that failures or mistakes are not isolating but rather part of a unifying human experience; and *mindfulness*—having an awareness of negative thoughts and emotions without accepting them as fixed truths (Neff, 2003). Socially anxious people tend to report lower levels of trait self-compassion (Werner et al., 2012). Yet, when primed to be more self-compassionate, HSA individuals appear to benefit; in one recent study (Blackie & Kocovski, 2017), HSAs were instructed to mentally engage in self-compassion following an anxiety-provoking task which led to less post-event processing and a greater willingness to participate in future social situations. Harwood and Kocovski (2017) also demonstrated that compared to a control writing condition, a self-compassion writing exercise significantly lowered HSA undergraduates' anxiety in anticipation of an upcoming speech task.

Another intervention strategy commonly observed during IR is assertive behaviour. Assertiveness describes the act of confronting a person or situation in a manner that fulfils one's needs without infringing upon the rights of others (Swee, Kaplan, & Heimberg, 2018). Similar to the relationship between SA and trait self-compassion, HSA individuals tend to report lower levels of assertiveness. Assertiveness training is a longstanding therapeutic intervention used in SA clinical research and practice. Integral to this therapeutic approach is the understanding that the function of assertive behaviour is not to alleviate negative emotions such as anxiety, but to

promote responses that are discordant with dysfunctional cognitions that maintain avoidant (non-assertive) behaviour (Swee et al., 2018). In their IR intervention study on bullying memories, Watson, Rapee, and Todorov (2016) compared the effects of using *revenge*, *forgiveness*, or *avoidance* and discovered that revenge was experienced as less stressful than forgiveness but led to fewer positive evaluations of coping and no significant decrease in negative affect (whereas a reduction did occur in the forgiveness condition). It is unclear whether these findings on the effects of imagined revenge would resemble the effects of imagined assertiveness during IR. Both revenge and assertiveness might encourage the patient to feel empowered, but through distinct avenues: whereas assertiveness involves fulfilling one's needs without infringing upon the rights of others, revenge involves acts of aggression directed intentionally toward another person.

### **Current Study: Objectives and Hypotheses**

The current study aimed to compare the relative effects of using avoidant, self-compassionate and assertive coping strategies on reported negative affect, social pain and perceived sense of mattering during imagined socially distressing situations, and to examine whether the relative effects of these strategies would depend on participants' levels of trait SA. I hypothesized, first, that higher trait SA would predict higher levels of negative affect and social pain and lower mattering across conditions. Second, we predicted that, collapsed across levels of SA, the use of assertive and self-compassionate strategies would be associated with lower NA and social pain and greater mattering relative to the use of avoidance. Finally, we advanced no strong moderation hypotheses about whether the relative impact of the three types of coping strategies would depend on trait SA levels. Specifically, we reasoned that although self-compassionate and assertiveness strategies might have more meaningful impact for those with

higher levels of trait SA, they might also be more difficult for higher SA individuals to imagine implementing effectively because being assertive and self-compassionate may feel inherently foreign and threatening to people who tend to be more conflict-avoidant and self-critical.

Findings are expected to shed light on the effects of using different strategies to cope with imagined social stress, with potential applicability for clinicians guiding socially anxious clients to intervene in socially painful memories the intervention phase of IR.

## Method

### Participants

The sample consisted of undergraduate participants recruited from the University of Waterloo research participation pool who signed up for the current study advertised as “Navigating Tricky Social Situations”. From the original collected sample ( $N = 294$ ), 37 participants were removed prior to analyses due to: (a) completing the study either in less than 15 minutes ( $n = 12$ ) or more than 12 hours ( $n = 11$ ) to ensure participants had likely completed the study within the same day but also spent a reasonable amount of time on the procedures and questionnaires within; (b) at the end of the study, reporting low scores on how honestly they answered the study questions (reported lowest value on 3-point likert scale;  $n = 9$  excluded); or (c) at the end of the study, reporting a low overall score on their level of engagement during the study (reported value of 7 or below on 15-point likert scale;  $n = 5$ ). These exclusions resulted in a final sample of 258 participants. Participants were, on average, 19.91 years old ( $SD = 1.88$ ), with 67.1% identifying as female. Participants identified their cultural/ethnic background as follows: 39.5% Caucasian, 26.4% East Asian, 19% South/South-East Asian, 5% Middle Eastern, 2.7% Black, 2.7% Hispanic, and 4.7% “other” or declined to answer.

### General Procedures

Participants were sent a link via email to complete the study procedures and questionnaires, which took place exclusively online. The study took approximately 45 minutes to complete and participants were remunerated 1.0 research participation credits for their undergraduate Psychology courses, in which students can earn bonus grades by amassing such credits.

## **Vignette Characteristics**

Five vignettes were created for the purpose of this study (see Appendix A). All vignettes described situations in which the main character was socially excluded, rejected, or humiliated. The main characters in each vignette were described as experiencing scenarios in which they would reasonably experience doubts about the social impression they were making on others. Although traditional IR protocol involves working with clients' negative autobiographical memories, vignettes describing painful social experiences were used in the current study to provide greater standardization and control, allowing comparisons between different intervention strategies under the same contextual circumstances.

## **Coping Strategy Characteristics**

The same five vignettes were paired with each of the three coping strategies describing the main character either using avoidance, self-compassion, or assertiveness to cope with the distressing situations. As shown in Appendix A, avoidance strategies involved the main character distancing themselves from the source of distress, self-compassion strategies involved the main character engaging in thoughts of self-kindness, common humanity and/or mindfulness<sup>1</sup>, and assertiveness strategies involved the main character attempting to meet his/her needs by actively confronting the source of distress without infringing upon rights of others. In this study, all forms of assertiveness involved directly facing or addressing sources of discomfort, but not all situations involved confronting other individuals. In scenarios that did involve interpersonal confrontation, the assertive response involved standing up for the main character's feelings without using physical force or denigrating speech toward others.

---

<sup>1</sup> Within the self-compassion condition, each paired coping strategy included at least one facet of self-compassion, with all three facets represented across the five vignettes. Vignettes 1, 2, 3, and 4 involved self-kindness, vignettes 3 and 5 involved common humanity, and vignette 5 involved mindfulness.

Pilot data were collected from 12 participants on the vignettes and paired coping strategies to determine whether there was sufficient distinction and agreement about whether each coping strategy could be reasonably considered “avoidant”, “self-compassionate,” or “assertive”. Participants blinded to condition were asked to categorize each coping response one at a time within one of these three categories, each of which was first described and defined for participants in broad terms. For two of the five vignettes, participants demonstrated 100% agreement with researchers’ intended categorizations. For the other three vignettes, 11/12, 10/12 and 6/12 participants demonstrated 100% agreement. The vignette and paired coping responses that were correctly classified by only 6/12 participants were edited to ensure that the distinctions between assertive and self-compassionate strategies were clearer, as difficulty with this distinction represented the most frequent source of disagreement.

### **Condition Assignment**

Participants were asked to imagine themselves experiencing the events and the coping strategy described in each scenario. All vignettes and coping responses were described from a second-person perspective (e.g. “*now imagine that you...*”). All participants involved in the study were asked to imagine themselves in each of the same five vignettes, but random assignment to the avoidance, self-compassion, or assertiveness conditions determined which type of coping response the participant was asked to imagine using in response to each vignette scenario. Once a participant was assigned to a condition, they were asked to imagine themselves using the same type of described coping strategy for each of the five vignettes. For example, a person assigned to the self-compassion condition would imagine using self-compassionate coping strategies for all five vignette scenarios. After each vignette, participants responded to

self-report measures in which they rated negative affect, social pain, and perceived mattering in relation to experiencing the imagined intervention strategy.

