Open Access

OBM Integrative and Complementary Medicine

LIDSEN Publishing Inc.

Technical Note

Integrating Compassion into EMDR for PTSD

Matthew Whalley [1, †, *], Deborah Lee [2, †]

1. Psychology Tools, Fourth Floor Suite 3, Reading Bridge House, George Street, Reading, RG1 8LS, UK; E-Mail: matthew@psychologytools.com
2. Berkshire Traumatic Stress Service, Erlegh House, Whiteknights Campus, University of Reading, Earley Gate, Whiteknights Road, Reading, RG6 6BZ, UK; E-Mail: Deborah.Lee@berkshire.nhs.uk

† These authors contributed equally to this work.

* **Correspondence:** Matthew Whalley; E-Mail: matthew@psychologytools.com

Academic Editors: Syd Hiskey, Neil Clapton and Marianna Mazza

Special Issue: Compassion Focused Therapy (CFT) – Advances and Innovations

OBM Integrative and Complementary Medicine
2023, volume 8, issue 4
doi:10.21926/obm.icm.2304058

Received: August 15, 2023
Accepted: November 27, 2023
Published: November 30, 2023

Abstract

Post-traumatic stress disorder (PTSD) often involves feeling-states of shame and self-loathing. Traditional exposure-based treatments, which are effective for fear-based PTSD, are sometimes limited in effectiveness when working with these emotional experiences: clients with high levels of shame, guilt, or disgust may experience 'blocks' in processing when attempting eye movement desensitization and reprocessing (EMDR). Developed to help people who suffer from pervasive shame and self-attack, compassion focused therapy (CFT) is based upon an evolutionary framework, and draws on research from human neurobiology and attachment theory to understand how humans respond to different types of threat. This paper describes a protocol for integrating compassion focused techniques into EMDR therapy with the aim of facilitating adaptive information processing. Two case examples outline the use of the protocol and describe clients' reflections on the process. We suggest that CFT approaches can be successfully integrated with EMDR when working with experiences of shame and self-blame.

© 2023 by the author. This is an open access article distributed under the conditions of the Creative Commons by Attribution License, which permits unrestricted use, distribution, and reproduction in any medium or format, provided the original work is correctly cited.

Keywords
Compassion; CFT; eye movement desensitization and reprocessing; emdr; post-traumatic stress disorder; PTSD; shame

1. Introduction

Post-traumatic stress disorder (PTSD) is associated with a wide range of peri- and post-traumatic emotional reactions. Although a majority of clients report having experienced fear during their traumatic event, a significant minority report other primary emotional reactions during and after their trauma. These include shame, guilt, disgust, and anger [1-4]. PTSD responds well to a range of treatments including eye movement desensitization and reprocessing (EMDR) and prolonged exposure (PE) [5]. However, clinicians often report difficulty working with clients who present with feeling-states of shame, self-loathing, or self-criticism [6, 7]. Some authors have suggested that when trauma presentations include a preponderance of non-fear emotions, then treatments involving repeated and prolonged exposure may be less effective [1, 8-10]. Experimental research has demonstrated that some emotional states such as shame and disgust appear to be more resistant to extinction, and that clients experiencing these states may fail to habituate during exposure therapies [11-13]. Some treatment outcome studies have indicated that shame and guilt are associated with poorer outcomes following PE [10, 14] although others have failed to show an effect [15].

Compassion focused therapy (CFT) was developed to help people resolve intense and pervasive feelings of shame, self-loathing, and self-attack. It is a transdiagnostic and integrative psychotherapy which draws on research from social, developmental, evolutionary, and Buddhist psychology, as well as contemporary neurobiology. Its application in treating PTSD where shame is the predominant emotional response has gained momentum in the last two decades [16-20] and there is growing evidence of its utility in alleviating trauma-related shame and PTSD [17, 18, 20-22].

We argue that incorporating CFT approaches within EMDR is a clinically useful approach, particularly with clients who experience a lot of shame and who encounter 'blocks' in processing. Compassion focused approaches have previously been described in the context of EMDR [19, 23] but our approach differs by focusing specifically on optimizing trauma memory desensitization in EMDR using compassion focused approaches. We emphasize that the key insight of the proposed technique is that bringing trauma memories to a care-giving mindset is more effective than bringing them to a mind that is in a threatened state.

2. Compassion Focused Therapy

The compassion focused therapy (CFT) approach developed by Paul Gilbert has the development of self-compassion as one of the goals of psychotherapy. Drawing upon social mentality theory [24, 25], the premise behind CFT is that human beings are highly evolved social organisms that are designed to live, survive, and thrive in groups [26-28]. Human brains have undergone specific adaptations which facilitate such social functioning, with biological 'hardware' that underpins the physiology of affiliative caregiving and helps us to regulate threats in their environments. Healthy

attachments play a vital role ('write the software') in developing a child's capacity to self-soothe. They determine an individual's capacity to receive care, give care, and care for the self in the context of the social group.

In this paper, we have chosen to focus on the components of the approach which we find essential in order to integrate compassion within EMDR desensitization. For a more comprehensive description of this therapeutic approach, refer to Gilbert [29, 30]. For an introduction to CFT in relation to trauma, see Lee & James [18].

2.1 The CFT Model

CFT is built upon modern understandings of affective neuroscience. A central heuristic model of affect regulation in CFT is widely known as the 'three circles' [29]. The model proposes that humans have three major emotional regulation systems, each of which is associated with different neuroanatomy and neurochemistry [31], and which govern an individual's *motivational states*. These three key systems are the 'Threat system' (where the motivation is protection from danger), the 'Drive system' (where the motivation is incentive- and reward-focused), and the 'Soothing system' (where the motivations are affiliative and connection-focused). All of these are described in more detail in the following section.

The three circles model has compelling appeal for the treatment of trauma. PTSD can be conceptualized as a threat-focused mindset maintained predominantly by avoidance. Research suggests that those who struggle with shame and self-criticism have underdeveloped capacities or usage of the soothing system, and tend to respond to feeling threatened with safety seeking behaviors such as avoidance, aggression, appeasement or freezing, rather than engaging soothing physiology by using compassionate self-soothing talk [32]. The CFT model predicts that compassion can be an effective component of trauma treatments: if clients can be trained to engage with their soothing systems and use compassionate self-talk, they may be better able to tolerate their shame-based trauma memories, finding new meanings and compassionate perspectives.

2.2 Motivational States

CFT theory proposes that an individual's motivational state is governed by whichever emotional regulation system is currently most active. These systems are often described to clients as 'mindsets' to make them more relatable.

