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**CLIENT EMOTION IN COGNITIVE-BEHAVIORAL AND  
INTERPERSONAL/EMOTIONAL PROCESSING THERAPY FOR GENERALIZED  
ANXIETY DISORDER**

A Dissertation in

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## ABSTRACT

Contemporary models of generalized anxiety disorder (GAD) posit that worry serves a cognitive avoidance function, and that emotional avoidance may serve as a maintaining factor for worry and related anxiety symptoms. The goals of this study were to (a) investigate emotional experiencing in GAD clients who were treated in an RCT testing the efficacy of augmenting standard CBT with emotion-focused interventions and (b) explore the relationship between client emotional experiencing and session outcome. GAD clients (N = 70) were assigned to one of two treatment conditions: CBT plus interpersonal-emotional processing therapy (I/EP) or CBT plus supportive listening (SL). Psychotherapy sessions representing early, middle, and late phases of treatment were sampled and coded for each treatment segment (CBT, I/EP, SL). Peak emotional arousal for six primary emotions (love, joy, surprise, anger, sadness, fear) was measured from an observer-rated perspective with the Client Emotional Arousal Scale (CEAS), and outcome was assessed with the client version of the Session Progress Scale (SPS). Two sets of double-repeated multilevel ANOVA models were tested. Among the results, significantly higher levels of love, sadness, and anger were observed in the I/EP segment compared to the CBT segments. Significant interactions between phase and treatment were found for sadness and fear, with higher levels occurring in the late phase of treatment in the CBT plus I/EP condition. Clients who experienced more sadness rated those sessions as less helpful, and clients who experienced more joy in the I/EP and CBT segments rated those sessions as more helpful/impactful. These findings are discussed with respect to their conceptual, empirical, and clinical implications.

## TABLE OF CONTENTS

List of Tables.....	v
List of Figures.....	vi
Acknowledgements.....	vii
Chapter 1. <b>INTRODUCTION</b> .....	1
Emotional Processes in Psychotherapy.....	2
Emotion and GAD.....	9
Emotion and Cognitive-Behavioral Therapy for GAD.....	14
Specific Aims and Hypotheses.....	15
Chapter 2. <b>METHOD</b> .....	19
GAD-V.....	19
Participants.....	19
Measures.....	20
Procedure.....	23
Treatments.....	24
Data Analytic Strategy.....	26
Chapter 3. <b>RESULTS</b> .....	27
Preliminary and Descriptive Analyses.....	27
Aim One: Emotional Arousal.....	28
Aim Two: Emotion and Outcome.....	32
Chapter 4. <b>DISCUSSION</b> .....	35
Client Emotional Arousal.....	35
Emotion and Session Outcome.....	42
Strengths and Limitations.....	46
Conclusion and Future Directions.....	48
REFERENCES.....	50
APPENDIX A: Tables and Figures.....	68
APPENDIX B: Emotion Measure.....	88
APPENDIX C: Outcome Measure.....	89

## List of Tables

Table 1: <i>CEAS Average Peak Means and Standard Deviations</i> .....	68
Table 2: <i>SPS Item Means and Standard Deviations</i> .....	69
Table 3: <i>Solution for Fixed Effects and Mean Comparisons of Treatment Segments for Peak Love</i> .....	70
Table 4: <i>Solution for Fixed Effects and Mean Comparisons of Treatment Phases for Peak Joy</i> .....	71
Table 5: <i>Solution for Fixed Effects for Peak Surprise</i> .....	72
Table 6: <i>Solution for Fixed Effects and Mean Comparisons of Treatment Conditions and Segments for Peak Anger</i> .....	73
Table 7: <i>Solution for Fixed Effects and Mean Comparisons of Treatment Segments for Peak Sadness</i> .....	74
Table 8: <i>Solution for Fixed Effects and Mean Comparison of Treatment Conditions for Peak Fear</i> .....	75
Table 9: <i>Solution for Fixed Effects and Mean Outcome Comparisons of Treatments, Segments and Phases</i> .....	76
Table 10: <i>Solution for Fixed Effects of Love Model Predicting Outcome</i> .....	78
Table 11: <i>Solution for Fixed Effects of Joy Model Predicting Outcome</i> .....	79
Table 12: <i>Solution for Fixed Effects of Surprise Model Predicting Outcome</i> .....	80
Table 13: <i>Solution for Fixed Effects of Anger Model Predicting Outcome</i> .....	81
Table 14: <i>Solution for Fixed Effects of Sadness Model Predicting Outcome</i> .....	82
Table 15: <i>Solution for Fixed Effects of Fear Model Predicting Outcome</i> .....	83

## List of Figures

Figure 1: <i>Peak Joy Across Phases of Treatment</i> .....	84
Figure 2: <i>Treatment Condition and Phase Predicting Sadness</i> .....	85
Figure 3: <i>Treatment Condition and Phase Predicting Fear</i> .....	86
Figure 4: <i>Treatment Segment and Level of Joy Predicting Outcome</i> .....	87

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## Chapter 1

### INTRODUCTION

Although there are different theoretical perspectives on the nature and role of emotion in psychotherapy, client emotional expression is widely considered to be an important component of the process of change (Borum & Goldfried, 2007; Greenberg, 2008). Unlike experiential and psychodynamic schools of thought where the role of emotional arousal is emphasized, cognitive-behavioral approaches, historically, have focused more on managing and containing affective arousal (Blagys & Hilsenroth, 2000; Samoilov & Goldfried, 2000). However, with accumulating evidence in the areas of basic psychopathology and psychotherapy research, advances in cognitive-behavioral theories have emerged to better account for emotional processes in the etiology, maintenance, and treatment of psychological disorders. This advancement has perhaps been best exemplified in the study and treatment of generalized anxiety disorder (GAD) (Heimberg, Turk, & Mennin, 2004; Holmes & Newman, 2006).

Emotion dysregulation hypotheses of GAD, generated from cognitive-avoidance theory (Borkovec, 1994; Borkovec & Newman, 1998), have been based on a considerable body of research on worry processes. Emotional arousal appears to be a key component of the disorder, along with interpersonal factors (Erickson & Newman, 2007). Thus, successful treatment of GAD, regardless of the particular approach, will likely need to take into account emotional processes (Newman, 2000; Newman, Castonguay, Borkovec, & Molnar, 2004). Indeed a treatment was developed at Penn State University to address the limitations of a preexisting, empirically supported, cognitive-behavioral treatment for GAD (Borkovec, Newman, & Castonguay, 2003; Newman, Castonguay, Borkovec, Fisher, & Nordberg, 2008;

Newman et al., 2004). The primary goal of the present study was to investigate clients' emotional experiencing in the treatment components of a randomized clinical trial (RCT) that tested the efficacy of this integrative treatment for GAD from an observer-rated perspective, as well as explore a potential relationship with session-level outcome, or impact.

First, I will present a brief review of the treatment literature on emotional processes in psychotherapy. Second, I will present a brief review of the literature on GAD's hallmark characteristic, worry, as it relates to cognitive avoidance and emotion dysregulation. Third, based on these lines of research, I will introduce the integrative treatment that was investigated in this study.

### **Emotional Processes in Psychotherapy**

As early as Freud (1910), emotion has been viewed as central to the etiology, maintenance, and treatment of psychological problems. However, it is only in recent decades that we have witnessed a substantial increase in the testing of many of these assumptions. Specifically related to psychotherapy, and consistent with traditional theoretical principles, a substantial amount of work has been conducted in process-experiential (client centered and emotion-focused), psychodynamic, and psychodynamic-interpersonal psychotherapies. Central to exposure interventions (Farmer & Chapman, 2008), the role of emotional processing has also been emphasized in seminal cognitive-behavioral papers (Foa & Kozak, 1986; Rachman, 1980). As noted by Greenberg (2008), converging views of emotion have recently emerged across various therapeutic approaches.

The importance of facilitating in-session emotional experience (e.g., arousal and expression) to promote change has been increasingly supported (Greenberg & Malcom, 2002; Samoilov & Goldfried, 2000), particularly within the experiential and short-term

psychodynamic therapy literatures (e.g., Caspar, Pessier, Stuart, Safran, Samstag, & Guirguis, 2000; Greenberg & Korman, 1993; Hilsenroth, Ackerman, Blagys, Baity, & Mooney, 2003; Ho'lzner, Pokorny, Ka'chele, & Luborsky, 1997; Pos, Greenberg, Goldman, & Korman, 2003). Greenberg and colleagues have provided a wealth of important information on emotional processing, using instruments such as the Experiencing Scale (EXP; Klein, Mathieu, Kiesler, & Gendlin, 1969) and the Client's Emotional Arousal Scale (CEAS; Daldrup, Beutler, Engle, & Greenberg, 1988; Warwar & Greenberg, 1999a), in their investigations of process-experiential therapy (experiential, emotion-focused therapy) for depression. For example, Greenberg and Foerster (1996) found that an "intense expression of feeling" was present in the majority of resolved events in an empty chair task and essentially absent in unresolved events. Warwar and Greenberg (1999b) demonstrated that higher emotional arousal at mid-treatment predicted positive outcome.

Pos et al. (2003) investigated early and late session emotional processing using the EXP scale and examined its relationship with change in an experiential treatment for depression. Early and late session emotional processing predicted reductions in reported symptoms and gains in self-esteem. Regression analyses demonstrated that late emotional processing mediated the relationship between clients' early emotional processing capacity and outcome, and in addition, was the sole emotional processing variable that independently predicted improvement.

In a subsequent study conducted by Goldman, Greenberg, and Pos (2005), emotional depth and its change over the course of treatment as measured by the EXP were explored in relation to outcome, once again in experiential therapy for depression. Results showed that experiential depth in the last half of therapy was a significant predictor of reduced symptom

distress and increased self-esteem. Late emotional depth also accounted for outcome variance over and above that accounted for by early depth and alliance.

Missirlian, Toukmanian, Warwar, and Greenberg (2005) examined emotional arousal with the CEAS (Daldrup et al., 1988; Warwar & Greenberg, 1999a), in addition to other constructs, such as the working alliance, across three phases (early, middle and late) of process-experiential therapy for depression. While results varied depending on the therapeutic process, phase of treatment, and outcome measure, mid-therapy emotional arousal did predict improvements in self-esteem. In contrast, however, Greenberg, Auzra, and Herman (2007) found no difference between four better outcome clients and four poorer outcome clients in brief experiential treatment of depression on the degree of emotional arousal as measured by the CEAS.

Additionally, Watson and Benard (2006) compared client emotional processing in good and poor outcome cases of process-experiential therapy and CBT for depression using the EXP. Clients who received process-experiential therapy exhibited a higher mean modal and peak EXP rating than clients who received CBT. Clients classified as good outcome cases also exhibited significantly higher EXP ratings than clients classified as poor outcome cases. Clients also exhibited a significant linear increase in EXP ratings across beginning, middle, and late phases of treatment, and a significant quadratic effect was observed in that a slight decrease in EXP ratings was observed between the middle and late phase of therapy. Clients in the good outcome group in both process-experiential therapy and CBT evidenced higher mode and peak EXP levels than the poor outcome group at every phase of therapy.

In contrast with experiential therapies, emotion is still considered to be under-researched in CBT (Samoilov & Goldfried, 2000). Much of what we know about the nature of

clients' emotional processes in this approach has been derived from comparative treatment outcome trials for depression. These studies have investigated the level of client emotional experiencing or the focus on emotion in the psychotherapies, as well as the relationship between emotional experiencing and outcome in compared treatments.

In their study using the Process Q-Set (PQS), Jones and Pulos (1993) found that evocative strategies that facilitated affect and brought aversive feelings into awareness were present in both CBT and brief psychodynamic psychotherapy. Goldfried, Castonguay, Hayes, Drozd, & Shapiro (1997) studied the therapeutic focus in both CBT and psychodynamic-interpersonal treatments for depression. High and low-impact sessions were coded for each client. Consistent with the treatment principles, results showed that psychodynamic-interpersonal sessions focused more on emotion, among several other variables. In a similar study, only this time with master therapists treating anxiety and depression from CBT and psychodynamic-interpersonal orientations practicing in a naturalistic setting, few between-group differences emerged (Goldfried, Raue, & Castonguay, 1998). However, differences did exist in what psychotherapists viewed as most significant in the session. Psychodynamic-interpersonal psychotherapists were more likely to highlight the client's emotion in significant portions of sessions than they were during both the non-significant portions of their own sessions and the significant portions of the cognitive-behavioral psychotherapists' sessions. Regardless of the theoretical orientation, the session segments judged to be clinically significant involved a greater focus on clients' ability to observe themselves in an objective way, their evaluation of their self-worth, their expectations about the future, and their emotions.

Using the same data set, Wisner and Goldfried (1993) examined significant psychotherapy sessions from expert cognitive-behavioral and psychodynamic-interpersonal psychotherapists to determine the extent of emotional exploration and the psychotherapists' views of this in treatment. They reported that emotional experiencing was equally present in the two orientations in the identified significant change sessions. However, psychodynamic-interpersonal psychotherapists viewed sessions containing higher levels of experiencing as more important to the change process, while cognitive-behavior psychotherapists viewed lower levels of experiencing as being more significant.

In another study, Wisner and Goldfried (1998) explored the therapeutic interventions associated with high and low client emotional experiencing. Maintaining high emotional experiencing levels was associated with receiving reflections, acknowledgments, affiliative and non-controlling interventions, and interventions highlighting non-specific client content. Lengthier interventions that were also rated as moderately controlling were associated with shifts to low client experiencing. In CBT, questions, interventions perceived as controlling, and highlighting minimal emotional content were also associated with shifts to low client experiencing. Male therapists were more likely to have clients who maintained high experiencing levels, while female therapists were more likely to have clients who shifted to low experiencing levels.

