

Optimal Levels of Emotional Arousal in Experiential Therapy of Depression

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Objective: To determine the relationship between length of time spent expressing highly aroused emotion and therapeutic outcome. **Method:** Thirty-eight clients (14 male, 24 female) between the ages of 22 and 60 years ($M = 39.5$, $SD = 9.71$), treated for depression with experiential therapy, were rated on working alliance and expressed emotional arousal (with the Client Expressed Emotional Arousal Scale) in their three highest arousal sessions. Among the clients, 34 were of European ethnicity, 2 were of Asian ethnicity, 1 was of Latino ethnicity, and 1 was of Caribbean–Canadian ethnicity. Clients were administered the short form of the Working Alliance Inventory following their 4th therapy session and also completed, pre- and posttherapy, the Beck Depression Inventory (BDI), the Global Severity Index (GSI) of the Symptom Checklist–90–Revised (SCL-90-R), the Inventory of Interpersonal Problems, and the Rosenberg Self-Esteem Scale. **Results:** Hierarchical regressions showed that a nonlinear pattern of expressed emotional arousal predicted outcome significantly above the alliance. This combination predicted 30% of outcome variance on the BDI and 24% on the GSI ($p < .01$). An optimal frequency (25%) of highly aroused emotional expression was found to relate to outcome, with deviation from this optimal frequency predicting poorer outcome. **Conclusions:** Too much or too little emotion was found to be not as helpful as a moderate amount. It was concluded that expressed emotional arousal in experiential therapies has a more intricate relationship with therapeutic outcome than has previously been shown and that it is moderate amounts of heightened emotional arousal that improve predictions of therapeutic outcome.

Keywords: psychotherapeutic process, expressed emotional arousal, working alliance, depression

Emotional arousal has been proposed as an aspect of change in deeper level cognitive–affective schemas. Its role in the change process has been alternately understood as an indicator of access to dysfunctional cognitive schemas (hot cognition; Greenberg & Safran, 1987; Teasdale & Barnard, 1993); as a sign of working through of unresolved emotion schemes (Greenberg, 2002); and as a sign of transformation of problematic emotions by exposure (Foa & Kozak, 1986), by regulation (Linehan, 1993), or by increased awareness and understanding (Fosha, 2000; Greenberg, 2002; Samoilov & Goldfried, 2000). The working alliance also has been proposed as an important change process, common to all approaches, that predicts outcome (Horvath & Bedi, 2002). A good alliance and relational trust are also seen as necessary to both access and work with emotion (Greenberg & Watson, 2006; Samoilov & Goldfried, 2000).

Empirical studies have yielded increasingly compelling evidence of the significant role that emotional involvement plays in

the achievement of good therapeutic outcome in the treatment of depression (e.g. Beutler, Clarkin, & Bongar, 2000; Missirlian, Toukmanian, Warwar, & Greenberg, 2005; Pos, Greenberg, Korman, & Goldman 2003; Samoilov & Goldfried, 2000; Watson & Bedard, 2006). In addition, intensity of emotional arousal has been found to be a significant component in the prediction of good outcome in resolving trauma and unfinished business (Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002; Greenberg & Malcolm, 2002; Paivio, Holowaty, & Hall, 2004).

Improvement in depressive symptoms during experiential therapy has been predicted by successful processing of the emotions involved, as measured by the Depth of Experiencing Scale on emotion episodes (Pos et al., 2003). Depth of experiencing has similarly been shown to predict outcome in cognitive–behavioral therapy (CBT) of depression (Castonguay, Goldfried, Wisner, Raue, & Hayes, 1996), to occur in CBT change sessions (Wisner & Goldfried, 1993), and to correlate in psychodynamic therapy with the use of therapist interventions judged as effective (Silberschatz, Fretter, & Curtis, 1986). Whereas depth of experiencing may be one of the factors involved in promoting therapeutic change, a full understanding of how to promote change could also benefit from the examination of a number of diverse facets of emotional processing. One such facet is emotional arousal; another is how emotional arousal interacts with other therapeutic processes, such as the alliance.

Depth of experiencing (M. H. Klein, Mathieu, Gendlin, & Kiesler, 1969; M. H. Klein, Mathieu-Coughlan, & Kiesler, 1986) is a complex construct with many facets, but it essentially mea-

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sures degree of focus on a bodily felt referent and subsequent degree of reflection on this referent. It does not include arousal explicitly in its conceptualization, but the concepts do overlap, in that experiencing requires both a clear presentation of the speaker's feelings and, at higher levels, requires that the content be a synthesis of readily accessible feelings and experiences. It also requires that the feelings involved must be vividly, fully, or concretely presented and that past feelings need to be vividly presented or relived. These two constructs have been shown to correlate between .4 and .6 depending on phase of therapy (Warwar, 2003). Measurement of expressed emotional arousal, however, by rating how much emotion overflows into speech pattern and the degree of restriction of arousal, focuses on different aspects of emotional processing.

Warwar (2003) studied the extent to which intensity of expressed emotional arousal plus depth of experiencing could be used as predictors of outcome. She found that increase in expressed emotional arousal from early to mid-therapy was a significant predictor of measures of outcome, such as the Beck Depression Inventory (BDI) and the Global Severity Index (GSI) of the SCL-90-R, and that late-therapy depth of experiencing significantly improved this prediction. Warwar concluded that this indicates the importance of combining emotional arousal with reflection on aroused emotion, in order to make sense of it.

