

Emotional Congruence Between Clients and Therapists and Its Effect on Treatment Outcome

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The present study aimed to (a) explore 2 indices of emotional congruence—temporal similarity and directional discrepancy—between clients' and therapists' ratings of their emotions as they co-fluctuate session-by-session; and (b) examine whether client/therapist emotional congruence predicts clients' symptom relief and improved functioning. The sample comprised 109 clients treated by 62 therapists in a university setting. Clients and therapists self-reported their negative (NE) and positive emotions (PE) after each session. Symptom severity and functioning level were assessed at the beginning of each session using the clients' self-reports. To assess emotional congruence, an adaptation of West and Kenny's (2011) Truth and Bias model was applied. To examine the consequences of emotional congruence, polynomial regression, and response surface analyses were conducted (Edwards & Parry, 1993). Clients and therapists were temporally similar in both PE and NE. Therapists experienced less intense PE on average, but did not experience more or less intense NE than their clients. Those therapists who experienced more intense NE than their clients were more temporally similar in their emotions to their clients. Therapist/client incongruence in both PE and NE predicted poorer next-session symptomatology; incongruence in PE was also associated with lower client next-session functioning. Session-level symptoms were better when therapists experienced more intense emotions (both PE and NE) than their clients. The findings highlight the importance of recognizing the dynamic nature of emotions in client-therapist interactions and the contribution of session-by-session emotional dynamics to outcomes.

Public Significance Statement

Therapists who share their clients' experiences and let themselves be touched by deep emotions, whether positive or negative, may better help their clients tolerate their own emotions and eventually attain better therapeutic outcomes.

Keywords: congruence, emotions, truth and bias model, response surface analysis

Numerous studies have emphasized the centrality of emotional dynamics to psychotherapeutic outcomes (for a review, see Greenberg, 2012). The depth of clients' emotional experiences, their ability to draw meaning from emotions, and the

extent to which therapists use interventions that focus on clients' emotions have all been found to be strong predictors of positive treatment outcomes (e.g., Auszra, Greenberg, & Herrmann, 2013; Goldman, Greenberg, & Pos, 2005; Pos, Greenberg, & Warwar, 2009). Several studies have suggested that therapists' emotions are also an important factor in treatment outcomes (e.g., Hayes, Gelso, & Hummel, 2011; Holmqvist, Hansjons-Gustafsson, & Gustafsson, 2002; Westra, Aviram, Connors, Kertes, & Ahmed, 2012). However, despite the growing consensus among psychotherapy theorists and researchers that emotions should be studied as dynamic systems that interact over time not only within the client or the therapist (i.e., intrapersonally), but also between the client and the therapist (i.e., interpersonally; cf., Aron & Harris, 2014; Fosha, 2001; McCullough et al., 2003), surprisingly little research has addressed how therapists' own emotions interact with those of

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their clients' during psychotherapy (for exceptions, see Chui, Hill, Kline, Kuo, & Mohr, 2016; Duan & Kivlighan, 2002).

The current study draws on the notion of "the relational turn" in psychotherapy (cf., Aron & Harris, 2014; Mitchell, 1993), a theoretical shift from a one-person psychology that focuses exclusively on clients' experiences (e.g., their emotions) to a two-person psychology that recognizes the fact that the therapist is also significantly involved, emotionally and otherwise, in the process of change. This relational turn—that is, the increased focus on interdependent processes—is beginning to emerge within psychotherapy research as well (e.g., Chui et al., 2016; Safran & Muran, 2000; Wiseman & Tishby, 2014; Zilcha-Mano et al., 2016). The current study joins this effort, aiming to shed light on the ways in which clients' emotions interact with their therapists' emotions in the process of change.