Mackay, Barkham, Stiles, and Goldfried (2002) measured clients' emotions within sessions and across treatment phases of cognitive-behavioral and psychodynamic-interpersonal psychotherapies to assess how emotional experiencing takes place in contrasting models. Following Barkham, Stiles, and Shapiro (1993), they characterized emotion within each session by dimensions of pleasure and arousal, using six quantitative parameters: initial

level, mean level, rate of change, degree of variability across time, degree of curve, and direction of curve (U-shaped or inverted-U-shaped). Coders rated both dimensions for each sentence of client speech in CBT and psychodynamic-interpersonal sessions that psychotherapists had identified as particularly helpful. Client emotion in psychodynamic-interpersonal sessions was less pleasant, on average, than client emotion in CBT sessions, and emotion was most negative in the middle of the psychodynamic-interpersonal sessions. Within sessions, arousal tended to follow a U-shaped course for CBT clients, but an inverted U-shaped course for psychodynamic-interpersonal clients. It is possible that these contrasting emotional patterns are associated with different change mechanisms.

As noted, research has also correlated emotional experiencing with outcome. For example, in addition to exploring emotion in CBT and brief psychodynamic psychotherapy, Jones and Pulos (1993) linked these processes with termination outcome. The experience of negative affect occurred in both treatments; however, this was negatively related to outcome in CBT (Minnesota Multiphasic Personality Inventory-2 Depression Scale, MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kraemmer, 1989) and positively related to outcome in psychodynamic psychotherapy (Therapist Rated Brief Psychiatric Rating Scale, BPRS; Overall & Gorham, 1962). The authors noted that this was consistent with prior information indicating that “cognitive-behavioral therapies tend to emphasize the suppression and control of negative affect, whereas psychodynamic treatments focus on the exploration and expression of such feelings” (p. 315). In a later study, Ablon and Jones (1998) investigated the relationship between expert clinician generated prototypes of CBT and psychodynamic-interpersonal psychotherapy in relation to the PQS and treatment outcome across three controlled trials. The authors reported that, in a cognitive-behavioral treatment sample, the

psychodynamic-interpersonal prototype predicted positive outcome on the feelings section of the Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980).

In a study similar to Jones and Pulos (1993), also using the PQS, Coombs, Coleman, and Jones (2002) examined CBT and interpersonal psychotherapy (IPT) for depression and provided evidence for the importance of focusing on emotion in relation to treatment outcome, regardless of treatment orientation. Collaborative emotional exploration - client insight into problems and therapy process and therapists' non-judgmental acceptance of and attunement to their feelings, leading clients to feel understood - was significantly related to positive outcome in both treatments, yet was more prevalent in IPT.

Castonguay, Goldfried, Wisner, Raue, and Hayes (1996) explored clients' emotional involvement in cognitive therapy for depression. A high level of experiencing was predictive of decreased depressive symptoms as measured by the BDI (Beck Depression Inventory; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and the working alliance did not significantly predict BDI scores over and above client experiencing, indicating an important and unique contribution to the variance in cognitive therapy. In a study of group cognitive-behavioral therapy for binge eating disorder, Castonguay, Pincus, Agras, and Hines (1998) found that both positive and negative emotions occurred throughout treatment, with negative emotions being most prevalent in the middle phase of therapy. Both the prevalence of positive feelings (e.g., hope and relief) and the lack of negative feelings (worried, upset) at the beginning of treatment were linked with positive outcome.

Notably, most of the research described above (the only exception being Castonguay et al., 1998) has focused on the treatment of depression. Emotional experiencing has also been investigated in the treatment of trauma. For example, emotional engagement, or the concept

of fear activation, has been consistently positively associated with outcome in exposure therapy for posttraumatic stress disorder (PTSD) (Foa, Riggs, Massie, & Yarczower, 1995; Pitman, Orr, Altman, & Longpre, 1996).

The amalgam of these findings suggests that emotional expression, arousal, and deepening may be a core ingredient of change in psychotherapy, regardless of the approach. However, this is not to say that emotional processing occurs similarly in different treatment approaches. Indeed research has demonstrated that contrasting emotional processes might be occurring in different therapeutic approaches (e.g., Mackay et al., 2002), and many of these differences appear to be consistent with their respective principles. Additionally, although working with client emotion has been linked with positive outcomes in CBT (the exceptions being Jones & Pulos [1993] and a null finding by Hayes & Strauss [1998]), CBT therapists have traditionally regarded emotion as less integral to change, appear to focus on it less, and when clients are experiencing higher levels of emotional arousal, there is some evidence to suggest that CBT does not address this effectively, or fails to facilitate this potentially important mechanism. However, cognitive-behavioral formulations of clinical problems that take into account the importance of processing underlying emotion have begun to emerge in recent decades, which have led to the development and testing of new and innovative cognitive-behavioral treatments, such as cognitive-behavioral assimilative therapy for GAD (Castonguay, Newman, Borkovec, Grosse Holtforth, & Maramba, 2005; Newman et al., 2008).

### **Emotion and GAD**

Generalized anxiety disorder is a relatively common disorder with a 1.6% current and 5.1% lifetime prevalence in the general population (Kessler et al., 1994). Individuals with

GAD show functional impairment and disability across a wide range of domains, including social, occupational, and personal arenas. They evidence higher rates of unemployment, more days of missed work, and more frequent occurrence of inability to carry out usual role functioning activities than the general population (Henning, Turk, Mennin, Fresco, & Heimberg, 2007; Wittchen, Zhao, Kessler, & Eaton, 1994; Wittchen, 2002). Rates of marital distress, divorce, and separation are also elevated among those with GAD (Leon, Portera & Weissman, 1995; Wittchen et al., 1994). GAD is also associated with poor physical health, more frequent somatic complaints, and chronic medical conditions (Newman, 2000; Wells, Golding, Burnam, 1989).

The cardinal feature of GAD is worry, particularly its uncontrollable nature. Thus, much of the research aimed at understanding GAD has been focused on developing a better understanding of the nature of worry and its processes (e.g., Borkovec, 1994; Borkovec, Alcaine, & Behar, 2004). Lines of research aimed at understanding these mechanisms have included: worry serving a cognitive avoidance function (Borkovec et al., 2004), information processing biases (Hazlett-Stevens & Borkovec, 2004; Mogg, Mathews, & Eysenck, 1992), emotion dysregulation (Mennin, Heimberg, Turk, & Fresco, 2005), meta-worry (Wells, 2005), and interpersonal factors (Erickson & Newman, 2007; Newman & Erickson, 2010; Pincus & Borkovec, 1994). The following brief review will focus on cognitive avoidance and emotion dysregulation.

**Worry as cognitive avoidance.** Borkovec (1994; Borkovec et al., 2004; Borkovec & Newman, 1998) posited that worry serves a cognitive avoidance function. Specifically, worry is postulated to be a primarily lexical activity (Borkovec & Lyonfields, 1993; East & Watts, 1994) that allows individuals to process information at an abstract conceptual level and

subsequently avoid, at least in the short-term, autonomic arousal, intense negative emotion, and aversive imagery (Borkovec, 1994; Borkovec & Inz, 1990; see Borkovec, Ray, & Stober, 1998; Borkovec et al., 2004). Previous research has informed the development of and provided convincing support for this theory.

Borkovec and Inz (1990) instructed GAD clients and non-client controls to engage in a relaxation exercise and a worry task, and asked both groups to describe their experience. Individuals with GAD reported using equivalent amounts of verbal thought and imagery during the relaxation task, while the control group reported predominately engaging in imagery. When both groups were instructed in the worry task, the GAD group engaged in significantly more negative thinking, and similar increases occurred in the control group. After a period of cognitive-behavioral therapy, however, the GAD group's ability to engage in imagery approached that of the control group. Furthermore, Rapee (1993) reported that a task involving verbal working memory interfered with worry, while a task involving visual-spatial memory did not, and engaging in worry has been linked with left frontal cortex activation, a region that has been correlated with lexical activity (Borkovec et al., 1998). These studies provided strong support for the lexical nature of worry.

Importantly, linguistic processes have been found to be less physiologically evocative than those involving imagery. Verbal thought about emotional material elicits limited cardiovascular response, whereas images of the same material evoke a significantly greater response (Vrana, Cuthbert, & Lang, 1986; 1989). Paivio (1986) demonstrated that generating images from abstract words and sentences requires more time and produces images that are more abstract and less vivid. Thus, worriers may escape fearful imagery by focusing on the verbal channel while thinking about the future in more abstract terms with fewer

concrete details (Stöber, 1998). Tucker and Newman (1981) found that people spontaneously used verbalization as a strategy for abstraction, disengagement, and emotion control that decreased sympathetic arousal in the presence of aversive material.

Similarly, worry has been associated with reduced autonomic flexibility (Hoehn-Saric & McLeod, 1988). Borkovec and Hu (1990) presented a clinical group and non-clinical controls with a phobic stimulus and asked them to either engage in worry or relaxation prior to the presentation of the stimulus. Individuals with GAD who engaged in worry prior to the presentation of the task showed no signs of heart rate increase, while individuals who were relaxed showed significant heart rate increases. Additionally, individuals who did not engage in worry were able to habituate to the phobic stimulus, while the clinical group failed to demonstrate extinction over multiple trials. These studies suggest that the linguistic nature of worry contributes to the suppression and rigidity of autonomic responses associated with GAD (e.g., Borkovec, Lyonfields, Wisner, & Diehl, 1993). Furthermore, autonomic dysfunction presumably impacts emotional information processing systems. In GAD, this leads to an inhibited ability to habituate to threatening stimuli (i.e., disrupted new learning).

Taken together, this evidence suggests that individuals with GAD likely engage in worry to disrupt the processing of negative information (affective or otherwise). In line with Foa and Kozak's (1986) emotional processing theory and its emphasis on activating fear structures, worry may, thus, inhibit new learning and help maintain threatening meanings (Borkovec et al., 1998). Supporting this position, Butler, Wells, and Dewick (1995) found that although worrying about distressing information inhibits arousal, it can also lead to an increase in worrisome, negative thoughts for several days after the presentation of distressing

stimuli. The initial avoidance of disturbing information may also negatively reinforce the continued use of worry as an avoidance strategy (Newman et al., 2008).

There is evidence that individuals with GAD may avoid emotions other than fear. In both clinical and non-clinical GAD samples, worry and GAD have been associated with a tendency to try to avoid or control internal experiences in general, as well as a fear of losing control over emotional responses (Hazlett-Stevens & Craske, 2003; Roemer, Salters, Raffa, & Orsillo, 2005; Turk, Heimberg, Luterek, Mennin, & Fresco, 2005). Despite the affect-dampening process of worry, there is some evidence that individuals with GAD experience excessive negative affect (Mennin, Heimberg, Turk, & Fresco, 2002) and report heightened intensity of emotions (Mennin, Holaway, Fresco, Moore, & Heimberg, 2007). Research has shown, for example, that individuals with GAD experience more internally directed anger than non-client controls (Dadds, Gaffney, Kenardy, Oei, & Evans, 1993).

In the model outlined by Mennin et al. (2002; Mennin, Heimberg, & Turk 2004), an attempt is made to simultaneously capture both the excessive negative affect and affect-dampening worry process in GAD. Mennin and colleagues argue that emotional experience may become dysregulated through a set of processes that involve (a) heightened intensity of emotional experience, (b) poor understanding of emotions, (c) negative reactivity to one's emotional state (fear of emotion), and (d) maladaptive emotional management responses. With the exception of a recent study (McLaughlin, Mennin, & Farach, 2007) research to-date has been correlational and typically conducted in non-treatment contexts (e.g., college subject pool). Nevertheless, it has been shown, in both college analogue and clinical samples of GAD, that individuals with GAD tend to report more difficulties with identifying, articulating/differentiating, and coping with emotion (Mennin et al., 2005).

## **Emotion and Cognitive-Behavioral Therapy for GAD**

One implication from recent research on emotion is that CBT, the current gold standard treatment for GAD (Borkovec & Ruscio, 2001; Chambless & Ollendick, 2001; DeRubeis & Crits-Christoph, 1998), may actually reinforce the avoidance role of worry. Consistent with several studies described above, CBT has traditionally viewed emotion as a phenomenon to be controlled, rather than experienced and deepened (Mahoney, Norcross, Prochaska, & Missar, 1989; Messer, 1986; Samoilov & Goldfried, 2000). As such, traditional CBT protocols may actually prevent full exposure to fear structures (Foa & Kozak, 1986). This characteristic of CBT may be in part responsible for its partial success in the treatment of GAD (Borkovec & Costello, 1993; Borkovec & Whisman, 1996; Westin & Morrison, 2001). One strategy recently used to attempt to increase the efficacy of CBT has been to create an integrative treatment that combines CBT with interventions aimed at addressing factors that are likely to play a role in GAD, but are not adequately addressed in CBT. One of these factors is emotion.

The goal of this study was to investigate client emotion in this integrative treatment and its comparison condition. Specifically, this integrative treatment combined two segments: (a) traditional CBT techniques and (b) techniques that facilitate emotional exploration and deepening, as well as interventions that better address interpersonal problems (the focus on which was also dictated by basic and applied research). The fact that these treatment segments were separate (and provided by same therapist) allowed for the exploration of whether and how emotional processing applies differentially across treatment approaches (Greenberg & Pascual-Leone, 2006).