In a similar project, Missirlian et al. (2005) looked at the differential effects of high levels of expressed emotional arousal and client perceptual processing, along with working alliance, at early, middle, and late stages of therapy. They concluded that elicitation of high modal levels of expressed emotional arousal in the early to middle stages of therapy made clients' emotions accessible to further cognitive processing so that, toward the end of treatment, levels of expressed arousal were reduced and reflective processing increased.

Other researchers have found that, although collaborative exploration of emotion is significantly related to positive outcome in CBT and IPT, elevated levels of painful affect can actually be linked to worse outcome (Coombs, Coleman, & Jones, 2002). Such results suggest the possibility that a variable such as emotional arousal might have further levels or facets within it that need to be measured and that more of a good thing may not always be better. A survey of the effects of emotional expression across a number of different modalities of therapy (Whelton, 2004) concluded that simply having emotional expression present in a therapy session is no longer seen as necessarily beneficial and that catharsis theory should be considered to be both incomplete and inadequate for explaining therapeutic improvement. Whelton concluded that, for lasting change to occur, effective processing of regulated emotional expression is needed in addition to the elicitation of that emotion.

Given that the idea of a nonlinear relationship between general arousal and performance has been an accepted psychological premise since at least the turn of the century (Yerkes & Dodson, 1908), it is perhaps surprising that this premise's application to psychotherapeutic intervention has not been more explicitly examined before this. In fact, there are implicit allusions to this notion in the existing literature. For instance, the idea that there might not be a simple linear relationship between intensity of emotion and therapeutic outcome is an integral part of the theory of emotion-focused therapy (Greenberg, 2002; Greenberg & Watson, 2006)

and is somewhat built into the Client Expressed Emotional Arousal Scale III—Revised (CEAS; Warwar & Greenberg, 1999) used in this study. A rating of 7 on this scale represents the very highest levels of intensity of expressed emotional arousal, indicating the extent to which the arousal interferes significantly with clients' ability to regulate their expression of emotion and communicate intelligibly. Overall, this rating introduces the concept of "too much emotion," both in intensity and duration, as it describes emotional arousal that "appears uncontrollable and enduring" (Warwar & Greenberg, 1999, p. 7). This description recognizes that although some level of highly aroused expression of emotion can facilitate the processing of that emotion and creation of new meaning in a client, there is also a point at which further increase in emotional arousal levels can begin to actively interfere with these processes.

Greenberg, Auszra, and Herrmann (2007) did not find a significant relationship between frequency of higher levels of expressed emotional arousal and outcome variables in their intensive examination of the whole course of treatment of four good-outcome and four poor-outcome clients. The authors measured both aroused emotional expression and productivity of the expressed emotion and concluded that productivity of aroused emotional expression was more important to therapeutic outcome. With a smaller sample size, it is possible that the relationship between frequency of highly aroused emotional expression and outcome might not have been recognized or that the relationship of arousal across the whole treatment differs from that between good session arousal and outcome. Mergenthaler (1996) analyzed change events in terms of the interaction between high and low abstraction and high and low emotion tone and found that *shift events*, in which emotion-toned and abstract marker words both occurred above the expected mean, were associated with good outcome. Therefore, some type of reflection on aroused emotion seems important. Many theorists recognize that although awareness of emotion is important, too much emotional arousal leads to dysregulation (Goldfried & Eubanks-Carter, 2004; Greenberg, 2002; Linehan, 1993) and that being too emotionally aroused interferes with the ability to think clearly. Pascual-Leone and Greenberg (2007) recently demonstrated that distress reduction involved moving from states of high arousal and low meaning to low arousal and high meaning. It is therefore possible that maintaining for too long a level of expressed emotional arousal that might have a positive effect in short doses might have detrimental effects similar to states of distress. Extended periods of highly aroused emotional expression might produce mental fatigue or some other mechanism that interferes with the reflective processes that lead to beneficial therapeutic outcome.

We undertook the present project to relate the processes of working alliance and expressed emotional arousal to outcome in a sample of 38 clients treated for depression with experiential therapy (Goldman, Greenberg, & Angus, 2006). Working alliance (as measured by the 12-item short form of the Working Alliance Inventory [WAI]) was expected to account for a small but significant portion of the outcome. Following the evidence that high levels of painful emotions can be detrimental to therapeutic outcome (Coombs et al., 2002; Whelton, 2004), and noting that some theorists posit detrimental effects from overaroused emotion (e.g., Greenberg, 2002; Linehan, 1993), we expected that the frequency of high levels of expressed emotional arousal would not show a

direct linear relationship with outcome. Rather, increased frequency of high expressed emotional arousal was expected to predict better therapeutic outcome up to a certain point, beyond which further increase in frequency of high expressed emotional arousal was expected to be increasingly detrimental to outcome. The occurrence of expressed emotional arousal that was rated at the highest level of intensity (7) on the CEAS was too rare in the sample used to make possible any meaningful direct analysis of the relationship between this form of too much emotion and outcome. An alternative criterion for a rating of 7 on the CEAS was that a Level 6 rating continued for long enough or appeared very often, indicating that clients no longer appeared able to control their emotional expression. Therefore, the time aspect of excessive duration of highly aroused emotion was made the focus of investigation by measuring the frequency of emotion that was rated at higher levels. Given that emotion signifies experience as important, acts to identify problems (emotion informs), and provides action tendencies to solve problems (emotion moves; Greenberg, 2002), too-frequent activation is probably more a sign of repeated lack of resolution rather than signaling that something needs attention or disposing the person to action. In addition, frequency of segments was used as the measure of intensity, rather than average intensity, because frequency is a more sensitive measure of duration of emotional intensity than averaging, the latter of which tends to smooth out differences between participants and does not capture duration as well as does frequency.

