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Imagery rescripting of painful memories in social anxiety disorder: A qualitative analysis of needs fulfillment and memory updating

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Abstract:	Background: Imagery rescripting (IR) is an effective intervention for social anxiety disorder (SAD) that targets autobiographical memories of painful past events. IR is thought to promote needs fulfillment and memory updating by guiding patients to change unhelpful schema through addressing the needs of the younger self within the memory. Methods: Qualitative coding was used to examine the features of clinically relevant strategies enacted during IR to fulfill needs and update memories in 14 individuals with SAD. Results: Most participants enacted multiple strategies to address the needs of the younger self during rescripting, with compassionate and assertive strategies used more frequently than avoidance. Strategies were typically feasible and enacted by the imagined self, with most patients achieving a strong degree of needs fulfillment, especially when strategies were consistent with identified needs. Participants' reflections on how their memories have changed are provided from follow-up data collected six months post-intervention. Themes of self-reappraisal, self-compassion, and self-distancing are highlighted as potentially important for facilitating needs fulfilment and memory updating. Conclusions: Findings illuminate the clinical processes through which socially traumatic memories in SAD may be updated in IR by guiding patients to fulfill their needs and promote improved emotional health.

Imagery rescripting of painful memories in social anxiety disorder: A qualitative analysis of needs fulfillment and memory updating

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Abstract

Background: Imagery rescripting (IR) is an effective intervention for social anxiety disorder (SAD) that targets autobiographical memories of painful past events. IR is thought to promote *needs fulfillment* and *memory updating* by guiding patients to change unhelpful schema through addressing the needs of the younger self within the memory. **Methods**: Qualitative coding was used to examine the features of clinically relevant strategies enacted during IR to fulfill needs and update memories in 14 individuals with SAD. **Results**: Most participants enacted multiple strategies to address the needs of the younger self during rescripting, with compassionate and assertive strategies used more frequently than avoidance. Strategies were typically feasible and enacted by the imagined self, with most patients achieving a strong degree of needs fulfillment, especially when strategies were consistent with identified needs. Participants' reflections on how their memories have changed are provided from follow-up data collected six months post-intervention. Themes of self-reappraisal, self-compassion, and self-distancing are highlighted as potentially important for facilitating needs fulfilment and memory updating. **Conclusions:** Findings illuminate the clinical processes through which socially traumatic memories in SAD may be updated in IR by guiding patients to fulfill their needs and promote improved emotional health.

Imagery Rescripting of painful memories in social anxiety disorder:

A qualitative analysis of needs fulfillment and memory updating

Imagery Rescripting (IR) is a therapeutic technique that aims to modify and update negative schema-based representations. These representations can often be conceptualized as lessons learnt about the self, others, and the world from prior experiences (Holmes, Artnz, & Smucker, 2007; Morina, Lancee, & Arntz, 2017). During IR, patients re-live a past negative autobiographical experience and are guided to re-imagine this experience in order to meet the needs of the younger self within the memory (Arntz, 2012; Arntz & Weertman, 1999). Patients' "rescripting" of the memory can take various forms but typically involves actively imagining their younger selves behaving in ways that they could not at the time of the event, or imagining their older selves providing compassion and support for their younger selves in their moments of need.

IR has been employed either as a brief stand-alone intervention or a comprehensive treatment package to treat various mental health problems, including personality disorders, major depression, and social anxiety disorder (SAD) (Morina et al., 2017). Prior research suggests that IR, either with or without cognitive restructuring, reduces symptoms of psychopathology as well as the emotional impact and salience of negative autobiographical memories and associated memory-derived negative core beliefs (e.g., Arntz et al., 2013; Brewin et al., 2009; Lee & Kwon, 2013; Maloney, Koh, Roberts, & Pittenger, 2019; Norton & Abbott, 2016; Raabe, Ehring, Marquenie, Olff, & Kindt, 2015; Reimer & Moscovitch, 2015; Wild, Hackmann, & Clark, 2007, 2008; Willson et al., 2016; Wheatley et al., 2007).

Researchers have theorized about how various aspects of the IR protocol may induce symptom change and lead to therapeutic benefit, above and beyond nonspecific factors such as

therapeutic alliance and empathic support (see Romano, Moscovitch, Huppert, Reimer, & Moscovitch, 2020). One pathway through which IR might work (as suggested in schema therapy) is by assisting patients to identify and address their emotional needs, which could help promote new insights that challenge memory-related negative schema about the self, others and the world (Edwards, 2007; Holmes et al., 2007; Arntz, 2012). Proponents of schema therapy suggest that maladaptive schemas develop through early experiences that in some way neglect or invalidate the individual's core emotional needs (e.g., need for safety, autonomy, self-expression; Young, 1990; Young, Klosko, & Weishaar, 2003). Like techniques used in schema therapy, acknowledging and addressing patients' needs through rescripting is thought to provide critical information that challenges the meaning of the memory and enables patients to conclude that the embarrassing, painful or humiliating event was an exception to the rule rather than the rule for life itself. In so doing, the individual may become better equipped to meet the needs of the current adult self in present day situations when memory-derived schema are activated (Arntz, 2011; Arntz & Weertman, 1999). For instance, imagining the younger self standing up to a critical other or receiving compassion from the older self may allow patients to observe that what transpired during the event was not their fault. Doing so may help redirect their tendency to blame similar negative events on a personal flaw, such as a problem inherent in their own appearance or behaviour (see Moscovitch, 2009).

Arntz (2012) proposed that the process of needs fulfilment in IR fosters an alternative emotional experience which modifies the fear memory; the memory is presumably reconsolidated with a different meaning so that, upon future reactivations, it no longer elicits the original emotional response. Indeed, our recent work has shown that socially anxious participants who receive IR are more likely than those assigned to active or waitlist control conditions to

update their memories. In particular, we found that following a single session of IR, participants reported more positive and realistic core beliefs, less distress upon memory retrieval, and less negative and more positive coded episodic memory details than those in active and waitlist control conditions. These findings suggest that IR helps to facilitate changes not only in negative emotion-laden memory appraisals but also in negative memory-derived self-schema as well as memory content (see Reimer & Moscovitch, 2015; Romano et al., 2020). Therefore, it appears from prior research that patients derive benefit from the process of rescripting painful past events to achieve the fulfillment of previously unaddressed emotional needs. This process may help to reshape patients' memories in ways that are no longer consistent with the original memory representation or supportive of memory-derived negative schema.