## **Specific Aims and Hypotheses**

It is important to investigate the emotional experience of GAD clients in therapy and to understand the role of emotional processing in this disorder in different treatments because specific aspects of emotional processing may occur differentially across treatment approaches (Greenberg & Pascual-Leone, 2006), as well as relate differentially to outcome. Castonguay, Newman, Borkovec, Schut, Kasoff, and Hines (2001) provided preliminary evidence on client emotion in an open trial of the integrative treatment for GAD of interest in this study. These researchers investigated clients' emotional experience in two treatment segments (CBT and interpersonal/emotional processing therapy [I/EP]). Client peak emotional intensity was coded using the CEAS (Daldrup et al., 1988). As predicted, main effects were found for treatment segment, with I/EP yielding significantly higher intensity levels for the feelings of love, anger, and sadness, and CBT yielding a significantly higher level of joy. Although rival hypotheses were offered regarding the direction of the difference between CBT and I/EP, no significant difference in the level of fear was found between the two segments. No prediction was offered for surprise, and no difference in the level of surprise was found between the two segments. Additionally, a significant main effect for treatment phase was found with respect to fear. Follow-up analyses revealed that the intensity of fear at the late session was significantly lower than the intensity at both the early and mid-treatment sessions. No interaction effects for segment and phase were observed.

Importantly, Castonguay et al. (2001) did not investigate client emotion in the comparison condition that included a supportive listening segment (SL), nor did they explore the relationship between emotion and outcome. The present study was, thus, an attempt to replicate and expand upon the findings of this preliminary study in two ways. The first aim

was to investigate clients' emotional experiencing (specifically, peak emotional intensity across primary emotions) from an observer-rated perspective in multiple treatment segments of an RCT comparing an integrative treatment for GAD (CBT plus I/EP) with CBT plus SL. The second aim was to explore the relationship between emotional experiencing in these treatment conditions and segments and session-level outcome. Process-outcome studies of client emotion have typically examined its relationship with termination treatment outcome (Big 'O' [Greenberg & Pinsof, 1986]). Although a few studies have examined emotion in relation to other domains of psychotherapy process, including subsequent emotion and specific event resolution (e.g., Greenberg & Foerster, 1996; Pascual-Leone & Greenberg, 2007), few have examined the impact of emotion on session-level outcome (small 'o').

Two sets of hypotheses were generated, the first based predominantly on Castonguay et al.'s (2001) predictions and findings and the second on previous emotion-outcome research. Given the preliminary nature of the original study, the same predictions as Castonguay et al. (2001) were proposed. Specifically, it was predicted that, consistent with goals of I/EP, higher levels of love, sadness, and anger would be present in this treatment segment than in the CBT segment of both treatment conditions and the SL segment. Rival hypotheses were offered regarding the intensity of fear between the segments, as was done in Castonguay et al. (2001). Since one goal of I/EP is to deepen the client's emotional experience in general, it was assumed that fear could be more intense in this segment. However, in contemporary experiential approaches (e.g., emotion-focused therapy) fear and anxiety are perceived to be secondary emotions, or reactions to more primary (implicit) feelings of anger and sadness (Greenberg, 2008). Conversely, fear and anxiety are primary targets of CBT. In fact, CBT frequently requires the therapist to heighten the client's anxiety and then facilitate its

reduction with techniques such as relaxation training. Thus, a higher level of fear might be observed in CBT. Nevertheless, based on Castonguay et al.'s (2001) findings, no effect for treatment segment (CBT, I/EP, or SL) was predicted for fear.

Although not judged to be a central target of either treatment component, it is possible that clients may experience more joy in CBT in relation to novel experiences of reduced tension and relaxation. Indeed Castonguay et al. (2001) found that a higher level of joy was observed in CBT as compared to I/EP. Thus, it was predicted that a higher level of joy will be present in the CBT segments than the I/EP or SL segments. Additionally, based on Castonguay et al.'s (2000) findings, no main effects were predicted in regard to the differential intensity of surprise across segments.

Based on Castonguay et al.'s (2001) findings, it was predicted that there would be a main effect for the phase of treatment in relation to the level of fear, such that fear would be less intense in the late phase of treatment. Additionally, based on Castonguay et al. (1998; 2000) and other previous research (e.g., Warwar & Greenberg, 1999b) it was predicted that negative emotion (e.g., anger, sadness) would be higher in the middle phase of treatment than in the early and late-phases. No specific phase hypotheses were offered for joy, love or surprise, and no interactions (e.g., segment by phase) were predicted.

In regard to potential differences between treatment conditions, rival hypotheses were offered. Given that the essential difference between the two treatment conditions was the addition of the I/EP segment to CBT in the experimental condition, one could reasonably expect that, similar to the specific predictions offered for the I/EP segment, a greater level of emotional intensity would be observed in the experimental condition. However, the estimated effect of treatment condition represents an aggregation of the two segments of each condition.

Consequently, the potential differences between the I/EP and CBT segment, which are predicted to occur, may ultimately “wash out” any effect and lead to non-significant comparisons.

With respect to session outcome, again rival hypotheses were offered. Based on the evidence for GAD outlined above, there is reason to believe that the level of emotional arousal, in general, may play a prominent role in the change process for GAD clients. Importantly, however, although there are data on the relationship between client emotion and ultimate treatment outcome in other problem areas, little has been done to explore session impact. As such, these predictions were more exploratory. Given previous correlational research on the link between emotion and outcome and the perceived importance of emotional processing in GAD, it stands to reason that higher levels of emotional intensity in each of the primary emotions, both positive and negative, will be associated with positive session outcome. However, given the nature of client rated session outcome (as opposed to termination outcome based on self-reported symptoms), clients may perceive more intense emotional experiencing, particularly negative emotional experiencing, as unhelpful or detrimental to their functioning.

## Chapter 2

### METHOD

#### GAD-V

The source of data for this study was the GAD-V randomized control trial (RCT) conducted at Penn State University (Newman et al., submitted for publication). Although certainly not the only route to knowledge (Caspar, 2007), RCTs such as this are considered to be the most rigorously conducted and methodologically sound clinical research designs, and hence, are viewed as representing a “gold standard” for psychotherapy research (Bergin & Garfield, 1994). This study employed an additive design, which is understood to be one of the most powerful designs available for exploring cause and effect relationships (Behar & Borkovec, 2003). The treatment consisted of a separate and sequential combination of two distinct therapeutic segments (50-minutes of CBT, followed by 50-minutes of I/EP). The comparison condition, which was also examined in this study, included another separate and sequential combination of CBT and supportive listening (SL).

#### Participants

**Clients.** Participants were recruited within Centre County, PA through media announcements and professional referral from community practitioners, the Penn State Center for Counseling and Psychological Services, and the Penn State Psychological Clinic. Inclusion criteria included agreement between interviewers on: a principal DSM-IV diagnosis of GAD, an assessor severity rating of 4 (moderate) or greater on GAD symptoms, absence of concurrent psychotherapy, absence of relevant medical conditions, and absence of substance abuse, psychosis, and organic brain syndrome. Participants who were also taking psychotropic medication were allowed to participate if they agreed to maintain their present dosage and

frequency throughout treatment. Eighty-three clients were randomized to either the CBT plus I/EP or CBT plus SL treatment condition. Thirteen of these clients dropped out at early stages of treatment (four in CBT plus SL and nine in CBT plus I/EP; non-significant by chi-square analysis). The average client age was 37.41 years ( $SD = 11.95$ ), and the duration of GAD averaged 11.95 years ( $SD = 15.54$ ). The majority of the clients were female ( $n = 62, 74.7%$ ) and Caucasian ( $n = 76, 91.6%$ ), followed by 3 Asian American, 3 Hispanic, and 1 African American client. Thirty-four of the clients were single (40.5%), 38 were married or in stable relationships (45.8%), and 11 were divorced (13.3%).

**Therapists.** The therapists included three Caucasian, Ph.D. level clinical psychologists (two male, one female) with extensive psychotherapy treatment experience. Therapists underwent intensive training both prior to and throughout the duration of the study. Specifically, they received four months of weekly initial training including study of protocol manuals, didactic presentations, role-playing, and discussion of conceptual and technical elements of both treatment segments led by the study primary investigators. Therapists received individual and group supervision on a weekly basis from the primary investigators for the duration of the study, including regular adherence checks and feedback from an expert observer based on quality rating scales. Therapists exhibited a high degree of adherence and quality in each treatment segment (Newman et al., submitted for publication).

## Measures

**Client emotion.** Sections of therapy sessions were coded with the Client's Emotional Arousal Scale (CEAS; Daldrup et al., 1988; Warwar & Greenberg, 1999a). Unlike other commonly used measures of emotional experiencing (e.g., EXP, Klein et al., 1969; Strength

of Feeling Scale, Mahrer, Stalikas, Boissoneault, Trainor, & Pilloud, 1990) that provide general information about the depth of experiencing, the CEAS is an observer-rated measure of six primary emotions: love, joy, surprise, anger, sadness, and fear. Consequently, the CEAS is able to differentiate between specific types of emotions likely to occur in psychotherapy. Three different ratings are generated, one for the predominant emotion, and two scores for the intensity of each type of emotion: mode and peak. The intensity ratings are based on a Likert-type scale ranging from 1 to 7 (1 = *Client does not express any feelings. Voice gestures or verbal content do not disclose any arousal*; 4 = *Client expresses feelings and sometimes allows the voice, body, gestures, or words to be involved*; 7 = *Arousal is full and intense. No sense of restriction. The person is focused, freely expressing, with voice, words, or physical movement an intense state of arousal*) (see Appendix).

Previous studies have provided evidence for the reliability and validity of the CEAS (e.g., Machado et al., 2000; Rosner, 1996). For example, Machado et al. (2000) reported a proportion of agreement of  $k = .83$ , for the complete scale, correcting for chance. *Kappas* calculated for the presence or absence of one emotional experience at a time varied from .63 to .90 (mean *kappa* of .81). No significant differences were found between judges on mode and peak intensity ratings, with ICCs of .66 for mode arousal intensity and .71 for peak arousal intensity.

The selection of an observer-rated measure of emotional arousal in this study was based on a number of considerations. When patients and therapists provide self-report data, there is the potential that items are being understood or scored differently by different people. By using an observer based measure, it is possible to ensure through training and inter-rater reliability analyses that items are being used consistently. Furthermore, it has been shown that

information obtained from clients' non-verbal communication, of which there is not always sufficient awareness, enhances both the accuracy and reliability of judgments of emotional experience (Machado et al., 2000).

**Session outcome.** Session outcome was measured with the Session Progress Scale (SPS; Kolden, 1988; 1991; 1993a; 1996a). This 4-item session outcome scale (see Appendix) is part of a more comprehensive scale, the Therapist Session Report (TSR; Orinsky & Howard, 1966; 1986b), which is an established measure in psychotherapy process research based on the generic model of psychotherapy and consists of a series of items measuring five dimensions of therapeutic progress without theoretical jargon. Previous research has shown that the SPS items actually represent a single factor (session helpfulness/impact), and these scores can be aggregated to create a single score composite variable of session outcome. Internal consistency (*alpha*) for the SPS has been documented at .85 (Kolden, 1991) (ranging from .68 to .85 in previous studies [Kolden, 1988, 1991; Kolden & Howard, 1992]). A test-retest reliability of  $r = .75$  has also been documented (Kolden & Howard, 1992). The validity of the SPS and the additional TSR subscales has been consistently demonstrated (Kolden, 1988, 1991, 1993; Kolden & Howard, 1992). These scales have all been shown to have predictive validity in relationship to termination outcome (Kolden, 1988, 1991; Kolden & Howard, 1992) and treatment duration (Kolden & Howard, 1987). The SPS has also specifically been shown to explain a significant portion of the variance in changes in mental health status and objectively rated termination outcome (Kolden & Howard, 1992).

The first item of the SPS asks respondents to rate from 1 to 7 (1 = *perfect*; 7 = *very poor*) how he/she feels about the therapy session that was just completed. The second item asks about the perceived progress made in the particular session, ranging from 1 to 6 (1 = *a*

*great deal of progress*; 6 = *my problems may have gotten worse this session*). The third item asks respondents to rate how they are getting along emotionally and psychologically at the end of the session, with responses ranging from 1 to 6 (1 = *very well*; 6 = *quite poorly*). The final item of the SPS asks respondents to rate how helpful the therapist was during the particular session, ranging from 1 to 6 (1 = *completely helpful*; 6 = *not at all helpful*).

## **Procedure**

Participating clients were randomly assigned to one of the two manually guided, 14-session outpatient treatments for generalized anxiety disorder (CBT plus I/EP or CBT plus SL). Therapist assignment was random and crossed, in that the same three therapists administered both treatments and were randomly assigned to patients. Therapy sessions were originally video and audio taped. Multiple measures of patient functioning and outcome were collected from a variety of perspectives before, during, and post-treatment. Session outcome data were collected after each segment of therapy (post CBT, post I/EP, and post SL).

Using the CEAS to investigate client emotion, three coded sessions were used in this study, one in each of the early (session 3), middle (session 8), and late (session 13) phases of treatment. A 30-minute section from each treatment segment (both CBT segments, I/EP, and SL) was used for each of the three psychotherapy sessions. These 30-minute sections were divided into two segments of 15 minutes each. Two graduate students, randomly selected from a pool of three coders using a blocked design, rated each session. Each 15 minute segment was coded independently by each coder, after which, consensus was obtained for both predominance and intensity ratings. The average peak intensity consensus scores were used in this study. Consensus data were used for all analyses, taking the average of the peak scores for the two 15 minute sections from each segment.