From the "one-person" perspective, therapists' emotions can be construed as an impediment to treatment progress since the therapist's role is to focus on the client's emotions, which often means helping the client regulate and de-escalate strong feelings. These tasks are typically thought to be best carried out from a reflective and de-centered standpoint (e.g., Hayes, Ready, & Yasinski, 2014) and no special benefit is expected from the therapist's emotional involvement. From the relational, "two-person" perspective, however, such involvement may actually be quite meaningful. Many contemporary relational psychotherapy theories consider coordinated client-therapist emotional processes as prime indicators of better treatment outcomes (e.g., Aron & Harris, 2014; Fosha, 2001; McCullough et al., 2003; see also Greenberg, 2012). According to these models, when a client experiences an emotion or shares it with the therapist, the therapist may react emotionally, setting up linked emotional responses from both partners. This emotional "dance" during the client-therapist interaction may play a part in helping clients tolerate emotions that are too intense or painful to manage alone (Aron & Harris, 2014). According to these theories, "getting into sync" in therapy permits emotional communication through which clients feel recognized and gain access to their own emotions (Fosha, 2001; Winnicott, 1971). When there is emotional congruence, the client-therapist bond deepens, and clients' ability to further explore and process their emotions is enhanced (Koole & Tschacher, 2016). The opportunity to experience one's feelings together with an emotionally present other who is more experienced in managing intense emotions may help the client develop more productive emotional regulation capabilities that can lead to better treatment outcomes (Fosha, 2001).

In our work, we use the term "congruence" in referring to the correspondence between two dyad members on a similar construct. When that construct is the respective emotions of two dyad members, congruence becomes synonymous with the concept of "emotional empathy" (e.g., Duan & Kivlighan, 2002), but is different from "cognitive empathy," which involves one person taking on the perspective of the other without necessarily experiencing it themselves (Shamay-Tsoory, 2011).

Client-therapist congruence in various process variables has been associated with better outcomes. Congruent expectations regarding the therapeutic process have been linked to mutually agreed-upon termination of treatment (Reis & Brown, 1999), congruence in client and therapist recall of important session events has been linked to improved client outcomes (Kivlighan & Arthur, 2000), and greater congruence in alliance was found to predict

better outcomes (e.g., Bachelor, 2013; Kivlighan, 2007; Laws et al., 2016; Zilcha-Mano, Snyder, & Silberschatz, 2016). A beneficial effect was also found for congruence in more objective (i.e., nonself-reported) measures, such as body movement (Ramseyer & Tschacher, 2011), vocally encoded arousal (Imel et al., 2014), and physiological arousal (Marci, Ham, Moran, & Orr, 2007).

To the best of our knowledge, only three psychotherapy studies have assessed client-therapist congruence in subjective emotional experiences. Hill, Siegelman, Gronsky, Stumolo, and Fretz (1981) assessed the similarity between clients' and therapists' emotions at two time points in therapy and found similarity to be positively related to therapist facilitativeness. Duan and Kivlighan (2002), who assessed congruence based on the similarity or distance in the emotions experienced at one time point in the middle of therapy, found it to be associated with client-rated session depth. Håvås, Svartberg, and Ulvenes (2015) examined client-therapist emotional congruence (termed "matching of affect"), as rated by clinical judges on one session early in treatment, and found that higher levels of emotional congruence predicted improvement in non-adaptive attachment style. Nevertheless, these studies examined congruence at one or two specific time points rather than across sessions. They relied on similarity/distance indices or a matching score as rated by clinical judges. They did not utilize information that comes from tracking session-by-session fluctuations in client and therapist emotions, though it may be highly relevant to treatment outcomes.

Emotional congruence has received much attention in other fields of psychology, especially from developmental and intimate relationship researchers. In such work, emotional congruence has been associated with a wide range of social outcomes including healthy development (cf., Feldman, 2012) and overall relationship quality (e.g., Saxbe & Repetti, 2010; Schoebi & Randall, 2015). Nevertheless, emotional congruence by itself is not always beneficial, particularly when partners amplify or escalate ineffective regulatory processes in each other (Butler, 2015; Feldman, 2012). The literature on emotional dynamics in interpersonal relationships suggests two key factors which may determine whether emotional congruence is beneficial or not: the nature of the congruence and the valence of the emotions involved (Butler, 2015; Schoebi & Randall, 2015).

