

Treatment of survivor guilt after trauma using imagery rescripting.

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Abstract

Survivor Guilt (SG) is a complex emotional reaction that transpires from surviving a fatal trauma. SG is a poorly understood clinical phenomenon, and no studies have investigated psychological treatment options for SG. Imagery Rescripting (IR) is a transdiagnostic technique that involves mental manipulation of imagery, with the aim of updating the meaning and emotional valence. IR is considered a particularly useful technique for guilt and shame-based PTSD. However, PTSD researchers have not investigated the stand-alone effect of IR, or determined the active ingredients of IR.

The present study was a proof-of-concept trial of treatment of SG using IR. A dismantling design was used to evaluate IR as a separate experiential technique, delivered as an add-on to standard trauma-focused treatment. Fourteen participants with PTSD and self-reported SG after a fatal trauma, attended two consecutive imagery sessions. The exploration session focused on elaborating imagery. The rescripting session used IR to modify imagery in whatever way participants felt would be helpful.

The results revealed significant improvements in cognitive and emotional SG components, and distress from SG imagery, that were attributable to the rescripting session. Weekly outcome measures failed to detect effects. Observations indicated that treatment responders more commonly experienced SG relating to the meaning of survival (rather than regrets about actions) and changed SG imagery by imagining the deceased in the afterlife.

The rescripting process was also explored using a coding framework to advance understanding of variables that predict effective IR. Observations

indicated enhanced IR effects when: therapists provided substantial guidance; changes were made directly to the imagery sequence; imagery was active but not overly vivid or emotionally charged; and the rescripted imagery was compelling and evoked a high level of new thoughts, feelings and sensations. These findings have important implications for SG treatment, and for clinical application of IR.

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1 Introduction

Feelings of guilt and shame are common after exposure to a traumatic event and often play an important role in presentations of Post-Traumatic Stress Disorder (PTSD; Kubany et al., 1996). Several effective cognitive treatment models have been developed to address post-traumatic reactions where guilt or shame are salient issues (Kubany & Ralston, 2006; Lee, Scragg, & Turner, 2001). Guilt and shame can relate to a range of peri- and post-traumatic experiences, thoughts, behaviours, and emotional or physiological reactions. Nash and Litz (2014) argued that current psychological PTSD treatments have limited utility for formulating and treating distress which stems from events that pose a moral or ethical challenge.

Feelings of shame and guilt are the link between moral standards and moral behaviour, and serve as a barometer of our moral concordance (Tangney, Stuewig, & Mashek, 2007). Events that violate moral standards pose a threat to our sense of social belonging and can give rise to intense self-conscious emotions that are complex and resistant to change (Litz et al., 2009). Deaths during or as a consequence of trauma challenges the notion of the world as fair and orderly. Many survivors struggle to make sense of this aspect of fatal traumas and may experience survivor guilt (SG) in the aftermath. SG consists of emotional distress and negative self-appraisals relating to having survived when others did not. Upsetting feelings associated with SG are sometimes underpinned by an exaggerated sense of responsibility for deaths, even if the survivor had no real power of influence (Tangney & Dearing, 2002). SG can also occur in the complete

absence of perceived wrongdoing, experienced as a feeling of accountability for deaths or a sense of disenfranchisement to survival.

Clinical observations indicate that many trauma survivors experience SG (Niederland, 1981) and that SG causes substantial distress (Glover, 1984). Research has demonstrated that SG is linked to more severe PTSD symptoms (Joseph, Hodgkinson, Yule, & Williams, 1993) and increased risk of suicide (Hyer, McCranie, Woods, & Boudewyns, 1990). It has also been observed clinically that SG can be resistant to change (Niederland, 1981) and may pose an obstacle to broader therapeutic progress (Khouzam & Kissmeyer, 1997). Despite the potential clinical implications of SG, it is surprising to find that little research has been devoted to understanding SG. An extensive search of the literature, that was carried out as part of this study, failed to identify any studies that have systematically investigated SG after trauma or its treatment in clinical practice.

Contemporary psychological treatment packages emphasise the importance of actively targeting the full range of individual emotional reactions after traumatic events as part of successful PTSD treatment (Lee et al., 2001). There is a need for research that explores treatment options for SG after trauma. Imagery Rescripting (IR) is an experiential technique that is growing in interest among clinicians and researchers (Holmes, Arntz, & Smucker, 2007). IR is considered particularly useful for clients with PTSD who experience strong feelings of guilt or shame (Arntz, 2012), and has potential as an effective tool for treating SG after trauma. The present study is a proof-of-concept clinical trial of the therapeutic use of creative imagery as a method for addressing SG after

trauma. The IR intervention was delivered and evaluated within standard trauma-focused psychological treatment for people with a diagnosis of PTSD.

1.1 Post-traumatic stress disorder

PTSD is a psychopathological reaction that occurs in response to a traumatic event. Trauma is defined as a negative life event which produces psychologically overwhelming stress that poses a challenge to normal human ability to cope (Herman, 1992). Events that threatened life and physical integrity are considered outside the scope of normal human experiences, for example accidents and disasters; life-threatening illness or suicide; military combat; imprisonment; and sexual or physical interpersonal violence. Traumatic events may be experienced directly, witnessed, or indirectly experienced by learning of such events from a close family member or friend, or in the course of professional duties (American Psychiatric Association, 2013).

PTSD was originally classified as a fear-based anxiety disorder (American Psychiatric Association, 1980). Our understanding of psychological trauma and its consequences has developed significantly over the past decades. It is now known that PTSD may arise through other mechanisms than fear conditioning and that the emotional reactions that transpire depend on the nature of the threat associated with the traumatic event (Farnsworth, Drescher, Nieuwsma, Walser, & Currier, 2014). For example, trauma that threatens physical safety is thought to elicit fear and activate the fight-or-flight response. Trauma that poses a threat to our sense of self in a social context is hypothesised to elicit negative self-conscious emotions like embarrassment, guilt and shame (Lee et al., 2001).

Three key changes in the fifth edition of the Diagnostic and Statistical Manual (DSM-5; American Psychiatric Association, 2013) denote advances in our conceptual understanding of PTSD: PTSD was separated in classification from anxiety disorders; Criterion A2 ('intense fear, helplessness, or horror') was removed; and a fourth symptom-cluster was incorporated to define the range of emotional reactions that may transpire from traumatic events. Criterion D includes negative beliefs about oneself or the world, persistent blame of self or others for the traumatic event or its consequences, and persistent negative trauma-related emotions (O'Donnell et al., 2014). The full DSM-5 diagnostic criteria for PTSD can be seen in Appendix A.

The DSM-5 is the first edition to make specific reference to guilt and shame in the diagnostic criteria as core emotional reactions to trauma.¹ These changes signify developments in our understanding of PTSD as a post-traumatic problem which comprises a variety of distressing feelings. Complex self-conscious emotions such as guilt and shame are now considered central features of PTSD.

1.1.1 Shame and guilt

In trauma literature, guilt and shame are rarely mentioned without the other and the terms are often used interchangeably. Guilt and shame are both morally based, self-conscious emotions that consist of negative self-judgments and negative affect (Tangney, 1991). They are commonly conceptualised as

¹ Survivor guilt was listed as a symptom of PTSD in the DSM-III and reclassified as an associated feature in the DSM-III-R (Leys, 2006).

evolutionary adaptive emotions that facilitate group belonging, minimise damage to social relationships and increase survival odds (Lee & James, 2012).

Guilt and shame are strongly correlated and considerable theoretical and empirical literature has been devoted to distinguishing guilt and shame (Tangney, 1991). Early conceptualisations suggest that the object of evaluation may differentiate guilt from shame (Lewis, 1971):

“The experience of shame is directly about the self, which is the focus of evaluation. In guilt, the self is not the central object of negative evaluation, but rather the thing done or undone is the focus.” (p. 30)

This theoretical proposition is supported by research which shows that guilt situations are accompanied by counterfactual thoughts about undoing aspects of behaviour, and shame situations about undoing aspects of the self (Niedenthal, Tangney, & Gavanski, 1994). Object-based definitions suggest that shame could arise as an extension of guilt: if an act of transgression is viewed as sufficiently severe to reflect negatively on the person, guilt-provoking events can lead to shame (Tangney, Miller, Flicker, & Barlow, 1996). Some suggest that shame is a more intense variant of guilt but phenomenological investigations show that the two experiences differ in quality, not just intensity. Tangney et al. (1996) found that shame is considered more painful and difficult to describe, is associated with a feeling of being small and inferior, and triggers an urge to hide (as oppose to confess or make amends). Tangney and Dearing (2002) showed that people were poor at describing the difference between the two experiences but were able to consistently differentiate between scenarios that were designed to specifically evoke guilt or shame.

The conceptualisation of guilt as a response to acts of transgression is contradicted by observations that guilt sometimes occurs in the absence of self-perceived wrongdoing. Baumeister, Stillwell and Heatherton (1994) suggested that guilt may arise from two sources: (1) fear of social exclusion stemming from personal violation of social norms (i.e., transgressions), or (2) an empathic emotional response to perceived inequity that is not related to personal conduct. 'Empathic distress' involves feeling guilty simply on behalf of another's misfortune. Baumeister et al. (1994) argued that empathic distress guilt is more harmful, because it does not trigger prosocial action tendencies, and therefore does not have the interpersonal benefits associated with transgression-based guilt. Tangney, Stuewig and Mashek (2007) suggested that guilt that is not associated with specific transgressions is more likely to lead to unhelpful self-castigation, feelings of shame and clinical distress.

The important role that guilt and shame play in the presentation of PTSD has been firmly established through ample research. For example, research shows that the experience of shame plays a role in the development of PTSD after trauma (La Bash & Papa, 2014) and that guilt predicts severity of PTSD symptoms (Kubany et al., 1995; Henning & Frueh, 1997). Research also suggests that guilt and shame might serve as maintaining factors of PTSD, and are therapeutic mechanisms of change for other symptoms (Norman, Wilkins, Myers & Allard, 2014). Modern PTSD treatment models stress the importance of actively targeting guilt and shame. Several effective psychological interventions, that focus specifically on addressing guilt and shame, are now available including Compassion-Focused Therapy (Lee & James, 2012), Cognitive Processing

Therapy (Resick & Schnicke, 1993), and Imagery Rescripting and Reprocessing Therapy (Smucker & Dancu, 1999).

Death during, or as a consequence of, trauma is a key source of distress for people who have survived that trauma. Survivors may experience intense guilt and/or shame upon the realisation that, despite having suffered trauma, they were fortunate to survive when others did not. Survivors may grapple with questions about the role that they played in causing or failing to prevent deaths, whether they deserved to survive, and the meaning of survival. Distress and maladaptive appraisals relating to having survived a traumatic event in which others died is referred to as 'survivor guilt'.

1.2 Survivor guilt

SG is a complex emotional reaction that is often described clinically with an implicit understanding of what it is. However, there is a lack of clarity and consistency in research and in practice about the concept of SG (Tangney & Fischer, 1995). Despite advanced understanding of the importance of addressing the full range of emotional reactions as part of successful PTSD treatment, SG as a clinical phenomenon has been largely neglected in contemporary research. A comprehensive search of the literature was performed to identify studies that are relevant for understand and treating SG. Only a small number of studies were found that described the presentation of SG after trauma, and explored its relationship to other psychological problems. A few studies were also identified that investigated SG in other populations.

1.2.1 What is SG?

The term SG was coined by Neiderland from his observations of the 'Survivor Syndrome' in Holocaust concentration camp survivors. Neiderland (1968) described a type of "unresolved grief and mourning" (p. 314) that was of such magnitude, severity and duration that it was recognisable as a distinct clinical syndrome. Neiderland (1981) hypothesised an inner conflict that resulted in "life-long burden of pain, guilt and shame" (p. 416). The source of this conflict was often decisions and actions taken during the war, but sometimes arose from survival itself.

Glover (1984) described his observations of SG in Vietnam war veterans. He identified a sub-group of veterans for whom symptoms had diminished except for a "central and dominant conflict of survivor guilt" (p. 395). This conflict was underpinned by thoughts that other soldiers had more reasons to live, or were more worthy of survival, or that their own survival was contingent on another person's death. These thoughts were sometimes not connected to an identifiable, discrete act of transgression; in fact, often the sequence of events suggested that the individual's survival was not linked to other fatalities. Glover noted that this 'illogicality' of the experience was a curious feature of SG.

SG that occurred in the absence of wrongdoing was also observed in Holocaust concentration camp survivors. Jaffe (1970) distinguished between 'true guilt' where actions or inactions lead to the death of another person, and unfounded 'mere guilt feelings' where survival had not occurred at someone else's expense. Unfounded SG seemed more severe and enduring. Carmelly (1975) distinguished between two types of survival related guilt based on her

own experiences and observations of ten other Holocaust concentration camp survivors. Carmelly argued that some were 'active guilt carriers': these people felt guilt about acts that earned them survival. Others were 'passive guilt carriers': these people felt guilt for merely having survived when many others did not.

Lifton (1976) proposed that SG stems from survivors connecting their own survival to others' deaths. He observed that survivors of the Hiroshima bombing often conveyed beliefs that their own survival was purchased at the cost of another person's life, or that dying would have allowed someone else to live.

Roese (2005) also de-emphasised the role that perceived transgressions play in SG from his research on counterfactual thinking and regret. He described SG as a type of 'anguished self-blame' upon the realisation that the survivor could have died instead of someone else.

These studies provide a useful overview of SG phenomena after trauma, but the literature carries important methodological limitations that restrict the conclusions that can be drawn. SG studies to date are theoretical and mostly based on subjective observation. The samples were not confined to individuals that met criteria for PTSD but were limited to specific groups of trauma survivors that are not comparable to the broad range of individuals that present in clinical settings. The findings may not generalise to clients that meet criteria for PTSD, and survivors of other fatal traumatic events (e.g., accidents, natural disasters, armed conflict, or critical illness). No research has systematically explored the nature of SG in a routine clinical setting or used empirical methods

to understand SG phenomenology in individuals with PTSD after a variety of traumatic events.

1.2.2 SG in other populations

The experience of SG has also been described in non-trauma populations including individuals with end-stage renal disease (Vamos, 1997), or people who experienced clinical depression (Blacher, 2000), HIV-negative gay men (Wayment & Silver, 1995), and bereaved grandparents (Fry, 1997). These studies provide ideas for cognitive themes that may underpin SG after trauma.

Vamos (1997) argued that the presentation of odds in medical setting may lead to misconstruction that one's survival is somehow linked to another's death, which triggers an unfavourable comparison of reasons for living and the individual's relative 'worthiness' of survival. He proposed that the peculiarity of SG (in comparison to other types of guilt) indicate that SG is a grief response. Blacher (2000) suggested that SG arose from a perception that one had received more than one's share, and erroneous reasoning that one's advantage was at the expense of someone else. Wayment and Silver (1995) noted that uninfected men frequently made statements that related to the question 'why me' in response to open-ended questions about the AIDS epidemic. They proposed that SG relates both to actions that were perceived as leading to survival and to existential questions about life. Fry (1997) used factor analysis to identify SG as a dimension of grief in bereaved grandparents. He found that SG was associated with beliefs about having survived instead of their grandchild, that they should

have died and that it was their turn to die. He proposed that difficulties making sense of violations of the 'natural order' of death underpinned SG.

These findings need to be interpreted with caution since they may not generalise to trauma populations. Several studies defined SG broadly, including individuals who's distress related to non-fatal discrepancies. The cognitive processes that underpin SG after a fatal traumatic event could be different from the SG experienced by individuals in the studies described above.

1.2.3 Sub-classification

Observations of Holocaust concentration camp survivors indicated that SG related to actions during the war ('true guilt' or 'active carriers') or stemmed from survival itself ('mere guilt' or 'passive carriers'). These sources of SG fit with Baumeister and colleagues' hypothesis that guilt can arise from personal transgressions or from empathising with others' misfortune (Baumeister et al., 1994). Matsakis (1999) suggested that there are multiple types of SG based on her work with survivors of various traumas. She used the terms 'content SG' and 'existential SG' to distinguish between transgression-based and transgressionless SG experiences.

Existential SG was defined as guilt about being the perceived beneficiary of a disparity of suffering – it is directly linked to the outcome of having stayed alive. People that experience existential SG may question why they were spared when others were not, and become preoccupied with existential questions about the purpose and meaning of life and death. Emotional distress associated with existential SG is sometimes linked to beliefs that others would have done more

with a second chance to life and/or a perception of self as unworthy of survival (Matsakis, 1999). Existential SG may fit closely with the suggested pathway of empathic distress guilt (Baumeister, et al., 1994).

Content SG was defined as guilt about the substance of what the person did, thought, or felt in order to stay alive; it is closely linked to how events played out before and during trauma. Content SG stems from a perception of failed competency or negligence in one's role as a professional or as a fellow human being (Matsakis, 1999).

Sherman (2011) suggested that SG that relates to one's actions may be further separated into objective or subjective variants. Emotional distress associated with both subjective and objective SG stems from regret about peri-traumatic actions or inactions. People with subjective SG experience this a felt sense of blameworthiness: deep down they know that personal actions did not cause outcomes, and that they are not responsible for others' deaths', but yet they feel morally implicated (Sherman, 2011). Survivors who experience subjective SG may think that their feelings are displaced, but feel unable to let go of 'if only' thoughts and find resolution to their distress. In contrast, people with objective SG believe that they are accountable and blameworthy for what happened, and are able to map a cause-and-effect chain between their (perceived) transgression and others' deaths. Objective SG is a type of 'should have' guilt. It is the SG variant that is most similar to trauma-related guilt described in the literature because it noticeably links to beliefs that one should have felt, thought or acted differently (Kubany & Manke, 1995). Combat guilt (Kubany, 1994) and perpetration guilt (McNair, 2002) may particularly overlap

with objective content SG. Figure 1 illustrates the proposed relationship between SG and other conceptualisations of guilt phenomenon.

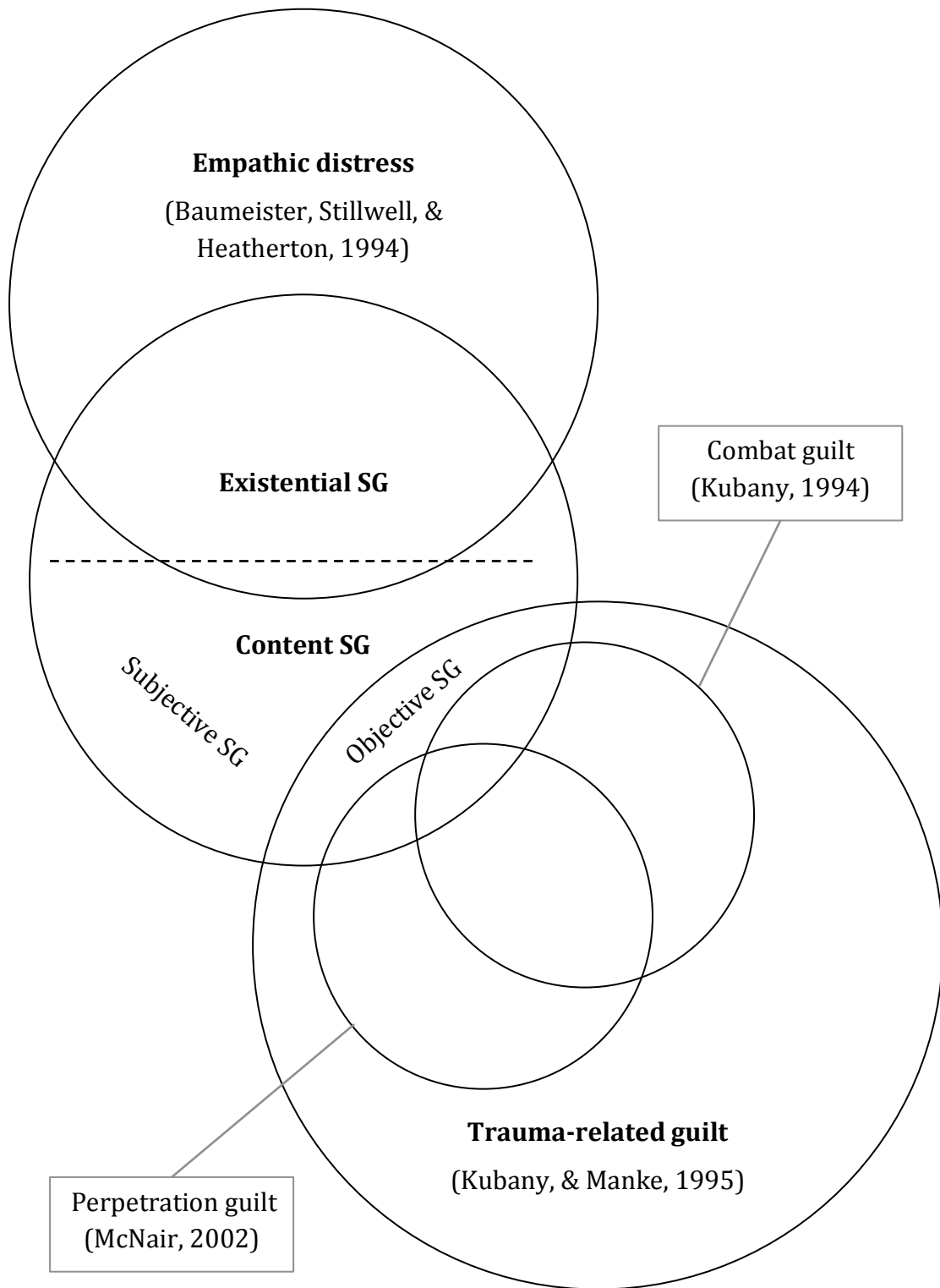


Figure 1. Visual illustration of the conceptual relationship between survivor guilt (SG), empathic distress and types of trauma-related guilt.

1.2.4 Emotional content

The emotional remit of SG includes intense and persistent guilt but other complex emotions may also be embedded within the experience. For example, survivors may experience feelings of demoralisation, internal and external shame, lost sense of self, alienation, anguish and grief. Shame in particular is thought to be a core emotional component of SG (Sherman, 2014).

There are several theoretical reasons for why shame may be intrinsic to SG experience. Research suggests that severe wrongdoing and lack of options for reparation lead to exacerbation of guilt feelings and can trigger negative judgments about the whole self and elicit shame (Kubany & Watson, 2003). The severity and irreversible nature of perceived transgressions in SG may lead to shame attributions. SG may also elicit shame feelings because it is grounded in moral beliefs. Behavioural transgressions, which are usually more likely to elicit guilt feelings, trigger shame because beliefs about the self as a moral person are determined by action (Farnsworth et al., 2014). Finally, in the absence of an identifiable transgression, survivors may be more likely to make attributions that are internal and stable, which are more likely to give rise to feelings of shame than guilt (Tracey & Robins, 2006).

The observation that SG does not consist of one-dimensional guilt and may occur without maladaptive beliefs about culpability has implications for treatment. Existential SG or shame-fused SG may fail to respond to cognitive treatment techniques that seek to reduce guilt by challenging biased appraisals about responsibility and accountability (Kubany & Manke, 1995).

1.2.5 Conceptual definition

The concept of SG remains uncertain and further research is needed (Walbott & Scherer, 1995). There is currently not an agreed upon definition of SG. The DSM-IV-TR (American Psychiatric Association, 2000) included SG as an associated feature of PTSD and provides the following definition of SG:

“... painful guilt feelings about surviving when others did not survive or about the things they had to do to survive.” (p.465)

The DSM-IV-TR definition of SG identifies guilt as the sole emotional component and does not fully cover the concept of SG. Review of the literature suggests that the experience of SG varies substantially between individuals and that it may contain other important emotions. Shame in particular is a feeling that is hypothesised as an important aspect of SG. Researchers have operationalised SG in various ways, most commonly through endorsement of specific beliefs that may not capture the complete experience of SG. Matsakis (1999) argued that the unique aspect of SG is not survival, but distress that relates to remaining uninjured when others were severely harmed or died. Drawing on the literature discussed above, the present study provides the following conceptual definition of SG:

“Survivor guilt is emotional distress that is primarily self-conscious in nature (i.e. guilt and/or shame feelings), originating from the serendipity of having survived a traumatic event in which others died.”

1.2.6 Prevalence

The prevalence of SG has been investigated as part of PTSD research in samples of disaster survivors and military combat veterans. These studies operationalised SG as a single binary item. Guilt about being alive was reported by 61% of survivors of a ferry disaster (n=73; Joseph et al., 1993). A large proportion of the sample also reported guilt about things that they did and did not do during the disaster (35% and 69%, respectively). Beliefs that one should have died or suffered instead of someone else were reported by 38% of hospitalised Nigerian army veterans (n=1131, Okulate & Jones, 2006). Hull, Alexander and Klein (2002) investigated the prevalence of types of guilt 36 survivors of an oil platform disaster. 36% endorsed the item 'I should not have survived' at the time of assessment (10 years post-trauma) and 70% retrospectively endorsed the item in the acute phase after trauma. These findings are limited to specific populations that may not be representative of the range of individuals with PTSD encountered in clinical settings. Nonetheless, the high prevalence reported by researchers (35-70%) is consistent with clinical observations that SG is a common experience after a fatal trauma.

1.2.7 Relationship to other clinical problems

Four studies investigated the relationship between SG and PTSD, and suggest that SG may be associated with more severe symptoms. Joseph et al. (1993) found that guilt about being alive (measured using a single yes/no item) was related to avoidant behaviour and intrusive symptoms as measured by the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979). Guilt about actions

was associated with avoidant behaviour, and guilt about inactions was associated with intrusive symptoms. Hull et al. (2002) found that retrospective reports of acute SG (yes to 'I should not have survived') predicted more severe PTSD as measured by the Clinician Administered PTSD Scale – Diagnostic Version (CAPS; Blake et al., 1995). Okulate and Jones (2006) found that SG (yes to 'Do you think you should have died or suffered in the place of the other persons who died?') significantly predicted meeting criteria for PTSD. Henning and Frueh (1997) used the Combat Guilt Scale to investigate combat guilt in a sample of 40 veterans. A multiple regression analysis showed that combat guilt (including one subscale on SG) predicted a significant amount of variance of a combined score of CAPS re-experiencing and avoidance subscales and of the Mississippi PTSD Scale (Keane, Caddell, & Taylor, 1988) total score. These investigations of SG looked at the phenomenon in specific samples (disaster survivors and combat veterans) that may not be comparable to other trauma populations. SG was operationalised using binary single-item measurement that may lack reliability and validity. These findings may have limited applicability to other PTSD populations and it is difficult to draw any clear general conclusions about how SG relates to PTSD from these studies.

Two studies suggested that SG may be associated with a higher rate of suicide in combat veterans. Hendin and Haas (1991) found that experience of SG was more common in veterans (n=100) who had attempted suicide but a logistic regression analysis failed to detect a significant relationship between SG and suicide attempts. However, combat guilt was a strong predictor of suicidal ideation. They concluded that combat guilt and SG overlapped and together

predict suicidal behaviour in veterans. Hyer et al. (1990) used regression analysis to demonstrate that SG significantly predicted suicidal behaviour in 60 veterans. They noted that SG appeared to be entrenched and highly resistant to change. These studies looked at SG as a sub-component of combat-related guilt. Their definitions of SG were not clearly explained but their operationalisation of combat guilt emphasised guilt that related to actions during trauma. Both studies also used veteran samples, and the findings may not apply to other trauma populations or individuals who experience SG that relates to existential questions about survival.

The potential disruptive effect of SG was demonstrated in a case study of a veteran with PTSD, major depression and alcohol addiction (Khouzam & Kissmeyer, 1997). Strong feelings of guilt and shame about surviving when other soldiers died emerged when the client's symptoms began to improve with antidepressant medication. In response, the client discontinued his medication, experienced a rapid deterioration in mental state and relapsed into alcohol misuse. The client's feelings of guilt and shame were alleviated following a spiritual awakening – this led to spontaneous recovery from all symptoms. The authors concluded that SG is not merely a symptom of depression but an important feature of PTSD presentation, and if left untreated SG can interfere with treatment and lead to symptom chronicity. This study suggests that SG can present as a distinct phenomenon that warrants direct intervention. However, the study was a case investigation (n=1) and no general conclusions can be drawn about how SG relates to treatment response.

Despite important methodological limitations, these studies support the argument that SG plays an important role in PTSD presentation. Clear conclusions cannot be drawn until the results are replicated in larger, systematic studies using more diverse populations and a consistent operational definition of SG that is grounded in research on the phenomenology of the experience.

1.3 Formulation of survivor guilt

There are currently no comprehensive theoretical accounts of SG. Current conceptualisations consists primarily of clinical descriptions that are underpinned by early psychoanalytic ideas. Modern cognitive theories have not been used to formulate SG. Poor conceptual understanding of SG poses a challenge for selecting the best treatment approach. The complexity of SG experience and variability in presentations suggest that several mechanisms may underpin SG, and that different processes may need to be addressed. Existing cognitive PTSD treatment models are useful for explaining some aspects of SG but may not account for all aspects. Theories that enhance our understanding of SG, and guide selection of appropriate treatment techniques, are found in research on moral injury, counterfactual thinking, meaning-making and complicated grief. A summary of research that highlight some processes that may be implicated in SG are presented in the next four sections.

1.3.1 Cognitive PTSD treatment models

Ehlers and Clark's (2000) cognitive conceptualisation of PTSD suggests that symptoms are developed and maintained through two processing pathways that produce a sense of on-going threat. The first path is created by poor elaboration and integration of trauma memories – this leads to distressing involuntary intrusions when presented with trauma cues. The second path is created by dissonance between traumatic experiences and prior experiences or beliefs – this leads to unhelpful appraisals of trauma or its sequelae. Guilt and shame are construed within this model as internal threats. The perceived threat is maintained by avoidance of reminders that prevents adaptive integration of traumatic experiences into autobiographical memory. A visual illustration of Ehlers and Clark's cognitive model of PTSD can be seen in Appendix B.

Kubany and Manke (1995) proposed that trauma-related guilt stems from irrational beliefs that one has acted wrongfully and caused harm. Their model suggests that biased reasoning occurs across domains of wrongdoing; responsibility for causing a negative outcome; insufficient justification for actions taken; violation of values; and errors of foreseeability and preventability are primary sources of distress. Hindsight bias was hypothesised as a key process that prevents objective and accurate evaluation of one's role in trauma, and underpins reasoning errors across these domains (Kubany & Watson, 2003). The Kubany and Manke cognitive model of trauma-related guilt is useful for understanding objective content SG. Emotional distress associated with objective SG stems from negative self-appraisals about one's involvement in traumatic deaths that may be subject to hindsight bias. For example, survivors may

exaggerate the role that their actions or inactions played in deaths, overestimate the foreseeability and preventability of death, and neglect the context in which the transgression occurred (e.g., the limitations that traumatic circumstances place on our ability to protect others). This leads to an exaggerated perception of accountability for deaths and self-blame.

Cognitive models that emphasise the role of pre-existing schemas in the development of guilt and shame after trauma provide some further insights into SG. Subjective content SG is associated with a felt sense of blameworthiness and 'if only' thoughts, it is not underpinned by beliefs about wrongdoing. Lee et al. (2001) proposed that interpretations of traumatic experiences activates pre-existing schemas about the self. Activation of congruent negative schemas, or incongruent positive schemas gives rise to guilt or shame cognitions, upsetting mental imagery and associated distress. Subjective SG may stem from activation of pre-existing schemas of unrelenting standards and exaggerated sense of responsibility (Young, 1994). For example, failure to save others during trauma, even if there was no opportunity to do so, may contradict positive schemas about self (e.g., 'I am a good person, I help others'), trigger guilt cognitions (e.g. 'I should have saved them') and guilt-related distress. If failure to save others is congruent with pre-existing self-schemas (e.g., 'I am a failure, I always let others down') the experience is more likely to trigger shame cognitions (e.g., 'I am a bad person') and feelings of shame. Negative self-appraisals produce distressing intrusive imagery that replays in the client's mind and trigger SG. A visual illustration of Lee, Scragg and Turner's cognitive models of guilt-based and shame-based PTSD can be seen in Appendix C.

