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EMPIRICAL PAPER

What is the effect of emotional processing on depression? A longitudinal study

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Abstract

Emotional processing is an empirically established predictor of pre–post therapy improvement in depression. However, its relationship to symptom alleviation over time requires clarification. To clarify the contribution of emotional processing to gradual symptom improvement, we explored both (1) the effect of emotional processing on pre–post therapy changes in depressive symptoms (final outcome) and (2) its association with the intensity of clinical symptoms across sessions (session-by-session outcome). These relationships were estimated in a sample of 50 depressed clients treated with cognitive–behavioral therapy (CBT) or emotion-focused therapy (EFT). Emotional processing was measured by the Experiencing Scale during Emotion Episodes in five sessions taken across therapy. As expected, we found that a greater increase in emotional processing during treatment predicted a greater pre–post therapy improvement in depressive symptoms. Higher levels of emotional processing predicted next-session lower intensity on clinical symptoms, but the intensity of symptoms contributed to explaining the subsequent level of emotional processing achieved. Our observations suggest that clients’ capabilities to process their emotions may both facilitate and be promoted by gradual improvement in symptoms. These results suggest the reciprocal predictive influence of emotional processing and symptoms on the therapeutic change in depression.

KEYWORDS: emotional processing; depression; experiential/existential/humanistic psychotherapy; cognitive behavior therapy; process-outcome study

Clinical or methodological significance of this article: The findings of the current study suggest a reciprocal predictive influence of emotional processing and symptoms on the therapeutic change in depression. Clients’ emotional processing capability is promoted during therapy along with symptom alleviation. For clinicians, the level of emotional processing achieved may be informative of clients’ gradual change. The therapeutic facilitation of emotional processing may be important for the alleviation of depressive and clinical symptoms. Additionally, intense symptoms may impair clients’ capability to engage in a deeper processing of their emotions.

Several studies have explored the contribution of emotional processing to treatment outcomes. In different therapeutic approaches, emotional processing has been associated with improvements in depressive symptoms (Auszra et al., 2013; Baker et al., 2012; Goldman et al., 2005; Missirlian et al., 2005; Pos et al., 2017; Watson et al., 2011; Whelton, 2004). Although the relationship between

emotional processing and treatment outcome (change in symptoms from pre- to posttherapy) has been widely studied, previous results may have been influenced by a methodological artifact, as the impact of change in symptoms on emotional processing was not accounted for in statistical analyses (cf., Crits-Christoph et al., 2013). The reduction in symptoms during therapy may have contributed to the

level of emotional processing achieved, which may have resulted in the misrepresentation or overestimation of the observed effect of emotional processing on the treatment outcome. The current study aims to clarify the longitudinal within-client contribution of emotional processing to the gradual improvement in symptoms, accounting for the abovementioned methodological artifact.

Emotional Processing in Humanistic Experiential Approaches

Different concepts of emotional processing were discussed in the literature. In the current paper, we assumed the humanistic experiential concept of emotional processing. In these approaches, difficulties in processing emotions are associated with psychopathological conditions, such as depression, and the facilitation of emotional processing is seen as critical for therapeutic change (Greenberg, 2010; Greenberg & Pascual-Leone, 2006; Greenberg & Watson, 2006; Pos et al., 2017). Awareness, arousal and live contact with aroused emotional experiences are taken as the initial, though not sufficient, steps to promote the change in emotions. Optimal emotional processing comprises the integration of affective and cognitive components (Greenberg, 2002, 2008, 2010; Greenberg & Pascual-Leone, 2006; Whelton, 2004). To understand and make sense of emotional experiences, clients need to be cognitively oriented towards the reflection and exploration of their inner information. This process is unique in emotional processing since it should result in the creation of new meanings and in the emergence of more adaptive emotional responses. These new emotions can be integrated into and transform the cognitive–affective meaning structures that underlie the depressive state (Elliott et al., 2013; Greenberg, 2010; Pos et al., 2003). Therefore, emotions comprise innate information that needs to be accessed and explored to take advantage of the health-promoting potential of emotions (Greenberg, 2010; Greenberg & Watson, 2006). In summary, the continuum of emotional processing broadly involves the following steps: (1) attending to and being aware of the emotional experience, (2) arousing and tolerating live contact with these emotions, (3) reflecting and exploring such inner experiences to make meaning out of them, and (4) transforming maladaptive emotions into more adaptive ones (Elliott et al., 2013; Greenberg, 2008, 2010; Greenberg & Watson, 2006).

In this paper, we will explore the humanist experiential approaches' concept of emotional processing as it is operationalized by the Experiencing Scale (EXP;

Klein et al., 1986). The EXP is an observational scale that assesses the level at which clients are able to attend, contact, and engage in affective and cognitive exploration of their inner experiences, make sense of them and use such information to transform maladaptive emotions and solve personal problems (Klein et al., 1986). Therefore, although it is focused on the emotional component, the EXP also considers the cognitive component involved in the exploration of emotions and in the coherent integration of the new inward experiences into the self (EXP higher levels).

Research on Emotional Processing Using the EXP

In different therapeutic approaches, therapy seems to promote clients' ability to process emotions, achieving higher levels of EXP in the working phase of treatment compared to earlier sessions (Pascual-Leone & Yeryomenko, 2017; Pos et al., 2009; Watson & Bedard, 2006). However, Watson and Bedard (2006) observed that clients receiving emotion-focused therapy (EFT) achieved higher EXP levels during therapy than those receiving cognitive–behavioral therapy (CBT). The authors claimed that EFT clients are more intensively encouraged to be inwardly focused, exploring and reflecting on their emotional experience, resulting in the achievement of higher EXP levels.