The Nature of Congruence

Authors interested in congruence have highlighted the importance of examining temporal similarity, directional discrepancy, or both (e.g., Fletcher & Kerr, 2010). Temporal similarity refers to the correlation between two persons' ratings as they fluctuate over time (e.g., the correlation between the clients' and the therapists' ratings of their emotions as they co-fluctuate from session to session); directional discrepancy involves the difference in the mean level of two persons' ratings across time (e.g., the degree to which the therapist's level of emotions is higher, lower, or comparable with the client's level of emotions across all therapy sessions).

Temporal similarity between the fluctuating emotions of therapists and clients may be of great importance as an index of emotional sharing. When high, similarity may help the therapist better understand the clients' state of mind. If the similarity is evident to clients, it may also validate their emotions and signal to

them that these are bearable. This, in turn, may help clients themselves tolerate even painful emotions and lead to better therapeutic outcome (Fosha, 2001; Koole & Tschacher, 2016).

Directional discrepancy between therapists' and clients' emotions may also prove clinically important. After all, therapists' ability to down-regulate their own negative feelings may be useful in regulating the clients' feelings as well (Benjamin & Atlas, 2015; Fosha, 2001). Research outside the clinical domain has shown that good relationships were characterized by temporally similar yet directionally discrepant emotions, such that partners provided emotional attunement and soothing to each other in a way that allowed both to maintain optimal emotional levels (Butler & Randall, 2013; Sbarra & Hazan, 2008; Schoebi & Randall, 2015).

Though these two components of congruence may be related to each other in interesting ways, they merit separate examination (Fletcher & Kerr, 2010). In their recent study, Atzil-Slonim et al. (2015) examined temporal similarity and directional discrepancy between clients' and therapists' session-by-session ratings of the alliance—as well as the association between these two indices. Their results indicated that therapists' alliance ratings tended to be temporally similar to their clients', but to underestimate the alliance compared with their clients' reports. Therapists who tended to have larger negative directional discrepancies (i.e., ratings of alliance which were lower than their clients) also tended to be more temporally similar to their clients. Based on similar patterns found in close relationship research (e.g., Overall, Fletcher, & Kenny, 2012), Atzil-Slonim and her colleagues argued that this pessimistic approach is adaptive because it helps therapists simultaneously avoid the risk of missing potential ruptures because of an overestimation of the alliance, and remain attuned to their clients' changing experiences. More important, these components of congruence have yet to be studied with regard to client and therapist emotions during psychotherapy.

Valence

Though many studies of interpersonal congruence have not distinguished between positive emotions (PE) and negative emotions (NE; e.g., Keown & Woodward, 2002; Mize & Pettit, 1997), recent work has emphasized the importance of differentiating between the two (Schoebi & Randall, 2015). The adaptive value of congruence in PE has been reported in several studies (Harrist & Waugh, 2002; Levenson & Gottman, 1985), but the picture is more complicated with regards to the value (or lack of value) of congruence in NE. Some studies have found negative emotional congruence to amplify or escalate ineffective regulatory processes between partners, especially in situations of conflict (e.g., Levenson & Gottman, 1985; Pasiak & Menna, 2015). Other studies (Schoebi & Randall, 2015) have argued that negative emotional congruence may signal that the partners are able to share the painful emotions and be sensitive to fluctuations in each other's changing emotions.

A recent study by Chui and colleagues (2016) examined associations between clients and therapists' emotions on a session-by-session basis, in terms of positively and negatively valenced emotions. These authors found both therapist and client PE levels to be tied to better outcomes, and both therapist and client NE levels to be tied with poorer outcomes. They found evidence for emotional contagion from clients to therapists and vice versa: when one

member of the therapeutic dyad had high positive or negative emotions early in the session, the other experienced increases in similarly valenced emotions by the end of the session. Chui et al. (2016) demonstrated the importance of assessing both client and therapist emotions, and of attending to the valence of these emotions. However, the two parties' emotions were seen as additive factors in their analyses, and were not considered in interaction with each other; in other words, their congruence was not assessed, though they did point to such analyses as a fruitful future direction.

The present study builds on this literature and is guided by two aims. First, we examined whether the emotions experienced by clients and therapists over the course of therapy are congruent in terms of both temporal similarity and directional discrepancy, and with both positively and negatively valenced emotions. Second, we examined whether such emotional congruence predicts clients' symptoms and functioning from session to session.