Cognitive PTSD treatment models predominantly focus on variables that are relevant for understanding content SG. These models are less readily applied to SG that is not linked to regretted action, and it is unclear how the model conceptualises existential SG. Research in the area of moral injury has started to explore distress that relates to the philosophical, spiritual and ethical questions that traumatic events raise.

1.3.2 Moral injury

The term moral injury has been used to describe the psychosocial impact of war-time events that violate personal or societal moral values (Litz et al., 2009). Moral beliefs and expectations consist of internalised rules about personal conduct and how the world should operate, that are developed from ideas and assumptions about right and wrong. Moral standards serve to facilitate social order and maintain the welfare of society and its members (Farnsworth et al., 2014). Emotional consequences of moral injury include reduced positive moral feelings (e.g., pride, gratitude and forgiveness) and increased negative feelings (e.g., anger, disgust, guilt and shame). The kind of emotional distress that is evoked from events is determined by the attributions that are made about moral violations. Feelings of guilt or shame arise when moral violations are attributed to internal sources (Tangney et al., 2007).

Litz et al. (2009) developed a preliminary model of moral injury using a social-cognitive account of PTSD. Social-cognitive theories delineate how traumatic experiences lead to psychopathology by clashing with pre-existing schemas about self, others and the world (Horowitz, 1976; Janoff-Bulman, 1989).

Violations of moral standards during trauma impair contextualisation, accommodation and integration of experiences into broader frameworks of life, which gives rise to dissonance, tension and distress (Litz et al., 2009). The inner conflict created by moral violations leads to a loss of trust in deeply held beliefs of one's own or others' ability to uphold moral standards, and provokes feelings of demoralisation and loss of moral self. This prompts motivation to withdraw from social contact, which perpetuates moral injury by preventing corrective and repairing experiences (Nash & Litz, 2013). Failure to integrate moral violations also leads to intrusive mental imagery that reminds the individual of his or her conflict, eliciting emotional distress and intensifying behavioural avoidance. A visual illustration of the model of moral injury can be seen in Appendix D.

Morally injurious events were defined as experiences that abruptly contradict moral codes of conduct (Dombo, Gray, & Early, 2013). Active violations of the rights of others or failures to prevent others' suffering during war have obvious moral implications. For example, killing or failing to prevent the death of a friend are experiences that are particularly likely to give rise to moral injury and elicit feelings of guilt and shame (Bryan, Bryan, Morrow, Etienne, & Ray-Sannerud, 2014). Litz et al. (2009) argued that it would be counterproductive to limit the scope of moral injury to combat-trauma and active transgressions, and that any trauma that is contrary to moral expectations can produce moral injury. In other words, witnessing or being passively implicated in events that violate moral beliefs may produce moral outrage and lead to distress even if there is no identifiable transgressor. Using this broader definition, SG may be formulated as a subset of moral injury.

Untimely death resulting from trauma is fundamentally incongruent with aspects of most people's moral framework. Surviving a fatal trauma may violate rules about fairness, predictability and order. The role that violations of the 'natural order of life' may play in presentation of SG was noted by Fry (1997). Using the model of moral injury, violation of moral rules how the world should operate may be construed as a threat to moral integrity that gives rise to a sense of moral corruption. Damage to sense of moral self, may elicit thoughts associated with existential SG (i.e., the meaning of survival and survival worthiness) or content SG (regrets about actions) and self-conscious feelings. These feelings prompt motivations to withdraw from others, preventing corrective and repairing experiences. Intrusive imagery about others' death activates SG feelings and intensifies behavioural avoidance (Nash & Litz, 2013).

The moral injury literature is useful for adding to our preliminary formulation of SG. However, it is important to note that moral injury research is in its early stages and the model and treatment protocol has not yet been empirically tested.

1.3.3 Meaning-making and counterfactual thinking

Meaning-making. Psychological trauma inherently disrupts the global meaning system which brings coherence and purpose to life (Park, 2010). For example, beliefs about oneself as being good, righteous or decent; other people as being kind and benevolent; and the world as being safe may be shattered (Janoff-Bulman, 1992). Roese (2005) suggested that attempts to make sense of experiences are spontaneously initiated after traumatic events. Park (2010)

argued that these attempts to make sense of trauma, including identifying why, how and whom, serve to create situational meaning and maintain the global meaning system. However, research has demonstrated that people who searched for meaning presented with greater emotional distress months after trauma compared to those who did not search for meaning irrespective of the outcome of their search (Davis, Wortman, Lehman, & Silver, 2000). Distress associated with SG may be linked to on-going attempts to find meaning in traumatic experiences.

Several researchers have proposed a link between attempts to make sense of traumatic deaths and SG. Matsakis (1999) suggested that SG is a normal reaction to the process of sense making after trauma, but that SG becomes problematic when meaning making is extensive and prolonged. Roese (2005) suggested that failure to identify a causal agent (whom) leads to generation of “phantom explanations or phony sense-making” (p. 190) that link tragic outcomes to mundane aspects of one’s own behaviour, eliciting self-blame and SG. Sherman (2010) argued that SG is a product of attempts to impose moral order on the world (why) and protect against chaos – in some ways it is easier or preferred to blame oneself for deaths than to accept that life is often arbitrary. The process by which searching for meaning leads to guilt is evident in a quote by a survivor of the September 11 bombings of the World Trade Centre:

“Given the common threads that joined me and Anthony, I thought for a brief moment, why him and not me? He did not deserve that fate more than I do. So why him? ... Without an answer I resorted to an empty feeling of guilt.” (p. 191, Roese, 2005)

Counterfactual thinking. Counterfactual thinking involves constructing alternative scenarios in our minds to what happened. Upward counterfactual thinking involves thinking about ways in which better outcomes could have been achieved; downward counterfactual thinking involves thinking about ways in which worse outcomes could have occurred (Markman, Gavanski, & Sherman, 1993). Counterfactual thinking is used to create positive meaning, learn from experiences and influence future behaviour; it becomes unhelpful only when it fails to provide resolution (Epstude, & Roese, 2008; Roese, 1997). Counterfactual thinking is considered a key process that underlies and shapes guilt and shame (Niedenthal et al. 1994). Research has demonstrated that people who were prone to counterfactual thinking were more likely to ruminate and experience feelings of regret related to past events (Bartlett & Brannon, 2007). Research has also showed that individuals who engaged in counterfactual thinking after losing a loved one reported greater distress about the event (Davis et al., 2000). Upward and downward counterfactual thinking processes can be used to understand the experiences of content and existential SG.

Guilt has been most closely linked to upward counterfactual thinking (Niedenthal et al., 1994). The 'counterfactual fallacy': the tendency to confuse what ought to have been and what could have been (Miller & Turnbull, 1990), is thought to underpin this relationship. Survivors that engage in upward counterfactualising may experience content SG when they confuse the role that he or she could have played in preventing deaths with the role that he or she would have liked to play. Upward counterfactualising may also be an attempt at reparation by 'undoing deaths' in one's mind or atoning for perceived

transgressions through self-punishment. Research suggests that guilt after trauma is exacerbated when there are no appropriate available avenues for restitution (Kubany & Watson, 2003). The irreversible and irreparable nature of death constrains options for relieving SG through atonement, because the outcome cannot be undone and forgiveness cannot be sought from victims. Blocked restitution may be particularly relevant for understanding the persistence of content SG.

Roese (2005) suggested that SG is more closely linked to downward counterfactualising. Thompson (1985) argued that imagining ways in which the situation could have been worse and comparing ourselves to less fortunate individuals is an attempt to find a 'silver lining' and build positive meaning from negative events. Downward counterfactual thinking may be used by survivors of fatal traumas to elicit positive feelings about the outcome. However, relief about escaping death may come into conflict with feelings of sadness about deaths and trigger ruminative thinking about the meaning of their luck and whether others were more deserving of survival (i.e., cognitive components of existential SG). This claim is supported by experimental research which shows that experiencing luck can elicit both feelings of gratitude and guilt through a process of downward counterfactual thinking (Teigen & Jensen, 2010).

1.3.4 Stunted grief processing and complicated grief

Grieving is a normal process after bereavement that helps the bereaved person mourn his or her loss to reach a healthy state of acceptance that allows the person to move on with life (Zisook & Shear, 2009). Grief processing varies

considerably between individuals and a range of different emotions may be evoked at various points of the process. Similarly to SG, grief is considered a normal reaction that becomes pathological when distressing feelings do not lessen with time and prevent the person from moving on from the upsetting experience (Matsakis, 1999; Zisook & Shear, 2009). There is disagreement in the literature about what constitutes normal grieving but empirical research verifies that some people fail to progress through a healthy grieving process (Hogan, Worden, & Schmidt, 2004).

'Complicated grief' occurs when an individual fails to transition from acute to integrated grief and becomes stuck in a state of constant mourning that is associated with distress and impaired functioning (Zisook & Shear, 2009). Complicated grief is characterised by persistent separation distress that consists of intrusive thoughts and imagery; intense feelings of pain, sorrow or grief; and yearning for the lost person (Shear et al., 2011). Other key cognitive, emotional and behavioural symptoms include preoccupation with loss, searching for answers, inability to accept the loss and difficulties moving on with life (Raphael & Martinek, 1997).

Grief is often mentioned in descriptions of SG presentations (Niederland, 1968; Vamos, 1997). The hypothesised cognitive components of complicated grief appear similar to problematic beliefs and unhelpful thinking exhibited by trauma survivors who experience SG. For example, Sherman (2010) noted that combat veterans reported that being a survivor felt like a betrayal of human solidarity, and that moving on with life would represent another betrayal. She suggested that SG may serve as a form of self-indictment by preventing

prospects for happiness. Beliefs that continued mourning maintains a bond with the deceased, and that stopping mourning would erase the memory of the deceased, are commonly reported by people who experience complicated grief (Boelen & Lensvelt-Mulders, 2005). Other important cognitive processes of complicated grief that may also overlap with SG include excessive self-blame for deaths; preoccupation with unfairness; beliefs that the victim deserved to live/the survivor deserved to die; and thoughts that letting go will offend the memory of the deceased.

Boelen, van den Hout and van den Bout's (2006) cognitive conceptualisation proposes that symptoms of complicated grief are developed and maintained through a reciprocal interplay between: failed integration of loss into autobiographical memory; unhelpful beliefs about loss and the grieving process; and behavioural avoidance of positive activities and experiences (see visual illustration in Appendix E). These processes give rise to intrusive imagery associated with bereavement, which leads to yearning for the deceased and inability to move on from the loss. Applying the cognitive model of complicated grief to SG, unhelpful appraisals about traumatic deaths exhibited by survivors lead to avoidance of experiences that would repair and restore meaning to the individual's life, and facilitate processing and acceptance of losses. This perpetuates SG, and prevents survivors from accepting traumatic losses and moving on with life.

1.4 Treatment of post-traumatic stress

No studies to date have investigated treatment of SG after trauma specifically. Exposure therapy (ET) and Trauma-Focused Cognitive Behavioural Therapy (TF-CBT) are common psychological approaches for treatment of PTSD. ET involves reliving of trauma memories using imaginal and/or in vivo exposure techniques. TF-CBT combines exposure techniques with cognitive techniques to reduce emotional distress. Extensive research has been devoted to comparing ET and TF-CBT, concluding that both are effective therapies for PTSD but that neither shows a clear advantage (Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998; Paunovic & Öst, 2001). Researchers are now beginning to focus their efforts at exploring when and for whom different techniques are most useful.

1.4.1 Exposure Therapy for PTSD

ET was developed from behavioural learning theory and principles of classical conditioning (Pavlov, 1927; Watson & Rayner, 1920). Behavioural learning theory suggests that PTSD develops through fear conditioning whereby previously neutral stimuli become associated with feared stimuli. The Fear Network Theory (Foa, Steketee, & Rothbaum, 1989) suggests that representations of trauma memories include sensory, emotional, cognitive and physiological information. Encounters with conditioned stimuli (e.g., sensations, bodily experiences or feelings during trauma) elicit the fear response and lead to physiological hyperarousal, re-experiencing of the traumatic event, and avoidance of internal and external reminders (VanElzakker, Dahlgren, Davis,

Dubois, & Shin, 2014). The aim of ET is to eliminate avoidant behaviour and reduce the fear response through systematic exposure to feared stimuli.

The primary technique in ET for PTSD is Imaginal Exposure (IE). IE involves repeated reliving of traumatic experiences in imagination. The client vividly recalls and describes details of the trauma including peri-traumatic sensations, feelings and thoughts. Repeated confrontation of mental representations of feared stimuli during IE leads to habituation. PTSD symptoms reduce as new information is incorporated into the fear network and the previously associated fear response becomes extinct (Foa et al., 1989).

IE is a distressing process that is sometimes not tolerated. Arntz, Tiesma and Kindt (2007) found that 51% of clients dropped out of IE before the eighth sessions. Shearing, Lee and Clohessy (2011) stated that it is imperative to provide clients with a good understanding of how IE will lead to symptom reduction, and convey confidence in the technique. The theoretical rationale for treatment of PTSD using IE is clear when fear is the predominant emotional reaction – the justification for its use with guilt and shame-based PTSD is less clear. Researchers have argued that guilt and shame are maintained by different mechanisms from fear, and that techniques that operate through processes of habituation are unlikely to work (e.g., Lee et al., 2001). This argument is supported by research which showed that ET was highly effective for PTSD when fear and avoidance were key symptoms, but had limited effects when non-fear emotions, such as guilt and shame, were important features of the presentation (Grunert, Weis, Smucker, & Christianson, 2007; Arntz et al., 2007). Researchers have also suggested that repeated activation of trauma-related appraisals

without addressing these may actually worsen guilt and shame (e.g., Lee et al., 2001). The potential detrimental effect of IE has been documented in a case study: Grunert, Smucker, Weis and Rusch (2003) found that two clients with PTSD and high levels of guilt and shame became increasingly distressed and self-blaming during treatment and reported increased anger, guilt and hopelessness post-treatment. Given that guilt and shame are central components of SG, other approaches may be more suitable for treating SG after trauma.

1.4.2 Trauma-Focused Cognitive-Behavioural Therapy

TF-CBT is recommended as a first line treatment of choice for PTSD by the National Institute of Health and Care Excellence (National Institute for Health and Care Excellence, 2005). TF-CBT is an approach that is considered particularly appropriate when guilt or shame are central emotions after trauma (Lee et al., 2001). Research shows that TF-CBT is effective in reducing guilt, PTSD and depression symptomatology (Kubany, Hill & Owens, 2003; Kubany, 1998; Norman et al., 2014); the evidence base for treatment of shame using TF-CBT is weaker. Kubany and Ralston (2006) argued that the same deductive reasoning process is implicated in the development and maintenance of guilt and shame, and that shame may dissipate naturally without direct intervention following successful treatment of trauma-related guilt. Other researchers have suggested that shame may require a different approach (Lee & James, 2012).

TF-CBT was developed from cognitive models of PTSD. Dual Representation Theory suggests that autobiographical memory consist of two systems: one that stores verbal contextualising information (verbally accessible

memory, VAM) and one that stores sensory snapshots of experiences (situationally accessible memory, SAM; Brewin, Dalgeish, & Joseph, 1996). The experience of trauma disrupts VAM processing which leads to under-representation of contextualising information (c-reps), and over-representation of sensory information (s-reps) in SAM. Imbalance between s-reps and c-reps leads to poor integration of traumatic events with previous experiences and gives rise to PTSD symptoms (Brewin, Gregory, Lipton, & Burgess, 2010). Cognitive and behavioural avoidance that seek to reduce the sense of threat prevents integration of trauma memories.

TF-CBT is an umbrella term for techniques that seek to modify neural network representations of trauma memories by drawing on the association between perceptual, cognitive and emotional processes. TF-CBT relies heavily on reliving techniques but the rationale behind their use differs from their use in ET. TF-CBT incorporates reliving with cognitive techniques with the aim to update the memory of traumatic events with more adaptive appraisals. The main cognitive technique in TF-CBT is cognitive restructuring. Cognitive restructuring is used to identify and dispute irrational or unhelpful thinking through logical verbal discourse between clients and therapists (Kubany & Ralston, 2006). Processing the meaning of trauma allows clients to develop a verbal narrative that is consistent with personal schemas of self, others and the world (Lee et al., 2001). Consequently, trauma memories become less threatening and less intrusive, and PTSD symptoms reduce (Ehlers & Clark, 2001).

Cognitive treatment techniques are invaluable clinical tools for treating PTSD. However, many PTSD specialists consider the effects of verbal-intellectual

processing of trauma memories to be limited when working with clients with complex post-traumatic emotional reactions (Arntz & Weertman, 1999).

Research shows that feelings of guilt and shame can exist despite logical counterevidence, and can persist beyond remission of cognitive distortions (Ehlers, Clark, Hackmann, McManus, & Fennell, 2005).

Smucker (1997) suggested that the cognitive-affective disturbance that is associated with PTSD is predominantly embedded within mental imagery, and that changing the imagery directly may be preferred to challenging the verbal meaning of trauma. Research has demonstrated that perceptual processing of trauma memories is a necessary component for effective treatment, and that perceptual processing precedes conceptual changes (Kindt, Buck, Arntz, & Soeter, 2007). The role that mental imagery plays in maintenance of PTSD and how imagery can be harnessed in therapy is a current topic of interest in the literature.

1.5 Mental imagery in PTSD

Mental imagery is thinking using our senses: a quasi-perceptual experience that occurs in imagination without external stimuli. Mental imagery is often described as 'pictures in our mind' or 'visualisation' but mental imagery covers all sensory domains. Fleeting mental imagery that does not lead to unmanageable distress is a normal experience of everyday life (Rusch et al., 2000). However, mental imagery has the power to elicit strong emotional responses (Holmes & Mathews, 2005). Intense distressing mental imagery is the

hallmark symptom of PTSD and the experience that prompts many individuals to seek help after trauma.

Key PTSD theories have accounted for the occurrence of distressing mental imagery in PTSD. The Fear Network Theory (Foa & Kozak, 1986) suggests that mental imagery arises from neural networks that contain sensory, physiological, emotional and cognitive representations of traumatic experiences. The Dual Representation Theory (Brewin et al., 2010) suggests that distressing mental imagery arises from the overrepresentation of sensory information and underrepresentation of contextual information associated with trauma memories. Both theories propose that avoidance of mental imagery maintains PTSD symptoms.

Working with mental imagery is a defining feature of psychological treatment of PTSD. The reasoning behind mental imagery work is that activation and modification of the verbal narrative alone is insufficient to reduce PTSD symptoms, and that imagery permits access to a primitive cognitive level that is more closely connected to emotional processing pathways (Edwards, 1990). Preliminary research shows that imagery processing has a more pronounced effect on physiological and emotional responses than verbal-semantic processing of the same material (Holmes & Mathews, 2005; Holmes, Mathews, Dalgeish & Mackintosh, 2006). An explanatory hypothesis for these findings is that mental imagery imitates real life experiences because it is processed by the same neural structures that are responsible for processing perceptual input (Epstein, 1994; Holmes & Mathews, 2010). Holmes et al. (2007) proposed that mental imagery

can be used as an 'emotional amplifier' and a should be considered a "powerful psychotherapeutic tool for alleviating emotional distress" (p. 298).

1.6 Imagery rescripting

Imagery Rescripting (IR) is an increasingly popular transdiagnostic psychological treatment technique that seeks to reduce distress through manipulation of mental imagery (Long & Quevillon, 2009). Clients are guided to visualise and describe imagery including their surroundings, any sensory experiences associated with the imagery, and thoughts and feelings activated by the imagery (Rusch, Grunert, Mendelsohn, & Smucker, 2000). Potential options for changing the imagery to reduce associated distress are explored and the client is then guided to make these changes in imagination.

IR is an experiential technique that differs from traditional cognitive techniques for PTSD which typically seeks to change the verbal meaning of trauma. Arntz and Weertman (1999) proposed that using experience to introduce new perspectives on what happened have a stronger and more direct effect on emotions than information that is presented through logical discourse. Edwards (2007) suggested that mental imagery operates at a perceptual-cognitive level that is difficult to access with verbal restructuring, and that imagery-based restructuring can be used to change the implicational meaning of trauma. IR is most commonly used as an adjunct to cognitive restructuring to solidify changes at emotional levels (Hagenaars & Arntz, 2012).

A recent review showed that IR has a solid evidence-base for treatment of PTSD, particularly when feelings of guilt and shame are key emotional reactions

after trauma (Arntz, 2012). For example, Grunert et al. (2007) showed that 78% of 23 industrial accident survivors with PTSD experienced full symptomatic recovery after 1-3 sessions of IR. These participants had failed to respond to several sessions of IE and reported non-fear emotions as the predominant emotion. Arntz et al. (2007) demonstrated the advantage of adding IR to IE when treating 67 survivors of various traumas. They found that IR did not produce additional benefits to symptoms, but significantly reduced drop outs and improved feelings of guilt and shame.

The processes that operate during IR are currently under debate and several theories provide plausible explanations. The Retrieval Competition hypothesis suggests that IR draws on associative sensory processes, creating an alternative representation in memory that overrides the original imagery (Brewin, 2006). Cognitive theory suggests that IR reduces emotional distress associated with mental imagery because it changes the semantic meaning of the imagery. For example, activation of positive emotions during IR stimulates adaptive schemas, which leads to a helpful shift in thinking about traumatic experiences (Long & Quevillon, 2009). Behavioural theory suggests that modification of mental imagery reduces distress by creating a new associated emotional response (Rusch et al., 2000; Wolpe, 1958, 1969). The Fear Network Theory suggests that reduced avoidance of mental imagery allows new more adaptive thoughts, feelings and sensations to be incorporated into the fear network (Foa & Kozak, 1986).

A focus of the debate concerning the active ingredients of IR is whether IR works through the same habituation processes as exposure techniques, or via a

semantic route similar to cognitive restructuring (Long & Quevillon, 2009). Most studies to date have combined IR with other techniques making it impossible to ascertain the specific impact of IR, or to elucidate the processes that underpin IR. Arntz (2012) suggested that future research should use dismantling designs to advance our understanding of the stand-alone effect of IR and the processes that predict effective IR. A few studies of IR have deployed such methods.

Wild, Hackmann and Clark (2008) used a within-subjects design to investigate IR as a brief intervention for social anxiety. Eleven participants were offered two imagery sessions before the start of or during a gap in their standard therapy. The first was a control session, which focused on exploring imagery in a non-directive manner; the second was an experimental session that used IR and cognitive restructuring to update and give context to imagery. Visual Analogue Scales (VASs) were used to capture within-session changes, and outcome measures evaluated changes in the weeks following sessions. The aim of the trial was to understand the extent to which IR produced effects beyond those of imagery exploration. Significant improvements were observed on measures of social anxiety and imagery that could be attributed specifically to the experimental session (Wild et al., 2008).

The study used by Wild et al. (2008) forms a precedent for investigating IR separately from exposure techniques. Delivery of IR as an optional two-session insert also enabled evaluation of its effects without disrupting or reducing the quality of standard care. However, combining IR with verbal cognitive restructuring prevented evaluation of IR as a purely experiential, imagery-based technique. Wild et al. (2008) argued that extensive pilot work had indicated that

independent IR seemed less promising, and that both techniques played an important role in the observed effects. Building on the work by Wild et al. (2008), Nilsson, Lundh and Viborg (2012) evaluated the impact of IR on social anxiety using an experimental between-subjects design and a modified treatment protocol. They demonstrated that IR can be effective in the absence of explicit verbal restructuring. These results suggest that IR alone can produce a cognitive shift, or alternatively that IR operates through different processes. These dismantling designs are yet to be used in research of IR for people with PTSD.

1.6.1 Imagery rescripting for survivor guilt

There is currently no evidence concerning the use of psychological therapy techniques to address SG specifically. IR has been promoted as a technique that is useful for treating guilt and shame after trauma (Arntz, 2012). Furthermore, a published case study indicates that IR can be used to address guilt that relates to a disparity of suffering: Charles experienced intense feelings of guilt about escaping physically unharmed and failing to save others from severe injury after an industrial accident (Grunert et al., 2003). Charles became increasingly distressed and self-blaming during IE, and reported higher levels of anger, guilt and hopelessness post-treatment. Grunert et al. (2003) proposed that Charles' 'survivor guilt' prevented successful emotional processing of trauma and posed an obstacle to therapeutic change. The treatment approach was adjusted to incorporate a cognitive component consisting of verbal restructuring and imaginal modification of mental imagery. Dramatic improvements in PTSD,

depression and anxiety symptoms were observed following just one session using the new treatment protocol. Charles also reported improved sleep, concentration, energy levels and confidence. No further sessions were conducted and positive gains were maintained and improved further at one, three and six-month follow-ups.

No one died in Charles' trauma and his experiences are not directly comparable to people that experience SG following a fatal trauma. However, the emotional and cognitive content of Charles' difficulties are similar to the observed distress in individuals who report SG that relates to a fatal trauma. This case study provides a clinical precedent for investigation the application of IR to treat SG after a traumatic event in which other people died.

Our current understanding of SG remains theoretical. Individual variations in SG presentation suggest that several mechanisms may be implicated. Cognitive models of PTSD, moral injury, and complicated grief; and research on meaning-making and counterfactual thinking, were used to formulate the development and maintenance of SG. Each of the models explored suggest that distressing mental imagery prevents contextualisation and integration of experiences, strengthens avoidance of new experiences that may repair and restore healthy functioning, and perpetuates distress. Research on counterfactual thinking also highlight the importance of mental imagery: for example, Bartlett and Brannon (2007) found that participants with a high ability for mental imagery generated more counterfactuals and experienced stronger affective response to these counterfactuals across scenarios. They concluded that imagery plays an important role in counterfactual thinking. These models and

findings provide a theoretical rationale for addressing mental imagery as part of SG treatment. IR is well suited for this purpose and is already used as a component of treatment protocols for PTSD (Hackmann, 2011), moral injury (Litz et al., 2009) and complicated grief (Fidaleo, Proano, & Friedberg, 1999).

An advantage of IR is the flexibility of the technique and its ability to meet individual needs – rescripts can be tailored to specifically target the aspects of imagery that are most distressing for clients. This may be particularly important in the context of SG treatment where different presentations of SG (e.g., existential and content sub-types) may be underpinned by different maintaining processes. Based on the conceptual ideas mentioned in previous sections, some suggestions for how IR can be used to reduce SG after trauma are presented below.

IR may be used to create positive changes to meaning and shift unhelpful appraisals associated with SG. For example, IR can be used to explore alternative counterfactual scenarios in imagination to help clients discover that their role and power of influence on traumatic outcomes was less than originally perceived. In comparison to verbal restructuring techniques, introducing changes through the use of creative imagery has the advantage of changing the implicational meaning, which could exert more powerful effects on emotional components of SG.

IR may also be used to provide helpful corrective and repairing experiences that reduce SG distress. The cognitive model of trauma-related guilt suggests that opportunities for atonement are crucial for reducing guilt feelings (Kubany & Manke, 1995). The irreversible nature of the outcome of the perceived

transgression in SG (i.e. death) restricts options for relieving SG through atonement. IR provides a tool for repentant action in imagination. For example, IR may be used to converse with and seek forgiveness from the deceased. The moral injury literature also suggests that restorative experiences are important to promote processes of self-forgiveness and reparation. Moral repair therapy incorporates an imagery-based internal dialogue with an imagined benevolent moral authority (Litz et al., 2009). IR can be used to provide a comparable imaginal corrective experience that repairs injury to moral values of fairness, predictability and world order that may be damaged in the context of SG.

IR may also provide a useful tool for expression and resolution of complex grief-related emotions associated with SG. Researchers suggest that mental imagery can block bereaved individuals from completing emotional tasks that are part of successful mourning (Fidaleo et al., 1999), and that updating mental imagery is important to overcome complicated grief (Boelen et al., 2006). Fidaleo et al. (1999) suggests that clients should be invited to repair the imagery in a way that they believe would be helpful and that this will allow grief to progress with its natural course. For example, trauma survivors may find it helpful to hold a funeral ceremony in imagination for the deceased if the traumatic event prevented proper burial. IR can also be used to provide a helpful alternative for honouring the deceased and maintaining the significance of the event. For example, mental imagery can be used to create a place in imagination where the survivor can return to commemorate the deceased. This may be helpful when survivors feel that moving on with life would represent a betrayal of those who died.

1.7 Present study

The present study is a preliminary investigation of IR as a therapeutic technique for SG. Previous clinical trials in PTSD have combined IR with other techniques, or embedded it within treatment packages, making it difficult to ascertain the impact of IR specifically. Previous researchers have called for dismantling studies that incorporate measures of processes that may be affected by IR to further our understanding of IR (Arntz, 2012). The present study used a dismantling design that was based on Wild et al. (2008). The design used by Wild et al. (2008) was chosen over the between-subjects design used by Nilsson et al. (2012) because within-subjects designs require fewer participants to detect an effect. Minimising the number of participants required is an appropriate consideration for a proof-of-concept clinical trial of IR as a therapeutic technique for SG. The intervention was delivered as an optional component to standard trauma-focused psychological treatment by the participant's treating clinician.

The format of sessions was the same as Wild et al. (2008). Participants attended two consecutive imagery sessions at an appropriate point in therapy. The first session focused on exploring and elaborating the distressing imagery with the purpose of establishing a baseline effect of an imagery session. The second used IR to modify the distressing imagery. Following recommendations in the literature, both standardised outcome measures and non-standardised process measures were included. Standardised scales that measured both depression and PTSD symptoms were included due to the high prevalence and overlap of depression and PTSD following trauma (Friedman et al., 2011).

In contrast to the study by Wild et al. (2008), explicit verbal restructuring was not included as part of the intervention. This decision was made to enable evaluation of the effects of IR as a purely experiential, imagery-based technique distinct from other techniques. A flexible protocol was chosen to enable targeting of different processes that appeared to underpin individual SG presentations. As recommended by Fidaleo et al. (1999), participants were encouraged to change the imagery in whatever way they felt would be helpful. All changes to imagery were introduced through imagination using the protocol developed by Brewin et al. (2009). Outcome measures were delivered before each session and at one-week follow-up. VASs were used to measure changes to perceptual, cognitive and emotional processes during the sessions.

The primary goal of the present study was to evaluate IR as an independent technique for treating SG after trauma. The study aimed to explore the value of IR as an experiential technique and determine if IR effects extended beyond those of imagery exploration. It was predicted that the intervention would lead to significant improvements for participants. It was hypothesised that:

- (H1) Scores on VASs that measured cognitive, emotional and perceptual SG processes would reduce significantly during the rescripting session but not at other time points;
- (H2) Scores on weekly measures of SG and mental imagery would reduce significantly the week following the rescripting session;
- (H3) Scores on standardised measures of depression and PTSD symptoms would reduce significantly the week following the rescripting session.

Individual trajectories were also examined to further understand the variables that influenced variations in treatment response. In depth exploration of the rescripting process was suggested by Arntz (2012) as an important next step that would advance our understanding of IR. Rescripting process themes were selected from a recently developed coding framework (Salter, El Leithy, & Brown, in prep). A brief version of the coding framework was used to characterise the rescripting process and compare responders and non-responders. It was hoped that comparison of rescripting process themes across responders and non-responders would provide a preliminary indication of the variables that are important for effective IR.

2 Method

2.1 Participants

2.1.1 Sample

The sample consisted of 14 participants who were recruited from two specialist PTSD treatment services. These were based at Springfield University Hospital, South West London and St George's Mental Health NHS Trust (SWLSTG) and St Pancras Hospital, Camden and Islington NHS Foundation Trust (CANDI). The time period for recruitment was May 2014 – April 2015.