Despite such differences, emotional processing is a consistent predictor of outcome in depression, both in EFT (Goldman et al., 2005; Pos et al., 2003; Pos et al., 2009; Pos et al., 2017) and CBT (Castonguay et al., 1996; Watson et al., 2011; Watson & Bedard, 2006). Specifically, clients who achieve higher average EXP levels (Rudkin et al., 2007; Watson & Bedard, 2006) or a greater increase in the EXP levels throughout therapy (Pos et al., 2003, 2009) have a greater improvement in depressive symptoms. A meta-analysis of 10 studies and 406 clients resulted in an estimation that EXP has a small to medium effect size in predicting outcome ($r = -.19$; Pascual-Leone & Yeryomenko, 2017). In sum, (1) emotional processing may be promoted during different psychotherapies, even when it is not the core of the approach, suggesting that it is a common therapeutic task that may be achieved by different strategies (e.g., CBT cognitive restructuring, EFT chair work). More importantly, (2) it may work as a transtheoretical mechanism of change in depression.

Prior process-outcome studies usually assessed the level of emotional processing in a small number of sessions (commonly 2 or 3 sessions) and measured depressive symptoms pre- and posttherapy. They

often used the average level of emotional processing achieved as a predictor of the change in depressive symptoms from pre- to posttherapy (treatment outcome). This design may be associated with a potential problem. The observed relationship between emotional processing and treatment outcome could be influenced by previous changes in symptoms (cf., Crits-Christoph et al., 2013), hence misrepresenting or overestimating the relationship between the level of emotional processing and the change in symptoms from pre- to posttherapy. Therefore, an alternative interpretation of previous studies is that prior alleviation of symptoms might have promoted an increase in the level of emotional processing. As far as we know, the potential impact of symptoms on clients' capability to process their emotions has not yet been empirically studied. The longitudinal relationship between emotional processing and symptoms remains unclear.

To the best of our knowledge, no study has been conducted to systematically explore the longitudinal relationship between the level of emotional processing achieved and the intensity of symptoms in a sample of depressed individuals. The study that came closest to this sort of analysis was a recent one that found a reciprocal predictive effect between clients' level of emotional experiencing (i.e., emotional engagement) and the intensity of clinical symptoms in the following session (Fisher et al., 2016). Although emotional processing is a more comprehensive process than emotional experiencing (in addition to emotional engagement, it involves cognitive exploration of emotions), the aforementioned study suggested a bidirectional relation between emotional processing and symptoms. Pos et al. (2003) also hypothesized this kind of bidirectional influence, arguing that while emotional processing contributes to the reduction in symptoms, it may also be promoted by the reduction in symptoms. According to the research on emotional arousal, the experience of intense, overwhelming maladaptive emotions may impair the clients' capability to tolerate live contact with their emotions, hence jeopardizing the processing of emotions and the therapeutic outcome (Carryer & Greenberg, 2010; Coombs et al., 2002; Greenberg, 2002; Whelton, 2004). As a beneficial byproduct of symptom alleviation, clients may be more responsive to therapeutic interventions (Coombs et al., 2002) and engage in a deeper exploration and use of their inner information in a meaningful way, achieving higher levels of emotional processing (Pos et al., 2003).

Therefore, it is important to clarify the role of emotional processing in therapeutic change: do higher levels of emotional processing predict clinical symptom reduction, do lower intensity of symptoms

predict higher levels of emotional processing? Or both influences occur, supporting a bidirectional mutual influence? A better understanding of the processes that make therapy work may inform clinicians to promote change mechanisms associated with improvement in depression, increasing the efficacy of treatment.

Aims

The current study aimed to clarify the longitudinal within-client contribution of emotional processing to the gradual alleviation of symptoms in depression. First, we analyzed the effect of the growth of emotional processing level throughout therapy on the pre-post therapy change in depressive symptoms, replicating previous studies. Based on these studies (Castonguay et al., 1996; Goldman et al., 2005; Pascual-Leone & Yeryomenko, 2017; Pos et al., 2003, 2009, 2017; Watson et al., 2011; Watson & Bedard, 2006), we hypothesize that the achievement of higher levels of emotional processing during therapy will result in a greater reduction in depressive symptoms, measured as a difference between pre-post intensity of symptoms.

Second, we specifically explored the following hypothesis: (1) the level of emotional processing predicts the intensity of clinical symptoms in the following session, and (2) the intensity of clinical symptoms predicts the level of emotional processing in the same session. This design (next session and same session) has to do with the moments when variables were assessed (as we describe below); symptoms were assessed at the beginning of each session, and emotional processing during the session. We hypothesize a longitudinal bidirectional influence between the level of emotional processing and the intensity of clinical symptoms. Namely, higher levels of emotional processing may contribute to symptom improvement, while the alleviation of symptoms may also facilitate clients' higher capability to process their emotions.

Method

Participants

Clients. The sample in this study was comprised of all 50 treatment completers from the ISMAI Depression Study (Salgado, 2019), a clinical trial designed to analyze the comparative effectiveness of CBT and EFT in the treatment of mild to moderate depression. The initial assessment for selecting participants for this trial was conducted using the Structural Clinical Interview for the DSM-IV-TR (SCID;

First et al., 1997, 2002). During two assessment sessions, trained psychologists used the SCID to diagnose clients' difficulties and assess inclusion and exclusion criteria for their integration in the clinical trial. The inclusion criteria were as follows: (1) a diagnosis of major depression disorder and (2) a global assessment of functioning score above 50. The exclusion criteria were as follows: (1) currently using medication; (2) high risk of suicide; (3) currently or previously diagnosed with the following DSM-IV Axis I disorders: bipolar disorder, panic disorder, substance abuse, eating disorder, or psychosis; and (4) diagnosis of the following DSM-IV Axis II disorders: borderline, narcissistic, antisocial, or schizotypal disorders. The clients were informed about the aims, procedures, and further use of the collected data in the clinical trial before signing the informed consent form to have their sessions videotaped. They received weekly individual psychotherapeutic sessions in the research laboratory at ISMAI, Portugal.