Thus, needs fulfillment and updated memory details and associated schema have been identified as essential outcomes of the IR process. However, few studies have explicitly examined how these outcomes may be achieved. This may be especially relevant for a multilayered therapeutic approach like IR that is characterized by significant variability in clinical process, particularly during phase 2 of the intervention in which patients are guided to rescript their memory in idiosyncratic ways that they believe will satisfy their younger self's needs. Indeed, how patients choose to intervene and the ways they operationalize particular strategies to rescript their memories can vary dramatically from individual to individual, potentially influencing the degree to which patients are able to meet their younger selves' needs and update the details or associated schema of their memory. The present paper aimed to focus on three sources of potential variability during the rescripting process in individuals with SAD: strategy type, strategy agent, and strategy feasibility.

To our knowledge, the only prior study to examine the impact of strategy type investigated a sample of undergraduate participants who reported being victimized by bullying (Watson, Rapee, & Todorov, 2016). Results revealed that participants reported less negative affect when they followed instructions to use either avoidance or forgiveness-focused strategies to meet the younger self's needs than when instructed to use revenge-focused strategies; however, participants who used revenge reported an ability to cope with the stressful memory more effectively.

There has been speculation within the literature about the essential strategies patients ought to enact in IR for SAD in order to meet the younger self's needs. From a schema theory perspective, a number of core emotional needs exist, which are present in children with some variation, but which can be thwarted in one way or another by early experiences. Generally, these needs have been categorized into the following domains: secure attachments to others (including safety, stability, nurturance, and acceptance); autonomy, competence and sense of identity; freedom to express valid needs and emotions; spontaneity and play; realistic limits and self-control (Young et al., 2003; Bach, Lockwood, & Young, 2018). In IR for SAD, multiple writers have emphasized the potential relevance of meeting one's needs via strategies that offer compassion to the younger self (Takanashi et al., 2019; Wild & Clark, 2011). Similarly, assertive responses that address the need for autonomy or self-expression might be particularly relevant for individuals with SAD. Although strategies such as self-compassion and assertiveness could enable patients to access emotional support, ensure their personal safety, and/or meet other practical needs that were denied to the younger self during the original event, individuals with SAD tend to find both of these coping strategies difficult to enact (Swee, Kaplan, & Heimberg, 2018; Werner et al., 2012). In contrast, avoidance is a frequently used, and often maladaptive,

coping strategy that socially anxious patients might consider a viable option for meeting their younger self's needs within the context of the imagined memory. Thus, it is possible that relying more heavily on certain strategies—such as avoidance—or omitting some altogether—such as compassion—could produce different outcomes within an IR session for SAD.

The strategy agent refers to the person the patient imagines as the one responsible for actively altering the memory scene within phase 2 of IR. Again, IR protocol affords patients the freedom to choose who will soothe their younger self, stand up to their adversaries, protect them, and so on; these strategies could be enacted by their older or younger self, a trusted friend or family member, or even the therapist. It is generally assumed that greater therapeutic benefit is derived from IR when patients experience a sense of agency and control (Arntz & Weertman, 1999), but it is unclear whether a sense of agency is achieved solely by having the patient (present self) choose who will intervene, or whether the specific actor who is chosen is also important (i.e., either the older or younger self, or other). It is possible, for example, that imagining the personal enactment of strategies yields superior IR outcomes relative to envisioning strategies that are enacted by others because the former promotes a sense of mastery and self-efficacy for coping with distressing emotions and events. Alternatively, given that a sense of personal agency and control is in itself a need (see Dweck, 2017), patients may benefit from IR in so far as having needs fulfilled irrespective of who enacts the strategies, as long as they are empowered to choose who will intervene and how they will effectively meet the younger self's needs.

Finally, the feasibility of each chosen strategy captures the degree to which needs fulfilment strategies would have been feasible or realistic at the time that the events of the memory took place. Conventional IR protocol does not limit participants in this regard; indeed,

participants may be encouraged to disregard logical probability and even laws of reality in their efforts to use their imagination to create more satisfying outcomes for the younger self. It is not clear whether participants who choose to defy logic or produce fantastical scenes (e.g., flying away with their younger selves or having their younger self adopt super-strength) achieve similar benefit in terms of needs fulfillment or memory updating, compared to participants who enact more feasible or realistic strategies..

In summary, the manner in which patients choose to intervene within the memory during the IR process is ultimately left up to patients' discretion, which may impact their ability to meet the younger self's needs within the memory and their ability to update the memory's meaning and associated schema. The first aim of this research was to implement a novel coding scheme to investigate sources of variability in strategy features during phase 2 of the IR clinical process, including strategy type, agent of change, and strategy feasibility. For strategy type, we coded the frequency with which participants employed *compassionate*, *assertive* and/or *avoidant* strategies to meet their younger self's needs during the intervention. These strategy types were chosen because compassion, assertiveness and avoidance are reasonably distinct and capture the full spectrum of methods that are typically employed to fulfill fundamental needs, especially in the face of threat; for instance, when under threat, a fight (assertiveness) or flight (avoidance) response allows us to protect our immediate safety and resources (McNaughton & Gray, 2000). As well, after facing threat, emotional downregulation and social bonding (compassion), can address the need to feel secure and a sense of belonging (Gilbert, 2009). Each of these coping strategies have potential utility, but some may serve a greater purpose in the context of IR than others, especially when they are not adopted judiciously (e.g., excessive use of avoidance). To investigate the agent of change, we coded how frequently participants imagined older or younger

versions of *themselves* enacting the strategy within the scene versus how frequently they imagined *others* (e.g., other individuals in the scene or the therapist) enacting the strategies to help the younger self. And finally, we coded the strategy feasibility, which captured the degree to which a given strategy would have been feasible at the time that the events of the memory took place. The second aim of this study was to code outcomes that have been proposed as the primary vehicles of therapeutic change in IR; namely, whether needs fulfillment and memory updating occurred within the IR sessions. Relying on qualitative coding in conjunction with clinical observation, we sought to draw conceptual connections between variability in strategy features, on the one hand, and successful needs fulfillment and memory updating, on the other.

Methods

Participants

The study sample consisted of 14 participants (57% female; mean age = 27.36 (*SD* = 8.91) with a principal DSM-5 (American Psychiatric Association, 2013) diagnosis of SAD who received a single session of standardized IR. Participants were recruited from the community as part of an anxiety disorders research group at a Canadian university. The majority of participants identified as White/European (85.7%), with a minority identifying as South Asian (7.1%) or Southeast Asian (7.1%). Participants were generally either employed (57.2%) or studying (28.6%), and had some college or university education (42.9%) or had completed a college/university degree (50%). Participants were screened for clinical symptoms using a phone screen adapted from the *Mini International Neuropsychiatric Interview* (MINI; Sheehan, 2014). If participants endorsed symptoms relevant to a diagnosis of SAD on the phone screen, they were invited to complete an in-person MINI assessment conducted by trained graduate students, which

was supplemented by the diagnostic checklists from the Anxiety Disorders Interview Schedule (ADIS-5; Brown & Barlow, 2014). Participants were included in the study if they met criteria for a current principal diagnosis of SAD (i.e., the SAD diagnosis caused the most clinically significant interference and distress with a clinician severity rating of 4 or above) and did not endorse active and clinically significant suicidality, mania, psychosis, or substance abuse or dependence. Concurrent pharmacotherapy was allowed if medication dosage had been consistent for three months and participants intended it to remain stable during the course of the study. The mean clinician severity rating for SAD in the current sample was 5.07 (SD = .73). Half of the sample met clinical criteria for one or more other anxiety disorders (50%), with a third of the sample also meeting criteria for a depressive disorder (28.6%). Three participants were currently taking medication for their anxiety (21.4%).