2.1.2 Inclusion criteria

The following inclusion criteria were used for the study:

1. Diagnosis of PTSD;
2. Currently in treatment at one of the participating services;
3. Experience of a DSM-5 (American Psychiatric Association, 2013) Criterion A defined traumatic event that involved the death of one or more people;
4. Sufficient English-language ability to complete the study without the use of an interpreter;
5. Current self-reported feelings of survivor guilt.

Clients who reported active suicidal intent or had a recent suicide attempt, and clients who lacked capacity to consent to the study were excluded. Clinicians were also able to exclude clients if it was predicted that participation in the research study was not in the client's best interest at present. For example,

clients who were in crisis during the recruitment phase and clients for whom participation in the study would lead to substantial disruption to their standard treatment were excluded on this basis. No clients were excluded on the basis of risk or capacity. Six clients were excluded because they did not reach a stage in therapy when participation in the study would have been appropriate, within the recruitment time frames. One participant dropped out after the first session because he found it too distressing. The flow of clients that were approached for the study is depicted in Figure 2.

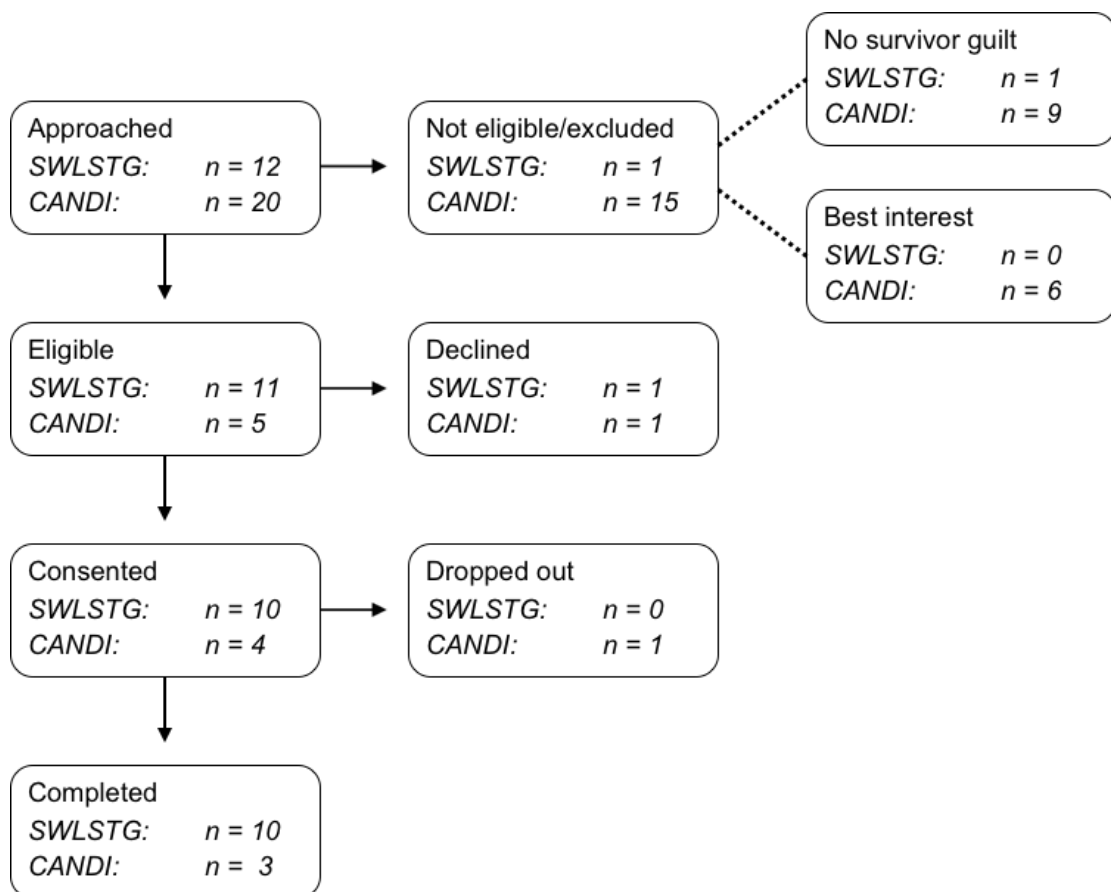


Figure 2. Flow of clients that were approached for the study.

2.1.3 Recruitment

Clinicians at the participating services were approached by the Principal Investigator and asked to consider clients on their caseload against the inclusion and exclusion criteria. Criterion I (diagnosis of PTSD) was not formally assessed, but was assumed if clients were under the care of a specialist PTSD treatment service (Criterion II). Clients who met study Criteria III and IV, and did not fulfil any of the exclusion criteria, were approached by their treating clinician. Clients were asked about the presence of SG using this or an equivalent question:

“Some people that have experienced trauma say that they sometimes feel guilty or ashamed about having survived when others died – we call this survivor guilt. Do you ever feel survivor guilt?”

Clients who reported SG were informed of the study and provided with the information sheet (Appendix F) and consent form (Appendix G). Clients who expressed interest in taking part in the study collaboratively agreed the best time to complete the study with their treating clinician. The study intervention was scheduled at an appropriate point that fitted the natural flow of therapy sessions. Special consideration was given to the pre-existing treatment plan to ensure that participation did not disrupt participants' standard treatment.

2.1.4 Power analysis

The required sample size was determined using power analysis. No comparative studies were identified in the PTSD literature. The power analysis was calculated using data from Wild et al. (2008). IR has a strong evidence base in PTSD and it was expected that the effects in the present study would be

comparable to the observed effects in the study by Wild et al. (2008). The VAS – Encapsulated Belief and VAS – Imagery distress (pre-control session, pre-experimental session and follow-up scores) were chosen to estimate the required sample size because these measures corresponded most closely to the main outcome measures of the present study. Power analysis using the encapsulated belief ratings indicated a sample size of $n=5$, and calculations using imagery distress indicated a sample size of $n=14$. The results of the power analysis suggested that a sample of 5-14 participants would be able to detect an effect at standard alpha level (.05) and 80% power.

2.2 Ethics

The study was reviewed and approved by Royal Holloway, University of London Research Committee (Appendix H). Ethical approval was obtained from the Dulwich National Research Ethics Service Committee on 25th March 2014 (Appendix I) and from Royal Holloway, University of London Ethics Committee on 24th April 2014 (Appendix J). The study was also given local support from SWLSTG Research & Development Committee on 23rd April 2014 (Appendix K) and CANDI Research Support Service on 14th November 2014 (Appendix L).

2.3 Service user consultation

A service user was asked to advise on the acceptability of the research methods and the wording of non-standardised measures and verbal instructions (Appendix M). The service user was a current client at the traumatic stress

service at Springfield University Hospital and was representative of the target population. Materials and procedures were adapted to reflect the views of the service user. The service user was given a £50 gift certificate for the two-hour consultation.

2.4 Design

The overall design of the present study was based on the study by Wild et al. (2008). Two imagery sessions were delivered: the first was an exploration session which focused on elaborating the imagery, the second was a rescripting session which used IR to modify the imagery. The research therapy sessions were delivered during a break in participants' standard therapy or at the end of participants' trauma-focused treatment. An imagery interview (see Section 2.6) was conducted before the exploration session to identify SG imagery and the meaning of the imagery. Weekly measures (standardised and non-standardised questionnaires) and single-item VASs were administered before each session, and one week after the rescripting session. Single-item VASs were also administered after each session. A visual illustration of the study, procedures and analysis can be seen in Figure 3.

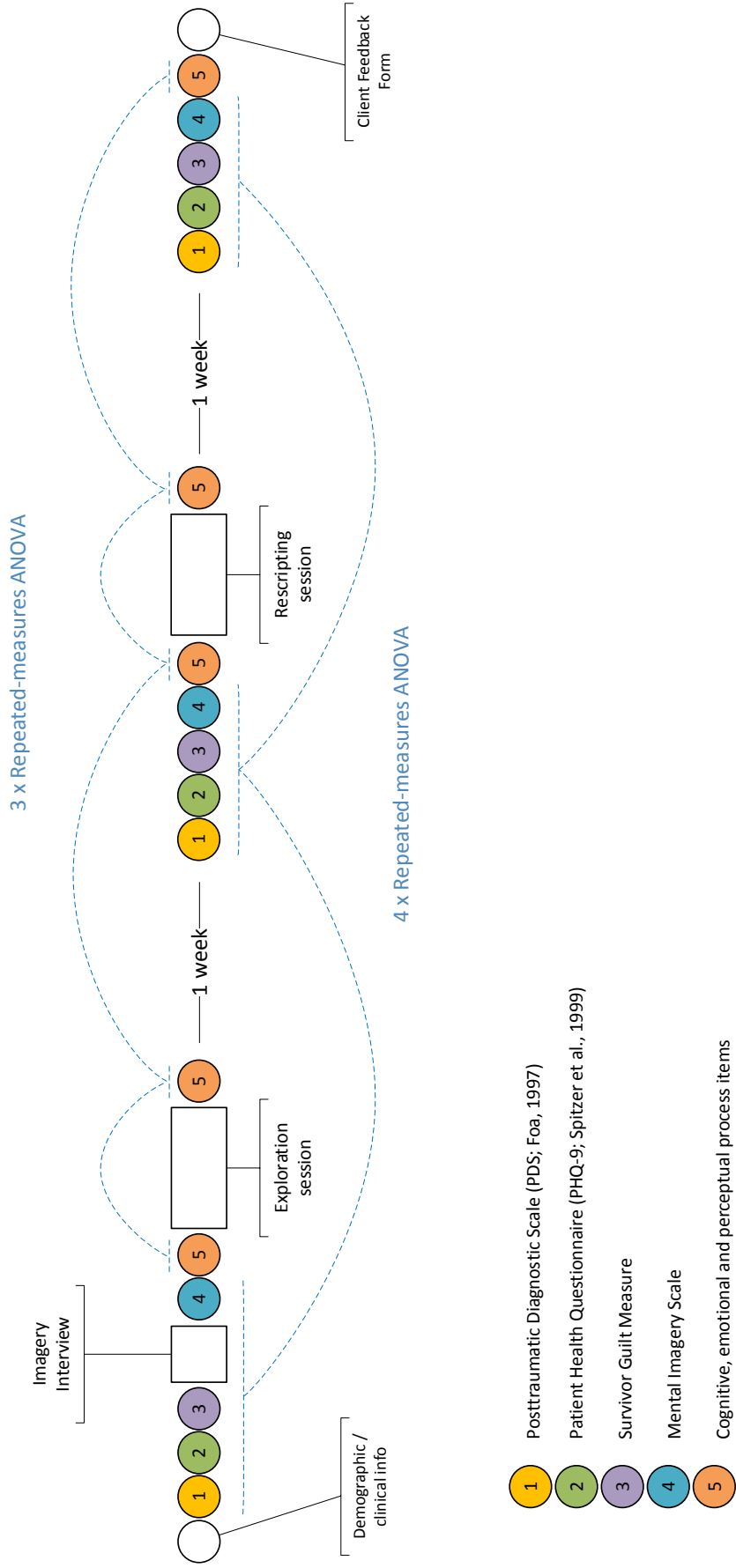


Figure 3. Diagram of the study design, procedures and analysis.

2.5 Measures

The literature was searched for measures of (1) survivor guilt, (2) mental imagery, (3) post-traumatic stress symptoms, and (4) depression symptoms. Post-traumatic stress symptoms were measured using parts of the Post-traumatic Diagnostic Scale (PDS; Foa, 1995). Depression symptoms were measured using the Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001). Non-standardised questionnaires were developed to measure weekly survivor guilt and mental imagery. Single-item VASs were also created to measure cognitive, emotional and perceptual SG processes at five moments in time. A participant feedback form was devised and administered at follow-up. Demographic and clinical information was collected from the treating clinician, and a coding framework was used to extract information about the rescripting process from audio transcripts of the rescripting session.

2.5.1 Survivor Guilt Measure

There are currently no validated measures of survivor guilt after trauma. The Survivor Guilt Measure (SGM; Appendix N) was developed using relevant items from the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995). The CAPS is a clinician-rated scale that measures PTSD symptoms as defined by the DSM-IV (American Psychiatric Association, 1994). It measures the lifetime occurrence of symptoms, and the frequency and intensity of symptoms over the past week or month. The CAPS features behaviourally anchored rating scales to reliably capture clinical change (Blake et al., 1995). Research shows that the

CAPS has good psychometric properties including excellent test-retest reliability and sensitivity to clinical change (Weathers, Keane, & Davidson, 2001).

Two items that measure the frequency and intensity of survivor guilt over the past week were taken from the additional features section of the CAPS. The wording of items and response options was kept the same as the original CAPS. The frequency rating scale ranged from 0='None of the time' to 4='Most or all of the time (more than 80%)'. The intensity rating scale ranged from 0='No feelings of guilt' to 4='Extreme, pervasive feelings of guilt, incapacitating distress'. Participants were instructed to rate items over the past week. The SGM was introduced with a written operational definition of survivor guilt:

"Survivor guilt refers to feelings of guilt and/or shame about surviving a traumatic event when others did not."

The two ratings were combined to form a total SGM score (range=0-8). The internal consistency of the measure was explored using the baseline SGM scores. The Cronbach's alpha statistic for the scale was .95 and the item-total correlations were .92. High alpha and item-total correlations suggest that the items measure a similar construct, but that the scale may contain redundant items (Streiner & Norman, 1989). The observed results suggest that the SGM was internally consistent but that one of the items could be removed.

2.5.2 Mental Imagery Scale

The only identified method for measuring mental imagery was with non-standardised VASs. VASs are commonly used to measure imagery in IR research; for example, ratings of frequency, vividness, uncontrollability, interference

and/or associated distress have been used previously. Wild et al. (2008) measured imagery distress, vividness and frequency over the past week using three items. In their study, imagery distress and imagery frequency showed good test-retest reliability before and after the control session ($r=0.71$, $p<0.01$, $r=0.92$, $p<0.01$ respectively), but imagery vividness did not ($r=0.13$, $p<0.71$). This suggests that the distress and frequency items would have provided more reliable estimates of clinical change. These findings are consistent with clinical observations that imagery vividness and intensity is difficult to quantify, and are less useful for tracking mental imagery over time.

The Mental Imagery Scale (MIS; Appendix O) was developed using two VASs that measured imagery frequency and imagery distress. Participants were instructed to rate how frequent and distressing their SG imagery (identified during the Imagery Interview) had been over the past week from 0='Not at all' to 100='Extremely'. The two ratings were combined to form a total MIS score (range=0-200). The internal consistency of the measure was explored using the baseline MIS scores. The Cronbach's alpha statistic for the scale was .91 and the item-total correlations were .83. The observed results suggest that the MIS was internally consistent but that one of the items could be removed.

2.5.3 Process measures

The single-item VASs (Appendix P) were also adapted from Wild et al. (2008). Three ratings scales were constructed to measure cognitive and emotional components of SG, and level of imagery distress, at five moments in time. The single-item VASs ranged from 0='Not at all' to 100='Extremely'.

Cognitive SG components were measured by identifying participants' 'encapsulated belief' (see Imagery Interview, Section 2.6). The encapsulated belief consisted of a statement that summarised the meaning of the participant's SG imagery. Participants were asked to rate how much they believed the statement to be true right now (VAS-EB). The imagery distress item (VAS-ID) measured level of distress associated with the SG imagery. Participants were asked to dwell on their image for a few moments and rate the amount of distress that the imagery caused them right now. Finally, the survivor guilt item (VAS-SG) measured participants' feelings of survivor guilt. Participants were instructed to rate how strong their feelings of survivor guilt were right now. The VAS-SG item was selected as the primary outcome measure for the present study.

2.5.4 Post-traumatic stress symptoms

Severity of post-traumatic stress symptoms was measured using Part 3 of the PDS (Foa, 1995). Parts 1, 2 and 4 were excluded because they were not relevant for the present study. Part 1 captures information about the lifetime occurrence of traumatic experiences, Part 2 identifies the traumatic experience that is causing the most distress and impairment, and Part 4 uses a binary scale to identify the areas that post-traumatic stress symptoms have interfered with. Part 3 measures 17 post-traumatic stress symptoms across three symptoms clusters as defined by the DSM-IV PTSD diagnostic criteria (American Psychiatric Association, 1994). Items in Part 3 are rated from 0='Not at all or only one time' to 3='5 or more times a week/almost always' (total score range=0-51). Scores on

the PDS were combined into sub-scale scores: re-experiencing (total range=0-15), avoidance (total range=0-21), and hyperarousal (total range=0-15).

The PDS was chosen over other measures because it incorporates symptoms from three symptom domains, and corresponds closely to the diagnostic criteria. The PDS shows high agreement with the PTSD module of the Structured Clinical Interview (SCID; Spitzer, Williams, Gibbons, & First, 1990) and is considered a useful option when clinical interview would be impractical (Sheeran & Zimmerman, 2002; McCarthy, 2008). The symptom items (Part 3) have good psychometric properties including high internal consistency, content and discriminant validity, and test-retest reliability (Foa, Cashman, Jaycox, & Perry, 1997). Part 3 of the PDS has been successfully used in other clinical trials to capture treatment-related change (Duffy, Gillespie, & Clark, 2007).

Because it was unclear prior to the study if SG would relate to a specific traumatic event, multiple events or the accumulated effect of multiple events, the PDS was administered as a general measure of PTSD symptoms relating to any traumatic event. The time period was also changed to measure post-traumatic stress symptoms over the past week to capture potential changes following each session. Part 3 of the amended PDS can be seen in Appendix Q.

2.5.5 Depression symptoms

The Beck Depression Inventory (BDI, Beck, 1961) is considered the gold standard for measurement of depression symptoms using self-report questionnaire methods (Cusin, Yang, Yeung, & Fava, 2010). The PHQ-9 (Kroenke et al., 2001) is an alternative measure of depression symptoms that is free to use.

The PHQ-9 displays similar psychometric properties to the BDI but has the advantage of being shorter and based on the diagnostic criteria for depression (Titov, Dear, McMillan, Anderson, Zou, & Sunderland, 2011). The PHQ-9 shows adequate reliability, responsiveness to change and construct validity (Kroenke et al., 2001), and high correlation with other measures of depression including the BDI (Titov et al., 2011).

The PHQ-9 contains nine items that measure common symptoms of depression over the past two weeks. The frequency of symptoms is rated on scales that range from 0='Not at all' to 3='Nearly everyday' (total range=0-27). The questionnaire also contains one item that measures the extent to which symptoms have impacted on daily living (rated 0='Not at all difficult' to 4='Extremely difficult'). The time frame of the PHQ-9 was changed to measure depression symptoms over the past week to capture potential changes following each session (Appendix R).

2.5.6 Subjective feedback

A Client Feedback Form (Appendix S) was developed to capture the subjective experience of participants. Participants were asked to rate how helpful they found the intervention as a whole, and how helpful they had found each session, on VASs that ranged from 0='Not at all' to 100='Extremely'. The feedback form also contained free text space where participants could provide comments about the intervention.

2.5.7 Original imagery variables

Coding of original SG imagery was carried out using information provided by the therapists (see Section 2.6) and information that was extracted from audio transcripts of the exploration session. No previous research was identified that could be used to categorise original imagery. The Principal Investigator explored similarities between participants' imagery and identified three categories: (1) imagery that was a trauma memory; (2) imagery that involved the last contact with the deceased and last opportunity to intervene/prevent death; and (3) constructed imagery. Constructed imagery described imagery that was not a memory of an event; it included real events that the participant was told about but did not witness directly, and events that were imagined by the participant. Some participants reported imagery that fitted the criteria for two categories – these participants were given two original imagery codes.

Primary and secondary SG types (existential or content) were also coded. The decision to code secondary SG was made because several participants appeared to describe both experiences. Classification of content SG into objective and subjective sub-types was considered. However, audio transcripts contained limited information about the source and phenomenology of participants' SG, and initial attempts by the Principal Investigator indicated that objective and subjective SG could not be reliably coded. SG types were coded by the Principal Investigator and a second blind rater using audio transcripts of the exploration session. Excellent agreement was found between the raters: the average measure ICC was .91 with a 95% confidence interval from .80 to .96 ($F(25,25)=10.97$, $p<.001$). Primary SG was coded the same for all participants but raters differed

on coding of secondary SG for three participants. These codes were discussed and agreed between raters and the relevant therapists. Primary and secondary SG for two participants that did not consent to audio recording (Participants 11 and 12) were coded jointly by Principal Investigator and therapists.

2.5.8 Rescripted imagery and rescripting process variables

Information about the rescripted imagery and rescripting process was extracted using audio transcripts of the rescripting session and ratings provided by therapists (see Section 2.6). The rescripting process was explored using a brief coding framework that was constructed from research by Salter et al. (in prep). Salter et al. (in prep) used thematic analysis to develop a coding framework that systematically captured the content of an IR session. The coding framework was also piloted in a sample of six participants with PTSD using a single-case experimental design.

The original coding framework was condensed into a brief version (Appendix T). Codes that related to outcomes of IR sessions were identified from the results of the previous study, and through discussions with the researchers who developed the original coding framework. Relevant codes were summarised into nine themes by the Principal Investigator:

1. Activation of imagery;
2. Ability to stay with the imagery;
3. Development of a coherent narrative;
4. Amount of therapist guidance;
5. Activation of original internal processes;

6. Departure from original imagery;
7. Timing of change;
8. Believability of rescript;
9. Activation of new internal processes;

One item was created for each theme using material from the original coding framework. Each item incorporated several codes subsumed under each theme, but codes that were particularly representative of themes were emphasised in the wording of items. The ratings scales were changed to four-point scales to increase consistency between items. The new items were inspected and refined through an iterative process between the Principal Investigator and the researchers who developed the original coding framework. Feedback was also sought from two external researchers. The inter-rater reliability of the brief coding framework was assessed by a second blind rater who coded the rescripting sessions of two participants. Excellent agreement was found between the raters: the average measure ICC was .92 with a 95% confidence interval from .81 to .97 ($F(19,19)=13.2, p<.001$).

The imagery codes developed by Salter et al. (in prep) to categorise the rescripted imagery were not applicable to the rescripted imagery in the present study. The Principal Investigator explored similarities between participants' rescripted imagery and identified four categories of rescripted imagery: (1) preventing death; (2) afterlife imagery; (3) repairing imagery and moving the scene forward; and (4) positive memory of the deceased.

2.6 Imagery interview

An imagery interview was carried out before the exploration session. The imagery interview followed a similar process to Wild et al. (2008) and was 20-30 minutes in length. The aim of the interview was to elicit imagery that was linked to participants' feelings of survivor guilt and identify the encapsulated belief.

Participants were given the following explanation:

“Mental images are ‘pictures in our mind’. They can include smells, tastes, sounds and sensations. They can be a memory of an event, or an imaginary situation. Mental images can be very powerful and linked to strong feelings. They can be very distressing when they are linked to unpleasant feelings. I want to help you identify any mental images that are linked to your feelings of survivor guilt.”

Participants were asked to focus on their feelings of survivor guilt and notice any images that went through their mind. Optional prompts were offered when necessary to identify relevant imagery. The imagery that was most upsetting to the participant, or the imagery that was most closely linked to the participant's SG, was selected by the participant. Participants were then told that mental images often mean something to the person, and were asked if the identified SG image had a particular meaning to him or her. The encapsulated belief of the imagery was explored and determined through a process of Socratic questioning. Optional prompts were provided when necessary at therapists' discretion. The following guidance was given to therapists:

“The purpose of the encapsulated belief is to find the essential meaning of the imagery for your client. This is most commonly a negative belief about the person but may be a belief about something else.”

Therapists categorised the imagery as memory, constructed imagery or combination (part memory and part constructed image). Memory-based imagery were further categorised as trauma or non-trauma. The participant and therapist also rated the level of distortion of the imagery (0='Not at all' to 100='Completely distorted').

2.7 Intervention

Similarly to Wild et al. (2008), the research intervention consisted of two imagery therapy sessions that were scheduled over two consecutive weeks. Both sessions were client-led, and therapists were instructed to provide limited but sufficient direction to progress the sessions. The sessions were 45-60 minutes in length and were carried out during the participant's usual therapy time slot.

The benefit of counterbalancing sessions was noted during the design phase of the study but was not considered a feasible option. A between-subjects design would have required many more participants and was not considered appropriate at this stage of research. Furthermore, administration of the exploration session after the rescripting session would carry a high risk of cross-contamination. For example, exploration of original SG imagery after rescripted imagery was introduced would likely lead to spontaneous exposure to the rescripted imagery. Quantitative analysis was supplemented with and interpreted in light of observations about the impact of sessions obtained from audio transcripts. The implications of standardising the order of sessions on the conclusions that can be drawn from the results are considered in the discussion.

2.7.1 Exploration session

The purpose of the exploration session was to establish a baseline effect of an imagery therapy session and enable more accurate evaluation of the effects of rescripting specifically. Therapists were instructed to support participants to elaborate the content and context of SG imagery, without actively changing the imagery or its meaning. Therapists were given the following summary of the session aims:

“The purpose of the session is to elaborate the imagery without interfering with it. Explore the content and meaning of the imagery in a non-directional way. Gently lead your client to vividly imagine and share details of the imagery. Listen, reflect and empathise but do not challenge interpretations.”

Participants were asked to bring their imagery to mind and give a detailed narrative account of the imagery. Participants were prompted to describe sensory details, the emotive context of the imagery and what the imagery meant to the participant. Participants were also prompted to explore related material; for example, similar experiences or memories that the participant was reminded of.

2.7.2 Rescripting session

The procedure of the rescripting session was based on Wild et al. (2008) but the content was different. The key difference was that the rescripting session in the present study did not include a cognitive restructuring component. This component was excluded to reduce the risk of confound effects from active verbal restructuring and enable evaluation of IR as an imagery-based technique.

The experiential focus of the rescripting process was similar to the IR protocol used by Brewin et al. (2009).

The purpose of the rescripting session was to change the content of the imagery to make it less distressing to the participant. Participants were encouraged to choose their rescripted imagery but therapists provided suggestions when necessary. Therapists were given the following summary of the session aims:

“The purpose of the session is to make changes or add to the imagery to make it feel less distressing. This can be done in many ways. Research suggests that individualised, client-lead rescripts are most helpful. We are also interested to find out what rescripts participants choose so introduce ideas in general terms and only when necessary. Help your client to be as creative as they want. Do not introduce ideas with the main aim of changing the verbal meaning.”

Participants were asked to think about changes that they would like to make to the imagery. Therapists told participants that they could change details of the imagery, create a different outcome, build on ‘the story’ of the imagery, or change the imagery in some other way. After suitable rescripted imagery was identified, participants’ were asked to bring their imagery to mind. Therapists provided participants with step-by-step assistance in changing the SG imagery using the agreed rescript. All changes were introduced through imagination and participants were encouraged to focus on sensory and emotional aspects of the imagery. Participants were able to make additional changes that were identified during the rescripting process and/or carry out several rescripts. At the end of the rescripting session, therapists rated the extent to which the rescripted

imagery was chosen by the participant (as opposed to the therapist) using a percentage rating scale (0-100%).

2.8 Procedures

A manual was developed to maximise therapist adherence to the study protocol (Appendix U). A training event was also held for therapists. The training event included a PowerPoint presentation, which summarised the background to the study, the main research questions and the trial procedures (Appendix V). Therapists were also given the opportunity to familiarise themselves with the project manual. The identification of original and rescripted imagery, and the purpose and process of the exploration and rescripting sessions, were given particular attention during the training event.

The research sessions were conducted by the participant's treating clinician at the service where the participant was seen for psychological treatment. Participants were able to claim travel expenses for the research sessions (Appendix W). They were also given the option to receive a summary of the research findings at the end of the trial (Appendix X). Two participants chose to claim travel expenses and thirteen participants opted to find out about the study results. Twelve participants agreed to audio recording of sessions. Therapists completed some background demographic and clinical information outside sessions (pages 3-4, Study Manual).

2.8.1 Exploration session

Written informed consent was obtained by the therapists at the start of the session. Participants were then informed about the opportunity to claim travel expenses and to receive a summary of the study results. The audio recorder was started and participants completed the PHQ-9, PDS and SGM.

The imagery interview (pages 6-8 in the project manual) was introduced with a brief definition of mental imagery. Participants were guided by their therapists to identify mental imagery that was linked to their feelings of SG and choose the most appropriate imagery to work on during the sessions. Therapists coded the imagery and rated distortion level with the participant. Therapists then guided participants to identify the encapsulated belief and recorded it on five copies of VAS-EB. The MIS and single-item VASs were administered to participants.

The imagery exploration session was introduced with standardised instructions from the project manual (page 9). Therapists explored the SG imagery with the participant as described in Section 1.7.1. At the end of the session, participants completed another set of the single-item VASs. Therapists assessed participants' mental and emotional state, and participants were reminded of ways to access support before the next session.

2.8.2 Rescripting session

The second session was scheduled one week after the exploration session. Audio recording of the session was started and participants completed the questionnaires (PHQ-9, PDS, SGM and MIS) and single-item VASs. Therapists

assisted participants to identify suitable rescripts using standardised instructions and optional prompts from the project manual (page 12). Therapists rescripted the SG imagery with the participant as described in Section 1.7.2. At the end of the session, participants completed another set of the single-item VASs. Therapists assessed participants' mental and emotional state, and participants were reminded of ways to access support before the next session.

2.8.3 Follow-up

The follow-up was scheduled one week after the rescripting session. Participants completed the questionnaires (PHQ-9, PDS, SGM and MIS) and single-item VASs. Participants were asked to complete the Client Feedback Form – this concluded the participant's involvement in the study.

Therapists placed all study materials in a folder. The data was collected and entered by the Principal Investigator. The study materials were filed in locked filing cabinets at Springfield traumatic stress service. Consent forms and results opt-in forms were stored separately from the data.

3 Results

3.1 Demographic and clinical information

The demographic and clinical characteristics of the sample can be seen in Table 1. Due to the small sample size and the personal nature of the information, some demographic details were modified to prevent identification of individual participants. The sample consisted of 64.3% men ($n=9$) and the average age of participants was 49 years ($M=48.50$, $SD=7.04$, range=36-59). The sample was ethnically diverse: only 35.7% of the sample ($n=5$) were of White British origin.

Participants had experienced a wide range of traumatic events that occurred in different contexts. Eleven participants (78.6%) had experienced interpersonal violence during the trauma that their SG related to. Twelve participants (85.7%) had experienced repeated and multiple traumas. In addition to the traumatic events listed in Table 1, participants had experienced child abuse, sexual and physical assaults, witnessing and/or perpetrating atrocities, suicide by a friend or family member, traumatic bereavement, forced migration, imprisonment and torture. The time since traumatic events varied extensively between participants: the average time since the last traumatic event was 21 years ($M=21.25$, $SD=10.22$, range=5-35).

All participants except Participant 13 were currently undergoing trauma-focused psychological treatment. Participants had completed between 20-100 sessions ($M=49.00$, $SD=25.68$) of trauma-focused psychological therapy prior to participation in the study. Five participants (35.7%) had worked on SG as part of their treatment: three participants had spent one session working on SG, Participant 11 had spent four sessions working on SG, and Participant 4 had

spent five sessions working on SG. Nine participants (64.3%) had experience of IR. These nine participants had received 4 sessions of IR on average ($M=3.67$, $SD=2.00$, range=1-8).

Table 1.
Demographic and clinical information of participants.

Participant number	Gender	Age	Ethnic origin	Traumatic event	Trauma context	Time since trauma	Prior therapy
1	F	58	White British	Critical illness	Intensive care stay	6	92
2	M	55	White British	Death of friend	Military service	10	100
3	M	53	Black Caribbean	Critical illness	Intensive care stay	7.5	45
4	M	49	White British	Armed combat	Military service	32	34
5	M	48	Middleeastern	Death of friend	Military service	5	24
6	F	39	White British	Murder of family member	Witnessed murder	24	61
7	F	43	Black African	Murder of family member	Genocide	21	70
8	M	37	White British	Death of family member	Road traffic accident	30	45
9	M	54	Middleeastern	Armed combat	Military service	30	20
10	M	46	Black African	Armed combat	Guerrilla combat	35	48
11	F	42	White Other	Murder of friend	Armed conflict	22	26
12	F	49	Black African	Death of family member	Genocide	28	48
13	M	55	Middleeastern	Death of friend	Armed conflict	20	0
14	M	51	Middleeastern	Death of family member	Armed conflict	27	24

Note. F=female, M=male. Time since trauma is reported in years. Prior trauma-focused therapy is reported as number of sessions. The traumatic event listed is the event that the participant's survivor guilt relates to.