The hypotheses examined in this project thus were that, in the experiential therapy of depression, (a) working alliance would correlate with outcome; (b) frequency of higher levels of expressed emotional arousal would correlate with outcome, such that some moderate level of frequency would be related to good outcome and increasing deviation in frequency from that level would be related to poor outcome; and (c) moderate amounts of high expressed emotional arousal would account for significantly more variance than the alliance alone.

Method

Participants

The sample consisted of 38 clients, recruited for a study of the treatment of depression, comparing the efficacy of the client-centered relational conditions with the emotion-focused treatments (Goldman et al., 2006). The length of treatment ranged from 9 to 20 sessions with a mean of 17.6 sessions.

Potential clients were initially screened by telephone, and those who met the criteria in this screening were invited to two interviews for admission to the treatment program. Approximately 458 people responded by telephone, and 104 individuals were seen in the two assessment interviews. In the first interview, clients were assessed with the depression module of the Structured Clinical Interview: Diagnostic, Second Edition (SCID-II; Spitzer, Williams, Gibbon, & First, 1995), a brief clinical history, the BDI, and the SCID-II personality questionnaire. If clients met criteria for an Axis I major depressive disorder, scored over 16 on the BDI, and did not indicate the presence of any other disorders that would make them unsuitable for treatment, they were asked back for a second interview and received a full multiaxial assessment with the SCID-II.

Exclusion criteria were current treatment or medication for depression, being in a clinical state inconsistent with participating in the research protocol (e.g., being so profoundly depressed as to be uncommunicative), regarded as in need of treatment focusing on other problems (e.g., recent suicide attempt or active suicidal state), loss of a significant other in the past year, had recently been or were currently a victim of incest or sexual abuse, were currently involved in a physically abusive relationship, were in need of immediate crisis intervention, or had a current or previous diagnosis on one of the following *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American Psychiatric Association, 1994) disorders: bipolar disorder I, panic disorder, substance abuse, eating disorders, paranoid personality, psychotic disorder, two or more schizotypal features, borderline personality disorder, or antisocial personality disorder. Demographics showed that 14 clients were male and 24 were female, ranging in age between 22 and 60 years ($M = 39.5$, $SD = 9.71$). Among the clients, 13 (34%) were never married, 12 (31%) were married or living common-law, and 13 (34%) were separated or divorced. Clients' level of education ranged from secondary through graduate school: Six (16%) had completed high school, 11 (29%) had some college training, 17 (45%) had graduated from college, and four (11%) had a postgraduate degree. Of the sample, 34 (89%) were European, two (5%) were Asian, one (3%) was Latino, and one (3%) was Caribbean-Canadian. All clients were diagnosed with major depression according to SCID-II criteria (Spitzer et al., 1995). Three (8%) fell into the mild to moderate range (10–18) on the BDI (Beck et al, 1961), 23 (61%) were in the moderate to severe range (19–29), and 12 (32%) fell into the extremely severe range (30–63). Prior to treatment, the 19 clients assigned to the client-centered condition had a mean BDI score of 26.21 ($SD = 7.10$), whereas the 19 in the emotion-focused condition had a mean score of 26.26 ($SD = 7.35$). Five (13%) of the clients were concurrently diagnosed with generalized anxiety disorder. Overall, 12 (21%) of the clients were diagnosed with an Axis II personality disorder: eight with avoidant personality disorder, one with narcissistic personality disorder, one with dependent personality disorder, one with obsessive-compulsive personality disorder, and one with personality disorder not otherwise specified. Clients' Global Assessment of Functioning (GAF; American Psychiatric Association, 1994) scores ranged from 51 to 70 ($M = 62.89$, $SD = 5.35$). Prior to treatment, clients in the client-centered condition had a mean GAF score of 61.63 ($SD = 5.47$), whereas those in the emotion-focused condition had a mean score of 64.16 ($SD = 5.06$). There were no significant differences between treatment groups on any of these variables. There were large pretreatment-posttreatment effect sizes for both client-centered and emotion-focused therapy on self-report outcome measures, with an average effect size across treatments of 2.58 on the BDI, 1.7 on the GSI of the SCL-90-R, 1.05 on the Rosenberg Self-Esteem Scale (RSE), and 1.03 on Inventory of Interpersonal Problems (IIP). There were no significant differences between the two treatments on the proportion of recovered clients at posttreatment (Goldman et al., 2006).

Therapists

The same 14 therapists (12 female and two male) provided both treatments. Therapist demographics can be found in Goldman et al. (2006). Therapists had all received prior training of at least one

year in each of the two treatment modalities and received an additional 48 hr of training, 2 hr weekly for 24 weeks. Therapists were trained according to the manuals for client-centered therapy (Greenberg, Rice, & Watson, 1994) and emotion-focused therapy (Greenberg, Rice, & Elliott, 1993), the latter of which adds specific interventions to the client-centered relational conditions. Training involved didactic instruction, video viewing, live demonstrations, and in vivo practice in dyads.