Out of the 50 clients considered in the current study, 26 were treated with CBT and 24 with EFT. All clients were Portuguese, and forty-two were women (84%). Their ages ranged between 19 and 57 years old ($M = 36.18$, $SD = 9.7$). Twenty-one of the clients were single, 20 were in a common-law relationship or married, and 9 were divorced or separated. Concerning clients' education level, one had an elementary education, 17 had a secondary education, and 32 had a higher education level. Finally, 35 clients were professionally active, 12 were unemployed and 3 were students.

Therapists. The clinical trial had 11 therapists who randomly attended one to eight clients each ($M = 5$, $SD = 2.3$). Of the CBT therapists, all five were females aged between 28 and 37 years ($M = 32.4$, $SD = 3.6$ years) who had four to 14 years of experience in clinical practice ($M = 8$, $SD = 4.3$ years) and three to 14 years of experience in CBT ($M = 7.8$, $SD = 4.5$ years). Of the EFT therapists, four were females and two were males aged between 32 and 45 ($M = 35.8$, $SD = 4.7$ years). These therapists had three to 22 years of clinical experience ($M = 11$, $SD = 6.5$ years), and their experience in EFT ranged between one and six years ($M = 3.8$, $SD = 1.6$ years). All therapists were trained for six months in the specific therapeutic protocol and received weekly supervision of their clinical practice in group sessions (2 h per week).

Therapies

CBT. The CBT therapeutic protocol used in the present study was based on Beck and colleagues'

manual of cognitive therapy for depression (Beck et al., 1997). In CBT, cognitive errors in the interpretation of reality are considered to be the root of clinical problems. Through cognitive restructuring, CBT promotes changes in dysfunctional thoughts, beliefs and maladaptive depressive schema, facilitating the emergence of more adaptive behaviors and, as a consequence, more positive emotions (Beck et al., 1997).

EFT. The EFT therapeutic protocol used in the present study was based on Greenberg and Watson's (2006) and Elliott and colleagues' (Elliott et al., 2004) manuals of EFT for depression. EFT is a humanist experiential approach that conceptualizes clinical problems of depression as resulting from the client's difficulties in processing painful emotional experiences (Watson & Bedard, 2006). In this sense, through emotion-evoking therapeutic tasks, EFT facilitates the client's emotional processing, promoting the emergence of new and more adaptive emotional responses and the transformation of the underlying depressive emotional schemes (Greenberg & Pascual-Leone, 2006).

Measures

Process measure. Experiencing Scale (EXP; Klein et al., 1986). The EXP is a seven-point ordinal rating scale used to assess the level at which clients are cognitively and emotionally involved in the processing of their inner experiences. The EXP is a measure of access to implicit dynamic information. It is a scale that measures the degree to which clients orient to and use their implicit lived experience to solve their problems in a meaningful way. Specifically, the EXP assesses the extent to which clients experience, reflect on, explore and create new meaning from inner experiences and transform their emotions and self-experiences. Increases in EXP levels indicate a progressive improvement in the level of emotional processing. In EXP level 1, the client's speech is impersonal, abstract and general, being focused on external events. There is no personal involvement. In level 2, the client exhibits intellectual or behavioral involvement. However, the discourse has a journalistic style with no references to clients' inner experiences. In level 3, the focus is still on external events but with brief inner referents. Clients describe themselves in external or behavioral terms but add brief comments on their internal reactions or feelings to specific events. In level 4, the focus changes from external references to internal subjective feelings. Clients describe their personal experiences, feelings, assumptions and perceptions, making it clear what it is like to

be them. In level 5, beyond identifying, the client reflects and explores their feelings, inner experiences and personal problems. Level 5 requires the client to explore held or made assumptions relating to their experiences. As a result of the exploration of inward experiences, in level 6, the client presents a synthesis enriched with internal references of the transformation of personal experiences, meanings, emotions and problems. In level 7, those achievements are applied to a wider range of life contexts, promoting the client's self-understanding. Level 7 demands some fluidity or dynamic use of such inner information crossing multiple relevant contexts. In previous studies, the interrater agreement (*intraclass correlation coefficient—ICC*) of the EXP ranged from .76 to .91 (Klein et al., 1986).

Outcome Measures

Beck Depression Inventory (BDI-II). The BDI-II (Portuguese translation from Beck, Steer, & Brown, 1996; Coelho et al., 2002) is a 21-item self-report inventory that assesses cognitive, affective and somatic symptoms of depression. Each item is scored on a scale from 0 to 3, and the total score ranges between 0 and 63. For the Portuguese version (Coelho et al., 2002), the cutoff score for clinical depression (Coelho et al., 2002) is 13, and the reliable change index is 7.75 (RCI; Christensen & Mendoza, 1986; Jacobson & Truax, 1991). This version of the BDI-II had good internal consistency (*Cronbach's alpha* = .89).

Outcome Questionnaire 10.2 (OQ-10.2). The OQ-10.2 (Lambert et al., 2005) is a 10-item self-report inventory to assess the client's clinical symptoms over short time periods. Each item is scored on a scale that ranges from 0 to 4; therefore, the total score ranges from 0 to 40. Higher scores indicate more intense symptoms. The Portuguese version of the OQ-10.2 had adequate internal consistency (*Cronbach's alpha* = .77) and test-retest reliability over a 1-week interval in the ISMAI Depression Study ($N = 64$; Salgado, 2019).