2.2.1 Threat & Protection-Seeking Mindset

The threat and protection-seeking mindset is the default mode for human beings — we are born primed to recognize threats and to respond in ways that seek safety. In this mindset, the focus of attention is on the threat, physiology is heightened in preparation for action. Common protection-seeking responses include freezing, appeasing, fleeing, and fighting (FAFF) [33].

Internal and external shame are threat-based emotions which emerge from a threatened social mind. Rejection from a social group is a core threat to an individual, and the human mind attends keenly to threats of how other people think of us (external shame) and what we think of ourselves (internal shame). In response to threats of internal and external shame, safety-seeking behaviors

can manifest in affected people's minds or in social context. For instance, they might attack others verbally or physically, or attack themselves (self-criticism and self-harm) [34, 35].

2.2.2 Drive Mindset

An individual in a drive mindset is motivated to achieve, compete, acquire, and win. Feelings associated with achievement are typically short-lived, which can contribute to the reinforcing nature of the drive system. Individuals in this mindset may feel excited, aroused, or energized [29].

2.2.3 Compassionate Mindset

An individual in a compassionate mindset is motivated to engage with and understand the source of any pain or suffering, and act to make it better. This motivation can be directed towards others (compassion) or towards the self (self-compassion), and may drive engagement in soothing self-talk or courageous action. In this mindset, the physiology of threat is inhibited by engagement with the physiology of the care-giving system, which is associated with emotions such as connectedness, calmness, and equanimity [36, 37].

Unlike the threat system (which is thought to be active with little 'training') the compassion system is developed through experiences of being soothed and cared for by others. Most people who had a 'good enough' childhood will have emotional memories of being cared for to use as templates for self-compassion. Individuals with insufficient experiences of soothing will not be able to access this state through memories and may struggle to regulate their emotions effectively [38-40].

This mindset has important attributes and qualities that can be developed and practiced though exercises and training (Compassionate Mind Training: e.g., Gilbert & Procter, [41]). These qualities include warmth, empathy, distress tolerance, distress sensitivity, non-judgment, care for wellbeing, sympathy (see Figure 1). Courage is at the heart of compassion, as it empowers people to move away from things that maintain their suffering [42-44]. Moral courage may be required to be honest or to admit to mistakes for healing to occur.

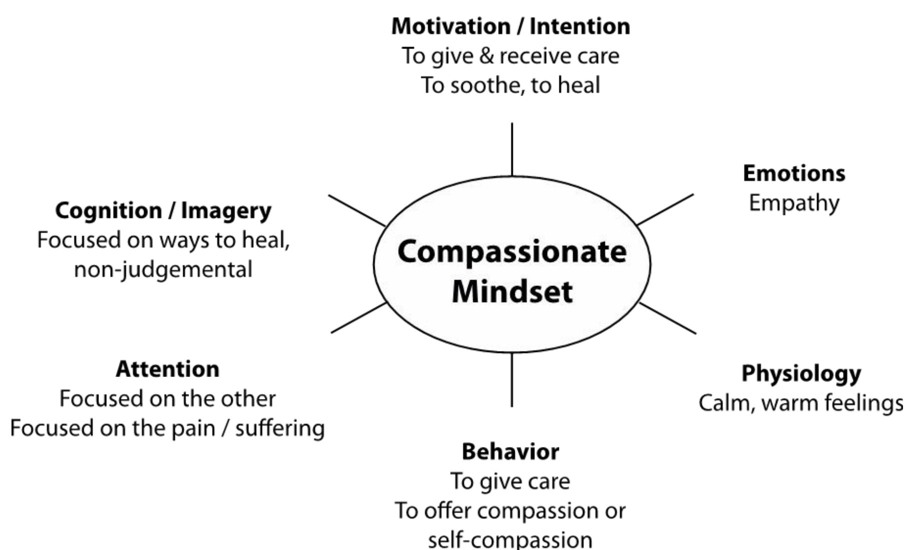

Figure 1 Components of a compassionate mindset.

2.3 The Importance of Self-Compassion

Shame and self-criticism have been linked to psychopathologies such as depression, eating disorders, psychosis, and PTSD (reviewed in Gilbert & Irons, [45]). Negative associations have been observed between measures of self-compassion and PTSD symptoms [46] and between self-compassion and CPTSD [47]. Conversely, numerous strands of research have identified the importance of self-compassion to human wellbeing. It enhances mental health and social security, and it can be trained or developed in those who struggle to be compassionate to themselves [48]. Individuals vary in their ability to access a compassionate mindset and offer themselves compassion. While some clients may be able to regulate threat-based emotions, the care-giving systems of those who have experienced trauma in their childhood (especially in the context of attachment relationships) may become conditioned to memories of abuse, and feelings of threat and shame. Some clients react to being asked to consider self-compassion with confusion, or as if it were a threat. They might feel that they don't deserve it, or believe that it will make them more vulnerable (often described as 'fears, blocks, and resistances' to compassion [49-52]). When self-compassion does not come naturally, clients can benefit from compassionate mind training, which includes psychoeducation, breath work, compassionate imagery, and developing compassionate perspectives on life challenges. The combination of emotion-focused and cognitive techniques helps clients to develop a 'felt sense' of the care-giving mindset. This process can be accessed in more detail in Lee & James [18].

3. Eye Movement Desensitization and Reprocessing (EMDR) Therapy

EMDR is an evidence-based therapy for PTSD [5], grounded upon the adaptive information processing (AIP) model [53-55]. The model proposes that human beings can be conceptualized as processors of information, which is stored in associative memory networks. Pathology within the AIP model is seen to arise from inadequately processed experiences which can be stored in state-specific form and unable to connect with other memory networks. EMDR has developed as a therapeutic approach for processing multi-sensory traumatic memories, and to help clients to integrate more adaptive perspectives into their view of events. Bilateral stimulation is used to facilitate information processing [54]. EMDR has been described as an eight-phase treatment approach incorporating (1) patient history, (2) preparation, (3) assessment, (4) desensitization, (5) installation, (6) body scan, (7) closure, and (8) re-evaluation [56].

3.1 Resource Development and Installation, and Other Techniques for Working with Shame

Clients sometimes experience 'blocks' when using EMDR to process traumatic material. Numerous techniques are recommended to manage obstacles to successful desensitization. One method is to direct the client to change their focus of their attention by, for example, attending to body sensations (which are conceptualized as other nodes in an associative memory network). Alternatively, 'cognitive interweaves' are designed to help clients make connections to adaptive information that otherwise appears inaccessible to them. A client who is 'stuck' believing that childhood abuse was their fault might be asked, "Who is responsible for keeping children safe?". Finally, the 'blind to therapist' procedure can allow clients to complete EMDR without needing to share their story [6].