3.2 Analysis of imagery and session variables

Participant 13 dropped out after the exploration session because he found it too distressing. Participant 13 was included in analysis of original imagery, SG type and exploration session data (n=14), but was excluded from analysis of rescripted imagery and rescripting session data (n=13).

3.2.1 Survivor guilt types, and original and rescripted imagery

Original and rescripted imagery were analysed using visual inspection of frequencies and patterns. Seven participants (50%) experienced primary existential SG, three of these participants also experienced secondary content SG. Seven participants (50%) experienced primary content SG, and two of these participants also experienced secondary existential SG. Summaries of the participants' original and rescripted imagery, encapsulated beliefs and SG type can be seen in Table 2.

Table 2.
 Characteristics of original and rescripted imagery.

P	Summary of original imagery	Original imagery code	Encapsulated belief	SG type	Summary of rescripted imagery	Rescripted imagery code
1	Partner grieving with other patient's children after being told that P is not going to make it.	Constructed imagery	I didn't deserve to live and they didn't deserve to die.	Existential (content)	Changes room and brings in sister to support partner. Doctors tells family that P will live. P joins to say she is okay and hugs family.	Preventing death
2	Friend walking away before being killed, joining patrol instead of P.	Last contact	It should've been me.	Content (existential)	Friend does not die; goes through normal day, goes to check point, comes back, and goes home at the end of tour.	Preventing death
3	Other patient laying dead in hospital bed with grieving family around him.	Constructed imagery	I haven't made enough of my life. He might have made more of his.	Existential	Tries to leave the room but is unable to find a way out.	Other

Note. P=participant, SG=survivor guilt. Secondary SG type is reported in parentheses.

P	Summary of original imagery	Original imagery code	Encapsulated belief	SG type	Summary of rescripted imagery	Rescripted imagery code
4	Memory of being shelled + constructed imagery of dead friend's decapitated head and body on left side.	Trauma memory + constructed imagery	The fact that they died and I survived (and the world) is so unfair.	Existential	Spirits of two friends sitting on a rock on the side; joking, smoking and commenting on what people are doing.	Deceased in the afterlife
5	Leaving friend in prison after inspection, feeling him squeeze P's hand trying to say he is scared.	Last contact	I let him down, I was a bad friend.	Content	Bring friend with him to see his family and relax in home village. Visits friend in heaven.	Deceased in the afterlife
6	Brother's bones on top of soil in graveyard, feeling cold and damp.	Constructed imagery	He can never come back but we're carrying on.	Existential (content)	Grave in spring, covered in flowers. Brother in heaven with father.	Deceased in the afterlife

Note. P=participant, SG=survivor guilt. Secondary SG type is reported in parentheses.

P	Summary of original imagery	Original imagery code	Encapsulated belief	SG type	Summary of rescripted imagery	Rescripted imagery code
7	Having dinner with mother just before she died.	Last contact	I shouldn't have taken her to uncle's house, I should've prevented it.	Content (existential)	Mother in garden, looking after her animals.	Positive memory of the deceased
8	Dead sister laying on road after road traffic accident covered in blood.	Trauma memory	It should have been our car and I might have survived.	Existential	Less blood at the scene, holding sister. Sister leaves in ambulance with P. Peaceful funeral with sister's favourite flowers.	Repair imagery and move the scene forward
9	Friend getting shot during combat mission, finding out on radio that he died in hospital.	Trauma memory + last contact	I shouldn't have survived, maybe I'm being punished.	Existential (content)	Friend goes to heaven. Imagine good things that happened because P is alive (e.g. P's children being born).	Deceased in the afterlife

Note. P=participant, SG=survivor guilt. Secondary SG type is reported in parentheses.

P	Summary of original imagery	Original imagery code	Encapsulated belief	SG type	Summary of rescripted imagery	Rescripted imagery code
10	Boys crying for help in their mother tongues after being attacked by a gunshot.	Trauma memory	I failed those boys and I failed the whole course.	Content	Mudslide wipes away village, new things can grow. Stays on hill in safety.	Repair imagery and move the scene forward
11	Witnessing neighbour being brutally killed, hearing a woman screaming.	Trauma memory + last contact	I am a bad person (because I am not helping).	Content	Zooms out and sees that blood is the garden table. Man and wife smiling, having coffee, children playing. Sunflowers in the garden.	Positive memory of the deceased
12	Giving injured mother a fatal dose of morphine in an abandoned hospital, smell of death.	Trauma memory + last contact	I killed her, I'm a bad person.	Content	Army men moves mother to a good hospital, doctors and P takes care and make her comfortable. Nice funeral with siblings.	Repair imagery and move the scene forward

Note. P=participant, SG=survivor guilt. Secondary SG type is reported in parentheses.

P	Summary of original imagery	Original imagery code	Encapsulated belief	SG type	Summary of rescripted imagery	Rescripted imagery code
13	Decapitated friend and other dead people on the road, blood everywhere.	Trauma memory	A part of me wishes I was with them in heaven.	Existential	N/A	N/A
14	Photograph of dead sister wearing the same clothes as last contact + memory of sister leaving the house.	Last contact	My sister's death is my fault.	Content	Sister in heaven with family. P speaks to sister: she conveys that she felt no pain, she is in a good place, and it was not P's fault.	Deceased in the afterlife

Note. P=participant, SG=survivor guilt. Secondary SG type is reported in parentheses.

Participants who experienced primary content SG most commonly reported imagery that included the last contact with the deceased and last opportunity to intervene/prevent death. Participants who experienced primary existential SG most commonly reported imagery that was a trauma memory, constructed imagery, or a combination of the two. The frequency of different types of original imagery reported by participants who experienced primary existential or content SG type can be seen in Figure 4.

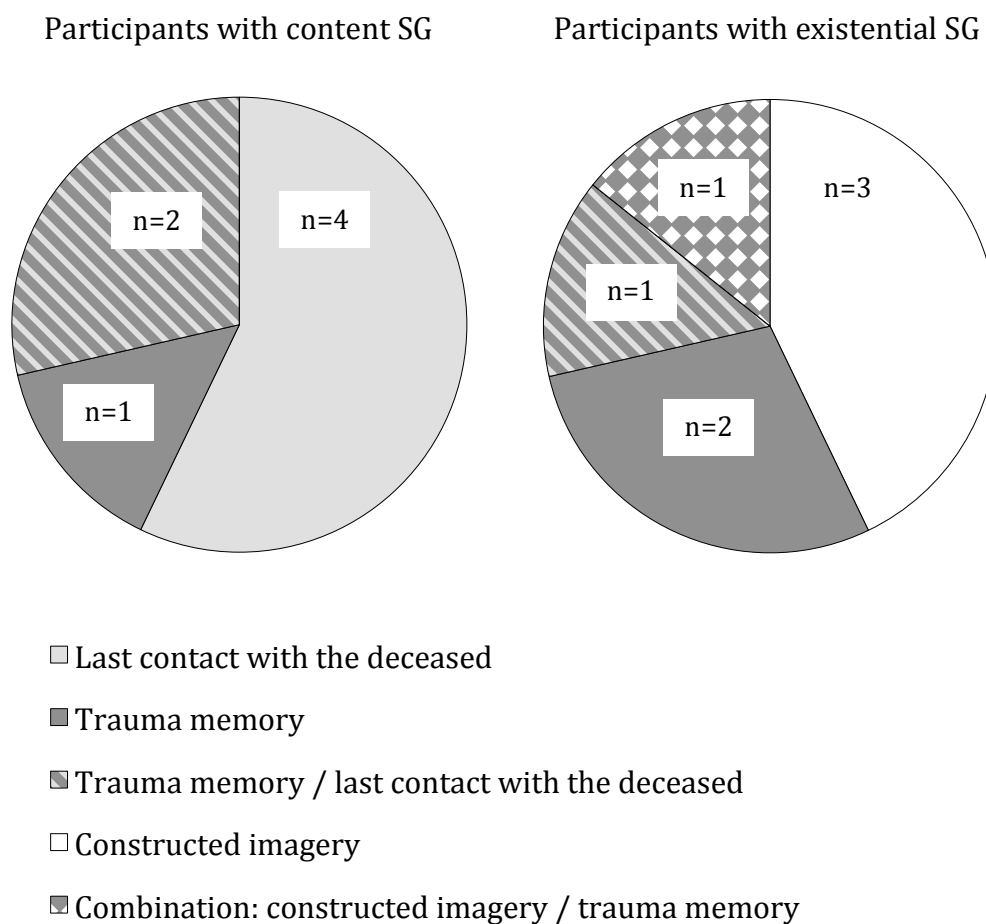


Figure 4. Frequency of original imagery categories for participants who experienced primary content (n=7) or existential (n=7) survivor guilt (SG).

The differences in the original imagery reported by participants that experienced primary existential or content SG was not analysed using inferential statistics. Roscoe and Byars (1971) suggested that analysis using chi-square test requires average expected cell frequencies to be two or more. The average expected cell frequencies for analysis of original imagery across participants who experienced primary existential or content SG was 1.4.

The most common rescripted imagery was afterlife imagery: five participants (38.5%) imagined the deceased in the afterlife; two participants (15.4%) prevented death; two participants (15.4%) chose rescripted imagery that was a positive memory of the deceased when they were alive, and three participants (23.1%) modified SG imagery by repairing distressing aspects of the imagery and moving the scene forward. The rescripted imagery of one participant (7.7%) could not be coded. Participant 12 tried to leave the SG imagery but could not find an exit and was unable to complete the rescripting process. The rescripted imagery did not appear to differ between participants who experienced primary existential or content SG.

Therapists rated the extent to which the rescripted imagery was selected by the client or the therapist. The rescripted imagery was mostly selected by the client or collaboratively selected: seven therapists (53.9%) rated that the rescript was mostly chosen by the client (i.e., 70-90% chosen by client) and five therapists (38.5%) rated that the rescript was equally chosen by the therapist and client (i.e., 50-60% chosen by therapist or client). One therapist (7.7%) rated that the rescript was mostly chosen by the therapist (80% chosen by therapist).

3.2.2 Timing and length of sessions

The timing between and length of sessions were analysed using independent t-tests. Sessions were scheduled one week apart with an expected completion time of 15 days. Cancellations and failed attendance resulted in extensive variations in completion times across participants. The average length of time to complete the study was 26 days ($M=26.38$, $SD=18.15$, $range=7-70$). The length of time between sessions was similar: the average length of time between exploration and rescripting sessions was 11 days ($M=11.23$, $SD=9.83$, $range=3-42$) and 15 days ($M=15.15$, $SD=11.99$, $range=4-38$) between rescripting session and follow-up sessions. This difference in time lags between sessions was not significant, $t(12)=-1.15$, $p=.27$. The exploration session was longer than the rescripting session: the average exploration session was 47 minutes ($M=47.69$, $SD=8.99$, $range=32-66$) and the average rescripting session was 37 minutes ($M=37.15$, $SD=11.78$, $range=20-55$). This difference was significant, $t(12)=-1.15$, $p=.01$.

3.3 Analysis of changes

Statistical transformation was used to estimate missing data. 7.14% of the data was missing. Three participants did not complete one of the items on the PDS and two participants did not complete one of the items on the PHQ-9. Mean substitution was used to estimate these missing data points. Participant 4 was missing data ratings of VAS-SG and VAS-ID pre-exploration session. These data points were estimated using regression analysis. Pre-exploration PDS items that correlated with the missing VASs were used to compute a variable that could be

used to estimate the missing values. The alpha of the computed PDS variable was .79. Regression equations that estimated missing VAS scores were created using the new PDS variable. The follow equations were used:

$$\text{VAS-SG pre-exploration session} = 36.143 + (4.608 * 12) = 91.44;$$

$$\text{VAS-ID pre-exploration session} = 23.927 + (5.439 * 12) = 89.20.$$

The obtained values were similar to the population means (VAS-SG: M=89.85, VAS-ID: M=87.31).

Analysis of changes during and following exploration and rescripting sessions was carried out using repeated-measures tests. Participant 13 who dropped out after the exploration session was excluded from all analysis of change (n=13).

3.3.1 Weekly symptom measures

The data was checked for normality using visual inspection of distributions and statistical analysis. PDS, PHQ-9, MIS and SGM data met assumptions of parametric tests across time points. Means and standard deviations of weekly PTSD, survivor guilt, mental imagery and depression scores across the three time points can be seen in Table 3.

Table 3.

Means and standard deviations of scores on weekly measures across time points.

		Pre-exploration		Pre-rescripting		Follow-up	
		session	Mean (SD)	session	Mean (SD)	session	Mean (SD)
PDS	<i>Re-experiencing</i>		10.38 (3.71)		11.00 (2.45)		10.80 (3.45)
	<i>Avoidance</i>		14.46 (4.26)		14.76 (4.09)		13.31 (4.23)
	<i>Hyperarousal</i>		11.85 (3.02)		11.15 (2.58)		11.38 (2.29)
PHQ-9			18.77 (5.40)		18.84 (5.80)		18.12 (5.69)
MIS			127.54 (54.19)		142.85 (45.52)		126.54 (59.71)
SGM			5.85 (2.23)		6.08 (1.50)		5.77 (1.42)

Note. SD=standard deviation, PDS=Post-traumatic Stress Diagnostic Scale, PHQ-9=Patient Health Questionnaire, MIS=Mental Imagery Scale, SGM=Survivor Guilt Measure.

A two-way repeated measures analysis of variance (ANOVA) test was performed to compare PDS re-experiencing, avoidance, and hyperarousal subscales scores across time points (pre-exploration session, pre-rescripting session and one-week follow up). The interaction between time points and PBD sub-scales was not significant, $F(4,48)=2.09, p=.10$ and the main effect of time was not significant, $F(2,24)=.56, p=.58$.

Three one-way repeated measures ANOVA tests were performed to compare weekly mental imagery, SG and depression scores across the three time points. MIS total scores violated the sphericity assumption and Huynh-Feldt correction was used to analyse the MIS. None of the comparisons were significant: PHQ-9 totals scores, $F(1,12)=.56, p=.58$, MIS total scores, $F(1,12)=.17, p=.78$, or SGM total scores, $F(1,12)=.89, p=.40$.

These results show that there was no change in PTSD re-experiencing, hyperarousal and avoidance symptoms; depression symptoms; mental imagery (frequency and distress); and SG (frequency and distress) after the exploration or rescripting session. These findings are not consistent with the hypothesis that participants would experience improvements in SG and mental imagery after the rescripting session (H2), or the hypothesis that participants would experience improvements in PTSD and depression symptoms (H3).

3.3.2 Survivor guilt processes

The data was checked for normality. Pre-exploration session VAS ratings were negatively skewed and did not meet parametric assumptions. This was due to a ceiling effect in ratings before the intervention. Several transformations

were attempted to normalise the distributions including negative skew transformations, and positive skew transformations using reflected scores. These transformations failed to normalise the distribution. Changes in VAS ratings across the five time points were analysed using repeated measures ANOVA and non-parametric equivalent tests (Friedman's two-way analysis of variance by ranks). Parametric and non-parametric analysis showed the same result. The analysis showed significant changes in VAS ratings across time points: SG feelings: $F(4,9)=6.57, p=002$, encapsulated belief: $F(4,9)=7.47, p=003$, and imagery distress: $F(4,9)=5.50, p=001$. Means and standard deviations of VAS ratings across time points can be seen in Figure 5 (VAS-EB), Figure 6 (VAS-SG), and Figure 7 (VAS-ID). Shaded areas indicate the changes that occurred during sessions.

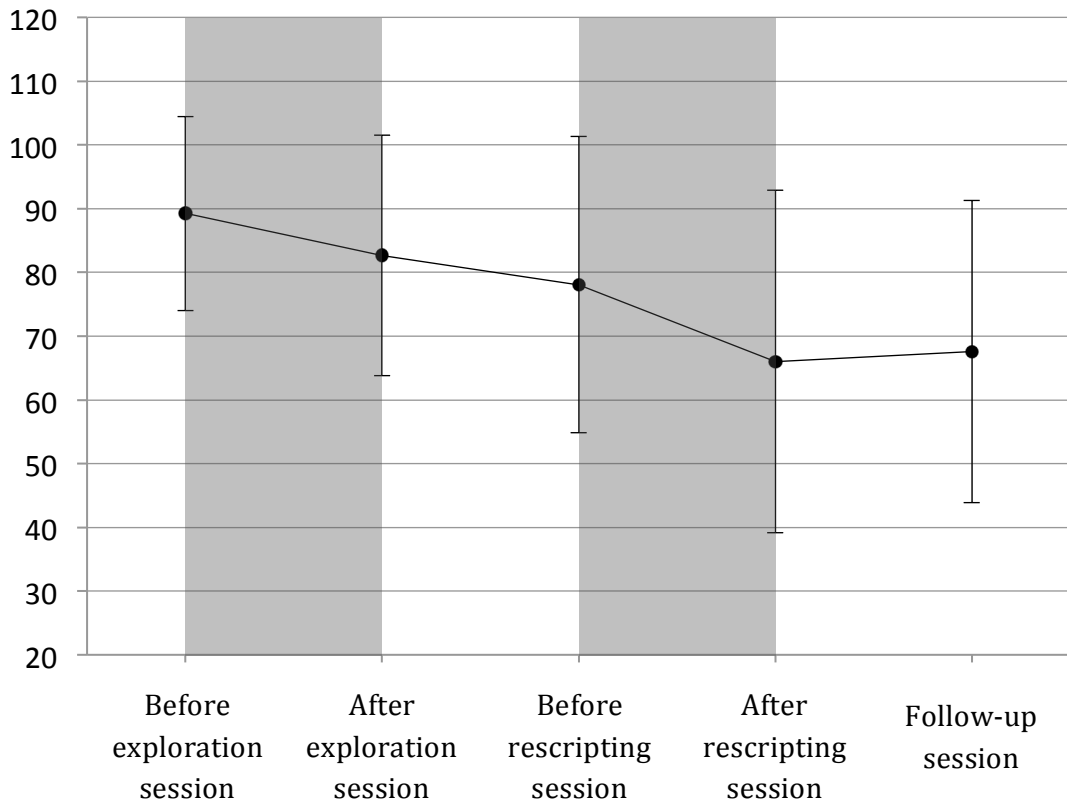


Figure 5. Means and standard deviations of encapsulated belief ratings across time points ($n=13$).

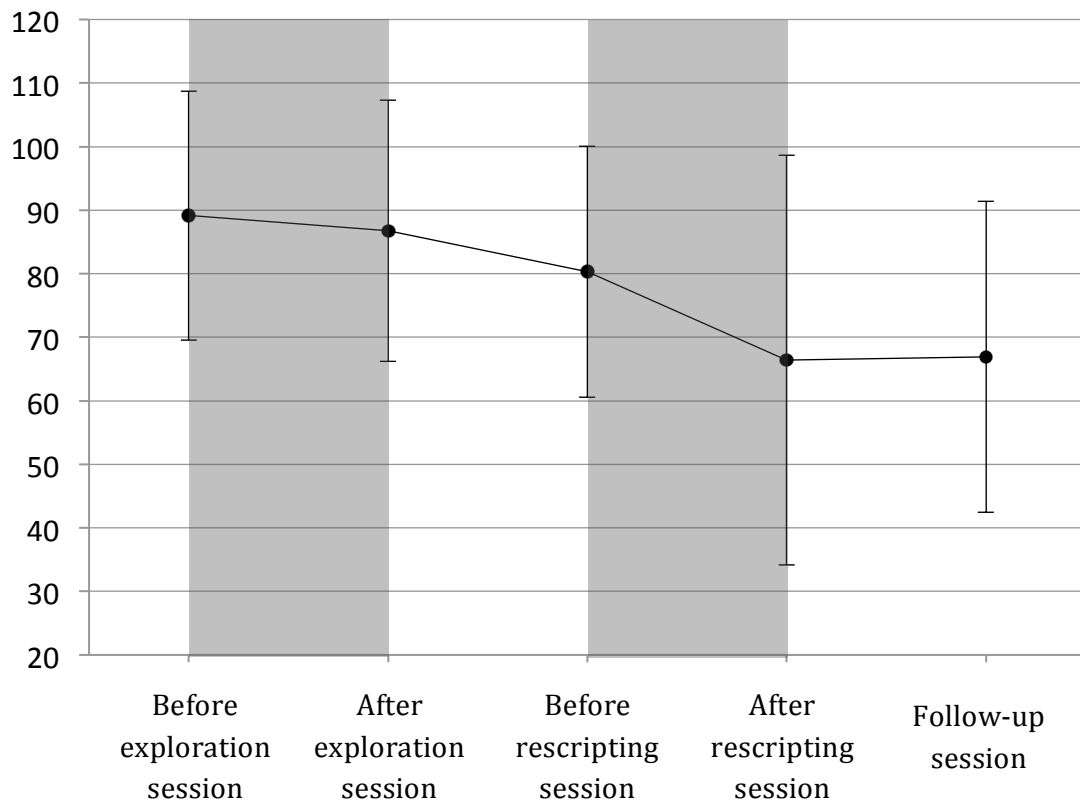


Figure 6. Means and standard deviations of survivor guilt ratings across time points ($n=13$).

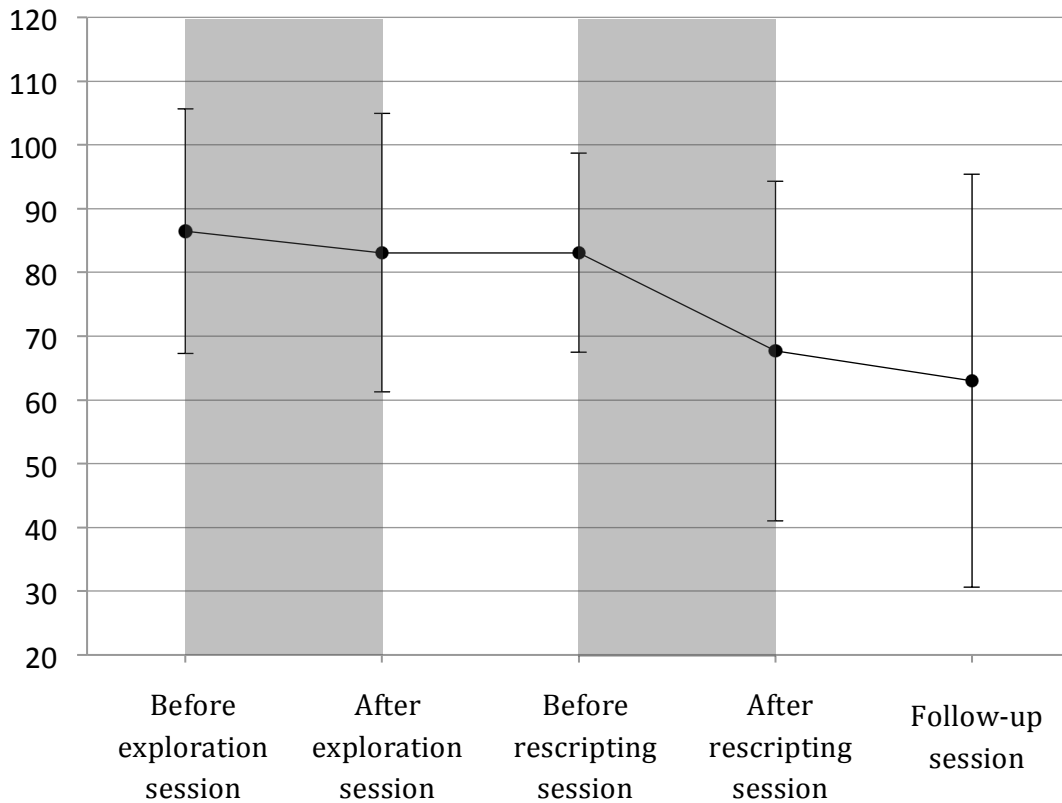


Figure 7. Means and standard deviations of imagery distress ratings across time points ($n=13$).

A priori contrasts were performed to identify the points at which significant changes occurred. Paired t-tests revealed significant differences between pre-rescripting session and post-rescripting sessions ratings of SG feelings (VAS-SG): $t(12)=2.26, p=.04$, how much participants believed their encapsulated belief (VAS-EB): $t(12)=3.35, p=.006$, and the level of distress associated with the imagery (VAS-SG): $t(12)=3.55, p=.004$. Changes in ratings at other time points were non-significant: pre-exploration session to post-exploration session: VAS-SG: $t(12)=-.64, p=.53$; VAS-ID: $t(12)=-.65, p=.53$; and VAS-EB: $t(12)=2.06, p=.06$; post-exploration session to pre-rescripting session:

VAS-SG: $t(12)=1.40, p=.19$; VAS-ID: $t(12)=.00, p=1.00$; and VAS-EB: $t(12)=.93, p=.37$; and post-rescripting session to follow-up: VAS-SG: $t(12)=-.08, p=.94$; VAS-ID: $t(12)=.57, p=.58$; and VAS-EB: $t(12)=-.39, p=.71$. However, changes in ratings of how much participants believed their encapsulated belief during the exploration session approached significance ($p=.06$).

These results show that participants experienced significant reductions in intensity of SG, imagery distress, and belief strength during the rescripting session but not during the exploration session. The changes during the rescripting session were maintained at one-week follow up. These findings are consistent with the hypothesis (H1).

3.4 Analysis of responders versus non-responders

Variables that may influence IR treatment response were explored by categorising participants into responder and non-responder groups using calculations of clinically significant and statistically reliable changes. Participant 13 who dropped out after the exploration session was excluded from all analysis concerning treatment response ($n=13$).

The primary outcome measure (VAS-SG) was used to identify participants who experienced clinically significant and statistically reliable changes in the present study. The criterion described by Veale, Page, Woodward and Salkovski (2015) was used to calculate clinically significant change: a reduction of at least two standard deviations from pre-exploration to post-rescripting session or follow-up was defined as clinically significant change. Both post-rescripting scores and follow-up scores were used to include one participant that had

shifted moderately by the end of the rescripting session but showed a substantial delayed effect at follow-up. The VAS-SG scores of five participants decreased by 39 points or more and met the criterion for clinically significant change.

Statistically significant change was calculated using the Reliable Change Index (RCI) developed by Jacobson and Truax (1991). The following formula was used to calculate RCI: $(M_1 - M_2) / SE_{diff}$. Post-rescripting session scores were deducted from pre-exploration session scores and divided by the standard error of difference. The standard error of difference was calculated using the sample size and standard deviations of pre-exploration session and post-rescripting session VAS-SG ratings ($SE_{diff}=10.47$). Jacobson and Truax (1991) suggested that RCI scores above 1.96 can be considered statistically reliable. The same five participants that met criterion for clinically significant change also met criterion for statistically reliable change. On the basis of these calculations, Participants 4, 5, 6, 8 and 9 were categorised as responders. The remaining eight participants were categorised as non-responders. A scatterplot of participants' pre-treatment and post-treatment SG scores can be seen in Figure 8. Pre-treatment scores are the pre-exploration session VAS-SG ratings, and post-treatment scores are an average of post-rescripting session and follow-up VAS-SG ratings.

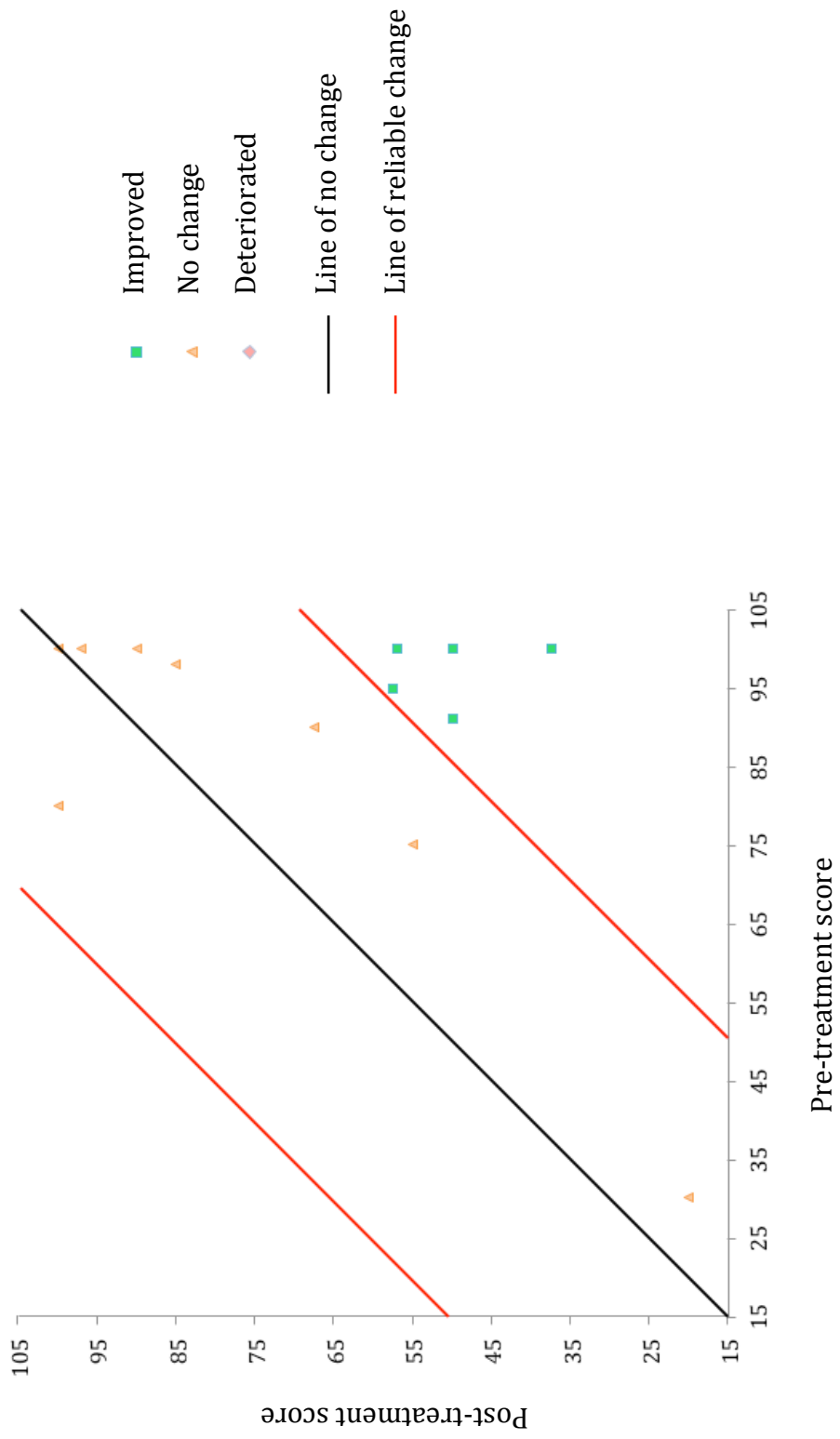


Figure 8. Scatterplot of participants' survivor guilt ratings pre-treatment and post-treatment (averaged post-rescripting session and follow-up ratings).

3.4.1 Baseline scores and imagery variables

The type of SG appeared to distinguish participants that showed clinically significant and statistically reliable changes from participants that did not: responders most commonly experienced primary existential SG, and non-responders most commonly experienced primary content SG. The analysis of SG types by groups met the Roscoe and Byars (1971) criterion (average expected cell frequencies=3.25) and a chi-square test was performed. The difference in frequency of primary existential and content SG between responders and non-responders was non-significant (Fisher's exact test $p=.10$). The presence of secondary SG did not appear to differ between responders and non-responders. The frequencies of primary existential and content SG types experienced by responders and non-responders can be seen in Figure 9.