Procedures

Treatment procedure. After each client was considered admissible for the clinical trial, they were randomly assigned to receive 16 individual sessions of CBT or EFT treatment. Due to clients' idiosyncrasies, two clients received a reduced number of sessions, finishing the treatment at ninth and twelfth sessions, while three received extra sessions, finishing at the seventeenth (two clients) and eighteenth sessions (one client). These changes in the protocol

were previously evaluated and discussed in the supervision group.

Assessment of outcome. The clients completed the BDI-II at the assessment session (pretherapy) and after the treatment (posttherapy). The difference between the posttherapy and pretherapy total scores on the BDI-II was used in the current paper as a measure of change in depressive symptoms ($BDI-II_{post} - BDI-II_{pre}$). Lower values indicated a higher reduction in depressive symptoms throughout therapy. OQ-10.2 was completed at the assessment session and at the beginning of all therapy sessions. OQ-10.2 was used in this study to assess the session-to-session intensity of clinical symptoms.

Process measurement. Session sampling. We sampled every fourth session of each client, namely, sessions one, four, eighth, 12, and 16. For clients with an irregular number of sessions, the last session was also selected.

Rating segments. As in prior research, emotion episodes (EEs) were the units of analysis from which the EXP was rated (e.g., Pos et al., 2003, 2009). An EE is a segment of the client's discourse in which they express an emotional response to a situation or context (Greenberg & Korman, 1993; Korman, 1991). The mandatory components of an EE are as follows: (1) an emotional response (e.g., sadness) and/or an action tendency associated with the experienced emotion (e.g., crying) and (2) a situation, context or event that causes such emotion (e.g., parental criticism). According to the EE manual, once (1) an emotional response to a situation has been identified, the rater must (2) reflect upon the therapeutic discourse to identify where the trigger of the emotional reaction emerged and when either the subject or the emotion changed or disappeared. **Judges and judges' training.** A clinical psychology PhD student provided weekly training based on the manual of EEs (Korman, 1991) to four master's degree students studying clinical psychology over a period of approximately 3 months (40 h). The training included the following components: (1) reading and discussion of the EEs coding manual; (2) codification of clinical excerpts from the manual; and (3) identification of EEs in videotaped sessions from ISMAI Depression Study (not the sessions used in this study) until the judges reached a good level of agreement with the main judge's coding (*Cohen's Kappa* $\geq .75$). **Reliability.** The PhD student was the main judge and teamed up with each of the four master's degree students. The sessions were randomly assigned to one of the

four coding pairs. The coders were unaware of the intensity of the depressive and clinical symptoms of the clients. Each judge performed an independent identification of EEs for each session. Judges' data were then compared to EE identification of their coding partner to establish reliability. Disagreements were discussed to reach consensus, and consensus decisions were used in the study analyses. The interrater agreement of the coding pairs, computed before consensus, ranged between .80 and .88 (*Cohen's Kappa*). After consensus was reached, in the 251 sessions of the 50 clients, a total of 1239 EEs were identified, 607 in the CBT cases ($n = 26$) and 632 in EFT cases ($n = 24$). On average, CBT clients had 23.35 EEs ($Min. = 14, Max. = 38, SD = 5.64$), while EFT cases had 26.33 EEs ($Min. = 13, Max. = 44, SD = 6.81$). The differences between CBT and EFT cases regarding EE frequency were nonsignificant, $t(48) = -1.696, p = .096$.

EXP rating. For each EE, the judges rated both the highest (the EXP peak level during the EEs) and the more frequent level of emotional processing achieved (EXP mode level during the EEs). We observed similar results when using the EXP peak and EXP mode level. To reduce the number of statistical analyses performed in this paper, we worked only with the EXP peak levels. The EXP peak level picks up clients' emotional processing higher achievement during the EEs. **Judges' training.** A clinical psychology PhD student provided weekly training based on the EXP manual (Klein et al., 1986) to five master's degree students studying clinical psychology over the course of approximately 3 months (40 h). The judges were trained by the following steps: (1) reading and discussing the EXP manual, (2) rating of excerpts from the manual, and finally (3) rating previously identified EEs in ISMAI Depression Study's videotaped sessions (not the sessions used in this study) until they achieved an acceptable reliable index with the expert judge's ratings ($ICC [2,1] \geq .75$). **Reliability.** Five coding pairs were formed, with the PhD student acting as the main judge who teamed up with each of the master's degree students. The sessions with the previously identified EEs were randomly assigned to one of the five coding pairs. The judges were unaware of the intensity of the depressive and clinical symptoms of the clients. Each judge performed an independent rating of the EEs. That judges' data was then compared to the EXP rating of their coding partner to compute reliability. Disagreements were discussed to reach a consensus, and consensus decisions were used in the study analyses. The interrater agreement for the judge pairs, computed before consensus, ranged from .78 ($ICC [2, 2] = .78$) to .91

($ICC [2, 2] = .91$). **Data analysis.** The final EXP peak rating was averaged for each of the 251 sessions of the 50 clients.

