

Does CBT Facilitate Emotional Processing?

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Background: Cognitive Behavioural Therapy (CBT) is not primarily conceptualized as operating via affective processes. However, there is growing recognition that emotional processing plays an important role during the course of therapy. **Aims:** The Emotional Processing Scale was developed as a clinical and research tool to measure emotional processing deficits and the process of emotional change during therapy. **Method:** Fifty-five patients receiving CBT were given measures of emotional functioning (Toronto Alexithymia Scale [TAS-20]; Emotional Processing Scale [EPS-38]) and psychological symptoms (Brief Symptom Inventory [BSI]) pre- and post-therapy. In addition, the EPS-38 was administered to a sample of 173 healthy individuals. **Results:** Initially, the patient group exhibited elevated emotional processing scores compared to the healthy group, but after therapy, these scores decreased and approached those of the healthy group. **Conclusions:** This suggests that therapy ostensibly designed to reduce psychiatric symptoms via cognitive processes may also facilitate emotional processing. The Emotional Processing Scale demonstrated sensitivity to changes in

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alexithymia and psychiatric symptom severity, and may provide a valid and reliable means of assessing change during therapy.

Keywords: Emotional processing, cognitive behavioural therapy (CBT), emotion, depression, anxiety, scale.

Introduction

Rachman (1980) first introduced the concept of “emotional processing”, defining it as “. . . a process whereby emotional disturbances are absorbed and decline to the extent that other experiences and behaviour can proceed without disruption” (p. 51). If emotional disturbances are incompletely processed, then signs of this failure will emerge (e.g. intrusive memories, nightmares, over-arousal, agitation). These “signs of failure” might be conceptualized as “symptoms” of psychological disorder (Rachman, 1980). This includes nightmares and flashbacks in posttraumatic stress disorder (Baker, 2010; Feeny, Zoellner and Foa, 2002; Foa, 2006; Rachman, 2001; Rauch and Foa, 2006), the emergence of initial panic attacks (Baker, Holloway, Thomas, Thomas and Owens, 2004) and intrusive thoughts in obsessive compulsive disorder (Tallis, 1999).

In general, research has revealed that deficiencies in emotional processing are associated with psychopathology. These include an increase in rumination, avoidance and maladaptive coping in mental health problems (Gross, 1998; Gross and Muñoz, 1995) and, more specifically, a decrease in perception, understanding and expression of one’s affective experience in depression and anxiety (Luminet, Bagby and Taylor, 2001; Mennin, Heimberg, Turk and Fresco, 2002; Rude and McCarthy, 2003). The facilitation of emotional processing is regarded as a core component of treatment in many therapeutic approaches.

In the experiential and psychodynamic traditions (such as process experiential therapy; Greenberg, Rice and Elliott, 1993; and emotional focusing; Gendlin, 1978, 1996), emotional processing is considered central to therapeutic change (Hunt, 1998; Whelton, 2004). Therapeutic work that involves the activation and exploration of relevant emotions is considered intrinsic to the change process (Whelton, 2004), with improved outcome consistently linked to increased emotional processing prior to, during, and post therapy (Castonguay, Goldfried, Wisner, Raue and Hayes, 1996; Greenberg and Safran, 1987; Orlinsky and Howard, 1986; Watson and Bedard, 2006). According to Foa, allowing experiences to be fully felt and cognitively reappraised constitutes the central elements of emotional processing (Foa, Hembree and Rothbaum, 2007; Foa and Kozak, 1986).

In Cognitive Behavioural Therapy (CBT), however, improvements in emotional processing are often deemed incidental rather than focal. Although numerous CBT therapists acknowledge the relevance of emotions in CBT (Foa and Kozak, 1986; Greenberg, 2008; Mischel, 2004; Samoilov and Goldfried, 2000; Strongman, 1993), such an emphasis is not universally accepted. For instance, Nolen-Hoeksema and colleagues suggest that a focus on negative cognitions and behaviours intensifies and prolongs periods of depression (Morrow and Nolen-Hoeksema, 1990; Nolen-Hoeksema, 1991; Nolen-Hoeksema and Morrow, 1993).

Research comparing the presence of emotional processing in CBT with other therapeutic modalities has revealed conflicting findings. While some researchers have reported no difference in emotional processing outcome between psychodynamic-interpersonal therapy and CBT (Coombs, Coleman and Jones, 2002; Jones and Pulos, 1993; Wisner and Goldfried,

1993), others have reported that experiential (such as process therapy) and psychodynamic therapies facilitate emotional processing more effectively than CBT (Rudkin, Llewelyn, Hardy, Stiles and Barkham, 2007; Watson and Bedard, 2006).

Theoretically, emotional processing may be more central to a psychodynamic or experiential tradition than the CBT approach. Perhaps, a shortcoming of CBT may be the tendency to “intellectualize” the emotional experience by adopting a more instructional, as opposed to explorative approach (Mackay, Barkham, Stiles and Goldfried, 2002). This is supported by converging evidence from other studies revealing that over-lengthy verbal interventions (Wiser and Goldfried, 1998) and therapist interactions infused with a high incidence of cognitive speech during high arousal were found to be negatively related to emotional processing and treatment outcome (Anderson, Bein, Pinnell and Strupp, 1999). Given the equivocal results in the literature, the function of emotional processing in CBT and its relation to treatment outcome requires further elucidation (Goldfried, 2003).

Another criticism identified in the literature is the use of multiple instruments measuring different aspects of emotional processing. At present, there are several specific emotional assessment instruments available for clinical use, measuring emotional control (Watson and Greer, 1983), emotional awareness (Lane, Quinlan, Schwartz, Walker and Zeitlin, 1990), and alexithymia (Bagby, Parker and Taylor, 1994; Bagby, Taylor and Parker, 1994), but such instruments have been criticized for adopting a relatively narrow view of affective processes (Baker, Thomas, Thomas and Owens, 2007). Furthermore, research has tended to focus on the concept of alexithymia in particular (Gilboa-Schechtman, Avnon, Zubery and Jeczmiem, 2006; Lundh, Johnsson, Sundqvist and Olsson, 2002; Zonneville-Bender et al., 2004) – an inability to identify and describe emotions, coupled with an inability to distinguish these from physical sensations (Taylor, Bagby and Parker, 1997). As such, there is a need for the development of an instrument that captures the multi-faceted nature of emotional processing (Lundh et al., 2002).

The recently developed Emotional Processing Scale (EPS-38) was devised to fill this clinical and research gap (Baker et al., 2007). It incorporates Rachman’s (1980, 2001) original conceptualization of emotional processing, attitudes to emotions and mechanisms related to the input, experience, expression, and control of emotion as specified in Baker’s emotional processing model (see Figure 1; Baker, 2007; Baker et al., 2007).

