

Emotional Response to a Therapeutic Technique; Broad Minded
Affective Coping (BMAC)

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Introductory Chapter: Thesis Overview

This thesis focuses on a model of affect regulation; Gilbert's (2005) three systems model, to explore emotional reactions to mental imagery. Compassion focussed imagery (CFIm) is the focus of the literature review as this is a specific type of mental imagery which is grounded in a coherent model of affect regulation. The empirical paper then aims to explore individuals' emotional reactions to the mental imagery of a positive social memory. The three systems model, along with findings from the literature review are drawn upon to inform the hypotheses for the empirical paper. A concluding chapter, which includes a lay summary and a future research proposal then follows. Each chapter is described in more detail in this overview.

Chapter 1

Chapter 1 contains the systematic review. The review is intended for publication and the target journal is *Clinical Psychology Review*. The paper consists of an abstract, introduction, method, results, and discussion.

The introduction provides a rationale for the review; discussing the theory behind compassion focussed therapy (CFT) and its use of compassion focused imagery (CFIm), with reference to the effect of imagery on emotions and the role of a coherent model of affect regulation in understanding different emotional reactions to imagery. The main aims of the review are provided; to explore the efficacy of CFIm as a standalone technique; to discover if CFIm can increase feelings of safeness, contentment and soothing and decrease feelings of threat; and to explore how factors such as self-criticism, attachment and social safeness affect individual responses to CFIm. A systematic review and narrative synthesis of empirical studies that have used CFIm then follows. The results of these studies are then discussed in light of the aims of this review.

Chapter 2

Chapter 2 contains the empirical paper. The paper is intended for publication and the target journal is *Emotion*. The paper consists of an abstract, introduction, method, results, and discussion.

The introduction describes The Broad Minded Affective Coping (BMAC; Tarrrier 2010) technique along with the aims of the study; to investigate individuals' emotional reactions to the mental imagery of a positive social memory using the BMAC technique and to examine possible predictors of individuals' responses to this intervention. A rationale for the study is provided with the discussion of key theoretical concepts and models and previous research finding in this area. The hypotheses for the present study are then provided.

The method section provides a description of the participants, measures and procedures involved in the study, together with a description of the data analysis procedure. The results section then follows with the use of tables and figures to illustrate the main findings.

The discussion provides an explanation and interpretation of the results with reference to previous theories and research discussed in the introduction section. Methodological considerations of the study are discussed, as well as implications for clinical practice and future research.

Chapter 3

Chapter 3 is the concluding chapter and is split into four sections. First, a brief overview of the thesis is provided along with the key findings. Methodological considerations that have not already been discussed in the empirical paper are then presented. A section on future directions of research then follows, in which possible ideas for future study designs are

discussed and an outline of a future research proposal is provided. Finally a lay summary of the research is presented.

Chapter 1

Literature Review

Compassion Focused Imagery: A Systematic Review of the Literature¹

¹ This manuscript will be submitted to Clinical Psychology Review, author guidelines can be found in Appendix A

Abstract

It is well acknowledged that imagery can evoke strong emotions. This review focuses on imagery that is used within compassion focused therapy (CFT). Particular attention is paid to a specific model of affect regulation in understanding the effect that imagery has on emotion. Empirical studies which have explored the efficacy of compassion focused imagery (CFIm) are reviewed and summarised. It is found that CFIm improves outcomes for a range of client groups but at a similar rate to other techniques. Individuals with attachment difficulties, high levels of self criticism, and low levels of social safeness find it more difficult to receive compassionate imagery and to feel soothed by it. It is suggested that more research is needed in this area with appropriate control groups.

Keywords: compassion, imagery, emotion, affiliative, soothing, threat

Introduction

It is well acknowledged that imagery can affect us both emotionally and physiologically. For example, imagining food can make us salivate; imagining losing someone you care for can make you feel sad. Even images that are not personally meaningful can evoke strong emotional responses (Holmes, Mathews, Mackintosh, & Dalgleish, 2008). The aims of the current review are to summarize the existent literature in regards to the efficacy of a particular type of imagery; compassion focused imagery (CFIm). The introduction will provide a rationale for the review; discussing the theory behind compassion focussed therapy (CFT) and its use of compassion focused imagery, with reference to the effect of imagery on emotions and the role of a coherent model of affect regulation in understanding different emotional reactions to imagery.

Mental Imagery and Emotion

The role of imagery in evoking emotion has been reviewed by Holmes and Matthews (2010). They suggest that imagery can evoke emotion in three main ways: emotional systems in the brain can respond to imagery directly, bypassing higher order systems; the overlapping pattern of how we respond to real perceptions and to imagery leads to images being interpreted in the same way as real emotional events; and image memories can reactivate feelings already associated with that event in memory as well as evoking additional emotions generated by the created image. Findings that imagery can create similar emotional responses to the event itself paved the way for imagery-based treatments such as systematic desensitisation (Lang, Cuthbert & Bradley, 1998). Imagery rescripting techniques, in which the content of emotion inducing images are modified, are also used in cognitive behavioural therapy (CBT) for a range of clinical difficulties such as PTSD, depression and phobias (Holmes, Arntz & Smucker, 2007). In addition, the Broad Minded Affective Coping (BMAC)

technique has been used in CBT to elicit positive affect through the use of mental imagery of a positive memory (Tarrier, 2010). This technique has been found to increase hope and happiness in individuals with psychosis (Johnson, Gooding, Wood, Fair, & Tarrier, 2012).

Imagery is a key technique that features across multiple therapy modalities. CBT has used imagery to good effect (Holmes, Arntz & Smucker, 2007) and is the recommended treatment for a range of disorders (NICE, 2008). However, some individuals, especially those with high levels of shame or who are highly self critical, do less well with traditional therapies such as CBT (Rector et al., 2000). Gilbert and Irons (2005) suggests that this is because although the individual can see the logic in generating alternative thoughts, they are not able to feel any different, often experiencing alternative thoughts in a cold or hostile way. It is difficulties such as this which have paved the way for third wave therapies, with a shift away from content of thoughts to more of a focus on meta-cognition, emotions, mindfulness and acceptance (Hayes, Strosahl, & Wilson, 1999; Segal, Williams, & Teasdale, 2002). CFT is one such therapy that has emerged from CBT, but which has a coherent theory of affect regulation.

The role of mental imagery in emotion and emotional disorders has already been extensively reviewed elsewhere (Holmes & Matthews, 2010). CFIm represents a specific therapeutic technique, based around a particular use of imagery specifically designed to stimulate the affiliative system as described by Depue & Morrone-Strupinsky (2005), which draws on the three systems theory of affect regulation (Gilbert, 2005). No existing review of this technique exists and recent published papers which have focused on evaluating this technique were not included in the review by Holmes and Matthews (2010). Therefore a review focussing specifically on the use of CFIm is warranted.

The Three-Systems Model of Affect Regulation

Having a model of affect regulation allows for the formulation of different reactions to imagery. Depue and Morrone-Strupinsky (2005) argued for a distinction between a dopamine seeking, drive-based, reward system and a separate affiliative system which underlies social bonding. Based on evolutionary theory and findings from neuroscience and attachment research, Gilbert (2005) proposed that there are actually three types of emotional systems; a threat and protection system, a drive-based reward system, and an affiliative system of contentment, soothing and safeness; which interact with each other to co-ordinate affect regulation. The affiliative system is seen as the main regulator of the threat system, dampening this down and allowing for a sense of social safeness, but threat can also regulate the affiliative system when needed (Gilbert et al., 2008). This theory is supported by the finding that social safeness is an emotional response to affiliation, which may then protect against psychosocial suffering (Kelly, Zuroff, Leybman & Gilbert, 2012). The aim of CFIm is to stimulate the ‘affiliative system’, with the aim of increasing soothing positive affect, reducing feelings of threat, and increasing feelings of social safeness.

The affiliative system is thought to develop through early caregiving experiences. Positive attachment and affiliative relationships, operating through an oxytocin-opiate system, have been found to be soothing, to reduce threat, to alter pain thresholds and to have a positive effect on the immune system (Carter, 1998; Cozolino 2006; Depue & Morrone-Strupinsky, 2005; Panksepp, 1998). Drawing from attachment theory (Bowlby, 1969), if a parent is able to soothe their child when the child becomes distressed, they will stimulate pathways in their child’s brain that will enable the child to develop soothing mental representations of themselves and others; facilitating self-soothing later in life (Cozolino, 2006). In contrast, children who have not experienced much early soothing from their

parents/carers will not have soothing mental representations of themselves and others (Mikulincer & Shaver, 2007). For these individuals, the affiliative system may not be as well developed and so they may have more difficulty regulating threat. The inability to effectively regulate threat can have numerous consequences to an individual's mental health (Bowlby, 1969; Gerhardt, 2004); increasing an individual's ability to self-soothe would therefore appear to be an important target for therapeutic intervention.

Gilbert and Procter (2006) have defined shame as seeing yourself as inadequate, flawed or bad (internal shame) and/or seeing yourself existing in the minds of others as someone who is rejectable (external shame). It has been found that individuals with high levels of shame or who are self-critical find it difficult to generate self-soothing images for themselves but find it easier to imagine a self-critical part of themselves that is hostile, powerful and controlling (Gilbert et al., 2006). These individuals can often become locked into a cycle when they are faced with stress; becoming ruminative, self-critical and possibly reactivating shame memories (Gilbert, 2009). CFT was originally developed for such individuals who are self-critical, have high levels of shame and who struggle to self-soothe. The aim of CFT is to redirect attention and thinking to a kinder, more compassionate focus.

Compassion Focussed Imagery

Imagery is used in CFT to activate the 'affiliative system'. Lee (2005) describes the compassionate image as a 'perfect nurturer'. According to Gilbert (2009) the compassionate image should be unique and soothing and should incorporate the qualities of sensitivity to the individual's distress, sympathy, distress tolerance, empathy and non-judgment.

Compassionate imagery has been practiced in Buddhism for centuries (Gilbert, 2005). In Buddhist traditions, compassion is linked to loving-kindness. Loving-kindness meditation has been found to reduce stress-induced immune and behavioural responses (Pace et al.,

2009), to have the potential to reduce negative symptoms in psychosis, and to enhance factors associated with recovery (Johnson et al., 2011).

A key aspect of CFT is to address fears, blocks and resistances to compassion. A fear of compassion has been found to be associated with self-criticism, depression, anxiety and stress (Gilbert et al., 2012; Gilbert, McEwan, Matos & Rivis, 2011) and attachment difficulties (Gilbert, 2007).

Summary and Aims

There is increasing interest in CFT and its potential to improve outcomes for individuals with various difficulties such as anxiety, perinatal difficulties, eating disorders, psychosis and bi-polar disorders (Welford, 2010; Goss & Allan, 2010; Cree, 2010; Lowens, 2010; Gumley et al., 2010; Braehler et al., 2013). CFIm is also increasingly being used within therapy to increase self-soothing abilities but to date the empirical evidence for the use of CFIm has not been reviewed. Given the increased use of CFIm and the likelihood that it is possible for some individuals that CFIm may be experienced as aversive, it seems an appropriate time to review empirical evidence for the use of CFIm. Focussing on CFIm in isolation is therefore important in determining the efficacy and safety of this specific technique, information that would likely become lost when the focus is at the level of an overall therapy.

The main aims of this review are to:

1. Explore the efficacy of CFIm as a standalone therapeutic technique;
2. Discover if CFIm can increase feelings of safeness, contentment and soothing and decrease feelings of threat;
3. Explore how factors such as self-criticism, attachment and social safeness affect individual responses to CFIm.

Method

A systematic review of the literature was carried out by searching and retrieving relevant studies from the online databases: Discover, Scopus, Web of Knowledge, Psycinfo, PsychArticles, Medline and The University of Liverpool catalogue. The databases were searched between 31/10/13 and 22/11/13. The search terms [compassion OR CFT OR soothing] AND [imagery OR imaginal] were used as keywords. Related words generated by the search engines were also included.

Abstracts were screened for the following inclusion criteria: (1) the study explicitly stated that it used Gilbert's criteria of CFIm or if not, were judged to be consistent with this criteria. Gilbert (2009) describes that the aim of compassion focused imagery is to stimulate the soothing or affiliative system. This should be a unique image, ideally not focussed on a real person, which is soothing for the individual and incorporates the core aspects of compassion such as sensitivity to distress, empathy and non-judgement; (2) the intervention focused on compassionate imagery, not multiple sessions of compassionate mind training or CFT; (3) employed a pre-post design; (4) measured either affect, depression, self attacking, attachment or self-compassion as theoretically these are the outcomes expected to be most immediately affected by CFIm; (5) published in English language; (6) used adult participants as most work in this area has focussed on this group; (7) published between 1976 and 2013.

In addition, included articles were searched for relevant citations; the UK Clinical Research Network Portfolio Database was searched for any studies which may not have yet been published; the reference list on the website Compassionatemind.co.uk was searched; and a request for any unpublished research was placed with the Compassion google group. Figure 1 provides a flow chart of the review process. Seven studies were included in the final analysis.

Given the broad aims of the review, and the small number of studies in this area, it was decided to include all studies that measured individuals' reactions to CFIm as a therapeutic technique and therefore studies which did not have a comparison condition were also included. Studies which examined the efficacy of therapies such as CFT were not included. This decision was made so that the unique contribution of CFIm in bringing about change in the different types of affect systems could be captured.

Data from the included studies were extracted using a coding sheet, which documented the authors, design, country, details of sample (population, age, gender, ethnicity), study aims, outcome measures, method of delivery, comparison conditions, and key findings (see appendix C). Whilst no formal quality assessment rating tool was used, methodological limitations were reviewed and are discussed.

It was decided to use a narrative synthesis as opposed to a meta-analysis as there were a wide range of research questions, designs, populations, interventions and outcomes.