## **Treatments**

**CBT.** All clients received CBT during the first 50 minutes of each of the 14 2-hr sessions. CBT techniques targeted intrapersonal components of anxiety and worry with traditional CBT and cognitive therapy methods. CBT techniques included: training in self-monitoring of cues that trigger anxiety spirals and early cue detection and hierarchy development; external and internal cue hierarchy; progressive muscle relaxation; training in cue-controlled and differential relaxation; applied relaxation training (AR); development of coping self-statements to use in response to cues; and employment of self-statements and AR during self-control desensitization (SCD) imagery for rehearsal of coping responses. Cognitive therapy (Beck, Emery, & Greenberg, 1985) included: presenting the role of cognition in anxiety; training in self-monitoring of early worry and automatic thoughts; identification of interpretations, beliefs, and assumptions behind the threatening nature of events or cues; logical analysis and the labeling of logical errors; examination of evidence supporting automatic thoughts; decatastrophization; generation of alternative thoughts and beliefs; early application of these alternatives to daily living; creation of behavioral experiments to obtain evidence for new beliefs; and use of cognitive perspective shifts learned in cognitive therapy during SCD rehearsals. The Socratic method was emphasized to help address underlying themes related to core beliefs regarding acceptance, competence, responsibility, loss of control, and anxiety symptoms.

**I/EP.** The I/EP segment was adapted from Safran and Segal (1990) and occurred during the second 50 minutes of each of the 14 2-hr sessions. I/EP techniques targeted interpersonal components of anxiety and worry and facilitate emotional expression and deepening. Clients were informed that interpersonal difficulties and failure to access primary

emotions are involved in GAD. Goals of this segment included an identification of needs and interpersonal patterns, as well as the emotional experience (particularly disaffiliative emotions, in addition to the emotional experience of the therapist) embedded in these patterns. Four domains were targeted to this end: (a) current problems in interpersonal relationships, including negative impact clients have on others, (b) interpersonal developmental origins (e.g., attachment and trauma experiences) of relationship difficulties, (c) interpersonal patterns and problems, including ruptures in the therapeutic alliance, and (d) emotional processing in the here-and-now of affects associated with these domains.

Therapy was guided by an emphasis on phenomenological experience; therapists' use of their emotional experience to identify interpersonal markers; use of the therapeutic relationship to explore affective processes and interpersonal patterns; promotion of generalization via exploration of between-session events and homework experiments; detection of alliance ruptures and provision of emotionally corrective experience in their resolution; processing of patient's affective experiencing in relation to different types of interpersonal relationships; and use of skill training methods.

**SL.** This segment was adopted directly from the SL manual of previous GAD trials (see Borkovec, Newman, Pincus, & Lytle, 2002). Clients were told that this segment involves exploration of important life experiences in a quiet, relaxed atmosphere where the therapist's goals are to facilitate and deepen knowledge about self and anxiety. This portion of therapy was presented as an inward journey that might be additionally helpful in changing anxious experience and increasing self-confidence. The therapist's role was to provide an opportunity for self-reflection in a safe environment to facilitate change. The clients' role was to emphasize their unique efforts to discover new strengths through introspection. The manual

instructed therapists to create an accepting, nonjudgmental, empathic environment and to facilitate the allowing and accepting of ongoing experience via supportive statements, reflective listening, and empathic communications. The therapist was not allowed, however, to use any methods either to deepen the emotional experience of the client or to facilitate client recognition or accessing of more primary affects. Provision of any direct suggestions, advice, or coping methods, were also prohibited during this portion of the treatment.

### **Data Analytic Strategy**

Client emotion was investigated as both a dependent variable and a predictor variable. Each client had multiple observations, so a method that could take into account repeated data structures was chosen. A multilevel model (MLM; hierarchical linear modeling, HLM) approach was utilized to account for the nested structure of the data (Raudenbush & Bryk, 2002). Although similar to a repeated measures analysis of variance (ANOVA), this method confers several advantages because of its ability to address various restrictive statistical assumptions, such as sphericity (i.e., correlated data), homogeneity, data missingness and time between observations (Raudenbush & Bryk, 2002). Client emotion and session outcome were both repeatedly measured over treatment phase (early, middle, and late) and treatment segment; therefore, a double-repeated covariance structure was utilized. Parameter estimates were based on restricted maximum likelihood estimation. The Kenward-Roger (Kenward & Roger, 1997) method was chosen to estimate degrees of freedom due to its ability to correct for downward bias of the standard errors and its robustness with a range of sample sizes.

## Chapter 3

### RESULTS

#### Preliminary and Descriptive Analyses

Intraclass correlation coefficients (ICCs) were calculated to demonstrate inter-rater reliability on the CEAS. ICCs ranged between  $\rho = .63$  and  $.83$  for the peak intensity ratings, which indicates adequate to strong reliability. SPS item correlations ranged between  $r = .50$  and  $.78$ , with an internal consistency of  $\alpha = .87$ . This indicated that all four items of the SPS could be combined and averaged for use as a composite score. Tests of normality on the emotion ratings and outcome scores indicated a normal level (i.e., sufficiently minimal) of skew and kurtosis; thus, no data transformations were performed. Aggregated (i.e., across clients, phases, segments, and treatments) means, standard deviations, and ranges for each of the primary emotions assessed as well as the SPS items are reported in Tables 1 and 2, respectively. The average observer-rated level of arousal was  $2.61$  ( $SD = .89$ ). The average level of arousal in the CBT segment was  $2.19$  ( $SD = .75$ ), in the I/EP segment was  $2.63$  ( $SD = .93$ ) and in the SL segment was  $2.63$  ( $SD = .85$ ). The average level of arousal in the early phase of treatment was  $2.40$  ( $SD = .87$ ), in the middle phase of treatment was  $2.44$  ( $SD = .88$ ), and in the late phase of treatment was  $2.43$  ( $SD = .88$ ). This, along with the emotion-specific means reported in Table 1, indicates that, on average, clients displayed a relatively low level of arousal in the sessions that were sampled. Clients evidenced an average SPS rating of  $4.47$  ( $SD = .96$ ), which indicates that, on average, clients found the psychotherapy sessions to be moderately to quite helpful/impactful.

A nested data structure does not necessarily imply that effects need to be examined at each level. Intraclass correlations (ICCs) were computed to determine between and within

group variance (between and within clients), which indicate whether or not the assumption of independence of errors was violated and that different grouping levels need to be accounted for in the models (Tabachnick & Fidell, 2007). A series of unconditional models were tested for each emotion and one model for session outcome. Each of the unconditional random intercepts models was significant. The average between client ICC for peak emotion was  $\rho = .18$ , and the average for session outcome was  $\rho = .44$ . These estimates indicated the between and within client variance needed to be accounted for in the models.

### **Aim One: Emotional Arousal**

The first study aim was to test if the level of emotional arousal, or intensity, could be predicted by treatment condition (CBT plus I/EP vs. CBT plus SL), treatment segment (CBT, I/EP, or SL), and/or treatment phase (early, middle, or late). Six models, one for each emotion's average peak ratings, were tested. As an initial step, means were plotted and unequal slope models were tested for each treatment segment to determine whether or not the treatment by phase interaction term should be included in the primary model for each emotion. Because several comparisons were conducted in this investigation the likelihood of Type 1 error was increased. To address this, Bonferroni adjustments were applied to each model.

#### ***Love***

No main effect was observed for treatment condition ( $F(1, 95) = 0.97, ns$ ) or phase ( $F(2, 94) = 1.37, ns$ ); however, a significant main effect was found for treatment segment ( $F(2, 86) = 21.85, p < .01$ ). In order to detect which segments were statistically different, multiple comparisons were conducted using the least squares means in SAS (LSMEANS)

(see Table 3). As predicted, love was more intense in the I/EP segment compared to both the CBT segment in the experimental condition ( $M_{diff} = 0.88$ ,  $SE = 0.12$ ,  $p < .01$ ,  $d = 1.29$ ) and the CBT segment in the control condition ( $M_{diff} = 0.84$ ,  $SE = 0.13$ ,  $p < .01$ ,  $d = 1.12$ ). Contrary to the researcher's prediction, there was no difference in the intensity of love observed between the I/EP segment and the SL segment. In addition, a higher love intensity was exhibited in the SL segment compared with both the CBT segment of the experimental condition ( $M_{diff} = 0.61$ ,  $SE = 0.12$ ,  $p < .01$ ,  $d = .84$ ) and the control condition ( $M_{diff} = 0.57$ ,  $SE = 0.11$ ,  $p < .01$ ,  $d = .90$ ).

### ***Joy***

Contrary to the researcher's prediction, no main effect was observed for treatment ( $F(1, 97) = 0.06$ , *ns*) or segment ( $F(2, 78) = 1.72$ , *ns*). However, a significant main effect was found for phase (or time) ( $F(2, 95) = 4.90$ ,  $p < .05$ ) (the interaction between treatment and phase was not included in the model). Therefore, multiple comparisons were conducted (see Table 4). Results indicated a trend toward a significant difference in peak joy intensity between the early and last phases of treatment ( $M_{diff} = 0.23$ ,  $SE = 0.11$ ,  $p = .09$ ,  $d = .37$ ), with a higher intensity of joy in the third phase of treatment (see Figure 1).

### ***Surprise***

As predicted, no significant main effects or interactions were observed for treatment ( $F(1, 92) = 2.78$ , *ns*), segment ( $F(2, 79.6) = 0.97$ , *ns*), or phase ( $F(2, 87) = 0.08$ , *ns*) in the final model predicting intensity of surprise (see Table 5).

### ***Anger***

Contrary to the researcher's prediction, no main effect was observed for phase ( $F(2, 89.1) = 0.18, ns$ ); however, a significant main effect was found for segment ( $F(2, 80) = 21.34, p < .01$ ) and a marginal main effect was found for treatment ( $F(1, 101) = 3.77, p = .055$ ). Multiple comparisons were conducted (see Table 6), which indicated a significant difference between treatments in anger intensity ( $M_{diff} = 0.38, SE = 0.11, p < .01, d = .57$ ), with the experimental treatment (CBT plus I/EP) evidencing significantly less anger than the control treatment (CBT plus SL).

Additional comparisons between segments indicated that, as predicted, clients experienced a higher level of anger in the I/EP segment compared to the CBT segment of the experimental condition ( $M_{diff} = .86, SE = .14, p < .01, d = 1.02$ ), and the difference between the I/EP segment and the CBT segment of the control condition approached significance ( $M_{diff} = 0.41, SE = 0.16, p = .079, d = .43$ ). Contrary to the researcher's prediction, the difference between the I/EP and SL segments was not significant. Additionally, clients in the control treatment, in both the CBT ( $M_{diff} = 0.45, SE = 0.13, p < .01, d = 1.02$ ) and SL ( $M_{diff} = 1.17, SE = 0.13, p < .01, d = 1.48$ ) segments, evidenced significantly higher levels of anger than the CBT segment of the experimental treatment. Finally, clients in the SL segment evidenced significantly higher levels of anger than the CBT segment of the control condition ( $M_{diff} = 0.71, SE = 0.13, p < .01, d = .93$ ).

### ***Sadness***

No main effect was found for treatment ( $F(1, 96.8) = 1.06, ns$ ), and contrary to the researcher's prediction, no main effect was observed for phase ( $F(2, 96.7) = 0.06, ns$ ). The

interaction between phase and treatment segment was also non-significant ( $F(2, 77) = 1.68$ ,  $ns$ ). However, a significant main effect was found for treatment segment ( $F(2, 79) = 21.18$ ,  $p < .01$ ) and the interaction between phase and treatment was significant ( $F(1, 97) = 4.75$ ,  $p < .05$ ). Consistent with the researcher's prediction, follow-up multiple comparisons indicated that clients experienced significantly more sadness in the I/EP segment than the CBT segment in the experimental condition ( $M_{diff} = 1.16$ ,  $SE = .14$ ,  $p < .01$ ,  $d = 1.45$ ), the CBT segment in the control condition ( $M_{diff} = .97$ ,  $SE = .16$ ,  $p < .01$ ,  $d = 1.03$ ) and the SL segment ( $M_{diff} = .49$ ,  $SE = .15$ ,  $p < .01$ ,  $d = .55$ ) (see Table 7). Additionally, clients experienced a greater level of sadness in the SL segment compared to the CBT segment of the experimental condition ( $M_{diff} = .67$ ,  $SE = .12$ ,  $p < .01$ ,  $d = .93$ ) and the CBT segment in the control condition ( $M_{diff} = .48$ ,  $SE = .12$ ,  $p < .01$ ,  $d = .66$ ). A plot of the interaction between phase and treatment indicated a significant difference between the experimental and control treatment condition at the late phase of treatment ( $t = 2.68$ ,  $p < .01$ ), where clients in the experimental condition exhibited higher levels of sadness (see Figure 2).

### ***Fear***

Contrary to the researcher's prediction, the effect of phase was non-significant ( $F(2, 91.1) = 2.48$ ,  $ns$ ), and the interaction between phase and segment was non-significant ( $F(2, 84.1) = 1.98$ ,  $ns$ ). However, a significant main effect was found for treatment ( $F(1, 96) = 7.99$ ,  $p < .01$ ), and the interaction between phase and treatment was significant ( $F(1, 91) = 11.66$ ,  $p < .01$ ). The main effect for segment approached significance ( $F(2, 80) = 2.65$ ,  $p = .077$ ). A follow-up comparison conducted to explore the main effect for treatment evidenced a non-significant adjusted  $p$  value ( $d = .002$ ; see Table 8). A plot of the interaction between phase and treatment indicated a significant difference between the experimental and control

treatment condition at the late phase of treatment ( $t = 2.31, p < .05$ ), where clients in the control condition exhibited lower levels of fear (see Figure 3).