Procedure

All study procedures were approved by the institutional ethics board. Participants who completed the IR intervention session were drawn from a clinical experimental study examining the effects of IR compared to imaginal exposure and supportive counselling (Romano et al., 2020). Diagnostically eligible participants who could identify a specific negative social memory that occurred at a particular time and place (i.e., a true autobiographical memory; Tulving, 1989) were randomized to one of the three conditions. All participants' intervention sessions were video recorded. For the purposes of this study, we coded and analyzed only the IR intervention sessions.

Semi-structured interviews

Waterloo Images and Memories Interview (WIMI; Moscovitch et al., 2011). In a pre-treatment session, experimenters used the WIMI to guide participants to describe a negative

mental image they typically experience in social anxiety-provoking situations. Once the image was described, experimenters then asked participants whether they were able to identify a particular event that happened to them at a specific time and place that they believed was related to that mental image. Participants recollected their identified memory out loud in as much detail as possible following standardized WIMI administration instructions (see Moscovitch, et al., 2011; 2018). After memories were recollected, the Core Beliefs Module (Reimer & Moscovitch, 2015) was used to identify any important personal meaning encapsulated within participants' endorsed memories (i.e., what the memory represents to participants about themselves, others, and the world). The identified memory was subsequently the target of the IR intervention.

IR Intervention

All participants received a single IR session, of 60-90 minutes in length (M = 77.53 minutes, SD = 15.59), administered according to a standardized treatment protocol. Therapists consisted of a postdoctoral researcher in clinical psychology (author MR) and a graduate clinical psychology student (author TH) who received training and supervision by authors DM and SGR. The intervention session included a description of the treatment rationale, a brief recap of the negative memory derived from the WIMI and Core Beliefs module, administration of the treatment technique, and an open-ended exploration in which the therapist guided the participant to reflect on their experience of the intervention. Forty percent of the sessions were assessed for therapist adherence to core IR treatment processes according to guidelines documented in Romano et al. (2020). All rated sessions achieved perfect adherence for the IR intervention specific factors (i.e., a score of 4/4).

The IR protocol was based on published guidelines from prior research (Arntz & Weertman, 1999; Wild et al., 2007, 2008) and did not include a separate phase of explicit

cognitive restructuring. The intervention involved three phases in which the specific negative memory derived from the initial WIMI interview was rescripted. To begin, participants were encouraged to close their eyes and assume a comfortable position for the imagery procedures. In phase one, participants recounted the memory from their own point of view at the time of the event (i.e., the "younger self"), describing the sequence of events using the first person (e.g., "I am standing at the front of the class") and conveying as much detail as possible, including characteristics of the environment, others present, and their own feelings and thoughts. Once this was complete, phase two began, in which participants were instructed to observe the sequence of events occurring to the younger self from the perspective of their current self, as if they were witnessing it as a bystander would. Participants were then instructed to imagine manipulating the scene in any way they felt was right to make the outcome of the event "more positive or satisfying" for the younger self, including participating in the scene as their current self, or imagining their younger selves behaving in a new or different way. During this phase, patients were guided to develop and then enact their own strategies. If they struggled to develop a strategy, the therapist would offer relevant suggestions (e.g., "Would it be helpful to give your younger self a hug or confront the bully?"). Potential strategies were always developed in a collaborative way; that is, participants were not forced to take on any suggestions that did not fit for them and were encouraged to try as many strategies as they needed to achieve a sense of satisfaction. In phase three, participants once again assumed the perspective of the younger self during the event and recounted the event again in the first person, this time incorporating the new content from phase two. Finally, participants were asked whether there is "anything more the prior self would like from the current self, or to see changed in the event," and they were

encouraged to enact that in the scene until they achieved a sense of satisfaction or completion. The intervention ended once phase three was completed.

IR Coding Methods and Measures

Two coders were trained IR session therapists who rated the video recording of every IR session for each participant in tandem using consensus-driven clinical impressions. Coders sat together to view the videos one at a time, with each noting and rating their impressions separately. Immediately after each video, coders reviewed and discussed their impressions with one another and decided on a final set of consensus ratings based on their clinical impressions. These consensus ratings were used for data analyses.

We coded three sources of variability in the IR process: (a) strategy type, (b) strategy agent, and (c) strategy feasibility. We also coded two key outcomes of the IR session: (a) the degree to which the needs of the younger self were recognized and satisfied and (b) evidence of updating the memory and associated schema. Coders first recorded a brief description of each intervention strategy enacted by the participant (e.g., confronting a perpetrator, soothing the younger self) and then rated the given strategy based on the criteria we developed for the three process components (described below). If participants used multiple strategies in combination with one another, each unique strategy was coded separately. Thus, strategies were not considered mutually exclusive in so far as it was permissible to code more than one strategy type at a time for each participant, though each separate strategy was considered on its own merits, independently from the others. For each strategy identified, we coded the corresponding agent of change and degree of strategy feasibility. Following the entire intervention, coders provided global ratings according to the criteria for the outcome components (see below).

IR process component (a): strategy type. Each strategy enacted by participants during rescripting was coded as one of four types; *compassionate*, which referred to strategies in which participants nurtured or soothed themselves (e.g., imagined the older self giving the younger self a hug), or demonstrated compassion to the experiences of others within the memory (e.g., imagined that the bully might have had his/her own problems); *assertive*, which referred to strategies in which participants imagined standing up for themselves (e.g., imagined the older or younger self telling a bully or critical other to "back-off."); *avoidant*, which referred to strategies in which participants attempted to avoid or escape the situation or feelings associated with the situation (e.g., imagined that the event never happened or imagined themselves running away from a critical other) and; *other*, which referred to any strategies that did not fit within the three categories listed above.

IR process component (b): strategy agent. The agent who enacted the strategy was coded to reflect one of three options: *younger self*, where the younger self did something differently within the memory to achieve a more satisfying outcome; *older self*, where the older self entered the memory to intervene on behalf of the younger self in some way and; *other*, where another individual or entity (e.g., therapist or spiritual being) entered the memory to intervene in some way.