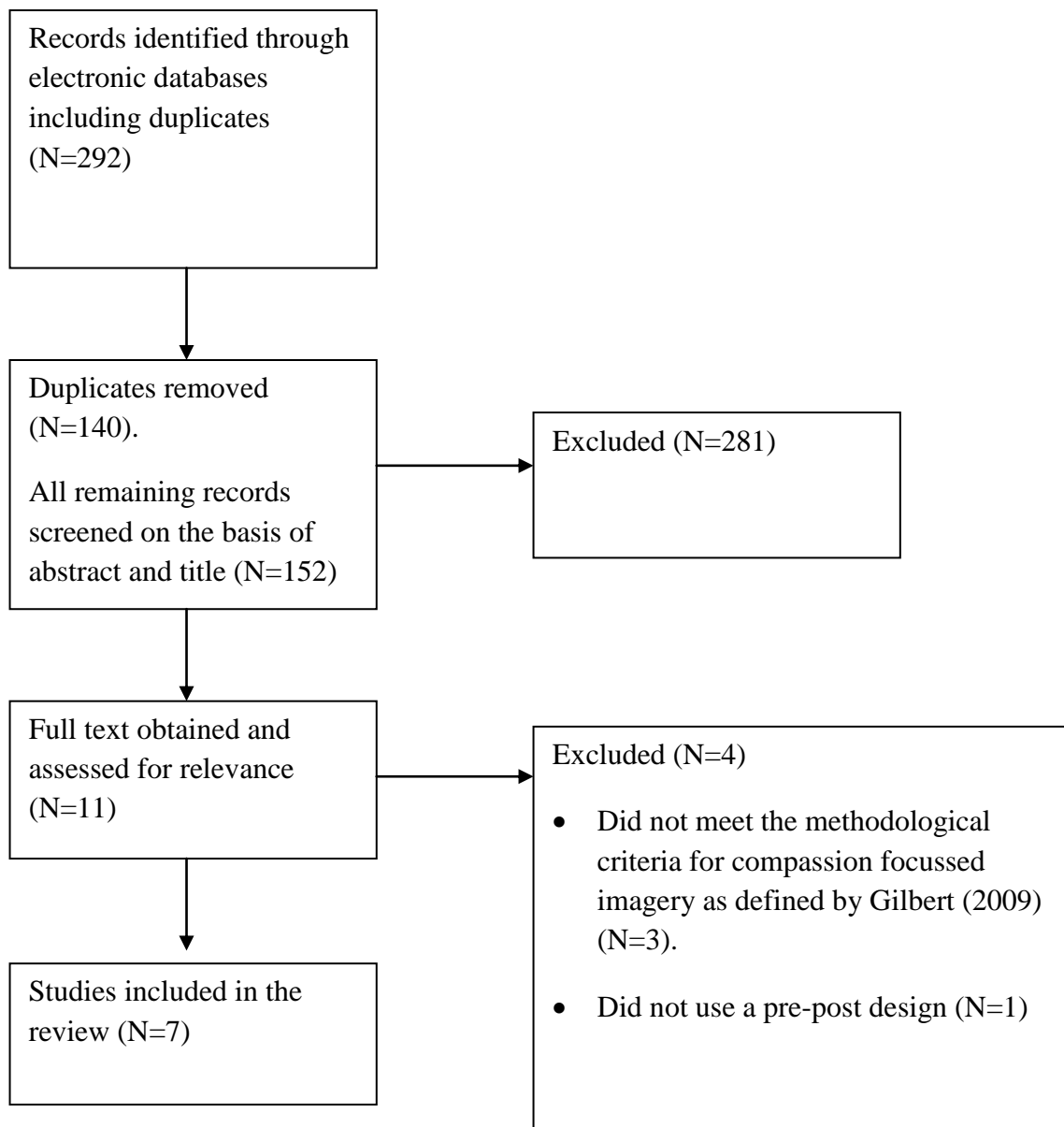


Figure 1: Flow chart of literature search

Results

An overview of the included studies is provided, along with a discussion of the main limitation of the studies. The results section is then split into sections to evaluate the studies in relation to the main questions of the literature review; i) what is the efficacy of CFIm as a standalone technique? ii) can CFIm increase feelings of safeness, contentment and soothing and decrease feelings of threat? and iii) how does self-criticism, attachment and social safeness effect individual responses to CFIm?

Overview of the Included Studies

Details of the sample, design, method of delivery and comparison conditions are presented in Table 1. The main aims, key findings, and main methodological limitations of the studies are presented in Table 2. Five of the studies employed a randomised group comparison design (Rockliff et al., 2011; Kelly, Zuroff & Shapira, 2009; Kelly, Zuroff, Foa & Gilbert, 2010; Lincoln, Hohenhaus & Hartmann, 2013; O’Neil & McMillan, 2012). The remaining two studies (Rockliff et al., 2008; Jacob et al., 2011) utilised a within subject repeated measures design. The majority of the studies were carried out in the UK with the exception of two studies (Jacob et al., 2011; Lincoln et al., 2013), which were conducted in Germany. Participants consisted of students (Rockliff et al., 2008; Rockliff et al., 2011; Lincoln et al., 2013), women with a diagnosis of BPD (Jacob et al., 2011), smokers (Kelly et al., 2010), acne sufferers (Kelly et al., 2008), and men who had sustained a serious head injury (SHI; O’Neil & McMillan, 2012). The number of participants ranged from 17-119. Ethnicity is not summarised as only two studies provided details of participant’s ethnicity. The mean age varied from 22 years to 27.9 years.

Procedures for practicing CFIm varied greatly amongst the studies, with participants either being verbally guided through the imagery techniques by the researcher or being taught the techniques via a computer slide show. The length of CFIm practice also varied from three-minutes to one hour; and the amount of times CFIm was practiced varied from a one-off session to practicing three-times daily for two weeks (42 self directed imagery sessions).

Comparison Conditions

Comparison conditions included different imagery techniques. The relaxation condition in the Rockliff et al. (2008) study involved muscle relaxation in which participants were instructed to ‘allow the tension to drain from each of their muscles in turn’. The control

condition involved asking participants to focus on preparing their favourite sandwich, it was hoped that this would also activate positive affect. Details of the relaxation condition in the O'Neil & McMillan (2012) study are not provided. The neutral imagery condition in the Lincoln, Hohenhaus & Hartmann (2013) study involved imaging a chair. The length and details of the imagery were comparable to the CFIm condition. The neutral condition in the Jacob et al. (2011) study involved counting how a computer screen switched colours. It was hoped that this would capture participants' attention without any cognitive or emotional impact. The distraction condition involved asking participants to complete a number series as quickly as possible, which increased in difficulty over time. The positive memory condition involved recalling a positive autobiographical memory. The attack resisting intervention utilised by Kelly, Zuroff & Shapira (2009), was another imagery exercise which involved participants imagining "a confident, resistant, and resilient image" (p. 306) that would stand up for them in the face of self attack.

Kelly, Zuroff, Foa & Gilbert (2010) used self-energising, self-controlling and self-monitoring control conditions. The self-energising condition involved imaging an 'ideal energizing image' which would cheer them on in their attempts to quit smoking and would focus with enthusiasm on the gains of quitting smoking. The self-controlling condition involved imagining an 'ideal instructive image' which would stay focused on the task of stopping smoking and would point out what steps needed to be taken in order to effectively resist urges to smoke. The self-monitoring condition involved filling out smoking diary forms twice a day in which the participants recorded information about the last two cigarettes smoked and resisted. They were then instructed to reflect on their thoughts, feelings and behaviours preceding the cigarettes smoked or resisted.

Table 1

Overview of Studies including Design, Participant Characteristics, Measures, Method of Delivery, and Comparison Conditions.

Study	Design	Country	Sample	Measures	Method of Delivery	Comparison Conditions
Rockliff et al. (2008)	Within subject repeated measures	UK	N=22 Population - students Age, gender and ethnicity not reported.	Self criticism/self reassurance (FSCRS), self compassion (SCS), attachment (AAS), social safeness (SSPS), depression, anxiety and stress (DASS-21).	Verbally guided by researcher (5 minutes).	Relaxation imagery, control imagery.
Kelly, Zuroff & Shapira (2009)	Randomised group comparison design	UK	N=75 (17 male, 58 female) Population – acne sufferers, mainly undergraduate students Mean age=22 Ethnicity – Largely Caucasian (75%), also Asian, Eastern European, Hispanic, and African American	Self-criticism (DEQ), depression (BDI), shame (ESS) and skin complaints (SKINDEX-16).	Power point presentation. 1 hour session, then practice 3 times per day for 2 weeks	Attack-resisting or control condition.
Kelly, Zuroff, Foa & Gilbert (2010)	Randomised group comparison design	UK	N=119 (64 females, 55 males) Population – smokers Mean age = 24.42 Ethnicity = Mainly Caucasian (63.9%), also Hispanic, Middle-Eastern, Asian and mixed race.	Cigarettes per day (CPD), readiness to change (SSC), self-criticism (DEQ), Imagery vividness and compliance with intervention (Likert scales).	Power point presentation. 25 minute session. Practice whenever felt the urge to smoke over a 3 week period.	Self-monitoring, self energising, self controlling.

Rockliff et al. (2011)	Double blinded randomised group comparison design.	UK	N= 41 (26 male, 15 female) Population = students Mean age = 26.03 Ethnicity not reported.	Self-criticism and self-reassurance (FSCRS), attachment style (AAS), social safeness and pleasure (SSPS), positive and negative affect (PANAS and TPAS), experience of CFIm (measured on Likert scale).	Verbally guided by researcher . 1 session. CFIm with either oxytocin or placebo nasal spray.	None.
Jacob et al. (2011)	Within subject repeated measures	Germany	N=17 (all female) Population – Borderline personality disorder Mean age = 27.9 Ethnicity not reported.	Depression (BDI), psychopathology (BSI), self-rated borderline pathology (BSL), positive affect (joy and relaxation) and negative affect (anxiety, sadness, anger).	Verbally guided by researcher. 3 minutes.	Distraction, positive memory imagery, or neutral task.
O’Neil & McMillan (2012)	Randomised group comparison design	UK	N=24 Population – severe head injury (SHI) No details of gender, age or ethnicity provided.	Fear of compassion (FCS), empathy (EQ), self-compassion (SCS), and relaxation (Likert scale).	Verbally guided by researcher . One 30 minute session.	Relaxation.
Lincoln, Hohenhaus & Hartmann (2013)	Randomised group comparison design	Germany	N=71 (49 female, 22 male) Population – Psychology/science students. Mean age = 23.2 Ethnicity not reported.	Psychosis proneness (CAPE), paranoia (PC), self-esteem (RSE), emotional, cognitive and motivational states (Stemmler et al, 2001) and depression (ADS).	Verbally guided by researcher. 10 minutes training and 7 minutes imagery.	Neutral imagery.

Note: *DEQ* Depressive Experiences Questionnaire (Blatt et al., 1976); *BDI* Beck Depression Inventory (Beck et al., 1996); *ESS* Experiences of Shame Scale (Andrews et al., 2002); *SKINDEX-16* (Chren et al., 1996); *BSI* Brief Symptom Inventory (Derogatis, 2003); *BSL* Borderline Symptom List (Bohus et al., 2007); *ADS* Allgemeine Depressions Skala (General Depression Scale; Hautzinger & Brahler, 1993); *RSE* Rosenberg Self Esteem Scale (Rosenberg, 1965); *PC* Paranoia Checklist (Freeman et al., 2005); *CAPE* Community Assessment of Psychiatric Experiences (Stefanis et al., 2002); *SCS* The Self Compassion Scale (Neff, 2003); *DAS – 21* Depression,

Anxiety and Stress Scale (Lovibond & Lovibond, 1995); *SSS* The Social Safeness and Pleasure Scale (Gilbert et al., 2009); *FSCRS* The Forms of Self-attacking & Self-reassurance Scale (Gilbert et al. 2004); *AAS* Adult Attachment Scale (Collins & Read, 1990) ; *TPAS* Types of Positive Affect Scale (Gilbert et al., 2008); *PANAS* Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1988); *FCS* The Fear of Compassion Scale (Gilbert et al., 2011); *EQ* The empathy Quotient (Baron-Cohen & Wheelwright, 2004); *SSC* Smoking Stage of Change -Short Form (DiClemente et al., 1991).

Table 2

Aims, Findings, and Methodological Limitations of Included Studies.

Study	Aims	Main Findings	Main methodological limitations
Rockliff et al. (2008)	To explore whether CFIm can stimulate a soothing affect system through exploring the effects of heart rate variability (HRV) on CFIm and the effects of CFIm on HRV and cortisol levels. To explore individual differences in responses to CFIm.	<p>Individuals with increased HRV showed lower levels of cortisol after CFIm .</p> <p>The lower the initial cortisol level, the bigger the decrease was during CFIm.</p> <p>Those with an increase in HRV had higher social safeness scores [$d=.01$].</p> <p>Change in HRV was positively correlated with ability to depend on others [$r=.52$] and with social safeness and pleasure [$r=.57$].</p> <p>Anxious attachment was negatively correlated with change in HRV [$r=-.48$].</p> <p>Self inadequacy was negatively associated with reduced HRV when practicing CFIm [$r=-.54$].</p>	<p>Data for change in HRV in the three conditions is not provided. It is therefore not possible to make comparisons between the different conditions.</p> <p>Details of sample such as mean age, gender and ethnicity were not reported.</p> <p>Used a student sample rather than a clinical sample (floor effects).</p> <p>47 participants met inclusion criteria but only 22 were included in the final analysis.</p> <p>Small sample size.</p> <p>Possible loss of information about individual differences due to dichotomization of variables.</p> <p>Researchers not blind.</p>
Kelly, Zuroff & Shapira (2009)	To test the impact of compassionate self relating and resilient self-relating in reducing depression, shame and skin	Individuals in the self-soothing condition showed greater reduction in shame [$d=.68$], acne-related distress [$d=.96$] and	Participants were ‘taught’ the methods in a classroom through a PowerPoint presentation. This was done in a group

	complaints.	<p>functional impairment [$d=.84$] compared to the control condition.</p> <p>Individuals the attack resisting condition also showed greater reduction in shame [$d=.76$], acne-related distress [$d=1.21$] and functional impairment [$d=.85$] than controls.</p> <p>Those in self-soothing condition reported greater reduction in perceived symptoms compared to controls [$d=.75$].</p> <p>Changes in shame and skin complaints were also clinically significant.</p> <p>Attack resisting intervention was especially effective at lowering depression in self-critics.</p>	<p>setting without a therapist.</p> <p>No measures of compassion, ease of imagery, feeling soothed, or feelings of resilience, so it is not clear how effective the techniques were in producing a ‘compassionate self relating’ or ‘resilient self relating’ response.</p> <p>Researchers not blind.</p>
Kelly, Zuroff, Foa & Gilbert (2010)	To examine the impact and moderators of a self-compassionate intervention on the self regulation of cigarette smoking.	<p>CFIm reduced cigarettes smoked per day (CPD) more rapidly than monitoring alone [$r=.19$]</p> <p>There was no difference between self-compassion, self-energising and self-controlling imagery techniques on reduction in CPD.</p> <p>CFIm reduced CPD amongst those low in readiness to change [$r=.23$] but not those high in readiness to change.</p>	<p>Short time frame for smoking study with no follow up period.</p> <p>Did not control for drug or alcohol use or psychopathology.</p> <p>Possible loss of information about individual differences due to dichotomization of variables.</p> <p>Researchers not blind.</p>