Process Measures

Client Expressed Emotional Arousal Scale III—Revised. The CEAS (Warwar & Greenberg, 1999) is a 7-point, anchored ordinal scale that assesses the quality and intensity of client emotions on the basis of the evaluation of the client's degree of arousal from voice and body and the degree of restriction of expression. In this rating, an "emotional voice" (Rice, Koke, Greenberg, & Wagstaff, 1979) is characterized by "an overflow of emotion into a speech pattern" (Warwar & Greenberg, 1999, p. 5) and can be detected by attending to the following aspects: accentuation pattern, regularity of pace, terminal contours, and whether there has been a disruption of speech patterns. Emotional voice is indicated by irregular patterns of accentuation, an uneven regularity of pace, and unexpected terminal contours, suggesting accessibility to feelings. Ratings are made by trained raters according to the manual, which defines each point on the scale and provides rules for rating at the different levels. Embedded within the scale are ratings of both verbal and nonverbal indicators of both intensity and constriction of emotional expression. As such, although it is possible to use this scale to rate from audiotape, it is more reliable when rating from live observation or from videotape. In addition, the characteristics of arousal of different emotions at the same levels can vary depending on the emotion being expressed.

CEAS assessment is divided into two parts: first, the client's main emotion is identified; second, the overall level of intensity of the client's emotion (modal intensity), as well as the peak intensity, or intensity of the maximally aroused moment, are rated (Warwar & Greenberg, 1999). CEAS ratings are based on a 7-point scale, where upper levels indicate higher arousal intensities, lower levels indicate restriction of emotional expression, and Level 3 is considered to be baseline expected emotional expression (e.g., 1 = *Client does not express emotions. Voice or gestures do not disclose any emotional arousal*; 4 = *Arousal is moderate in voice and body. Emotional voice is present; ordinary speech patterns are moderately disrupted by emotional overflow as represented by changes in accentuation patterns, unevenness of pace, changes in pitch. Although there is some freedom from control and restraints, arousal may still be somewhat restricted*; 7 = *Arousal is extremely intense and full in voice and body. Usual speech patterns are completely disrupted by emotional overflow. Arousal appears uncontrollable and enduring. There is a falling apart quality*). Previous studies have reported interrater reliability scores ranging from .75 to .81, and average emotional arousal has been shown to predict outcome (Greenberg et al., 2007; Missirlian et al., 2005; Warwar, 2003).

Session Measures

Client Working Alliance Inventory. The 12-item short form of the Working Alliance Inventory (WAI; Horvath & Greenberg,

1989) was administered following every session. It is based on Bordin's (1979) conception of the tripartite client-therapist relationship, composed of the agreement between client and therapist on goals, degree of concordance on tasks, and strength of the bond. Clients use a 7-point Likert scale to rate how accurately each item describes their current therapy experience. The WAI has good reliability, with alpha coefficients for the overall internal reliability of the long client version ranging from .87 to .93 (Horvath & Greenberg, 1989). The reliability estimates of the subscales have also demonstrated fairly high alpha coefficients: .82 on the Task subscale, .82 to .87 on the Goal subscale, and .85 on the Bond subscale. The working alliance score used in this study was taken from the report after Session 4 to measure early alliance, which has been shown to predict outcome.

Therapist Post Session Questionnaire (TPSQ). The TPSQ is a questionnaire, created specifically for the Goldman et al. (2006) study, on which the therapists rated the effectiveness of the session. The therapists were asked to report whether there was an aroused emotion, to specify what emotion was aroused, and to rate the degree of emotional arousal on a 5-point Likert anchored scale. In addition, therapists reported the degree of resolution of any therapeutic tasks performed and the degree to which the client experienced a significant shift in perception or feeling or resolved an issue as a result of empathic exploration in this session. A more extensive description of these tasks and their associated degree of resolution scales can be found in Greenberg et al. (1993). These scales, when used as a process rating measure, have been found to have interrater reliabilities (Cohen's kappa) ranging from .72 to .79.

Outcome Measures

Four self-report outcome measures were administered to each client at pre-, mid-, and posttreatment and at a 6-month follow-up. We used outcome measure data collected prior to beginning treatment and at termination to assess final outcomes by regressing pretreatment measures on posttreatment measures to create standardized residuals. We then used these residuals as the outcome data in all correlations and regressions in order to provide a measure of the degree to which clients had changed over the course of treatment.

Beck Depression Inventory. The BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21-item, four-choice inventory, designed to measure severity of depression. Internal consistency was measured with Cronbach's alpha and has been assessed at .80 for single episode major depression and .79 for dysthymic depression. Nine studies of test-retest reliability showed a range of .60 to .90.

Symptom Checklist-90—Revised. The SCL-90-R (Derogatis, 1983a, 1983b) was designed to assess the severity of a range of general clinical symptoms that are indicative of psychopathology. It consists of a list of 90 clinical items, which individuals rate on a scale ranging from 0 (*not at all*) to 4 (*extremely*). Derogatis (1983a) reported test-retest reliability for the SCL-90-R over a one-week period, drawing on a sample of 94 psychiatric outpatients, to range from .80 to .90. The internal consistency estimates for the nine subscales were found to range from .77 to .90.

Rosenberg Self-Esteem Scale. The RSE (Rosenberg, 1965) is a 10-item inventory of respondents' attitudes about themselves,

developed to measure self-esteem. Responses are provided on a 5-point Likert scale ranging from 0 (*never*) to 5 (*almost always*). The scale demonstrated a test–retest reliability of .85 (Rosenberg, 1965).

Inventory of Interpersonal Problems. The IIP (Horowitz, Rosenberg, Baer, Ureno, & Villaseñor, 1988) consists of 127 items, designed to identify interpersonal problems and assess the severity of distress associated with them in everyday interpersonal functioning. Statements are rated on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). The internal consistency alpha coefficients across the subscales ranged from .82 to .94, whereas test–retest reliabilities for the six subscales have been reported to range from .80 to .90 over a period of 10 weeks.