### **State Self-Report Measures**

**Mattering scale.** The Mattering scale is a 24-item questionnaire that illustrates good construct and discriminant validity (Elliott et al., 2004). It reflects an individual's perception of how much they matter to others by capturing the degree to which respondents believe others would be aware of them (e.g. "*In a social gathering, no one would recognize me*"), deem them to be important (e.g. "*People would sometimes inconvenience themselves to help me*"), and rely on them (e.g. "*People would tend to rely on me for support*") after envisioning themselves as the main character in the vignette/paired intervention strategy.

**Positive and Negative Affect Schedule (PANAS).** Participants were also asked to rate their level of distress by completing the negative affect subscale of the *Positive and Negative Affect Schedule* (PANAS; Watson et al., 1988). The subscale consisted of 10 emotion adjectives, including items such as "ashamed", "distressed" and "nervous." Across multiple studies, each of the subscales have demonstrated good reliability (e.g.,  $\alpha = .89$  for positive affect,  $\alpha = .85$  for negative affect in Crawford and Henry, 2004).

**Social pain scale.** Additionally, participants were asked to rate their social pain. Researchers have yet to develop a well-validated measure of social pain so we developed a short, 4-item scale for the current study based on items similar to that used in prior research (Fung et al., 2016). Items included: "*My feelings would be hurt*," "*I would feel emotional pain*," "*I would experience a sense of suffering*," and "*I would feel emotionally injured*." Similar scales have shown excellent reliability ( $\alpha = .93$  in Fung et al., 2016).



Measures following vignettes and the vignettes themselves were presented in counterbalanced order. For all measures across all vignettes, participants rated agreement with items in Likert-style format, ranging from *1-Strongly Disagree* to *5 (or 7)-Strongly Agree*. All measures across vignettes demonstrated good internal consistency (all alphas > .82).

### **Trait Self-Report Measures**

**Social Phobia Inventory (SPIN).** The Social Phobia Inventory (SPIN; Connor et al., 2000) is a questionnaire that consists of 17 items that measure the presence of social anxiety symptoms over the past week. It was administered to participants following completion of the vignette protocols. The SPIN is a reliable and well-validated measure (Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006; Connor et al., 2000) that demonstrated strong internal consistency in the current study ( $\alpha = .94$ ).

### **Data Analytic Plan and Data Preparation**

**Data analysis plan.** Condition was dummy-coded and hierarchical regression analyses were performed with condition and centered SPIN scores entered on step 1, and their interaction on step 2 as predictor variables. Composite scores for mattering, negative affect, and social pain across vignettes were calculated (see below) and entered as outcome variables in separate analyses.

**Missing data, outliers and distributions.** The majority of measures in the study had zero missing data, with a maximum of 1.6% missing data per item. Little's MCAR tests were non-significant for the measures included in the study, suggesting the data were missing completely at random (Little, 1988). Missing data were imputed using the expectation-maximization approach. Missing data were not imputed when a participant failed to complete the majority of items in any particular scale, in which case their data were deleted listwise from

analyses involving those measures. Data were scanned for outliers using boxplots and descriptive analyses ( $> 3$  SDs above or below the mean). One outlier for the social pain variable and one for the negative affect variable were identified and deemed plausible by ensuring there were no calculation errors and that the value corresponded with values from a related variable (i.e., if a participant reported a low score on negative affect, it would be expected that they would also report a low score on social pain). Each measure was normally distributed, with minimal skewness and kurtosis (less than 2 and greater than -2 for each measure; Field, 2009; Gravetter & Wallnau, 2014).

**Composite scores derived from outcome measures.** For each measure, total scores were summed across vignettes to reflect an overall sense of mattering, negative affect, and social pain. Thus, each total score was a composite of five scores, collected after each of the five vignettes. These composite scores demonstrated adequate internal consistency, with negative affect yielding an alpha of .86, social pain demonstrating an alpha of .74, and mattering yielding an alpha of .80.

## Results

### Equivalence of Condition Groups

Descriptive statistics for participants across conditions are presented in Table 1. There were no significant differences between condition groups in participant age,  $F(2, 86) = .065, p = .937$ , gender distribution  $X^2(2) = 3.38, p = .184$ , ethnicity  $X^2(18) = 13.88, p = .737$ , or SPIN scores,  $F(2, 253) = 2.154, p = .118$ .

Table 1.

Values for Study Variables Across Conditions

	Avoidance	Self-Compassion	Assertiveness
Age	19.75 (1.75)	19.87 (2.22)	20.15 (1.60)
Gender (% Female)	63.0	66.3	75.0
Ethnicity (% Caucasian)	40.2	42.4	36.1
SPIN [ $M$ ( $SD$ )]	27.07 (15.58)	22.73 (13.45)	26.26 (15.97)
Negative Affect [ $M$ ( $SD$ )]	128.04 (32.67)	107.65 (29.40)	117.85 (32.14)
Social Pain [ $M$ ( $SD$ )]	91.45 (18.08)	81.28 (19.65)	84.71 (21.20)
Mattering [ $M$ ( $SD$ )]	254.09 (46.15)	283.73 (43.74)	290.04 (42.20)

*Note. Outcome variables represent composite scores across all five vignettes.*

### Correlations between Outcome Variables

Significant correlations were observed between all three outcome variables. Negative affect was negatively associated with mattering,  $r = -.227, p < .001$ , and positively associated with social pain,  $r = .568, p < .001$ , while mattering shared a negative relationship with social pain,  $r = -.292, p < .001$ .

## Hierarchical Regression Analyses

Two hierarchical regression analyses were run for each outcome measure (negative affect, social pain and mattering) with SPIN scores on the first step, condition on the second, and their interaction term on the third. Condition was dummy coded and each regression analysis maintained one coping condition as the point of comparison against the two other conditions in the analysis. Thus, for each of the three outcome variables, one hierarchical regression was run with avoidance set as the comparison point against assertiveness and self-compassion, and another with assertiveness set as the comparison point against self-compassion and avoidance.

When negative affect was the outcome variable, there was a significant main effect of SA,  $R^2 = .185$ ,  $F(1, 254) = 57.735$ ,  $p < .001$ ,  $\eta_p^2 = .19$ , with higher SA predicting more negative affect overall. There was also a main effect of condition,  $R^2 = .232$ ,  $F(2, 252) = 7.688$ ,  $p = .001$ ,  $\eta_p^2 = .06$ . Compared to use of avoidance, use of assertiveness resulted in lower negative affect (126.48-9.48),  $\beta = -.132$ ,  $t(252) = -2.108$ ,  $p = .036$ , as did use of self-compassion (126.48-16.60),  $\beta = -.246$ ,  $t(252) = -3.908$ ,  $p < .001$ . Assertive and self-compassionate strategies produced non-significant differences in negative affect (116.97-7.16),  $\beta = -.106$ ,  $t(252) = -1.588$ ,  $p = .114$ .