Aim 1: Emotional Congruence in Psychotherapy

To examine the first aim, we utilized an adaptation of the Truth and Bias Model developed by West and Kenny (2011), a recent statistical innovation in congruence research. The Truth and Bias model has been used in research on close relationships (e.g., Overall, Fletcher, & Kenny, 2012). Prototypical Truth and Bias studies use the ratings of one partner in the dyad as the truth criterion and examine the extent to which the other partner is accurate in assessing the first partner's ratings. This model was recently utilized in psychotherapy research to examine client-therapist congruence in alliance (Atzil-Slonim et al., 2015) and in assessments of clients' functioning (Bar-Kalifa et al., 2016). In the current study we depart from the terminology of "truth" and "bias" but use the framework to simultaneously examine two indices of congruence: (a) *temporal similarity* (the covariation between clients' and therapists' ratings as they fluctuate over time), and (b) *directional discrepancy* (the average amount of difference between clients' and their therapists' emotional intensity experiences across treatment). This model also tests (c) the association between the two indices of congruence; that is, temporal similarity and directional discrepancy.

In exploring the first broad aim of this study, we formulated three hypotheses:

Hypothesis 1.1: Based on theory about the importance of emotional congruence in psychotherapy (e.g., Fosha, 2001), as well as findings regarding emotional congruence in other types of close relationships (Butler, 2015; Feldman, 2012) and in other process variables within psychotherapy (Atzil-Slonim et al., 2015) we predicted that clients and their therapists would present temporal similarity in both PE and NE.

Hypothesis 1.2: Although there is no empirical basis for predicting directional discrepancy, given that high levels of distress are expected for clients more than for therapists, and the asymmetry of the therapeutic situation (e.g., Yalom, 1989), we expected clients to have more intense emotions than therapists, especially with regard to NE.

Hypothesis 1.3: Based on findings regarding other process variables within psychotherapy (Atzil-Slonim et al., 2015) as well as studies of other types of close relationships (e.g.,

Overall et al., 2012), and assuming that both previous hypotheses would be supported, we expected therapists who tend to experience less intense emotions than their clients (i.e., those who show a more negative directional discrepancy, especially with regards to NE) to also show a greater temporal similarity.

Aim 2: Consequences of Emotional Congruence

The Truth and Bias framework is perfectly suited for examining the *existence* of congruence. However, as Edwards and Parry (1993) noted, indices of covariation or directional discrepancy are imperfect for the purpose of predicting outcomes because these indices are conceptually ambiguous (e.g., they combine data from two parties into a single score), discard important fit information (e.g., the direction of the differences), and have reliabilities that tend to be compromised. As an alternative, a different type of analysis, Response Surface Analysis (Edwards & Parry, 1993), was implemented here to test whether congruence *predicts* change in outcome. Edwards and Parry's (1993) method has only recently been utilized in psychotherapy research (e.g., Marmarosh & Kivlighan, 2012; Zilcha-Mano et al., 2016). In this method, ratings from both parties (i.e., clients and therapists) serve as separate predictors, thus eliminating the ambiguity in interpreting the associations between predictors and criteria variables (i.e., outcomes). This method also allows modeling of both the absolute levels of the variables (as rated by both clients and therapists) and the direction of the differences between the two ratings.

In exploring the second broad aim of this study, we formulated three hypotheses:

Hypothesis 2.1: Based on recent findings that show that clients' and therapists' higher PE (and lower NE) were associated with better session-level outcomes (Chui et al., 2016), we predicted that congruence between clients' and therapists' emotions which results from high levels of PE (in comparison with congruence resulting from low levels of PE) would be associated with a better next-session outcome. An inverse pattern was expected with NE.

Hypothesis 2.2: Based on theoretical claims as to the importance of client-therapist emotional congruence as a key transformational agent that promotes better treatment outcomes (e.g., Fosha, 2001), findings regarding the benefits of emotional congruence in other types of close relationships (e.g., Feldman, 2012) as well as congruence in other process variables within psychotherapy (e.g., Zilcha-Mano et al., 2016), we expected that incongruence between clients' and therapists' ratings of PE and NE would be related to higher symptom levels and lower functioning levels in the following session.