Leeds [57] introduced the concept of Resource Development and Installation to EMDR as a way of working with clients who would otherwise struggle with standard processing. Incorporating 'ego strengthening' ideas from the hypnotherapeutic literature [58], these techniques focus on "strengthening connections to resources in functional (positive) 'memory networks' while deliberately not stimulating dysfunctional (traumatic) memory networks" and include directing focus towards positive memories / imagery combined with bilateral stimulation. Positive imagery resources are brought 'online' and combined with bilateral stimulation before beginning work to desensitize trauma memories. Within the AIP framework, time spent deliberately installing positive resources is thought to make these ideas more 'available' to adaptive processing within EMDR. Despite some controversy regarding mechanisms [59-61], resource development techniques have been widely accepted amongst clinicians (e.g. Steinert [62]), and RDI is described in the third edition of the EMDR key text [54].

Knipe's 'loving eyes' technique is another method for overcoming blocks in EMDR processing. It involves a combination of bilateral stimulation with (1) encouraging clients to visualize their child self from an observer's perspective, (2) attending to the child self's feelings, and (3) attending to their adult self's feelings about the child. Many clinicians report having found this intervention helpful for encouraging clients to identify with their traumatized self in a less judging way [63].

4. Integrating Compassion Into EMDR

We are not the first to suggest an integration of compassion focused therapy into EMDR. Kennedy [19] describes a detailed protocol for integrating compassion focused approaches into all eight phases of EMDR work, with the specific intention of increasing the effectiveness of EMDR with shame-prone clients. Beaumont & Hollins Martin [23] describe the use of compassion in the context of resource installation. Our approach differs by focusing specifically on optimizing trauma memory desensitization in EMDR using compassion focused approaches. The key insight is that bringing a trauma memory to an engaged compassionate mindset is more productive than bringing a trauma memory to what CFT would conceptualize as a 'threatened mindset' and will lead to more adaptive information processing. Efforts are made to bring 'online' client resources, or to develop them through imagery, and then to sustain the 'online-ness' (as in the power or intensity — e.g. how engaged the client is with this imagery) of these during trauma memory processing.

This protocol brings together 'resource installation', 'window of tolerance', and 'reciprocal inhibition' concepts and is described here in two parts: a preparatory phase (which includes information-giving and compassion imagery exercises), followed by techniques for integrating compassionate mindsets into EMDR desensitization sessions. The client's ability to experience a 'felt sense' of compassion, or to connect with these concepts, will vary depending upon their prior experiences of receiving care. Some clients can bring this state 'online' by recalling an experience in which they felt soothed, and will be able to integrate this into EMDR desensitization relatively quickly, while other clients may have to 'build' such a state from first principles using imagery and flow exercises. The latter work typically takes longer, and has been frequently incorporated into a stabilization phase of trauma work [21]. The protocol is outlined in Table 1 below, followed by scripted sections offering phrasing suggestions.

Table 1 Compassion focused EMDR protocol outline.

Compassion Focused EMDR Protocol For PTSD

Preparation Phase

In the preparation phase the minimum information that the client needs to know about includes:

- CFT 3 circles model.
- Typical motivations when an individual is in each mindset:
  - Threat mindset (default) motivates you to survive and protect. You are likely to behave by freezing, appeasing, flight (avoiding), and fight (which includes self-attack) (FAFF).
  - Drive mindset motivates you to achieve, win, acquire, compete.
  - Compassionate mindset motivates you to 'look after', to 'take care', 'feel soothed', to 'do what is right'.
- The qualities of compassion. Many clients may have the misconception that compassion is simply about 'kindness and fluffiness'. True compassion has a number of key qualities: strength, wisdom, moral courage, warmth, kindness, and empathy.

Processing phase

During an EMDR processing session we would go through the following procedure:

1. Mindful attention — client encouraged to take an observational stance by becoming mindful of the breath.
2. Soothing rhythm breathing — client encouraged to deliberately slow their physiology via the breath. This is framed as 'building the foundations for a compassionate mindset'.
3. Bring online the compassionate mindset (via compassionate memory or imagery, e.g. perfect nurturer).
4. EMDR desensitization.
5. Monitoring & re-activating the compassionate mindset. Processing is enhanced when completed in the compassionate context. Returning to the compassionate mindset, and strengthening or re-activating the compassionate mindset if client deviates from a soothed and calm position (noticing changes in breathing is one way to notice moves away from a compassionate mindset).

(Repeat steps 4 & 5, cycling back and forth until processing complete)

4.1 Psychoeducation

Clients should be aware of the 3 circles model of human emotional regulation systems, an individual's motivations when they are in each mindset, and the qualities of compassion. It is also helpful for the client and therapist to have considered a client's willingness to be self-compassionate. Clients who can identify with the utility of being compassionate to others, and who can identify a 'felt sense' of compassion from past experiences tend to need less preparation than those who need to learn the concepts from 'first principles', and then to work through the fears and blocks of being open to self-compassion. The clinician may need to use metaphors, stories, or guided discovery to get these points across. It may be worth discussing with clients what a young child would need if

they were anxious about performing a new but necessary task. A compassionate response would likely not be to let the child avoid the task, but would involve non-judgmentally supporting the child to act courageously to achieve their goal.

In the preparation phase it is important to determine that the client is able to access the compassionate care-giving mindset. Helpful questions to ask include: "Can you think of a time when you were truly cared for, when you were distressed and you were looked after by someone without being judged?", "Is there anyone you can truly be yourself with, without worrying about being criticized?"

4.2 Developing the Physiological Foundations for Compassion

This phase consists of practical training exercises to develop the mental and physiological 'foundations' of a care-giving mindset.

4.2.1 Mindful Attention

Mindful attention is used to encourage the client to decenter from their mind and body, and start 'noticing' rather than 'experiencing' thoughts, feelings, and body sensations. This helps clients become aware that they can control their attention. Mindful attention can be introduced in the following terms:

> "To access the compassionate mindset, first practice mindful attention. This will help you to step back from your own experiences, and notice what is going on in your mind and body. To begin, turn your attention towards your breathing. Don't try to change it… just notice yourself breathing in and out. If you notice your mind has wandered, bring your attention back to your breath."