Similarly, when social pain was the outcome variable, there was a significant effect of SA,  $R^2 = .182$ ,  $F(1, 254) = 56.659$ ,  $p < .001$ ,  $\eta_p^2 = .18$ , as well as condition,  $R^2 = .213$ ,  $F(2, 252) = 4.821$ ,  $p = .009$ ,  $\eta_p^2 = .04$ . Higher SA predicted higher social pain. Less social pain was experienced when using either the assertive intervention strategies (90.47-6.30),  $\beta = -.142$ ,  $t(252) = -2.244$ ,  $p = .026$ , or self-compassionate strategies (90.47-7.80),  $\beta = -.188$ ,  $t(252) = -2.946$ ,  $p = .004$ , compared with the avoidance strategies. Assertive and self-compassionate strategies elicited a degree of social pain that did not significantly differ from each other, (84.18-1.52),  $\beta = -.037$ ,  $t(252) = -.540$ ,  $p = .590$ .

Finally, with perceived mattering as the outcome variable, there was a significant effect of SA,  $R^2 = .042$ ,  $F(1, 254) = 11.199$ ,  $p = .001$ ,  $\eta_p^2 = .04$ , with higher SA predicting greater perceived mattering. There was also a main effect of condition,  $R^2 = .147$ ,  $F(2, 252) = 15.498$ ,  $p < .001$ ,  $\eta_p^2 = .11$ . Compared to avoidance, assertiveness promoted a greater sense of mattering (255.11-35.49),  $\beta = .342$ ,  $t(252) = 5.190$ ,  $p < .001$ , as did self-compassion (255.11-27.16),  $\beta = .279$ ,  $t(252) = 4.207$ ,  $p < .001$ . Sense of mattering did not differ between the assertiveness and self-compassion conditions, (290.56-8.36),  $\beta = -.086$ ,  $t(252) = -1.218$ ,  $p = .225$ .

There were no significant condition x SA interactions across the three outcome measures (all  $p$ 's  $> .099$ ).

### **Follow-up Analysis: High vs. Low Socially Anxious Groups**

Results demonstrated that higher levels of trait SA predicted higher negative affect and social pain and lower mattering, and that assertive and self-compassionate strategies were more effective than avoidance strategies for promoting a lower degree of social pain and negative affect and higher sense of mattering for all participants, unmoderated by trait SA. Trait SA in these analyses was operationalized as a continuous variable, with SPIN scores ranging widely across our entire sample of participants. Next, we wished to explore whether this same pattern of results would replicate in an analogue subsample of high SA participants selected from the higher end of our sample distribution whose SA symptoms resembled those of individuals with SAD. We aimed to compare this group to a low SA subsample from the lower end of the distribution whose SA symptoms resembled healthy individuals without problematic anxiety.

To this end, the current study sample was divided into high and low SA groups 1SD above and below the sample mean. The mean SPIN score of the total sample ( $N = 257$ ) was 25.0 ( $SD = 15.0$ ), resulting in an HSA group with cutoff scores above 40 and an LSA group with

cutoff scores below 10.<sup>2</sup> This process yielded 41 high socially anxious (HSA) and 48 low socially anxious (LSA) participants. No significant differences were observed between HSA and LSA groups in participant age,  $t(87) = .396, p = .693$ , or ethnicity,  $\chi^2(9) = 4.55, p = .872$ . There was a difference between HSA and LSA groups in their gender distribution  $\chi^2(1) = 4.57, p = .033$ , with a great number of participants who identified as female in the HSA group<sup>3</sup>.

Next, a multivariate ANOVA was conducted with condition and SA group entered as predictors of negative affect, social pain and sense of mattering. Replicating the results of our regression analyses, there was a significant effect of Group on negative affect,  $F(1, 83) = 38.178, p < .001, \eta_p^2 = .32$ , social pain,  $F(1, 83) = 44.557, p < .001, \eta_p^2 = .35$ , and mattering,  $F(1, 83) = 6.541, p = .012, \eta_p^2 = .07$ . Similarly, significant effects of condition were observed for negative affect,  $F(2, 83) = 9.411, p < .001, \eta_p^2 = .19$ , and mattering,  $F(2, 83) = 4.224, p = .018, \eta_p^2 = .09$ ; however, social pain only neared significance,  $F(2, 83) = 2.818, p = .065, \eta_p^2 = .06$ . Following up the main effect of condition,  $t$ -tests were conducted comparing the effects of each pair of conditions on negative affect and mattering, collapsed across SA group. Diverging somewhat from results of the regression analyses, results for negative affect revealed significant differences in negative affect between all pairs of conditions (all  $p$ 's  $< .05$ ), with those who imagined using a self-compassionate strategy reporting lower negative affect ( $M = 98.93, SD = 24.45$ ) than both those who imagined using assertiveness ( $M = 116.93, SD = 38.86$ ) and those who imagined

---

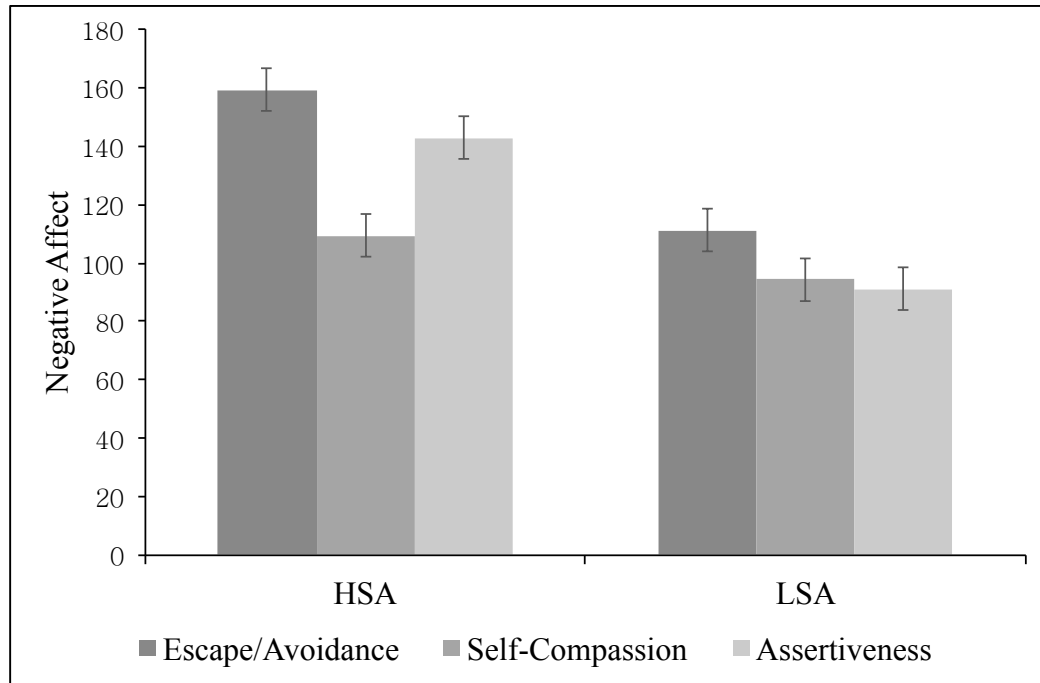
<sup>2</sup> Connor et al. (2000) determined that SPIN scores above 19 represent clinically significant levels of SA. Other researchers have more currently used cutoffs based on their clinical experience and sample distributions. However, many researchers have adopted more conservative SPIN cutoff scores of 12 or below for LSA groups and 30 and above for HSA groups (Moscovitch et al., 2011; Moscovitch et al., 2012; Moser et al., 2008).