Procedure

Because of the indications in prior studies on a different sample (Missirlian et al., 2005; Pos et al., 2003; Warwar, 2003) that certain process variables tend to have a greater impact on eventual therapeutic outcome when the measures are taken during mid- to late-therapy sessions, sessions for this study were chosen from the middle and latter thirds of therapy. Three sessions showing the highest therapist-rated, postsession reports of clients' levels of arousal and processing were chosen from the last two thirds of each client's therapy. The primary criterion for session selection was the therapist's judgment, recorded on a postsession therapist questionnaire, rating the degree of expressed emotional arousal during the session. If more than three sessions met this criterion, the therapist's rating on the postsession questionnaire of the degree to which the client's primary issues had been addressed and resolved in that session was used. Across all clients and all sessions, the average session number was 11.6, with an average range of 5.5 between the first and the last session chosen.

Rating units and procedures are described. Both raters used in this study were blind to the therapeutic outcomes of all clients rated. Using the Client Expressed Emotional Arousal Scale (CEAS; Warwar & Greenberg, 1999), one rater rated all three sessions of all clients in the sample, and a second rater rated half of the sessions, chosen randomly from all participants. The second rater's ratings were used to provide a measure of reliability for the primary rater's ratings. The raters viewed the videotape of each session, one minute at a time. After viewing each minute, the raters made note of the highest arousal level on the CEAS within that minute. After rating five minutes of session videotape in this manner, we used the highest peak arousal rating within the five-minute period. This has been found in previous studies to be a good method of capturing the arousal profile of a session (Greenberg et al., 2007). Interrater reliability, measured by intraclass coefficient, was .78. The first rater's ratings were used for the final analyses.

Results

The variables of percentage frequency of ratings of 5 or more on expressed emotional arousal (EA5+) and, for exploratory purposes, percentage frequency of ratings of 4 on expressed emotional arousal (EA4) were entered into an initial correlation matrix along with the variables of clients' fourth session WAI scores, as well as

the pretreatment–posttreatment standardized residual gain scores on the BDI, the GSI of the SCL-90-R, the IIP, and the RSE.

Ever since Cronbach and Furby's (1970) seminal critique of the use of measures of change in statistical analysis, a certain amount of continuing controversy has surrounded the use of various measures of change, including the residual gain score. As the two recent studies from which this study is primarily derived (Missirlian et al., 2005; Warwar, 2003) both used the residual gain score as a measure of change in their participants, we decided that use of the residual gain score in the present project would be appropriate. However, in light of the controversial nature of this measure of change, correlations were calculated between the two predictor variables with both pretherapy and posttherapy scores on the four outcome measures. We determined that correlations for both of the predictor variables shifted between pretherapy and posttherapy in a direction congruent with the correlations obtained with residual gain scores. Also, the correlations of posttherapy outcome scores with the predictor variables were comparable to correlations with residual gain scores. This suggests that the use of alternative methods of measuring change in this project would have produced results similar to the ones presented here.

The WAI was found to correlate significantly at expected levels with scores on the BDI ($r = -.376, p < .05$). EA4 correlated significantly with scores on the BDI ($r = .35, p < .05$), IIP scores ($r = .437, p < .01$), and scores on the RSE ($r = -.508, p < .01$). These correlations all indicate that the more Level 4 arousal the client expressed, the worse the client performed on these outcome measures. As expected, no significant correlations were found for EA5+.

The scatterplots of EA5+ against each of the outcome variables were therefore examined for confirmatory evidence of the nonlinear relationships we had hypothesized. The scatterplot for EA5+ against BDI did show a distribution in which a U-shaped trend could be seen. A visual examination of scatterplots is no more than a first approximation, however. Although statistical procedures exist for determining the presence of a specific, pre-identified curvilinear relationship in a set of data, insufficient theoretical or observational rationale existed to propose any such specific curve. Therefore, a conservative approach to testing for such a relationship, one that performed as minimal a transformation as possible on the data, was to effectively fold the data in half around a line that passed through a point somewhere near the apex of a supposed U-shaped (or V-shaped) line. This allowed a test of linear correlation to be applied as an approximation, without presupposing any particular line of fit. Frequency of EA ratings of 5 or more (EA5+) was therefore transformed into a new variable, frequency of high expressed emotional arousal (HiEmot). This was done by recoding frequency as an absolute value of deviation from a moderate frequency of 25% (this being the midpoint in the observed range in frequencies, from 0% to approximately 50%). In doing this, we determined a frequency of 25% as the new zero point, and all other values were recoded as their absolute distance from this zero point, regardless of whether that distance was positive or negative. The transformed variable (HiEmot) was thus degree of deviation above or below the 25% frequency of high expressed emotional arousal.

HiEmot correlated significantly with the two symptomatic measures of outcome: the BDI ($r = .504, p < .01$) and the GSI of the SCL-90-R ($r = .484, p < .01$). Both of these correlations were positive, meaning that those clients who expressed high levels of

emotional arousal for moderate amounts of time (approximately 25% of the total time spent in therapy over the three sessions examined) experienced the most relief of depressive symptoms, with clients having both higher and lower frequencies of high emotional arousal achieving worse outcomes. The final correlation matrix for HiEmot, EA4, the WAI, the BDI, the GSI of the SCL-90-R, the IIP, and the RSE is shown in Table 1.