IR process component (c): strategy feasibility. The content of the strategy was coded with respect to the feasibility that it reflected, with coders selecting between three options: *magical/impossible in any reality*, which referred to strategies that could not have logically occurred in a way that was consistent with the laws of the natural world (e.g., imagining the participant flying away from the situation on a dragon); *non-magical but not feasible or likely in the timeline/content of the story*, which included interventions that could have feasibly occurred

within the context of the real world but represented highly unlikely outcomes (e.g., imagining modifying the personal characteristics of the bully so that he/she became a nice person) and; *non-magical and feasible in the timeline/content of the story*, which referred to actions/statements that would have been feasible and within the younger self's control (e.g., imagining the younger self standing up for themselves instead of running away).

IR outcome (a): recognizing and meeting the younger self's needs. This component reflected the extent to which the participant recognized the needs of the younger self within the memory and appeared able to satisfy those needs during the intervention. The extent to which each participant's needs were globally met was rated by coders on a 5-point Likert scale ranging from 0 (needs are never recognized and addressed) to 4 (needs are fully recognized and addressed). Participants achieving a high rating on this component identified the primary source of their younger self's emotional distress and enacted a strategy that targeted this source of distress. On the other hand, a participant achieving a lower rating typically targeted peripheral needs by alleviating secondary sources of distress (e.g., targeting anger instead of social pain).

IR outcome (b): evidence of updating the memory and associated schema. This component reflected updates to the memory details and associated schema. This criterion was coded on two dimensions. First, we coded the extent to which the IR session was characterized by the reframing of memory details in ways that contradicted the negative meaning of the memory. For example, during rescripting the participant might have offered a new perspective on a particular memory detail that they had not noticed before. We also coded the degree to which the session was characterized by participants' success in reframing the meaning of the memory within the broader context of their life. This dimension referred to the extent to which the participant reframed the negative experience as a whole such that the distressing past event

was perceived as a time-limited experience and not the basis for a rule of life (e.g., "it's only a memory"), or such that the event was viewed in context rather than attributing it to a negative feature of the self (e.g., "it wasn't my fault"). For both dimensions IR sessions were coded as 0 (not at all characteristic of the session), 1 (somewhat less characteristic of the session), 2 (moderately characteristic of the session), 3 (somewhat more characteristic of the session), or 4 (extremely characteristic of the session).

Qualitative Measure of Memory Change

Quantitative indicators of memory change are presented in Romano et al. (2020). For the purposes of the current study, we report qualitative data reflecting participants' own impressions of memory change as a result of the intervention. These data were collected at 6-months post-intervention during the study follow-up period and were not reported in the original publication. Participants responded to the following question: *"During the study, you described a memory of an event that was important to you. How do you experience that memory now? Please consider your current thoughts, interpretations, and emotions related to that memory*". Participants' responses were coded in a yes/no binary fashion, with coders simply counting the proportion of participants who reported clear changes to their memory, including changes in how they relate to the memory, its content and emotional salience.

Results

Table 1 provides descriptive examples of selected participants' autobiographical memories and rescripting changes.

IR process component (a): strategy type. Of the 65 total strategies enacted across participants, 40% were coded as compassionate strategies, 38% as assertive strategies, 17% as

avoidant, and 5.0% as other. All participants enacted at least two different types of strategies during their memory rescript. Table 2 displays the strategy frequencies across participants.

Most participants (86%) chose to enact at least one compassionate strategy. Compassionate strategies frequently involved the older self saying encouraging or comforting things to the younger self (e.g., "don't overthink everything, people are not going to judge you", or "it feels bad but it's not about you").

The majority of participants (79%) also chose to enact at least one assertive strategy. Assertive strategies ranged from interpersonal confrontation (e.g., participant 3 imagined removing an unsupportive relative from her house) to subtler acts that encouraged the younger self to act based on their own, and not others' needs. For instance, participant 14 chose to have her younger self act in accordance with her emotions at a funeral rather than worrying about expressing herself according to what would make others comfortable.

Nearly half (43%) of the participants chose to enact at least one avoidant strategy. Avoidance strategies were typically enacted by participants to avoid confronting the primary source of distress within the memory. For example, participant 11 avoided a social blunder that took place in his memory by having his parents pick him up from school early.

IR process component (b): agent of change. Strategies were primarily undertaken by the older self (45%) and by the younger self (42%), with a minority of strategies enacted by others (14%). When strategies were enacted by others, the action was generally undertaken by a character who was already described as having been present within the scene. For example, participant 12 imagined a colleague speaking up in support of her (i.e., to "have her back") during her rescripting of a humiliating experience she endured at a work event at which the colleague originally remained silent.

IR process component (c): strategy feasibility. Out of the 65 total strategies enacted by participants, the majority were coded as feasible and realistic within the memory scene (78%), while the remainder were non-magical but unfeasible (22%). Notably, many of the feasible strategies were comprised of compassionate statements toward the younger self. Of those that were unfeasible but non-magical, participants enacted strategies that could have happened within the laws of reality but were changes they could not have reasonably had control over at the time. For instance, participant 12 imagined a smaller circle of individuals to which she was speaking at a work event (in reality, it was a large circle of people), and participant 10 imagined a girl responding to his younger self with openness and gratitude (in reality, he recalled that they did not talk to each other again).

IR outcome (a): recognizing and meeting the younger self's needs. Ratings on this criterion reflected the overall extent to which participants recognized, responded to, and satisfied the needs of the younger self within the memory. Coding determined that 78% of participants mostly (35.7%) or fully (42.92%) recognized and addressed the needs of the younger self within the memory. These participants were able to recognize the most important needs of their younger self, address these needs appropriately, and explicitly express satisfaction with the changed memory content. A minority of participants were rated as addressing the needs of the younger self "only somewhat" (14.3%), while one participant was rated as rarely addressing and recognizing their needs (7.1%).

In some cases, there seemed to be a tension between multiple types of needs within the memory, and this tension often led to a discrepancy between the feelings of satisfaction voiced by participants and raters' own impressions of participants needs and satisfaction. Overall, participants' expressed feelings of satisfaction generally matched raters' impressions of

participants' needs being met. However, in a minority of cases, participants who expressed satisfaction with the changes to the memory scene appeared to have enduring underlying needs that remained unrecognized or unmet. For example, participant 2 was ostracised by her classmates in a group project. During the rescripting intervention, she recognised that she should have asserted herself by "following her gut" and telling her classmates that she did not want to participate in their group. She believed this change would have saved her from the embarrassment and pain associated with the other girls' hurtful actions. Accordingly, this participant opted to change the memory scene so that her older self advised her younger self not to join the group: "If I had a nudge in the right direction things would have been better; that's all I really needed, a nudge in the right direction." Following this intervention, the participant reported that her younger self felt validated; however, throughout later stages of the IR process the participant continually referred to her younger self as "dumb" and "gullible" for having participated in the group. These negative reflections of her younger self persisted until the end of the intervention and the raters felt that this participant was unable to recognize that her younger self was deserving of compassion in order to completely fulfill her needs; that she might benefit from recognizing that the event was not her fault and her classmates treated her in a cruel and malicious way.