4.2.2 Soothing Rhythm Breathing

Breathing exercises encourage clients to breathe in a rhythmical, smooth, and slow pattern of breath, with an elongated out-breath. There is evidence that this increases parasympathetic nervous system activity [64] and help clients access feelings of calmness and composure. For example:

> "Begin to slow your breathing down — breathe slower and deeper. This helps you calm your physiology so that you can enter a compassionate mindset. Bringing your attention to the center of your chest activates your parasympathetic nervous system, which allows your body to relax further. This system prefers regular breathing to the irregular breathing we do when we are anxious. Try to make your out-breath slightly longer than your in-breath."

4.2.3 Smell

It is possible to trigger the felt sense of compassion as a conditioned response by completing mindful attention, breath work, and compassionate images in the presence of a soothing smell [18]. Clients can be encouraged to smell their soothing smell (many use essential oils) to make links between a smell and the physiological feelings of soothing produced by compassionate mind training.

4.2.4 Using Imagery to Enter a Compassionate Mindset

Developing the qualities and skills of a compassionate mindset is a central goal of compassion focused therapy, and they can be developed in group or individual sessions [21, 41]. Entering a compassionate mindset prior to and during EMDR desensitization helps to 'bring online' a sense of feeling soothed with the accompanying motivation to heal distress, and allows clients to access more adaptive perspectives on cognitive and emotional meanings of traumatic experiences. We might introduce this phase as follows:

> "Once your mind and body are calm, we will bring your compassionate, care-giving and care-receiving system online. When we are in this compassionate mindset our motivation is to give and receive care, look after each other, and heal. We do this best if our body is calm, soothed, and settled."

4.2.5 Using Memories to Enter a Compassionate Mindset

Asking clients to access and elaborate an emotional memory of feeling 'cared for' is a helpful way to access feelings of compassion (warmth, empathy, kindness, non-judgment, caring, strength, wisdom). Such memories can be brought online:

> "I want you to remember a time when you went to someone feeling vulnerable and upset, and felt safe, soothed, and not judged. When you felt that it was ok to be you, that you knew that you were safe and not going to be judged. This time when you felt safe to be held in the mind of this other person … this person who wants the best for you … who doesn't judge you … who truly loves you and cares for you, and has the strength to tolerate any distress you bring to them. How does it feel to be with this person? Do you feel warmth, is there a color you associate with these feelings, etc.?"

4.2.6 Using Perfect Nurturer Imagery to Enter a Compassionate Mindset

Some clients may not have emotional memories of feeling cared-for, in which case 'perfect nurturer' imagery is often helpful. The perfect nurturer is imagery of a perfectly compassionate being, which can be rehearsed and elaborated to produce a sense of being cared for (see Lee [17] for further details).

> "Bring to mind your perfect nurturer image. This is a perfectly compassionate being who truly has your best interests at heart, who doesn't judge you and truly cares for you. Notice how it feels to be cared for by this compassionate being who knows you. Feeling safe in the mind of another — this being who knows what you have been though, and who doesn't judge. This being knows what you need, how to offer you comfort, and how give you the strength to do the right thing."

4.2.7 Using the Qualities of Compassion to Enter a Compassionate Mindset

Bring online the qualities of compassion (warmth, strength, non-judgment, wisdom, kindness, empathy), and imagine acting 'as if' you had these qualities.

4.3 Protocol During Memory Desensitization

The aim of this protocol is to bring the trauma memory into the compassionate mindset. Once the compassionate mindset is 'online', the trauma memory is brought to mind and the client begins EMDR desensitization using bilateral stimulation. The stages involved are as follows:

1. Bring the compassionate mind online using a memory or compassionate image, and remind the client of the qualities of compassion and their motivations when in this mindset. Therapists can adopt a didactic, 'information giving' stance in this phase (see scripted section below).
2. Use the standard protocol of EMDR desensitization, including interweaves, whilst in the care-giving mindset.
3. Revivify the compassionate mindset whenever necessary. Encourage the client to re-enter the compassionate mindset as frequently as after every set of bilateral stimulation.

4.3.1 Bringing the Compassionate Mind Online

This phase can be introduced as follows:

"We will add an extra step to the EMDR process this time. Human beings have three basic motivational systems: the threat, drive, and compassion or care-giving 'mindsets'. If you recall a trauma memory with a threatened mindset, your mind will seek safety — by avoiding the memory (a 'flight' response), or by becoming very self-critical (a 'fight' response). The compassionate mind is different. When we are in the compassionate mindset, we feel empathy — for another person's distress or our own. We have the strength to sit with pain and suffering without turning away. The compassionate mindset is non-judgmental, we genuinely want the best for ourselves or another person. When we are being cared for by someone who is truly compassionate, we don't have to keep our guard up, and we don't have to be ready to run away. We will help you bring this mindset online now, before working with your trauma memory."

4.3.2 Bringing a Memory to the Compassionate Image

Once a compassionate mindset has been brought online, EMDR desensitization can begin or continue using the appropriate protocol. Using the standard protocol:

"Now that you are in the compassionate mindset, bring your trauma memory to mind. Think about your target image [description of target image as discussed] and your negative cognition [repeat negative cognition], and notice what you feel in your body." [Begin bilateral stimulation].

4.3.3 Strengthening or Re-Instating the Compassionate Mindset

Some clients will very quickly revert to the threatened mindset, especially when trauma memories are activated. If clients appear to be outside their window of tolerance, or unable to make adaptive connections, they can be helped to recover their compassionate mindset:

"I can see that your physiology has changed, and that your threat system has tried to protect you by coming online. Let's re-set the foundations so that you can re-enter the compassionate mindset. Take a moment to re-center yourself and to settle back into the compassionate

mindset. Begin by getting your breathing back under control: make it slower and deeper, allowing your breathing to settle into a regular rhythm which calms your physiology. Make sure that your out-breath is slightly longer than your in-breath. Bring your compassionate image back online, remembering that the motivation of this mindset is to give care, to look-after, and to heal. The compassionate mind is non-judgmental, it has warmth, kindness, empathy, wisdom, and the strength to do what is right."

5. Case Examples

Two case examples are given of clients who have been treated using this approach. Examples have been anonymized and clients have given their consent for their details to be included in this paper.

5.1 Case Example 1

A.B. was a policewoman who was raped on duty by a colleague whilst in a police car. She presented at the PTSD clinic two years after the rape. She had not disclosed the rape at her assessment, instead reporting that she had only been touched inappropriately. Her psychometric scores indicated high levels of shame and self-criticism, and she displayed high levels of cognitive avoidance and hyperarousal. Her therapeutic goals were to reduce her experiences of nightmares and hyperarousal.