		CFIm reduced CPD amongst high self critics [$r=.26$] but not low self critics.	
		CFIm reduced CPD for participants with high but not low levels of imagery vividness [$r=.28$].	
Rockliff et al. (2011)	To explore the effects of intranasal oxytocin on compassionate imagery and to explore the interactions of these effects with self-criticism and social safeness.	<p>There was a significant increase in relaxed positive affect following CFIm in both conditions [$d=1.80$] and this was greater in the placebo rather than the oxytocin condition [$d=.68$].</p> <p>Oxytocin makes it easier to imagine compassionate qualities [$d=1.38$].</p> <p>CFIm without oxytocin produced a greater increase in relaxed positive affect in individuals low in anxious attachment compared to those who were high in anxious attachment [$d=1.15$].</p> <p>Without oxytocin, the level of relaxed positive affect reported by those low in closeness to others was significantly less than the level reported by those high in closeness to others [$d=.71$].</p> <p>High self-critics reported more negative experiences of CFIm with oxytocin.</p> <p>In the oxytocin condition, individuals</p>	<p>Main outcome measure was not a validated measure.</p> <p>Alpha values for other measures were not provided.</p> <p>Student rather than clinical sample</p> <p>Possible loss of information about individual differences due to dichotomization of variables.</p>

		<p>with low level of self-reassurance felt less safe and content following CFIm compared to those with high levels of self-reassurance [$d=.73$].</p> <p>In the oxytocin condition, those low in social safeness found it more difficult to receive compassionate emotions than those high in social safeness [$d=.78$].</p>	
Jacob et al. (2011)	To compare the effect of different emotion regulation strategies, including compassionate imagery, on positive and negative emotions in people with BPD.	<p>All coping strategies had a significant effect on emotion compared to neutral condition (distraction [$partial n^2=.30$], positive memory [$partial n^2=.49$], CFIm [$partial n^2=.28$]).</p> <p>Positive emotions increased significantly more in the positive memory condition than in the distraction [$partial n^2=.19$] and control conditions [$partial n^2=.36$].</p>	<p>Only measured 3 negative and 2 positive emotions.</p> <p>Combined the scores of joy and relaxation (different systems, drive & affiliation).</p> <p>Information on validity of measures not provided.</p> <p>Small sample.</p> <p>Researchers not blind.</p>
O'Neil & McMillan (2012)	To investigate whether compassionate imagery can increase empathy in those with low empathy after a SHI.	<p>Neither condition (CFIm or relaxation) produced a significant increase in empathy of self-compassion.</p> <p>Fear of compassion was not correlated</p>	<p>Small sample (may have had sig results with larger sample).</p> <p>Other confounding variables for this group (concentration and memory</p>

		with change in empathy or self-compassion.	problems as well as irritability and fatigue. Participants could also have damage in limbic area of brain). Rational for the use of CFIm does not fit with the existing literature.
Lincoln, Hohenhaus & Hartmann (2013)	To test whether a brief intervention that targets negative emotions and low self-esteem will reduce paranoid thoughts and to explore whether a reduction in paranoid thoughts will be mediated by a decrease in negative emotions and an increase in self-esteem.	Paranoia decreased more in CFIm than in the control condition [$d=0.59$]. Experimental condition had a significant effect on emotions [$\beta=-.43$]. Effect of CFIm on paranoia mediated by reduced negative emotions [$z=2.33$]. Experimental condition had a significant effect on self-esteem [$\beta=.12$]. Only individuals with higher psychosis proneness showed significant reduction in paranoia following CFIm [$\beta=-.45$].	Student rather than clinical sample. Even the 'high psychosis proneness' group would not have met clinical criteria for being an at risk group. Not generalizable to clinical population. Possible loss of information about individual differences due to dichotomization of variables. Researchers not blind.

HRV Heart rate variability; *SHI* severe head injury; *CFIm* compassion focussed imagery; *CPD* cigarettes smoked per day.

Methodological Limitations of Included Studies

Sample sizes across the studies tended to be small ($N < 75$ in six studies), and the average age was under 28 years (in all studies that reported age), therefore the generalisability of the results needs to be considered. Only two studies had sample sizes larger than 25 per group and none of the studies reported power calculations. The lack of difference in outcomes between different therapeutic techniques may be accounted for by the studies being underpowered.

Two studies used some measures that had not been validated, this included the main outcome measure of 'ease of creating a compassionate image' used by Rockliff et al. (2011). The use of student samples may have created a floor effect for measures of self-criticism, social safeness and depression; meaning that differences that may actually be present in clinical populations were not picked up in these studies. In addition, a number of studies dichotomized variables by using median scores as a cut off for splitting participants into 'high' versus 'low' groups for measures such as self criticism, attachment, paranoia, psychosis proneness, and social safeness. It has been argued that this can lead to a loss of information about individual differences and make it difficult to interpret the relationship between variables (MacCallum, Zhang, Preacher, & Rucker, 2002). An example of this is provided by Lincoln and colleagues (2013) who comment in their discussion that participants in their 'high psychosis proneness' group would not have met clinical criteria for being an 'at risk' group; it is therefore difficult to generalise these findings to a clinical population.

O'Neil & McMillan's (2012) rationale for using CFIm with the SHI group was that the demographics for this group; being young men from lower socio economic groups, would increase the likelihood that they may have a fearful response to affiliative emotions. They suggest that CFIm may therefore be helpful in increasing empathy in this client group. If this

was conducted within therapy, and was underpinned by a formulation and a rationale for the individual, it may be helpful. However, for some individuals, the threat system maybe particularly sensitive to reducing positive emotions (Gilbert, 2000) and they may be more likely to experience self-attacking thoughts in response to positive emotions, particularly affiliative emotions (Gilbert & Irons, 2005). Therefore stimulating the affiliative system (in a one-off practice of CFIm), could be quite threatening for a group of people who are fearful of compassion.

A further limitation is that none of the studies recorded or controlled for the effects of regular meditation. It is possible that regular meditation could confound the results of studies measuring the effects of CFIm. This may also be impacted by the type of practice someone already has.

Only one study (Rockliff et al., 2011) separated relaxed and activated positive affect and none of the studies specifically measured threat. A further limitation of the included studies is that it was not always possible to calculate the effect size with the statistics provided.

What is the Efficacy of CFIm as a Standalone Technique?

The results for the efficacy of CFIm as a standalone technique are varied. Overall, CFIm does appear to improve outcomes but at a similar rate to other imagery based techniques.

Rockliff et al., 2011 found that CFIm increased relaxed positive affect with a large effect size. This increase was greater when CFIm was practiced without oxytocin. CFIm was also shown to reduce paranoia at a greater rate than imagining a neutral image but the reduction in paranoia following CFIm only reached significance in individuals with higher

psychosis proneness (Lincoln et al., 2013). Jacob et al. (2011) found that CFIm influenced emotions in a favourable direction, but was not found to be any more effective than the distraction and positive memory conditions. Kelly, Zuroff & Shapira (2009) found that CFIm resulted in a greater reduction in feelings of shame, acne-related distress and functional impairment compared to the control condition, with a large effect size. However, similar effect sizes were also seen in the attack-resisting intervention. CFIm was shown to reduce smoking more rapidly than monitoring alone but at the same rate as self-energising and self-controlling imagery techniques (Kelly et al., 2010).

Can CFIm Increase Feelings of Safeness, Contentment and Soothing and Decrease Feelings of Threat?

None of the studies directly measured threat and only one study (Rockliff et al., 2011) measured feeling of safeness and contentment. Rockliff et al. (2011) found that relaxed positive affect increased after CFIm with a large effect size, and that this change was greater when CFIm was practiced without oxytocin. However, CFIm did not increase safe/content positive affect.

Jacob et al. (2011) also found that CFIm influenced emotion (joy, relaxation, anxiety, sadness and anger) in a favourable direction compared to a neutral condition. However, this was at a similar rate to other interventions; with only positive memory imagery being more effective than distraction and neutral conditions (Jacob et al., 2011).

Lincoln et al. (2013) found that there was a significant effect of CFIm on emotion and paranoia, when compared to the control condition. However, paranoia only reduced significantly following CFIm in the high psychosis proneness group.

How Does Self-criticism, Attachment and Social Safeness Affect Individual Responses to CFIm?

Self-criticism.

Four studies explored the relationship between self-criticism and CFIm (Rockliff et al., 2008; Rockliff et al., 2011; Kelly, Zuroff & Shapira, 2009, Kelly et al., 2010). Three studies found that individuals who are more self-critical found CFIm more difficult but one study found that CFIm was helpful in improving self regulation in self-critical individuals (Kelly et al., 2010).

Rockliff et al. (2008) explored whether CFIm could stimulate a soothing affect system, suggesting that higher heart rate variability (HRV) is linked to a greater ability to self soothe. HRV and cortisol levels were measured after relaxation imagery, compassion imagery, and imagery focused on the anticipation of reward. They found that self inadequacy was negatively associated with reduced HRV in the compassion condition ($r=-.54$), suggesting that individuals who feel more self-inadequate find it harder to self soothe when receiving compassionate imagery.

Rockliff et al. (2011) explored the effects of intranasal oxytocin on compassionate imagery. The authors suggest that oxytocin can influence a range of affiliate behaviours and can also play a role in reducing threat in social relationships. It was found that high self-critics reported more negative experiences of CFIm with oxytocin. They also found that people with lower levels of self-reassurance found it more difficult to receive compassionate emotions in the oxytocin condition than in the placebo condition and compared to people with higher levels of self-reassurance. The qualitative data suggested that CFIm under oxytocin was associated with a range of unpleasant emotions for high self critics. However, it is worth noting that resistance to compassionate emotions and ease of receiving compassionate images were only measured on a single ten point Likert scale, which may indicate a lack of content validity as it is unlikely that one item would fully capture these

constructs. In addition, oxytocin administered externally is artificial. It is possible that this could create uncomfortable feelings if the physiological state that is induced does not match the cognitions associated with that emotion.

Kelly, Zuroff & Shapira (2009) explored the impact of compassionate self relating (CFIm) and resilient self relating (attack resisting) in reducing depression, shame and skin complaints in a group of acne sufferers. They found that high self-critics who received the attack resisting intervention actually reported significantly lower levels of depression following the intervention but this was not the case in the CFIm group; suggesting that resilient self-relating was more effective in reducing depression than compassionate self-relating for individuals who are more self-critical.

In contrast, Kelly et al. (2010) found that the CFIm condition reduced smoking at a significant rate for high self-critics ($r=.26$) but not low self critics; suggesting that CFIm was only helpful in improving self-regulation for individuals who are more self-critical.

Social Safeness.

Individuals with lower levels of social safeness found it more difficult to receive compassionate imagery compared to those high in social safeness ($d=.78$) and actually felt less safe/content after practicing CFIm with oxytocin, than they did before practicing CFIm (Rockliff et al., 2011). In addition, Rockliff et al. (2008) found that CFIm produced more of a soothing effect in individuals with higher levels of social safeness ($r=.57$).

Attachment.

Attachment style and closeness to others both appear to be related to how individuals respond to CFIm, with CFIm producing more of a soothing/relaxing effect in individuals who are less anxiously attached and feel closer to others. Rockliff et al. (2008) found that anxious attachment was negatively correlated with changes in HRV after CFIm ($r=-.48$), suggesting

that more anxiously attached individuals find it more difficult to self-soothe with CFIm. Rockliff et al. (2011) found that CFIm with and without oxytocin increased relaxed positive affect in individuals who were high in anxious attachment. However, CFIm without oxytocin produced a greater increase in relaxed positive affect in individuals low in anxious attachment compared to those who were high in anxious attachment, with a large effect size [$d=1.15$]. The authors also found that CFIm without oxytocin increased relaxed positive affect in individuals high and low in closeness to others. However with oxytocin, CFIm only significantly increased relaxed positive affect in individuals high in closeness to others. In addition, without oxytocin, the level of relaxed positive affect reported by those low in closeness to others was significantly less than the level reported by those high in closeness to others [$d=.71$]. These results suggest that CFIm improves relaxed positive affect regardless of attachment and closeness to others. However, this change is greater in those who are less anxiously attached and feel closer to others. In addition, oxytocin only appears to have an added benefit to those who are securely attached and feel closer to others.

Summary of Findings

Although CFIm increased positive affect (Rockliff et al., 2011; Jacob et al., 2011) and decreased negative affect (Lincoln et al., 2013; Jacob et al., 2011), other imagery techniques also produced similar effects (Jacob et al., 2011). It is therefore unclear whether it is compassion focussed imagery that is driving these changes, or whether they just represent some other shared aspect of imagery techniques, or simply regression to the mean (Barnett, Van der Pols & Dobson, 2005).

There is some evidence that individuals who are more self-critical can find CFIm more difficult (Rockliff et al., 2008; Rockliff et al., 2011; Kelly, Zuroff & Shapira, 2009) but CFIm was found to improve self regulation in self critical smokers (Kelly, Zuroff, Foa &

Gilbert, 2010). CFIm was found to produce more of a soothing effect in individuals with higher levels of social safeness (Rockliff et al., 2008), with individuals who have lower levels of social safeness finding it more difficult to receive compassionate imagery (Rockliff et al., 2011). CFIm was also found to produce more of a soothing/relaxing effect in individuals who are less anxiously attached and feel closer to others (Rockliff et al., 2008; Rockliff et al., 2011).

Discussion

The aim of this review was to systematically review the empirical evidence for the use of CFIm. More specifically, given the theory behind CFIm, the review sought to discover if CFIm can increase feelings of safeness, contentment and soothing and decrease feelings of threat, and to explore how factors such as self-criticism, attachment and social safeness affect individual responses to CFIm. The findings are discussed in relation to each of the aims of the review. A discussion of the clinical implications and the limitations of the review then follows.

What is the Efficacy of CFIm as a Standalone Therapeutic Technique?