Results

Statistical Analysis

Our data had a hierarchical structure, as sessions ($n = 251$) were nested within clients ($n = 50$), and clients were nested within different types of treatments (CBT or EFT). Hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) analyses were fitted to our data to accommodate this nested structure. Through mixed regression models, HLM was used to estimate the within clients' effect (each client's sessions over time—level 1) and the between clients' effect (differences between clients—level 2). These models allow for the longitudinal nature of our data, where the session number (time) was considered as a level-1 independent variable in our models. Using session number as a within client level (level 1) independent variable allowed us to explore the impact of treatment length (time) on both client's intensity of symptoms and on client's level of emotional processing. The variability at the within-client level (level 1) was modeled as a time-invariant predictor at the between-client level (level 2). HLM analysis was computed with random subject-specific effects, that is, using specificities of clients. Each client-specific baseline value (intercept) and time growth (slope) in emotional processing and symptoms were considered in the analyses. Because there were only two treatment groups (CBT or EFT), the treatment type was not included as a different level of analysis but as a predictor (Diggle et al., 2002). A time-dependent correlation function to model the correlation within subjects (client sessions) was tested. However, this did not come significant when tested through comparison of empirical and theoretical variograms. Therefore, a single subject-specific random effect was used to decompose variability within and between subjects (see Gonçalves et al., 2019).

The HLM model adjusted was as follows:

$$Y_{ij} = \beta_0 + \beta_1 * t_{ij} + \beta_2 * predictors_{ij} + U_i + Z_{ij} \quad (1)$$

We model the dependent variable Y_{ij} measured for subject i at time t_{ij} as a function of time (t_{ij}) and as a function of other possible predictors ($predictors_{ij}$). In model (1), U_i represents the single subject-specific random effect, with a Normal distribution with variance ν^2 , when Z_{ij} represents the measurement

error with a Normal distribution and variance τ^2 . For different research questions, defined in the following sections, different HLM models were fitted, considering different dependent variables and predictors (independent variables).

In addition to longitudinal models (HLM), a simple regression analysis was also performed to explore the effect of emotional processing (predictor) on the change in depressive symptoms from pre- to posttherapy (dependent variable), as follows:

$$BDI - II(Post - Pre)_i = \alpha_0 + \alpha_1 * EXPslope_i + \epsilon_i \quad (2)$$

We model the effect of emotional processing ($EXPslope_i$) in client i on the change in depressive symptoms from pre- to posttherapy. In model (2), ϵ_i represents the measurement error with a Normal distribution and variance σ^2 . The client-specific values for $EXPslope_i$ were obtained from the individual estimates of U_i that resulted from the adjustment of model (1) to the dependent variable Y_{ij} as EXP.

Both HLM and simple regression analyses were performed using R version 3.2.1 (R Core Team, 2017). The R^2 was obtained using the “rsquared” function within the piecewiseSEM package. For the HLM, we used the nonlinear mixed-effects modeling (nlme) package.

Growth of Emotional Processing Throughout Therapy

To explore the growth of EXP throughout therapy, nonparametric smooth splines (smooth summaries of the variables over time, with no formal assumptions) were adjusted to empirical data (Figure 1). Nonparametric smooth splines suggest that EFT cases achieved slightly higher EXP average levels than CBT cases throughout sessions, and in both therapeutic conditions, there was a linear growth tendency.

We computed HLM models, taking the Y_{ij} from equation (1) the form of the EXP average level. When we compared EFT with CBT, nonsignificant differences were observed in the EXP levels achieved at the onset of therapy (session 1), $\beta = .209, p = .096$, and in the rate of growth of EXP levels throughout sessions (slope of the EXP), $\beta = .007, p = .280$. Considering these nonsignificant differences, we fitted an HLM model to our data using the session number (time) as the only predictor of the EXP slope (Table I). We observed that the EXP average level increased throughout therapeutic sessions (time), $R^2_{adj} = .777, \beta_1 = .056, p < .0001$.

Emotional Processing and Depressive Symptoms (pre-post Therapy)

EXP slopes (individual estimated growth in EXP; Table I) were used as a predictor of pre-post therapy changes in depressive symptoms (BDI-II;

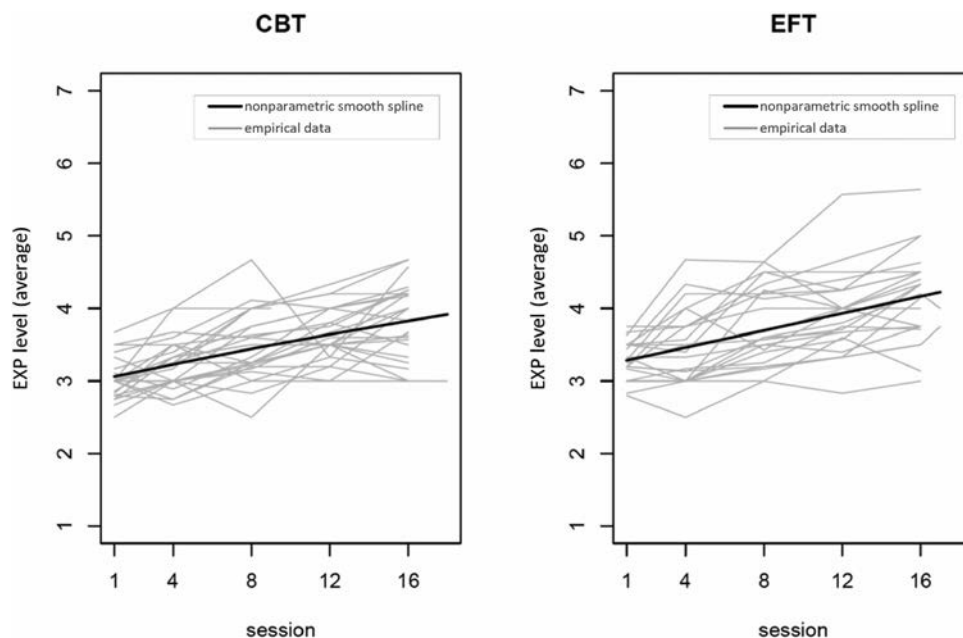


Figure 1. Empirical data and nonparametric smooth splines of the growth of the EXP level (average) throughout sessions of cognitive-behavioral therapy (CBT) and emotion-focused therapy (EFT) cases.