She chose to attempt EMDR to work on her trauma memories and was able to identify a target image of being assaulted in the police car, with a negative cognition of "I'm weak". EMDR was initiated using the standard protocol, but desensitization proceeded relatively slowly. New material would emerge every session, but the client experienced very high levels of physiological arousal despite extensive use of grounding techniques, safe place exercises, and techniques to view the images from a distance. Psychoeducation was given when appropriate, including information about involuntary sexual arousal during sexual assault [65], a scientific model of the threat cascade incorporating the 'fright' response, which is associated with physical immobility [66]. Offline (non-EMDR) cognitive restructuring addressing blame for the attack, and the client and the perpetrators' motivations to assault / be assaulted were used to address negative client self-beliefs. This work led to cognitive but not affective change, and subsequently formed the basis of interweaves.

A.B. was distressed by disgust imagery during processing — particularly associated with pain flashbacks [67, 68]. Imagery of purity and cleanliness was paired with disgust imagery using a 'split screen' technique [69] to address points of blocked processing around physical disgust. The client found some relief with this technique, but processing around physical sensations of the rape continued to arouse high levels of distress and processing of the event remained blocked to a considerable degree.

The client found it very difficult to articulate any cognitions around her experiences. During session 13, she was able to identify a touchstone memory of being age 12 and feeling very powerless while sitting on the bed next to her mother as her father physically abused them both. Her negative cognition was "I'm helpless (and I should have done something to stop it)". One session was spent using the standard protocol with this touchstone memory, but the client did not experience any change in subjective distress. During session 14, the clinician introduced A.B. to ideas about compassion and suggested they explore the touchstone memory from that mindset. The client was

able to identify a strong memory of being with a friend by whom she did not feel judged, and in whose company she felt safe. She was able to access this memory strongly using imagery. She identified a warm yellow-orange color ("like a sunset") which represented the compassionate feelings. When EMDR desensitization to the touchstone memory was attempted within this compassionate context A.B. quickly reached a SUDS (Subjective Units of Distress Scale) of 0, and installed her (new) positive cognition "It's not my fault".

The focus of therapy moved back to the memory of the rape, during which she had also felt powerless. Desensitization was completed in the context of compassionate image, paying particular attention to physiological soothing with strengthening of the compassionate imagery every time the client's physiology deviated from an extremely relaxed and soothed state. A number of interweaves were introduced to unblock processing including "Are you powerless anymore?", and a request to say "[Perpetrator's name] this is not your fault. This is my fault. I didn't fight back" (paradoxical injunction). In the compassionate mindset, the client quickly identified with compassionate (non-critical) responses. After 2 sessions, A.B. spontaneously brought up ideas about needing to forgive herself. By the end of therapy (16 sessions total), her SUDS were zero and the positive cognition "I'm strong now" had been installed. After the penultimate session, A.B. wrote a narrative account of the rape — using the word 'rape' for the first time and incorporating multiple compassionate perspectives.

At the end of therapy, A.B. was invited to compare her experience of the standard protocol to EDMR incorporating compassion. She reflected that with compassion she was less defensive, more able to identify thoughts and feelings, and could get 'closer' to the images without dissociation. Comparing the two types she said, "It's completely different. It was hard keeping my breathing steady when the panic would come in, but it made a difference, because when the panic came up I would only get up to a [SUDS of] 6 … It was helpful getting to the compassionate place before the memory because it changed the scenery. It was like I was looking at the memory from a different point of view. … I can't believe I thought it was my fault all my life … I do have some of that compassion shit after all (laughs)". Reflecting on the process during the final session, she reported "I don't think I would have let my defenses down [using standard EMDR protocol], we could have been here for 2 years".

5.2 Case Example 2

C.D. was a 50-year-old woman who had experienced multiple traumatic events throughout her life. She experienced emotional neglect from her mother, was sexually abused by a neighbor from the ages of 8–12, experienced domestic violence during her 20's and 30's, and had been the victim of an attempted rape a few years prior to therapy (her attackers had gone on to rape another woman later that night). Her goals at assessment were to be less negative and self-critical, and to have a reduction in re-experiencing her trauma. She reported that she was not hopeful of a positive outcome.

Following the development of safe place imagery, C.D. was able to successfully process her recent trauma using the standard protocol, achieving a SUDS of 0 in 4 sessions. She subsequently agreed to begin working with her memories of childhood sexual abuse. She felt able to begin by working with what she identified as the 'first' and 'worst' event, and identified feelings of fear and disgust, with negative cognitions of "I'm dirty" and "It's my fault". EMDR desensitization was

attempted using the standard protocol, and C.D. experienced a degree of dissociation during initial sessions working with this memory. She also experienced frequent blocks in processing, where she would 'bottom out' around themes of self-blame ("I should have done something different") and self-critical dialogue.

C.D. and her therapist agreed to pause EMDR desensitization and spent some time reviewing the three circles model of compassion, then developing a compassionate image based upon real memories. She was able to feel a definite physical soothing when accessing memories relating to her grandmother, who had been her sole source of nurturing during her childhood, and she reported feeling calmer and safer. A combination of physiological soothing and an image of being soothed by her grandmother was integrated into the EMDR desensitization, but despite C.D. reporting that she felt calmer, blocks continued to occur. For example, when interweaves were used to assist C.D. in accessing compassionate perspectives, (e.g. "would your compassionate figure agree with that assessment of this situation?") her answers were sometimes confused with what this grandmother had actually said and done, or how she feared her grandmother might react if she knew the truth.

In response, C.D. and her therapist re-explored the qualities of compassion, and worked to develop a 'perfect nurturer' image which embodied these qualities [16]. C.D's image was of a tom-cat named Tom. Her image of Tom was clear and vivid, and she experienced a notable softening in affect when she brought him (in imagery) to the sessions. C.D. reported that bringing online her perfect nurturer image before sets of EMDR desensitization was extremely helpful. Within 4 sessions her SUDS for the first/worst event were at 0. And her VoC (Validity of Cognition) in the positive cognition "It's not my fault" was 4. One non-EMDR session was spent exploring the consequences of C.D. relinquishing her sense of self-blame for the abuse, and she was set homework of writing a compassionate letter to her younger self. During the subsequent therapy session desensitization was completed for this event (SUDS = 0, VoC = 7), and upon re-assessment C.D. did not feel that she needed any further EMDR to her experiences of abuse. Her PTSD severity was significantly reduced by the end of therapy, and she was PTSD-free at follow-up.