<sup>3</sup>Bivariate correlations demonstrated that gender did not relate to negative affect or mattering; however gender was significantly associated with social pain in the full regression sample and in the HSA and LSA group sample. Thus, Gender was added as a control variable in the first of step in the hierarchical regression analyses that examined the social pain outcome variable. Gender was also added as a covariate in the ANOVA analysis with social pain as an outcome variable. There were no meaningful differences in the results compared to those that did not account for gender.

engaging in avoidance ( $M = 138.37$ ,  $SD = 36.78$ ). Results for mattering replicated those of our regression analyses, showing significant differences between the avoidance and self-compassion ( $M = 285.42$ ,  $SD = 42.08$ ) conditions ( $p = .003$ ), but not between the assertiveness and self-compassion conditions ( $p = .544$ ).

In these extreme group analyses (unlike our regression analyses in which trait SA was conceptualized as a continuous variable across the entire sample), a significant interaction effect between condition and SA was observed for negative affect,  $F(2, 83) = 3.388$ ,  $p = .038$ ,  $\eta_p^2 = .08$ . As in the regression analyses, no interaction effects were observed for social pain or mattering (both  $p$ 's  $> .141$ ). The significant condition x SA interaction effect for negative affect was further probed, first, by running two univariate ANOVAs to compare the effects of condition on negative affect for each level of SA separately. These analyses revealed a significant effect of condition for the HSA group,  $F(2, 38) = 8.988$ ,  $p = .001$ ,  $\eta_p^2 = .32$ , but not the LSA group  $F(2, 45) = 2.001$ ,  $p = .147$ ,  $\eta_p^2 = .08$ . Least Significant Difference post-hoc tests showed that HSA participants who imagined using a self-compassionate strategy reported less negative affect ( $M = 109.22$ ,  $SD = 29.73$ ) than HSA participants who were asked to imagine using either assertiveness ( $M = 142.87$ ,  $SD = 33.56$ ,  $p = .008$ ) or avoidance ( $M = 159.29$ ,  $SD = 22.87$ ,  $p < .001$ ). HSA participants in the assertiveness and avoidance conditions reported degrees of negative affect that did not significantly differ from each other ( $p = .114$ ). Second, we also probed the condition x SA interaction for negative affect by conducting follow-up independent  $t$ -tests comparing the two groups in each condition separately. These analyses revealed that HSAs reported heightened negative affect compared to LSAs when they imagined using assertiveness,  $t(25.163) = 4.891$ ,  $p < .001$ , or avoidance,  $t(27) = 4.672$ ,  $p < .001$ , but levels of negative affect that were equivalent to

those of LSAs when they imagined being self-compassionate,  $t(27) = 1.324, p = .197$ . See Figure 1.



*Figure 1.* Negative affect across coping strategy conditions within high and low SA groups.

Error bars represent pooled standard error.



## Discussion

People with higher levels of trait SA are more likely to believe they are personally flawed and do not matter to others (Flett et al., 2016; Merrifield et al., 2013). These beliefs are represented in HSA individuals' intrusive images and associated autobiographical memories of socially distressing experiences (Ng et al., 2014). IR is an intervention that has been shown to facilitate significant symptom change in patients with SAD while promoting the efficient modification of negative core beliefs encapsulated within socially distressing memories (Reimer & Moscovitch, 2015). The IR protocol guides patients to relive their memories from multiple perspectives and actively use their imagination to alter the course of events within these memories in a way that is more satisfying for their younger selves. However, the ways that patients choose to intervene and imaginably alter the course of events during the intervention is left up to each patient. Both research and clinical observation suggest that certain ways of intervening during IR may be more effective than others, but no clinical guidelines currently exist to assist practitioners on the methods they should encourage their socially anxious patients to use during the crucial phase of the IR protocol in order to achieve optimal intervention outcomes. To this end, the current study aimed to measure the comparative effects of imagining using different types of coping strategies commonly involved in this critical phase of IR. Specifically, we compared the effects of using avoidance, self-compassion, and assertiveness to cope with imagined socially distressing vignettes and examined whether the effectiveness of these conditions depended on participants' levels of trait SA.

As hypothesized, higher SA was associated with reports of higher negative affect and social pain as well as lower mattering. Moreover, irrespective of SA levels, participants who imagined themselves using either self-compassion or assertiveness reported decreased distress

and higher sense of mattering compared to participants who imagined using avoidance. That avoidance yielded the least desirable outcomes is consistent with a broad set of literature that has shown harmful consequences—such as distress—tend to follow use of various types of avoidance strategies (Moitra, Herbert, & Forman, 2008; Panayiotou, Karekla, & Panayiotou, 2014). We advanced no definitive hypotheses about interaction effects and our regression analyses yielded no significant condition x SA interactions.

When the study sample was divided into extreme high and low SA groups, results were equivalent to those of the regression analysis, with two notable exceptions. First, self-compassion was more effective than assertiveness in promoting lower negative affect. Second, there was a Condition x Group interaction effect for negative affect, such that the superior effect of using self-compassionate strategies relative to the other conditions for promoting lower degrees of negative affect was observed within the HSA group only, whereas LSAs reported levels of negative affect that did not significantly differ across the three conditions. Moreover, HSAs who imagined using assertiveness or avoidance reported levels of negative affect that were significantly higher than that of LSAs assigned to either of those conditions, but HSAs assigned to use self-compassion reported levels of negative affect that were indistinguishable from those reported by LSAs in that same condition.

### **Impact of Conditions on Negative Affect**

Consistent with expectations, HSAs in the avoidance condition reported higher negative affect than those in the self-compassion condition. Surprisingly, HSAs appeared to benefit more from self-compassion than assertiveness as an imagined adaptive coping response to socially distressing events. What might account for this difference? Both self-compassion and assertiveness involve self-advocacy in an effort to attain more self-satisfying outcomes during

challenging social situations. However, because socially anxious individuals believe they possess low social status and fall below others on the social hierarchy (Aderka et al., 2009; Weisman et al., 2011) and because asserting one's needs (in particular, during interpersonal confrontations as described in select vignettes used in this study) can sometimes mean compromising someone else's desires, HSA individuals may imagine that engaging in assertive behaviour means placing their needs above higher-ranking others, which could feel undeserving and potentially lead to conflict, with negative consequences for their social relationships and their already-tenuous social standing. In contrast, self-compassion involves intentionally cultivating an adaptive mindset encompassing private self-attitudes that are much less likely to infringe on others and lead to imagined conflict. Although practicing self-compassion can be quite challenging for people with higher levels of self-criticism (Robinson et al., 2016), HSA individuals in the current study appeared to report greater benefits from applying this coping strategy in comparison to assertiveness and avoidance, at least for reducing negative affect.

Although assertive behaviour is not intended to assuage negative emotions such as anxiety, it is viewed within the literature as an opportunity to reduce avoidance and challenge dysfunctional beliefs about one's ability to assert one's needs and the perceived consequences of doing so (Swee et al., 2018). Here, we investigated the effects of imagined assertiveness, which did not allow participants to gather real-life feedback from having put assertive behaviours into action. However, there is some evidence to suggest even multi-session, therapist guided training protocols that incorporate assertive behavioural experiments can have limited effects on SA symptoms (Marshall, Keltner, & Marshall, 1981), potentially indicating that assertiveness does not effectively produce changes in the core beliefs that maintain SA.