The Emotional Processing Model

Input event

According to Baker et al.’s (2007) model,¹ the onset of an emotional experience starts with a precipitating event. This event has to be registered, either consciously or unconsciously. It may be a minor event (e.g. an argument with a spouse), or a major traumatic event (e.g. a road-traffic accident), or a series of stressful events (e.g. workplace bullying). The cognitive appraisal of the event’s meaning determines the emotion experienced. Factors that affect processing at this stage include: a failure to register the event, misinterpretation of the event,

¹More information can be found on the emotional processing website, www.emotionalprocessing.org.uk.

or active “*avoidance*”² of a potentially threatening event (such as avoiding thinking about, or being in the presence of, a negative trigger).

Emotional experience

After the input event, the emotion elicited by the appraisal of the event is experienced. Deficits in emotional experience include: the failure to experience the emotion as a psychological whole, deficits in the awareness of emotional experience and difficulties in labelling the emotion, and linking the emotion to the relevant event. These deficits are embodied in different emotional processing styles. The “*Discordant*” style is where an individual lacks understanding of, and is uncomfortable with his/her emotional experience. The “*Externalized*” style is where the individual is aware of the bodily sensations of emotional experience but attributes them to external causes (e.g. ill health); and the “*Lack of Attunement*” factor denotes a style whereby the individual does not regard emotions as normal or useful.

Disruptions to a fully integrated emotional experience may arise from maladaptive control strategies such as “*Dissociation*” (detachment from emotional experience so it is not consciously registered), and “*Suppression*” (excessive control of the emotional experience).

Emotional expression

The model separates experience from expression, although it should be noted that in everyday life this transition is often seamless and automatic. Difficulties that arise at this stage include the *Suppression* of emotional expression, or the failure to regulate emotions (*Uncontrolled*).

Signs of incomplete emotional processing

According to Rachman’s (1980, 2001) original framework, incomplete processing of an emotional experience can be indexed by the presence of persistent, intrusive emotional experiences. An *Intrusion* would manifest as “. . . obsessions, flashbacks, nightmares, pressure of talk, inappropriate expressions or experiences of emotions that are out of context. . . [or]. . . proportion. . .” (Rachman, 2001, p. 165).

Maladaptive emotional control mechanisms such as *Avoidance*, *Suppression*, and *Dissociation*, lack of control mechanisms (*Uncontrolled*), dysfunctional emotional processing styles (*Discordant*, *Lack of Attunement*, and *Externalized*), and signs of incomplete processing (*Intrusion*) are factors measured in the EPS-38. Figure 1 depicts how these factors (F) map onto the emotional processing model.

The purpose of the present study was to explore what changes, if any, occur in emotional processing and psychiatric symptoms during CBT, and examine the EPS-38 as a measurement tool by answering the following questions: 1) Do patients referred to a clinical psychology department for CBT have difficulties in emotional processing? 2) Does emotional processing change during CBT, and if so, in what emotional processing dimensions? 3) Does CBT produce patterns of emotional processing in patients similar to those of a healthy control

²Names in italics refer to the different subscales of the EPS.

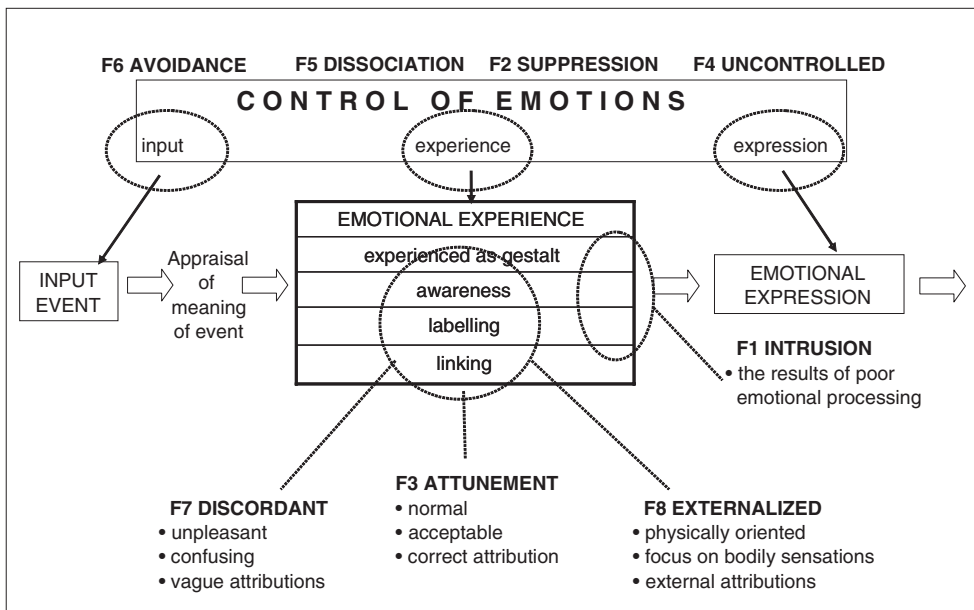


Figure 1. The Emotional Processing Model. The eight factors of the EPS-38 are mapped onto their respective components of the model. “F” denotes the factor number for each subscale on the EPS (adapted from Baker et al., 2007).

group by the end of therapy? and 4) Does the EPS-38 detect therapeutic change in emotional processing, and how is it related to psychiatric symptom severity?

Method

Participants

CBT Participants. Participants ($N = 55$; mean age = 41 years; $SD = 15$ years, age range = 17–77 years; 40 female and 15 male) were referred by general medical practitioners to an NHS department of clinical psychology. Participants’ highest formal qualifications were: No formal qualifications, $n = 9$; O-Levels/GCSEs, $n = 11$; A-Levels, $n = 5$; Degree or above $n = 9$; other $n = 19$ and 2 missing data. Participants were predominantly White British (98%), which reflected the wider population in Dorset.

Diagnoses. Psychologists were asked to define the problem type of participating patients by completing a diagnostic information sheet based on DSM III-R (Baker et al., 2002). This procedure has been used in previous research and was embedded in the clinical service (Baker, Allen, Gibson Newth and Baker, 1998). The sample of 55 patients comprised: 20 anxiety disorder, 8 depressive disorder, 19 adjustment disorder, and 8 “other” (personality problems, somatoform disorders, sleep disorder, and no diagnosis). It should be noted that this group did not reflect seriously mentally ill patients.

Healthy participants. One hundred and seventy-three individuals participated in the study. Of these, 100 were university students (mean age = 24 years; $SD = 8$ years, age

range = 18–58 years; 12 male and 88 female), and 73 were a community sample (mean age = 60 years; $SD = 12$ years, age range = 27–89 years; 34 male and 39 female), recruited from a range of sources, including social groups, golf clubs, and leisure centres. Participants who had received psychological or psychiatric treatment in the last 2 years or who were unable to understand written English were excluded from the study.