IR outcome (b): evidence of updating the memory and associated schema. Almost half (43%) of the IR sessions were coded to suggest the session was moderately (21%) or somewhat more (21%) characterized by reframing memory details (e.g., participant 8 acknowledged that upon reflection of her memory details of a school presentation, that others probably did not notice or care about her ability to perform: "I feel like they probably don't really care, just like I don't care when people mess up"), while the remainder were coded as

being “not at all” (36%) or “somewhat less” (21%) characteristic of the session. In terms of reframing the meaning of the memory within the broader life context, 7% were coded as “extremely characteristic” of the session, 14% were coded as “somewhat more characteristic” and 14% coded as “moderately characteristic.” For instance, participant 5 stated "They might have been leaning against the door but, if anything, it's irrelevant because you're not going to be interacting with them three years from now." The remainder of the sessions were coded to suggest broader memory reframes were somewhat less (7%) or not at all (57%) characteristic of the session.

Participants’ qualitative impressions of memory changes at 6-months post-intervention. Of the 14 participants, 12 responded to the open-ended question, with the remaining 2 responses coded as missing data. Among participants who responded, 75% reported changes in their experience of the memory as a result of the intervention, including changes in its emotional salience and/or its effects on their lives. These responses are provided in Table 3. Of the three remaining participants (25% of those who responded), two reported that the event had not come to mind during the follow-up period and one reported no change to the memory.

Discussion

Results indicated that despite the use of a single, standardized rescripting protocol, there was considerable variability in the process of IR. The majority of participants were able to recognize and satisfy the needs of their younger selves, by experimenting with and enacting a variety of different rescripting strategies during the intervention process. Below, we use illustrative examples from our qualitative data to enrich our discussion of how different rescripting strategies appeared to have impacted the fulfillment of participants’ needs and the

accompanying process of memory updating during the clinical process of IR. We then outline specific clinical challenges and implications arising from our findings and conclude with a discussion of study limitations and ideas for future research, highlighting the need for further investigation of IR processes and their contribution to enduring changes in memories and symptoms for individuals with SAD.

Strategy Themes and Features in Relation to Needs Fulfillment

Participants in the present study tended to express needs related to secure attachment (i.e., nurturance and acceptance), autonomy, and freedom to express themselves authentically. In accordance with these expressed needs, strategies employed by participants during rescripting often reflected themes of assertiveness and compassion, suggesting the importance of such themes in the treatment of SAD. People with SAD may struggle to use self-compassion (Werner et al., 2012) but research has shown that when they are explicitly instructed or trained to do so, they tend to experience symptom reductions as well as positive changes in social anxiety-related processes, such as anticipatory and post-event processing (Blackie & Kocovski, 2017; Harwood & Kocovski, 2017). Indeed, when participants enacted strategies to meet their expressed needs within the memory, these often corresponded with visible emotional reactions and voiced expressions of satisfaction. For example, when participant 4 enacted the compassionate strategy of embracing his younger self, he began to cry and expressed feeling content with the scene: "For me it feels fantastic and for younger self the same, he collapses into my arms… that's all I ever wanted (to have support, recognition)." Similarly, although being assertive can often present significant challenges for people with SAD, who may equate being assertive with having to confront powerful others and invite conflict with them (Padesky, 1997), participant 14 felt that

asserting herself and confronting the critical other within her memory would have allowed her to feel strong instead of angry and sad ("Don't feel angry, don't feel sad, just strong").

In terms of strategy agent, coded data indicated that participants imagined enacting strategies from the perspective of either their older or younger selves, at similar rates. No participants imagined a third person enacting the strategies. Although study therapists encouraged participants to introduce the older self into the scene as they saw fit, and offered suggestions for how the older self could intervene, they did not explicitly suggest that participants introduce another person of comfort or support into the scene (such as a trusted friend, family member, or the therapist). Clinical observations suggested that for most participants, the older self was a sufficiently capable actor. We also observed that, at times, participants would begin by having the older self enact changes in phase 2, but in phase 3 would shift to having the same behaviour enacted by the younger self. It is possible that relying upon the more "capable" older self provided a template for action that empowered the younger self. For instance, participant 3 reflected that she ultimately did not need the older self but "appreciated their company" in the process of standing up for herself. Even so, there were moments when the patient may have further benefitted from using an alternate actor and/or from modelling by the therapist in which the therapist initially acts as a role model for a given strategy, and as treatment progresses, patients begin to enact the strategy themselves, as in treatment of personality disorders and childhood trauma (Boterhoven de Haan et al., 2017).

According to the coded data, all of the strategies enacted were either feasible at the time of the event or could have been feasible to enact within the physical laws of reality even if they would not have been possible within the original recollected memory scene. None of the participants enacted magical interventions. It remains unclear whether magical interventions

would help to meet the needs of the younger self for individuals with SAD. Although clinical observation suggested that variability in the feasibility of strategies did not significantly impact the individual's ability to meet their younger self's needs, some participants had difficulty imagining themselves enacting strategies that were feasible but perceived as being *uncharacteristic* of them. For example, although many participants voiced the need for compassion and support, they sometimes reported that their younger selves would have been resistant to soothing acts or statements from the older self, or noted that they had tried soothing strategies in the past but found them to be unhelpful. For example, participant 3, whose younger self was criticized by her relative for not keeping her home in order, opted to express compassion to her younger self by giving her praise ("You are doing a good job"), though voiced that her younger self felt embarrassed to receive the praise because it was something to which she was not accustomed. Similarly, some participants reported that assertive interventions enacted within the memory scene did not feel realistic or believable, and as such the satisfaction derived from these interventions appeared to be more tentative. For instance, participants 11 and 12 expressed the desire to stand-up to authority figures that were belittling; however, both participants felt that this type of action did not reflect how they would confront a similar situation in the real-world. Participant 11, who recalled attending a concert and feeling embarrassed when others scolded her for being loud, stated that "I would want to say something to the people behind me but I wouldn't do that in real life." Here, it became important to frame the imaginal exercise as an "experimental space" where strategies could be tested in the service of addressing and meeting the younger self's needs, regardless of whether strategies were characteristic of their typical behaviour. Indeed, to the extent that typical behaviours may have led to unmet needs in the past, moving beyond what is "characteristic" may be an essential practice in IR (Welford, 2010).