Overall, CFIm does appear to improve outcomes in both clinical and student samples but at a similar rate to other imagery based techniques. CFIm was shown to increase positive affect and self regulation, and decrease negative affect, paranoia and shame. However, where comparison groups were used, CFIm did not appear to be superior to other imagery techniques, such as positive memory imagery, attack resisting imagery, self-energising imagery, or self-controlling imagery, in improving outcomes. This may be because change was brought about by some shared element of imagery based techniques that is not specific to CFIm.

Can CFIm Increase Feelings of Safeness, Contentment and Soothing and Decrease Feelings of Threat?

The original purpose of using imagery in CFT was to activate the ‘affiliative system’, with the aim of increasing soothing positive affect, reducing feelings of threat, and increasing feelings of social safeness. It is therefore rather surprising that no studies directly measured threat and only one study (Rockliff et al., 2011) measured the different types of positive affect. This study found that relaxed positive affect increased after CFIm with a large effect size but safe/content positive affect did not. Perhaps if the different types of affect had been measured in the other studies, there may be a clearer picture of the benefits of CFIm compared to other techniques.

How do Factors such as Self-Criticism, Attachment and Social Safeness affect Individual Responses to CFIm?

Individuals who feel more self-inadequate find it harder to self-soothe when receiving compassionate imagery (Rockliff et al., 2008), are more resistant to compassionate emotions, and find it more difficult to receive compassionate emotions (Rockliff et al., 2011). An attack resisting intervention was also shown to be more effective than CFIm in reducing depression in high self-critics (Kelly, Zuroff & Shapira, 2009). In addition, CFIm produced more of a soothing/relaxing effect in individuals who were less anxiously attached, felt closer to others and had higher levels of social safeness. These results support the theory that a fear of compassion is associated with attachment difficulties, higher levels of self criticism, and lower levels of social safeness (Gilbert, 2007; Gilbert et al., 2012; Gilbert, McEwan, Matos & Ravis, 2011); and therefore some individuals may benefit less from CFIm when it is practiced in isolation. The length of practice of CFIm varied amongst the studies, with most studies measuring change after just one CFIm practice. CFIm was only practiced regularly in two

studies (Kelly et al., 2009; Kelly et al., 2010). Interestingly, it was found in one of these studies that individuals who were more self-critical actually showed greater improvement in self regulation when they practiced CFIm every day (Kelly et al., 2010). For some individuals, the affiliative system may need to be developed through practice, over time before the individual can begin to benefit from it.

Clinical Implications

Given the findings of the review, before using CFIm clinically it would be important to consider the way an individual relates to themselves (e.g. self attacking) as well as the way they relate to others (e.g. attachment and closeness to others). It appears that using CFIm as a one-off standalone technique for individuals who fear compassion may not be helpful; instead it would be important to focus on threat or the fear of compassion first and explain the purpose of CFIm within the CFT model (Gilbert, 2009).

The current review only looked at CFIm as a standalone technique and not when it is embedded within therapy. The advantage of doing this was that the unique contribution of CFIm in bringing about change in the different types of affect systems could be captured. However, CFIm may have different effects when used in the context of a therapeutic formulation, underpinned by a therapeutic relationship, where the individual has chosen to engage in CFT. Group compassionate mind training (CMT) has been shown to reduce depression, anxiety, self-criticism, shame, inferiority and submissive behaviour, and increase ability to self-soothe and focus on feelings of warmth and reassurance in individuals with high levels of self criticism or shame (Gilbert & Procter, 2006). In addition, there is some suggestion that CFT may be helpful for individuals with various difficulties such as anxiety, perinatal difficulties, eating disorders, psychosis and bipolar disorder (Welford, 2010; Goss & Allan, 2014; Cree, 2010; Lowens, 2010; Gumley et al., 2010; Braehler et al., 2013).

However, most of the literature in this area is theoretical and the empirical evidence largely consists of case studies and single group designs; highlighting the need for more robust empirical evidence.

CFIm did not appear to be effective in improving outcomes in the severe head injury group (O'Neil & Mcmillan, 2012). However, the authors speculate that other factors specifically related to having a SHI may have affected the results, such as difficulty with concentration and memory; irritability and fatigue; and possible damage in the limbic area of brain. As discussed, using CFIm as a standalone technique in a group that may be fearful of compassion is unlikely to be beneficial. Interestingly, this study highlights the use of language in CFIm. The language used in CFIm may be comfortable to university students who were participants in most of the studies but could perhaps be more unfamiliar and uncomfortable to a group of males from a lower social-economic demographic. This would need to be considered when using CFIm clinically.

It is interesting to note that in CFIm, a synthetic compassionate image is used rather than a real life image to avoid activating the attachment system which may be associated with threat. However, individuals with higher anxious attachment, higher levels of self attacking, and lower levels of social safeness still find it more difficult to self soothe with CFIm. Imagery of a real positive autobiographical memory was used as a comparison condition in the Jacob et al. (2011) study and was found to be as effective as CFIm in reducing negative affect and increasing positive affect. It was also noted that there was an overlap in content between the two imagery strategies and suggested that perhaps both strategies could be seen as “imagery of a positive social contact”.

Positive mental imagery of an autobiographical memory is currently being used within a CBT framework with the aim of eliciting positive affect and reducing attention to

threat (Tarrier, 2010). Anecdotal evidence has found this technique to be clinically feasible and acceptable (Tarrier, 2010) and it has been found to increase hope and happiness in individuals with psychosis (Johnson et al., 2012). However, this technique is based on the broaden and build theory (Fredrickson, 2001) and does not take into account a model of affect regulation. Given the findings from this review; that factors such as self criticism and social safeness may affect the way an individual responds to imagery that activates the affiliative system, it may be helpful to empirically explore individual responses to positive mental imagery of a real event, as this also has the potential to activate the affiliative system.

Limitations

As previously discussed, the present review only looked at CFIm as a standalone technique and not when it is embedded within therapy. This could be seen as a potential limitation as CFIm may have very different effect when used within CFT. Excluding imagery that is used in other therapies was a limitation of this review, as this would have allowed for the exploration of the distinct features of CFIm. In addition, the literature was only searched for English language papers so some relevant work may have been missed.

Summary

In summary, CFIm appears to improve outcomes for a range of client groups but at a similar rate to other imagery techniques; there is therefore little evidence that CFIm is efficacious as a technique used in isolation. It is not known whether CFIm increases feelings of safeness, contentment and soothing and decrease feelings of threat as none of the studies directly measured threat and only one study (Rockliff et al., 2011) measured feeling of safeness and contentment. Individuals with attachment difficulties, high levels of self criticism, and low levels of social safeness find it more difficult to receive compassionate imagery and to feel soothed by it; this needs to be considered when using CFIm clinically.

Longer term studies which include repeated practice of CFIm may be indicated, based on the idea that for some individuals, the affiliative system may need to be developed through practice, over time before the individual can begin to benefit from it. Future research should also aim to use appropriate control groups, have adequate sample sizes, and measure change in self-criticism, self-compassion, safe/warm positive affect, social safeness and threat.

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Chapter 2

Empirical Paper

**Emotional Response to a Therapeutic Technique: Broad Minded
Affective Coping (BMAC)²**

² This manuscript will be submitted to EMOTION, author guidelines can be found in Appendix B

Abstract

It is believed that savouring positive memories can generate positive emotions. Increasing positive emotion can have a range of benefits including reducing attention to and experiences of threat. This study investigated individuals' emotional reactions to the mental imagery of a positive social memory using the Broad Minded Affective Coping (BMAC) technique and examined possible predictors of individuals' responses to this intervention. One hundred and twenty three participants completed self report measures of self attacking, self compassion, fear of compassion, early memories of warmth and safeness, childhood stress and social safeness/pleasure. They were then guided through the social BMAC. Participants completed state measures of positive and negative affect and social safeness/pleasure before and after the intervention. It was found that safe/warm positive affect, relaxed positive affect and feelings of social safeness increased and negative affect decreased following the social BMAC. In addition, it was found that people scoring higher on inadequate self attacking benefited most from this intervention.

Keywords: compassion, imagery, emotion, self-attacking, threat

Introduction

Broad Minded Affective Coping (BMAC; Tarrrier 2010) is an intervention that aims to elicit positive affect through the use of mental imagery of a positive memory. The BMAC has been used as a therapeutic technique in a Cognitive Behavioural Suicide Prevention for Psychosis (CBSPP; Tarrrier & Gooding, 2009; Tarrrier et al., in submission) trial and has been found to have many clinical utilities with the aim of reducing threat within therapy sessions, bringing about change through building positive schemas, increasing sense of agency and reducing retrieval bias for negative memories (Kelly & Welford, in preparation). This technique has also been found to increase hope and happiness in individuals with psychosis (Johnson et al., 2012). Anecdotal evidence has found the BMAC to be clinically feasible and acceptable (Tarrrier, 2010). This study aims to investigate individuals' emotional reactions to the mental imagery of a positive social memory using the BMAC technique. A secondary aim is to examine possible predictors of individuals' responses to this intervention. It is hoped that the results will help our understanding of the therapeutic utility of this technique.

It has been well documented that mental imagery can elicit strong emotional responses (Holmes, Mathews, Mackintosh, & Dalgleish, 2008; Holmes and Matthews, 2010). The BMAC technique uses mental imagery to help a person to savour a positive memory with the aim of eliciting positive emotions. Savouring is thought to generate positive emotions through attending to a positive event or feelings about a positive event from either the past, the present, or the future (Bryant & Veroff, 2007). The BMAC aims to bring an individual's attention to the sensory components and the emotions associated with positive memory, as well as eliciting, elaborating and processing personal meaning held by the individual that may run counter to more negative beliefs.

Increasing positive emotion can have a range of benefits. Positive emotions are associated with increased mental wellbeing, better physical health and occupational success and thought to increase access to more psychological resources, broaden potential behavioural options and reduce attention to, and experiences of, threat (Fredrickson, 2001; Lyubomirsky, King & Diener, 2005), which can then lead to more positive emotional experiences.

The inability to effectively regulate threat can have numerous consequences for an individual's mental health (Bowlby, 1969; Gerhardt, 2004). Garland et al. (2010) suggest that the increased experience of positive emotions can regulate threat. In their review of the evidence from behavioural and brain sciences research, they suggest that an upward spiral of positive emotions can counteract the negative spiral of negative emotions that characterise psychopathology. Furthermore, they suggest that repeated activation of positive emotions may result in changes in brain function and structure to confer long term resilience from negative emotions and ultimately, emotional difficulties. They also suggest that the savouring of pleasant life events is one way that this could be achieved. Savouring positive emotions through the use of mental imagery would therefore be expected to boost threat regulation.

However, before using mental imagery to elicit positive affect, it is important to first of all understand the different types of positive affect. The work of Depue and Morrone-Strupinsky (2005) encourages us to look beyond the positive affect construct and to focus on distinct brain systems when considering threat regulation. Through examining psychometric and neurobehavioural evidence, they suggest that positive emotions actually comprise of at least two distinct brain systems; a dopamine seeking drive based reward system and an oxytocin-opiate system of contentment, soothing and safeness. Gilbert (2005) proposed that there is also a third emotional system, a threat and protection system, and that these three

systems interact and regulate each other. The system of contentment, soothing and safeness or the affiliative system, is seen as the main regulator of the threat system. This led to a focus on the affiliative system and the mechanisms by which it regulates the threat system. Gilbert (2005) suggests that feelings of social safeness emerging from the affiliative system can regulate threat. This theory is supported by Kelly, Zuroff, Leybman and Gilbert (2012) who found that social safeness is an emotional response to affiliation which may then protect against psychosocial suffering.

It is thought that experiencing care and soothing from a parent stimulates oxytocin and endorphins and creates calming feelings that can reduce threat (Carter, 1998). Drawing from attachment theory (Bowlby, 1969), if a parent is able to soothe their child when the child becomes distressed, they will stimulate pathways in their child's brain that will enable the child to self-soothe later in life (Gilbert, 2009). Individuals who have received this care would be expected to have a well developed affiliative system which could regulate threat. However, if an individual has experienced harsh and punishing environments, they may have developed a threat system that dampens down affiliative emotions in order to prevent external attack (Gilbert, 2000) and will therefore be fearful of compassion. This can be seen as an adaptive strategy as the individuals affect system is adjusting to an environment where they expect harsher treatment from others. However, operating this way could have longer term negative consequences. Gilbert (2005) suggested that individuals who have not experienced safeness in early attachment relationships become more rank focused and wary of the power of others, which may affect future relationships.

Compassion focussed imagery (CFIm) encourages the individual to create an image of a compassionate being/mind rather than focus on a real person known to them because to do so may activate an attachment related threat response. CFIm has been found to increase

positive affect (Rockliff et al., 2011; Jacob et al., 2011), decrease negative affect (Lincoln, Hohenhaus & Hartmann, 2013; Jacob et al., 2011) and reduce feelings of shame (Kelly, Zuroff & Shapira, 2009). Loving kindness meditation is another intervention which uses synthetic imagery and has been found to increase positive social emotions and decrease social isolation (Hutcherson, Seppala & Gross, 2008).

Although CFIm encourages the individual to create an image of a compassionate being/mind rather than focus on a real person, it appears that some individuals still feel threatened by such imagery. It has been found that individuals who are more self critical find it harder to self soothe when receiving compassionate imagery (Rockliff et al., 2008), are more resistant to compassionate emotions, and find it more difficult to receive compassionate emotions (Rockliff et al., 2011). In addition CFIm has been found to produce more of a soothing/relaxing effect in individuals who are less anxiously attached, feel closer to others and who feel more socially safe (Rockliff et al., 2008; Rockliff et al., 2011). It therefore appears that self attacking and anxious attachment style are related to difficulty in self-soothing using CFIm. This supports Social Mentality Theory (Gilbert, 2005; Gilbert & Irons, 2005), which proposes that a self-hating and persecutory, self relational style emerges as a threat-protection strategy in environments where social safeness and exploration of the environment is unsafe. Such strategies prevent internal activation of affiliative/reward seeking systems and may be activated if such signals are received from others.

It has been found that using real memories can also be effective in increasing positive affect. For example, thinking of an attachment figure was found to aid recovery after thinking of an upsetting memory (Selcuk et al., 2012) and imagery of a positive memory was found to increase positive affect and decrease negative affect after a stressful event in women with a diagnosis of borderline personality disorder (Jacob et al., 2011).