Therapists. Therapists were accredited clinical psychologists employed by the NHS. Most were experienced clinical psychologists with many years of therapeutic practice. Their primary therapeutic orientation was CBT, although several incorporated other therapeutic techniques and approaches. No attempt was made to influence their normal practice. This study therefore represents CBT as applied by experienced clinical psychologists in routine clinical practice, rather than CBT as strictly defined by clinical research trials.

Measures

The Emotional Processing Scale (EPS-38; Baker et al., 2007). The Emotional Processing Scale is a 38-item self-report questionnaire that assesses emotional processing styles over the last week. It was developed to be used by therapists within a clinical setting, to measure change in emotional processing over time and assist in emotions research (for a detailed review of these factors, see Baker et al., 2007). It uses a 10-point (0–9) visual analogue rating scale, whereby higher scores on subscales and total scores indicate greater processing deficits. Emotional processing deficits are measured across eight subscales, with four relating to mechanisms controlling the experience and expression of emotions (*Avoidance, Dissociation, Suppression, Uncontrolled*); three capturing styles of emotional experience (*Discordant, Lack of Attunement, and Externalized*); and one examining signs of inadequate emotional processing (*Intrusion*). Good internal reliability was found for the EPS-38 ($\alpha = .92$; Baker et al., 2007). Cronbach's alphas for most of the subscales were good; namely, .83 for "intrusion", .82 for "suppression", .71 for "lack of attunement", .76 for "uncontrolled", .70 for "dissociation", .66 for "avoidance", .88 for "discordant", and .42 for the "externalized" subscale, respectively. Satisfactory test-retest reliability over a 4–6 week period was obtained for the entire scale ($r = .79$) and for the individual subscales it ranged from .30 to .88. Good convergent and discriminant validity was demonstrated by significant correlations with related constructs (e.g. TAS-20) and low to moderate correlations with measures of affective symptomatology (e.g. The Personal Disturbance Scale: State of Anxiety and Depression (sAD); Baker et al., 2007).

The Brief Symptom Inventory (BSI; Derogatis and Melisaratos, 1983). The BSI is a self-report measure of psychiatric symptomatology that uses a 5-point (0–4) Likert-type response scale. It is an abridged version of the Symptom Checklist-90-Revised (SCL-90-R; Derogatis and Cleary, 1977), with 53 items measuring 9 primary symptom dimensions (*Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid, Psychoticism*) and 3 global indices (*Global Severity Index, Positive Symptom Distress Index, and Positive Symptom Total*). The BSI was chosen to measure a range of symptoms encountered in clinical practice. It has demonstrated good internal reliability with Cronbach's alphas ranging from .71 to .85 for the nine symptom dimensions. Test-retest reliabilities for the nine symptom dimensions range from .68 (Somatization) to .91 (Phobic Anxiety), and for the three global indices from .87 (PSDI) to .90 (GSI; Derogatis and Melisaratos, 1983).

The Toronto Alexithymia Scale–20 (TAS-20; Bagby, Parker et al., 1994). The TAS-20 measures alexithymia via three factors: Difficulty identifying feelings; Difficulty describing feelings to others; and Externally oriented thinking. Good convergent, discriminant, construct, and concurrent validity have been demonstrated for the TAS-20 (Bagby, Taylor et al., 1994; Parker, Taylor and Bagby, 2003). Good internal reliability has been reported ($\alpha = .81$) and satisfactory test-retest reliability ($r = .77$) over a 3-week interval (Bagby, Parker et al., 1994). As the TAS-20 measures emotional dimensions, and is an established tool that has been used previously as a criterion measure for the EPS-38 (Baker et al., 2007), it was chosen as a measure against which to validate changes in the EPS-38 following therapy.

Procedure

Patients with a referral to a clinical psychology service were posted a questionnaire booklet along with their first appointment letter. The booklet contained an information sheet, the EPS-38, TAS-20, BSI, and demographic questions. The information sheet explained issues such as the purpose and the confidential and voluntary nature of the study. Patients were asked to complete the booklet and return it, using a pre-paid envelope provided. Upon receipt of the questionnaires, a standardized form based on DSM-III-R was sent to the clinical psychologist involved, to establish the main problem presented by each patient. The same questionnaire pack was sent to patients upon conclusion of their therapy. All patients who did not return the second pack were excluded from the analysis.

Healthy participants completed the two emotion measures used in the study (the EPS-38 and TAS-20) on one occasion, providing a comparative normative baseline of emotional functioning against which to assess CBT participants. The Dorset Local Research Ethics Committee approved this research.

Statistical analyses

The data were analyzed using SPSS (v. 13.0) with an a priori 2-tailed alpha level of .05 used for all statistical tests. Paired sample *t*-tests were used to compare mean EPS-38, TAS-20, and BSI patient scores pre- and post-CBT. One-way analysis of variance (ANOVA) was used to compare scores across the eight factors between the therapy group and the two comparison groups (one consisting of students, and the other consisting of a community sample). When significant differences were found, post-hoc testing of pairs of means was performed using Tukey's HSD. If there was heterogeneity in variances between the three groups, as assessed by Levene's test, then the Brown-Forsythe statistic was used and post-hoc testing used the Games-Howell approach. The two comparison groups were not combined, because of the different sampling strategies and their different age profiles. To confirm that age was not a confounding variable in the analysis of patients versus comparison groups, an independent samples *t*-test was used to compare the mean scores on the EPS-38 subscales between the patients and the community sample (after selecting those aged 40 years and above); and the patients versus the students (after selecting those aged 39 and below). There were significant differences between patients and both healthy groups on every subscale, with the exception of the *Lack of Attunement* subscale for students versus patients [$t(85) = 1.94, p = .06$]. Pearson's correlation coefficients, and partial correlations were used to explore the relationships between

treatment-related changes in emotional processing (EPS-38), psychiatric symptoms (BSI) and alexithymia (TAS-20).

During the course of data collection, as part of the psychometric development of the EPS (Baker, 2001), two types of scale were compared: a 10-point (0–9) Visual Analogue Scale (VAS) versus a 7-point (1–7) Likert-type scale. In the analyses the two scales were combined. This was achieved by first adjusting the Likert-type scale down to include a zero point (0–6) and second, by multiplying item scores on the Likert-type scale by 1.5. Thus, a converted Likert-type score is both within the VAS range and possesses equal intervals.

Of the 55 participants in the patient sample who completed questionnaires at both pre- and post-therapy, 64% completed the Likert-type scale and 36% completed the VAS. These two groups did not differ with regard to mean age [$t(52) = -0.76, p = .45$], gender [$\chi^2(1) = 2.57, p = .11$], or educational status [$\chi^2(4) = 6.98, p = .14$; 2 missing data]. Independent samples t -tests comparing the mean scores of the two scale types revealed only one difference, on the *Suppression* subscale, for both pre-therapy [$t(53) = 2.69, p = .01$] and post-therapy scores [$t(52) = 2.20, p = .03$]. The Levene's test for equality of variances was not significant, and so we have combined the results from both scales.