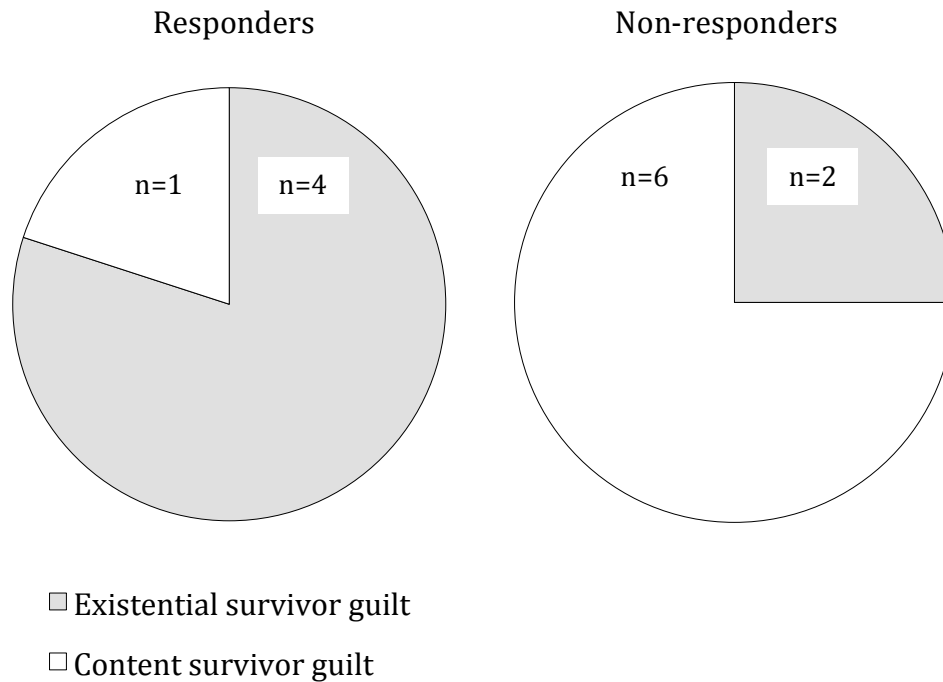


Figure 9. Frequency of primary existential and content survivor guilt types experienced by responders (n=5) and non-responders (n=8).

Differences in pre-exploration session scores between responders and non-responders were analysed using Mann-Whitney u tests. The only difference between groups that reached statistical significance was VAS ratings of the encapsulated belief: responders had higher ratings of belief strength than non-responders, $p=.045$. Differences between responders and non-responders in PDS, PHQ-9, MIS, SGM, VAS-ID, and VAS-SG scores were non-significant, $p=.17-.83$. Means and standard deviations of responders and non-responders pre-exploration session scores can be seen in Table 4.

Table 4.
Means and standard deviations of pre-explorations session scores across responders and non-responders.

Group	PTSD Means (SD)	Depression Means (SD)	Mental imagery Means (SD)	Survivor guilt Means (SD)	VAS-EB Means (SD)	VAS-SG Means (SD)	VAS-ID Means (SD)
Responders	36.00	18.40	96.60	5.20	99.00	97.20	81.80
	7.97	4.39	59.60	3.11	2.24	4.09	15.12
Non-responders	38.25	19.00	146.88	6.25	83.13	84.13	89.38
	10.26	6.23	43.50	1.58	16.89	23.94	21.78

Note. SD=standard deviation, VAS=visual analogue scale, EB=encapsulated belief, SG=survivor guilt, ID=imagery distress. Responders are participants showing clinically significant and statistically reliable changes (VAS-SG change=38+ points).

Analysis of original and rescripted imagery did not meet the Roscoe and Byars (1971) criterion (average expected cell frequencies=1.3). Analysis of original and rescripted imagery across responder and non-responder groups was carried out using visual inspection of patterns. There did not appear to be a difference in original imagery between responders and non-responders that was not better accounted for by other variables. However, responders and non-responders appeared to differ on rescripted imagery. Most responders chose afterlife rescripted imagery, whereas non-responders chose a range of rescripted imagery. The frequency of rescripted imagery categories chosen by responders and non-responders can be seen in Figure 10.

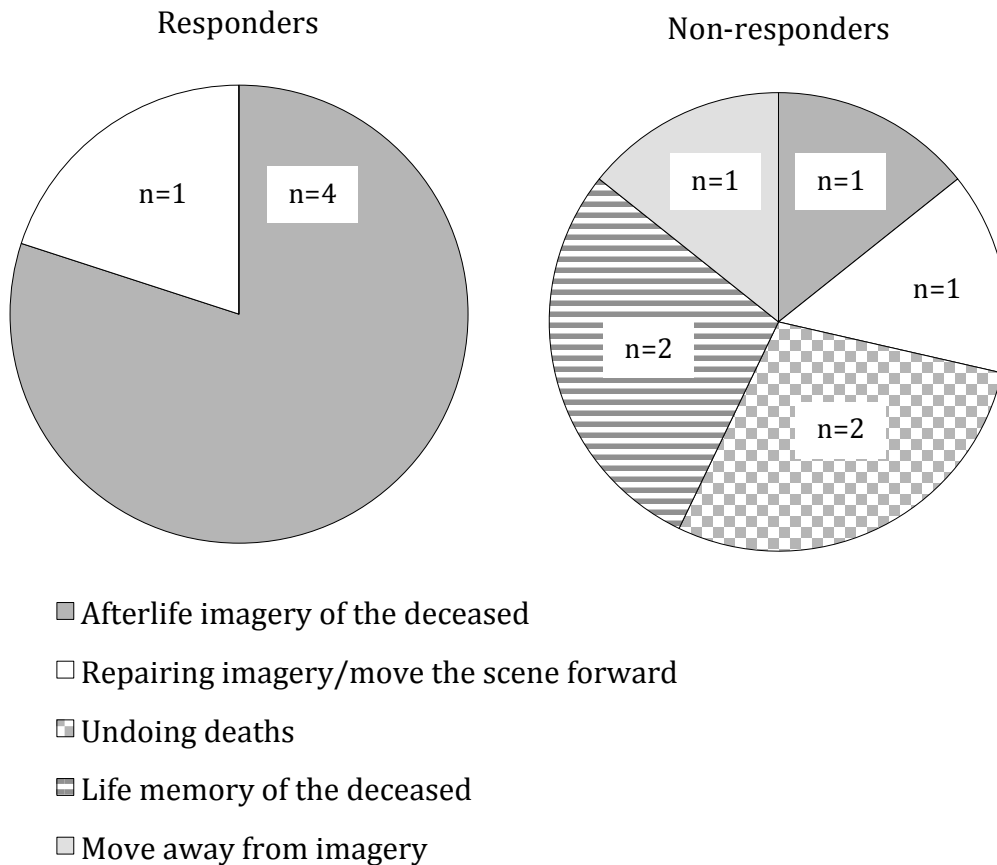


Figure 10. Frequency of rescripted imagery categories chosen by responders (n=5) and non-responders (n=8).

The four participants who chose rescripted imagery that involved preventing death or repairing the imagery and moving the scene forward showed modest shifts (8-25 points). The two participants who chose imagery that was a memory of the deceased when they were alive had the worst outcomes: one participant increased by 20 point on VAS-SG and one participant did not shift at all.

3.4.2 Changes in weekly survivor guilt and mental imagery

Changes from pre-exploration session to follow up on weekly measures of SG (SGM) and mental imagery (SGM) were compared between responders and non-responders. Neither responders or non-responders showed any changes in weekly SG scores (responders: $M=.20$, $SD=3.49$; non-responders: $M=-.25$, $SD=.46$). Responders and non-responders showed different patterns of change on the measure of mental imagery: on average, responders reduced 13.60 points ($SD=15.73$) and non-responders *increased* 6.88 points ($SD=33.59$). However, the difference between responders and non-responders in change scores of weekly mental imagery did not reach statistical significance, $p=.17$.

3.4.3 Rescripting process variables

Coded rescripting process variables were compared between responders and non-responders. Participant 3 was not able to complete the rescripting process and was excluded from the analysis. Two participants who did not consent to audio recording and were rated jointly by the therapist and the Principal Investigator were included in the analysis.

Analysis of rescripting process variables did not meet the Roscoe and Byars (1971) criterion (average expected cell frequencies=1.63) and the data was analysed descriptively, using visual inspection of patterns. Figure 11 shows rescripting process codes across participants, ordered by level of treatment response. Ratings are indicated using numerical codes and a shaded scale: darker shades indicate higher ratings, and lighter shades indicate lower ratings.

Aaaaaaa;lejl/kefjalefakjrfhlrjfhelkD.JHawdkljahDLKajsdlakjsdhlajksdhaslkd

P	Survivor guilt change	Imagery activation	Timing of change	Old internal processes	Therapist guidance	New internal processes	Believability	Imagery departure	Staying with imagery	Coherent narrative
6	-63	2	3	1	1	3	3	2	3	3
9	-50	2	1	1	1	2	3	3	2	1
5	-43	2	3	1	1	1	1	2	2	2
4	-41	2	3	0	2	3	3	2	3	3
8	-38	3	3	2	3	3	3	2	3	3
1	-20	2	3	2	2	2	2	2	2	3
12*	-23	2	3	2	3	1	3	2	3	3
2	-13	3	2	0	3	0	3	2	3	3
10	-10	3	2	3	2	3	2	2	3	3
14	-10	3	2	1	3	2	3	3	3	3
11*	0	3	0	3	3	1	3	2	2	3
7	20	3	0	3	1	1	1	3	3	1
Responder mean:		2.2	2.6	1	1.6	2.4	2.6	2.2	2.6	2.4
Non-responder mean:		2.7	1.7	2	2.4	1.4	2.4	2.3	2.7	2.7

Dark shades=higher ratings, light shades=lower ratings. * indicates participants coded jointly by the therapist and Principal Investigator. Participants classified as responders appear above the line (38+ improvement in survivor guilt ratings).

Figure 11. Coding of rescripting processes ordered by level of change in survivor guilt from pre-treatment to post-treatment (averaged post-rescripting session and follow-up scores).

Several variables from the coding framework appeared to distinguish responders and non-responders. Participants that showed clinically significant and statistically reliable changes had lower imagery activation ratings: 4 of 5 responders had a rating of moderately vivid imagery, and 5 of 7 non-responders had a rating of very vivid imagery. Less intense original internal processes also appeared to be associated with clinically significant and statistically reliable changes: 4 of 5 responders had a rating of minimal-low or low-moderate activation, and 4 of 7 non-responders had high or very high activation.

Clinically significant and statistically reliable changes appeared to be associated with a high level of therapist guidance: 3 of 5 responders had a rating of mostly guided by the therapist, and 6 of 7 non-responders had a rating of mostly or moderately self-guided. The timing of change also appeared to differ between responders and non-responders: 4 of 5 responders introduced change during the original imagery, whereas non-responders mostly introduced change immediately after the original imagery (3 of 7 non-responders) or at a time that was not temporally connected to the original imagery (2 of 7 non-responders).

Clinically significant and statistically reliable changes appeared to be associated with higher activation of new internal processes: 4 of 5 responders had ratings of high or very high activation, and 4 of 7 non-responders had ratings of minimal or low-moderate activation. Responders also appeared to experience their rescripted imagery as more believable: 4 of 5 responders had a rating of completely believable, 4 of 7 non-responders had a rating of completely believable.

There did not appear to be any association between responding and the ability to stay with the imagery, or the amount of departure from the original imagery. Both responders and non-responders were able to stay moderately (n=4, 33.3%) or completely with the imagery (n=8, 66.7%), and had mostly new imagery (n=9, 75.0%) or all new imagery (n=3, 25.0%). The development of a coherent narrative also appeared similar between responders and non-responders. Ten of twelve participants (83.3%) were able to develop a moderately or mostly coherent narrative.

3.5 Subjective feedback

Participants rated the overall therapy as moderately helpful (M=56.15, SD=24.59). The rescripting session was rated as slightly more helpful (M=55.00, SD=26.06) than the exploration session (M=50.38, SD=30.85) but the difference was not significant when compared using independent t-test ($t(13)=-.88, p=.40$). Several participants mentioned in the free text section of the feedback form that the sessions were helpful and stated that the sessions had changed their thinking or reasoning about the imagery. For example, one participant wrote that the sessions helped him “think more about it and question it”, and one participant reported that the session had helped him “face it and deal with it”. Two participants reported that the sessions had given them a different perspective and way of understanding the event. One participant reported that he no longer believed that the deceased blamed him for the event but that he knew “inside that I am guilty”.

Two participants mentioned that the sessions were difficult. One of these participants wrote that the sessions had involved “too many reminders of the event” and another suggested that it might get easier if she “did it more times”. One participant reported that the sessions had reduced the frequency of the imagery but not the intensity. Another participant reported that “some of the weight dropped from talking about it” and that “finally changing the imagery to how it should have been” had made her feel better. One participant noted the limitations of the techniques used for managing other symptoms such as nightmares.

4 Discussion

The primary aim of the present study was to evaluate IR as a psychological treatment technique for SG after trauma. Steps were taken to disentangle IR from other effective PTSD treatment techniques to explore its value as a separate experiential, imagery-based tool. A secondary aim of the present study was to explore variables that may be associated with successful application of IR. This section summarises the findings and clarifies how the study results fit within existing literature. Potential theoretical and clinical implications of findings will be considered. Key strengths and limitations of the study, and suggested directions for future research are also provided.

4.1 Interpretation of results

4.1.1 Treatment outcomes

Single-item process measures. The results showed that ratings of cognitive and emotional components of SG feelings, and distress from SG imagery, reduced significantly during the rescripting session. Participants did not show any significant changes during the exploration session, although reductions in ratings of the encapsulated belief approached significance. VAS ratings did not change significantly between the two sessions, or during the week following rescripting. These results indicate that participants experienced improvements in SG that were attributable to modification of imagery but not elaboration of imagery, and that these effects were maintained the subsequent week.

These results are consistent with the hypotheses that the intervention would lead to significant improvements on VASs that measured cognitive, emotional and perceptual SG processes, and that these effects would take place during the rescripting session (H1). There is no comparative research in the SG literature but the findings are consistent with previous findings that IR is an effective technique for treatment of guilt and shame after trauma (Grunert et al., 2003; Grunert et al., 2007; Arntz et al., 2007). Most previous studies of IR have combined IR with other techniques (Grunert et al., 2007) or delivered it as a component of broader treatment packages (Ehlers et al., 2003). It was not possible in these studies to determine the specific impact of IR. The present study showed that one session of independently delivered IR can lead to significant improvements. This suggests that the IR component of interventions used in previous studies may have been an important contributor to the observed effects.

Reductions in ratings of belief strength during the exploration session suggest that elaboration of imagery may change its meaning. The observed trend contrasts with the hypothesis that imagery exploration would not lead to substantial improvements in SG. However, exposure to trauma-related material is commonly used to treat PTSD, and it was anticipated that elaboration of imagery could be therapeutic on its own. It is also possible that the imagery interview exerted an inadvertent cognitive effect that stimulated new appraisals during the exploration session. Audio transcripts of sessions revealed that Socratic questioning used to identify SG imagery and the encapsulated belief prompted thinking about whether guilt was warranted. Many participants

continued to consider the meaning of their imagery whilst exploring the imagery. Even though therapists remained neutral and refrained from actively challenging participants' appraisals, elaboration of imagery details seemed to produce a spontaneously shift in thinking for some participants. For example, several participants noted that their guilt feelings were unfounded since it was not within their capacity to prevent death. The combination of drawing participants' attention to the personal meaning of imagery during the imagery interview, and discovering new information as part of imagery exploration, may explain reductions in belief ratings after the exploration session.

When considering potential beneficial effects of the exploration session, it is important to note that elaboration of imagery was an intensely distressing experience for participants. Participant 12 dropped out of the study because the exploration session was emotionally overwhelming and exacerbated his intrusive symptoms. Ratings of the encapsulated belief provided by Participant 12 increased by 80% during the exploration session. The observed trend reduction during the explorations session would disappear if Participant 12 was included in the analysis ($t(13) = .05, p = .96$), and it can therefore not be considered a reliable effect. The experience of Participant 12 suggests that elaboration of imagery is not well tolerated by some clients and may even lead to deterioration. This interpretation is aligned with previous findings that IE can lead to increased distress for clients with PTSD who experience strong guilt or shame (Grunert et al., 2003), and that ET for PTSD is associated with a high level of drop-outs (Arntz et al., 2007). Previous research also indicates that IR is preferred by clinicians because they felt less helpless than during IE (Arntz et al., 2007).

Weekly mental imagery and survivor guilt. Contrary to the hypothesis (H2) and results from analysis of single-item VASs, participants did not show any significant changes on weekly measures of SG and imagery distress. These findings suggest that the intervention failed to decrease SG and imagery distress. These findings differ from previous PTSD research, which showed that brief IR has the potential to produce large changes that are demonstrable by both process and outcome measures (Grunert et al., 2003; Grunert et al., 2007).

There are several potential explanations for these findings. One explanation is that the intervention failed to produce general positive effects on SG and imagery distress that would be indicated by reductions in scores on weekly measures. Inspection of means suggests that MIS and SGM scores did not change over the course of the intervention: average MIS and SGM scores at pre-exploration session and at follow up were almost identical. However, it is worth noting that participants experienced an increase in SGM and MIS scores from pre-exploration session to pre-rescripting session. Although not significantly different, average scores at follow-up signify some improvement from the previous week. It is widely known that treatment response to trauma-focused psychological treatment is not linear, and that clients often experience temporary increases in symptoms at the start of treatment before therapeutic gains become evident. This trajectory of PTSD symptoms poses a challenge for accurately evaluating outcomes after two sessions. Previous IR studies that have used longer follow up periods suggest that clients continue to improve in the weeks after IR even if no further sessions are offered (Grunert et al., 2007). It is

possible that participants in the present study continued to improve on weekly measures, but the study design prevented evaluation of longer-term changes.

Another potential explanation for these findings is that changes were not detected because the measures had poor sensitivity, test-retest reliability or construct validity. The MIS and SGM were developed specifically for the study and their full psychometric properties were not evaluated. The MIS and SGM showed good internal consistency but the measures consisted of only two items each. Measures with few items may contain poorer construct representation and multi-item questionnaires are considered more reliable (Eisinga, Te Grotenhuis, & Pelzer, 2012).

The SGM was created from a validated PTSD measure with good psychometric properties but the items used may not be reliable or valid on their own. The SGM may also have poor sensitivity to detect weekly changes during treatment. Specifically, the range of the response scale of SGM items may have been too small to detect changes. A one-point change on the five-point scale would represent a considerable shift in the frequency or intensity of SG that may be difficult to achieve in two sessions.

The scale used for MIS items (range=0-100) may have enabled detection of subtle changes during treatment. The MIS appeared to differentiate responders and non-responders during exploratory analysis of variables associated with clinically significant and statistically reliable changes. Responders reduced by 14 points on average whereas non-responders *increased* by 7 points on average. Inferential statistics failed to detect significance but the lack of effect could have been due to low power. The different patterns of change shown by responders

and non-responders may suggest that the MIS is sufficiently sensitive to detect improvements associated with IR treatment response. However, the test-retest reliability and construct validity of the MIS are unknown.

Post-traumatic stress and depression symptoms. Contrary to the hypothesis (H3), the results showed that the intervention did not lead to significant changes on measures of PTSD or depression symptoms. These findings suggest that potential effects of the intervention remained specific to SG and did not generalise to other symptoms. These findings are contrary to previous IR research, which showed large effects on general symptom measures (Grunert et al., 2007, Arntz et al., 2007). However, the intervention in the present study was designed to target a particular sub-component of participants' PTSD presentation and was designed as an add-on rather than a replacement for standard treatment. The sample used in the present study consisted predominantly of multiply traumatised individuals who experienced a range of difficulties. These difficulties related to various traumatic events, only one of which was the event giving rise to SG. It is not surprising that the two session intervention targeted specifically at SG failed to reduce other PTSD symptoms and depression for these clients.

The psychometric properties of the PHQ-9 and PDS are also important considerations for interpreting the findings associated with these measures. Adaptations that were made to the measurement period of the scales to fit the design of the study may have reduced their reliability and sensitivity. The time frames of both PHQ-9 and PDS were changed to one week to assess changes that

occurred between sessions. The PDS was also administered as a general PTSD symptom measure, rather than measuring symptoms relating to a specific event. Measurement of overall PTSD symptoms may have reduced the construct validity of the PDS, limiting its ability to capture changes following the research intervention.

The design and methods used were based on a previous study that investigated IR as a technique for treatment of social anxiety (Wild et al., 2008). The outcomes in the present study are more modest than the large effects demonstrated by Wild et al. (2008). Methodological differences between the two studies may explain these differences. Wild et al. (2008) used compassionate imagery following the protocol by Arntz and Weertman (1999) to rescript distressing imagery and relevant childhood memories. The intervention in the present study was tailored to address SG specifically and a variety of rescripted imagery was used. Also contrary to the present study, Wild et al. (2008) combine IR with cognitive restructuring. Restructuring of the verbal narrative of imagery, and modification of childhood memories, may have enhanced the effectiveness of their intervention. It is also possible that SG is less responsive to IR and that clients with SG require a longer intervention to experience major improvements. This idea is supported by clinical observations that SG is a complex emotional reaction that can be resistant to change (Niederland, 1981).

Subjective feedback. The results showed that both rescripting and elaboration sessions were rated as moderately helpful. Several participants

wrote on the feedback form that the sessions were helpful and that the intervention enabled them to access a new perspective.

4.1.2 Survivor guilt types and imagery

The results showed that the sample consisted of an even mix of participants with primary content SG and primary existential SG. SG was identified by asking clients if they experienced feelings of guilt or shame about surviving when others did not. These findings suggest that self-conscious distress which relates to peri-traumatic actions experience distress and to the meaning of survival are both identified as SG. These findings are consistent with previous suggestions that SG may present in existential or content forms (Matsakis, 1999). Five participants were also coded as having secondary SG after observation that a number of participants appeared to describe both experiences. Co-occurrence of content and existential SG types has not been demonstrated previously. Previous researchers have predominantly described individuals as having one or the other (Carmelly, 1975; Jaffe, 1970; Neiderland, 1981).

Coding of original imagery showed that participants experienced a variety of imagery associated with SG including trauma memories, constructed imagery, and imagery of the last contact with the deceased (and last opportunity to intervene/prevent death). The type of original imagery appeared to differ by primary SG type. All but one of the participants who experienced content SG reported imagery that was a memory of their last contact with the deceased and last opportunity to intervene/prevent death. This observation suggests that SG

that is underpinned by regrets about actions, is linked to distressing imagery of the memory that these regrets relate to. Participants who experienced existential SG most commonly reported imagery that included a trauma memory and/or constructed imagery. This observation suggests that SG that is underpinned by existential questions about life and death, is linked to seeing or imagining other people's suffering and the distress that such imagery would elicit. Differences between participants with primary existential and content SG types were not tested using inferential statistics and interpretations should be considered with caution until further research on SG imagery is conducted.

The rescripting protocol used in the present study was flexible and led by what participants felt needed to change to reduce distress associated with the imagery. Coding of rescripted imagery showed that participants chose to modify distressing imagery in various ways including imagining the deceased in the afterlife, preventing death, recalling a memory of the deceased during a happy period, and repairing distressing aspects of the imagery and moving the scene forward. There did not appear to be a relationship between primary SG type and rescripted imagery.

4.1.3 Clinically significant and statistically reliable changes

The finding that several participants showed clinically significant and statistically reliable changes after only two therapy sessions supports the argument that mental imagery can be a powerful therapeutic tool (Holmes & Mathews, 2005). Differences between responders and non-responders were explored to elucidate processes that influence IR effectiveness. Responders and

non-responders did not differ in severity of PTSD and depression symptoms, SG or mental imagery before the intervention, but responders had significantly higher encapsulated belief ratings. This finding suggests that participants with strong negative beliefs were more likely to respond to the research intervention. The reason for this finding is not known but may be explained by regression towards the mean, whereby extreme scores show a greater shift due to central tendency (Stigler, 1997).

It was observed that responders most commonly experienced existential SG, whereas non-responders most commonly experienced content SG. This difference failed to reach statistical significance but a trend ($p=.10$) was observed, suggesting that the lack of effect may have been due to low power. Further research is needed to determine if IR is more effective for clients who experience existential SG. The original SG imagery did not appear to differ between responders and non-responders. Responders most commonly chose afterlife imagery whereas non-responders chose a range of rescripted imagery. Due to the small sample size, this difference was not evaluated using inferential statistics. Further research is needed to determine if IR is more effective for treating SG when clients choose to modify imagery by imagining the deceased being happy or at peace in the afterlife.

Several rescripting process variables were highlighted as factors that may predict effective IR. Differences between participants who experienced clinically significant and statistically reliable changes and those who did not, were not compared using inferential statistics and interpretations regarding rescripting process variables are highly tentative. Responders more commonly had lower

ratings of imagery vividness and original internal processes. These observations suggest that clients who experienced very vivid imagery, and are very emotionally engaged with the imagery, are less likely to experience improvements. Imagery that is overly vivid and emotionally charged may limit clients' ability to engage with the imagery and/or the rescripting process, for example, by increasing the risk of dissociation. Responders more commonly had higher ratings of new internal processes and believability of rescripted imagery. These observations suggest that IR is more effective when the rescripted imagery is compelling and enables clients to engage emotionally with the changes. Responders' rescripted imagery was more commonly rated as mostly guided by therapists, as opposed to moderately or mostly self-guided. This observation suggests that IR is enhanced when therapists stay actively involved with the rescripting process, perhaps by bringing the client's attention to details that may otherwise be missed or by assisting the client to move the imagery forward at stuck points. Alternatively, active involvement of therapists may provide a grounding effect that enables clients to stay engaged with the rescripting process. Responders also more commonly implemented changes during the original imagery. This observation suggests that direct modification to the imagery sequence is more helpful than building on the story of the imagery, or visualising temporally unrelated positive imagery. This interpretation is consistent with previous suggestions that PTSD treatment can be enhanced by timing cognitive and emotional updates at hot points in the memory (Grey, Young, & Holmes, 2002).

All participants were able to stay moderately or completely with the imagery, and had mostly or all new imagery. Staying with the imagery for the most part of the rescripting process, and introducing a high amount of new information, may be requisite variables for effective IR but the relative level does not appear to differentiate the size of the effect. Development of a coherent narrative appeared to be equally common across responder and non-responder groups. This observation indicates that development of a coherent narrative is not necessary for IR effectiveness. However, rescripting narrative may indirectly influence IR effectiveness by affecting other important variables (e.g., ability to stay with imagery). Potential co-variation and cross-influences of rescripting processes were not investigated.

4.1.4 Summary of findings

These results suggest that IR is an effective technique for treating SG after trauma. Simply elaborating distressing imagery does not reliably improve cognitive and emotional components of SG, or distress from SG imagery. Delivery of a single IR session is not sufficient to treat SG after trauma for most clients, although some clients can show clinically significant and statistically reliable changes. SG improvements from IR do not generalise to PTSD or depression symptoms. Clients who experience existential SG, and clients who chose afterlife rescripted imagery, may be most likely to benefit from IR. IR effects may be enhanced when: therapists provides a high level of guidance; modifications are made directly to the imagery sequence; the imagery is active but not overly vivid or emotionally charged; and the rescripted imagery is compelling and evokes a

high level of new thoughts, feelings and sensations. Extensive modifications to the original imagery, and staying with the imagery for the most part of the rescripting process, may be necessary but not sufficient for effective IR.

4.2 Theoretical contributions

SG is a clinical phenomenon that is currently poorly understood. The processes that underpin IR are also unknown. The present study did not set out to test a particular theoretical framework but it makes several theoretical contributions to SG and IR theory.

4.2.1 Conceptualisation of survivor guilt

Some of the collected data provide information that advances our phenomenological understanding of SG. Theoretical implications of findings presented in this section are speculative, and further research is needed before any firm conclusions can be drawn about the nature of SG after trauma.

SG experienced by participants in the present study could be reliably classified into primary content and existential sub-types. This observation may indicate that SG is not a unitary phenomenon but comprises two distinct types as suggested by previous researchers (Carmelly, 1975; Jaffe, 1970; Matsakis, 1999). Secondary SG was evident for several participants. Audio transcripts of sessions suggested that primary and secondary SG types were interrelated. Participants with primary existential, and secondary content SG, transitioned from thinking about the meaning of survival and if they deserved to live, to reflecting on their

conduct during trauma, and how they may have prevented death. Conversely, participants with primary content SG and secondary existential SG initially expressed regret about their actions, and then begun to question the impact of self-perceived transgressions on the meaning of survival and their worthiness of survival. These observations suggest that existential and content SG may be dimensions of the same construct that partially overlap.

The present study found that cognitive and emotional components of SG, and distress from SG imagery, improved following the intervention. These shifts occurred independently from other symptoms which did not change. These findings suggest that SG is a separate post-traumatic problem rather than an epiphenomenon of PTSD or depression. This interpretation is supported by the observation that participants experienced marked SG despite having undergone a large number of trauma-focused sessions prior to the study.

The imagery associated with SG give an indication of the mechanisms that underpin SG. Participants who experienced content SG most commonly experienced imagery that was a memory of the last contact with the deceased and last opportunity to intervene/prevent death. This observation is consistent with the formulation that content SG is driven by rumination regarding peri-traumatic actions and construction of counterfactual scenarios of the final moments with the deceased. This formulation of content SG fits with the cognitive conceptualisation of trauma-related guilt (Kubany & Manke, 1995). Participants who experienced existential SG most commonly reported imagery that was a trauma memory and/or constructed imagery. A commonality between these participants was that SG imagery depicted other people in physical pain

and/or emotional distress. This observation suggests that existential SG is linked to seeing or imagining other people's suffering and may be best conceptualised as empathic distress (Baumeister et al., 1994).

The modifications that participants made to their imagery also give an indication of the mechanisms that underpin SG. Participants who experienced content SG chose to modify their distressing imagery in various ways. Two participants who chose to recall a memory of the deceased in a happy moment showed the worst response. One of these participants experienced increased SG after the intervention. Imagining positive experiences that the deceased 'missed out on' may have exacerbated distress by promoting unhelpful counterfactual thinking and rumination.

Participants who experienced existential SG most commonly chose to modify their distressing imagery by imagining the deceased in the afterlife. Afterlife imagery was also commonly chosen by participants that showed clinically significant and statistically reliable changes. The present study was not able to evaluate how afterlife imagery improved SG. Afterlife imagery involved bringing closure to distressing aspects of the imagery (e.g., suffering during death) by imagining the deceased being happy or at peace. Changing the emotional valence of imagery and moving on from imagery are key aims of IR used to treat complicated grief (Fidaleo et al., 1999). Boelen et al. (2006) suggested that creation of new imagery can help clients grasp the reality of loss and experience the associated pain, enabling them to adjust to a new reality and move on with life. The observed success of afterlife imagery in reducing SG may suggest that existential SG more closely resembles a grief reaction than a type of

trauma-related guilt. The idea that SG constitutes a grief reaction has been suggested by other researchers (Niederland, 1968; Fry 1997; Vamos, 1997).

4.2.2 Imagery rescripting theory

There are several possible explanations for how IR improved SG in the present study. A key focus of debate concerning IR is whether it works through processes of habituation and extinction, or through changes to the semantic meaning of the imagery (Long & Quevillon, 2009). The Fear Network Theory suggests that repeated exposure to distressing trauma-related material (such as participants' imagery) creates new associations in the fear network, which leads to reduced distress (Foa & Kozak, 1986). Both exploration and rescripting sessions involved exposure to imagery but only the rescripting session led to significant improvements. These findings suggest that exposure to the distressing imagery, and habituation and extinction processes, do not account for the observed effects. The observed effects are better explained by cognitive theories. Significant reductions in ratings of the encapsulated belief indicate that a cognitive shift occurred. Subjective feedback from participants also indicated that the research intervention changed their thinking about the imagery.