Tests for Violation of Assumptions

All potential predictor variables having at least one significant correlation with one of the outcome variables, as well as the four outcome variables, were screened for violations of the assumptions of hierarchical regression analysis. One client was found to be a univariate outlier ($p < .001$) on HiEmot. No other univariate outliers were found. Through examination of Mahalanobis distances, we found only this one client to be significantly discrepant ($Mdn = 27.23$, $p < .001$). Sufficient evidence of other differences (possible bipolar disorder) existed to consider this client as belonging to a different population from the rest of the sample, and this client was thus removed from the analyses. Examination of bar graphs, residuals plots, and normalized quantile-quantile plots showed no violations of normality, linearity, or homoscedasticity assumptions ($p < .01$).

Hierarchical Regression Analyses

A separate hierarchical regression analysis was performed for each of the four dependent variables. In order to keep the ratio of predictor variables to dependent variables for the hypothesized relationships as low as possible, only the emotional arousal variable of primary interest to the study was chosen for the primary analyses. The two predictor variables used in the primary analyses were working alliance (WAI) and absolute deviation from 25% frequency of high expressed emotional arousal (HiEmot). The overall primary regression model was found to be significant for prediction of scores on the BDI, $F(3, 33) = 33.36$, $p < .001$, and the GSI of the SCL-90-R, $F(3, 33) = 8.967$, $p < .001$, but not for scores on the IIP, $F(3, 33) = 1.30$, $p = .292$, or the RSE, $F(3, 33) = 2.56$, $p = .072$.

Beck Depression Inventory. As shown in Table 2, the WAI was significant at the .05 level at entry in Step 1 ($p = .022$). When

Table 2
Beta Values and Incremental R² Values in a Hierarchical Regression of Two Predictor Variables on the Beck Depression Inventory (BDI) and the Global Severity Index (GSI)

Outcome variable/ predictor variable	Statistic		
	R ² total	R ² change	β
BDI			
WAI	.141	.141*	-.376* ($p = .022$)
HiEmot	.298	.157**	.424** ($p = .009$)
GSI			
WAI	.01	.01	-.101 ($p = .552$)
HiEmot	.24	.23**	.513** ($p = .003$)

Note. BDI = Beck Depression Inventory; WAI = Working Alliance Inventory (12-item short form); HiEmot = absolute deviation from a frequency of 25% for ratings of 5 or more on the Expressed Emotional Arousal Scale; GSI = Global Severity Index. All outcome variables represent standardized residual gain scores.

* $p < .05$. ** $p < .01$.

the HiEmot variable was entered in Step 2, WAI was no longer a significant predictor of scores on the BDI ($p = .153$), and the HiEmot variable was significant at the .01 level ($p = .009$).

Global Severity Index. As shown in Table 2, WAI score did not contribute significantly to the prediction of the GSI of the SCL-90-R in Step 1 ($p = .552$). The HiEmot variable was significant at the .01 level when entered into the analysis at Step 2 ($p = .003$), and the WAI remained nonsignificant ($p = .613$).

Exploratory Analyses

The frequency of marginal emotion (EA4) was not included in the primary analyses above, but, because of the theoretically interesting ramifications of the nature of its correlations with some outcome variables, this measure was included in some separate exploratory analyses with the dependent variables IIP and RSE, with which it was correlated. The overall regression model of WAI and EA4 for the analysis on IIP, $F(2, 34) = 4.41$, $p < .05$, and of WAI and EA4 for the analysis on RSE, $F(3, 33) = 5.63$, $p < .01$, were significant for prediction on each measure.

Table 1
Pearson Correlation Scores Between Three Predictor and Four Outcome Variables

Variable	WAI	EA4	HiEmot	BDI	GSI	IIP	RSE
WAI	—						
EA4	-.124 ($p = .465$)	—					
HiEmot	-.356* ($p = .031$)	-.233 ($p = .166$)	—				
BDI	-.376* ($p = .022$)	.350* ($p = .034$)	.504** ($p = .001$)	—			
GSI	-.101 ($p = .552$)	.305 ($p = .066$)	.484** ($p = .002$)	.669** ($p < .001$)	—		
IIP	.068 ($p = .690$)	.437** ($p = .007$)	.207 ($p = .218$)	.426** ($p = .009$)	.532** ($p = .001$)	—	
RSE	.258 ($p = .123$)	-.508** ($p = .001$)	-.156 ($p = .357$)	.447** ($p = .006$)	-.472** ($p = .003$)	-.527** ($p = .001$)	—

Note. WAI = Working Alliance Inventory (12-item short form); EA4 = percentage frequency for ratings of 4 on the Expressed Emotional Arousal Scale; HiEmot = absolute deviation from a frequency of 25% for ratings of 5 or more on the Expressed Emotional Arousal Scale; BDI = Beck Depression Inventory; GSI = Global Severity Index; IIP = Inventory of Interpersonal Problems; RSE = Rosenberg Self Esteem Scale. All outcome variables represent standardized residual gain scores.

* $p < .05$. ** $p < .01$.

Inventory of Interpersonal Problems. Table 3 shows that WAI did not contribute significantly to prediction of IIP performance at Step 1 of the analysis ($p = .690$). However, EA4 was significant at the .01 level upon entry into the equation in Step 2 ($p = .006$), and WAI remained nonsignificant ($p = .427$).

Rosenberg Self-Esteem Scale. In Table 3, it can be seen that WAI did not contribute significantly to the prediction of RSE scores at Step 1 ($p = .123$). At Step 2, the EA4 variable was significant at the .01 level ($p = .010$), and WAI remained nonsignificant ($p = .345$).