Self-compassion may have also been a particularly effective for HSAs because one component of self-compassion emphasizes “common humanity”—the notion that all humans share similar experiences, both good and bad (Neff, 2003). It is possible that emphasizing similarities between human experiences might help to de-escalate HSAs’ fixation on their perceived low social status and the negative beliefs that inform their low position on the social hierarchy. Reflecting on rejection, embarrassment, and humiliation as shared experiences might also reduce HSAs’ characteristic tendency to attribute excessive personal meaning to the negative event (Moscovitch et al., 2011; O’Toole et al., 2016). It is also possible that self-compassion resulted in the lowest degree of negative affect for HSAs, on par with that of LSAs, because this coping strategy facilitates an adaptive internal dialogue that helps to promote effective emotional processing by mitigating experiential avoidance (i.e., avoidance of internal experiences, such as thoughts and emotions) (Sarfan et al., 2018).

### **Impact of Conditions on Mattering**

Although self-compassion led to reported reductions in negative affect for HSA individuals, it did not facilitate an elevated sense of mattering compared to using assertive or avoidance strategies, suggesting that either a) none of the conditions in this study had a strong influence on mattering, or b) changes occurred but were not captured by the mattering measure. Similar to the current study, participants in Watson et al.'s (2016) study on IR for bullying memories experienced reductions in negative affect but displayed no improvements in positive self-beliefs when they were instructed to rescript a memory of personal victimization by using forgiveness, avoidance, or revenge. Like in Watson et al. (2016), participants in the present study self-administered the study protocol without any interaction with a researcher or therapist. It is possible that changes in positive self-beliefs, such as mattering, require a higher-intensity

protocol in which participants are actively supported by a knowledgeable guide such as a well-trained clinician or experimenter.

### **Social Pain**

Though negative affect and social pain were both significantly associated with condition and trait SA in the regression analyses, it is worth noting that in the extreme groups analyses, there was a significant condition by SA interaction effect only for negative affect, with use of self-compassion facilitating lower negative affect in HSAs relative to the other conditions. It was surprising that similar effects were not observed for social pain, given that we expected both constructs to encapsulate a similar type of emotional distress in the face of imagined negative social experiences. Aside from measurement error, one possible explanation for this discrepancy may be that HSAs experienced a broader range of negative emotions in response to the imagined scenarios than only social pain and, in turn, that self-compassion exerts its salutary effects on a broader range of negative feelings than social pain alone (Arimitsu & Hofmann, 2017; Fresnics & Borders, 2017).

### **Limitations and Future Directions**

Findings should be considered within the context of the study's limitations. The participant sample consisted of university undergraduates, thus restricting the degree to which findings can be generalized to community samples with broader age ranges and life experiences. As well, a large portion of the study sample (i.e., any participant with SPIN scores that were less than +1 SD and more than - 1 SD from the sample mean) was omitted from the group-comparison analyses; this may have resulted in underpowered comparisons within conditions at each level of SA.

Additionally, the procedures did not reflect those that would be typically used during an IR session, where participants can choose any combination of intervention strategies to guide their response to social distress on behalf of their younger self. Here, each coping strategy was distinctly and somewhat artificially divided from the others into separate conditions. It is possible, for example, that a combination of self-compassionate and assertive strategies would produce superior outcomes than self-compassion or assertiveness alone. Other features that deviated from typical IR protocols included the lack of therapist guidance and the fact that participants were asked to imagine contrived scenarios instead of their own autobiographical accounts of socially distressing situations. Without personal autobiographical accounts, participants were also unable to engage in the component of IR that urges them to alternate between perspectives of their current and past self within the memory. Although this study's use of artificial vignettes restricted the degree to which findings could be applied to our understanding of IR processes, the vignettes provided the necessary standardization and control required to compare intervention strategies. Future studies can build on these findings by varying instructions so that participants are randomly assigned to use any one particular intervention strategy within the full IR protocol.

Another potential drawback from using vignettes instead of autobiographical accounts of socially distressing memories was that artificial vignettes might have evoked less emotional distress than personally relevant memories. Indeed, in the current study, HSA participants reported only moderate levels of imagined negative affect ( $M = 28.46$ ,  $SD = 6.78$ ; maximum total score = 50) and social pain ( $M = 19.89$ ,  $SD = 3.11$ ; maximum total score = 28) in response to the hypothetical vignettes.

Furthermore, we did not collect baseline scores for the outcome measures; as a result, we do not know whether there were significant changes in negative affect from before to after random assignment to condition, and whether the self-compassion condition may have promoted greater changes in negative affect from baseline than the other two conditions. Since participants were randomly assigned to conditions, we assume that scores on outcome measures were likely equivalent at baseline. However, repeated measurement of changes in outcomes relative to baseline would have enhanced our study design and increased our confidence that the observed reductions in negative affect among HSAs within the self-compassion condition was a result of the beneficial effects of self-compassion relative to the other conditions.

Finally, collected outcome measures were based on self-report. Future studies may consider using physiological measures to validate participants' emotional responses, similar to the approach used in Watson, Rapee, and Todorov (2016).

Future studies may benefit from giving further consideration to the parameters of what might constitute a self-compassionate response. The vignette responses devised for the present study included facets of self-compassion and were distinct from assertive responses in that they were imagined internal thought processes, whereas assertive responses were imagined outward behaviours. However, some of the self-compassionate responses may have also involved assertiveness toward an "inner self-critic" (Kelly, Zuroff, & Shapira, 2009). Future work could also compare the effects of internally directed vs. externally directed assertiveness.

Within the context of these limitations, the findings from the current study hold potential, yet tentative, implications for IR. For all participants, irrespective of trait SA levels, imagined avoidance strategies appear to be significantly less effective than either self-compassion or assertiveness for reducing negative affect and social pain and promoting a sense of mattering in

the face of social threat. Moreover, for those at the upper end of the SA spectrum, self-compassion appears to be associated with superior outcomes relative to both avoidance and assertiveness. Future research is now needed to investigate the effects of different experimentally manipulated IR intervention strategies within the context of an actual IR protocol with therapist guidance. If the present findings were replicated within that context, it would suggest the need to publish updated clinical guidelines for IR that emphasize the importance of guiding patients more explicitly toward the use of self-compassionate intervention strategies and away from avoidance as they harness their imagination to rescript distressing memories.