A few months after the completion of her therapy, C.D. was invited to reflect upon her experience of EMDR. She reported that the integration of compassion made the process of desensitization feel less aversive — and that were it not for the use of the compassionate imagery, she may have chosen to disengage after 4 or 5 sessions, as she was finding the process too intense. She reflected that although the compassionate memory of her grandmother had been physiologically soothing, she was still afraid of upsetting her grandmother ("I didn't want her to say 'you should have told me' and feel disappointed in me"). She reflected that her perfect nurturer image of a cat embodied all of the qualities of her grandmother, without being bound up with worries about how that person might react. She described feeling shame in the context of disclosing her abuse to another person, but that the perfect nurturer image of the cat "didn't count because it had already seen all the abuse, and I didn't get any judgement from it, so I felt safer with it there". She also described experiencing encouragement from her perfect nurturer, that it would "encourage me to tell you everything, because I knew I needed to, and might not get this opportunity again". C.D. also reported that her nurturing image spontaneously interacted with her trauma imagery — she gave an example of a memory of being in the abuser's kitchen and being threatened by him not to tell anyone. Using compassion focused EMDR she experienced seeing her cat image walking around the perpetrator and say to her "he's lying to you, don't listen to him", and on multiple occasions experienced the cat coming between her and the perpetrator and baring its

claws at him. Finally, she reported that being allowed to 'leave' Tom in the therapy room with the memories during the time between sessions allowed her to leave feeling unencumbered.

6. Discussion

Both PTSD and shame can be effectively treated with EMDR therapy [5, 70], but clinicians often find that clients experiencing high levels of shame or self-criticism frequently experience blocks during processing [6, 7]. Clients who have a lot of shame and self-criticism are more likely to experience ruptures during therapy [71] and may fail to benefit from cognitive and behavioral therapies despite becoming skilled in generating alternatives to their negative thoughts or beliefs [72]. Compassion focused therapy (CFT) is a psychotherapeutic approach developed for working with blocks associated with shame and self-criticism, and CFT practitioners have developed a wide range of exercises and tools for accessing and installing compassionate resources (e.g. [73]). We suggest that bringing trauma memories to a care-giving mindset is more productive than bringing them to a mind that is in a threatened state [18, 29]. The protocol described here integrates memory processing in EMDR with elements of CFT with the aim of facilitating adaptive information processing. It will be accessible to clinicians already familiar with both approaches, and we provide guidance concerning the stages we consider important.

The steps in our protocol can be considered an addition to phase 2 of the standard protocol, 'resource installation', in which alternative ways of thinking about and relating to oneself are brought online prior to desensitization, thereby making such material more available for adaptive processing within EMDR. Although some clients are able to access compassionate resources relatively quickly via emotional memories, others do not possess an emotional understanding of safety or nurturing, and may need significant psychoeducation before being able to generate effective compassionate imagery [29]. An additional process with this compassion focused approach is the emphasis on keeping the client in a compassionate mind-state during EMDR processing, re-engaging this mindset as necessary.

Although an important limitation is that our practices do not currently have formal empirical support, post-therapy reflections from clients with whom we used the techniques described in this paper support the position that they find it easier to tolerate shameful memories during EMDR processing when the memories are taken to a compassionate mindset (e.g., "It was like I was looking at the memory from a different point of view", "I don't think I would have let my defenses down [using standard EMDR protocol]", "[with my compassionate image present] I didn't feel any more of shame … I was able to talk more freely").

Reciprocal inhibition may be a helpful way of conceptualizing the role of compassion within EMDR desensitization. Wolpe's [74] theory of reciprocal inhibition argues that two incompatible psychological states cannot exist simultaneously [75] and that the induction of, say, relaxation during exposure to phobic stimuli facilitates the extinction of fear. Gilbert has likened the operation of CFT to "a reciprocal inhibition model to the extent that by creating physiological patterns for compassion, one is stimulating for example the vagus nerve which is a natural evolved regulator of threat processing" [76]. With reference to other anxiety conditions, it has been noted that although relaxation has not been found to be an essential component of exposure treatment [77], anxious clients who are able to feel relaxed in the presence of a phobic stimulus might feel empowered by such an event, resulting in adaptive belief change [78] or new inhibitory learning [79]. The CFT model

suggests that if a client can be helped to enter a soothing or affiliative motivational state this will inhibit the operation of threat responses — in the compassionate mindset they are able to access non-traumatized cognitions and perspectives, and subsequently to think and feel differently about their experiences. Such a conceptualization would appear to be consistent with Shapiro's AIP model whereby a focus on traumatic material accompanied by bilateral stimulation helps clients to access more adaptive perspectives upon their experiences [53-55].

One testable hypothesis is that any benefits of the present protocol are attributable simply to physiological relaxation due to the additional emphasis this protocol places upon physiological arousal. We aim to test this by comparing this enhanced protocol with one which emphasizes physical relaxation prior to each set of bilateral stimulation.

Acknowledgments

We would like to thank the clients who gave their permission for their case material and feedback to be included in this paper.

Author Contributions

Both authors contributed equally to this work.

Competing Interests

Matthew Whalley is a director and shareholder in Psychology Tools Limited, a specialist mental health publisher.

References

1. Lee DA, Scragg P, Turner S. The role of shame and guilt in traumatic events: A clinical model of shame-based and guilt-based PTSD. Br J Med Psychol. 2001; 74: 451-466.
2. Grey N, Young K, Holmes E. Cognitive restructuring within reliving: A treatment for peritraumatic emotional "hotspots" in posttraumatic stress disorder. Behav Cogn Psychother. 2002; 30: 37-56.
3. Holmes EA, Grey N, Young KA. Intrusive images and "hotspots" of trauma memories in posttraumatic stress disorder: An exploratory investigation of emotions and cognitive themes. J Behav Ther Exp Psychiatry. 2005; 36: 3-17.
4. DeCou CR, Lynch SM, Weber S, Richner D, Mozafari A, Huggins H, et al. On the association between trauma-related shame and symptoms of psychopathology: A meta-analysis. Trauma Violence Abuse. 2023; 24: 1193-1201.
5. Cusack K, Jonas DE, Forneris CA, Wines C, Sonis J, Middleton JC, et al. Psychological treatments for adults with posttraumatic stress disorder: A systematic review and meta-analysis. Clin Psychol Rev. 2016; 43: 128-141.
6. Blore DC, Holmshaw EM, Swift A, Standart S, Fish DM. The development and uses of the "blind to therapist" EMDR protocol. J EMDR Pract Res. 2013; 7: 95-105.
7. Parnell L. A therapist's guide to EMDR: Tools and techniques for successful treatment. New York, NY, US: WW Norton & Company; 2007.