Results

Do patients referred to a clinical psychology department for CBT have difficulties in emotional processing?

The Levene's Test of homogeneity of variance was significant for four of the eight factors: *Dissociation* ($p = .01$); *Lack of Attunement* ($p = .01$); *Uncontrolled* ($p = .02$) and *Intrusion* ($p = .01$). Therefore, the Games-Howell post-hoc statistic is reported for these factors.

At pre-therapy there were statistically significant differences between patients and healthy groups on all the EPS-38 subscales, with the exception of *Lack of Attunement* [$F(2,157) = 2.89, p = .60$]. The means (Table 1) indicate that across all subscales the patient group tended to have higher EPS-38 scores (greater impairment) compared to the healthy samples. Comparisons between patients and the two control groups were statistically significant for every subscale, with the exception of two; namely, the *Lack of Attunement* factor for patients vs. both healthy samples and the *Externalized* factor for patients vs. students. There were no significant differences between scores for the healthy groups (students vs. community sample) except on *Intrusion* ($p < .001$) where the students scored higher than the community sample, and *Dissociation* ($p = .05$) where the community sample scored higher than the students (see Table 1).

Does emotional processing change during CBT, and if so, in what emotional processing dimensions?

A series of paired samples t -tests was used to evaluate the differences between pre- and post-therapy mean patient scores for the EPS-38 subscales (presented in Table 2). Scores were lower (less impairment) post-CBT compared to pre-therapy on all eight subscales. These differences were statistically significant for all subscales, with the exception of the *Externalized* subscale [$t(54) = 1.82, p = .74$].

Table 1. Differences in EPS-38 scores across the CBT and comparison groups

Measure EPS-38	Patient mean (SD) EPS-38 scores	Healthy sample mean (SD) EPS-38 scores		One-way ANOVA <i>F</i> ratio (<i>df</i>); <i>p</i> -value (Brown-Forsythe statistic used for comparisons between groups with heterogeneous variances)	<i>p</i> -value			Cohen's <i>d</i>
		Community	Student		Patient vs. community	Patient vs. students	Community vs. students	
Discordant								
Pre	4.6 (1.9)	2.6 (1.5)	2.9 (1.6)	$F(2, 165) = 23.29, p < .001$	<.001	<.001	.52	1.06
Post	3.4 (2.0)			$F(2, 162) = 3.36, p = .04$	.02	.16	–	0.36
Lack of attunement								
Pre	4.1 (1.8)	3.5 (1.5)	3.6 (1.2)	$F(2, 157) = 2.89, p = .06^a$	.10	.13	.90	0.34
Post	3.5 (1.5)			$F(2, 171) = .020, p = .82$	.98	.82	–	0.03
Externalized								
Pre	3.5 (1.5)	2.8 (1.5)	2.9 (1.3)	$F(2, 179) = 3.63, p = .03$	.03	.06	.85	0.44
Post	3.1 (1.3)			$F(2, 194) = 0.56, p = .57$	.54	.82	–	0.18
Intrusion								
Pre	5.7 (1.7)	3.8 (1.5)	4.8 (1.2)	$F(2, 163) = 25.29, p < .001^a$	<.001	<.01	<.001	0.89
Post	4.9 (1.7)			$F(2, 161) = 11.42, p < .001^a$	<.01	.99	–	0.37

Table 1. Continued

Measure EPS-38	Patient mean (SD) EPS-38 scores	Healthy sample mean (SD) EPS-38 scores		One-way ANOVA <i>F</i> ratio (<i>df</i>); <i>p</i> -value (Brown-Forsythe statistic used for comparisons between groups with heterogeneous variances)	<i>p</i> -value			Cohen's <i>d</i>
		Community	Student		Patient vs. community	Patient vs. students	Community vs. students	
Avoidance								
Pre	4.3 (2.0)	3.4 (2.1)	3.0 (1.7)	$F(2, 181) = 7.52, p < .01$	.02	<.001	.46	0.56
Post	3.8 (2.0)			$F(2, 176) = 2.66, p = .07$	.47	.05	–	0.31
Dissociation								
Pre	4.1 (2.0)	3.0 (1.8)	2.4 (1.4)	$F(2, 160) = 16.10, p < .001^a$	<.01	<.001	<.05	0.77
Post	3.1 (1.7)			$F(2, 177) = 4.10, p < .09$	.99	.04	–	0.24
Suppression								
Pre	5.0 (2.0)	3.7 (1.9)	3.2 (1.9)	$F(2, 187) = 15.10, p < .001$	<.01	<.001	.19	0.39
Post	3.6 (2.2)			$F(2, 175) = 1.67, p = .19$	.97	.39	–	0.11
Uncontrolled								
Pre	4.0 (2.2)	2.9 (1.6)	2.8 (1.7)	$F(2, 156) = 8.23, p < .001^a$	<.01	<.01	.95	0.59
Post	3.3 (2.3)			$F(2, 152) = 1.47, p = .23^a$	.41	.95	–	0.22
EPS total								
Pre	4.6 (1.1)	3.2 (0.9)	3.4 (1.0)	$F(2, 173) = 31.45, p < .001$	<.001	<.001	.65	1.26
Post	3.7 (1.3)			$F(2, 153) = 2.73, p = .07^a$	.08	.26	–	0.34

^aLevene's test suggested that variances were not equal; the more conservative Games Howell post hoc statistic is reported.

Table 2. Pre- and post-therapy differences in EPS-38 scores

Measure	Patient mean (SD) EPS-38 scores pre- therapy	Patient mean (SD) EPS-38 scores post- therapy	95% confidence interval of the difference		<i>t</i> -value (<i>df</i>)	<i>p</i> -value	Cohen's <i>d</i>
			Lower	Upper			
Discordant	4.6 (1.9)	3.4 (2.0)	0.63	1.67	4.5 (54)	<.01	0.62
Lack of attunement	4.1 (1.8)	3.5 (1.5)	0.27	1.12	3.3 (53)	<.01	0.37
Externalized	3.5 (1.5)	3.1 (1.3)	-0.04	0.87	1.8 (54)	.74	0.28
Intrusion	5.7 (1.7)	4.9 (1.7)	0.43	1.26	4.1 (54)	<.01	0.47
Avoidance	4.3 (2.0)	3.8 (2.0)	0.04	1.01	2.1 (52)	.04	0.25
Dissociation	4.1 (2.0)	3.1 (1.7)	0.48	1.56	3.8 (54)	<.01	0.54
Suppression	5.0 (2.0)	3.6 (2.2)	0.82	1.93	5.0 (53)	<.01	0.67
Uncontrolled	4.0 (2.2)	3.3 (2.3)	0.08	1.29	2.3 (54)	.03	0.31
EPS total	4.6 (1.1)	3.7 (1.3)	0.60	1.18	6.3 (53)	<.01	0.74

Does CBT produce patterns of emotional processing in patients similar to those of a healthy control group by the end of therapy?