## References

- Aderka, I. M., Weisman, O., Shahar, G., & Gilboa-Schechtman, E. (2009). The roles of the social rank and attachment systems in social anxiety. *Personality and Individual Differences, 47*(4), 284–288. <https://doi.org/10.1016/j.paid.2009.03.014>
- Antony, M. M., Coons, M. J., McCabe, R. E., Ashbaugh, A., & Swinson, R. P. (2006). Psychometric properties of the social phobia inventory: Further evaluation. *Behaviour Research and Therapy, 44*(8), 1177-1185.
- Arimitsu, K., & Hofmann, S. G. (2017). Effects of compassionate thinking on negative emotions. *Cognition and Emotion, 31*(1), 160–167. <https://doi.org/10.1080/02699931.2015.1078292>
- Arntz, A., & Weertman, A. (1999). Treatment of childhood memories: Theory and practice. *Behaviour Research and Therapy, 37*(8), 715–740.
- Blackie, R. A., & Kocovski, N. L. (2017). Forgive and Let Go: Effect of Self-Compassion on Post-Event Processing in Social Anxiety. *Mindfulness, 1–10*.  
<https://doi.org/10.1007/s12671-017-0808-9>
- Brewin, C. R. (2006). Understanding cognitive behaviour therapy: A retrieval competition account. *Behaviour Research and Therapy, 44*, 765-784.
- Cha, M. (2016). The mediation effect of mattering and self-esteem in the relationship between socially prescribed perfectionism and depression: Based on the social disconnection model. *Personality and Individual Differences, 88*, 148–159.  
<https://doi.org/10.1016/j.paid.2015.09.008>
- Chambless, D. L., Tran, G. Q., & Glass, C. R. (1997). Predictors of Response to Cognitive-Behavioral Group Therapy for Social Phobia. *Journal of Anxiety Disorders, 11*(3), 221–240. [https://doi.org/10.1016/S0887-6185\(97\)00008-X](https://doi.org/10.1016/S0887-6185(97)00008-X)

- Chen, Z., Williams, K. D., Fitness, J., & Newton, N. C. (2008). When Hurt Will Not Heal. *Psychological Science, 19*(8), 789–795. <https://doi.org/10.1111/j.1467-9280.2008.02158.x>
- Chou, W.-Y., Wang, C.-H., Liu, P.-H., Liu, C.-C., Tseng, C.-C., & Jawan, B. (2006). Human opioid receptor A118G polymorphism affects intravenous patient-controlled analgesia morphine consumption after total abdominal hysterectomy. *Anesthesiology, 105*(2), 334–337.
- Chukwuorji, J. B. C., Ifeagwazi, C. M., & Eze, J. E. (2017). Event centrality influences posttraumatic stress disorder symptoms via core beliefs in internally displaced older adults. *Aging & Mental Health, 1*–9. <https://doi.org/10.1080/13607863.2017.1396580>
- Çili, S., Pettit, S., & Stopa, L. (2017). Impact of imagery rescripting on adverse self-defining memories and post-recall working selves in a non-clinical sample: a pilot study. *Cognitive Behaviour Therapy, 46*(1), 75–89. <https://doi.org/10.1080/16506073.2016.1212396>
- Çili, S., & Stopa, L. (2015). The retrieval of self-defining memories is associated with the activation of specific working selves. *Memory, 23*(2), 233–253. <https://doi.org/10.1080/09658211.2014.882955>
- Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, F. R. Schneier, R. G. (Ed) Heimberg, M. R. (Ed) Liebowitz, ... F. R. (Ed) Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment*. (pp. 69–93). New York, NY, US: Guilford Press.
- Connor, K. M., Davidson, J. R. T., Churchill, L. E., Sherwood, A., Weisler, R. H., & Foa, E. (2000). Psychometric properties of the Social Phobia Inventory (SPIN): New self-rating

scale. *The British Journal of Psychiatry*, 176(4), 379–386.

<https://doi.org/10.1192/bjp.176.4.379>

Automatic citation updates are disabled. To see the bibliography, click Refresh in the Zotero

tab. Davidson, J. R. T., Foa, E. B., Huppert, J. D., Keefe, F. J., Franklin, M. E., Compton, J. S., et al. (2004). Fluoxetine, comprehensive cognitive behavioral therapy, and placebo in generalized social phobia. *Archives of General Psychiatry*, 61, 1005–1013.

Eisenberger, Naomi I., Inagaki, T. K., Mashal, N. M., & Irwin, M. R. (2010). Inflammation and social experience: an inflammatory challenge induces feelings of social disconnection in addition to depressed mood. *Brain, Behavior, and Immunity*, 24(4), 558–563.

<https://doi.org/10.1016/j.bbi.2009.12.009>

Eisenberger, Naomi I., Inagaki, T. K., Muscatell, K. A., Byrne Haltom, K. E., & Leary, M. R.

(2011). The neural sociometer: brain mechanisms underlying state self-esteem. *Journal of Cognitive Neuroscience*, 23(11), 3448–3455. [https://doi.org/10.1162/jocn\\_a\\_00027](https://doi.org/10.1162/jocn_a_00027)

Eisenberger, Naomi I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science (New York, N.Y.)*, 302(5643), 290–292.

<https://doi.org/10.1126/science.1089134>

Eisenberger, N.I., Jarcho, J. M., Lieberman, M. D., & Naliboff, B. D. (2006). An experimental study of shared sensitivity to physical pain and social rejection. *Pain*, 126(1–3), 132–138.

<https://doi.org/10.1016/j.pain.2006.06.024>

Elliott, G., Kao, S., & Grant, A.-M. (2004). Mattering: Empirical Validation of a Social-Psychological Concept. *Self and Identity*, 3(4), 339–354.

<https://doi.org/10.1080/13576500444000119>

- Erwin, B. A., Heimberg, R. G., Marx, B. P., & Franklin, M. E. (2006). Traumatic and socially stressful life events among persons with social anxiety disorder. *Journal of Anxiety Disorders, 20*(7), 896–914. <https://doi.org/10.1016/j.janxdis.2005.05.006>
- Falsetti, S. A., Resick, P. A., & Davis, J. L. (2003). Changes in religious beliefs following trauma. *Journal of Traumatic Stress, 16*(4), 391–398. <https://doi.org/10.1023/A:1024422220163>
- Field, A. (2000). *Discovering statistics using spss for windows*. London-Thousand Oaks- New Delhi: Sage publications.
- Flett, G. L., Goldstein, A. L., Pechenkov, I. G., Nepon, T., & Wekerle, C. (2016). Antecedents, correlates, and consequences of feeling like you don't matter: Associations with maltreatment, loneliness, social anxiety, and the five-factor model. *Personality and Individual Differences, 92*, 52–56. <https://doi.org/10.1016/j.paid.2015.12.014>
- Fresnics, A., & Borders, A. (2017). Angry Rumination Mediates the Unique Associations Between Self-Compassion and Anger and Aggression. *Mindfulness, 8*(3), 554–564. <https://doi.org/10.1007/s12671-016-0629-2>
- Frets, P. G., Kevenaar, C., & van der Heiden, C. (2014). Imagery rescripting as a stand-alone treatment for patients with social phobia: A case series. *Journal of Behavior Therapy and Experimental Psychiatry, 45*(1), 160–169. <https://doi.org/10.1016/j.jbtep.2013.09.006>
- Fung, K., & Alden, L. E. (2016). Once Hurt, Twice Shy: Social Pain Contributes to Social Anxiety. *Emotion*. <https://doi.org/10.1037/emo0000223>
- Gravetter, F., & Wallnau, L. (2014). *Essentials of statistics for the behavioral sciences* (8th ed.). Belmont, CA: Wadsworth.