8. Grey N, Holmes E, Brewin CR. Peritraumatic emotional “hot spots” in memory. Behav Cogn Psychother. 2001; 29: 367-372.
9. Resick PA, Schnicke MK. Cognitive processing therapy for sexual assault victims. J Consult Clin Psychol. 1992; 60: 748-756.
10. Grunnert BK, Smucker MR, Weis JM, Rusch MD. When prolonged exposure fails: Adding an imagery-based cognitive restructuring component in the treatment of industrial accident victims suffering from PTSD. Cogn Behav Pract. 2003; 10: 333-346.
11. Kubany ES, Manke FP. Cognitive therapy for trauma-related guilt: Conceptual bases and treatment outlines. Cogn Behav Pract. 1995; 2: 27-61.
12. Olatunji BO, Wolitzky Taylor KB, Willems J, Lohr JM, Armstrong T. Differential habituation of fear and disgust during repeated exposure to threat-relevant stimuli in contamination-based OCD: An analogue study. J Anxiety Disord. 2009; 23: 118-123.
13. Mason EC, Richardson R. Looking beyond fear: The extinction of other emotions implicated in anxiety disorders. J Anxiety Disord. 2010; 24: 63-70.
14. Grunert BK, Weis JM, Smucker MR, Christianson HF. Imagery rescripting and reprocessing therapy after failed prolonged exposure for post-traumatic stress disorder following industrial injury. J Behav Ther Exp Psychiatry. 2007; 38: 317-328.
15. Langkaas TF, Hoffart A, Øktedalen T, Ulvenes PG, Hembree EA, Smucker M. Exposure and non-fear emotions: A randomized controlled study of exposure-based and rescripting-based imagery in PTSD treatment. Behav Res Ther. 2017; 97: 33-42.
16. Lee DA. The perfect nurturer: A model to develop a compassionate mind within the context of cognitive therapy. In: Compassion: Conceptualisations, research and use in psychotherapy. New York, NY, US: Routledge; 2005. pp. 326-351.
17. Lee DA. Compassion-focused cognitive therapy for shame-based trauma memories and flashbacks in post-traumatic stress disorder. In: A casebook of cognitive therapy for traumatic stress reactions. New York, NY, US: Routledge; 2009. pp. 246-262.
18. Lee D, James S. Recovering from trauma using compassion focused therapy. London, UK: Robinson; 2012.
19. Kennedy A. Compassion-focused EMDR. J EMDR Pract Res. 2014; 8: 135-146.
20. Au TM, Sauer Zavala S, King MW, Petrocchi N, Barlow DH, Litz BT. Compassion-based therapy for trauma-related shame and posttraumatic stress: Initial evaluation using a multiple baseline design. Behav Ther. 2017; 48: 207-221.
21. Lee D. Case conceptualisation in complex PTSD: Integrating theory with practice. Case formulation in cognitive behaviour therapy: The treatment of challenging and complex cases. London, UK: Routledge; 2015.
22. Winders SJ, Murphy O, Looney K, O'Reilly G. Self-compassion, trauma, and posttraumatic stress disorder: A systematic review. Clin Psychol Psychother. 2020; 27: 300-329.
23. Beaumont E, Martin CJ. Using compassionate mind training as a resource in EMDR: A case study. J EMDR Pract Res. 2013; 7: 186-199.
24. Gilbert P. Compassion as a social mentality. Compassion: Concepts, research and applications. Oxford, UK: Taylor & Francis; 2017. pp. 31-68.
25. Hermanto N, Zuroff DC. The social mentality theory of self-compassion and self-reassurance: The interactive effect of care-seeking and caregiving. J Soc Psychol. 2016; 156: 523-535.
26. Gilbert P. Human nature and suffering. Hove, UK: Lawrence Erlbaum Associates Ltd; 1989.

27. Gilbert P. Evolutionary approaches to psychopathology: The role of natural defences. Aust N Z J Psychiatry. 2001; 35: 17-27.
28. Gilbert P. Compassion and cruelty: A biopsychosocial approach. In: Compassion: Conceptualisations, research and use in psychotherapy. London, UK: Routledge; 2005. pp. 9-74.
29. Gilbert P. Introducing compassion-focused therapy. Adv Psychiatr Treat. 2009; 15: 199-208.
30. Gilbert P. The origins and nature of compassion focused therapy. Br J Clin Psychol. 2014; 53: 6-41.
31. Depue RA, Morrone Strupinsky JV. A neurobehavioral model of affiliative bonding: Implications for conceptualizing a human trait of affiliation. Behav Brain Sci. 2005; 28: 313-350.
32. Gilbert P, Irons C. Compassion focused therapy. London, UK: Routledge; 2010.
33. Kozlowska K, Walker P, McLean L, Carrive P. Fear and the defense cascade: Clinical implications and management. Harv Rev Psychiatry. 2015; 23: 263-287.
34. Gilbert P, Woodyatt L. An evolutionary approach to shame-based self-criticism, self-forgiveness, and compassion. In: Handbook of the psychology of self-forgiveness. Cham, Switzerland: Springer; 2017. pp. 29-41.
35. Gilbert P. Distinguishing shame, humiliation and guilt: An evolutionary functional analysis and compassion focused interventions. In: The bright side of shame: Transforming and growing through practical applications in cultural contexts. Cham, Switzerland: Springer; 2019. pp. 413-431.
36. Kelly AC, Zuroff DC, Leybman MJ, Gilbert P. Social safeness, received social support, and maladjustment: Testing a tripartite model of affect regulation. Cognit Ther Res. 2012; 36: 815-826.
37. Armstrong III BF, Nitschke JP, Bilash U, Zuroff DC. An affect in its own right: Investigating the relationship of social safeness with positive and negative affect. Pers Individ Differ. 2021; 168: 109670.
38. Kelly AC, Dupasquier J. Social safeness mediates the relationship between recalled parental warmth and the capacity for self-compassion and receiving compassion. Pers Individ Differ. 2016; 89: 157-161.
39. Sloman L, Taylor P. Impact of child maltreatment on attachment and social rank systems: Introducing an integrated theory. Trauma Violence Abuse. 2016; 17: 172-185.
40. Matos M, Gouveia JP, Duarte C. Constructing a self protected against shame: The importance of warmth and safeness memories and feelings on the association between shame memories and depression. Int J Psychol Psychol Ther. 2015; 15: 317-335.
41. Gilbert P, Procter S. Compassionate mind training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. Clin Psychol Psychother. 2006; 13: 353-379.
42. Gilbert P. The evolution and social dynamics of compassion. Soc Personal Psychol Compass. 2015; 9: 239-254.
43. Gilbert P. Compassion: From its evolution to a psychotherapy. Front Psychol. 2020; 11: 3123.
44. Clapton N, Hiskey S. Radically embodied compassion: The potential role of traditional martial arts in compassion cultivation. Front Psychol. 2020; 11: 555156.
45. Gilbert P, Irons C. Focused therapies and compassionate mind training for shame and self-attacking. In: Compassion: Conceptualisations, research and use in psychotherapy. Hove, UK: Routledge; 2005. pp. 263-325.