Memory Updating

Coded data demonstrated that nearly half of the IR sessions revealed clear indications that the memory had been updated. Like in schema therapy and other therapeutic approaches designed to revisit the past (e.g., Arntz, 1994; Arntz & Weertman, 1999; Padesky, 1994; McGinn & Young, 1997), many participants in the present study appeared to gain novel insights and update the meaning of their memory as they addressed the needs of the younger self. For example, participant 14 who recalled a painful experience of feeling anxious and frustrated toward others at a funeral, expressed that what she needed at the time of the event was to be her authentic self and, after finishing the intervention, expressed that fulfilling this need within the memory allowed her to see the importance of being her authentic self in current social situations. In this example, the participant met the needs of her younger self and also learned that she should try to meet this need as her older and current self. In meeting his younger self's needs, participant 8 reflected that the painful event was "only one day in the year," while participant 4, who explored what it would have been like for him to be more attentive and affectionate toward others, acknowledged that "if you put something out there in the world, you can get it back." He further reflected that this insight felt "like a lightbulb going off...it's okay to just be myself."

We determined from clinical observations that memory updates were not necessarily contingent upon strategy features and patients' ability to meet the needs of the younger self, but often arose from other elements of the IR process. Critical insights were often achieved by considering memory details from an alternate perspective, or by recalling and reimagining the event "from a distance," whether such distance was achieved by the passage of significant time since the event occurred or due to changes in the participants life since the original event that enable them to reflect on the event in new ways (Wild & Clark, 2011). Shifting perspective is

built explicitly into the design of the IR intervention itself, as participants are instructed to alternate from viewing the events from a first-person perspective during phase 1 to more of an observer perspective in phase 2[1] – a process that promotes *self-distancing*, which has been shown to be an emotionally adaptive form of self-reflection in contrast to self-immersion (Dorfman, Moscovitch, & Grossmann, in press). For instance, participant 8 reflected that although they felt anxious and under a spotlight at the time of the memory, by taking an observer perspective of their memory during phase 2 they were able to view their younger self as appearing somewhat normal and it was unlikely that the onlookers (their extended family at a gathering) actually knew they were nervous. Another participant (5), who in his memory was unable to get through a blocked door at a social gathering, initially interpreted this to mean other people were deliberately trying to keep him out of the room. While replaying the scene as an observer, this participant reflected that his younger self could not actually see what was happening on the other side of the door and acknowledged that other people may have been simply leaning up against it rather than intentionally trying to block him out. After this realization, the participant expressed that trying to modify the memory further did not feel warranted because this interpretation made the event feel less emotionally significant such that his younger self would not require further "intervention."

In addition to perspective taking, participants may have also benefitted from another form of self-distancing – temporal distancing – that was induced by recalling an event from an earlier stage of life. In some cases, this effect appeared most potent when participants were significantly older than the younger self within the memory. For example, as someone who has now fathered

[1] Because the older self is an active agent in the memory and therefore also offers a first person perspective that is brought and conveyed into the scene, it may be the case that phase 2 of IR does not promote pure "objective observer" perspective per se, but rather enables patients to imagine both the younger and adult self within the memory scene from the outside.

his own children, participant 4 was able to harness strong feelings of compassion for his 9-year old younger self, comforting him during the intervention as he would his own children. Even so, some participants remained rooted to the meaning and integrated information of their original narrative even though the memory was firmly rooted in the past. For example, participant 2, who at the time of the IR intervention was significantly older than her younger self (31 compared to 16 years old), still had difficulty viewing her younger self in a different light, criticizing her younger self for being "stupid" and "gullible" and reiterating her current core belief of having a "faulty social radar." In the current study, although many of our participants reported on memories that were relatively old, we followed the procedures of Wild et al. (2007, 2008) and did not explicitly ask participants to report on what they perceived to be a 'formative' memory in terms of their social anxiety. Although development of maladaptive schema is thought to typically occur in childhood and early adolescence (Young, 1990; Young et al., 2003) it is currently unclear whether targeting events that occurred during those particular developmental periods results in more benefit from IR. Given that negative schema derived from prior experiences can be linked to one another within the episodic memory system, it is possible that IR could beneficially address *any* memory that is tied to salient emotions and core beliefs relevant to the individual's experience of social anxiety, irrespective of how old that memory is. As such, addressing both formative and later memories that are schematically related could offer a vehicle for patients to address previously unmet needs, generate new insights, and challenge existing negative schemas (see Lane & Nadel, 2020; Phelps & Hofmann, 2019).

Clinical Challenges and Suggestions for Clinical Implementation

Cultivating compassion. The process of intervening on behalf of one's younger self within one's memory provides IR patients with an opportunity to cultivate self-compassion.

Although most participants enacted compassionate strategies, some found that compassion felt inauthentic or that their younger self would be reluctant to accept compassion if it had been offered at the time of the event. To facilitate patients' engagement with compassion-focused strategies, it may be useful for IR clinicians to guide patients toward acknowledging their inner critic and the role of the self-critical voice in inhibiting their willingness to receive compassion (Gilbert, 2009). Self-compassion training may include adopting intentional acts of self-kindness, reflecting on the shared elements of human experience (common humanity), and acknowledging and accepting internal experiences without becoming attached to their meaning (mindfulness), as per the tenets of Compassion-Focused Therapy (CFT; Gilbert, 2009). Intentionally practicing self-compassionate strategies could help highly self-critical patients engage more openly in the IR intervention process by reducing their desire to conceal their past negative experiences and associated feelings and needs (see Dupasquier, Kelly, Moscovitch, & Vidovic, 2017). To this end, it might help patients who struggle with self-compassion to introduce a wise, compassionate character into the scene (whether fictional or known to the individual) who could intervene on behalf of the patient to help meet the younger self's needs. Also, IR protocols for SAD have not typically included a therapist modelling component, perhaps due to the nature of the memories or perhaps due to the fact that only a single session of IR has often been employed in the research context. It is possible that therapist modelling of compassion during the rescript itself could also help participants to achieve this goal.