Ratings of cognitive and emotional SG components, and distress from SG imagery, changed in similar patterns across the five time points. The interaction between these variables and the order in which they changed was not explored. It is possible that imagery modification changed the meaning that was attributed to the imagery, and consequently improved how participants felt. It is also possible that modification of sensory-based imagery stimulated basic emotional

systems (Holmes & Mathews, 2010) and directly impacted SG feelings. Kindt et al. (2007) found that perceptual processing precedes conceptual processing. These findings suggest that manipulation of imagery facilitated perceptual processing of the material, which was followed by changes in the meaning that was attributed to the imagery.

Changes to the meaning of imagery may have occurred through several mechanisms. Ehlers and Clark's (2000) model suggests that changing how the imagery played out in participants' minds reduced the threat associated with the imagery and thereby lessened avoidance, allowing new information to be incorporated. The model proposed by Lee et al. (2001) suggests that modification of imagery stimulated alternative adaptive schemas that lead to more helpful ways of thinking about the imagery. Kubany and Manke's (1995) model suggests that imagery manipulation reduced hindsight bias and enabled participants to gain a more accurate appraisal of their role (Kubany & Manke, 1995). The Retrieval Competition Hypothesis (Brewin, 2006) suggests that IR established an alternative memory representation that reduced distress by limiting access to the original imagery. The results are not able to indicate which account best explains the processes by which SG was reduced for participants in the present study.

4.3 Clinical implications

The findings from the present study have important clinical implications for assessment and treatment of SG, and for the clinical application of IR. Some

recommendations are based on observations and should be treated with caution until they are substantiated by empirical investigations.

4.3.1 Assessment of survivor guilt

The study did not explore the prevalence of SG directly. However, the recruitment phase indicated that over two-thirds of clients who were approached reported SG, indicating that SG is a common clinical phenomenon after surviving a fatal trauma. Several therapists commented that their clients had not mentioned SG spontaneously prior to the study but that participation had revealed that SG, and the associated imagery, was a major source of distress. SGM scores pre-exploration session revealed that participants experienced a high level of SG distress: SG was most commonly rated as 'Severe intensity' and as present 'Much of the time - 50-60%' the week before taking part in the study. The observation that clients do not raise SG spontaneously, despite causing substantial distress, highlights the importance of routine clinical screening for SG.

A consideration during the planning phase of the study was if distressing mental imagery would be a consistent feature of SG presentation. All participants were able to identify relevant imagery to work on during the intervention, and their ratings of imagery distress were commensurate with cognitive and emotional components of SG. Audio transcripts of sessions revealed that SG imagery had the capacity to elicit intense emotions. These observations indicate that mental imagery is closely connected to SG thoughts and feelings, and may be

a key source of SG distress. It is recommended that clinicians explore the presence of distressing mental imagery as part of SG assessment.

4.3.2 Treatment of survivor guilt

The results of the present study suggest that IR is an effective therapeutic technique to address SG after trauma. All participants were undergoing trauma-focused psychological treatment when they completed the IR session, but only some participants' standard treatment involved use of IR technique. This suggests that IR can be used as an adjunct component to address SG specifically even if it is not the main therapeutic technique used in the treatment. The observation that several participants experienced constructed imagery suggests that exposure-based techniques are not appropriate to address some SG presentations. Furthermore, one of the fourteen participants dropped out after the exploration session, suggesting that purely exposure-based techniques are poorly tolerated by a sub-set of clients who experience SG.

The study revealed that SG is a distressing experience and only a proportion of clients experience clinically significant and statistically reliable changes after one session of experiential, imagery-based restructuring. This finding suggests that SG is a complex emotional reaction and that some clients require longer direct intervention and/or use of different intervention techniques. Four of five participants who showed clinically significant and statistically reliable changes experienced existential SG, indicating that clinicians should particularly consider use of IR for clients who experience existential SG. Six of seven participants who experienced content SG did not show clinically

significance and statistically reliable changes, indicating that clinicians should consider other techniques that could address content SG. The formulation provided in 4.2.1 suggests that traditional verbal cognitive therapy techniques, that seek to address errors of foreseeability and preventability and hindsight bias (Kubany & Manke, 1995), may be effective techniques for treatment of content SG. Propositions regarding the most appropriate and effective techniques to address content and existential SG require empirical testing.

Four of five participants who showed clinically significant and statistically reliable changes chose to modify their imagery by imagining the deceased in the afterlife. Imagery that was a memory of the deceased during a happy moment appeared least effective. Participants who modified imagery by repairing distressing aspects and moving the scene forward, or who chose to prevent death, showed moderate shifts. These observations suggest that clinicians should consider the use of afterlife imagery when treating SG with IR, but avoid imagery consisting solely of memories of the deceased when they were alive. These recommendations are based on observational analysis of patterns involving a small number of participants and further empirical research is needed.

4.3.3 Clinical use of imagery rescripting

The present study demonstrated that IR can produce cognitive and emotional changes in the absence of verbal cognitive restructuring. This is contrary to previous research, which suggested that development of a convincing argument against the associated belief is an important component of effective IR (Wild et al., 2008). This study adds to the evidence base for use of IR that is

experiential and imagery-based to work towards cognitive treatment goals. This finding has important implications for clinicians that may wish to consider using imagery-based restructuring as an alternative to verbal cognitive techniques for clients who struggle to engage with traditional techniques, or who do not respond to such techniques.

Exploratory analysis of rescripting process variables provides some guidance for clinical application of IR. The observations that low levels of imagery vividness and activation of original internal processes appeared to be associated with more positive responses, suggest that clinicians should attempt to keep imagery at a level that is manageable for clients. The observations that a higher level of therapist guidance, and modifications that occurred during the original imagery, appeared to be associated with more positive responses, suggest that clinicians should stay actively involved throughout the rescripting process and aim to intervene at the worst point of the imagery. Observations also indicated that participants appeared to show more positive responses if the rescripted imagery felt believable, and evoked a high level of new thoughts, feelings and sensations. These observations suggest that clinicians should devote efforts to identifying a rescript that resonates emotionally with the client, and support the client in making the rescripted imagery vivid. Audio transcripts and ratings provided by therapists indicated that the extent to which the rescripted imagery was chosen by participants or therapists was not important. These observations suggest that allowing clients to identify the rescripted imagery is not important on its own, but it could increase the likelihood of selecting a rescript that feels compelling to the client. In other words, clinicians can suggest

options for changing the imagery but need to ensure that the selected rescript is one that the client feels able to connect with.

The ability to stay with imagery, level of imagery departure or coherence of narrative did not appear to distinguish responders and non-responders. However, these variables may be preconditions for effective rescripting. Until further research is conducted, clinicians should aim to keep clients engaged with the imagery throughout the session, make substantial modifications to the imagery, and construct a narrative that can be recalled and rehearsed after the session.

4.4 Strengths of the study

The present study is the first to explore treatment of SG after trauma specifically. The study is novel, contributing to two important areas of research. Efforts were devoted to ensuring that the research intervention closely resembled IR interventions that clients may receive in clinical practice. A high degree of flexibility was incorporated into the research protocol to maximise ecological and external validity of the results. The study attempts to address several issues associated with the IR literature raised by previous researchers (Arntz, 2012).

4.4.1 Study design

The flexible procedures used are a key strength of the present study. The results are representative of a 'real world' view of IR outcomes as applied to

treatment of SG after trauma. The observed effects are not artificially high, in contrast to some clinical trials that use restrictive research environments that may inadvertently bias recruitment towards more treatment-responsive individuals. Flexible delivery of the research intervention also had ethical benefits of minimising disruption to standard care and allowing participants' needs to be met in a timely and appropriate manner.

The research intervention was embedded within participants' standard treatment, and the timing was allowed to vary depending on the participant's preference and best fit in the context of overall treatment targets. The treating clinician delivered the research intervention in the participant's usual clinical setting. These design choices enabled clients who were anxious about meeting with an unfamiliar researcher and/or at a new location to take part in the study. The inclusion of participants at various stages of treatment, and clients with a representative spectrum of difficulties maximised the external validity of the results.

A flexible IR protocol was used that could be adapted to meet individual needs. The type of changes that participants could make to their distressing imagery was not restricted. Instead, participants were free to choose the content of rescripted imagery similarly to how IR would be used as part of standard treatment. Flexibility in the IR protocol allowed participants to identify a rescript that fitted with the individuality of their SG presentation. Seven different therapists delivered the research intervention and each of these therapists employed a somewhat different delivery style of the treatment method. Tailored

use of IR delivered by several different therapists produce high face validity of the intervention and maximised the external validity of the results.

4.4.2 Sampling

The participants in the present study were highly heterogeneous, including men and women of different ages, from a range of ethnic backgrounds and with experiences of various types of trauma. Most participants had been exposed to multiple traumatic events and experienced a wide range of difficulties relating to these events. All participants had severe and complex presentations of PTSD. The diversity of participants across important domains indicates that the sample is representative of the target population and that the results are generalisable to individuals in specialist PTSD services.

Minimal inclusion and exclusion criteria were used to prevent potential sampling bias. Clients were not excluded on the basis of complexity or engagement. Six clients were excluded because the research intervention did not fit with the treatment plan during the recruitment phase. Long latencies between sessions indicated that some participants struggled to engage with the research intervention. Audio transcripts of the sessions indicated that some participants found it difficult to understand and use psychological concepts and techniques. The flexibility of the study protocol allowed for these clients to engage with the research intervention and complete participation in the study. Additional procedural constraints may have prevented clients with complex needs from taking part, creating an unrepresentative sample that was biased towards clients who are more likely to show a quick response to treatment.

4.4.3 Measurement

Following recommendations by Arntz (2012), the research intervention was evaluated using both process and outcome measures. The outcome measures in the present study consisted of two measures that were designed specifically for the study, and two standardised measures that were adapted to fit the design of the study. In lieu of a validated measure, the SGM was developed from a well-established measure of PTSD. The two items on the MIS were developed based on a precedent study: Wild et al. (2008) demonstrated that imagery distress and imagery frequency VASs showed good test-retest ability. Both the MIS and SGM had face validity and showed internal consistency from preliminary psychometric analysis. The process items closely resembled the items used by Wild et al. (2008) who demonstrated large effects sizes of IR in a sample of individuals with social anxiety.

4.5 Limitations of the study

4.5.1 Study design

The interpretations that can be drawn from the results are limited by the design of the present study. The study did not vary the order of sessions, and the results may have been subject to sequencing effects. The observed effects could be attributed to the time period during the rescripting session but may not have stemmed from IR. For example, participants may have experienced a delayed effect from the exploration session that occurred during the rescripting session. Non-significant improvements that were observed during the week between

sessions suggest that maturation effects may have been at play. The study did not set out to compare IE and IR, but aimed to investigate if IR produced effects that were above and beyond imagery exposure. Based on a precedent study from the social anxiety literature, the exploration session was used to establish a baseline effect of elaborating the imagery since the therapeutic effects of exposure-based treatments are well documented. However, it is acknowledged that the observed improvements during the rescripting session may be attributable to a combined effect of IR and maturation from elaborating the imagery in the previous session. IR is generally conducted by elaborating the imagery before implementing changes and there is no reason to think that the present intervention would be less effective in clinical practice. Randomised controlled trials are currently underway to compare IE and IR directly (Hoffart, in prep).

The research intervention was delivered as part of participants' standard treatment package at a point in therapy that suited the participant's treatment plan. This design was chosen to minimise disruption to standard treatment – this was considered especially important since the study was a pilot investigation and it was not known if participants would benefit from the research intervention. However, these design choices contain limitations. Firstly, participants had received a large number of trauma-focused therapy sessions prior to participation in the study. Participants may have been better able to utilise sessions because of the pre-existing therapeutic relationship with their therapist, and familiarity with psychological treatment. In particular, the extent of prior exposure-based PTSD treatment may be an important factor in whether

participants experienced clinically significant and statistical changes.

Participants who had more experienced of exposure-based PTSD treatment may have been more able to engage with the research intervention and experience greater benefit. Furthermore, all therapists were clinical psychologists who specialised in PTSD treatment and had extensive experience using trauma-focused techniques. The significant improvements following the brief research intervention may be linked to therapists' expertise and high competence in delivering the research intervention. It is likely that the research intervention would be less effective if it was delivered in isolation and/or by an unfamiliar or less experienced therapist. In clinical settings, this would rarely be done since it would not constitute good practice to proceed with trauma-focused work on highly distressing trauma memories without a good understanding of the client's difficulties and strengths. The small sample size prevented evaluation of potential influences of the content of participants prior treatment or the timing of the research intervention within participants' standard treatment. The findings from the study may not generalise to clients who are not receiving psychological treatment for PTSD.

Embedding the research intervention within standard treatment also prevented further follow-up and evaluation of long-term effects. The one week follow-up indicated that improvements in VASs ratings of cognitive and emotional components of SG, and level of imagery distress, were maintained in the short term but the trajectories beyond this point are unknown. The observed effects may have diminished with time or participants may have continued to

improve over the coming months as shown in other IR studies (Grunert et al., 2007).

The timing between sessions and length of sessions varied substantially between participants. These variations may have influenced the study results, but the small sample size prevented evaluation of the potential effect of time-related variables. The average number of days between exploration and rescripting sessions and between rescripting and follow-up session were not significantly different. However, the exploration session was significantly longer than the rescripting session. It is possible that participants became more fatigued, and therefore showed less response during the exploration session.

4.5.2 Sampling

The study aimed to obtain a sample that was representative of the clinical population seen in specialist PTSD services. However, funding constraints may have created sampling bias. Only clients who were able to complete the study without an interpreter were eligible to take part. The study sample was ethnically diverse and included many non-native English speakers. However, many non-native English speaker clients seen in specialist PTSD services prefer to communicate in their mother tongue when discussing highly emotive material. The non-native English-speaking participants in the present study may have consisted of individuals who experienced a lower level of distress or were more able to regulate their emotions during sessions. The study results may only generalise to clients that engage in trauma-focused therapy without the use of an interpreter.

4.5.3 Measurement

All outcome data was collected by the therapists. Therapists also supported participants to complete the measures when required. This method of data collection may have biased participants' responses. Knowing that their therapist could see questionnaire responses may have influenced their ratings. For example, participants may have felt pressured to indicate that the intervention had been helpful, particularly since the therapist was also their treating clinician. The risk of acquiescence was considered prior to the study and addressed by withholding the research hypothesis that only the rescripting session would lead to significant improvements. The lack of significant changes during the exploration session suggests that the observed improvements during the rescripting session represent true changes. Comments by participants during sessions, and on the feedback form, indicated that they felt able to express their honest opinions. However, the finding that participants only showed a significant change on single-item VASs (that were delivered twice in each sessions) and not measures (that were delivered weekly) may suggest that participants were more inclined to reduce their ratings when they were able to recall their previous ratings.

The measures used in the present study contain important limitations. The measures consisted predominantly of VASs that were designed specifically for the study. The main outcome measures were single-item VASs of SG processes that may have poor test-retest reliability. The psychometric properties of weekly measures of SG and mental imagery were not tested and the coding of SG type was not based on prior research. Reliability analysis indicated that the SGM and

MIS had good internal consistency, and that coding of primary SG type was identical between two independent raters. The coding of original and rescripted imagery was decided after the data had been collected and was carried out by a single rater. It is possible that coding of original and rescripted imagery was subject to bias and may not be replicable. Future studies should use coding that is theoretically grounded and include a second rater to assess reliability of imagery categories.

The rescripting process coding framework was an abbreviated version of a more extensive coding framework and was not empirically tested. However, preliminary reliability analysis suggested that it had good inter-rater reliability. The rescripting process variables were also coded using two different methods. The standard procedure was for the Principal Investigator to rate the coding framework using audio transcripts of the rescripting session. Two participants, who did not consent to audio recording, were coded jointly by the therapist and the Principal Investigator based on the therapist's recollection of the session. Therapists may have been biased and cannot be considered equivalent to ratings made by an independent, impartial rater. However, coding of participants who refused audio recording appeared to fit with observed patterns of the data.

4.5.4 Analysis

The study was a pilot investigation of IR as a technique for treatment of SG after trauma and an appropriate step at this stage in the research process. However, the research intervention was only delivered to 14 participants and multiple comparisons were performed without correction procedures. This may

have increased the familywise error rate and risk of Type 1 error. Previous researchers have suggested that adjustment of alpha is a problematic tool for protecting against Type I error because it reduces statistical power and increases the risk of Type II error (O'Keefe, 2003). Feise (2002) suggested that identification of a primary outcome is an alternative strategy for protecting against Type I error. The VAS-SG was identified as the primary outcome measures and analysis using data from the single-item VASs were consistent with the hypotheses. Furthermore, hypothesis-driven planned a priori contrasts that specified the specific time point where effects would be detected were used. Nevertheless, the results from the present study could change with a larger sample and the findings need to be corroborated by future research.

The finding that a sizeable minority of participants showed changes that met criteria for clinically significant and statically reliable after two sessions is impressive. However, analysis of responders and non-responder groups contained important limitations. The SG ratings used to estimate clinically significant and statically reliable changes may not have been reliable. Using a non-standardised measure also prevented application of more sophisticated norm-based methods for calculating clinically significant and statically reliable changes (Jacobson & Truax, 1991). The responder and non-responder analysis was underpowered and carried out using visual inspection of patterns. The investigation of imagery and rescripting process variables was exploratory and not driven by hypotheses. Only speculative conclusions can be drawn from exploratory comparisons of small groups using observational methods.

4.6 Directions for future research

The present study has highlighted several important areas for further research according to three research objectives: to advance our understanding of SG after trauma, improve treatment of SG as part of standard clinical care, and advance our understanding of IR as a therapeutic technique.

4.6.1 Advancing understanding of survivor guilt

The current literature on SG is sparse and outdated, and the prevalence of SG in clinical populations is not known. Future studies should determine the frequency with which SG occurs at a level that warrants direct intervention. Our phenomenological understanding of SG after trauma is currently poor and there is no agreed definition of SG. A goal of future research should be to devise a comprehensive definition of SG after trauma that is grounded in empirical research and applicable to all fatal traumas. Qualitative designs that include semi-structured interviews with clients who report problematic SG are a good next step. Factorial studies could improve our understanding of the components that make up SG. Future researchers may particularly want to explore existential and content SG dimensions including the differences and potential overlap of these experiences. Increased understanding of SG could lead to development of a clinical treatment model. Publication of a SG model would increase awareness of SG after trauma and may improve screening for and treatment of SG in clinical practice.

Development of a standardised measure of SG with good psychometric properties is also an important goal for future researchers. Systematic

measurement of SG would improve the quality of SG research allowing clear conclusions to be drawn from SG studies. Development of a suitable clinical measure would enable screening of SG and evaluation of treatment effects. Availability of a clinical measure may help identify SG and facilitate access to treatment for clients who experience SG.

Previous studies on the relationship between SG and PTSD were conducted using single-item measurement of SG based on various definitions. Future research should explore the relationship between SG after trauma and other post-traumatic difficulties using rigorous methods. The relationship between SG, PTSD and depression require investigation to establish if SG is a separate clinical problem, secondary to other post-traumatic reactions after trauma, or a problem that underpins other symptoms.

4.6.2 Improving treatment of survivor guilt

The present study provides preliminary evidence that IR is a suitable technique for treating SG as part of standard treatment packages for PTSD. Future research should address some of the questions raised regarding SG treatment in the present study. For example, investigations of other techniques that could be used to treat SG, and of variables that distinguish clients that benefit from IR are warranted. The hypotheses that existential SG responds particularly well to IR, and that content SG may respond to traditionally verbal cognitive treatment techniques are valuable research avenues.

The design of the present study prevented evaluation of the longer-term effect of the research intervention. The findings suggested that MIS and SGM

shifted in the desired direction from pre-rescripting session to follow-up. Future studies should explore the longer-term impact of IR when used to treat SG after trauma. Future studies may also wish to explore the appropriate time point in treatment to address SG and how successful treatment of SG may impact on treatment of other post-traumatic difficulties. Rehearsal of rescripted imagery was not advised in the present study to ensure comparability between exploration and rescripting sessions. Rehearsal is commonly used to boost the effect of IR but the impact of rehearsal on IR effectiveness has not been established through empirical research. Future studies of SG should explore the potential benefits of between-session rehearsal on treatment effects.

4.6.3 Advancing understanding of imagery rescripting

The present study provides preliminary evidence that IR produces effects that are above and beyond the effect of imagery exploration, and that IR can be effective in the absence of verbal cognitive restructuring. Further investigations of the independent therapeutic effect of IR should compare it directly to other techniques such as cognitive restructuring and IE. Component analysis of techniques should also investigate the combined effect of techniques, and the extent to which they may enhance one another. Single-case experimental designs with extended baselines and staged starting points, or randomised between-subjects trials could be used to pursue these research goals.

Future research should continue exploration of processes that influence the effectiveness of IR to elucidate the active ingredients of IR. Experimental research and statistical modelling may be used to test mechanisms that underpin

IR, and develop empirically derived theories of IR. A larger investigation of the rescripting process variables that appeared to be important factors in the present study is warranted. Investigation of the psychometric properties of the brief version of the coding framework is needed to enable its use in larger studies. Exploration of the extent to which rescripting process variables co-vary or exert influence on one another may also be an area of interest for future researchers.

4.7 Conclusions and final words

This proof-of-concept clinical trial provides evidence for the use of IR to treat SG after trauma as one component of trauma-focused psychological treatment packages. The present study is the first to investigate treatment of SG after trauma specifically, and to explore IR as an independent therapeutic technique in a PTSD sample.

An imagery exploration session in which participants elaborated their distressing SG imagery did not lead to significant changes to the associated meaning, SG feelings or distress from SG imagery. In contrast, rescripting of imagery led to significant improvements to each of these processes. These findings support the use of IR as an adjunct intervention to treat SG after trauma. IR appears to be most useful for clients who experience existential SG, and clients who modify imagery by imagining the deceased in the afterlife – these observations need to be tested using inferential statistics in future studies. Imagining the deceased being happy or at peace, may improve SG because it enables clients to mourn their losses and move on from traumatic experiences.

Existential SG may be best understood using the concept of empathic distress and models of complicated grief, whereas content SG may be formulated and treated using cognitive models of trauma-related guilt.

The findings from the present study have highlighted several important research strands that could improve treatment of SG after trauma, and advance our understanding of IR as a therapeutic technique. It is hoped that this study acts as a catalyst for continued research on SG and IR in the context of psychological treatment of post-traumatic stress.

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6 Appendices

Appendix A.

DSM-5 diagnostic criteria for Post-Traumatic Stress Disorder (American Psychiatric Association, 2013).

Criterion A: stressor

The person was exposed to: death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence, as follows: **(one required)**

1. Direct exposure.
2. Witnessing, in person.
3. Indirectly, by learning that a close relative or close friend was exposed to trauma. If the event involved actual or threatened death, it must have been violent or accidental.
4. Repeated or extreme indirect exposure to aversive details of the event(s), usually in the course of professional duties (e.g., first responders, collecting body parts; professionals repeatedly exposed to details of child abuse). This does not include indirect non-professional exposure through electronic media, television, movies, or pictures.

Criterion B: intrusion symptoms

The traumatic event is persistently re-experienced in the following way(s): **(one required)**

1. Recurrent, involuntary, and intrusive memories. Note: Children older than six may express this symptom in repetitive play.
2. Traumatic nightmares. Note: Children may have frightening dreams without content related to the trauma(s).
3. Dissociative reactions (e.g., flashbacks) which may occur on a continuum from brief episodes to complete loss of consciousness. Note: Children may reenact the event in play.

4. Intense or prolonged distress after exposure to traumatic reminders.
5. Marked physiologic reactivity after exposure to trauma-related stimuli.

Criterion C: avoidance

Persistent effortful avoidance of distressing trauma-related stimuli after the event: **(one required)**

1. Trauma-related thoughts or feelings.
2. Trauma-related external reminders (e.g., people, places, conversations, activities, objects, or situations).

Criterion D: negative alterations in cognitions and mood

Negative alterations in cognitions and mood that began or worsened after the traumatic event: **(two required)**

1. Inability to recall key features of the traumatic event (usually dissociative amnesia; not due to head injury, alcohol, or drugs).
2. Persistent (and often distorted) negative beliefs and expectations about oneself or the world (e.g., "I am bad," "The world is completely dangerous").
3. Persistent distorted blame of self or others for causing the traumatic event or for resulting consequences.
4. Persistent negative trauma-related emotions (e.g., fear, horror, anger, guilt, or shame).
5. Markedly diminished interest in (pre-traumatic) significant activities.
6. Feeling alienated from others (e.g., detachment or estrangement).
7. Constricted affect: persistent inability to experience positive emotions.

Criterion E: alterations in arousal and reactivity

Trauma-related alterations in arousal and reactivity that began or worsened after the traumatic event: **(two required)**

1. Irritable or aggressive behavior

2. Self-destructive or reckless behavior
3. Hypervigilance
4. Exaggerated startle response
5. Problems in concentration
6. Sleep disturbance

Criterion F: duration

Persistence of symptoms (in Criteria B, C, D, and E) for more than one month.

Criterion G: functional significance

Significant symptom-related distress or functional impairment (e.g., social, occupational).

Criterion H: exclusion

Disturbance is not due to medication, substance use, or other illness.

*Specify if: **With dissociative symptoms.***

In addition to meeting criteria for diagnosis, an individual experiences high levels of either of the following in reaction to trauma-related stimuli:

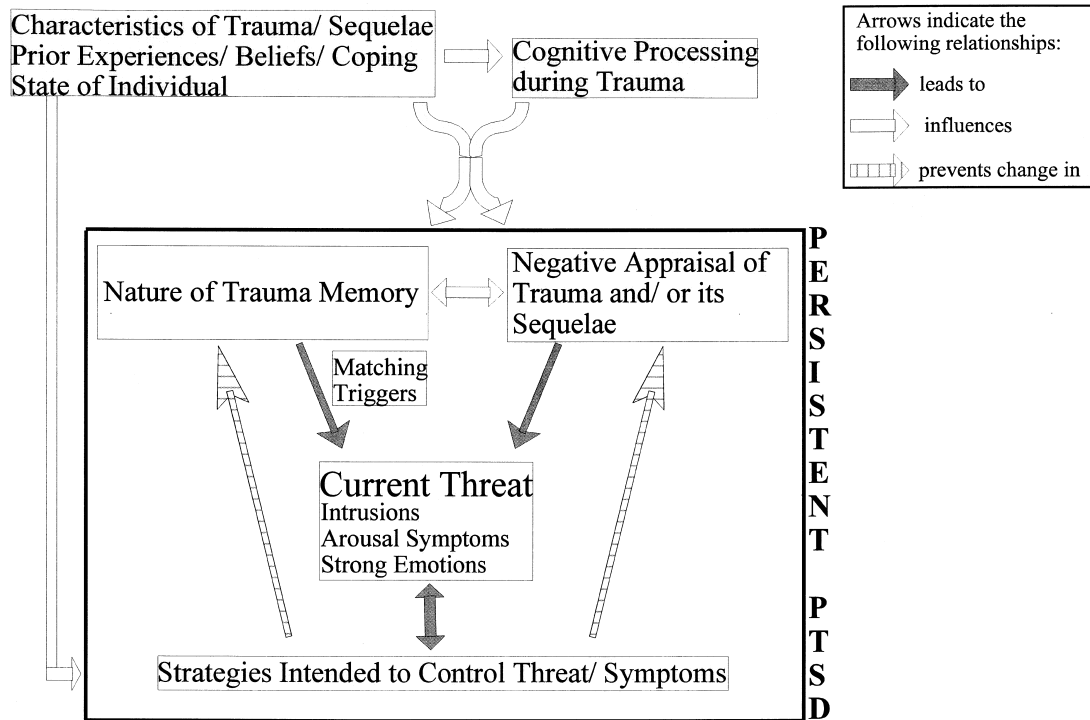
1. **Depersonalization:** experience of being an outside observer of or detached from oneself (e.g., feeling as if "this is not happening to me" or one were in a dream).
2. **Derealization:** experience of unreality, distance, or distortion (e.g., "things are not real").

*Specify if: **With delayed expression.***

Full diagnosis is not met until at least six months after the trauma(s), although onset of symptoms may occur immediately

Appendix B.

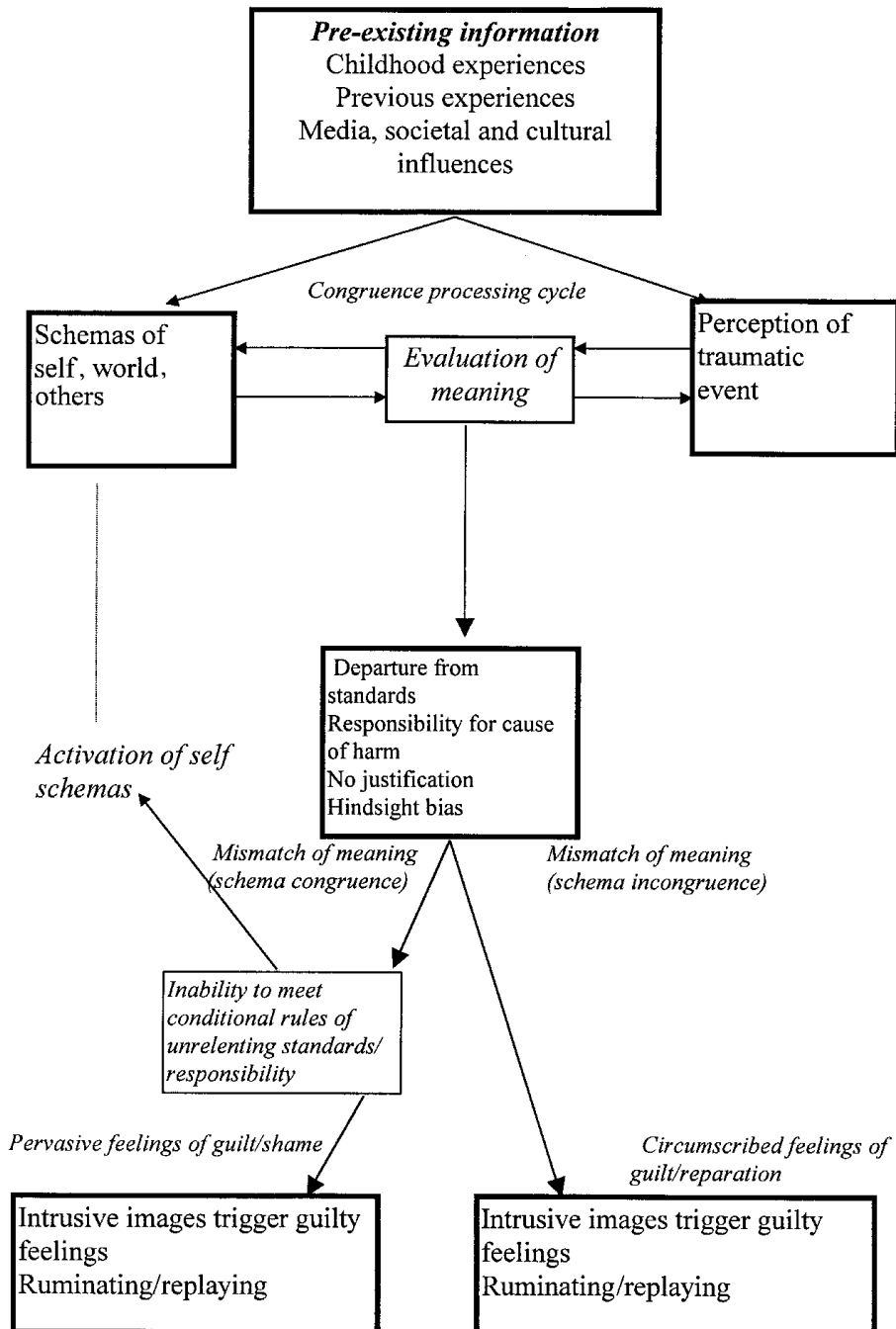
Figure of Ehlers and Clark's cognitive model of PTSD.