One way analysis of variance (ANOVA) and Tukey HSD post-hoc tests were used to compare the CBT group's mean emotional processing scores post-therapy with those of the two healthy groups. The Levene's test of homogeneity of variance was significant for three factors: *Uncontrolled* ($p < .05$), *Intrusion* ($p < .01$) and *EPS-38 total* ($p < .05$); therefore, the Games-Howell post-hoc statistic is reported for these factors. As before, each of the two respective healthy samples (community sample and students) was compared in turn to the therapy group.

Following CBT, there were no significant differences in the *EPS-38 total* scores for the three groups [$F(2,153) = 2.73, p = .07$]. The *Suppression*, *Uncontrolled*, *Avoidance*, and *Externalized* factors were no longer significantly different from the healthy groups. No statistically significant differences were found between the patient and healthy group scores on the *Lack of Attunement* factor either before [$F(2,157) = 2.89, p = .06$] or after [$F(2,171) = .20, p = .82$] therapy, but statistically significant differences remained on the *Discordant*, *Dissociation*, and *Intrusion* subscales (see Table 1).

Does the EPS-38 detect therapeutic change in emotional processing, and how is it related to change in psychiatric symptom severity?

The TAS-20 was used as a criterion measure of change in emotional processing deficits and the BSI was used as a measure of change in psychiatric symptom severity. Table 3 presents patients' mean difference scores for the TAS-20 following CBT. As can be seen, all subscale scores were significantly lower post-therapy, indicating that there were significant reductions in alexithymic symptoms during the course of therapy. Table 3 also presents BSI mean difference scores post-therapy. On all subscales (except the *Paranoid* subscale and *Positive Symptom Distress Index*) scores were significantly lower, suggesting a decrease in psychiatric symptom severity.

Table 3. Means and significance values for the patient group’s TAS-20 and BSI pre- and post- therapy administrations

Measure	Pre-therapy mean (<i>SD</i>)	Post-therapy mean (<i>SD</i>)	95% confidence interval of the difference		<i>t</i> -value (<i>df</i>)	<i>p</i> -value	Cohen’s <i>d</i>
			Lower	Upper			
TAS-20							
Difficulty identifying feelings	2.9(0.9)	2.4(1.0)	0.26	0.64	4.8(53)	<.001	0.52
Difficulty describing feelings	2.9(1.0)	2.5(0.9)	0.20	0.54	4.3(54)	<.001	0.42
Externally oriented thinking	2.6(0.6)	2.4(0.7)	−0.00	0.26	2.0(53)	.05	0.30
TAS-20 total	2.8(0.7)	2.5(0.7)	0.20	0.43	5.6(54)	<.001	0.42
BSI							
Somatization	1.3(1.1)	0.9(1.0)	0.09	0.60	2.7(54)	<.01	0.38
Obsessive compulsive	1.7(1.1)	1.3(1.1)	0.16	0.63	3.4(54)	<.01	0.36
Interpersonal sensitivity	1.6(1.2)	1.1(1.0)	0.24	0.77	3.8(54)	<.001	0.45
Depression	1.6(1.1)	1.1(1.0)	0.18	0.73	3.3(54)	<.01	0.47
Anxiety	1.7(1.1)	1.1(1.0)	0.31	0.82	4.4(54)	<.001	0.57
Hostility	1.0(0.9)	0.7(0.8)	0.05	0.46	2.5(54)	.02	0.35
Phobic anxiety	1.3(1.3)	1.0(1.2)	0.02	0.57	2.2(54)	.03	0.23
Paranoid	1.3(1.0)	1.1(0.9)	−0.02	0.42	1.8(54)	.07	0.21
Psychoticism	1.2(1.0)	0.8(0.9)	0.12	0.54	3.1(54)	<.01	0.42
Global Severity Index	1.4(0.9)	1.0(0.9)	0.18	0.58	3.8(54)	<.001	0.44
Positive Symptom Total	33.1(13.3)	28.1(14.7)	2.22	7.77	3.6(54)	<.01	0.35
Positive Symptom Distress Index	2.5(3.2)	1.6(0.7)	−0.03	1.72	1.9(54)	.06	0.38

In order to ascertain the relationship between the change in alexithymia and psychiatric symptom severity, and assess whether the EPS-38 is sufficiently sensitive to detect these changes, Pearson's correlation coefficients were calculated using the pre-post mean difference scores for the EPS-38, BSI, and TAS-20 total scores. The EPS-38 total difference score correlated positively and significantly with the TAS-20 total difference score [$r = .67$, $r^2 = 45\%$, $p < .01$] and the BSI Global Severity Index difference score [$r = .59$, $r^2 = 35\%$, $p < .01$]. The TAS-20 difference score also correlated positively and significantly with the BSI Global Severity Index difference score [$r = .58$, $r^2 = 34\%$, $p < .001$].

Partial correlation coefficients were calculated to ascertain the relationship between the TAS-20/BSI total score and the EPS-38 total score when either the TAS-20 or BSI-specific variance was partialled out. After controlling for the TAS-20 total difference score, the correlation between the EPS-38 total difference score and the BSI global severity difference score was smaller, and the amount of shared variance decreased but was still statistically significant [partial correlation = $.32$, $r^2 = .10$, $p < 0.02$]. Similarly, when controlling for the change in BSI global severity index, the correlation between the EPS-38 total difference score and the TAS-20 total difference score was reduced, and the amount of shared variance reduced, but remained significant [partial correlation = $.50$, $r^2 = .25$, $p < .001$].

Discussion

This study explored the changes that occur in emotional processing and psychiatric symptoms following CBT. The results show that patients significantly improved on 7 of the 8 subscales of the Emotional Processing Scale from pre- to post-therapy. The post-therapy EPS-38 scores of patients approached those of healthy participants after a course of CBT. Furthermore, emotional processing appeared to be related to alexithymia and psychiatric symptomatology, which is suggestive of a multi-dimensional construct. This preliminary analysis suggests that CBT as applied in an everyday clinical setting may indeed facilitate emotional processing. Of course, the limitations of the study (discussed later) mean that any conclusions must be interpreted cautiously.

Do patients referred to a clinical psychology department for CBT have difficulties in emotional processing?