Conflicting motivations. Patients undergoing IR may be faced with conflicting motivations and goals when selecting their rescripting interventions, which could reasonably moderate the extent to which they succeed in fulfilling their younger self's needs within the memory. IR therapists encouraged participants to enact as many strategies or variations of

strategies as needed to achieve a sense of satisfaction, and as summarized in Table 2, participants did tend to enact a variety of strategies during the second phase of IR. For some, the strategies were complementary with one another and targeted the primary emotion or core need that was apparent in the memory, resulting in a cohesive rescripting process. However, for other participants, using multiple strategies did not seem beneficial, perhaps because the intention or motivation behind different strategies conflicted with each other. For instance, participant 10, who was teased for wearing a particular piece of clothing, simultaneously wished to stand-up to critical others ("By standing up for myself and being confident…that would make it a good memory") and avoid the humiliation in the first place ("Completely avoiding it is the best way to do it," "I don't want to ever be in that situation again"). He enacted a number of strategies which oscillated between themes of assertiveness and avoidance, including hiding his clothing from others, standing up for himself and seeking vengeance on those who teased him, and finally, avoiding the event altogether and asking his older self to provide advice about how to avoid potentially embarrassing situations in the future. Although avoidance of the event resulted in less immediate social pain, it ultimately did not allow him to address his desire to stand-up for himself. In contrast, participant 14 also expressed alternative paths to satisfaction: on one hand, wanting her younger self to seek vengeance by standing up to a perpetrator in her memory, while on the other hand, also wanting her actions to feel genuine and true to herself. Unlike participant 10, she ultimately settled on the importance of feeling genuine and consistently carried this theme forward, resulting in what the clinicians observed to be a cohesive and satisfying rescript.

We propose that a disconnected or less cohesive rescripting process may be particularly prevalent for individuals with SAD, who often experience the simultaneous push and pull of approach versus avoidance within interpersonal contexts. Although these individuals may wish

to engage and connect with others, they also place undue importance on their ability to meet others' expectations and make a good impression, which they perceive themselves as incapable of doing (e.g., Moscovitch & Hofmann, 2007). Although we did not specifically code the degree of overall cohesion observed within the IR sessions, it may be worthwhile for future studies to develop methods for coding the degree to which patients' chosen rescripting strategies supported one another and reflected similar or distinct underlying motivations.

Avoidance. Although avoidance was less frequently used by participants in our sample, than compassionate or assertive strategies, some participants expressed the need to avoid the most embarrassing or humiliating part of the event, or to avoid the event entirely. For example, participant 2 stated that the most ideal memory change would be to erase events that transpired prior to this pivotal event, and discussed undoing several events/memories that occurred throughout her childhood, such as not engaging in earlier confrontations with the critical others from her memory scene and avoiding contact with them altogether in order to save herself from future cruelty.

Few studies have examined the use of avoidant strategies during IR; however, Dibbets & Arntz (2016) reported evidence to suggest that completely avoiding the threatening part of the memory during IR may be associated with poorer clinical outcomes. It is likely that CBT therapists would want to steer patients toward strategies that promote a sense of mastery over their emotions or the scene, rather than allowing them to use avoidance or escape strategies to leave the scene altogether and potentially miss an opportunity for new learning. Explicitly dissuading patients from using avoidance could, however, also undermine patients' sense of mastery by limiting their control over the types of personal interventions they might wish to enact during the process of rescripting (see Arntz & Weertman, 1999; Wheatley & Hackmann,

2011). In the present sample, we discovered that avoidant strategies may be appropriate for some patients within certain contexts, as there were clear instances in which using imagined avoidance did not appear to undermine the process of needs fulfillment and the therapeutic benefits of the intervention. For example, participant 1 wished to avoid completing a presentation after experiencing a negative personal event prior to the presentation. Her perception of events was that she needed to take care of her emotional needs instead of forcing herself to complete the presentation on that day. In this sense, an action that appeared to be "avoidant" at face value may also be construed as assertive or self-compassionate when it involves taking a stance that is difficult in service of fulfilling one's needs and is fueled by motivations geared toward self-care rather than irrational fear. On the other hand, for some participants, avoidance was clearly unhelpful. For example, participant 10 expressed a desire to avoid wearing the embarrassing clothing he wore in his memory, which led others to ridicule him. In his mind, rescripting his memory by enabling his younger self to avoid his choice of wardrobe would have solved the problem by erasing the mistake he made. However, by avoiding the mistake, the participant squandered an opportunity to learn that it might be okay to make mistakes, which is an adaptive, self-compassionate perspective that could potentially be adopted as well by his current, older self in real life.

From these clinical observations, we suggest that after identifying the target memory, but prior to the rescripting session, it may be worthwhile for the clinician and patient to discuss what the younger self needed most and how these needs could be addressed in a therapeutic way during rescripting. In so doing, the clinician and patient could establish a useful conceptualization of the needs that require addressing and how best to do so, which would ideally provide useful therapeutic direction to guide the rescripting process in phase 2 of IR. For

example, if a patient identifies that it is important for his younger self to feel loved, comforted and accepted, the therapist could explicitly challenge patients to consider whether imagined strategies such as avoidance (or even vengeance) would allow the younger self to feel as though his most important needs were likely to be met, and to guide them toward strategies that are likely to be more effective, such as self-reappraisal or self-compassion. Conversely, if a patient chooses to avoid a painful experience because doing so would represent a healthy coping strategy within the context of the event and the patient's needs, the therapist could support that choice.

Limitations

The results from coded data and clinical observations need to be interpreted in light of study limitations. First, qualitative studies by nature include data that contain heightened subjectivity. Although our coding scheme enabled us to capture the variability inherent in IR strategies and in participants' qualitative experiences within IR sessions, we developed the coding system to be synchronous and consensus-based which therefore precluded tests of inter-rater reliability. Employing additional pairs of coders in order to establish inter-rater agreement, as well as specifically examining the psychometric properties of the coding scheme, would be beneficial. Also, the coders were part of the author team and although this allowed for specific expertise in coding the IR sessions, they may not have been sufficiently removed from the IR sessions to achieve completely objective results. In addition, because recognition and satisfaction of patient needs were found to be highly correspondent during development of the coding scheme, we created a global rating that combined both recognition and satisfaction, which prevented us from examining any differences that might have emerged for particular participants between these potentially distinct constructs. Finally, we conceptualised memory reinterpretation

as a potential outcome of the IR process as opposed to a strategy in and of itself. When participants offered advice to the younger self that involved reinterpretation of the event, this was typically coded as a compassionate strategy. Given that reinterpretation is a distinct emotion regulation strategy, it may be helpful for future coding schemes to disentangle the possible effects of reinterpretation vs. compassion to meet the needs of the younger self.