In everyday life people regulate their levels of threat through affiliative interactions and self soothing. However, as discussed, some people find it more difficult to self-soothe than others, particularly those with higher levels of shame and who are more self-critical (Gilbert and Proctor, 2006). Fear of compassion is thought to develop as an adaptive strategy when an individual has experienced harsh or punishing environments early in life or not experiencing safeness in early attachment relationships (Gilbert, 2005). Fearing compassion has been found to be associated with difficulties in feeling safe, being able to reassure oneself and higher levels of self criticism later in life (Gilbert et al., 2012). In addition, individuals with higher levels of depression may find it more difficult to savour positive emotions (Applegate, El-Dereby, & Bentall, 2009; Garland et al., 2010).

The aim of the social BMAC is to shift attention to things that happen naturally in people's lives; to savour positive social interactions with the aim of decreasing threat. However, given what is known about the affect regulation system, it is likely that for some individuals threat will be associated with the affiliative system. It is therefore important to test empirically how individuals respond to imagery of a real event and what might predict these responses.

Aims and Hypotheses

1. To investigate individuals' emotional reactions to the mental imagery of a positive social memory using the BMAC technique.
 - i. It is predicted that there will be a significant increase in safe/warm positive affect and feelings of social safeness following the social BMAC.
 - ii. It is predicted that there will be a significant decrease in negative affect following the social BMAC.
2. To examine possible predictors of individuals' responses to this intervention.

- iii. It is predicted that fear of compassion and self-attacking will be negatively associated with the degree of change in safe/warm positive affect following the social BMAC.
 - iv. It is predicted that a fear of compassion and self-attacking will also be negatively associated with change in feelings of social safeness and pleasure following the social BMAC.
3. To explore the relationships between compassionate mind variables (fear of compassion, self compassion, self attacking, self reassurance), depression, early memories of warmth and safeness, childhood trauma, and positive emotions (feelings of social safeness and pleasure).
- v. It is predicted that early memories of warmth and safeness will be positively correlated with the ability to reassure oneself, self compassion and current feelings of social safeness and pleasure, and negatively correlated with fear of compassion.
 - vi. It is predicted that childhood trauma will be positively correlated with fear of compassion, and negatively correlated with self compassion and ability to reassure oneself.
 - vii. It is predicted that fear of compassion will be positively correlated with self attacking and depression, and will be negatively correlated with feelings of social safeness and pleasure.

Method

Participants

Participants from the University of Liverpool were recruited via an online advert placed on the University announcement service. Participants were included if they were aged over 18 years, were able to follow written and verbal instructions, and had access to a

computer with headphones or speakers. A total of 240 people viewed the study information page. A further 160 went on to complete the self report measures and a total of 123 completed the whole study (46 men, 77 women, mean age = 24.85, SD=7.97). Participants were given the option to leave their contact details to receive a link to a short follow up study two weeks later. Forty-nine participants completed the follow up study (17 men, 32 women, mean age = 24.19, SD=6.09).

The power analysis (GPOWER; Erdfelder & Faul, 1996) indicated that 31 participants were required for the repeated measures ANOVA and that 75 participants were required for the correlations. The calculations were made based on a medium effect size, α value of 0.5 and power of 95%. Field's (2005) graph of sample size in regression, based on Miles and Shevlin (2001), suggested that a multiple regression, with a maximum of 6 predictor variables and a medium effect size (0.3), required a sample of 100.

Measures

Childhood stress. The Child Abuse and Trauma Scale (Sanders & Becker-Lausen, 1995) is a 38-item measure which has demonstrated strong internal validity and test-retest reliability in a student population. The internal consistency in the current sample was .87.

Self attacking. The Forms of Self-Attacking and Self-Reassurance Scale (FSCRS; Gilbert, Clarke, Hempel, Miles, & Irons, 2004) is a 22 item scale rated on a 5 point Likert scale. The scale comprises of three subscale; inadequate self, hated self and reassure self and demonstrates internal consistency with the present sample of above .87 for each subscale. The scale has also previously demonstrated good internal consistency (Gilbert et al., 2004). The Functions of Self-Criticizing/Attacking scale (FSCS; Gilbert et al., 2004) is a 21-item scale consisting of two subscales; self correction and self punishment. Responses are given on a 5 point Likert scale, with internal consistency in the current sample of .88 and .91

respectfully. The measure has also previously demonstrated excellent internal consistency (Gilbert et al., 2004).

Fear of compassion. The Fear of Compassion Scale (FCS; Gilbert et al., 2011) is a 38 item scale rated on a 4 point Likert scale. The scale consists of three subscales; expressing compassion for others, responding to the expression of compassion from others, and expressing kindness and compassion towards yourself. Internal consistency on the subscales in the current sample was between .88 and .93. This scale has also previously demonstrated good internal consistency in a student sample (Gilbert et al., 2011).

Memories of warmth and safeness. The Early Memories of Warmth and Safeness Scale (EMWSS; Richter, Gilbert & McEwan, 2009) is a 21 item scale rated on a 5 point Likert scale, with internal consistency in the current sample of .98. The scale has previously demonstrated excellent internal consistency (Richter et al., 2009).

State positive and negative affect. The Types of Positive Affect Scale (Gilbert et al., 2008) is an 18 item scale rated on a 5 point Likert scale. The instructions were changed to ask participant how they were feeling in the moment and the Likert scale was changed so rather than measuring trait emotions (0 = not at all like me to 4 = extremely like me) it measured state emotions (0 = not at all to 4 = extremely). The scale consists of three subscales; active, relaxed and safe/warm. The internal consistency in the current sample was between .86 and .94. The negative subscale of the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) was used to measure negative affect. This scale consists of 10 items rated on a 5 point Likert scale and has previously demonstrated high reliability (Crawford & Henry, 2004). The internal consistency in the present sample was .89.

Social safeness. The Social Safeness and Pleasure Scale (SSPS; Gilbert et al., 2009) consists of 11 items rated on a 5 point Likert scale. This scale has previously been found to

have good internal reliability (Gilbert et al., 2009). The internal consistency in the current sample was .91. Instructions were modified to measure state social safeness and pleasure. Instead of asking people how they generally feel (0-almost never, 4-almost all the time) they were asked how they feel 'right now' (0-agree, 4-disagree). The internal consistency for the state measure of social safeness in the current sample was .95.

Depression, anxiety and stress. The 21 item Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995) consists of three scales, each containing seven items rated on a 4 point Likert scale. Internal consistency and concurrent validity of the DASS-21 have previously been shown to be in the acceptable to excellent ranges (Antony, Bieling, Cox, Enns & Swinson, 1998). Internal consistency in the current sample was .93.

Self compassion. The Self Compassion Scale (SCS; Neff, 2003) is a 26 item scale, made up of six subscales; self-kindness, self-judgment, common humanity, isolation, mindfulness and over-identified. Each item is rated on a 5 point Likert scale and the internal consistency in the current sample was between .79 and .88. The scale has previously demonstrated excellent internal validity (Neff, 2003).

Design

A within group repeated measures design was utilised, with participants completing measures of positive and negative affect at baseline (T1), post intervention (T2) and at 2-week follow up (T3).

Procedure

Ethical approval was granted by the University of Liverpool (appendix F). An initial pilot study was conducted in order to ensure that there were no technical difficulties with the online study and to get feedback on the quality of audio recording, the length of imagery exercise, and whether the instructions were clear. Ten participants completed the pilot study.

Only one person reported finding the imagery difficult and they had completed the study at work where they felt unable to relax. The general feedback was that the instructions were clear, the audio quality was good, the pauses in the imagery exercise were the right length, but that the imagery exercise was too long. In light of the feedback the relaxation component of the imagery exercise was shortened for the main study.

In the main study, participants followed a link on the study advert to access the online study. Participants were provided with an informed consent page, information on how their data would be used, their right to withdraw and details on the researcher's role and affiliations. Participants then completed general/trait self-report measures of childhood stress, memories of warmth and safeness, self attacking, self compassion, fear of compassion, and social safeness/pleasure. They then completed state measures of social safeness/pleasure, and positive and negative affect. Participants were then asked to recall a recent positive memory of being with another person and to complete the social BMAC prompt sheet. Following this, participants followed auditory instructions, which guided them through a relaxation exercise and the social BMAC. The aim of the relaxation exercise was individuals' attention to themselves and the present moment. In brief, the social BMAC guides the person through a positive social memory; engaging all the senses, thinking about the meaning of the memory to them, savouring the positive feelings they experienced, and then finally considering the positive affect in the mind of another before reflecting upon the feelings they experience as well as what this means to them. It then asks the person to savour that feeling. The BMAC was presented using a male voice. In order to identify possible biases in response to a male voice, a literature search was conducted to see whether there were any data on affect related tasks and gender of presenter. No studies were identified. The script for the social BMAC is provided in Appendix G. A copy of the recording is available from the first author.

Participants were then asked to complete state measures of positive and negative affect, and social safeness and pleasure. The study took approximately 45 minutes to complete. All participants were entered into a prize draw to win a £150 voucher.

Participants who chose to leave their contact details were contacted via email two weeks after completing the study and with a link to the follow up study. The follow up study involved repeating the state measures of positive and negative affect and social safeness and pleasure.

Data Analysis

Analysis was conducted using SPSS version 20. The data were checked for normality of distribution using skewness, kurtosis, scatter-plots, and histograms. These analyses showed that a number of measures were skewed, showing floor or ceiling effects. This is perhaps not surprising given that a non-clinical sample was used. As a result, a non parametric approach to analysis was taken using Friedman's analysis of variance and the bootstrapping method. Bootstrapping is a method of making statistical inferences by generating confidence intervals and has been recommended as an appropriate method to analysing data in situations where normal parametric assumptions have not been met (Mooney & Duval, 1993). The analysis procedure is discussed in relation to the aims of the study.

Due to the non-normally distributed data, Friedman's analysis was used to investigate change in affect at the different time points; pre-intervention (T1), post-intervention (T2), and two week follow up (T3). Additional post-hoc analyses were conducted to explore whether changes in affect were momentary (T1-T2) or if they were sustained in the follow up period (T1-T3). Paired-sample t-tests were used to compare the change in affect from T1 to T2. Non-normality was not considered a problem in these analysis in light of the large sample size due

to central limit theorem (Field, 2013). Paired-sample t-tests (this time with CI bootstrapped due to the smaller sample), were conducted to measures change in affect from T1 to T3.

In order to examine possible predictors of individuals' responses to this intervention bootstrapped multiple hierarchical regression analyses were conducted with 2000 re samples (Mooney & Duval, 1993). The different forms of self attacking and fear of compassion were entered as predictor variables. Feelings of social safeness and safe/warm positive affect following the social BMAC were the dependent variables with baseline scores of social safeness and safe/warm positive affect being controlled for.

Bootstrapped Pearson correlations were conducted to explore the relationship between self report measures of fear of compassion, self compassion, self attacking, self reassurance, depression, early memories of warmth and safeness, childhood trauma, and feelings of social safeness and pleasure.

Results

Participant Characteristics

A between subjects ANOVA analysis was conducted to explore if there were any difference in the demographics or self-report measures between those who completed the study and those who did not complete the study. The results showed that there were no significant differences between the two groups on any of the variables measured.

Aim 1: To Investigate Individuals' Emotional Reactions to the Social BMAC

Friedman's analysis of variance showed that there was a significant effect of time (pre, post and follow up) on relaxed positive affect ($p \leq .01$), safe/warm positive affect ($p \leq .01$), social safeness and pleasure ($p \leq .01$), and negative affect ($p \leq .01$). There was no significant effect of time on active positive affect.

The results of the post-hoc analyses are reported in Table 1. It was found that safe/warm positive affect, relaxed positive affect and feelings of social safeness and pleasure significantly increased from T1 to T2 ($p \leq .01$) and that negative affect significantly decreased ($p \leq .01$). There was no significant change in active positive affect from T1 to T2. It was also found that there was no significant change in any of the measures of affect from T1 to T3, suggesting that change in affect was momentary and not sustained over time.

Table 1
Change in affect following the BMAC.

Measure		N	Mean	SD	t	d
Active positive affect	T1	124	13.95	8.22	.12	.08
	T2		14.01	8.20		
	T1	49	14.37	8.40	-.61	-.09
	T3		13.67	7.63		
Relaxed positive affect	T1	124	13.96	6.27	8.17**	.48
	T2		16.85	5.85		
	T1	49	13.55	6.71	-.22	-.00
	T3		13.37	5.78		
Safe/warm positive affect	T1	124	10.88	3.62	7.36**	.38
	T2		12.26	3.67		
	T1	49	10.86	3.80	-.85	-.11
	T3		10.47	3.29		
Negative affect	T1	123	7.71	7.46	-5.97**	-.47
	T2	123	4.40	6.45		
	T1	49	8.29	7.74	-1.75	-.28
	T3	49	6.37	5.87		
Social safeness	T1	123	39.16	9.99	6.41**	.25
	T2	123	41.67	10.08		
	T1	49	40.35	9.83	1.75	.03
	T3	49	40.10	9.37		

** $p \leq 0.01$

T1=baseline; T2=post BMAC; T3=follow up

Aim 2: To Examine Possible Predictors of Individuals' Responses to the Social BMAC

Social safeness and pleasure. In the first multiple hierarchical regression analysis, post intervention (T2) social safeness score was entered as the outcome variable. Baseline (T1) social safeness score was included as a covariate in the first step, inadequate self and hated self were entered in the second step, and fear of compassion was entered in the third step. This allowed for the analysis of whether self attacking and fear of compassion would predict changes in the variable following the intervention.

The first step, including T1 social safeness, resulted in $f(1, 121) = 561.52, p < .01$, and $R^2 = .82$. Including self attacking scores as predictors did not make a significant improvement in the variance explained in change in social safeness in this model. However, when fear of compassion was entered in the third step of the model, there was a significant improvement in variance explained in this model $\Delta R^2 = .01$. The regression coefficients and associated CI for all variables in the regression are reported in Table 2.

The results in Table 2 suggest the presence of a suppression effect (Paulhus, Robins, Trzesniewski and Tracey, 2004), with coefficients increasing in size when other variables are added to the model. In order to explore this relationship further, the beta weights for the different styles of self relating were inspected and an additional multiple hierarchical regression analysis was conducted.

Table 2

Regressions of self-relating style and fear of compassion on post social safeness and pleasure score, controlling for pre social safeness and pleasure score.