Table I. Results of HLM analyses using the number of sessions (time) to predict the growth of EXP levels (EXP slope).

Fixed effects	Coefficient	SE	t	p-value	R^2_{adj}
Intercept, β_0	3.113	.064	48.724	<.0001	.777
Session (time), β_1	.056	.003	17.900	<.0001	

Note. HLM = hierarchical linear modeling; EXP = Experiencing Scale; OQ-10.2 = Outcome Questionnaire 10.2.

Table II. Results of regression analysis using the EXP slope to predict the pre-post therapy change in depressive symptoms (BDI-II_{post} - BDI-II_{pre}).

Fixed effects	Coefficient	SE	t	p-value	R^2_{adj}
Intercept, α_0	-6.277	3.548	-1.769	.083	.215
EXP slope, α_1	-226.728	59.754	-3.794	.0001	

Note: HLM = hierarchical linear modeling; EXP = Experiencing Scale; BDI-II = Beck Depression Inventory - II.

Table II). The results from adjusting equation (2) suggested that the EXP slope predicted the change in BDI-II scores, $R^2_{adj} = .215$, $\alpha_1 = -226.728$, $p < .0001$. Specifically, a greater increase in the EXP levels throughout therapy (EXP slope) predicted a greater decrease in BDI-II scores from pre- to posttherapy.

Emotional Processing and Clinical Symptoms Across Sessions

We estimated two different sets of HLM models to analyze (a) the level of emotional processing (EXP average level) in a given session predicting the next-session intensity of clinical symptoms (OQ-10.2 scores) and (b) the intensity of clinical symptoms (OQ-10.2 scores) at the beginning of a given session predicting the same session level of emotional processing (average EXP level). In these sets of HLM models, we adjusted equation (1). The dependent variable Y_{ij} took the form of OQ-10.2 and EXP, respectively. Despite the absence of significant

Table III. Results of HLM analyses using the number of sessions (time) and EXP levels to predict next-session OQ-10.2 scores (lag +1).

Fixed effects	Coefficient	SE	t	p-value	R^2_{adj}
Intercept, β_0	42.240	2.623	16.105	<.0001	.776
Session (time), β_1	-.228	.052	-4.365	<.0001	
EXP, β_2	-5.946	.806	-7.376	<.0001	

Note. HLM = hierarchical linear modeling; EXP = Experiencing Scale; OQ-10.2 = Outcome Questionnaire 10.2.

differences between CBT and EFT in the first HLM model (predicting EXP growth), we tested in these HLM models whether the therapeutic approaches have a significant impact on dependent variables.

Emotional processing as a predictor of clinical symptoms. We fitted an HLM model to our data using the session number (time) and the average level of EXP as predictors of the next-session OQ-10.2 scores (Table III). Both the increase in the session number, $\beta_1 = -.228$, $p < .0001$, and the achievement of higher EXP level, $\beta_2 = -5.946$, $p < .0001$, predicted next-session lower OQ-10.2 scores, $R^2_{adj} = .776$. A nonsignificantly different effect of the EXP level predicting OQ-10.2 scores was found between CBT and EFT cases, $\beta = 2.156$, $p = .074$. As such, treatment condition was not included in the final model as a predictor.

Clinical symptoms as predictors of emotional processing. An HLM model was adjusted to our data using the session number (time) and the OQ-10.2 scores as predictors of the average EXP level achieved during the session (Table IV). Both the increase in the number of sessions, $\beta_1 = .039$, $p < .0001$, and the achievement of lower OQ-10.2 scores, $\beta_2 = -.023$, $p < .0001$, predicted higher EXP average levels, $R^2_{adj} = .804$. Treatment condition was not included in the final model as a predictor because there were nonsignificant differences between CBT and EFT regarding the effect of OQ-10.2 predicting EXP level, $\beta = -.009$, $p = .121$.

Discussion

The aim of the current study was to clarify the relationship between emotional processing and the improvement in symptoms during the treatment of depression. First, we discuss the overall growth of emotional processing throughout therapy and second the relationship between emotional processing and symptoms.

Table IV. Results of HLM analyses using the number of sessions (time) and OQ-10.2 scores to predict EXP levels (lag 0).

Fixed effects	Coefficient	SE	t	p-value	R^2_{adj}
Intercept, β_0	3.702	.118	31.218	<.0001	
Session (time), β_1	.039	.004	9.603	<.0001	.804
OQ-10.2, β_2	-.023	.004	-5.797	<.0001	

Note. HLM = hierarchical linear modeling; EXP = Experiencing Scale; OQ-10.2 = Outcome Questionnaire 10.2.

Growth of Emotional Processing Throughout Therapy

Consistent with the literature (Elliott et al., 2013; Goldman et al., 2005; Hendricks, 2009; Pascual-Leone & Yeryomenko, 2017; Pos et al., 2003, 2009, 2017; Watson & Bedard, 2006), our results indicated that, regardless of the therapeutic model (CBT or EFT), the average level of EXP increased during the treatment. In other words, clients improved their capability to be inwardly focused throughout therapy. Those who achieved higher EXP levels were able to increase their ability to explore and reflect on their experiences, to reach a new self-experience and to solve their personal problems in a meaningful way.