The patients undergoing CBT were primarily diagnosed with depression, anxiety, or adjustment disorder with depression or anxiety. Consistent with previous research exploring the emotional processing of such populations (Lundh et al., 2002; Rude and McCarthy, 2003), the present study revealed that patients referred by GPs to the clinical psychology service presented with significantly impaired emotional processing (as indexed by higher mean scores on the EPS-38) compared to healthy control groups.

The referred patients were found to have higher emotional processing scores for styles of emotional experience. More specifically, the mental health sample tended to be significantly more emotionally discordant (a lack of emotional insight and a general uneasiness with emotions), and use an externalized style of emotional experience (a propensity to somatize emotions and attribute them to external causes). These findings corroborate growing research literature attesting to the association between anxiety and depression with the construct of

alexithymia (Berthoz, Consoli, Perez-Diaz and Jouvent, 1999; Hendryx, Haviland and Shaw, 1991; Marchesi, Brusamonti and Maggini, 2000).

Patients also exhibited deficits in aspects of emotional regulation; namely, an inability to maintain emotional control, and a higher tendency to employ avoidance, dissociation and suppression strategies to control/inhibit the onset, experience, and expression of emotion. These have been identified as mediators of negative affect, leading to increased – and often maintained – anxiety, depression, intrusions, and in the longer term, serious affective disturbance (Campbell-Sills and Barlow, 2007; Crane, 2008; Hayes, 2004; Sayar, Kose, Grabe and Topbas, 2005; Wegner and Erber, 1992).

Does emotional processing change during CBT, and if so, in what emotional processing dimensions? And does CBT produce patterns of emotional processing in patients similar to those of a healthy control group by the end of therapy?

The mental health participants demonstrated significantly more impairment than the healthy controls in the emotional processing dimensions prior to therapy (with the exception of the *Lack of Attunement* subscale). After therapy, they showed significant improvement on the *EPS-38 Total* score and all subscales, with the exception of the *Externalized* factor. The most marked changes were on the *Suppression*, *Discordant*, *Dissociation* and *Intrusion* subscales. These findings concur with past research (Baker et al., 2007) and support the ability of the *EPS-38* to detect treatment-related changes.

Patient responses post-therapy moved considerably closer to that of the healthy comparison groups. This change was apparent on the *Suppression*, *Avoidance*, *Uncontrolled*, *Lack of Attunement*, *Externalized*, and *EPS-38 Total* scores. Scores on the other subscales (*Discordant*, *Intrusion*, and *Dissociation*) although improved, still differed from the healthy comparison groups. As encouraging as these results may be, it is worth noting that the *EPS-38 Total* score and *Avoidance* subscales were marginally significant and must be interpreted cautiously. However, the difference in mean scores between the groups post-therapy was small, and therefore appears indicative of patient scores moving toward those of the healthy comparison groups. While these findings suggest that CBT ameliorates deficits in emotional processing, these changes cannot be solely attributed to treatment without using test-retest reliabilities for a mental health population or a control group of untreated patients.

Does the EPS-38 detect therapeutic change in emotional dimensions, and how is it related to change in psychiatric symptoms?

There was a marked positive correlation between the *EPS-38* total difference score and the *TAS-20* total difference score with a shared variance of 45%. After controlling for change in psychiatric symptom severity (*BSI Global Severity Index*), the shared variance between the *EPS-38* and the *TAS-20* was reduced to 25%. There was also a positive correlation between the *EPS-38* total difference score and the *BSI Global Severity index* difference score, with a shared variance of 35%. After controlling for alexithymic symptoms (*TAS-20* total difference score), the shared variance dropped to 10%. These results provide some evidence to suggest that changes in *EPS-38* scores may be measuring aspects of change in both alexithymia and psychiatric symptom severity.

These findings are consistent with previous research attesting to the relationship between psychiatric disorders and deficits in emotional awareness, regulation, and expression (Crane, 2008; Luminet et al., 2001; Rude and McCarthy, 2003; Veale, 2008).

Limitations

The design of this study has a number of limitations. Our data suggest a reduction in the patients' emotional processing scores post-CBT and that these approached the score range of healthy controls. However, without a control group in which both pre- and post-measures are taken, there is no way to determine whether these mean differences in scores (pre-post) for the patients are due to therapeutic change, patients simply improving over time independently of therapy, or a statistical artefact of regression to the mean. Furthermore, an issue identified in previous research is that improvements in emotional processing may result from the alleviation of psychiatric symptoms (Pos, Greenberg, Goldman and Korman, 2003). However, the finding that emotional processing had a low to moderate correlation with measures of depression and anxiety in previous research suggests otherwise (Baker et al., 2007). Also, our sampling method restricted our ability to track the attrition rate (i.e. which CBT referrals did not return the second questionnaire pack). Consequently, our results might be explained by a biased patient sample, in which case stricter control of the sampling method would be needed. Matched control groups were not employed due to constraints imposed by the use of pre-existing data obtained from a programme of research. The potential loss of data due to insufficient numbers was considered problematic. However, the finding that both comparison groups had lower mean scores than the CBT group suggests that age was not confounding the analysis.

This study was undertaken as part of the routine clinical practice of experienced clinical psychologists, so the therapy was representative of CBT as applied in a naturalistic setting. No attempt was made to strictly define or standardize the CBT the patients received, so control of potentially important variables is limited. CBT inevitably varied between clinicians, and was mixed with other therapeutic approaches (e.g. person-centred) depending on the clinical style and experience of the individual psychologist. Thus, the changes found in emotional processing may be attributable more to the person-centred skills of the therapist than to CBT. It is possible that "purer" applications of CBT in more clearly defined diagnostic groups might elicit smaller changes in the course of emotional processing. Nevertheless, we believe that the clinical relevance of such naturalistic investigations is an important supplement to carefully controlled trials.

Future directions

To increase the generalizability of these findings, other research methodologies are necessary. Also, using a variety of objective emotion outcome measures, rather than relying on self-report scales alone, could improve the reliability of future research. An investigation into the cultural differences in emotional processing is also an important avenue for future research (Santonastaso, Gremigni, Baker, Thomas and Thomas, 2008).

The findings of this preliminary study are important to the study of emotional processing and its link with mental health for a number of reasons. First, the results confirm prior findings that patients appear to exhibit more deficits in emotional processing in comparison

to healthy controls. Longitudinal study designs would be required to confirm that emotional processing deficits are antecedent to, rather than symptomatic of mental health problems. This has been shown to be the case in post-natal depression but needs to be more widely substantiated (Wilkins, Baker, Bick and Thomas, 2009). Second, the results indicate that emotional processing appears to improve post-intervention. Such findings suggest that the delivery of CBT may engender emotional processing changes similar to other emotion-based therapies even though it does not directly target emotions (Wiser and Goldfried, 1993) but this requires further exploration in studies where CBT is more tightly controlled.