Note. Reproduced from Ehlers and Clark (2000).

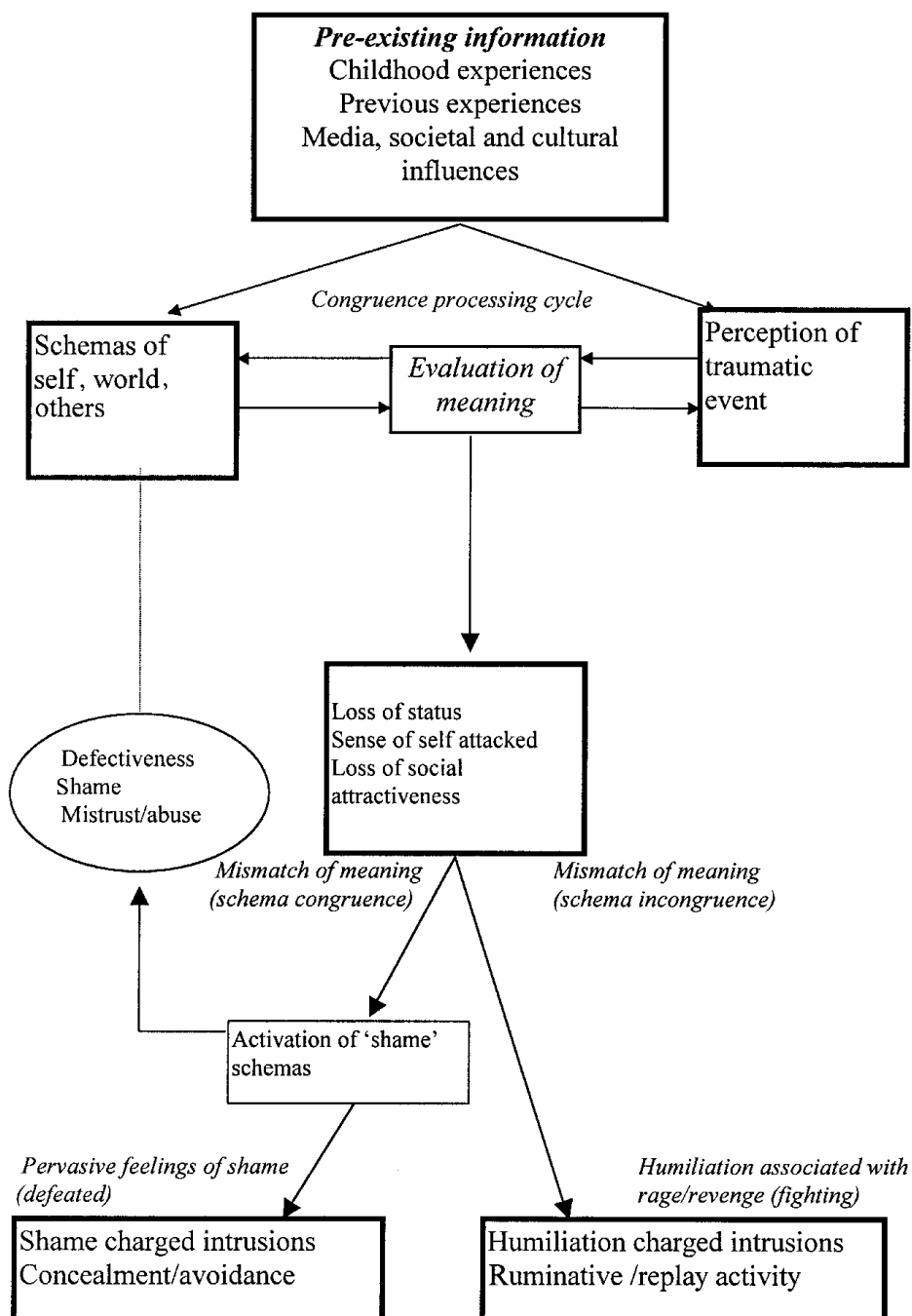
Appendix C.

Figure of Lee, Scragg and Turner's cognitive model of guilt-based PTSD.



Note. Reproduced from Lee et al. (2001).

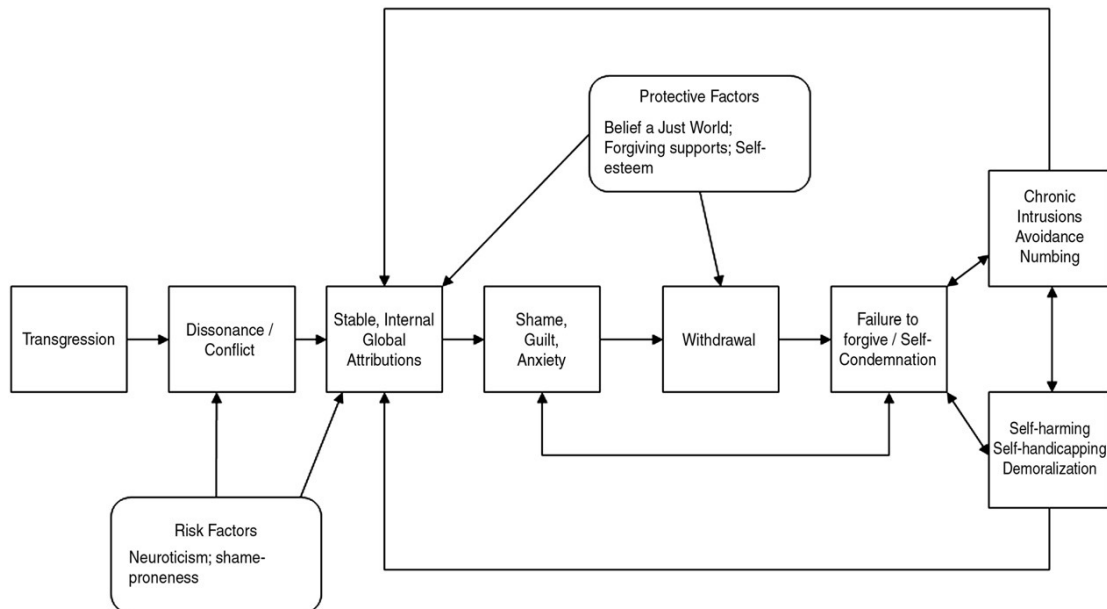
Figure of Lee, Scragg and Turner's cognitive model of shame-based PTSD.



Note. Reproduced from Lee et al. (2001).

Appendix D.

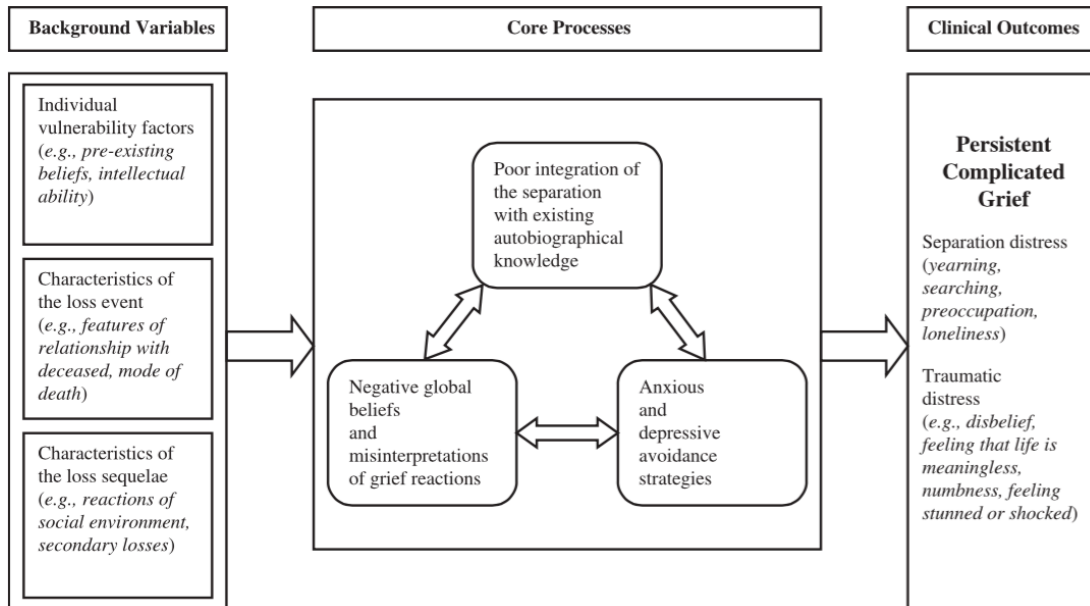
Figure of the model of moral injury.



Note. Reproduced from Litz et al. (2009).

Appendix E.

Figure of Bolen, van den Hout and van den Bout's cognitive conceptualisation of complicated grief.



Note. Reproduced from Boelen et al. (2006).

Appendix F.

Participant Information Sheet.

Version 3, 21/02/14

A pilot study of imagery rescripting for survivor guilt after trauma

Participant Information Sheet

We want to invite you to participate in a research study that takes up to three weeks to complete. Taking part in the study is entirely up to you. We have developed this information sheet to help you decide if you want to take part. Part 1 explains the purpose of the study and what will happen if you decide to take part. Part 2 gives more detailed information about the study. Please ask if anything is not clear or if you have any questions. You can take time to think about it and talk to other people before you decide.

PART 1

Why are you doing this study?

We are interested in 'mental images' and a therapy called 'imagery rescripting'. Mental images are pictures in our mind. Imagery rescripting involves talking about and making changes to these mental images.

We want to find out if imagery rescripting is helpful for people that feel guilt after experiencing a 'fatal trauma'. A fatal trauma is a traumatic event in which other people died. We are also interested in which parts of imagery rescripting are most helpful.

Taking part in the study is entirely voluntary and you can withdraw from the study at any point. Your decision to take part or not take part will not affect the care that you receive from the Traumatic Stress Service in any way.

Why are you asking me to take part?

We are inviting you to take part because you have experienced a fatal trauma and you have told your therapist that you feel guilt. We are recruiting 12 people for the study during April 2014 – April 2015.

What will I do as part of the study if I take part?

The study involves meeting with your therapist on three occasions over three weeks at the Traumatic Stress Service. During these meetings, your therapist will help you complete some questionnaires and do the therapy with you. We will not ask you to meet with anyone else. However, we will ask for your permission to record these sessions so that the researcher can check that the therapists are consistent. The recording will not be shared with anyone else and will be deleted after the researcher has listened to it. You can choose to not have your sessions recorded if this makes you feel uncomfortable. The contact details for the researcher are listed in Part 2 of this information sheet.

Questionnaires

The questionnaires will ask you about mental images, feelings of guilt, and current difficulties or symptoms that are linked to the traumatic event. The questions are similar to questionnaires that you have completed as part of your standard therapy. They will have yes/no answers and rating scales. We will not ask you about any details of the traumatic event.

Version 3, 21/02/14

Therapy

The therapy involves talking about and making changes to your mental images in two therapy sessions. Your therapist will first help you identify and pay attention to your mental images. Your therapist will then guide you to talk about and make changes to your mental images.

The researcher will also ask your therapist some questions about your demographic details (for example, age, gender and ethnicity) and some general questions about the traumatic event (for example, type of trauma) and your current therapy (for example, number of sessions completed). Your therapist will not share any detailed information about your therapy or the traumatic event.

Possible benefits of taking part

Research suggests that imagery rescripting therapy is helpful for some people that have experienced a traumatic event. We hope that this study will show if imagery rescripting therapy is helpful for people that feel guilt after a fatal trauma. We also hope that this study will show which aspects of imagery rescripting therapy are most helpful. This may help us improve treatments that we offer to people that feel guilt after a fatal trauma.

Possible disadvantages of taking part

Completing the questionnaires or doing the imagery rescripting therapy may remind you of the traumatic event and may make you feel upset. Your wellbeing is our key priority. You will be able to take breaks or stop the sessions if you want. Your therapist will support you during the study and help you cope with any distressing feelings. You can change your mind about taking part at any point during the study.

Taking part involves taking a two-week break from your standard therapy. This is because we need to do the imagery rescripting therapy during this time. If you do not want to take a break, you can choose to do the study after you have finished your standard therapy. You can speak to your therapist about the best time for you to take part in the study.

We are doing this study because imagery rescripting is a new type of therapy. We cannot be sure that it will be helpful for you. There are no indications from research or therapists' experiences that this therapy is harmful. If any new information became available we would share this with you so that you can consider if you want to continue taking part in the study.

We do not expect that there will be any lasting negative effects from taking part in the study. If you are worried about anything to do with the study you should speak to your therapist or you can contact the researcher.

PART 2

What will happen to my information?

The information that we gather as part of the study is kept securely at the Traumatic Stress Service. It will be kept for 5 years after the end of the study and then destroyed. Your information will not be shared with anyone outside the research team. You can change your mind about taking part at any point and ask for your information to be removed and destroyed.

Your information will be anonymised. This means that your information will not be kept with your name. You will be given a participant number which will be used to keep track of your information. Only the researcher will know the participant number that belongs to each participant.

The information from the study will be used for publication in a peer-reviewed journal and presented at a conference. The information from several participants will be combined and no one will be able to identify your information from these publications.

You can choose to find out about the results from the study by ticking yes and including your contact details on the Study results opt-in form. This information will only be used to send you the information and will not be shared with anyone outside the research team.

Who is organising and funding this study?

This study is being carried out as part of a Doctorate of Clinical Psychology degree. The researcher is funded by Camden & Islington NHS Trust to complete this degree and Royal Holloway, University of London is supporting the study.

Who has reviewed this study?

All research in the NHS is looked at by an independent group of people called a Research Ethics Committee to protect your interests. This study has been reviewed and given a favourable opinion by NRES Committee London-Dulwich.

The study has also been reviewed and approved by a group of people at Royal Holloway, University of London. A service user has looked at the research methods, questionnaires and verbal instructions to make sure that these are easy to understand and worded to minimise distress for participants.

Who can I speak to if I have a problem?

If you have any concerns or problems with this study, you should speak to your therapist or contact the researcher. We will do our best to answer your questions. Evelina Medin is the researcher and can be contacted by email (evelina.medin.2012@live.rhul.ac.uk) or telephone (01784 414 388).

If you want to make a formal complaint about the study you can contact Royal Holloway, University of London or the NHS Complaints Manager at South West London and St Georges Mental Health Trust. Details can be obtained from http://www.swlstg-tr.nhs.uk/contact-us/how_to_complain/.

Version 3, 21/02/14

What happens now?

If you decide to take part, you and your therapist can decide the best time for you to do the study. You should complete the consent form with your therapist just before starting the study. Please take as much time as you need to think about whether you want to take part before you decide.

Thank you for taking the time to read this information sheet!

Appendix G.

Consent Form.

Version 3, 21/02/14

A pilot study of imagery rescripting for survivor guilt after trauma

Consent Form

Please read through the consent form. To consent to the study, put your initials in the boxes next to each statement and sign at the bottom.

- I confirm that I have read the Participant Information Sheet (Version 3, 21/02/14) for the above study. I have had the opportunity to consider the information and ask questions.
- I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason. Withdrawing from the study does not affect my medical care or legal rights in any way.
- I consent for my therapist to share my demographic details and basic details about the traumatic event and my standard therapy with the researcher.
- I consent for the therapy sessions that are part of the study to be audio recorded for the researcher to listen to.
Note. Audio recording is optional. Please cross out this box if you do not consent to audio recording. The audio recording will not be used for any other purposes.
- I agree to take part in the above study.

Participant's signature

Date

Participant's name

Therapist's signature

Date

Therapist's name

Appendix H.

Study approval by Royal Holloway Research Ethics Committee.

Memorandum

To: Evelina Medin
From: Gary Brown (on behalf of the Research Sub-Committee and Course Executive)
Date: 5th December 2013
Copy To:
Re: Main Research Project Proposal

The Research Sub-Committee has considered your Main Research Project Proposal response and has decided to give you **Approval**. Your research costs have also been approved. Please note that if these costs change and you do not re-submit an amended form for approval prior to incurring any additional costs, these additional costs will not be reimbursed.

Appendix I.

Study approval by Dulwich National Research Ethics Service Committee.



Telephone: 020 7972 2582

25 March 2014

Miss Evelina Medin
Trainee Clinical Psychologist
Camden & Islington NHS Foundation Trust
Doctorate in Clinical Psychology
Royal Holloway, University of London
Egham Hill, Egham
TW200EX

Dear Miss Medin

Study title: **A pilot study on the effectiveness of brief imagery rescripting as a therapeutic technique for people that experience survivor guilt after a traumatic event.**

REC reference: **14/LO/0192**

Protocol number: **N/A**

IRAS project ID: **144830**

Thank you for your letter of 26 February 2014, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the REC Manager Stephanie Hill, nrescommittee.london-dulwich@nhs.net.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publicly accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett (catherineblewett@nhs.net), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Evidence of insurance or indemnity	Appendix L - indemnity letter	02 September 2013
Other: Appendix A - Service user consultation		06 December 2013
Other: Appendix E - Research committee provisional opinion approval		29 October 2013
Other: Appendix F - Research committee full approval		05 December 2013
Other: Summary CV for supervisor - Hannah Murray	1	15 January 2013
Other: References		13 January 2013
Other: Email from sponsor responding to query		17 January 2014
Other: Email from researcher responding to query		19 January 2014
Other: Study results opt-in form		
Participant Consent Form	3	21 February 2014
Participant Information Sheet	3	21 February 2014
Protocol	Version 1. Major Project proposal	10 October 2013
Questionnaire: Non-validated - Appendix H - Survivor guilt measure.	1	12 January 2014
Questionnaire: Non-validated - Appendix I - Process items	1	12 January 2014
Questionnaire: Non-validated - Appendix J - Image severity measure	1	12 January 2014
Questionnaire: Non-validated - Appendix K - client feedback form	1	12 January 2014
Questionnaire: PHQ-9		
Questionnaire: PDS		
REC application	3.5	17 January 2014
Response to Request for Further Information		26 February 2014
Summary/Synopsis	Version 1. Study design figure	17 January 2014

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed

guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

14/LO/0192	Please quote this number on all correspondence
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We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

With the Committee's best wishes for the success of this project.

Yours sincerely



Dr Michael Philpot
Chair

Email: nrescommittee.london-dulwich@nhs.net

Enclosures: "After ethical review – guidance for researchers" [SL-AR2]

Copy to: Prof Andrew MacLeod
Ms Enitan Eboda, Research & Development Team, South West London
and St George's Mental Health NHS Trust

Appendix J.

Study approval from Royal Holloway, University of London Ethics

Committee.

From: Psychology-Webmaster@rhul.ac.uk
Subject: Ref: 2014/038 Ethics Form Approved
Date: 24 April 2014 17:05
To: nxjt026@rhul.ac.uk, gary.brown@rhul.ac.uk
Cc: PSY-EthicsAdmin@rhul.ac.uk, Patrick.Leman@rhul.ac.uk, Annette.Lock@rhul.ac.uk, umjt001@rhul.ac.uk



Application Details: View the form click [here](#) Revise the form click [here](#)

Applicant Name: **Evelina Medin**

Application title: **A pilot study of imagery rescripting for survivor guilt after trauma**

Appendix K.

Study approval from South West London and St George's Mental Health

NHS Trust Research & Development Committee.

South West London and St. George's

Mental Health NHS Trust

Research and Development

Miss Evelina Medin
Doctorate of Clinical Psychology
Royal Holloway, University of London
Egham Hill
Egham
TW20 0EX

R&D Director: Dr Niruj Agrawal
c/o SECTION OF MENTAL HEALTH, PHSE
DIVISION
HUNTER WING
CRANMER TERRACE
LONDON SW17 0RE

R&D Co-ordinator: Ms Enitan Eboda
E-mail: eeboda@sgul.ac.uk

Direct Line: 020 8725 3463/2783
Fax: 020 8725 3538/2914

23 April 2014

Dear Miss Medin,

Research Title: A pilot study on the effectiveness of brief imagery rescripting as a therapeutic technique for people who experience survivor guilt after a traumatic event.
Principal Investigator: Miss Evelina Medin
Project reference: PF588
Sponsor: Royal Holloway, University of London

Following various discussions your study has now been awarded research approval. Please remember to quote the above project reference number on any future correspondence relating to this study.

Please note that, in addition to ensuring that the dignity, safety and well-being of participants are given priority at all times by the research team, host site approval is subject to the following conditions:

In addition to ensuring that the dignity, safety and well-being of participants are given priority at all times by the research team, you need to ensure the following:

- The Principal Investigator (PI) must ensure compliance with the research protocol and advise the host of any change(s) (eg. patient recruitment or funding) by following the agreed procedures for notification of amendments. Failure to comply may result in immediate withdrawal of host site approval.
- Under the terms of the Research Governance Framework, the PI is obliged to report any adverse events to the Research Office, as well as the REC, in line with the protocol and sponsor requirements. Adverse events must also be reported in accordance with the Trust Accident/Incident Reporting Procedures.
- The PI must ensure appropriate procedures are in place to action urgent safety measures.

- The PI must ensure the maintenance of a Trial Master File (TMF).
- The PI must ensure that all named staff are compliant with the Data Protection Act, Human Tissue Act 2005, Mental Capacity Act 2005 and all other statutory guidance and legislation (where applicable).
- The PI must comply with the Trust's research auditing and monitoring processes. All investigators involved in ongoing research may be subject to a Trust audit and may be sent an interim project review form to facilitate monitoring of research activity.
- The PI must report any cases of suspected research misconduct and fraud to the Research Office.
- The PI must provide an annual report to the Research Office for all research involving NHS patients, Trust and resources. The PI must also notify the Research Office of any presentations of such research at scientific or professional meetings, or on the event of papers being published and any direct or indirect impacts on patient care. This is vital to ensure the quality and output of the research for your project and the Trust as a whole.
- Patient contact: Only trained or supervised researchers holding a Trust/NHS contract (honorary or substantive) will be allowed to make contact with patients.
- Informed consent: is obtained by the lead or trained researcher according to the requirements of the Research Ethics Committee. The original signed consent form should be kept on file. Informed consent will be monitored by the Trust at intervals and you will be required to provide relevant information.
- Closure Form: On completion of your project a closure form will be sent to you (according to the end date specified on the R & D database), which needs to be returned to the Research Office.
- All research carried out within South West London & St George's Mental Health NHS Trust must be in accordance with the principles set out in the Department of Health's Research Governance Framework for Health and Social Care 2005 (2nd edition).

Failure to comply with the conditions and regulations outlined above constitutes research misconduct and the Research Office will take appropriate action immediately.

Please note, however, that this list is by no means exhaustive and remains subject to change in response to new relevant statutory policy and guidance. If you have any queries regarding the above points please contact Enitan Eboda, R&D Co-ordinator, on 020 8725 3463 (St. George's), e-mail: eeboda@sgul.ac.uk.

Yours sincerely,



Dr Niruj Agrawal
Research & Development Director
Chair, Research & Development Committee.

Terms and conditions of Approval, version 1.1 23/04/2014

Appendix L.

Study approval from Camden and Islington NHS Foundation Trust Research Support Service.

noclor 

Research Support Service

Bedford House, 3rd Floor
125-133 Camden High Street
London, NW1 7JR

Tel: 020 3317 3045
Fax: 020 7685 5830/5788
www.noclor.nhs.uk

14 November 2014

Miss Evelina Medin
Royal Holloway, University of London
Egham Hill
Egham
TW200EX

Dear Miss Evelina Medin

I am pleased to confirm that the following study has now received R&D approval, and you may now start your research in **the trust(s) identified below**:

Study Title:	A pilot study on the effectiveness of brief imagery rescripting as a therapeutic technique for people that experience survivor guilt after a traumatic event.
R&D reference:	144830
REC reference:	14/LO/0192

This NHS Permission is based on the REC favourable opinion given on **25 March 2014**.

Name of the trust	Name of current PI/LC	Date of permission issue(d)
Camden & Islington NHS Foundation Trust	Miss Evelina Medin	14 November 2014

If any information on this document is altered after the date of issue, this document will be deemed INVALID

Specific Conditions of Permission (if applicable)

If any information on this document is altered after the date of issue, this document will be deemed INVALID

Yours sincerely,



Pushpsen Joshi
Research Operations Manager

Cc: Dr Gary Brown gary.brown@rhul.ac.uk, Prof Andrew MacLeod a.macleod@rhul.ac.uk / Patrick Leman patrick.leman@rhul.ac.uk

May I take this opportunity to remind you that during the course of your research you will be expected to ensure the following:

- **Patient contact:** only trained or supervised researchers who hold the appropriate Trust/NHS contract (honorary or full) with each Trust are allowed contact with that Trust's patients. If any researcher on the study does not hold a contract please contact the R&D office as soon as possible.
- **Informed consent:** original signed consent forms must be kept on file. A copy of the consent form must also be placed in the patient's notes. Research projects are subject to random audit by a member of the R&D office who will ask to see all original signed consent forms.
- **Data protection:** measures must be taken to ensure that patient data is kept confidential in accordance with the Data Protection Act 1998
- **Health & safety:** all local health & safety regulations where the research is being conducted must be adhered to.
- **Serious Adverse events:** adverse events or suspected misconduct should be reported to the R&D office and the Research Ethics Committee.
- **Project update:** you will be sent a project update form at regular intervals. Please complete the form and return it to the R&D office.
- **Publications:** it is essential that you inform the R&D office about any publications which result from your research.
- **Ethics:** R&D approval is based on the conditions set out in the favourable opinion letter from the Research Ethics Committee. If during the lifetime of your research project, you wish to make a revision or amendment to your original submission, please contact both the Research Ethics Committee and R&D Office as soon as possible.
- **Monthly / Annually Progress report:** you are required to provide us and the Research Ethics Committee with a progress report and end of project report as part of the research governance guidance.
- **Recruitment data:** if your study is a portfolio study, you are required to upload the recruitment data on a monthly basis in the website: <http://www.crn.nihr.ac.uk/can-help/funders-academics/nihr-crnl-portfolio/recruitment-data/>
- **Amendments:** if your study requires an amendment, you will need to contact the Research Ethics Committee. Once they have responded, and confirmed what kind of amendment it will be defined as, please contact the R&D office and we will arrange R&D approval for the amendment. If your study is Portfolio Adopted, amendments must be submitted for R&D review via the NIHR CRN (CSP), please refer to the Amendments Guidance for Researchers: <http://www.crn.nihr.ac.uk/can-help/funders-academics/gaining-nhs-permissions/amendments/>
- **Audits:** each year, noclor select 10% of the studies from each service we have approved to be audited. You will be contacted by the R&D office if your study is selected for audit. A member of the governance team will request you complete an audit monitoring form before arranging a meeting to discuss your study.

Appendix M.

Summary of service user consultation.

Service user consultation

Overall

SU comment: This is a very interesting study and I think it will be very helpful for people.

Participant Information Sheet

SU comment: Overall very, very clear. As I read through it, all my questions were being answered. It stressed privacy which is good because privacy can't be stressed enough. It was honest about potential negative effects of things being triggered.

Response: N/A

SU comment: The introduction of the information sheet should have the time frame. It is not until later that you find it out the time frames and it may put some people off if it is not clear upfront.

Response: The time frames were added to the introduction of information sheet.

SU comment: How to contact the main researcher should be presented earlier when the main researcher is first mentioned.

Response: A sentence was included to direct the reader to the contact details for the main researcher.

SU comment: The second paragraph on the second page goes into too much detail. Some might have difficulty understanding that. They don't need to know the exact information as long as they know that details won't be shared.

Response: The paragraph was shortened but the key information was retained.

SU comment: It could be condensed a bit. It is a bit long for some people and could be a bit tighter.

Response: The wording of the information sheet has been reviewed and shortened to the extent possible without losing vital information.

Consent Form

SU comment: It was very clear and not heavy to read. More sentences and boxes would have been too much.

Response: N/A.

SU comment: It should mention that they can consent or not to have their sessions video recorded.

Response: A sentence was included to inform participants that video recording is optional and instruct them to cross out the box on consent form if they do not consent to video recording.

SU comment: It would be good to mention when the results will be available.

Response: A sentence was included on the second page of the consent form to inform participants when the results will be distributed.

Instructions

SU comment: Very clear. It is good that it is your usual therapist that does the therapy since they know you and will be able to help draw out the information.

Response: N/A.

Measures

SU comment: These measures are the same or very similar to measures used as part of therapy. I have no concerns about the measures.

Response: N/A.

SU comment: The percentages from the survivor guilt measure can be removed. People may not be familiar with percentages in this context.

Response: The service user's comment was considered but the survivor guilt measure was not changed. The items were adapted from a standardised questionnaire with the aim of keeping the wording kept as similar as possible to the original. Therapists will be available to assist participants in completing the questionnaire.

Appendix N.

Survivor Guilt Measure.

SURVIVOR GUILT

Survivor guilt refers to feelings of guilt and/or shame about surviving a traumatic event when others did not. The next two items ask about your feelings of survivor guilt over the past week. Please circle one answer for each question.

1. FREQUENCY

How much of the time have you felt survivor guilt over the past week?

- 0 None of the time
- 1 Very little of the time (less than 10%)
- 2 Some of the time (approx. 20-30%)
- 3 Much of the time (approx. 50-60%)
- 4 Most or all of the time (more than 80%)

2. INTENSITY

How strong were these feelings of survivor guilt over the past week? How much distress or discomfort did they cause?

- 0 No feelings of guilt
- 1 Mild, slight feelings of guilt
- 2 Moderate guilt feelings definitely present, some distress but still manageable
- 3 Severe, marked feelings of guilt, considerable distress
- 4 Extreme, pervasive feelings of guilt, incapacitating distress

Appendix O.

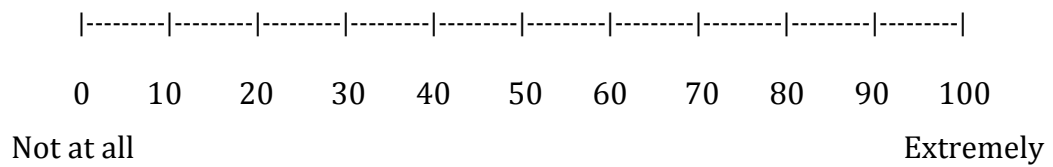
Mental Imagery Scale.

MENTAL IMAGES

The next two items ask about your mental image over the past week. Please mark your answers on the scales below.

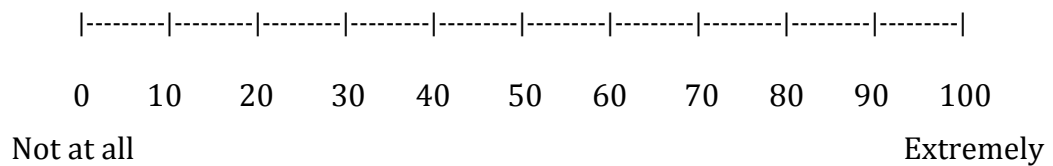
1. IMAGE FREQUENCY

How frequently has your image occurred over the past week?



2. IMAGE DISTRESS

How distressing or upsetting has your image been over the past week?

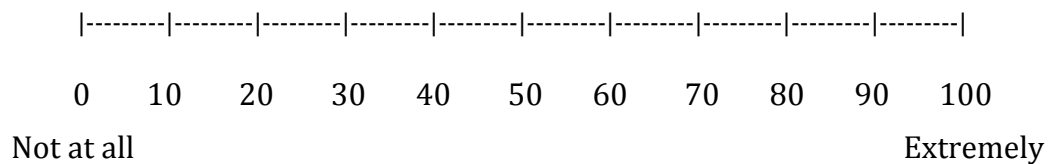


Appendix P.

Single-item process measures.