### **Aim Two: Emotion and Outcome**

The second study aim was to test if client rated session outcome could be predicted by level of emotional arousal, or intensity. Model specification and testing for this aim were similar to the procedure followed in the first aim, with one important difference. In the first set of models in aim one, a separate model was constructed and tested for each emotion. However, in the models tested in aim two, the inclusion of so-called “structural” variables, or treatment parameters, (i.e., treatment condition, treatment segment, and phase) could remain constant, with the individual models differing only in terms of the specific emotion being tested. Consequently, as an initial step, treatment condition, segment, and phase were introduced sequentially into a double-repeated mixed model ANOVA predicting client rated session outcome. Main effects were retained and their interactions were then included in the model. The results of this preliminary analysis indicated significant main effects for each of these treatment parameters; however, no significant interactions were found. Although not a primary focus of this aim, these main effects were further explored with multiple comparisons (see Table 9). Bonferroni adjustments were once again applied to address the inflated risk of Type 1 error.

The significant main effect for treatment ( $F(1, 114) = 4.63, p < .05$ ) was further explored, and results indicated that clients, overall, rated the sessions in the experimental condition as more helpful/impactful than sessions in the control condition ( $M_{diff} = .25, SE = .12, p < .05, d = .36$ ). In further exploring the significant main effect for phase ( $F(2, 96) =$

19.49,  $p < .01$ ), clients rated the sessions in the middle phase of treatment significantly more helpful/impactful than the early phase of treatment ( $M_{diff} = .29$ ,  $SE = .08$ ,  $p < .0$ ,  $d = .60$ ) and they rated sessions in the late phase of treatment as significantly more helpful/impactful than the early phase ( $M_{diff} = .38$ ,  $SE = .09$ ,  $p < .01$ ,  $d = .77$ ). For treatment segment, clients rated the CBT segment of both the experimental ( $M_{diff} = .51$ ,  $SE = .13$ ,  $p < .01$ ,  $d = .65$ ) and control conditions as significantly more helpful/impactful than the SL segment ( $M_{diff} = .316$ ,  $SE = .104$ ,  $p < .05$ ,  $d = .51$ ).

These main effects were included as a base model for each subsequent model. Client peak emotional arousal was treated as an additional predictor, with each primary emotion being tested in a separate model. Main effects for each emotion were tested first, followed by the interaction terms between level of arousal and treatment, segment, and phase.

Contrary to the researcher's prediction, no significant main effect or interactions were observed for love intensity ( $F(1, 319) = .370$ ,  $ns$ ), although the main effects included in the base model remained significant (see Table 10). Partially consistent with the researcher's prediction, a significant main effect was found for joy ( $F(1, 350) = 16.00$ ,  $p < .01$ ) (see Table 11). However, there was also a significant interaction between joy and segment ( $F(3, 183) = 2.97$ ,  $p < .05$ ). This interaction was plotted and indicated a significant difference between the SL segment, and the I/EP segment and the CBT segments of both treatment conditions. Specifically, clients who experienced a greater intensity of joy in the I/EP and CBT segments rated those sessions as significantly more helpful/impactful than clients in the SL segment ( $d = .38$ ), who tended to rate sessions with more joy as slightly less helpful/impactful. The main effect for phase remained significant in this model, while the main effects for treatment and segment became non-significant.

Contrary to the researcher's prediction, no significant main effect or interactions were observed for surprise intensity ( $F(1, 333) = .630, ns$ ), although the main effects included in the base model remained significant (see Table 12). Similarly, no significant main effect or interactions were observed for anger intensity ( $F(1, 305) = 1.22, ns$ ), while the main effects included in the base model remained significant (see Table 13).

Consistent with the researcher's prediction, a significant main effect was found for level of sadness ( $F(1, 395) = 5.24, p < .05$ ), which indicated that clients who experienced a greater intensity of sadness rated these sessions as less helpful/impactful ( $d = .25$ ; see Table 14). The main effects for the treatment parameters remained significant. Contrary to the researcher's prediction, no significant main effect or interactions were observed for fear intensity ( $F(1, 297) = 0.46, ns$ ), while the effects for the treatment parameters remained significant (see Table 15).

## **Chapter 4**

### **DISCUSSION**

Basic and applied research has shown that client emotional experiencing may be an important component of the process of change in the treatment of GAD; however, little research has been conducted in a treatment context. It is important to investigate the emotional experience of GAD clients in treatment, and to understand the role of emotional processing in this disorder in different treatments because specific aspects of emotional processing may occur differentially across treatment approaches (Greenberg & Pascual-Leone, 2006), as well as relate differentially to outcome. The specific aims of this study were to investigate clients' emotional experiencing (specifically, emotional intensity across primary emotions) from an observer-rated perspective in multiple components of an RCT comparing an integrative treatment for GAD (CBT and I/EP) with CBT plus a supportive listening segment, and to explore the relationship between emotional experiencing/arousal and session-level outcome.

First, a series of models were tested to investigate if the level of emotional arousal, or intensity, could be predicted by treatment condition (CBT plus I/EP vs. CBT plus SL), treatment segment (CBT, I/EP, or SL), and/or treatment phase (early, middle, or late). Second, a series of models were tested to investigate if client rated session outcome could be predicted by level of emotional arousal, or intensity.

#### **Client Emotional Arousal**

Client emotional arousal was coded with the CEAS (Daldrup et al., 1988; Warwar & Greenberg, 1999a), and the consensus peak ratings for love, joy, surprise, anger, sadness, and

fear were used for this investigation. Consistent with previous research on GAD, in general, clients exhibited a low to moderate level of emotional arousal. However, the range and standard deviations of each emotion indicated variability was present. That is, although the average peak of each emotion was low to moderate, a range of ratings were represented for most emotions. The emotion with the highest peak rating was joy, which was also the only emotion that exhibited a maximum peak consensus score of 7. This was followed by anger, which had a peak consensus score of 6, followed by sadness (5.5), fear (5), surprise (5), and love (4.5).

With regard to the effect of several treatment parameters (treatment condition, segment, and phase) on the level of emotional arousal experienced by the client, separate predictions were offered for each primary emotion, which were largely based on the results of the preliminary study conducted by Castonguay et al. (2001).

Based on the results of Castonguay et al. (2001) and consistent with the goals of I/EP, it was predicted that higher levels of love, sadness, and anger would be present in this treatment segment than in CBT or SL. This prediction was, for the most part, supported for each of these emotions. The exceptions were that no significant differences were observed between the I/EP and the SL segment in the intensity of love and anger. Interestingly, a relatively higher level of love was observed in both CBT segments compared to the SL segment and, conversely, clients in the SL segment exhibited higher levels of anger than both CBT segments. This result was replicated for sadness. These results provide evidence for the I/EP segment's ability to facilitate a greater degree of in-session arousal for these primary emotions, particularly in reference to sadness and when compared to CBT.

Additionally, a treatment effect was observed for anger. Specifically, clients in the control condition (CBT plus SL) experienced a higher intensity of anger than clients in the experimental condition (CBT plus I/EP). Although not statistically different from the I/EP segment, the estimated mean level of anger intensity was highest in the SL segment (indeed the highest estimated mean for all segments across all emotions). While emotional arousal tends to be dampened in GAD, elevated levels of experienced anger, and particularly *intropunitive hostility*, have been found in individuals with anxiety disorders (Fava et al., 1993; Gould et al., 1996), including GAD (Dadds et al., 1993; Nisita et al., 1990). Given the relatively unstructured, non-directive nature of the SL segment, it is possible that clients occasionally (or even frequently) used the second hour as an opportunity to vent their frustrations. In other words, given the opportunity to discuss anything that was on their minds with a neutral individual (i.e., the therapist), clients perhaps defaulted to their anger/frustration as a form of catharsis.

A significant interaction between phase and treatment condition was observed for sadness, with a higher level of sadness observed in the experimental condition at the third phase of treatment. This effect may have been driven by the relatively high degree of sadness observed in the I/EP segment. It is important to emphasize that given the nature of GAD, the goal of the I/EP segment was to promote exposure to and deepening of *all* emotions, both positive and negative in valence. Second, given the consistent emphasis on such emotional processing and its connection with important interpersonal relationships throughout the entire course of the treatment, a high degree of emotional intensity could theoretically occur in any session or phase (or most) of treatment. Consistent with the aims of I/EP, this interaction with phase may be an indication that, toward the end of the treatment, clients had become able to

access and deepen the sadness they experienced.

Based on the results of Castonguay et al. (2001), it was predicted that a higher level of joy would be observed in the CBT segment compared to the I/EP and SL segments. The results did not support this prediction in that no treatment or segment differences were observed for this emotion. Unlike Castonguay et al. (2001), a trend toward a phase effect was observed. The difference in the intensity of joy experienced between the late and early phase of treatment approached significance, with a greater degree of joy observed in the late phase (across treatments and segments). This is consistent with the theory proposed by Russell and Fosha (2008), stating that the regulation of painful emotion will eventually result in the emergence of positive affects and positive emotional states. Consequently, it may be the case that positive emotional states, such as joy, are more likely to occur in the latter phases of treatment and could serve as a marker of change.

Consistent with the results of Castonguay et al. (2001) and the prediction of the present study, no effect was observed for surprise. Surprise also evidenced the lowest mean level of peak arousal. Although surprise is considered to be a primary emotion, it is possible, at least in the treatment of GAD, that surprise is a relatively low base rate, low intensity emotion. Conceptually, a number of different events could lead a client to experience surprise in a psychotherapy session. In CBT, for instance, a client might exhibit surprise at the level of relaxation attained through breathing and muscle relaxation training exercises; or, a client might express surprise regarding the outcome of a between session event or experience (“I tried it and my expectations were disconfirmed.”). A similar experience could occur in I/EP where the client might be surprised by the complexity and depth of his/her previously avoided emotional experience or at the result of a specific interpersonal interaction that took place

within or between sessions. In this sense, surprise may go hand-in-hand with the occurrence of a corrective experience. However, if such a corrective experience did occur outside of the psychotherapy session (i.e., between session activity), the degree of expressed arousal exhibited by the client in the psychotherapy session in which it is being reported might be far less than what was experienced in the moment it occurred. Consequently, although its role in in-session client experience appears less evident, surprise may still actually be an important experience and element of change.

Based on previous research (e.g., Castonguay et al., 1998; Warwar & Greenberg, 1999b), it was predicted that negative emotion (e.g., anger, sadness) would be higher in the middle phase of treatment than in the early and late-phases. The results did not support this prediction in that no main effects for phase were observed for either anger or sadness, with all of the trends being essentially linear. Importantly, none of the treatment segments under investigation employed a specific phase structure (e.g., sessions x to y are focused on exposure), beyond providing an introduction to the treatment at the beginning and spending some time on consolidation and generalization toward the end. Phase did, however, interact significantly with treatment condition in two emotions – sadness and fear. In both cases, the treatment aimed at facilitating emotional exposure and deepening evidenced a higher level of arousal in the third phase. Although it cannot be concluded with certainty that this represents a “delayed effect,” it is possible that the change process taking place in the experimental condition had reached a point of internalization or consolidation within the client, where she/he was able to deepen her/his emotional experience in a way that she/he was less able to do at the beginning or middle of treatment. Interestingly, as noted, although a slight difference was observed between the late phase session and the middle phase session, Watson and

Benard (2006) found a significant, positive linear trend in emotional depth over the course of treatment. Furthermore, Pos et al. (2003) demonstrated that late emotional processing mediated the relationship between clients' early emotional processing capacity and outcome and was the sole emotional processing variable that independently predicted improvement in a process-experiential treatment of depression. Additionally, Goldman et al. (2005) showed that experiential depth in the last half of therapy was a significant predictor of reduced symptom distress, and late emotional depth also accounted for outcome variance over and above that accounted for by early depth.

Although rival hypotheses could be generated, based on Castonguay et al.'s (2001) findings, no treatment or segment effects were predicted for fear. The present results supported this prediction. Unlike Castonguay et al. (2001), no main effect was observed for phase. However, a significant interaction was observed between phase and treatment condition. In contrast with the interaction observed for sadness, one might expect that the level of fear would diminish toward the end of an anxiety disorder treatment such as the one under investigation (a prediction that was supported by Castonguay et al. [2001]). Although the trend (non-significant) across treatments was a linear decrease in fear across phases, observed fear diminished to a significantly greater degree in the control condition. Alternatively, the level of fear remained relatively stable over time in the experimental condition. This may once again be an indication that consistent activation occurred in the experimental condition, compared to the control condition where, particularly in the SL segment, clients were not directed to access and discuss fear-inducing material.

The most consistent finding across these analyses was the significantly lower emotional intensity levels observed in the CBT segments. Clients in the CBT segment

exhibited significantly less love, anger, and sadness than both the I/EP and SL segments. Based on the results of Castonguay et al. (2001), the only emotion that was predicted to occur at a greater level of intensity in CBT was joy. This, however, was not supported. These findings are in line with the extant literature on emotion in CBT. Specific to GAD, for example, Borkovec and Costello (1993) found that the level of emotional processing was significantly lower in CBT when compared to a reflective listening condition.