The detection of change in the other psychometric scales, along with the change detected by the EPS-38, provides preliminary evidence that the EPS-38 is sensitive to therapeutic change. Consistent with previous research, alexithymia symptoms and psychiatric symptoms appear to be related (Berthoz et al., 1999; Hendryx et al., 1991; Marchesi et al., 2000), and might indeed reflect a broader underlying emotional processing structure. To conclude, the EPS-38 may prove to be a valid and sensitive clinical and research tool for measuring the emotional aspects of therapeutic change. Although these results are preliminary, they are nonetheless important, and contribute new insight to the growing body of literature on emotional processing.

References

- Anderson, T., Bein, E., Pinnell, B. J. and Strupp, H. H.** (1999). Linguistic analysis of affective speech in psychotherapy: a case grammar approach. *Psychotherapy Research*, 9, 88–99.
- Bagby, R. M., Parker, J. D. A. and Taylor, G. J.** (1994). The Twenty-Item Toronto Alexithymia Scale-I: item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, 38, 23–32.
- Bagby, R. M., Taylor, G. J. and Parker, J. D. A.** (1994). The Twenty-Item Toronto Alexithymia Scale-II: convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research*, 38, 33–40.
- Baker, R.** (2001). An emotional processing model for counselling and psychotherapy: a way forward? *Counselling in Practice*, 7, 8–11.
- Baker, R.** (2007). *Emotional Processing: healing through feeling*. Oxford: Lion Hudson.
- Baker, R.** (2010). *Understanding Trauma: how to overcome post-traumatic stress*. Oxford: Lion Hudson.
- Baker, R., Allen, H., Gibson, S., Newth, J. and Baker, E.** (1998). Evaluation of primary care counselling service in Dorset. *British Journal of General Practice*, 48, 1049–1053.
- Baker, R., Baker, E., Allen, H., Thomas, P., Newth, J., Hollingbery, T., et al.** (2002). A naturalistic longitudinal evaluation of counselling in Primary Care. *Counselling Psychology Quarterly*, 15, 359–373.
- Baker, R., Holloway, J., Thomas, P. W., Thomas, S. and Owens, M.** (2004). Emotional processing and panic. *Behaviour Research and Therapy*, 42, 1271–1287.
- Baker, R., Owens, M., Tosunlar, L., Thomas, P. W. and Thomas, S.** (2004). *Emotional Processing*. Website: www.emotionalprocessing.org.uk, date accessed: October 2007.
- Baker, R., Thomas, S., Thomas, P. W. and Owens, M.** (2007). Development of an emotional processing scale. *Journal of Psychosomatic Research*, 62, 167–178.
- Berthoz, S., Consoli, S., Perez, D. F. and Jouvent, R.** (1999). Alexithymia and anxiety: compounded relationships? A psychometric study. *European Psychiatry*, 14, 372–378.
- Campbell-Sills, L. and Barlow, D. H.** (2007). Incorporating emotion regulation into conceptualizations and treatments of anxiety and mood disorders. In J. J. Gross (Eds.), *Handbook of Emotion Regulation*. New York: The Guilford Press.

- Castonguay, L. G., Goldfried, M. R., Wiser, S., Raue, P. J. and Hayes, A. M. (1996). Predicting the effect of cognitive therapy for depression: a study of unique and common factors. *Journal of Consulting and Clinical Psychology*, 64, 497–504.
- Coombs, M. M., Coleman, D. and Jones, E. E. (2002). Working with feelings: the importance of emotion in both cognitive-behavioural and interpersonal therapy in the NIMH Treatment of Depression Collaborative Research Program. *Psychotherapy: Theory, Research, Practice, Training*, 39, 233–244.
- Crane, R. (2008). *Mindfulness-Based Cognitive Therapy (CBT Distinctive Features)*. London: Routledge.
- Derogatis, L. R. and Cleary, P. A. (1977). Confirmation of the dimensional structure of the SCL-90: a study in construct validation. *Journal of Clinical Psychology*, 33, 981–989.
- Derogatis, L. R. and Melisaratos, N. (1983). The Brief Symptom Inventory: an introductory report. *Psychological Medicine*, 13, 595–605.
- Feeny, N. C., Zoellner, L. A. and Foa, E. B. (2002). Treatment outcome for chronic PTSD among female assault victims with borderline personality characteristics: a preliminary examination. *Journal of Personality Disorders*, 16, 30–40.
- Foa, E. B. (2006). Psychosocial therapy for posttraumatic stress disorder. *Journal of Clinical Psychiatry*, 67, 40–45.
- Foa, E. B., Hembree, E. A. and Rothbaum, B. O. (2007). *Prolonged Exposure Therapy for PTSD*. New York: Oxford University Press.
- Foa, E. B. and Kozak, M. J. (1986). Emotional processing of fear: exposure to corrective information. *Psychological Bulletin*, 99, 20–35.
- Gendlin, E. T. (1978). *Focusing*. New York: Everest House.
- Gendlin, E. T. (1996). *Focusing-Oriented Psychotherapy: a manual of the experiential method*. New York: The Guilford Press.
- Gilboa-Schechtman, E., Avnon, L., Zubery, E. and Jeczmierni, P. (2006). Emotional processing in eating disorders: specific impairment or general distress related deficiency? *Depression and Anxiety*, 23, 331–339.
- Goldfried, M. R. (2003). Cognitive-behaviour therapy: reflections on the evolution of a therapeutic orientation. *Cognitive Therapy and Research*, 27, 53–69.
- Greenberg, L. (2008). Emotion and cognition in psychotherapy: the transforming power of affect. *Canadian Psychology*, 49, 49–59.
- Greenberg, L. S., Rice, L. N. and Elliott, R. (1993). *Facilitating Emotional Change: the moment-by-moment process*. New York: The Guilford Press.
- Greenberg, L. S. and Safran, J. D. (1987). *Emotion in Psychotherapy*. London: The Guilford Press.
- Gross, J. J. (1998). The emerging field of emotion regulation: an integrative review. *Review of General Psychology*, 2, 271–291.
- Gross, J. J. and Muñoz, R. F. (1995). Emotion regulation and mental health. *Clinical Psychology: Science and Practice*, 2, 151–164.
- Hayes, S. C. (2004). Acceptance and commitment therapy and the new behaviour therapies: mindfulness, acceptance, and relationship. In S. C. Hayes, V. M. Follette and M. M. Linehan (Eds.), *Mindfulness and Acceptance: expanding the cognitive-behavioural tradition*. New York: The Guilford Press.
- Hendryx, M. S., Haviland, M. G. and Shaw, D. G. (1991). Dimensions of alexithymia and their relationships to anxiety and depression. *Journal of Personality Assessment*, 56, 227–237.
- Hunt, M. G. (1998). The only way out is through: emotional processing and recovery after a depressing life event. *Behaviour Research and Therapy*, 36, 361–384.
- Jones, E. E. and Pulos, S. M. (1993). Comparing the process in psychodynamic and cognitive-behavioural therapies. *Journal of Consulting and Clinical Psychology*, 61, 306–316.