Exploratory Hypothesis 2.3: In the absence of literature on this issue, we examined whether when congruence was low, sessions in which the therapists experience weaker emotions than their clients (i.e., Therapist < Client incongruence) would be tied to better outcomes in the following session compared with sessions in which the therapists experienced stronger emotions (i.e., Therapist > Client incongruence) and vice versa.

Method

Participants and Treatment

Clients. The sample was made up of 109 clients who were in individual psychotherapy at a large university outpatient clinic between August, 2014 and August, 2015. The clients were all over the age of 18 ($M_{\text{age}} = 41$ years, $SD = 13.7$, age range 18–79 years), and the majority was female (59%). In the sample, 53.6% of the clients were single, divorced, or widowed, and 46.4% were married or in a permanent relationship. In addition, 43.6% had at least a bachelor's degree, and 80% were fully or partially employed. The Mini-International Neuropsychiatric Interview version 5.0 (M.I.N.I.; Sheehan et al., 1998) was used to establish an Axis I diagnosis. The interview was conducted before the actual therapy by intensively trained independent clinicians. All interview sessions were audiotaped, and 25% of the interviews were randomly sampled and rated again by an independent clinician, yielding a mean κ value of 0.95 for the Axis I diagnoses.

Forty-two percent of the clients reported experiencing relationship problems, academic/occupational stress, or other problems, but they did not meet the criteria for an Axis I diagnosis. Of the total sample, 23.6% had a single diagnosis, 23.6% had two diagnoses, and 10.9% had three or more diagnoses. The distribution of client diagnoses was affective disorders¹ (10.9%), anxiety disorders² (10.0%), obsessive–compulsive (1.8%), other disorders (0.9%), anxiety and affective disorders (28.2%), or other comorbid disorders (6.4%).

According to the clients' pretreatment assessments, the mean scores for the Outcome Questionnaire (OQ-45; Lambert et al., 2004) and the Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996) were 70.85 ($SD = 23.86$) and 17.21 ($SD = 10.88$), respectively. These mean scores indicate mild to moderate symptoms.

Therapists. The participating clients were treated by 62 therapists (48 women and 14 men) to whom they were assigned in an ecologically valid manner based on real-world issues, such as therapist availability and caseload. Twenty-nine therapists treated one client each, 25 treated two clients each, 5 treated three clients each, and 3 treated between 4 and 7 clients each. Of the 62 therapists, 87% were MA or doctoral student trainees in the university's psychology department training program, and 13% were advanced clinical psychology interns with 3 or 4 years of experience. Each therapist received 1 hr of individual supervision and 4 hr of group supervision on a weekly basis. All therapy sessions were audiotaped for use in supervision. Supervisors were senior clinicians. Individual and group supervision focused heavily on the review of audiotaped case material and technical interventions designed to facilitate the appropriate use of therapists' interventions. Examination of treatment vignettes was structured to provide specific and direct feedback to supervisees.

Individual psychotherapy consisted of once or twice weekly sessions. The dominant approach in the clinic is a short-term psychodynamic psychotherapy treatment model (e.g., Blagys &

¹ The following *DSM-IV* diagnoses were included in the affective disorders cluster: 296.31, 296.32, 296.63, 300.4, 296.05.

² The following *DSM-IV* diagnoses were included in the anxiety disorders cluster: 300.01, 300.02, 300.21, 300.22, 300.23.

Hilsenroth, 2000; Shedler, 2010; Summers & Barber, 2010). The key features of the model include: (a) a focus on affect and the experience and expression of emotions; (b) exploration of attempts to avoid distressing thoughts and feelings; (c) identification of recurring themes and patterns; (d) emphasis on past experiences; (e) focus on interpersonal experiences; (f) emphasis on the therapeutic relationship; and (g) exploration of wishes, dreams, or fantasies (Shedler, 2010). Treatment was open-ended in length; however, given that psychotherapy was provided by clinical trainees at a university-based outpatient community clinic, treatment duration was often restricted to 9 months to 1 year. The mean treatment length was 22.27 sessions ($SD = 8.3$, range = 7–49). Of these sessions, 83% ($N = 2,097$) were available for analyses.