Although the primary emotions expected to be the core foci of I/EP evidenced higher levels of arousal in this segment than CBT, only one of the six emotions was found to have a greater level of intensity in the I/EP segment than the SL segment - sadness. All other direct comparisons were non-significant. Apparently, something about the process of the I/EP segment was successful at promoting access to and deepening of sadness. In other respects, the I/EP and the SL segments were similarly able to promote a greater degree of emotional deepening than the CBT segment (e.g., love, anger). Importantly, the SL segment was not found to promote a greater level of emotional intensity of any emotion than the I/EP segment. The lack of difference between the I/EP and SL segments for some emotions, as well as the relatively higher level of emotional arousal in the SL segment compared to the CBT segments, is consistent with the findings of Wisner and Goldfried (1998). They found that maintaining high emotional experiencing levels was associated with receiving reflections, acknowledgments, affiliative and non-controlling interventions, and interventions highlighting non-specific client content—therapist behaviors that were either prescribed or likely to occur in the supportive listening segment.

Some of the predictions in the present study were supported in a manner that was consistent with the results of Castonguay et al. (2001), while others were not. Importantly,

Castonguay et al. (2001) did not compare the I/EP or CBT segments with the SL segment, so one cannot be certain if the same relationships would have been observed. Although there were ultimately few direct discrepancies, the ones that did occur (e.g., differences in joy between segments) could be potentially explained by several factors. First, unlike Castonguay et al. (2001), the present study compared treatments as well as segments, including supportive listening. Second, the present study was conducted with a larger sample size, which increased power. Third, the present study employed alpha adjustments, and Castonguay et al., (2001) did not correct for family-wise error. Fourth, this study employed a mixed models approach with a double-repeated covariance structure.

### **Emotion and Session Outcome**

Given the focus on session outcome in the present study (as opposed to termination outcome), the predictions were largely exploratory and rival hypotheses were offered. Based on the existing evidence for GAD and some models of change (e.g., humanistic, psychodynamic, and common factors), there was reason to believe that the level of emotional arousal, in general, may play a prominent role in the change process for GAD clients in that higher levels of emotional intensity (regardless of the valence of the emotion) may be associated with positive outcome. However, given the nature of client rated session outcome, it was also considered that clients may perceive more intense emotional experiencing, particularly negative emotional experiencing (anger, sadness, and fear), as unhelpful or detrimental to their functioning.

Although no specific predictions were offered, main effects were observed for each of the treatment parameters (treatment condition, segment, and phase) that served as a base model for each emotion tested. Results indicated that clients perceived the sessions of the

experimental condition as significantly more helpful/impactful than the control condition, the CBT segments as significantly more helpful/impactful than the SL segment, and sessions sampled at the middle and late phases of treatment as significantly more helpful/impactful than the early phase.

As for the effect of the primary emotions on session outcome, only two significant main effects were observed—one for level of sadness, which indicated that clients who experienced a greater intensity of sadness rated these sessions as less helpful/impactful, and one for level of joy, which indicated that clients in the SL segment who experienced more joy tended to rate these sessions as less helpful/impactful. This finding, however, is qualified by the observed interaction between joy and segment. Although no interaction effects were predicted, a significant interaction between level of joy and segment was observed, which indicated that the more joy experienced by clients in the I/EP and CBT segments, the higher these clients tended to rate the session's helpfulness/impact, and this was significantly different from the effect of joy in the SL segment.

Thus, in general, a higher degree of emotional intensity did not predict session outcome. This is in contrast to the results of several published research investigations, which focused on symptom-focused termination outcome. Although this could be an example of the so-called "file drawer effect," it may be the case that emotional arousal is less predictive of perceived session impact than it is of symptomatic change (although the SPS is highly correlated with symptom change and termination outcome [Kolden & Howard, 1992]). The exceptions to this included the level of sadness, which, consistent with the rival hypothesis offered, negatively predicted session outcome; and the level of joy, which positively predicted session outcome in three out of the four segments.

It has been argued that emotional experiencing, regardless of the valence, is an important component of the process of change. Given the session outcome construct, the possibility that clients would perceive the experience of negatively valenced emotion as unhelpful was considered. This was the case for sadness, which is consistent with Castonguay et al. (1998), who found that the lack of negative feelings (at the beginning of treatment) was linked with positive outcome. This is also consistent with the results of Jones and Pulos (1993), who found that the experience of negative affect was negatively related to outcome in CBT for depression. It is possible that clients found the experience of sadness to be aversive. Depending on the problem area and the focus of interventions, sadness is likely to be a relatively common experience of clients in psychotherapy. However, there is little evidence to suggest, including the results of the present investigation, that increased sadness, in particular, is predictive of positive outcome (Orlinsky et al., 1994).

Although joy positively predicted outcome in the I/EP and CBT segments, the inverse trend occurred for the SL segment (which is probably more accurately interpreted as a lack of relationship between joy and outcome in this segment). A client could experience joy in a psychotherapy session for a number of reasons. For example, as noted above, clients may exhibit joy in CBT in response to novel experiences of relaxation. Similar to surprise, clients may also experience joy in relation to positive within and between session experiences.

It may seem intuitive that a greater degree of experienced joy will positively relate to perceived session helpfulness/impact. The lack of finding in the SL segment at first appears to be an anomaly. However, the primary, shared differences between the I/EP and CBT segments and the SL segment are the structure and level of directiveness of the treatment. CBT and I/EP are structured in a particular way and require the clients to engage in various

tasks and experiences, which are directly facilitated by the therapist within a cohesive and elaborated theoretical and technical framework. The SL segment, on the other hand, is essentially unstructured and the therapist is significantly less directive. There is also, relatively speaking, the absence of a similarly elaborated, cohesive framework. It is possible, although speculative, that the joy experienced in the I/EP and CBT segments was joy in relation to a specific accomplishment or experience related to work being done in the treatment – a particular task or interaction with the therapist. That is, joy was experienced in relation to the treatment process, rather than something more general and/or simply client-generated. Clients may have been able to link these positive experiences with the treatment, resulting in greater levels of perceived impact. Conversely, in the SL segment, clients were free to talk freely and, technically speaking, no prescribed in-session or between session tasks or activities occurred. Although similar levels of joy occurred in each of the treatment segments, the joy experienced in the SL segment may have been less impactful and perceived as less relevant to the treatment. That is, the joy experienced by the client was entirely generated by the client and was not perceived to be linked to any specific therapeutic action, other than simply being in the room with a therapist. Consequently, the experience of joy has less of a relationship with the perception of the session itself. In fact, the experience of joy might have almost rang hollow, as indicated by the slight negative relationship with session outcome.

From a resource-oriented perspective of change, happiness is considered to be a potential marker of change, and the emotion *joy* represents happiness as an emotional state (Diener, Lucas, & Oishi, 2002; Seligman, 2002). Dick-Niederhauser (2009) notes that several correlates of joy have been identified through research: “self-confidence, engaging in activity,

achieving conditions of joy through personal actions, peace and relaxation, affirmation of the world, contemplation and enjoying beauty, acceptance of emotions, feeling close to oneself and to one's body, accepting, trusting, and understanding others, tolerance, self-disclosure, and overcoming anxiety" (p. 198). Furthermore, he notes that Lazarus (1991) conceptualized the emotional state of joy as the result of successful actions. Consequently, it seems that joy is often experienced as a consequence of a specific action, which is probably more likely to be facilitated and/or perceived as impactful in a treatment such as CBT or I/EP. Interestingly, the level of joy also increased over time.

### **Strengths and Limitations**

This study possessed several strengths. First, the treatments investigated were implemented as part of a randomized controlled trial, considered to be the gold standard in treatment research methodology. Additionally, the use of an additive design allowed for a direct comparison of the process of change in different forms of intervention provided sequentially by the same therapist to the same client. Second, a mixed models approach was used, along with a double-repeated covariance structure, which led to a more powerful, yet conservative, test of effects. Third, emotion was coded from an observer perspective, using a scale that is able to differentiate between specific types of both positive and negatively valenced emotions, rather than simply rate emotional depth. The results of this study indicate that although emotional arousal is an important construct, the type of emotion being elicited in a specific treatment provides important information. As such, the present study has brought to further light the complexity of studying emotional processes in psychotherapy, particularly in relation to different forms of treatment. Finally, this study attempted to fill a gap in the literature through its focus on session outcome.

This study also possessed several important limitations. First, although the sample demographics were consistent with the local community, there was a lack of racial/ethnic diversity, which impacts generalizability. Second, the sample size may have reduced power to detect some effects. In relation to this, although a mixed models approach represented a particular strength of this study, an alternative approach may have increased power to an even greater degree. This study was divided into two separate aims, predicting emotion with one set of models and then using emotion to predict outcome in another set of models. An alternative approach would have been to employ structural equation modeling techniques where a path model could have been tested, essentially treating emotion as a mediator. However, such an approach would have required a substantial increase in sample size, one that is not typically feasible in this type of controlled treatment research. Finally, although the SPS has been shown to explain a significant portion of the variance in termination outcome (Kolden & Howard, 1992), the relationship between emotional arousal and symptom change was not addressed in this study.

Furthermore, the lack of relationship between emotion and session outcome could have been due to the sampling procedure used in the present study. Based on traditional process research methods, sessions were sampled from early, middle, and late phases of treatment. Although repeated measurement can help address the complexity of specific constructs and change processes, the timing of these measurements has important implications. It is possible that emotional arousal *in the context of specific meaningful content or events* is a more powerful predictor of outcome, at the session and/or post-treatment level. This assumption is closely aligned with the *events paradigm* in psychotherapy research (e.g., Greenberg, 2007; Elliott, James, Reimschuessel, Cislo, & Sack, 1985).

## Conclusion and Future Directions

This study provides evidence for the usefulness of augmenting traditional CBT for GAD with interpersonal/emotional processing interventions, in order to facilitate a higher level of in-session emotional arousal than is typically exhibited in CBT. With the exception of sadness, it cannot be concluded, however, that the interpersonal/emotional processing interventions delivered in this sample facilitated a greater degree of emotional experiencing than a supportive listening intervention. This raises important questions regarding the potential determinants of emotional experiencing in psychotherapy. Are specific, process-experiential interventions necessary to facilitate emotional arousal and expression, or is non-directive therapy equally capable of this? Given the results of the present study, the type of emotion is also a potentially important variable to consider. For example, are specific, process-experiential interventions better at facilitating sadness than a non-directive, supportive listening treatment?

In regard to session outcome, the experience of positive emotion, specifically joy, predicted ratings of session helpfulness in both CBT and I/EP. It will be important to investigate whether or not this relationship holds for symptom-based termination outcome, or measures of quality of life. With regard to sadness negatively predicting ratings of session helpfulness/impact, a similar question should be pursued. The experience of negative emotion has been predictive of symptom-based outcome in several previous studies. Although several clinical theorists and models have hypothesized that occasionally things must get worse before they get better, clients might not perceive such a trajectory positively, or as helpful. In prolonged exposure, clients are often informed that they may very well experience an exacerbation in symptoms within and between psychotherapy sessions. Some of these effects

can be quite severe (e.g., vomiting). Even though the experience of such an exacerbation in symptoms and distress might be painful, clients might simultaneously perceive this as part of the change process and, thus, beneficial and even potentially helpful. It is possible that providing similar information to clients in the treatment of other sorts of problems (e.g., GAD) might result in a different perception of helpfulness/impact. For example, in the investigation of an exposure-based treatment for depression, Hayes et al. (2007) found that sudden increases in depressive symptoms during the exposure phase of the treatment were predictive of positive post-treatment outcome. Although this was not a focus of the study, the question of how these clients would have rated the perceived helpfulness/impact of the treatment during these periods of symptom “spikes” is an important one.

Future research should base the assessment of emotional processing and/or arousal on important/critical events (e.g., periods of destabilization [e.g., Hayes & Strauss, 1998], sudden gains). The information processing that takes place in these sessions or episodes within sessions may be more predictive of process and outcome. This line of research would also likely be improved by focusing on information processing more broadly, taking into greater consideration the in-session context of the emotional arousal as well as cognitive and behavioral components of functioning. Such an investigation would require more intensive process coding. Additionally, with a large enough sample (and repeated assessment), a structural equation modeling approach could be utilized to formally test path models that include emotional arousal as a potential mediator.

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## APPENDIX A

### Tables and Figures

Table A1.

*CEAS Average Peak Means and Standard Deviations*

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<u>Emotion</u>	<u>M</u>	<u>SD</u>	<u>Min.</u>	<u>Max.</u>
Love	1.88	0.88	1	4.5
Joy	3.12	0.89	1	7
Surprise	1.74	0.80	1	5
Anger	2.77	1.05	1	6
Sadness	2.38	0.96	1	5.5
Fear	2.64	0.74	1	5

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*Note.* CEAS = Client's Emotional Arousal Scale (1 – 7). M = Mean; SD = Standard deviation; Min = Minimum rating; Max = Maximum rating.

Table A2.

*SPS Item Means and Standard Deviations*

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<u>Item</u>	<u>Mean</u>	<u>Standard Deviation</u>
Session Helpfulness	4.17	1.01
Treatment Progress	4.47	0.98
Current Functioning	4.52	0.91
Therapist Helpfulness	4.71	0.94

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*Note.* SPS = Session Progress Scale (1 – 6/7).

Table A3.