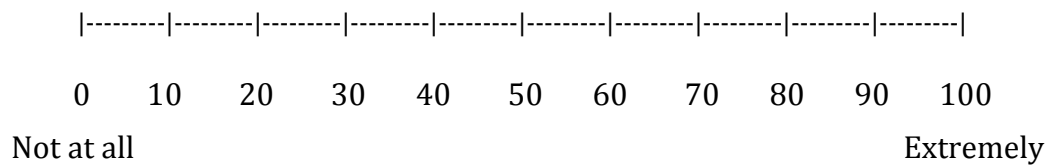
1. ENCAPSULATED BELIEF

How much do you believe this statement to be true right now?



2. SURVIVOR GUILT

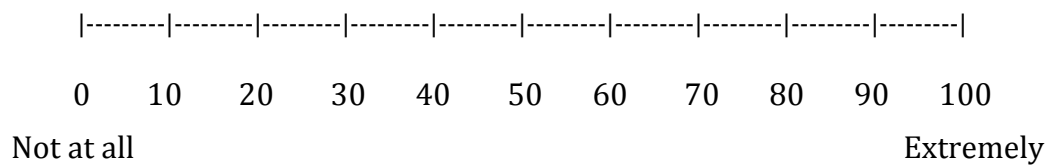
How strong are your feelings of survivor guilt right now?



3. IMAGE DISTRESS

Please bring your image to mind and dwell on it for a few moments.

How distressing or upsetting is this image to you right now?



Appendix Q.

Parts 3 of amended Post-traumatic Diagnostic Scale (Foa, 1995).

Not included due to copyright restrictions.

Appendix R.

Patient Health Questionnaire – 9 (Kroenke et al., 2001).

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)				
Over the <u>last 1 week</u> how often have you been bothered by any of the following problems? (Use "✓" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3
<hr/>				
If you checked off <u>any</u> problems, how <u>difficult</u> have these problems made it for you to do your work, take care of things at home, or get along with other people?				
Not difficult at all <input type="checkbox"/>	Somewhat difficult <input type="checkbox"/>	Very difficult <input type="checkbox"/>	Extremely difficult <input type="checkbox"/>	

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc. No permission required to reproduce, translate, display or distribute.

Appendix S.

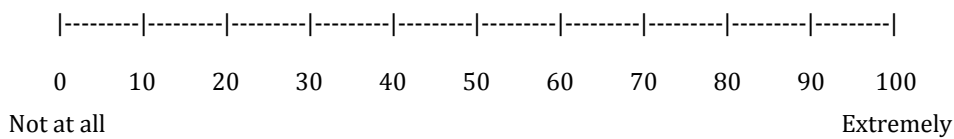
Client Feedback Form.

Client Feedback Form

You have now finished your participation in the research study. We would like to hear how you found the overall therapy and the individual sessions.

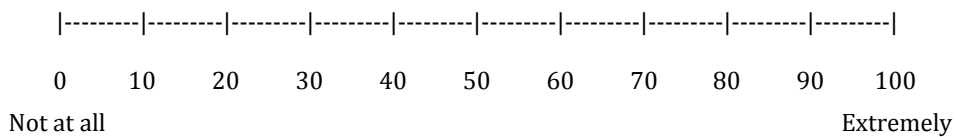
1. Imagery Therapy

You had two sessions of therapy that focused on mental images connected to your feelings of survivor guilt. How helpful did you find this therapy overall?



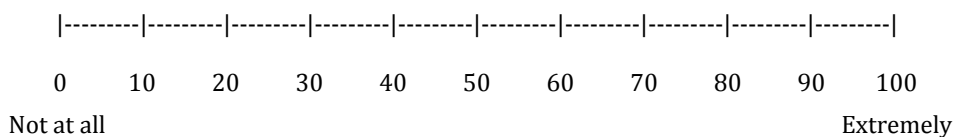
2. Elaboration Session

Your first session focused on *exploring* your mental image. The session involved picturing and describing your image. How helpful did you find this session?



3. Rescripting Session

Your second session focused on *transforming* your mental image. The session involved making changes to your image by creatively imagining something different. How helpful did you find this session?



Do you have any other comments about the image therapy?
(please continue on the back if you need more space)

Thank you for taking part in the research study!

Appendix T.

Brief Rescripting Process Coding Framework.

2.2 Activation of imagery

Summary: This item rates the client's ability to visualise the imagery as indicated by the vividness of their description.

3 = Mostly able: The client can see the imagery easily in the mind's eye; the imagery is very vivid ("I can see, hear, smell, feel and/or taste it very clearly").

Additional guidance: The client creates imagery that is very clear and intense for the majority of the session. All or most of the imagery is experienced in great detail. The imagery is mostly or entirely described in present tense and first person.

2 = Moderately able: Parts of the imagery can be seen easily in the mind's eye; most of the imagery is vivid ("Mostly all of the details are there").

Additional guidance: The client creates imagery where parts are clear and intense, while other parts are lacking in clarity. Both present and past tense, and first and third person may be used.

1 = Somewhat able: Some of the imagery can be seen easily in the mind's eye; some parts of the imagery are vivid ("Some of the details are there").

Additional guidance: The client creates imagery where many parts are lacking in clarity. The imagery may be mostly described in third person but first person may also be used.

0 = Minimal/not at all able: Very little or none of the imagery can be seen clearly in the mind's eye; the imagery is not vivid ("Everything is a bit blurred").

Additional guidance: Client is not able to bring to mind imagery that is clear. The imagery is not likely to be described in present tense and first person.

2.1A Ability to stay with the imagery

Summary: This item rates the client's ability to continuously activate and stay with the imagery throughout the rescripting process.

3 = Mostly stays with: The client stays with the imagery throughout.

Additional guidance: The client for the most part is able to bring to mind and stay with the imagery through the entire rescripting session.

2 = Stays with moderately: The client stays with the imagery but falls short of doing so for the entire session.

Additional guidance: The client is able to bring to mind and stay with the imagery for the majority of the rescripting session, but comes out of the imagery at times (e.g., if it gets too distressing, if he/she requires clarification or if he/she starts talking about the memory or event more generally).

1 = Stays with somewhat: The client struggles to stay with the imagery.

Additional guidance: Although the client is able to bring to mind and stay with the imagery at times, he/she frequently come back to the therapy room.

0 = Stays with minimally/not at all: The client cannot stay with imagery.

Additional guidance: The client is unable to bring the imagery to mind for most of the session (e.g., because it is too distressing).

2.1B Development of a coherent narrative

Summary: This item rates the client's ability to develop and follow a coherent rescript narrative.

3 = Mostly coherent: The rescript follows a coherent narrative.

Additional guidance: It is easy for the listener to understand what is happening in the imagery; the narrative flows like a coherent script.

2 = Moderately coherent: The rescript mostly follows a coherent narrative but it is sometimes difficult to follow.

Additional guidance: It is mostly easy for the listener to understand what is happening in parts of the imagery. However, the narrative tends to jump from point to point.

1 = Somewhat coherent: There is some coherent narrative in the rescript but it is often difficult to follow.

Additional guidance: Although there is some coherent narrative, it is difficult for the most part for the listener to understand what is happening in the imagery.

0 = Minimal/not at all coherent: The rescript does not follow a coherent narrative.

Additional guidance: There is no coherent narrative, making it difficult for the listener to understand and follow.

2.1C Amount of guidance given by the therapist

Summary: This item rates the client's ability to follow the rescripting process and incorporate changes in the imagery without significant guidance from the therapist.

- 3 = Mostly self-guided:** Little guidance from therapist is needed; the client is able to incorporate change into the imagery and guide themselves through the rescript with little or no prompting.

Additional guidance: The client is able to bring to mind and describe the rescripted imagery with little input from the therapist. For example, the therapist provides infrequent minor/general prompts to capture more details or to bring in additional changes.

- 2 = Moderately self-guided:** Some guidance from therapist is provided; the client and therapist guide the rescript equally.

Additional guidance: The client is able to follow therapist prompts in order to bring to mind and vividly describe the rescripted imagery. Without these prompts, it is likely that the client would leave out details or become stuck.

- 1 = Somewhat self-guided:** The rescript is mostly guided by the therapist; the client struggles to guide the rescript.

Additional guidance: Rescripting is mostly guided by the therapist; the client finds it difficult to describe the imagery and to incorporate change. For example, the therapist provides frequent specific prompts to capture more details or to bring in additional changes.

- 0 = Minimally/not at all self-guided:** The rescript is mostly/completely guided by the therapist.

Additional guidance: The client is reliant on the therapist for guiding the rescript. It is necessary for the therapist to become actively involved in the description of the event and to ensure changes to the imagery are incorporated.

3.1 Activation of original internal processes

Summary: This item rates activation of emotions, cognitions and/or physical sensations associated with the original imagery.

3 = Very high activation: Most or all trauma-related thoughts, feelings and/or physiological reactions are present in the session. Processes are very intense.

Additional guidance: The client accesses exactly how they felt emotionally or physically, or what they thought at the time of the original event or when accessing the original imagery. Only select this option if it is clear that the client is experiencing these trauma-related internal processes very intensely through self-report or observation. The client may dissociate or come out of the imagery at times.

2 = High activation: A high amount of trauma-related thoughts, feelings and/or physiological reactions are present during the session. Processes are intense.

Additional guidance: Trauma-related internal experiences are experienced intensely. Select this option if the client reports or appears to be experiencing these internal processes in the session (e.g., more than 50% if the client were asked to rate the intensity).

1 = Moderate/low activation: A moderate or low amount of trauma-related thoughts, feelings and/or physiological reactions are present during the session. Processes are moderately intense.

Additional guidance: Trauma-related internal experiences are present in the description of how the client feels but are experienced at a moderate or low level (e.g., less than 50% if the client were asked to rate the intensity).

0 = Minimal/no activation: Trauma-related thoughts, feelings and/or physiological reactions are minimal/absent during the session. Processes are of very low intensity.

Additional guidance: The client does not access trauma-related thoughts, feelings and/or physiological reactions during the session. It may be that the client does not express these internal experiences, or that the client reports how he/she felt/thought at the time but does not feel/think that way now in the therapy room.

4.1A Departure from the original imagery

Summary: This item rates the extent to which the rescript departs from the original imagery in terms of the amount of new material being introduced. Consider the setting and time taken up by the new imagery.

3 = All new: All new (e.g., safe place imagery); none of the original imagery is included in the rescript.

Additional guidance: For example, all of the session time is spent talking about new information or new imagery is created that takes place in a different setting.

2 = Mostly new: Mostly new imagery, some old material; a small portion of the original intrusive imagery is incorporated into the rescript.

Additional guidance: For example, most of the session time is spent talking about new information or new imagery is created that mostly takes place in a different setting.

1 = Some new: Less than half of the imagery incorporates new material, the majority of the imagery is taken up with the original intrusive imagery.

Additional guidance: For example, less than half the session time is spent talking about new information, or change in the imagery occurs mostly in the original setting.

0 = Mostly old/no change: Mostly old imagery or no change from original intrusive imagery (e.g., reliving only); a minimal amount of new material is incorporated.

Additional guidance: For example, all of the session time is spent talking about the original imagery or the imagery occurs in the original setting without introducing new material.

4.1B Timing of change

Summary: This item rates the point in time when new information is introduced into the imagery.

3 = During the imagery: The rescript coincides in time with the original imagery.

Additional guidance: Change in the imagery is introduced part way through the original imagery – the original imagery and rescript overlap in time. For example, the new imagery changes the way events in the original imagery unfolds by adding or removing elements within the original imagery.

2 = Immediately (1) before OR (2) after the imagery: The rescript occurs immediately before or in the aftermath of the original imagery (specify before or after).

Additional guidance: Change in the imagery is introduced immediately before or at the end of events in the original imagery – the original imagery and rescript do not overlap but they are contiguous in time (i.e., one follows consecutively after the other). For example, events in the new imagery preempt events in the original imagery or build on the ending of the original imagery.

1 = Some time (1) before or (2) after the imagery: The rescript occurs a while before or after the original imagery (specify before or after).

Additional guidance: A new imagery is created that, if real, would have occurred some length of time before or after the original imagery – the original imagery and rescript are not contiguous in time (i.e., one does not follow consecutively after the other) but the temporal link is clear. For example, the new imagery changes the story of the original imagery by adding new content at an earlier or later point in time (e.g., days, weeks or years earlier or later).

0 = No temporal relationship to the imagery: The rescript occurs at a time that appears unrelated to the original imagery or the temporal relationship between original and new imagery is not apparent.

Additional guidance: New imagery is created that, if real, would have occurred at a time that is unrelated to the original imagery - the temporal link is not clear. The new imagery is thus not part of the original imagery.

4.3 **Believability of rescript**

Summary: This item rates the extent to which the rescript feels believable and compelling to the client regardless of whether it is physically possible.

3 = Completely believable: The rescript feels completely believable.

Additional guidance: The client describes the new outcome as feeling believable and something they can connect with.

2 = Mostly believable: The client cannot connect with some aspects of the rescript.

Additional guidance: The client describes the new outcome as feeling mostly believable but may not be able to connect with some aspects.

1 = Somewhat believable: The rescript mostly does not feel believable but the client can connect with some aspects.

Additional guidance: The client mostly does not feel that the new outcome is believable.

0 = Minimally/Not at all believable: The rescript seems alien and the client cannot connect with it.

Additional guidance: The client does not feel that the new outcome is believable.

4.4 Activation of new internal processes

Summary: This item rates activation of emotions, cognitions and/or physical sensations associated with change in the imagery.

3 = Very high activation: New emotions, cognitions and/or physiological sensations are present and very intense during the rescripted part of the imagery.

Additional guidance: Change-related internal processes are experienced very intensely. Only select this option if it is clear that the client is experiencing these internal processes very intensely through self-report or observation. The client may dissociate or come out of the imagery at times.

2 = High activation: New emotions, cognitions and/or physiological sensations are present and intense during the rescripted part of the imagery.

Additional guidance: Change-related internal experiences are experienced intensely. Select this option if the client reports or appears to be experiencing these internal processes but at less than full intensity.

1 = Moderate/low activation: New emotions, cognitions and/or physiological sensations are present but of moderate/low intensity during the rescripted part of the imagery.

Additional guidance: Change-related internal experiences are present in the description of how the client feels, but are experienced at a moderate or low level.

0 = Minimal/no activation: New emotions, cognitions and/or physiological sensations are not accessed during the rescripted part of the imagery.

Additional guidance: The client does not access change-related thoughts, feelings and/or physiological reactions during the session. Either they are completely absent, or the client can hypothetically describe how he/she might feel/think but does not experience them directly from the rescript.

Appendix U.

Project manual.

Project manual

Dear therapist,

Thank you for supporting this research project ☺

This manual was developed to ensure consistency between therapists. We have kept it as brief and simple as possible. Please familiarise yourself with the procedures before seeing your client. Feel free to contact us if you have any questions.

General information

A flow diagram of the project design and procedures appear on the next page. The project consists of three sessions, delivered one week apart:

<u>Session 1</u>	<u>Session 2</u>	<u>Session 3</u>
80-90 min, Pages 5 - 10	60 min, Pages 11 - 14	15 min, Pages 15
<ul style="list-style-type: none">o Questionnaires (15 min)o Imagery interview (20-30 min)o Image elaboration (45 min)	<ul style="list-style-type: none">o Questionnaires (15 min)o Image rescripting (45 min)	<ul style="list-style-type: none">o Questionnaires (15 min)

The sessions are different in length to make the therapy component of sessions equal in length. The length of the sessions may vary between participants but, for each participant, the elaboration and rescripting components of sessions should be similar in length. For example, 40 minutes of elaboration should be paired with 40 minutes of rescripting.

Comments, feedback and questions

On the next page, there is blank section where you can make notes. For example, useful observations, techniques and questions that worked well, things that did not go well, suggestions about the manual and procedures, comments from your client etc. It is particularly important that you record any deviations from the procedures. Participants can choose to receive a summary of the results by completing the 'Study results opt-in form'.

Demographic and clinical information

There are four demographic and five clinical questions on pages 3-4 for you to complete. Your client knows that this information is being collected from you. There are also some questions and comment boxes (about images and scripts) later in the manual. You will be prompted to complete these. You can leave some questions blank if you want to discuss these with us first.

Verbal instructions

We have tried to keep standardised instructions to a minimum. **Instructions in blue** should be read out as written in the manual. We have considered the wording very carefully so please stick to these instructions as closely as possible.

Red, italicised instructions indicate flexibility to use your own questions. We want you to draw on your clinical skills and knowledge of your client to tailor the intervention to your client's needs. Optional prompts are given for guidance. You can use some or none of these, or adapt them to suit you and your client. It may be helpful to think about how you are going to identify images and scripts, and highlight useful prompts before starting the sessions.

Administration of questionnaires

The self-report questionnaires are included in the manual (in coloured plastic pockets) at the point where we want you to administer them. A tick list will help you (and us) check that the correct questionnaires are administered at the right point. The Encapsulated Belief Questionnaire requires you to fill in the identified encapsulated belief. The instructions for this are highlighted in yellow. Please put completed questionnaires in the plastic folder.

Evelina Medin
evelina.medin.2012@live.rhul.ac.uk

Demographic Information



Participant number (*please leave blank*):

RIO number:

Gender:

Age:

Ethnicity:

Name of therapist:

Clinical Information



1. How many sessions of therapy has your client had?

2. Did any sessions focus on survivor guilt?

No

Yes



How many sessions? _____

3. Did any sessions involve imagery rescripting?

No

Yes



How many sessions? _____

4. What type of trauma did your client experience?

5. Approximately how long ago was your client's trauma?

Introduction and questionnaires



15 minutes

1. Obtain informed consent

Date: _____

Questions to bring to the research team:

2. Start audio recording (if consented)

3. Introduce the session

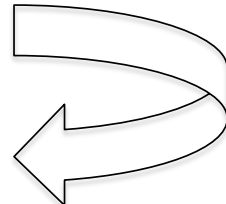


In the next two sessions, we'll focus on mental images and feelings of survivor guilt. I'll tell you a bit more about this in a minute. Before I do that, I'll give you some questionnaires to fill in. I'll give you some more questionnaires during and after the session.

4. Administer questionnaires

Please tick when completed

- PHQ-9
- PDS
- Survivor guilt



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Imagery interview



20-30 minutes

1. Introduce and identify distressing mental images



Mental images are 'pictures in our mind'. They can include smells, tastes, sounds and sensations. They can be a memory of an event, or an imaginary situation.

Mental images can be very powerful and linked to strong feelings. They can be very distressing when they are linked to unpleasant feelings. I want to help you identify any mental images that are linked to your feelings of survivor guilt.

I want you to focus on your feelings of survivor guilt – are there any images that go through your mind? It may be helpful to close your eyes.

Explore with your client to identify images and record on the next page

Optional prompts:

- What do you think about when you notice feelings of survivor guilt?
- Do you get any pictures or any sensations?

Are there any other images that are linked to your feelings of survivor guilt?

Explore additional images with your client

If multiple images are identified (otherwise move on to next page):



2. Identify the main image



You've mentioned several images to me. Which of these images is the most distressing or most closely connected to your feelings of survivor guilt?

Identify the main image with your client

Optional prompts:

- Does one image feel more upsetting than the others?
- Which image feels most problematic or most important to talk about?
- Which image comes to mind first or stand out when you focus on your feelings of survivor guilt?

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3. Identify the Encapsulated Belief



Mental images often have a meaning to the person, what does your image mean to you?

Explore with your client to identify the encapsulated belief

The purpose of the encapsulated belief is to find the essential meaning of the image for your client. This is most commonly an negative belief about the person but may be a belief about something else.

Optional prompts:

- What is most upsetting or the worst thing about the image?
- What does it say about you as a person?
- What does it say about other people, the world or your future?



Record encapsulated belief here:

4. Record encapsulated belief on **five** copies of 'Process Items' – after the yellow tabs

5. Administer questionnaires

Please tick when completed

- Mental Images
- Process items – Pre-session 1

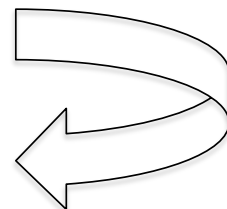


Image elaboration



45 minutes

1. Start time: _____

2. Introduce image elaboration



I'd like to talk a bit more about your mental image. We're going to spend the next 45 minutes exploring your image in more detail by picturing and describing it.

3. Conduct image elaboration



I want you to bring your image to mind. If you feel comfortable to, you can close your eyes or you can look at a point on the wall or the carpet. Can you tell me what you see?

Explore and elaborate the image with your client

The purpose of the session is to elaborate the image without interfering with it. Explore the content and meaning of the image in a non-directional way. Gently lead your client to vividly imagine and share details of the image. Listen, reflect and empathise but do not challenge interpretations.

Optional prompts:

- Can you hold the image in mind and focus on it for a little while.
- What else do you see; do you notice any other details?
- Do you notice any smells, sounds, tastes or sensations?
- How does the image make you feel?
- What does the image mean to you?
- What has happened leading up to the image?
- What else does the image remind you of?

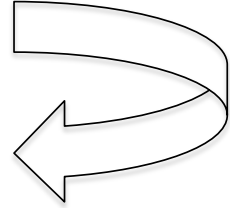
6. Administer questionnaire Please tick when completed

- Process items – Post-session 1

7. End time: _____

8. Debrief

- Ensure that your client is feeling ok
- Remind him or her of support systems



– END OF SESSION –

Introduction and questionnaires



15 minutes

1. Start audio recording (if consented)

Date: _____

2. Introduce the session



Today we'll continue to work on mental images and feelings of survivor guilt. Before we do that, I want to give you some more questionnaires to fill in. Like last time, I'll give you some more questionnaires after the session.

3. Administer questionnaires

Please tick when completed

- PHQ-9
- PDS
- Survivor guilt
- Mental Images
- Process items – Pre-session 2

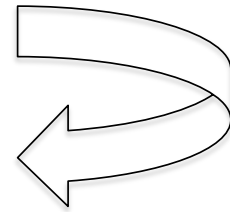


Image rescripting



45 minutes

1. Start time: _____

2. Introduce image rescripting



Today I'd like to talk a bit more about changes that you want to make to your mental image. We're going to spend the next 45 minutes transforming your image by creatively imagining something different.

3. Identify script



Last week you described the details of your image. What changes would you like to make that could make the image feel less upsetting?

Perhaps you want to change some details of the image, create a different outcome or build on 'the story' of the image? We can be as creative as you want to be.

Explore scripts with your client and identify preferred script

The purpose of the session is to make changes or add to the image to make it feel less distressing. This can be done in many ways. Research suggests that individualised, client-lead scripts are most helpful. We are also interested to find out what scripts participants choose so introduce ideas in general terms and only when necessary. Help your client to be as creative as they want. Do not introduce ideas with the main aim of changing the verbal meaning.

Optional prompts:

- Are there some aspects of the image that are the most upsetting?
- What can we do to deal with those aspects?
- Do you want to make any changes to how the image is played out in your mind?
- Is there something else that we could imagine that would make the image feel less upsetting?

Examples of scripts:

- Changing image characteristics
- Changing details of the image
- Changing the ending or outcome of the image
- Build on the story of the image
- Bring in survivor self or other person

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4. Conduct image rescripting



I want you to bring your image to mind. If you feel comfortable to, you can close your eyes or you can look at a point on the wall or the carpet.

Guide your client to carry out the script in their mind

Gradually implement the identified script. We are interested in the impact of sensory-based modifications so help your client to focus on sensory aspects associated with the script. Although cognitive shift may occur, do not try to change the verbal meaning directly. You can make additional changes that are identified during the rescripting process or carry out several scripts that relate to the original image.

Optional prompts:

- What else could you do to the image to make it feel less upsetting?
- Are there any other changes you would like to make?
- Is there something else that you would like to imagine?

5. Administer questionnaire

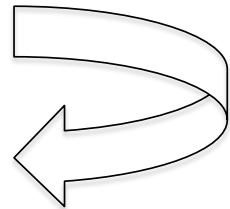
Please tick when completed

- Process items – Post-session 2


6. End time: _____


7. Debrief

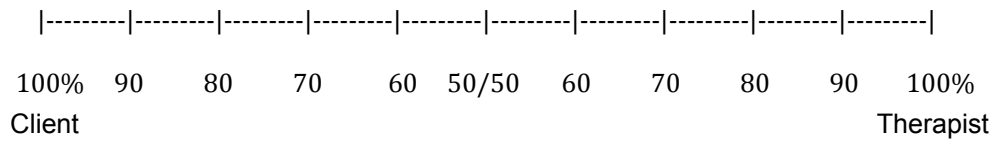
- Ensure that your client is feeling ok
- Remind him or her of support systems



8. Record rescript

 Record summary of script(s) here:

 Was the script(s) selected by the client or the therapist?



– END OF SESSION –

Follow-up



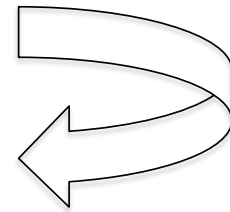
15 minutes

Date: _____

1. Administer questionnaires

Please tick when completed

- PHQ-9
- PDS
- Survivor guilt
- Mental Images
- Process items – Follow-up
- Client Feedback Form



2. Debrief

- Ensure that your client is feeling ok
- Remind him or her of support systems

– END OF SESSION –

Appendix V.

PowerPoint presentation used for therapists' training event.

A pilot study of Imagery Rescripting for
Survivor Guilt after trauma

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Background: Survivor Guilt

- Definition (APA, 2000):
"... painful guilt feelings about surviving when others did not survive or about the things they had to do to survive." (p. 465)
- SG is common following trauma
- SG is linked to poorer prognosis:
 - PTSD severity
 - Suicide risk
 - Treatment response
- Little research:
 - Concept of SG
 - Treatment of SG

Background: Imagery Rescripting

- Definition (Long & Quevillon, 2009):
“... an imagery technique in which an image is modified in some way to decrease distress.” (p. 67)
- Theoretical background:
 - Change to meaning
 - Direct link to emotions
- Good evidence for effectiveness
- Some questions remain:
 - Mechanism of change
 - Effectiveness of technique

Purpose of study

- (1) Application of Imagery Rescripting to Survivor Guilt
- (2) As a separate therapeutic technique
- (3) Disentangled from exposure and verbal techniques

Rescripting Early Memories Linked to Negative Images in Social Phobia: A Pilot Study

Jennifer Wild, Institute of Psychiatry at King's College London
Ann Hackmann, University of Oxford
David M. Clark, Institute of Psychiatry at King's College London

Negative self-images are a maintaining factor in social phobia. A retrospective study (Hackmann, A., Clark, D.M., McManus, F. (2000). Recurrent images and early memories in social phobia. *Behaviour Research and Therapy*, 38, 601–610) suggested that the images may be linked to early memories of unpleasant social experiences. This preliminary study assessed the therapeutic impact of rescripting such memories. Patients with social phobia (N=11) attended 2 sessions, 1 week apart. The first was a control session in which their images and memories were discussed but not modified. The second was an experimental session in which cognitive restructuring followed by an imagery with rescripting procedure was used to contextualize and update the memories. No change was observed after the control session. The experimental session led to significant improvement in negative beliefs, image and memory distress and vividness, fear of negative evaluation, and anxiety in feared social situations. The results suggest that rescripting unpleasant memories linked to negative self-images may be a useful adjunct in the treatment of social phobia.

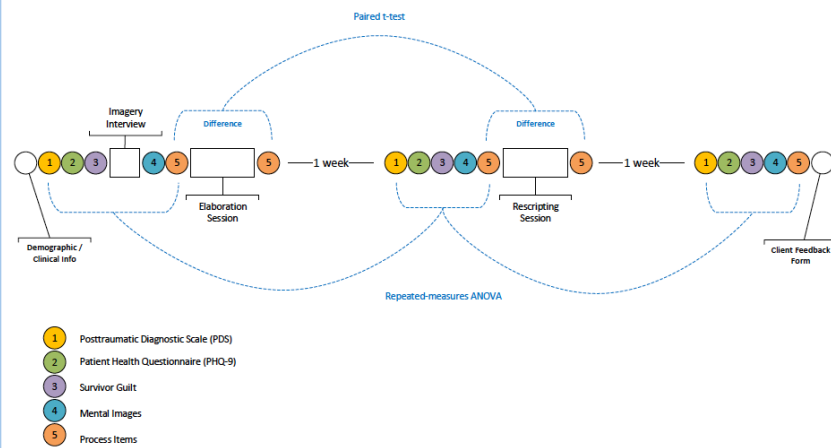
actually is. Clinically, such images appear to be problematic for a number of reasons. First, patients often believe that their negative images are an accurate reflection of how they appear to other people. They therefore think they come across much worse than they actually do, which tends to maintain their social anxiety. Second, the negative self-images seem to motivate patients to use self-protective strategies (safety behaviors) that are themselves problematic, such as covering one's face to hide a blush or answering questions with one-word answers to avoid saying the wrong thing. Such behaviors prevent patients from disconfirming their fears (Salkovskis, 1991) and may also have the consequence of contaminating the social interaction by making patients appear unfriendly and aloof (Clark & Wells, 1995; Rapee & Heimberg, 1997).

One of the first empirical studies of imagery in social phobia was conducted by Hackmann, Surawy, and Clark (1998). Patients with social phobia and nonpatient controls were asked to recall a recent social situation in which they had felt

Methods

- Design:
 - Small pilot (n=12)
 - Survivor Guilt after trauma
 - Within-subjects
- Intervention:
 - Carried out by qualified CPs or 3rd year TCPs
 - Elaboration and rescripting sessions
- Measures:
 - Process measures
 - Outcomes measures

Study design



Project manual

- Keep track of research component
 - Verbal instructions
 - Administration of questionnaires
 - Optional prompts

Imagery interview

p. 6-8

- Identify images
- Select main image
- Identify the Encapsulated Belief
- Record relevant information

Image elaboration

p. 9-10

- Purpose: elaborate image without interfering
- Gentle exploration of image:
 - Image details
 - Sensory elements
 - Feelings
 - Thoughts and meaning
 - Image context
 - Connected memories
- Listen, reflect and empathise

Image rescripting

p. 11-14

- Purpose: transform the image to reduce distress
- No cognitive restructuring component
- Identifying scripts:
 - Client-led and collaborative
 - Be creative
 - Emphasis on reducing distress

Types of rescripts

- Changing image characteristics
 - e.g. size, colour and contrast
- Changing details of the image
 - e.g. turn blood into noodle-soup
- Changing the ending or outcome of the image
 - e.g. collect body pieces and bury them
- Build on the story of the image
 - e.g. hold a funeral for the deceased
- Bring in survivor self or other person
 - e.g. offer an alternative perspective or support

Follow-up

p. 15

- Administer questionnaires
- (If applicable) Before re-starting standard sessions

What's in it for the team?

- Contributing to research on Imagery Rescripting
- Outcome data for a group of clients

Important points

- Become familiar with the manual
- Do not explicitly challenge cognitions
- Draw on clinical experience and skills
- Be creative

Inclusion criteria

- DSM Criterion A trauma – fatal outcome
- Self-reported feelings of Survivor Guilt
- Under the care of a TSS

Appendix W.

Participant travel claim form.

Travel reimbursement

Session 1:

Claim amount: £ _____

Date: _____

Session 2:

Claim amount: £ _____

Date: _____

Follow-up:

Claim amount: £ _____

Date: _____

I confirm that this travel was carried out to participate in the study '*A pilot study of imagery rescripting for survivor guilt after trauma*'. I have attached receipts for each journey.

Participant signature

Date

Participant name

Researcher signature

Date

Researcher name

Appendix X.

Participant opt-in form for receiving a summary of the study results.

Study results opt-in form

Would you like to find out about the results of the study? Please tick:

Yes

No

If yes, please provide your name and address in the box:

Note. The information that we gather as part of the study is kept securely at the Traumatic Stress Service. Your address will not be used for any other purposes and will not be shared with anyone outside the research team. This page will be destroyed when the results of the study are sent out in September 2015.