Model	B	β	Semi-partial correlation coefficient	95% Confidence Interval For Bootstrap	
				Lower	Upper
1 T1 SSPS	0.92**	0.91	0.91	0.84	0.98
2 T1 SSPS	0.94**	0.93	0.85	0.84	1.03
Inadequate self	0.10	0.09	0.16	-0.02	0.22
Hated self	-0.10	-0.005	-0.07	-0.036	0.17
3 T1 SSPS	0.93**	0.92	0.85	0.84	1.03
Inadequate self	0.15*	0.13	0.22	0.02	0.26
Hated self	-0.04	-0.002	-0.003	-0.29	0.25
FCS	-0.59*	-0.12	-0.22	-1.04	-0.12

Note: SSPS=Social Safeness and Pleasure Scale; FCS=Fear of Compassion Scale

** $p \leq 0.01$

* $p \leq 0.05$

When the regression weights were examined to see which style of self attacking accounted for the variance in the model it was found that inadequate self was the only significant predictor. In order to further explore the suppression effect we examined the change in the regression coefficients for both inadequate self and fear of compassion when these predictors were included in isolation (with just time 1 social safeness as a covariate) or together in the same model. This is illustrated in Figure 1. It can be seen that both coefficients increase when their overlapping variance is removed from the model, suggesting a reciprocal

suppression situation (Paulhus, Robins, Trzesniewski and Tracey, 2004), whereby inadequate self is positively related to change whilst fear of compassion from others is negatively related to change but both variables are positively correlated. Therefore the two predictors may have been working against each other to suppress the effect that inadequate self and fear of compassion had on change in social safeness scores. By including both variables together in the regression model, the overlapping variance is adjusted for so that the variables no longer act against each other.

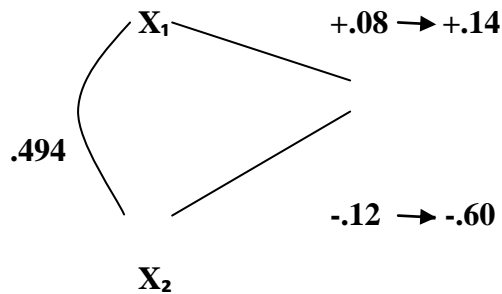


Figure 1

Illustration of the reciprocal suppressor situation.
 X_1 = Inadequate Self; X_2 = Fear of compassion

Safe/warm positive affect. The multiple hierarchical regression analysis was then repeated with T2 safe/warm positive affect score being entered as the outcome variable. Baseline (T1) safe/warm score was included as a covariate in the first step, inadequate self and hated self were entered in the second step, and fear of compassion was entered in the third step. Again, this allowed for the analysis of whether self attacking and fear of compassion could predict change in safe/warm positive affect following the intervention.

The first step, including T1 safe/warm positive affect, resulted in $f(1, 124) = 283.78, p < .01$, and $R^2 = .70$. Self attacking styles significantly explained further variance in the model, $\Delta R^2 = .02, p < .05$, with inadequate self positively predicting change in safe/warm feelings

following the intervention and hated self negatively predicting change. Fear of compassion was not a significant predictor of change in safe/warm positive affect.

Table 3

Regressions of self attacking style and fear of compassion on post safe/warm positive affect, controlling for pre safe/warm positive affect scores.

Model	B	β	Semi-partial correlation coefficient	95.0% Confidence Interval For Bootstrap	
				Lower	Upper
1 T1 safe/warm	0.85**	0.84	0.84	.73	.95
2 T1 safe/warm	0.83**	0.82	0.80	.67	.97
Inadequate self	0.06*	0.15	0.19	.00	.11
Hated self	-0.16*	-0.20	-0.26	-.29	-.03
3 T1 safe/warm	0.82**	0.81	0.80	.67	.97
Inadequate self	0.07*	0.17	0.22	.01	.12
Hated self	-0.14*	-0.17	-0.23	-.27	-.02
FCS	-0.16	-0.08	-0.13	-.39	.10

FCS=Fear of Compassion Scale

** $p \leq 0.01$

* $p \leq 0.05$

Aim 3: To Investigate the Relationship Between Self Report Measures

The correlations between the self-report measures can be seen in Table 4. It was found that childhood trauma was negatively correlated with self compassion and reassured self, and positively correlated with fear of compassion. Early memories of warmth and safeness were positively correlated with self compassion and reassured self and negatively correlated with fear of compassion. In addition, fear of compassion was positively correlated

with both forms of self-attacking and depression, and negatively correlated with social safeness and reassured self.

Table 4

Correlations between self report measures of childhood trauma, early memories of warmth and safeness, fear of compassion, self compassion, social safeness, depression, self-attacking and self-reassurance.

Variables									
Variables	FCS	SCS	SSPS	EMWS	DASS	Inadequate self	Hated self	Reassured self	HEQ
HEQ	.366*	-.270*	-.327*	-.636*	.210	.343*	.395*	-.261*	1
EMWS	-.363*	.358*	.538*	1	-.252*	-.447*	-.512*	.463*	-.636*
FCS	1	-.481*	-.450*	-.379*	.592*	.547*	.553*	-.398*	.340*

Note: SSPS=social safeness and pleasure scale; FCS=fear of compassion scale; EMWS=early memories of warmth and safeness; HEQ=home environment questionnaire; DASS=depression, anxiety and stress scale; SCS=self compassion scale.

N = 160

* Correlation is significant at the 0.005 level (2-tailed, Bonferroni corrected)

Discussion

The primary aim of this study was to investigate individuals' emotional reactions to the mental imagery of a positive social memory using the BMAC technique. As predicted, the results demonstrated a significant increase in safe/warm positive affect, relaxed positive affect and feelings of social safeness and pleasure following the social BMAC, and a significant decrease in negative affect. These changes were momentary and not sustained in the follow up period. There was no significant change in active positive affect.

Gilbert's (2005) three systems affect regulation model would suggest that the affiliative system can dampen down the threat and drive system and allow for feelings of social safeness. The differential stimulation of positive affect systems supports Gilbert's three systems approach, in that the social BMAC appears to activate the affiliative system, resulting in momentary increases in safe/warm and relaxed feelings, which increases feelings of social safeness and decreases negative emotions related to threat. These findings are also consistent with previous research that suggests that social safeness is an emotional response to affiliation (Kelly, Zuroff, Leybman & Gilbert, 2012). The results could also be understood in the context of a cognitive model (Beck, 1976); whereby a positive interpretation of an event (the memory) leads to the experience of positive emotions. It is known that when an individual is experiencing negative emotions, their attention becomes more threat focused; conversely, the experience of positive emotions is thought to broaden attention and reduce attention to threat (Fredrickson, 2001). This may also explain why feelings of social safeness increase after the social BMAC.

The second aim of the study was to examine possible predictors of individuals' responses to this intervention. It was expected that self-attacking would be a negative predictor of feelings of social safeness and safe/warm positive affect following the social

BMAC. However, a different pattern of results were found for the different forms of self-attacking. When adjusting for their shared variance, inadequate self attacking positively predicted change in safe/warm positive affect whilst hated self-attacking negatively predicted change in safe/warm positive affect. In addition, when adjusting for their shared variance, inadequate self-attacking positively predicted change in feelings of social safeness, and fear of compassion negatively predicted change in feelings of social safeness following the social BMAC. This was interesting as inadequate self-attacking was negatively correlated with baseline feelings of safeness but actually predicted improvement in feelings of safeness following the social BMAC.

These results could be understood by considering the different functions of self-attacking. The primary function of inadequate self-attacking is thought to be for self-correction, whereas the function of hated self-attacking is thought to be for self-punishment (Gilbert et al., 2004). In the social BMAC the person is savouring the feeling they experience when contemplating the positive feeling another has in relation to them. It could be speculated that this form of self-attack (inadequate), for these people, is less about the threat of compassion and more about a regulation strategy. These individuals may be receptive to receiving positive regard from others, even if they struggle to generate this by themselves, and so positive feelings increase in the BMAC exercise. This is also consistent with the function of inadequate self-attacking being for self-correction; such individuals may be seen as striving to achieve and to get things right in order to gain approval from others. It may be that these individuals engage well with the BMAC because they are striving to do well. In contrast, individuals who self-attack in order to punish themselves appear to be less receptive to signals of positive regard from others, possibly because they have developed a threat

system that dampens down affiliative emotions in order to prevent external attack (Gilbert, 2000).

Fear of compassion was not found to be a predictor of change in safe/warm positive affect; possibly because it did not explain any further change in safe/warm positive affect scores when hated self had already been entered into the model.

The third aim of the study was to explore the relationship between early life experiences, compassion, self attacking, depression, and feelings of social safeness. Childhood trauma was negatively associated with self-compassion and being able to reassure oneself, whilst early memories of warmth and safeness were positively related to these two variables. Similarly, childhood trauma was positively related to fear of compassion whilst early memories of warmth and safeness were negatively correlated with this variable. Fear of compassion was in turn positively associated with self-attacking and depression and negatively associated with social safeness and being able to reassure oneself. These results offer support to the existing evidence that individuals with aversive early life experiences are more likely to self-attack and are more fearful of compassion; with a fear of compassion being associated with feeling less socially safe and having more difficulties reassuring oneself (Gilbert, 2005; Gilbert & Irons, 2005; Gilbert et al., 2012).

Clinical Implication

Taken together, these findings could have numerous clinical implications. Tarrier (2010) has suggested that the BMAC could be used in cognitive therapy to provide a temporary lift in mood which could increase motivation to engage in activities; to improve mood before/after exposure work; and to help to build positive schema. The social BMAC significantly increased positive affect and feelings of safeness in this group, although the degree of improvement was less in individuals with more hated-self relating and fear of

compassion. Before using this intervention clinically, it may be helpful for clinicians to use the fear of compassion scale (Gilbert et al., 2011) and the forms of self-attacking & self-reassurance scale (Gilbert et al., 2004) to aid them in their formulation of the client and to decide which intervention would be most appropriate.

Self criticism is seen as a transdiagnostic phenomenon (Gilbert & Irons, 2005). For some highly self critical clients, it may be more important to work on fear of compassion first, as stimulating safe/warm affect in this group could be threatening. This could be done within a CFT model, by naming and describing compassion, its importance, and an explanation of why some people may feel threatened by it. However, for individuals with lower fear of compassion but higher inadequacy scores, it may be more about working on sense of inadequacy directly, perhaps by working on ways of internally generating safe/warm positive affect in order to reduce threat and increase feelings of social safeness and pleasure. Cognitive models of low self esteem do this by identifying positive qualities and keeping positive data logs in order to build on positive schema (Fennell, 1997). However, as the social BMAC appears to be effective in increasing social safeness and decreasing negative affect, it might be a useful technique to use in therapy to help individuals to learn to internally generate such feelings of warmth and safeness.

Limitations

Although the predictors of change in positive affect and social safeness scores did reach statistical significance, the effect size was only small and therefore caution needs to be taken when interpreting these results. One reason that the effect size is small may be because when the variance associated with baseline affect is removed there is only a small amount of variance left to predict. Another reason may be that a student sample was used in this study so levels of self attacking and fear of compassion are likely to be lower than what would be

seen in a clinical population. In addition, baseline social safeness and safe/warm affect scores are likely to be higher than in a clinical sample. However, the small effect size implies that whilst these variables may have a small impact on response to the social BMAC technique, this is quite limited.

A further limitation of this study is that a comparison group was not used. It is therefore unclear whether it was the social BMAC that brought about change or whether it was some non-specific element of the intervention. It could be that focusing on any sort of imagery could bring about change in affect. In future research it would be helpful to have a comparison group who complete a relaxation imagery exercise to allow for the exploration of change brought about by the social BMAC above that of relaxation alone. It would also be useful to do this with a clinical group for the reasons previously discussed. As self-criticism is a trans-diagnostic phenomenon, this could be carried out with various clinical populations such as those with depression, anxiety, borderline personality disorder, bipolar disorder, deliberate self harm or psychosis.

Garland et al. (2010) suggested that repeated activation of positive emotions may result in changes in brain function and structure to confer long term resilience from negative emotions. In the present study the social BMAC was only practiced on one occasion, which is perhaps why the effects were not maintained in the follow up period. However, it would be interesting to see if there are any longer term effects in change in affect and social safeness if the social BMAC is practiced regularly.

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Chapter 3

Concluding Chapter

Concluding Chapter

The concluding chapter is split into four sections. First, a brief overview of the thesis will be provided along with the key findings. Methodological considerations that have not already been discussed in the empirical paper will be presented. These relate to the issues of conducting a study online, completion rate, and modifications of the measures used. A section on future directions of research will follow, in which possible ideas for future study designs will be discussed and an outline of a future research proposal will be provided. Finally a lay summary of the research will be provided. It is hoped that this summary can be shared on the compassionate mind website.

Brief Overview

A systematic review of the empirical evidence for the use of CFIm found that the intervention appears to improve outcomes for a range of client groups but at a similar rate to other interventions. Individuals with attachment difficulties, high levels of self criticism, and low levels of social safeness found it more difficult to receive compassionate imagery and to feel soothed by it. It was suggested that there is a need for more research in this area, specifically randomised trials with an appropriate control condition, adequate sample sizes, measuring change in self-criticism, self-compassion, safe/warm positive affect, social safeness and threat.

The empirical paper set out to explore individuals' emotional reactions to the mental imagery of a positive social memory using the BMAC technique and to examine possible predictors of individuals' responses to this intervention. How the intervention affected feelings of social safeness and pleasure was also explored. It was found that there were significant increases in safe/warm positive affect, relaxed positive affect and feelings of social safeness and pleasure following the social BMAC, as well as a significant decrease in

negative affect. There was no significant change in active positive affect. These changes were momentary and not sustained in the follow up period. It was also found that inadequate self attacking positively predicted change in safe/warm positive affect whilst hated self-attacking negatively predicted change in this affect system following the social BMAC. In addition inadequate self attacking positively predicted change in feelings of social safeness and pleasure and fear of compassion negatively predicted change in feelings of social safeness and pleasure following the social BMAC.

Further methodological considerations

There are many benefits to collecting data online. It allows access to a large population and has the benefit of saving time and money (Schmidt, 1997). In addition, the data entry stage is automated and the survey software can ensure that the data collected is free from common errors such as missing data. This was certainly the case in the present study. A total of 123 participants completed the whole study, which is quite a large sample size for an intervention study. It is very unlikely that this sample size would have been achieved if the study had been conducted in person as it would have been very time consuming to collect data from this number of participants. In addition, there was no missing data for the 123 respondents.