- Hackmann, A., Clark, D. M., & McManus, F. (2000). Recurrent images and early memories in social phobia. *Behaviour Research and Therapy*, 38(6), 601–610.  
[https://doi.org/10.1016/S0005-7967\(99\)00161-8](https://doi.org/10.1016/S0005-7967(99)00161-8)
- Hansson, R., Jones, W., & Fletcher, W. (1990). Troubled Relationships in Later Life: Implications for Support. *Journal of Social and Personal Relationships*, 7(4), 451–463.  
<https://doi.org/10.1177/0265407590074003>
- Harwood, E. M., & Kocovski, N. L. (2017). Self-Compassion Induction Reduces Anticipatory Anxiety Among Socially Anxious Students. *Mindfulness*, 8(6), 1544–1551.  
<https://doi.org/10.1007/s12671-017-0721-2>
- Hathaway, L. M., Boals, A., & Banks, J. B. (2010). PTSD symptoms and dominant emotional response to a traumatic event: an examination of DSM-IV Criterion A2. *Anxiety, Stress, and Coping*, 23(1), 119–126. <https://doi.org/10.1080/10615800902818771>
- Kelly, A. C., Zuroff, D. C., & Shapira, L. B. (2009). Soothing Oneself and Resisting Self-Attacks: The Treatment of Two Intrapersonal Deficits in Depression Vulnerability. *Cognitive Therapy and Research*, 33(3), 301. <https://doi.org/10.1007/s10608-008-9202-1>
- Levin, M. E., Haeger, J., & Smith, G. S. (2017). Examining the Role of Implicit Emotional Judgments in Social Anxiety and Experiential Avoidance. *Journal of Psychopathology and Behavioral Assessment*, 39(2), 264–278. <https://doi.org/10.1007/s10862-016-9583-5>
- Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83(404), 1198-1202.
- Marshall, P. G., Keltner, A. A., & Marshall, W. L. (1981). Anxiety Reduction, Assertive Training, and Enactment of Consequences: A Comparative Treatment Study in the

- Modification of Nonassertion and Social Fear. *Behavior Modification*, 5(1), 85–102.  
<https://doi.org/10.1177/014544558151007>
- Master, S. L., Eisenberger, N. I., Taylor, S. E., Naliboff, B. D., Shirinyan, D., & Lieberman, M. D. (2009). A Picture's Worth. *Psychological Science*, 20(11), 1316–1318.  
<https://doi.org/10.1111/j.1467-9280.2009.02444.x>
- Merrifield, C., Balk, D., & Moscovitch, D. A. (2013). Self-portrayal concerns mediate the relationship between recalled teasing and social anxiety symptoms in adults with anxiety disorders. *Journal of Anxiety Disorders*, 27(5), 456–460.  
<https://doi.org/10.1016/j.janxdis.2013.05.007>
- Moitra, E., Herbert, J. D., & Forman, E. M. (2008). Behavioral avoidance mediates the relationship between anxiety and depressive symptoms among social anxiety disorder patients. *Journal of Anxiety Disorders*, 22(7), 1205–1213.  
<https://doi.org/10.1016/j.janxdis.2008.01.002>
- Morgan, J. (2010). Autobiographical memory biases in social anxiety. *Clinical Psychology Review*, 30(3), 288–297. <https://doi.org/10.1016/j.cpr.2009.12.003>
- Moscovitch, D. A. (2009). What Is the Core Fear in Social Phobia? A New Model to Facilitate Individualized Case Conceptualization and Treatment. *Cognitive and Behavioral Practice*, 16(2), 123–134. <https://doi.org/10.1016/j.cbpra.2008.04.002>
- Moscovitch, D. A., Chiupka, C. A., & Gavric, D. L. (2013). Within the mind's eye: Negative mental imagery activates different emotion regulation strategies in high versus low socially anxious individuals. *Journal of Behavior Therapy and Experimental Psychiatry*, 44(4), 426–432. <https://doi.org/10.1016/j.jbtep.2013.05.002>

- Moscovitch, D.A., Rowa, K., Paulitzki, J.R., Ierullo, M.D., Chiang, B., Antony, M.M., & McCabe, R.E. (2013). Self-portrayal concerns and their relation to safety behaviors and negative affect in social anxiety disorder. *Behaviour Research and Therapy*, 51, 476-486
- Moscovitch, D. A., Gavric, D. L., Merrifield, C., Bielak, T., & Moscovitch, M. (2011). Retrieval properties of negative vs. positive mental images and autobiographical memories in social anxiety: Outcomes with a new measure. *Behaviour Research and Therapy*, 49(8), 505–517. <https://doi.org/10.1016/j.brat.2011.05.009>
- Moscovitch, D. A., Vidovic, V., Lenton-Brym, A. P., Dupasquier, J. R., Barber, K. C., Hudd, T., ... Romano, M. (2018). Autobiographical memory retrieval and appraisal in social anxiety disorder. *Behaviour Research and Therapy*, 107, 106–116. <https://doi.org/10.1016/j.brat.2018.06.008>
- Moser, J. S., Hajcak, G., Huppert, J. D., Foa, E. B., & Simons, R. F. (2008). Interpretation bias in social anxiety as detected by event-related brain potentials. *Emotion*, 8(5), 693-700. <http://dx.doi.org.proxy.lib.uwaterloo.ca/10.1037/a0013173>
- Neff, K. (2003). Self-Compassion: An Alternative Conceptualization of a Healthy Attitude Toward Oneself. *Self and Identity*, 2(2), 85–101. <https://doi.org/10.1080/15298860309032>
- Ng, A. S., Abbott, M. J., & Hunt, C. (2014). The effect of self-imagery on symptoms and processes in social anxiety: A systematic review. *Clinical Psychology Review*, 34(8), 620–633. <https://doi.org/10.1016/j.cpr.2014.09.003>
- Nilsson, J.-E., Lundh, L.-G., & Viborg, G. (2012). Imagery rescripting of early memories in social anxiety disorder: An experimental study. *Behaviour Research and Therapy*, 50(6), 387–392. <https://doi.org/10.1016/j.brat.2012.03.004>

- Norton, A. R., & Abbott, M. J. (2016). The efficacy of imagery rescripting compared to cognitive restructuring for social anxiety disorder. *Journal of Anxiety Disorders, 40*, 18–28. <https://doi.org/10.1016/j.janxdis.2016.03.009>
- O’Toole, M. S., Watson, L. A., Rosenberg, N. K., & Berntsen, D. (2016). Negative autobiographical memories in social anxiety disorder: A comparison with panic disorder and healthy controls. *Journal of Behavior Therapy and Experimental Psychiatry*. <https://doi.org/10.1016/j.jbtep.2015.09.008>
- Panayiotou, G., Karekla, M., & Panayiotou, M. (2014). Direct and indirect predictors of social anxiety: The role of anxiety sensitivity, behavioral inhibition, experiential avoidance and self-consciousness. *Comprehensive Psychiatry, 55*(8), 1875–1882. <https://doi.org/10.1016/j.comppsy.2014.08.045>
- Rapee, R. M., Gaston, J. E., & Abbott, M. J. (2009). Testing the efficacy of theoretically derived improvements in the treatment of social phobia. *Journal of Consulting and Clinical Psychology, 77*, 317–327.
- Rapee, R. M., & Heimberg, R. G. (1997). A cognitive-behavioral model of anxiety in social phobia. *Behaviour Research and Therapy, 35*(8), 741–756. [https://doi.org/10.1016/S0005-7967\(97\)00022-3](https://doi.org/10.1016/S0005-7967(97)00022-3)
- Rapee, R. M., McCallum, S. L., Melville, L. F., Ravenscroft, H., & Rodney, J. M. (1994). Memory bias in social phobia. *Behaviour Research and Therapy, 32*(1), 89–99. [https://doi.org/10.1016/0005-7967\(94\)90087-6](https://doi.org/10.1016/0005-7967(94)90087-6)
- Reimer, S. G., & Moscovitch, D. A. (2015). The impact of imagery rescripting on memory appraisals and core beliefs in social anxiety disorder. *Behaviour Research and Therapy, 75*, 48–59. <https://doi.org/10.1016/j.brat.2015.10.007>