Discussion

The relationships between the working alliance, frequency of emotional expression at particular levels, and outcome were examined in experiential therapy for the treatment of depression. The frequency of emotional expression data showed that expression of high emotional arousal added to the amount of outcome variance predicted by the alliance. For example, the working alliance was found to predict 14% of outcome variance on the Beck Depression Inventory, whereas moderate frequency (25%) of heightened emotional arousal was found to add significantly to the prediction of outcome variance (16%).

The working alliance, when entered into the hierarchical regression equation as the first predictor variable, was found to relate significantly only to the BDI. This finding is consistent with previous studies (e.g., D. N. Klein et al., 2003; Missirlan et al., 2005). In the current study, moderate frequency of heightened emotional arousal was found to account for the variance predicted by the WAI and to add significantly to it. This is consistent with Bordin's (1980) own assertion that the working alliance, as well as being a therapeutic change process itself, also provides the appropriate context for therapeutic tasks central to that therapy. In experiential therapy, the deepening of emotional experience is seen as an important therapeutic task, and this is measured in the current study by degree of expressed emotional arousal. It appears that in any study of the therapeutic process, it is important to add specific predictor variables relevant to the specific approach as well as the WAI in order to investigate whether the specific processes add to

the variance accounted for by the more general alliance formation process.

Frequency of Heightened Emotional Expression

Many previous psychotherapy process research studies have tended to focus primarily on a direct linear relationship between independent variables and dependent variables. From these studies, it has appeared that as expressed emotional arousal increases, therapeutic outcome in the treatment of depression will improve proportionally (e.g. Missirlan et al., 2005). In the present study, we hypothesized a nonlinear relationship between frequency of heightened arousal and outcome. We also used the 5-min segment as its unit, summarized from the 1-min time units that were used to rate the therapy videotapes. Using the highest level of each 5-min segment as a score allowed frequencies to be used as the variable to represent the processes in question. These frequency variables could be used to make higher resolution discriminations of arousal.

On the basis of the process data obtained, we proposed an optimal frequency of highly aroused emotional expression (25%). Deviation from this optimal frequency showed a strong linear relationship with the BDI and the GSI of the SCL-90-R. Deviation toward lower frequencies, indicating lack of emotional involvement, represented an extension of the generally accepted positive relationship between low levels of expressed emotional arousal and poor outcome (Missirlan et al., 2005; Warwar, 2003). Deviation toward higher frequencies was seen as support for the assertion that excessive amounts of highly aroused emotion over the length of a session in mid to late therapy, or over multiple sessions, may be negatively related to good therapeutic outcomes.

This finding suggests that perhaps the best way to assess the relationship of high emotional arousal to therapeutic outcome in the treatment of depression is not necessarily through a measure that only addresses the intensity of emotional expression at a particular point in time, but rather through a measure that also includes its frequency. From this perspective, having the client achieve an intense and full level of emotional expression is seen as being predictive of good outcome, as long as the client does not maintain this level of emotional expression for too long a time or too often. Too much underregulated emotion would be expected to have a negative correlation with good therapeutic outcome in the treatment of affective disorders. The results of this study suggest that in the most highly aroused sessions of mid to late therapy, anything more than approximately 25% of the time spent in expressing emotion might be too much.

Marginal Emotional Arousal

Although very few linear relationships were indicated by the initial data analysis, some did emerge. EA4 significantly predicted scores on the BDI, the IIP, and the RSE, but in a negative direction. That is, the higher the frequency of ratings of 4 on expressed emotional arousal, the poorer was the client's outcome on these dependent variables. In addition, we found a trend toward a significant correlation between EA4 and the GSI of the SCL-90-R ($r = .305$, $p = .066$).

Marginal arousal on the CEAS, represented by a rating of 4, is slightly more elevated than everyday baseline expression of emo-

Table 3
Beta Values and Incremental R² Values in a Hierarchical Regression of Two Predictor Variables on the Inventory of Interpersonal Problems (IIP) and the Rosenberg Self Esteem Scale (RSE)

Outcome variable/ predictor variable	Statistic		
	R ² total	R ² change	β
IIP			
WAI	.005	.005	.068 ($p = .69$)
EA4	.206	.201**	.452** ($p = .006$)
RSE			
WAI	.067	.067	.258 ($p = .123$)
EA4	.338	.187*	-.414* ($p = .01$)

Note. WAI = Working Alliance Inventory (12-item short form); EA4 = percentage frequency for ratings of 4 on the Expressed Emotional Arousal Scale. All outcome variables represent standardized residual gain scores.
* $p < .05$. ** $p < .01$.

tion, but not quite pronounced enough to be called heightened emotion. Such rating signifies that some emotion has been aroused but that it is not freely expressed. This arousal level may present as a slightly raised voice or evidence of agitation in the case of anger, deep sighs or a constricted quality to the voice in the case of sadness. It therefore represents being on the verge of, but not allowing, the full expression of emotion. The results with respect to EA4 only serve to emphasize that this kind of expression of emotion in the course of therapy should be thought of as marginal and as being either on the way to the goal of heightened expression of emotional arousal or as reflecting an inability to express full arousal, indicating obstruction of possible arousal. Thus, Level 4 expressed emotional arousal may be an undesirable, rather than a lesser but still desirable, goal. This suggests that in working with emotion, once it is marginally aroused, it may be helpful to have clients proceed into the emotional experience rather than avoid it.

Emotional Processing

The results of this study, while supporting observations that emotional arousal may be a good thing in therapeutic change, suggest that too much arousal can be too much of a good thing. In general, emotion that is so intense that it interferes with cognitive processing of the emotion leads to dysregulation (Greenberg, 2002; Linehan, 1993; Whelton, 2004). This study suggests that, in the treatment of depression, similarly detrimental effects might also be possible when high levels of expressed emotional arousal are maintained for excessive amounts of time.