Some technical difficulties with the survey software were experienced; however piloting the study eliminated some of these problems. For example, in the current study the order of responses on some of the measures appeared in a confusing order, but this was identified in the pilot study and rectified before the main study commenced.

A further limitation of collecting data online was that there was a high drop out rate. In the present study 240 people consented to take part in the study but only 123 completed. This may be because people followed the link to the study and were interested in taking part

but were either distracted by other things going on around them or were not in a place where they felt relaxed enough to complete the study. It may also have been because the study was quite lengthy, taking around 45 minutes to complete; this may have deterred people from completing the study. Interestingly, there were no significant differences in any of the measures between those who completed the study and those that didn't. It may have been predicted that those who found some of the earlier measures difficult to complete, such as measures of childhood trauma or early memories of warmth and safeness, would not go on to complete the study but this was not found to be the case. It may also have been predicted that those scoring higher inadequate self attacking would be more likely to complete the study as they were striving to do well but again this was not the case. The finding that participants didn't differ on measures of psychological mechanisms, suggests that environmental or convenience factors were the reason that people didn't complete the study, rather than psychological reactivity to the task. Perhaps one of the advantages of having a study online is that people do not feel under pressure to complete the study in the way they would if they were face to face with the researcher.

A further limitation of having the study online is that the researcher was not able to see if participants were becoming distressed when engaging in the social BMAC. It would appear that this was generally not the case as only three participants reported any negative feelings at the end of the study. Participants were given the option at the end of the study to leave feedback. The majority of the feedback was positive; however three people reported feeling upset, angry and frustrated. Given the results that hated self attacking negatively predicted change in safe/warm positive affect, it may be expected that in a clinical sample some people would feel threatened by the intervention. It may therefore be safer and more ethical to conduct the study face to face with a clinical sample.

Measures of the different types of positive affect, negative affect and social safeness were modified in the present study to measure momentary changes in affect. These measures were originally designed to measure affect generally (trait), rather than in the moment (state). The state measures demonstrated good/excellent internal consistency in the present sample. The results for change in affect following the intervention also demonstrate that the state measures were sensitive to momentary change in emotion. This implies that the different affect systems hypothesised by Gilbert et al. (2008) appear to not only be distinct as factors when measured at trait level, but also respond differentially as a momentary measure and in response to an affect manipulation. This offers further support for the theory of different affective states arising from the three systems. Clinically, the state measures could be used within session to measure different types of affect. The state measures could also be utilised in other research designs such as experience sampling methodology (ESM; Csikszentmihalyi & Larson 1987) studies, as they are sensitive to momentary changes in emotion. ESM may therefore provide an ecologically valid way (as assessments occur during the course of normal life) of capturing moment-to-moment shifts in affect following the social BMAC intervention. ESM studies involve repeated self-report measurement of momentary phenomena including thoughts and feelings at various times during the day. If the study was examining change in emotional state then the state measures used in the present study might be helpful to capture this data.

Directions for Future Research

As discussed in the main empirical paper, replicating the study with a clinical sample with the addition of a control group is one possible direction for future research. It would also be interesting to explore the effects of the social BMAC if it was practiced regularly.

How the BMAC could increase anticipatory pleasure is also of interest. Kelly and Welford (in prep.) suggest that increasing the savouring of memories through the BMAC can lead to increased motivation to engage in similar tasks in the future. It has been suggested that individuals with negative symptoms of psychosis, such as anhedonia, do not have difficulty experiencing pleasure but they do have difficulty anticipating that pleasurable activities will actually be pleasurable. This has led to a distinction between anticipatory and consumatory pleasure (Gard, Kring, Gard, Horan, & Green, 2007). Favrod, Giuliani, Ernst and Bonsack (2010) found that the savouring of memories can increase anticipatory pleasure and reduce anhedonia in people with psychosis. A similar method was used in the CBSPP trial (Tarrier et al., in submission) where the BMAC was used to prompt the planning of future tasks. In the trial, clients reported that this formed a positive cycle of savouring, anticipation and behavioural activation.

Using the BMAC with the addition of imagining future pleasurable events may therefore be of benefit to individuals experiencing anhedonia or depression and could be used in therapy alongside behavioural activation. Future research could explore the benefits of doing this with individuals with psychosis. Positive and negative affect, anticipatory pleasure and level of activity could be measured at baseline. Participants could be split into two groups; activity scheduling alone or engaging in the BMAC with the added anticipatory element and then schedule activities for the week ahead. Baseline measures could then be repeated at the end of the week.

In future research it would also be interesting to examine whether attachment style is linked to fear of compassion and self attacking. The current study found that early memories of warmth and safeness and childhood trauma were associated with current levels of self attacking and fear of compassion. It is likely that attachment style would be correlated with

early aversive experiences in childhood (Van Ijzendoorn and Kroonenberg, 1988); however it is possible that people may have developed secure attachments with their primary care giver but have also experienced some trauma in childhood or have fewer early memories of warmth and safeness. This could be explored in a correlation study measuring attachment style, childhood trauma, memories of warmth and safeness, fear of compassion and self attacking.

A future research proposal for replicating the study with a clinical sample and the addition of a control group is outlined below.

Aim

To test empirically how individuals with depression respond to the social BMAC compared to a relaxation exercise and to explore what factors might predict these responses.

Prediction

It is expected that feelings of social safeness, and safe/warm positive affect will significantly increase and negative affect will decrease after the social BMAC. It is also expected that there will also be a significant difference in change in affect between the social BMAC group and the relaxation group. In addition, it is anticipated that inadequate self attacking will positively predict change in feelings of social safeness and hated self attacking and fear of compassion will negatively predict change in affect.

Design

An experimental between-groups design, randomising participants to either receive the social BMAC intervention or a relaxation intervention.

Method

Participants. Individuals with depression could be recruited from primary care mental health services.

Measures.

Self attacking could be measured using the forms of self-attacking & self-reassurance scale (FSCRS; P. Gilbert, Clarke, Hempel, Miles, & Irons, 2004)

Fear of compassion could be measured using the fear of compassion scale (FCS; Gilbert, McEwan, Matos & Rivis, 2011)

Positive and negative affect could be measured by modifying the instructions on the types of positive affect scale (Gilbert et al., 2008) to ask participant how they are feeling in the moment (0 = not at all to 4 = extremely) rather than how they feel generally (0 = not at all like me to 4 = extremely like me) This scale consists of three subscales; active, relaxed and safe/warm. The negative subscale of the positive and negative affect scale (PANAS; Watson, Clark, & Tellegen, 1988) could be used to measure negative affect.

Social safeness could be measured by modifying the instructions on the social safeness and pleasure scale (SSPS; Gilbert et al., 2009) to measure state social safeness and pleasure. Instead of asking people how they generally feel (0-almost never, 4-almost all the time) they could be asked how they feel 'right now' (0-agree, 4-disagree).

Depression, anxiety and stress could be measured using the 21 item depression, anxiety and stress scale (DASS-21; Lovibond & Lovibond, 1995).

Analysis. A mixed-design ANOVA could be used to analyse the data with intervention received (social BMAC or relaxation) as the between-subjects factor and change in affect (on measures of social safeness, safe/warm positive affect and negative affect) as within-subjects factors. In addition, multiple hierarchical regressions could be conducted to explore the predictors of change in affect following the social BMAC and relaxation exercises.

Lay Summary

It is hoped that the following lay summary can be shared on the compassionate mind website: <http://www.compassionatemind.co.uk/index.htm>. The website aims to promote scientific research in the area of compassion, to share information, and to broaden understanding of compassion and its application to range of difficulties.

It is well known that mental imagery can bring about strong emotions. In this study, participants were asked to recall a positive memory of being with another person. They were then guided through an imagery exercise in which they recalled this memory in detail. The aim of this exercise was to bring about the same positive emotions that they felt at the time and to focus on how it felt for someone else to feel positive towards them. It was found that following this imagery exercise, feelings associated with being safe, warm and relaxed increased and negative feelings such as feeling upset, scared or guilty decreased. People also reported feeling more socially safe.

There were some differences in the way that people reacted to this imagery. It is known that some people may fear receiving compassion from other people or feel like they do not deserve to receive warmth from others. These people did not feel as safe and warm after the imagery exercise as those who were less fearful of compassion. In therapy, we may want to help people reduce the barriers to feeling comfortable when receiving kindness and warmth from others before focussing on receiving those feelings.

It was also found that people who criticise themselves but who do not fear compassion benefited most from this exercise. It is thought that this is because they find it hard to be kind to themselves but they feel better when they receive positive feedback from other people. This could be helpful in therapy as the exercise could be used to try to help

these people to generate more warm/safe feelings in themselves without needing to rely on others to make them feel better.

In addition, it was found that people who had more difficult experiences in childhood and fewer early memories of feeling warm and safe found it more difficult to reassure themselves, were less compassionate and more negative towards themselves, were more fearful of compassion, and had higher levels of depression, anxiety and stress.

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Appendix A

Appendix A

Clinical Psychology Review Author Guidelines

Article structure

Manuscripts should be prepared according to the guidelines set forth in the Publication Manual of the American Psychological Association (6th ed., 2009). Of note, section headings should not be numbered.

Manuscripts should ordinarily not exceed 50 pages, including references and tabular material. Exceptions may be made with prior approval of the Editor in Chief. Manuscript length can often be managed through the judicious use of appendices. In general the References section should be limited to citations actually discussed in the text. References to articles solely included in meta-analyses should be included in an appendix, which will appear in the on line version of the paper but not in the print copy. Similarly, extensive Tables describing study characteristics, containing material published elsewhere, or presenting formulas and other technical material should also be included in an appendix. Authors can direct readers to the appendices in appropriate places in the text.

It is authors' responsibility to ensure their reviews are comprehensive and as up to date as possible (at least through the prior calendar year) so the data are still current at the time of publication. Authors are referred to the PRISMA Guidelines (<http://www.prisma-statement.org/statement.htm>) for guidance in conducting reviews and preparing manuscripts. Adherence to the Guidelines is not required, but is recommended to enhance quality of submissions and impact of published papers on the field.

Appendices

If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.;

in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Essential title page information

Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible. **Note: The title page should be the first page of the manuscript document indicating the author's names and affiliations and the corresponding author's complete contact information.**

Author names and affiliations. Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name, and, if available, the e-mail address of each author within the cover letter.

Corresponding author. Clearly indicate who is willing to handle correspondence at all stages of refereeing and publication, also post-publication. **Ensure that telephone and fax numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address.**

Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a "Present address" (or "Permanent address") may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract

A concise and factual abstract is required (not exceeding 200 words). This should be typed on a separate page following the title page. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. References should therefore be avoided, but if essential, they must be cited in full, without reference to the reference list.

Keywords

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Abbreviations

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

Acknowledgements

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Footnotes

Footnotes should be used sparingly. Number them consecutively throughout the article, using superscript Arabic numbers. Many word processors build footnotes into the text, and this feature may be used. Should this not be the case, indicate the position of

footnotes in the text and present the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

Table footnotes

Indicate each footnote in a table with a superscript lowercase letter.

General points

- Make sure you use uniform lettering and sizing of your original artwork.
- Embed the used fonts if the application provides that option.
- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- Size the illustrations close to the desired dimensions of the printed version.
- Submit each illustration as a separate file.

Tables

Number tables consecutively in accordance with their appearance in the text. Place footnotes to tables below the table body and indicate them with superscript lowercase letters. Avoid vertical rules. Be sparing in the use of tables and ensure that the data presented in tables do not duplicate results described elsewhere in the article.

References

Citations in the text should follow the referencing style used by the American Psychological Association. You are referred to the Publication Manual of the American Psychological Association, Sixth Edition, ISBN 1-4338-0559-6, copies of which may be ordered from <http://books.apa.org/books.cfm?id=4200067> or APA Order Dept., P.O.B. 2710,

Hyattsville, MD 20784, USA or APA, 3 Henrietta Street, London, WC3E 8LU, UK. Details concerning this referencing style can also be found at <http://humanities.byu.edu/linguistics/Henrichsen/APA/APA01.html>

Citation in text

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Web references

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

References in a special issue

Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

Reference style

References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters "a", "b", "c", etc., placed after the year of publication.

References should be formatted with a hanging indent (i.e., the first line of each reference is flush left while the subsequent lines are indented).

Examples: Reference to a journal publication: Van der Geer, J., Hanraads, J. A. J., & Lupton R. A. (2000). The art of writing a scientific article. *Journal of Scientific Communications*, 163, 51-59.

Reference to a book: Strunk, W., Jr., & White, E. B. (1979). *The elements of style*. (3rd ed.). New York: Macmillan, (Chapter 4).

Reference to a chapter in an edited book: Mettam, G. R., & Adams, L. B. (1994). How to prepare an electronic version of your article. In B.S. Jones, & R. Z. Smith (Eds.), *Introduction to the electronic age* (pp. 281-304). New York: E-Publishing Inc.

Appendix B

Appendix B

Emotion Author Guidelines

Prior to submission, please carefully read and follow the submission guidelines detailed below. Manuscripts that do not conform to the submission guidelines may be returned without review.

In addition to addresses and phone numbers, authors should supply email addresses and fax numbers for use by the editorial office and later by the production office. The majority of correspondence between the editorial office and authors is handled by email, so a valid email address is important to the timely flow of communication during the editorial process.

Authors should provide email addresses in their cover letters and should keep a copy of the manuscript to guard against loss. Manuscripts are not returned.

Manuscripts for *Emotion*[®] can vary in length; typically they will range from 10 to 40 double-spaced manuscript pages. Manuscripts should be of sufficient length to ensure theoretical and methodological competence.

Most of the articles published in *Emotion* will be reports of original research, but other types of articles are acceptable.

- Case studies from either a clinical setting or a laboratory will be considered if they raise or illustrate important questions that go beyond the single case and have heuristic value.
- Articles that present or discuss theoretical formulations of emotion and related affective phenomena that evaluate competing theoretical perspectives, or that offer innovative commentary or analysis on timely topics of inquiry may also be accepted.
- Comprehensive reviews of the empirical literature in an area of study are acceptable if they contain a meta-analysis and/or present novel theoretical or methodological perspectives.
- Comments on articles published in the journal will be considered.