*Solution for Fixed Effects and Mean Comparisons of Treatment Segments for Peak Love*

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI (95%)</u>
Intercept			2.19	0.16	73.1	13.82	<.001	1.874 - 2.506
TRT	E		0.04	0.23	104	0.18	0.855	-0.418 - 0.503
Segment	E	CBT	-1.02	0.18	66.7	-5.52	<.001	-1.386 - -0.650
Segment	C	CBT	-0.63	0.17	75.7	-3.66	0.001	-0.971 - -0.287
Phase			-0.01	0.02	67.3	-0.55	0.587	-0.046 - 0.026
Phase*TRT	E		0.03	0.03	98.7	1.07	0.287	-0.024 - 0.081
Phase*SEG	E	CBT	0.02	0.02	71.6	0.81	0.419	-0.025 - 0.059
Phase*SEG	C	CBT	0.01	0.02	67.8	0.36	0.723	-0.032 - 0.046

Least Squares Means

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	
Segment	E	CBT	1.50	0.07	71.1	20.82	
Segment	E	I/EP	2.38	0.11	67.6	22.33	
Segment	C	CBT	1.54	0.07	64.1	21.97	
Segment	C	SL	2.11	0.10	63.3	21.22	

<u>TRT</u>	<u>SEG</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>Adj. P</u>
E	CBT	E	I/EP	-0.88	0.116	64.7	-7.61	<.001
E	CBT	C	CBT	-0.04	0.100	105	-0.37	1.000
E	CBT	C	SL	-0.61	0.123	95.3	-4.97	<.001
E	I/EP	C	CBT	0.84	0.128	93.9	6.61	<.001
E	I/EP	C	SL	0.27	0.146	97.3	1.85	0.403
C	CBT	C	SL	-0.57	0.108	59.1	-5.32	<.001

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CI = Confidence limits.

Table A4.

*Solution for Fixed Effects and Mean Comparisons of Treatment Phases for Peak Joy*

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI (95%)</u>
Intercept			2.99	0.19	73.3	15.74	<.001	2.613 - 3.371
Treatment	E		-0.29	0.30	95.1	-0.97	0.337	-0.875 - 0.302
Segment	E	CBT	0.40	0.22	63.2	1.83	0.071	-0.036 - 0.840
Segment	C	CBT	-0.06	0.21	67.3	-0.31	0.761	-0.472 - 0.347
Phase			0.04	0.02	71.6	2.23	0.029	0.005 - 0.080
Phase*SEG	E	CBT	-0.04	0.02	97.6	-1.41	0.160	-0.083 - 0.014
Phase*SEG	E	I/EP	-0.02	0.03	98.7	-0.64	0.525	-0.078 - 0.040
Phase*SEG	C	CBT	-0.02	0.02	70.1	-1.01	0.316	-0.062 - 0.020

Least Squares Means

<u>Phase</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>
Early	3.03	0.09	97.8	35.02
Middle	3.06	0.09	107	32.83
Late	3.26	0.08	97.6	41.02

<u>Phase</u>	<u>Phase</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>Adj. P</u>
Early	Middle	-0.03	0.11	94.1	-0.28	1.000
Early	Late	-0.23	0.11	94.9	-2.18	0.095
Middle	Late	-0.20	0.11	90.7	-1.85	0.204

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CI = Confidence limits.

Table A5.

*Solution for Fixed Effects for Peak Surprise*


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<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI(95%)</u>
Intercept			2.05	0.18	66.8	11.49	<.001	1.690 - 2.401
TRT	E		-0.37	0.25	91.6	-1.48	0.143	-0.873 - 0.128
Segment	E	CBT	-0.12	0.20	64.3	-0.60	0.549	-0.530 - 0.284
Segment	C	CBT	-0.25	0.12	69.4	-1.26	0.211	-0.650 - 0.146
Phase			-0.002	0.02	60.9	-0.13	0.897	-0.039 - 0.034
Phase*SEG	E	CBT	-0.001	0.02	97.9	-0.05	0.958	-0.049 - 0.046
Phase*SEG	E	I/EP	0.02	0.03	90.5	0.57	0.569	-0.037 - 0.066
Phase*SEG	C	CBT	-0.02	0.02	71.3	-0.73	0.469	-0.056 - 0.026

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*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CI = Confidence limits.

Table A6.

*Solution for Fixed Effects and Mean Comparisons of Treatment Conditions and Segments for Peak Anger*

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI (95%)</u>
Intercept			3.44	0.173	69.7	19.85	<.001	3.095 - 3.786
Treatment	E		-0.28	0.278	106	-1.02	0.311	-0.835 - 0.268
Segment	E	CBT	-1.19	0.248	65.6	-4.79	<.001	-1.681 - -0.693
Segment	C	CBT	-1.00	0.225	68.1	-4.46	<.001	-1.450 - -0.554
Phase			-0.01	0.018	67.9	-0.74	0.462	-0.050 - 0.023
Phase*SEG	E	CBT	0.04	0.024	97.6	1.56	0.122	-0.010 - 0.086
Phase*SEG	E	I/EP	-0.003	0.029	106	-0.10	0.922	-0.061 - 0.055
Phase*SEG	C	CBT	0.04	0.024	67.9	1.53	0.131	-0.011 - 0.083

Least Squares Means

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	
Treatment	E		2.60	0.082	73	31.70	
Treatment	C		2.98	0.076	74.3	39.02	
Segment	E	CBT	2.17	0.089	70.8	24.46	
Segment	E	I/EP	3.03	0.126	63.6	24.09	
Segment	C	CBT	2.62	0.100	66.5	26.18	
Segment	C	SL	3.33	0.100	68.3	33.30	

<u>TRT</u>	<u>SEG</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>Adj. P</u>
E		C		-0.38	0.11	115	-3.40	<.001
E	CBT	E	I/EP	-0.86	0.14	57.5	-6.03	<.001
E	CBT	C	CBT	-0.45	0.13	102	-3.40	<0.010
E	CBT	C	SL	-1.17	0.13	104	-8.74	<.001
E	I/EP	C	CBT	0.41	0.16	93.4	2.54	0.079
E	I/EP	C	SL	-0.31	0.16	95.2	-1.91	0.362
C	CBT	C	SL	-0.71	0.13	59.4	-5.51	<.001

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CI = Confidence limits.

Table A7.

*Solution for Fixed Effects and Mean Comparisons of Treatment Segments for Peak Sadness*

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI(95%)</u>
Intercept			2.89	0.16	74.3	18.52	<.001	2.577 - 3.199
Treatment	E		0.07	0.27	94.5	0.26	0.796	-0.463 - 0.602
Segment	E	CBT	-1.32	0.24	60.8	-5.47	<.001	-1.805 - -0.839
Segment	C	CBT	-0.79	0.22	72.4	-3.55	0.001	-1.229 - -0.345
Phase			-0.04	0.02	67.2	-2.67	0.01	-0.076 - -0.011
Phase*TRT	E		0.05	0.03	85.9	1.88	0.064	-0.003 - 0.108
Phase*SEG	E	CBT	0.02	0.03	63.3	0.81	0.423	-0.030 - 0.071
Phase*SEG	C	CBT	0.04	0.02	66.5	1.65	0.104	-0.008 - 0.084

Least Squares Means

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>
Segment	E	CBT	1.87	0.084	65.2	22.22
Segment	E	I/EP	3.03	0.122	76.1	24.77
Segment	C	CBT	2.06	0.101	57.5	20.34
Segment	C	SL	2.54	0.087	68.9	29.14

<u>TRT</u>	<u>SEG</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>Adj. P</u>
E	CBT	E	I/EP	-1.16	0.14	63.9	-8.57	<.001
E	CBT	C	CBT	-0.19	0.13	86	-1.43	0.486
E	CBT	C	SL	-0.67	0.12	101	-5.53	<.001
E	I/EP	C	CBT	0.97	0.16	101	6.12	<.001
E	I/EP	C	SL	0.49	0.15	110	3.26	0.009
C	CBT	C	SL	-0.48	0.12	60.7	-3.90	0.001

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CI = Confidence limits.

Table A8.

*Solution for Fixed Effects and Mean Comparison of Treatment Conditions for Peak Fear*

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>DF</u>	<u>t</u>	<u>p</u>	<u>CI(95%)</u>
Intercept			2.93	0.17	63.6	17.18	<.001	2.592 - 3.274
Treatment	E		-0.18	0.22	87.6	-0.81	0.420	-0.617 - 0.260
Segment	E	CBT	-0.46	0.20	61	-2.27	0.027	-0.860 - -0.055
Segment	C	CBT	0.08	0.21	73.5	0.40	0.691	-0.329 - 0.494
Phase			-0.04	0.02	62.2	-1.97	0.053	-0.070 - 0.001
Phase*TRT	E		0.03	0.02	87.7	1.32	0.192	-0.015 - 0.076
Phase*SEG	E	CBT	0.04	0.02	68.3	1.91	0.060	-0.002 - 0.082
Phase*SEG	C	CBT	-0.01	0.02	71.2	-0.57	0.567	-0.055 - 0.030

Least Squares Means

	<u>TRT</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>		
	E	2.646	0.057	70.8	46.17		
	C	2.645	0.063	70	42.12		
	<u>TRT</u>	<u>TRT</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>Adj. P</u>
	E	C	0.001	0.09	108	0.01	0.989

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CI = Confidence limits.

Table A9.

*Solution for Fixed Effects and Mean Outcome Comparisons of Treatments, Segments and Phases*

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI(95%)</u>
Intercept			3.87	0.11	93.1	36.44	<.001	3.656 - 4.078
Treatment	E		0.31	0.14	107	2.19	0.031	0.029 - 0.591
Segment	E	CBT	0.20	0.11	58.6	1.79	0.079	-0.024 - 0.422
Segment	C	CBT	0.32	0.10	60.3	3.02	0.004	0.107 - 0.524
Phase			0.04	0.01	96	4.41	<.001	0.021 - 0.054

Least Squares Means

<u>Effect</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>
CBT+I/EP	4.58	0.09	70.3	54.12
CBT+SL	4.33	0.09	85.8	50.94

<u>TRT</u>	<u>TRT</u>	<u>Estimate</u>	<u>Std. Error</u>	<u>df</u>	<u>t</u>	<u>Adj. P</u>
E	C	0.25	0.12	114	2.15	0.034

Least Squares Means

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>
Segment	E	CBT	4.68	0.10	63	49.16
Segment	E	I/EP	4.48	0.11	70.1	41.81
Segment	C	CBT	4.48	0.10	75.6	43.66
Segment	C	SL	4.17	0.10	82.4	43.16

<u>TRT</u>	<u>SEG</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>Adj. P</u>
E	CBT	E	I/EP	0.20	0.11	58.6	1.79	0.289
E	CBT	C	CBT	0.19	0.14	98.5	1.41	0.500
E	CBT	C	SL	0.51	0.13	101	3.83	0.002
E	I/EP	C	CBT	-0.01	0.15	105	-0.04	1.000
E	I/EP	C	SL	0.31	0.14	107	2.19	0.137
C	CBT	C	SL	0.32	0.10	60.3	3.02	0.018

Least Squares Means

<u>Phase</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	
Early	4.24	0.064	104	66.34	
Middle	4.53	0.081	109	55.94	
Late	4.62	0.085	110	54.24	

<u>Phase</u>	<u>Phase</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>Adj. P</u>
Early	Middle	-0.29	0.08	88	-3.55	0.002
Early	Late	-0.38	0.09	95.4	-4.53	<.0001
Middle	Late	-0.09	0.08	94.2	-1.23	0.436

---

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CI = Confidence limits.

Table A10.

*Solution for Fixed Effects of Love Model Predicting Outcome*


---

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI(95%)</u>
Intercept			3.81	0.14	186	27.29	<.001	3.536 - 4.087
Treatment	E		0.30	0.14	108	2.14	0.0345	0.023 - 0.585
Segment	E	CBT	0.22	0.12	72.3	1.89	0.0623	-0.012 - 0.460
Segment	C	CBT	0.33	0.11	66.1	3.09	0.003	0.117 - 0.545
Phase			0.04	0.01	96.4	4.37	<.001	0.020 - 0.054
Love			0.03	0.04	319	0.61	0.543	-0.060 - 0.114

---

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CI = Confidence limits.

Table A11.

*Solution for Fixed Effects of Joy Model Predicting Outcome*


---

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI(95%)</u>
Intercept			3.92	0.24	92.5	16.69	<.001	3.451 - 4.383
Treatment	E		-0.19	0.31	181	-0.62	0.539	-0.789 - 0.413
Segment	E	CBT	-0.05	0.31	122	-0.15	0.883	-0.664 - 0.572
Segment	C	CBT	-0.47	0.32	125	-1.46	0.146	-1.099 - 0.165
Phase			0.04	0.01	96.8	4.16	<.001	0.019 - 0.052
Joy			-0.01	0.07	92.6	-0.14	0.887	-0.140 - 0.121
Joy*SEG	E	CBT	0.23	0.11	188	2.2	0.029	0.024 - 0.442
Joy*SEG	E	I/EP	0.17	0.09	179	1.96	0.051	-0.001 - 0.346
Joy*SEG	C	CBT	0.26	0.10	133	2.63	0.01	0.064 - 0.446

---

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CI = Confidence limits.

Table A12.

*Solution for Fixed Effects of Surprise Model Predicting Outcome*


---

Effect	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<i>df</i>	<i>t</i>	<i>p</i>	<u>CI(95%)</u>
Intercept			3.80	0.14	168	27.79	<.001	3.527 - 4.067
Treatment	E		0.32	0.14	108	2.27	0.025	0.041 - 0.603
Segment	E	CBT	0.20	0.11	58.8	1.82	0.074	-0.020 - 0.425
Segment	C	CBT	0.33	0.11	61.6	3.11	0.003	0.117 - 0.540
Phase			0.04	0.01	95.4	4.42	<.001	0.021 - 0.055
Surprise			0.03	0.04	333	0.79	0.427	-0.050 0.117

---

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CL = Confidence limits.

Table A13.