We found that the EXP average level presented a linear growth tendency from the initial to final sessions of therapy. Previous studies observed a different growth tendency, namely, that the EXP level increased from the initial to the middle phase of therapy and maintained a stable or decreasing trend until the end of therapy (Pascual-Leone & Yeryomenko, 2017; Pos et al., 2009; Watson & Bedard, 2006). We hypothesized that this inconsistency with previous results may be associated with the differences in the design of the studies and the type of statistical analysis computed. Specifically, (1) we assessed the EXP level throughout therapy at constant time intervals, while previous studies selected one session from the initial and one session from the final phase of therapy (e.g., second and second-to-last sessions, respectively) and the “best” session from the working phase (e.g., highest change session, highest emotional arousal session), (2) and we estimated longitudinal multilevel models to assess the individual growth (slope) of the EXP during therapy.

Although when compared with CBT, we observed that EFT clients achieved slightly higher EXP average levels throughout sessions, this difference was not significant. Controversially, Watson and Bedard (2006) found significant differences between treatments. Assuming EFT deliberately addresses the promotion of the clients’ capability to process emotions (Elliott et al., 2004; Greenberg & Watson, 2006; Watson & Bedard, 2006), it would be expected that EFT cases had a higher rate of growth of the EXP than CBT cases. The divergence between Watson and Bedard (2006) and our own study procedures on session sampling and statistical analysis may have contributed to this discrepancy. Our results suggest that clients’ emotional processing growth may be promoted by therapeutic work on depression, regardless of the specific strategies used. Future studies may address this issue in a more detailed way.

In sum, these results suggest that the EXP average level tended to increase from the initial to the final session of treatment, supporting the claim that emotional processing is not a client’s stable trait variable but a capability that can be facilitated by psychotherapy (Goldman et al., 2005; Pos et al., 2003, 2009; Pos & Choi, 2019). Clients’ emotional processing skills are potentiated in the work that they do with their therapists, not only in EFT but also in CBT, resulting in the cumulative improvement of such capability. Although with setbacks, clients may become more able to process their experiences as a result of therapeutic work to overcome depression.

Emotional Processing and Symptom Improvement

Our results suggest that a greater increase in emotional processing capability during treatment predicted a greater reduction in depressive symptoms from the pre- to posttherapy assessments both in CBT and EFT cases. This finding is consistent with the results of previous studies, suggesting that the achievement of greater levels of emotional processing throughout therapy is associated with better therapeutic outcomes in depression (Elliott et al., 2013; Goldman et al., 2005; Greenberg, 2008, 2010; Pascual-Leone & Yeryomenko, 2017; Pos et al., 2003, 2009, 2017; Rudkin et al., 2007; Watson et al., 2011; Watson & Bedard, 2006). However, we found a reciprocal predictive effect between emotional processing and clinical symptoms over therapeutic sessions. The achievement of higher EXP average levels in a given session was associated with next-session lower OQ-10.2 scores. Additionally, lower OQ-10.2 scores at the beginning of a given session predicted the achievement of higher EXP during the same session. These effects were not significantly different between CBT and EFT.

The observations from our study are not entirely consistent with the humanistic experiential theory and previous research that hypothesized that the improvement in emotional processing capability may contribute to reducing symptoms (Elliott et al., 2013; Goldman et al., 2005; Greenberg, 2008; Pascual-Leone & Yeryomenko, 2017; Pos et al., 2003, 2009, 2017; Rudkin et al., 2007; Watson et al., 2011; Watson & Bedard, 2006). Although previous process-outcome studies assumed such a unidirectional relationship between emotional processing and symptoms, they did not account for the possibility that symptoms may also influence the level of emotional processing achieved (cf., Crits-Christoph et al., 2013).

Our findings are more consistent with those observed in Fisher et al. (2016) longitudinal study on a concept associated with emotional processing—emotional experiencing. These authors observed a reciprocal predictive effect between emotional experiencing (i.e., emotional engagement) and clinical symptoms. To compare the Fisher et al. (2016) results and our own findings, we must take into consideration a couple of points. First, emotional processing is a more comprehensive process than emotional experiencing, involving meaning making of emotions, in addition to engagement with such experiences. Second, emotional experiencing was assessed through a self-report measure that was dependent on the client's awareness regarding their emotional engagement during the session. Therefore, both clients' self-awareness regarding their level of emotional engagement (Fisher et al., 2016) and their level of emotional processing (as assessed by EXP) seem to have a reciprocal relationship with clients' report of symptom intensity: (1) clients' higher level of emotional engagement and emotional processing during a given session predict a lower intensity of symptoms; and (2) clients' lower intensity of symptoms predicts both the achievement of a higher level of emotional engagement and emotional processing. This session-by-session relationship between variables may have contributed to the emotional processing predictive effect of pre-post therapy depressive symptom changes.

The reciprocal predictive effect of symptoms and EXP was not significantly different between CBT and EFT cases. The impact of clinical symptoms on emotional processing capability seems to be consistent with prior research on emotional arousal (Carrier & Greenberg, 2010; Coombs et al., 2002; Greenberg, 2002; Whelton, 2004). When clients report a high intensity of symptoms in the beginning of a session, they may be struggling with intense, overwhelming emotions that jeopardize their capability to be in live contact and explore their emotional experiences in a productive way. Additionally, in CBT, a high intensity of symptoms has been associated with clients' impoverished capability to be aware, experience and express emotions (Baker et al., 2012; Whelton, 2004). An impaired capability to fully engage with emotional experiences may result in the achievement of lower EXP levels. On the other hand, clients' responsiveness to therapeutic work, to tolerate being in live contact and to engage in a deeper exploration of their inner experiences may be facilitated by a lower intensity of symptoms (Coombs et al., 2002; Pos et al., 2003). Emotions need to be aroused at a moderate level; otherwise, clients will not tolerate live contact with them, a core step to achieve higher

EXP levels and improve depressive states (Carrier & Greenberg, 2010).