Brief Reports

Emotion also publishes brief reports. Manuscripts submitted as Brief Reports should not exceed 2,500 words, exclusive of references and figure captions. There should be no more than 2 figures or tables and no more than 30 references.

Manuscript Preparation

Prepare manuscripts according to the *Publication Manual of the American Psychological Association* (6th edition). Manuscripts may be copyedited for bias-free language (see Chapter 3 of the *Publication Manual*).

Review APA's Checklist for Manuscript Submission before submitting your article.

Double-space all copy. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts, appear in the *Manual*.

Below are additional instructions regarding the preparation of display equations and tables.

Display Equations

We strongly encourage you to use MathType (third-party software) or Equation Editor 3.0 (built into pre-2007 versions of Word) to construct your equations, rather than the equation support that is built into Word 2007 and Word 2010. Equations composed with the built-in Word 2007/Word 2010 equation support are converted to low-resolution graphics when they enter the production process and must be rekeyed by the typesetter, which may introduce errors.

To construct your equations with MathType or Equation Editor 3.0:

- Go to the Text section of the Insert tab and select Object.
- Select MathType or Equation Editor 3.0 in the drop-down menu.

If you have an equation that has already been produced using Microsoft Word 2007 or 2010 and you have access to the full version of MathType 6.5 or later, you can convert this equation to MathType by clicking on MathType Insert Equation. Copy the equation from Microsoft Word and paste it into the MathType box. Verify that your equation is correct, click File, and then click Update. Your equation has now been inserted into your Word file as a MathType Equation.

Use Equation Editor 3.0 or MathType only for equations or for formulas that cannot be produced as Word text using the Times or Symbol font.

Tables

Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

Submitting Supplemental Materials

APA can now place supplementary materials online, available via the published article in the PsycARTICLES® database. Please see Supplementing Your Article With Online Material for more details.

Abstract and Keywords

All manuscripts must include an abstract containing a maximum of 250 words typed on a separate page. After the abstract, please supply up to five keywords or brief phrases.

References

List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section.

Examples of basic reference formats:

- **Journal Article:**
Hughes, G., Desantis, A., & Waszak, F. (2013). Mechanisms of intentional binding and sensory attenuation: The role of temporal prediction, temporal control, identity prediction, and motor prediction. *Psychological Bulletin*, *139*, 133–151.
<http://dx.doi.org/10.1037/a0028566>
- **Authored Book:**
Rogers, T. T., & McClelland, J. L. (2004). *Semantic cognition: A parallel distributed processing approach*. Cambridge, MA: MIT Press.
- **Chapter in an Edited Book:**
Gill, M. J., & Sypher, B. D. (2009). Workplace incivility and organizational trust. In P. Lutgen-Sandvik & B. D. Sypher (Eds.), *Destructive organizational communication: Processes, consequences, and constructive ways of organizing* (pp. 53–73). New York, NY: Taylor & Francis.

Figures

Graphics files are welcome if supplied as Tiff, EPS, or PowerPoint files. Multipanel figures (i.e., figures with parts labeled a, b, c, d, etc.) should be assembled into one file.

The minimum line weight for line art is 0.5 point for optimal printing.

For more information about acceptable resolutions, fonts, sizing, and other figure issues, please see the general guidelines.

When possible, please place symbol legends below the figure instead of to the side.

Appendix C

Appendix C: Study Coding Sheet

Title:

Authors:

Design:

Country:

Sample Characteristics

Sample size:

Age:

Gender:

Ethnicity:

Main aims:

Measures used:

Method of delivery:

Length of exercise:

Comparison conditions:

Key findings:

Appendix D

Appendix D



Participant Information Sheet

Emotional Response to a Therapeutic Technique; Broad Minded Affective Coping (BMAC)

You are invited to take part in an online questionnaire study. Please read the following information carefully before deciding if you would like to take part. If you would like more information or have any questions please contact us via the contact details provided below. The following information will explain why the research is being done and what it will involve.

In order to participate we ask that you are over 18 and are able to read written instruction and listen to auditory instructions in English.

What is the purpose of the study?

This study aims to investigate how people respond emotionally to a therapeutic technique that aims to elicit positive emotion through the use of mental imagery of a positive memory. This technique is called Broad Minded Affective Coping (BMAC). An additional aim of the study is to investigate the affect that other psychological factors and life events have on people's emotional responses to mental images of a positive social memory.

It is hoped that the results will help in understanding how the BMAC can be used effectively in therapy to help individuals with a range of difficulties.

What will happen if I take part?

You will be asked to complete a set of online questionnaires by selecting responses from a list. You will then be asked to recall a recent positive memory of being with another person and to answer some questions about the memory. Following this you will listen to auditory instructions which will guide you through a relaxation exercise and the BMAC. You will then be asked to repeat some of the previous questionnaires. It is anticipated that this will take a total of 45 minutes.

You will also be asked to repeat some of the questionnaires one week later. This should only take 5 minutes. If you choose to provide your contact details, you will be sent an email reminder.

You will need to be in a quiet place without any distractions and you will need to have access to either a computer with speakers or headphones. It is important that you are in a place that you feel able to relax.

Confidentiality

Any information you give will be anonymised and will not be personally identifiable. You will be provided with a study participant number should you wish to withdraw from the study at a later date. Your responses will only be viewed by the researchers involved in the study. Any data you provide will be stored in accordance with the data protection for seven years and will then be destroyed.

Do I have to take part in the study?

No, not at all, we are looking to recruit volunteers. You can also withdraw from the study at any time should you change your mind without giving a reasons why. All you need to do is contact the researchers stating your 'study participant number' and that you wish to withdraw from the study and your data will be deleted.

How will the information be used?

The results from the study will be written up as part of a Doctoral Degree in Clinical Psychology. It is expected that the findings will be published in an academic journal at a later date.

Are there any risks to taking part?

There are no direct risks to taking part in the study. However, some of the questions ask about your feelings and beliefs and about stressful childhood events. If any of the questions upset or affect you in any way we advise you to Details of organisations which may also help are provided at the end of the questionnaires.

Are there any benefits to taking part?

There will be no immediate direct benefits to you. However it is expected that the research results may benefit people in the future. That is, it is hoped that the research will help clinicians to understand the potential utility of a therapeutic technique (BMAC).

Will my taking part be covered by an insurance scheme?

Any participants who take part in the study which is approved by the University of Liverpool ethics committee will have cover.

What if I am unhappy or there is a problem?

Please contact Dr James Reilly on 0151 7945877 (jreilly@liverpool.ac.uk) or Natasha Snelson (nshnelson@liverpool.ac.uk) and we will try to help. Should you remain unhappy or wish to make a complaint which you feel cannot be made directly to us then please contact the Research Governance Officer for the University of Liverpool on 0151 794 8290 (ethics@liverpool.ac.uk) providing details of the name or description of the study, the researcher involved and the details of the complaint you wish to make.

Who can I contact if I have further questions?

Dr James Reilly on 0151 7945877 (jreilly@liverpool.ac.uk)

Clinical Psychology Department
University of Liverpool
The Whelan Building
Brownlow Hill
Liverpool
L69 3GB
United Kingdom

Consenting into the study

You will consent to taking part in the study by ticking a box on the following page which states you have read the information sheet, understand you can withdraw from the study at any time and consent to take part.

If you would like to be entered into a prize lottery to win a £150 Amazon Voucher as a thank you for taking part, please enter your email address or contact telephone number when requested to do so.

Appendix E

Appendix E

Self report measures

Some measures are provided in this appendix. Other measures can be found at <http://www.compassionatemind.co.uk/resources/scales.htm> and can be used with the permission of the author.

The Child Abuse and Trauma Scale (Home Environment Questionnaire)

This questionnaire seeks to determine the general atmosphere of your home when you were a child or teenager and how you felt you were treated by your parents or principal caretaker. (If you were not raised by one or both of your biological parents, please respond to the questions below in terms of the person or persons who had the primary responsibility for your upbringing as a child.) Where a question inquires about the behaviour of both of your parents and your parents differed in their behaviour, please respond in terms of the parent whose behaviour was the more severe or worse.

In responding to these questions, simply circle the appropriate number according to the following definitions:

- 0 = never
- 1 = rarely
- 2 = sometimes
- 3 = very often
- 4 = always

1. Did your parents ridicule you?
2. Did you ever seek outside help or guidance because of problems in your home?
3. Did your parents verbally abuse each other?
4. Were you expected to follow a strict code of behaviour in your home?
5. When you were punished as a child or teenager, did you understand the reason you were punished?
6. When you didn't follow the rules of the house, how often were you severely punished?
7. As a child did you feel unwanted or emotionally neglected?
8. Did your parents insult you or call you names?
9. Before you were 14, did you engage in any sexual activity with an adult?
10. Were your parents unhappy with each other?
11. Were your parents unwilling to attend any of your school-related activities?
12. As a child were you punished in unusual ways (e.g., being locked in a closet for a long time or being tied up)?
13. Were there traumatic or upsetting sexual experiences when you were a child or teenager that you couldn't speak to adults about?
14. Did you ever think you wanted to leave your family and live with another family?
15. Did you ever witness the sexual mistreatment of another family member?

16. Did you ever think seriously about running away from home?
17. Did you witness the physical mistreatment of another family member?
18. When you were punished as a child or teenager, did you feel the punishment was deserved?
19. As a child or teenager, did you feel disliked by either of your parents?
20. How often did your parents get really angry with you?
21. As a child did you feel that your home was charged with the possibility of unpredictable physical violence?
22. Did you feel comfortable bringing friends home to visit?
23. Did you feel safe living at home?
24. When you were punished as a child or teenager, did you feel "the punishment fit the crime" ?
25. Did your parents ever verbally lash out at you when you did not expect it?
26. Did you have traumatic sexual experiences as a child or teenager?
27. Were you lonely as a child?
28. Did your parents yell at you?
29. When either of your parents was intoxicated, were you ever afraid of being sexually mistreated?
30. Did you every wish for a friend to share your life?
31. How often were you left at home alone as a child?
32. Did your parents blame you for things you didn't do?
33. To what extent did either of your parents drink heavily or abuse drugs?
34. Did your parents ever hit or beat you when you did not expect it?
35. Did your relationship with your parents ever involve a sexual experience?
36. As a child, did you have to take care of yourself before you were old enough?
37. Were you physically mistreated as a child or teenager?
38. Was your childhood stressful?

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree, or a good part of time
- 3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

The negative scale from the PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. **Indicate to what extent you feel this way right now, that is, at the present moment.**

Emotion	Very slightly / not at all	A little	Moderately	Quite a bit	Very Much
Distressed					
Upset					
Guilty					
Ashamed					
Hostile					
Irritable					
Nervous					
Jittery					
Scared					
Afraid					

Appendix F

Appendix F: Ethical approval



Institute of Psychology, Health and Society

Waterhouse Building, 2nd Floor Block B
1-5 Brownlow Street
Liverpool
L69 3GL

T 0151 794 55327
F 0151 794 5537
E halina@liverpool.ac.uk

To: James Reilly

Whelan Building

Date: 17 May 2012

Dear James

I am pleased to inform you that the Institute of Psychology, Health and Society Research Ethics Committee (REC) has approved your application for ethical approval. Details and conditions of the approval can be found below;

Applicant Name : Natasha Snelson

Ref. No : IPHS-1112-021

Supervisor : James Reilly

Title : Emotional Response to a Therapeutic Technique; Broad Minded Affective Coping (BMAC)

Date of email Approval : 17 May 2012

The application was APPROVED subject to the following conditions:

Conditions

- 1. Mandatory** : all serious adverse events must be reported to the Institute REC within 24 hours of their occurrence, via Halina Dawson, IPHS Ethics Secretary (halina@liv.ac.uk) and the Research Governance Officer (ethics@liv.ac.uk).

This approval applies for the duration of the research. If it is proposed to extend the duration of the study as specified in the application form, the Institute REC should be notified. If it is proposed to make any amendment to the research, you should notify the Institute REC by following the procedure found on the ethics webpages at the following link;

<http://www.liv.ac.uk/researchethics/localpolicy.htm>

Yours sincerely

A handwritten signature in black ink that reads "W Sellwood".

Dr W Sellwood
Chair of PHS Institute Research Ethics Committee

A member of the
Russell Group

Appendix G

Appendix G: Social BMAC Procedure

- Keep your eyes closed and allow your attention to move to the positive experience.
- Where were you?
 - Inside or outside?
 - Try and focus on what you can see
 - Move around the memory – build the scene in your mind
 - If you were outside, what was the weather like, what could you see?
 - If you were inside think about the floor, the walls, the furniture.
 - Focus on each thing you can see around you.
- Now think about the other person or people in the memory.
 - Focus on their face
 - What was their expression?
 - Look at their eyes – the colour
 - Look at their nose
 - Look at their mouth
 - What were they wearing?
 - Focus on their clothes and the colour
 - What were they doing?
 - Recreate the image of what they were doing in your mind.
- Now try and focus on what you could hear. Allow the sounds to fill your mind.
 - Try and focus on the other person's voice, the tone.
 - What did they say? Try and recreate the sound of the words.
 - Think about other sounds in the environment.
 - Think through each sound and allow it to fill your mind
- Now try and focus on the smells in the memory.
 - Was there any food or drinks?
 - Perfumes or aftershaves?
 - If you are outside, are there any other smells like fresh grass
- Now try and focus on any taste in this memory
 - Did you eat or drink anything?
 - Really savour the taste of this, allow the memory to fill your mind.
- Now try and focus on the feel of things in the memory

- Did you touch anything or anyone?
- How did it feel?
- You are free to move around this image at your own will.
- If there is a strong part of the image, return to this if it begins to fade – think of a word to bring you back here at any point.
- Focus now on the strongest and most positive bit of this memory.
 - How did it make you feel?
 - Allow the feeling to wash over you, to fill your mind.
 - Really savour this feeling.
- Think of a word to bring you back at any point.
- Think about what the memory means to you.
- What went through your mind?
- Why was it important to you?
- Think of a word to bring you back at any point.
- How did the other person or people in the memory feel?
- How does that make you feel – that they feel like this?
- What does this mean to you – that other people think or feel this way about you?
- What does this memory mean about your life?
- How can this memory help?
- How does it show your positive qualities? Think about these qualities.
- Once again, think about the feeling and allow it to fill your mind. You can go back to this at any time. Think of a word that could bring you back here any time you want to.
- Now just begin to become aware of the room you are in.
- When you are ready open your eyes.