- Lane, R. D., Quinlan, D. M., Schwartz, G. E., Walker, P. A. and Zeitlin, S. B. (1990). The levels of emotional awareness scale: a cognitive-developmental measure of emotion. *Journal of Personality Assessment*, 55, 124–134.
- Luminet, O., Bagby, R. M. and Taylor, G. J. (2001). An evaluation of the absolute and relative stability of alexithymia in patients with major depression. *Psychotherapy and Psychosomatics*, 70, 254–260.
- Lundh, L. G., Johnsson, A., Sundqvist, K. and Olsson, H. (2002). Alexithymia, memory of emotion, emotional awareness and perfectionism. *Emotion*, 2, 361–379.
- Mackay, H. C., Barkham, M., Stiles, W. B. and Goldfried, M. R. (2002). Patterns of client emotion in helpful sessions of cognitive-behavioral and psychodynamic-interpersonal therapy. *Journal of Counselling Psychology*, 49, 376–380.
- Marchesi, C., Brusamonti, E. and Maggini, C. (2000). Are alexithymia, depression, and anxiety distinct constructs in affective disorders? *Journal of Psychosomatic Research*, 49, 43–49.
- Mennin, D. S., Heimberg, R. G., Turk, C. L. and Fresco, D. M. (2002). Applying an emotion regulation framework to integrative approaches to generalized anxiety disorder. *Clinical Psychology: Science and Practice*, 9, 85–90.
- Mischel, W. (2004). Toward an integrative model for CBT: encompassing behaviour, cognition, affect, and process. *Behavior Therapy*, 35, 185–203.
- Morrow, J. and Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology*, 58, 519–527.
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, 100, 569–582.
- Nolen-Hoeksema, S. and Morrow, J. (1993). Effects of rumination and distraction on naturally occurring depressed mood. *Cognition and Emotion*, 7, 561–570.
- Orlinsky, D. E. and Howard, K. I. (1986). The relation of process to outcome in psychotherapy. In S. L. Garfield and A. E. Bergin (Eds.), *Handbook of Psychotherapy and Behaviour Change* (3rd ed.). New York: Wiley.
- Parker, J. D. A., Taylor, G. J. and Bagby, R. M. (2003). The 20-item Toronto Alexithymia Scale III: reliability and factorial validity in a community population. *Journal of Psychosomatic Research*, 55, 269–275.
- Pos, A. E., Greenberg, L. S., Goldman, R. and Korman, L. (2003). Emotional processing during experiential treatment of depression. *Journal of Consulting and Clinical Psychology*, 71, 1007–1016.
- Rachman, S. (1980). Emotional processing. *Behaviour Research and Therapy*, 18, 51–60.
- Rachman, S. (2001). Emotional processing, with special reference to post-traumatic stress disorder. *International Review of Psychiatry*, 13, 164–171.
- Rauch, S. and Foa, E. B. (2006). Emotional processing theory (EPT) and exposure therapy for PTSD. *Journal of Contemporary Psychotherapy*, 36, 61–65.
- Rudkin, A., Llewelyn, S., Hardy, G., Stiles, W. B. and Barkham, M. (2007). Therapist and client processes affecting assimilation and outcome in brief psychotherapy. *Psychotherapy Research*, 17, 613–621.
- Rude, S. S. and McCarthy, C. T. (2003). Emotional functioning in depressed and depression-vulnerable college students. *Cognition and Emotion*, 17, 799–806.
- Samoilov, A. and Goldfried, M. R. (2000). Role of emotion in cognitive behaviour therapy. *Clinical Psychology: Science and Practice*, 7, 373–385.
- Sayar, K., Kose, S., Grabe, H. J. and Topbas, M. (2005). Alexithymia and dissociative tendencies in an adolescent sample from Eastern Turkey. *Psychiatry and Clinical Neurosciences*, 59, 127–134.
- Santonastaso, M., Gremigni, P., Baker, R., Thomas, P. and Thomas, S. (2008). *EPS: cross cultural validation between Italy and England*. In VIII National Congress of Health Psychology: Health and Shared Social Responsibility [Conference]. Rovigo, Italy.
- Strongman, K. T. (1993). Emotion theory and cognitive-behaviour therapy. *Behaviour Change (Special Issue: the relevance of basic research to cognitive-behaviour therapy)*, 10, 141–153.

- Tallis, F.** (1999). Unintended thoughts and images. In T. Dalgleish and M. Power (Eds.), *Handbook of Cognition and Emotion* (chap. 15). West Sussex, England: John Wiley and Sons.
- Taylor, G. J., Bagby, R. R. and Parker, J. D. A.** (1997). *Disorders of Affect Regulation: alexithymia in medical and psychiatric illness*. Cambridge: Cambridge University Press.
- Veale, D.** (2008). Behavioural activation for depression. *Advances in Psychiatric Treatment*, 14, 29–36.
- Watson, J. C. and Bedard, D. L.** (2006). Clients' emotional processing in psychotherapy: a comparison between cognitive-behavioural and process-experiential therapies. *Journal of Consulting and Clinical Psychology* 74, 152–159.
- Watson, M. and Greer, S.** (1983). Development of a questionnaire measure of emotional control. *Journal of Psychosomatic Research*, 27, 299–305.
- Wegner, D. M. and Erber, R.** (1992). The hyperaccessibility of suppressed thoughts. *Journal of Personality and Social Psychology*, 63, 1–10.
- Whelton, J. W.** (2004). Emotional processes in psychotherapy: evidence across therapeutic modalities. *Clinical Psychology and Psychotherapy*, 11, 58–71.
- Wilkins, C., Baker, R., Bick, D. and Thomas, P.** (2009). Emotional processing in childbirth: a predictor of postnatal depression? *British Journal of Midwifery*, 17, 154–159.
- Wiser, S. and Goldfried, M. R.** (1993). Comparative study of emotional experiencing in psychodynamic-interpersonal and cognitive-behavioural therapies. *Journal of Consulting and Clinical Psychology*, 61, 892–895.
- Wiser, S. and Goldfried, M. R.** (1998). Therapist interventions and client emotional experiencing in expert psychodynamic-interpersonal and cognitive-behavioural therapies. *Journal of Consulting and Clinical Psychology*, 66, 634–640.
- Zonneville-Bender, M. J. S., Van Goozen, S. H. M., Cohen-Kettenis, P. T., Van Elburg, A., De Wildt, M., Stevelmans, E. and Van England, H.** (2004). Emotional functioning in anorexia nervosa patients: adolescents compared to adults. *Depression and Anxiety*, 19, 35–42.