Directions for Future Research and Conclusions

The current study represents the first qualitative analysis of the processes by which rescripting painful social memories may promote schema-related needs fulfillment in SAD. Overall, results indicated that there was significant variability in the intervention strategies patients employed in order to meet the needs of the younger self, even within the context of a single standardized session of IR. Our clinical observations suggested that particular characteristics of the IR process may be related to its clinical benefit, including the degree to which participants reappraised the event, whether or not they achieved a self-distanced and self-compassionate perspective, and whether the types of interventions selected enabled patients to fulfill identified needs in a cohesive way. However, whether such successes actually facilitated better treatment outcomes remains an empirical question and one which could not be tested directly within the context of our study design. Robustly powered future studies could be designed to test hypothesized links between qualitatively-coded changes in IR processes and subsequent symptom reduction and by experimentally manipulating the type of strategy employed during phase 2 of rescripting. Such research could also evaluate whether rescripting leads to observed changes in future behaviour beyond self-reported reductions in social anxiety symptoms and avoidance of feared situations, or modifications of core beliefs. That is, does the enactment of compassionate or assertive responses during the IR process enable patients to

behave more assertively or compassionately when the situation calls for it? This is an important question to address in future studies of individual differences in IR processes. Such research will, no doubt, help to advance our understanding of the active mechanisms that underlie the clinical benefits of IR.

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Table 1. Selected participant memory details and modifications

Participant	Current Age	Age in memory	Memory	Core beliefs	Intervention strategies
1	23	20	Becoming distressed and making mistakes during school speech due to facing an unexpected negative personal event prior to the speech	Self: If I can't come across as confident people will believe I am not worth their time Other: People are judgmental and critical World: The world always wants you to prove your worth. People are constantly being evaluated	Older self gave younger self a hug and shared good news with her to cheer her up. Older self also drove younger self home to avoid being seen by others and requested from the teacher to abstain from participating in the speech.
2	31	16	Being bullied by a group of girls with whom she was working on a group project	Self: I'm socially inept and gullible; my social radar is faulty Others: Other people are manipulative and sharing information with them is dangerous World: The world is an uncertain place and you don't know what you will get with other people	Younger self told the girls that she didn't want to be in the group with them. Current self also considered her desire to undo several of the memories that led to this point, though ended with older self advising younger self not to participate in the group with the other girls.
4	35	9	Hiding alone in a small room when staying with extended family members	Self: I'm worthless Others: Other people are normal or have things figured out World: The world has moved on and I have stagnated	Older self comforted younger self by embracing him and telling him that his circumstances are not his fault and that he is not inherently flawed. Others in the scene also comforted younger self and included him. Younger self had carefree fun with the other kids.
5	24	13	Being shut out of a room during a school function	Self: I'm unlovable Others: Other people don't care about me	Participant reinterpreted the scene such that he was not shut out of the room on purpose. Younger self entered the room and apologized for barging in

				World: The world is inaccessible – if people don't accept you, you can't function in the world	and then had fun with his friend while ignoring the kids he didn't know well. Older self asked the kids not to lean against and block the door, and told younger self not to worry because he has lots of good things in life to look forward to.
6	22	17	Feeling awkward, out of place, and excluded at a school dance	Self: I'm different Others: Other people are selfish and only think of themselves World: The world is full of people who don't always have good intentions	Younger self behaved confidently and felt comfortable in various ways (e.g., talking to people instead of being quiet, inviting her friend to dance, and hanging out with people instead of alone). Older self told younger self that she is awesome.
8	20	17	Feeling underprepared for a class speech and performing poorly with many mistakes	Self: I am inferior Others: Other people are more powerful than me World: We are expected to interact with or in front of people and the world does not accept people who are not good at that	Younger self gave speech with confidence. Older self provided compassion by telling younger self that lots of people get anxious before presentations, and to let go of past experiences and not beat herself up for them.
10	20	13	Being teased for wearing a particular piece of clothing	Self: I am inferior Others: People are unpredictable because they all have two-faces World: No one can be trusted and everyone is out for themselves	Participant first imagined that no one noticed his embarrassing shirt and that he left school early. He then imagined some peers noticing, but his younger self told them it doesn't matter what they think and his older self comforted his younger self by telling him the same thing. He then imagined his younger self belittled those who noticed the shirt in order to feel better about himself. Finally, older self

					provided younger self advice about how to avoid humiliating situations.
12	21	20	Is brushed off by others during a work event	Self: I am not likeable or intelligent Others: Others are able and willing to make you feel inferior	Younger self responded assertively and asked why she was brushed off. Older self told younger self that being brushed off is not indicative of her whole future career. Participant also intervened by shrinking the size of the group at the work event to more easily assert herself, and by imagining someone else in the group support her when she asserted herself.
13	23	22	Feeling anxious and awkward during a social gathering	Self: I'm incompetent Others: Other people are more accomplished than me	Older self provided compassion to younger self, telling him that others will accept him and that it's okay to be at a different place in his life. Younger self acted more confidently (e.g., less fidgety, not mumbling, etc.).

Note. We have modified the description of certain memory details to conceal identifying information and preserve the anonymity of participants.

Table 2. *Frequencies of coded strategy use across participants*

Participant ID	Total Strategies	#Avoidant	#Compassionate	#Assertive	#Other
1	4	2	2	0	0
2	2	1	0	1	0
3	4	0	2	2	0
4	4	0	3	1	0
5	4	0	2	2	0
6	6	0	1	5	0
7	3	2	0	0	1
8	2	0	1	1	0
9	3	0	2	0	1
10	4	0	3	1	0
11	9	4	2	3	0
12	5	0	2	2	1
13	8	1	3	4	0
14	7	1	3	3	0
Total Across Participants	65	11	26	25	3

Table 3. *Selected participant reflections about the memory*

Participant	Response
3	"I experience the memory with less guilt and more calm."
4	"The details remain the same. The memory is still vivid but is also clarified with much introspection. I can remind myself to feel compassion toward the memory, but mostly its subsided into ambivalence."
5	"I've really been considering it a lot more as a misinterpretation by my mind, and a semi-natural reaction to a sudden event by unaware people. This does make me feel a lot different about it, I would say there are some knock-on effects into my life now."
6	"I don't think about this memory very often now. I found that as I told the memory more and more my emotions towards that memory became less and less intense and now as I think of this memory, I don't experience the same negative emotions that in the past had come with it."
7	"Overall I don't experience that memory any longer, except when I notice that it's been overcome"
8	"Thinking about the memory now, it seems very distant and doesn't seem to affect me as much. It does not make me as anxious anymore to think about"
10	"I do not recall the memory anymore and even when I recall it, it does not hold much significance to me anymore. I still feel a little sad and embarrassed when I recall it but it is not as intense as before"
11	"I can see the memory from a broader context, in that it was likely one of my first experiences with social anxiety. I am able to separate myself from the emotions, and feel like it was less of my fault than it was my illnesses fault"
12	"I no longer think about the memory. It is still there but does not feel as important. I do not feel much shame from it anymore and have much more compassion for myself"

Note. Responses pertain to participants' reflections about current perceptions of the memory, six months following the IR intervention. They responded specifically to the following question: *"During the study, you described a memory of an event that was important to you. How do you experience that memory now? Please consider your current thoughts, interpretations, and emotions related to that memory.*"