- Robinson, K. J., Mayer, S., Allen, A. B., Terry, M., Chilton, A., & Leary, M. R. (2016). Resisting self-compassion: Why are some people opposed to being kind to themselves? *Self and Identity, 15*(5), 505–524. <https://doi.org/10.1080/15298868.2016.1160952>
- Sarfan, L. D., Cody, M. W., & Clerkin, E. M. (2018). The mediating role of state maladaptive emotion regulation in the relation between social anxiety symptoms and self-evaluation bias. *Cognition and Emotion, 0*(0), 1–9. <https://doi.org/10.1080/02699931.2018.1452193>
- Stemberger, R. T., Turner, S. M., Beidel, D. C., & Calhoun, K. S. (1995). Social Phobia: An Analysis of Possible Developmental Factors. *Journal of Abnormal Psychology, 104*(3), 526–531. <https://doi.org/10.1037//0021-843X.104.3.526>
- Stopa, L., & Jenkins, A. (2007). Images of the self in social anxiety: Effects on the retrieval of autobiographical memories. *Journal of Behavior Therapy and Experimental Psychiatry, 38*(4), 459–473. <https://doi.org/10.1016/j.jbtep.2007.08.006>
- Swee, M. B., Kaplan, S. C., & Heimberg, R. G. (2018). Assertive behavior and assertion training as important foci in a clinical context: The case of social anxiety disorder. *Clinical Psychology: Science and Practice, 25*(1), e12222. <https://doi.org/10.1111/cpsp.12222>
- Watson, H., Rapee, R., & Todorov, N. (2016). Imagery rescripting of revenge, avoidance, and forgiveness for past bullying experiences in young adults. *Cognitive Behaviour Therapy, 45*(1), 73–89. <https://doi.org/10.1080/16506073.2015.1108360>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.
- Way, B. M., Taylor, S. E., & Eisenberger, N. I. (2009). Variation in the mu-opioid receptor gene (OPRM1) is associated with dispositional and neural sensitivity to social rejection.

- Proceedings of the National Academy of Sciences of the United States of America*,  
106(35), 15079–15084. <https://doi.org/10.1073/pnas.0812612106>
- Weisman, O., Aderka, I. M., Marom, S., Hermesh, H., & Gilboa-Schechtman, E. (2011). Social rank and affiliation in social anxiety disorder. *Behaviour Research and Therapy*, 49(6–7), 399–405. <https://doi.org/10.1016/j.brat.2011.03.010>
- Wenzel, A., Haugen, E. N., & Schmutzer, P. A. (2003). Recall of schematic and non-schematic material related to threat in socially anxious and nonanxious individuals. *Behavioural and Cognitive Psychotherapy*, 31(4), 403–416.  
<https://doi.org/10.1017/S1352465803004028>
- Werner, K. H., Jazaieri, H., Goldin, P. R., Ziv, M., Heimberg, R. G., & Gross, J. J. (2012). Self-compassion and social anxiety disorder. *Anxiety, Stress, & Coping*, 25(5), 543–558.  
<https://doi.org/10.1080/10615806.2011.608842>
- Wild, J., & Clark, D. M. (2011). Imagery Rescripting of Early Traumatic Memories in Social Phobia. *Cognitive and Behavioral Practice*, 18(4), 433–443.  
<https://doi.org/10.1016/j.cbpra.2011.03.002>

## Appendix A

**Vignette 1:** *Your friend invited you to a party on Saturday night. It isn't clear to you what type of party this will be, but you assume it will be a casual event because it is being hosted at your friend's home. When you arrive, everyone is dressed in formal attire. In contrast, you are wearing blue jeans and a T-shirt. You feel as though people are staring at you when you walk into the living room.*

**Avoidant intervention:** Now imagine that you leave the party immediately and go home before more people notice.

**Self-Compassionate intervention:** Now imagine that you take a moment to remind yourself that this was an understandable error and your clothes do not define who you are as a person.

**Assertive intervention:** Now imagine that during conversations you have with others at the party, go out of your way to point out your casual attire while laughing at your mistake.

**Vignette 2:** *Over the past month, you have been spending time with a new group of people you met through school. Plans are usually made to get together after class, so everyone leaves together. Recently, you saw pictures on social media suggesting that several of your classmates spent time together over the past weekend but you were not invited.*

**Avoidant intervention:** Now imagine that you decide to avoid spending time with your classmates after class because you are no longer sure of how they feel toward you.

**Self-Compassionate intervention:** Now imagine that you mentally tell yourself that there could have been many logical reasons you weren't invited, and it does not mean they don't enjoy your company.

**Assertive intervention:** Now imagine that you start a conversation with your classmates about what they did over the weekend so you can casually mention that it sounded like fun and that you would have liked to join.

**Vignette 3:** *You are working with a group of peers on a school project and you make a suggestion. One of the members expresses that they do not think this is a good idea, and the other members agree. The member who did not like your idea makes a joke that the group would be better off getting suggestions from their younger siblings and the other group members laugh.*

**Avoidant intervention:** Now imagine that you make an excuse to leave the meeting early and go home.

**Self-Compassionate intervention:** Now imagine that you mentally tell yourself that even the brightest minds don't share perfect ideas all of the time and you still deserve to be heard

**Assertive intervention:** Now imagine that after the meeting, you tell the person who made the joke that you didn't appreciate them putting you down and that their attitude will discourage open sharing of ideas.

**Vignette 4:** *It is mid-morning and you just arrived at work. You walk past a group of co-workers and one of them asks if you wore your funny hat today and the whole group begins laughing. For the past few weeks, several of your coworkers have been persistently making fun of you for wearing a new hat that you purchased. You normally stick to wearing basic clothes, but liked this hat and wanted to try something new.*

**Avoidant intervention:** Now imagine that you limit the possibility of further unpleasant interactions for the rest of the day by avoiding the break room at lunch and keeping a low profile at work.

**Self-Compassionate intervention:** Now imagine that you ignore the comments and tell yourself that your coworkers treating you this way is cruel and what they are saying is not a reflection of you, but rather of them and their own insecurities.

**Assertive intervention:** Now imagine that you tell your co-workers that the joke is getting old and that you're not going to tolerate their rude comments any longer.

**Vignette 5:** *You are about to give a presentation in class. As you make your way to the front of the room, you notice that you are tense and your palms feel cold and sweaty. As you begin to speak, you also feel your face becoming hot. These physical experiences are so intense that you think the entire class must notice all of these things happening to you as well. You think you see some of the people in the audience beginning to look uncomfortable.*

**Avoidant intervention:** Now imagine that you complete the presentation while effectively hiding your physical symptoms by positioning yourself behind the podium and turning away from the audience as much as possible.

**Self-Compassionate intervention:** Now imagine that you face the audience and complete the presentation, then afterwards tell yourself that your physical symptoms probably weren't as noticeable as you thought and even if they were, many people feel nervous during presentations so the audience could probably understand and empathize.

**Assertive intervention:** Now imagine that you notice your symptoms but also realize they do not control your behaviour and decide to further expose yourself by walking around the stage and facing the audience members for the remainder of your presentation.