The past decade has seen a virtual explosion of research and commentary on emotion-related issues (Rottenberg & Gross, 2007). A number of researchers (e.g., Halberstadt & Parker, 2007) have concluded that, with such an increase in volume of emotion-related research, the primary work that needs to be done for the immediate future is a process of categorization and specification: organizing current knowledge and integrating different aspects and perspectives on emotion-related variables. The present study fits well with this recommendation in the sense that we used a measure of expressed emotional arousal that describes this construct in terms of observable phenomena that help to identify at least one piece of the jigsaw puzzle of the role of emotional processing in therapeutic change, regardless of therapeutic approach. Increasingly, the consensus among researchers is that a solid understanding of the various aspects of emotion is vital to the goal of understanding and learning to reliably achieve psychological change (e.g., Burum & Goldfried, 2007; Ehrenreich, Fairholme, Buzzella, Ellard, & Barlow, 2007; Smith & Greenberg, 2007), even in modes of psychotherapy that have traditionally given emotional factors less emphasis (Leahy, 2007). Clearly, emotion is becoming recognized as important in change. Therapists of diverse orientations are increasingly agreeing on the centrality of emotions to psychological change and on the value of exploring and activating emotions in therapy in order to effect change (Burum & Goldfried, 2007; Coombs et al., 2002; Ehrenreich et al., 2007). In addition, treatments that promote different types of emotional processing are garnering increased empirical support (Greenberg & Watson, 2006; Jaycox, Foa, & Morral, 1998; Svartberg, Stiles, & Seltzer, 2004).

In a study of four good- and four poor-outcome cases in the treatment of depression, Greenberg et al. (2007) found no signif-

icant relationship between frequency of higher levels of expressed emotional arousal and outcome variables, measured across the whole course of therapy, and concluded that another variable, productivity of emotional expression, was more important to therapeutic outcome. The present findings do not so much contradict, as provide a differentiation of, this conclusion. Greenberg et al.'s study examined a smaller number of clients but did so more intensively, measuring two constructs—emotional expression and productivity of expressed emotion—over the entire course of therapy rather than only from selected sessions. With a smaller sample size, it is possible that any nonlinear relationship between frequency of highly aroused emotional expressional and outcome that might have been present was not recognized. Perhaps these two factors have a reciprocal relationship, in that whatever emotion is expressed should be expressed in a productive manner to be therapeutically valuable, but having a moderate amount of highly aroused emotional expression might be needed to allow it to be fully processed and for new meaning to be consolidated in a way that results in change. Further investigation of the emotional processing constructs of aroused expression and productivity of aroused expression that were examined in these studies appears to be warranted.

Limitations

It must be kept in mind that the present study dealt only with correlations, from which no inference of whether one variable caused another can be made. Also, data were taken from only the latter two thirds of therapy, opening the possibility that changes in the client early in therapy might have resulted in the levels of emotional arousal measured later in therapy. Previous studies by Warwar (2003) and Missirlian et al. (2005), however, have shown that increase in arousal from early to mid-treatment predicted outcome. It is hoped that the results obtained here will help provide the foundation on which future experimental studies can be built, better positioning such studies to examine any causal relationships between working alliance, frequency of emotional arousal, and subsequent outcome.

It should be noted that WAI did not predict change on outcome variables other than the BDI. A possible reason for the lack of significant correlations between scores on the WAI and scores on the GSI of the SCL-90-R the IIP, and the RSE was the restricted range in both the WAI scores, which were consistently high, and these dependent measures. Another possibility is that WAI predicts target symptom change but not change on broader variables.

As noted in the Results section, the process used to create the HiEmot variable was ultimately data driven, rather than theory driven. This increased the possibility that the results obtained are the consequence of a Type I error due to characteristics unique to this particular sample that will not generalize to the broader population. Thus, the results of this study should not be taken as definitive evidence of a particular relationship between emotional arousal and therapeutic outcome but rather as a preparatory exploration on which future, more specifically focused, studies can be built.

The degree to which these findings can be generalized beyond the specific sample and population used in this study is unclear and requires replication. Moreover, we note that the findings apply only to the three highest arousal sessions from the latter two thirds

of therapy, not to the entire length of therapy. They also apply only to clients suffering from depression who have been treated with emotion-focused therapy. However, these findings do provide us with a point from which to depart for further exploration. We hope that future studies will broaden the generalizability of these results to populations with other diagnoses and those treated with other forms of therapy.

Conclusions

These results suggest that exploration of process variables, such as expressed emotional arousal, should not be limited to investigation of linear relationships. This study allows us to move from broad statements such as “high emotional arousal is related to good outcome,” toward more focused and specific statements such as “a moderate amount of high emotional arousal is related to good outcome, whereas marginal, or overwhelming, emotional arousal may be related to poorer outcomes.” Specifically, this study suggests that, in the most emotionally aroused sessions of experiential therapy of depression, expression of intense emotional arousal is related to good therapeutic outcome provided that the time spent in this expression does not exceed 25% of the time in session. Low arousal suggestive of avoidance, lack of involvement, or intellectualization is also an indicator of potentially poorer outcomes. If therapists promote emotional arousal in their clients, therefore, they might want to ensure that either higher levels of arousal are achieved or that they help clients return from marginal levels of arousal to baseline levels of expression as rapidly as possible, given that levels of arousal may indicate a defensive manner of processing suggestive of poor outcome.

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