Both CBT and EFT clients' higher capability to process their emotions contributed to a lower intensity of depressive and clinical symptoms (Castonguay et al., 1996; Elliott et al., 2013; Goldman et al., 2005; Greenberg, 2010; Pascual-Leone, 2018; Pos et al., 2003, 2017; Rudkin et al., 2007; Watson et al., 2011; Watson & Bedard, 2006). Although emotional processing, as assessed by EXP, is not an "ingredient" that CBT therapists aim to promote, it may also contribute to symptom improvement in this approach.

To discuss this finding, it is important to recall that emotional processing involves both emotional and cognitive processes (Klein et al., 1986). Exploring and making sense of emotions, as well as using such information to solve personal problems in a meaningful way, requires clients' cognitive orientation towards their inner experiences. CBT favors a cognitive orientation to inner experiences to change the cognitive meaning structures (schema) underlying clients' depressive functioning (Beck et al., 1997). The works on dysfunctional cognitions and behaviors associated with clients' suffering may contribute to improving the client's impaired capability to be aware, experience and change their inner experiences, including emotional experiences (Baker et al., 2012; Whelton, 2004). Through reflexive, cognitive strategies, these changes are coherently and meaningfully integrated into the self. Such cognitive-affective changes seem to be depicted by EXP as the achievement of higher levels of emotional processing throughout treatment. The specific way emotional processing is promoted during CBT intervention is still speculative, requiring further investigation. Along with other mechanisms of change, emotional processing seems to be activated in the CBT treatment of depression, contributing to symptom improvement (Castonguay et al., 1996; Pascual-Leone & Yeryomenko, 2017; Rudkin et al., 2007; Watson & Bedard, 2006).

Conclusion, Limitations and Further Research

Taken together, our results suggest that although clients' emotional processing capability contributes to their symptoms' improvement, symptom intensity also has an impact on clients' capability to process their emotions. Clients' emotional processing capability, as assessed by EXP during EEs, may be impaired in depression. This may explain both why regardless of the therapeutic approach, (1) emotional processing is promoted during therapy along with

symptom alleviation and (2) why it works as a common therapeutic factor to overcome depressive states. Therefore, EXP during EEs seems to be a common factor of change to both EFT and CBT depression treatment.

The results from our study should be interpreted carefully. Although we (1) selected sessions throughout the therapeutic process at regular intervals and (2) accounted for such time gaps between sessions in the statistical analyses, our observations may not be representative of the entire therapeutic process (cf., Crits-Christoph et al., 2013), and the patterns of EXP change along therapy may be better clarified with studies in which all the sessions were rated (which unfortunately is almost impossible given the amount of work needed for this task). Furthermore, the rating of EXP during EEs as a measure of the humanist-experiential concept of emotional processing has some limitations. The EXP is an emotion state indifferent measure, i.e., did not account for the type of emotions aroused (secondary, primary adaptive or maladaptive emotions). Theoretically, EFT encourages access to adaptive emotions, while CBT uses awareness of cognitive distortions to work with emotion, usually maladaptive ones. Therefore, the identification of the type of emotions along the rating of EXP would highlight the way EFT and CBT work with emotions and their relationship with symptom improvement. Working with average values instead of actual EXP levels provides a general overview of clients' capability of emotional processing during therapy. Although suitable for pursuing our research aims, using the average EXP level prevents a deeper analysis of results based on the qualitative distinctive characteristics of EXP levels. Additionally, this would be especially informative to explore differences between CBT and EFT cases.

Although our findings may have been constrained by the design of the study or limited to the specific characteristics of the sample, they suggest that the level of emotional processing is associated with clients' gradual therapeutic change on depression. The facilitation of emotional processing throughout therapy may be important for the alleviation of depressive and clinical symptoms. Additionally, intense symptoms may impair clients' capability to engage in a deeper processing of their emotions. This does not necessarily mean that when a client starts sessions reporting intense symptoms, they only reach low EXP levels. EXP levels may progressively increase due to therapeutic interventions to regulate such overwhelming emotions. Further research is needed to test this hypothesis and clarify the specific therapeutic strategies that may facilitate clients' achievement of higher levels of emotional processing both in EFT and CBT.

It would also be interesting to explore whether therapist training in the EXP rating scale may facilitate a systematic promotion of higher EXP levels since clinicians become aware of their client's moment-by-moment level of emotional processing (cf., Pascual-Leone et al., 2016). The exploration of individual patterns of growth in clients' capability to emotionally process their experiences with the identification of the therapeutic strategies that better fit different profiles could have a relevant contribution to clinical practice.

Last, according to our observations, emotional processing and symptoms may be articulated across sessions in (a) vicious cycles (lower EXP levels—higher OQ-10.2 scores—lower EXP levels) or virtuous cycles (higher EXP levels—lower OQ-10.2 scores—higher EXP levels). Our results did not allow us to conclude whether any of these effects is stronger than the other—emotional processing predicting symptoms or symptoms predicting emotional processing. Although it should be noted that emotional processing predicts the next-session intensity of symptoms, suggesting that it had a lasting one-week effect, further research is needed to better understand whether emotional processing has a role in vicious cycle breaking. In the same vein, it would be useful to explore whether the enhancement of clients' emotional processing capability during therapy is maintained after treatment (as an improved trait) and whether it is a predictor of depressive symptom severity at follow-up. This study may contribute both to support the hypothesis that emotional processing is a “mutable” trait and to explore mechanisms of change that may prevent the high rates of relapse in depression.

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