46. Maheux A, Price M. Investigation of the relation between PTSD symptoms and self-compassion: Comparison across DSM IV and DSM 5 PTSD symptom clusters. Self Ident. 2015; 14: 627-637.
47. Karatzias T, Hyland P, Bradley A, Fyvie C, Logan K, Easton P, et al. Is self-compassion a worthwhile therapeutic target for ICD-11 complex PTSD (CPTSD)? Behav Cogn Psychother. 2019; 47: 257-269.
48. Neff KD, Germer CK. A pilot study and randomized controlled trial of the mindful self-compassion program. J Clin Psychol. 2013; 69: 28-44.
49. Miron LR, Sherrill AM, Orcutt HK. Fear of self-compassion and psychological inflexibility interact to predict PTSD symptom severity. J Contextual Behav Sci. 2015; 4: 37-41.
50. Miron LR, Seligowski AV, Boykin DM, Orcutt HK. The potential indirect effect of childhood abuse on posttrauma pathology through self-compassion and fear of self-compassion. Mindfulness. 2016; 7: 596-605.
51. Boykin DM, Himmerich SJ, Pinciotti CM, Miller LM, Miron LR, Orcutt HK. Barriers to self-compassion for female survivors of childhood maltreatment: The roles of fear of self-compassion and psychological inflexibility. Child Abuse Negl. 2018; 76: 216-224.
52. Steindl S, Bell T, Dixon A, Kirby JN. Therapist perspectives on working with fears, blocks and resistances to compassion in compassion focused therapy. Couns Psychother Res. 2023; 23: 850-863.
53. Shapiro F. New notes on adaptive information processing. Hamden, CT, US: EMDR Humanitarian Assistance Programs; 2006.
54. Shapiro F. Eye movement desensitization and reprocessing (EMDR) therapy: Basic principles, protocols, and procedures. 3rd ed. New York, US: Guilford Publications; 2017.
55. Solomon RM, Shapiro F. EMDR and the adaptive information processing modelpotential mechanisms of change. J EMDR Pract Res. 2008; 2: 315-325.
56. Shapiro F. EMDR therapy: An overview of current and future research. Eur Rev Appl Psychol. 2012; 62: 193-195.
57. Leeds AM. EMDR case formulation symposium. Paper presented at the annual meeting of the International EMDR Association; 1995; Santa Monica, CA, US.
58. Brown DP, Fromm E. Hypnotherapy and hypnoanalysis. Hillsdale, NJ, US: Erlbaum; 1986.
59. Hornsveld HK, Houtveen JH, Vroomen M, Kapteijn I, Aalbers D, van den Hout MA. Evaluating the effect of eye movements on positive memories such as those used in resource development and installation. J EMDR Pract Res. 2011; 5: 146-155.
60. Leeds AM, Korn DL. A commentary on Hornsveld et al. (2011): A valid test of resource development and installation? Absolutely not. J EMDR Pract Res. 2012; 6: 170-173.
61. Hornsveld HK, de Jongh A, ten Broeke E. Stop the use of eye movements in resource development and installation, until their additional value has been proven: A rejoinder to Leeds and Korn (2012). J EMDR Pract Res. 2012; 6: 174-178.
62. Steinert C, Bumke PJ, Hollekamp RL, Larisch A, Leichsenring F, Mattheß H, et al. Treating post-traumatic stress disorder by resource activation in Cambodia. World Psychiatry. 2016; 15: 183-185.
63. Knipe J. Loving eyes: Procedures to therapeutically reverse dissociative processes while preserving emotional safety. Healing the heart of trauma and dissociation with EMDR and ego state therapy. New York: Springer; 2008. pp. 181-225.

64. Busch V, Magerl W, Kern U, Haas J, Hajak G, Eichhammer P. The effect of deep and slow breathing on pain perception, autonomic activity, and mood processing-an experimental study. Pain Med. 2012; 13: 215-228.
65. Levin RJ, van Berlo W. Sexual arousal and orgasm in subjects who experience forced or non-consensual sexual stimulation-a review. J Clin Forensic Med. 2004; 11: 82-88.
66. Elbert T, Schauer M. Dissociation following traumatic stress. J Psychol. 2010; 218: 109-127.
67. Macdonald B, Salomons TV, Meteyard L, Whalley MG. Prevalence of pain flashbacks in posttraumatic stress disorder arising from exposure to multiple traumas or childhood traumatization. Can J Pain. 2018; 2: 48-56.
68. Whalley MG, Farmer E, Brewin CR. Pain flashbacks following the July 7th 2005 London bombings. Pain. 2007; 132: 332-336.
69. Spiegel D. Dissociation and hypnosis in post-traumatic stress disorders. J Trauma Stress. 1988; 1: 17-33.
70. Balcom D, Call E, Pearlman DN. Eye movement desensitiztion and reprocessing treatment of internalized shame. Traumatology. 2000; 6: 69-83.
71. Gilbert P, Leahy RL. The therapeutic relationship in the cognitive behavioral psychotherapies. London, UK: Routledge; 2007.
72. Rector NA, Bagby RM, Segal ZV, Joffe RT, Levitt A. Self-criticism and dependency in depressed patients treated with cognitive therapy or pharmacotherapy. Cognit Ther Res. 2000; 24: 571-584.
73. Lucre K, Clapton N. The compassionate kitbag: A creative and integrative approach to compassion-focused therapy. Psychol Psychother. 2021; 94: 497-516.
74. Wolpe J. Psychotherapy by reciprocal inhibition. Cond Reflex. 1968; 3: 234-240.
75. Tryon WW. Possible mechanisms for why desensitization and exposure therapy work. Clin Psychol Rev. 2005; 25: 67-95.
76. Gilbert P. Personal communication. 2017.
77. McNally RJ. Mechanisms of exposure therapy: How neuroscience can improve psychological treatments for anxiety disorders. Clin Psychol Rev. 2007; 27: 750-759.
78. Parrish CL, Radomsky AS, Dugas MJ. Anxiety-control strategies: Is there room for neutralization in successful exposure treatment? Clin Psychol Rev. 2008; 28: 1400-1412.
79. Craske MG, Treanor M, Conway CC, Zbozinek T, Vervliet B. Maximizing exposure therapy: An inhibitory learning approach. Behav Res Ther. 2014; 58: 10-23.