*Solution for Fixed Effects of Anger Model Predicting Outcome*


---

<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI(95%)</u>
Intercept			3.99	0.153	234	26.1	<.001	3.686 - 4.288
Treatment	E		0.30	0.141	107	2.13	0.036	0.021 - 0.581
Segment	E	CBT	0.16	0.116	67.2	1.39	0.168	-0.070 - 0.393
Segment	C	CBT	0.29	0.109	67.1	2.64	0.01	0.070 - 0.503
Phase			0.04	0.009	94.8	4.42	<.001	0.021 - 0.055
Anger			-0.04	0.033	305	-1.11	0.27	-0.101 - 0.028

---

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CL = Confidence limits.

Table A14.

*Solution for Fixed Effects of Sadness Model Predicting Outcome*


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<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI (95%)</u>
Intercept			4.10	0.148	234	27.71	<.001	3.806 - 4.389
Treatment	E		0.35	0.141	107	2.46	0.016	0.067 - 0.626
Segment	E	CBT	0.09	0.12	74.4	0.75	0.453	-0.149 - 0.330
Segment	C	CBT	0.27	0.106	64.9	2.54	0.014	0.058 - 0.482
Phase			0.04	0.009	94.8	4.42	<.001	0.021 - 0.055
Sadness			-0.09	0.039	350	-2.29	0.023	-0.164 - 0.012

---

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CL = Confidence limits.

Table A15.

*Solution for Fixed Effects of Fear Model Predicting Outcome*

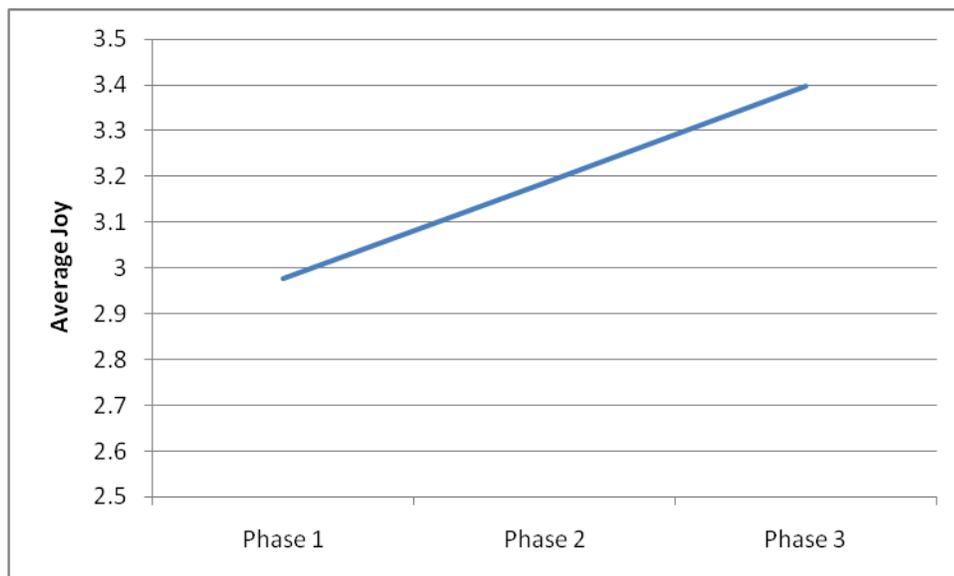

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<u>Effect</u>	<u>TRT</u>	<u>SEG</u>	<u>Estimate</u>	<u>SE</u>	<u>df</u>	<u>t</u>	<u>p</u>	<u>CI(95%)</u>
Intercept			3.94	0.16	222	25.28	<.001	3.636 - 4.251
Treatment	E		0.31	0.14	107	2.17	0.032	0.027 - 0.592
Segment	E	CBT	0.19	0.11	57.8	1.71	0.092	-0.033 - 0.419
Segment	C	CBT	0.32	0.11	60.2	3.01	0.004	0.106 - 0.526
Phase			0.04	0.01	96	4.4	<.001	0.021 - 0.054
Fear			-0.03	0.04	297	-0.68	0.496	-0.108 - 0.052

---

*Note.* CBT = Cognitive-behavioral therapy; I/EP = Interpersonal/emotional processing therapy; SL = Supportive listening. TRT = Treatment condition; SEG = Treatment segment. E = Experimental condition (CBT plus I/EP); C = Control condition (CBT plus SL). CL = Confidence limits.

Figure 1. Peak Joy Across Phases of Treatment



*Figure 1.* The mean peak intensity of joy across the three phases of treatment. Phase 1 = early session; Phase 2 = middle session; Phase 3 = late session. The difference in peak joy between the late and early phase of treatment approached statistical significance.

Figure 2. Treatment Condition and Phase Predicting Sadness

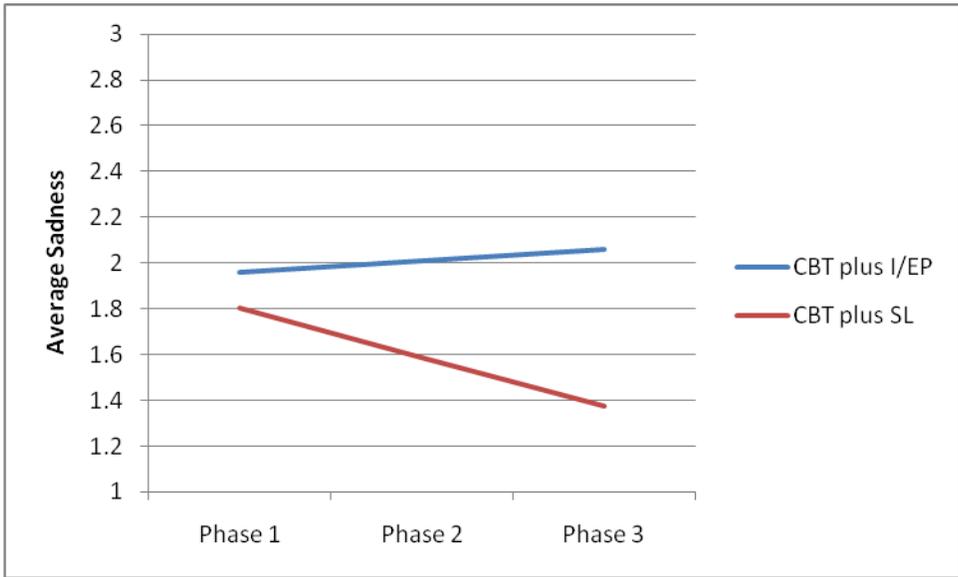


Figure 2. The mean peak intensity level of sadness predicted by the interaction between treatment phase and treatment condition. Phase 1 = early session; Phase 2 = middle session; Phase 3 = late session. The control treatment condition (CBT plus SL) exhibited significantly less sadness than the experimental treatment condition (CBT plus I/EP) at the third phase of treatment.

Figure 3. Treatment Condition and Phase Predicting Fear

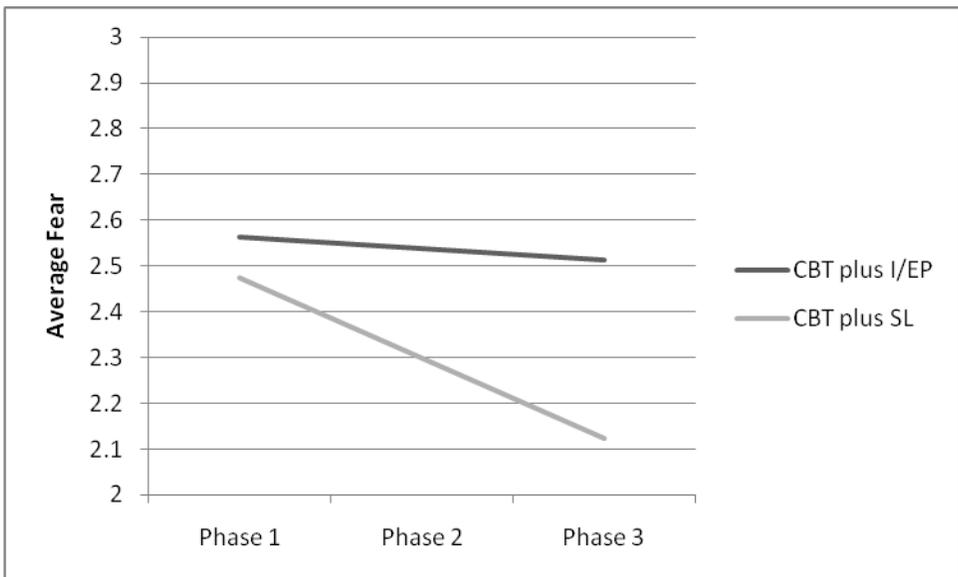
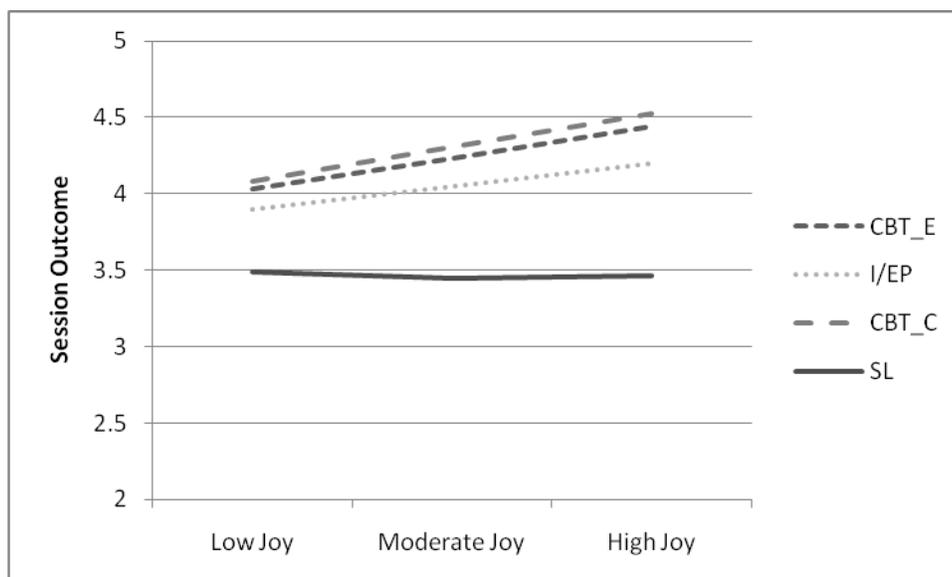


Figure A3. The mean peak intensity level of fear predicted by the interaction between treatment phase and treatment condition. Phase 1 = early session; Phase 2 = middle session; Phase 3 = late session. The control treatment condition (CBT plus SL) exhibited significantly less fear than the experimental treatment condition (CBT plus I/EP) at the third phase of treatment.

Figure 4. Treatment Segment and Level of Joy Predicting Outcome



*Figure A4.* Client ratings of session outcome predicted by the interaction between joy and treatment segment. CBT\_E = Cognitive-behavioral therapy segment of the experimental condition; I/EP = Interpersonal/emotional processing therapy; CBT\_C = Cognitive-behavioral therapy segment of the control condition; SL = Supportive listening. Clients who experienced a higher level of joy in the I/EP and CBT segments rated their psychotherapy sessions significantly more positively. Clients in the SL segment who experienced a higher level of joy rated their psychotherapy sessions slightly less positively. Moderate Joy represents the mean level of joy for the sample. Low and High Joy represent one standard deviation below and above the mean level of joy, respectively.

**Appendix B**

Emotion Measure

Rate from 1 to 7 (peak arousal)

1 = *Client does not express any feelings. Voice gestures or verbal content do not disclose any arousal*

4 = *Client expresses feelings and sometimes allows the voice, body, gestures, or words to be involved*

7 = *Arousal is full and intense. No sense of restriction. The person is focused, freely expressing, with voice, words, or physical movement an intense state of arousal*

<b>Love</b>	<b>Joy</b>	<b>Surprise</b>	<b>Anger</b>	<b>Fear</b>	<b>Sadness</b>

**APPENDIX C**

## Outcome Measure

*Session Progress Scale*

**1. How do you feel about the session which you have just completed? (Circle the one answer which best applies.)**

THIS SESSION WAS:

1. Perfect
2. Excellent
3. Very good
4. Pretty good
5. Fair
6. Pretty poor
7. Very poor

**2. How much progress do you feel you made in dealing with your problems this session?**

1. A great deal of progress
2. Considerable progress
3. Moderate progress
4. Some progress
5. Didn't get anywhere this session
6. In some ways my problems seem to have gotten worse this session

**3. How well do you feel that you are getting along, emotionally and psychologically, at this time?**

I AM GETTING ALONG:

1. Very well; much the way I would like to.
2. Quite well; no important complaints
3. Fairly well; have my ups and downs.
4. So-so; manage to keep going with some effort
5. Fairly poor; life gets pretty tough for me at times.
6. Quite poorly; can barely manage to deal with things

**4. How helpful do you feel your therapist was to you this session?**

1. Completely helpful
2. Very helpful
3. Pretty helpful
4. Somewhat helpful
5. Slightly helpful
6. Not at all helpful

## VITA

### James F. Boswell

#### Education

##### **The Pennsylvania State University, University Park, PA**

Doctor of Philosophy in Psychology, August 2011

Dissertation Title: *Client Emotional Experiencing in Cognitive-Behavioral and Interpersonal-Emotional Processing Therapy for Generalized Anxiety Disorder*

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2010 North American Society for Psychotherapy Research, Research Travel Award

2009 Society for the Exploration of Psychotherapy Integration (SEPI) Dissertation Award

2009 College of the Liberal Arts Dissertation Support Grant

2008 Penn State Research and Graduate Office (RGSO) Travel Award

2007 Don A. Trumbo Psychology Department Student Research Travel Award

2006 APA Division 29 Mathilda B. Canter Education and Training Award

2006 Department of Psychology Student Research Award, Masters Thesis

#### Publications

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