Instruments and Data Collection

Outcome Questionnaire-45 (OQ-45; Lambert et al., 2004). The OQ-45 is a self-report measure designed to assess patient outcomes during the course of therapy. The 45 items assess three primary dimensions: (a) subjective discomfort, (b) interpersonal relationships, and (c) social role performance. All 45 items can be aggregated to create a total score. The total score can range from 0 to 180, with higher scores reflecting poorer psychological functioning. The OQ-45 has been shown to have good internal consistency ($\alpha = .93$), 3-week test-retest reliability ($r = .84$), and concurrent validity (Lambert et al., 2004). This high internal consistency was replicated in our sample with $\alpha = .930$.

Beck Depression Inventory (BDI-II; Beck et al., 1996). The BDI-II is a 21-item self-report measure of depression that asks respondents to rate the severity of their depressive symptoms during the previous 2 weeks using a variable Likert scale (i.e., 19 items use a 4-point scale, 2 items use a 7-point scale). Individual item scores are summed to create a total severity score with a range of 0 to 63. The BDI-II has been shown to have high internal consistency ($\alpha = .93$) and concurrent validity (Subica et al., 2014). The BDI-II showed good internal consistency in our sample ($\alpha = .896$).

Hopkins Symptom Checklist—Short Form (HSCL-11; Lutz, Tholen, Schürch, & Berking, 2006). The HSCL-11 is an 11-item inventory that is a brief version of the SCL-90-R (Derogatis, 1975). The items are rated on a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*extremely*) and refer to the previous week. Thus, the mean score of the 11 items represents the symptomatic state of the client during the previous week. It has high internal consistency ($\alpha = .92$) and concurrent validity (Lutz et al., 2006). The between- and within-person reliabilities for the scale were computed using procedures outlined by Cranford et al. (2006) for estimating reliabilities for repeated within-person measures, and the reliability levels were considered high in the current study (within = 0.82, between = 0.92).

Outcome Rating Scale (ORS; Miller, Duncan, Brown, Sparks, & Claud, 2003). The ORS is a 4-item visual analog scale developed as a brief alternative to the OQ-45. The scale is designed to assess change in three areas of client functioning that are widely considered valid indicators of progress in treatment: functioning, interpersonal relationships, and social role performance. Respondents complete the ORS by rating four statements on a visual analog scale anchored at one end by the word *Low* and at the other end by the word *High*. This scale yields four separate

scores between 0 and 10 that sum to one score ranging from 0 to 40, with higher scores indicating better functioning. The ORS demonstrates strong reliability estimates ($\alpha = .87$ – $.96$) and moderate correlations between the ORS items and the OQ-45 subscale and total scores (ORS total—OQ-45 total: $r = .59$). The reliability levels in the current study were considered excellent (within = 0.95, between = 0.98).

Profile of Mood States (POMS; McNair, Lorr, & Droppelman, 1992). The POMS is a widely used instrument that assesses mood variables. For the purpose of this study, we used an abbreviated version of the measure, which was adapted for intensive repeated measurements (Cranford et al., 2006) and consists of 18 words that describe current emotional states. The negative affect scale includes depressed mood (3 items), anxious mood (3 items), and anger (3 items). The positive affect scale includes contentment (3 items), vigor (3 items), and calmness (3 items). Examples of feelings on the POMS are “anxious,” “sad,” “angry,” “happy,” “lively,” and “calm.” Both clients and therapists were asked to evaluate how they felt during the session on a 5-point Likert scale ranging from *not at all* to *extremely*. The POMS has been tested on college students and was found to be both valid and reliable (Guadagnoli & Mor, 1989). In line with previous studies that have implemented this measure, (e.g., Sened, Yovel, Barkalifa, Gadassi & Rafaelli, 2017) an aggregated total score of positive and negative affect was used in this study.³ The internal consistency of these subscales for the present sample ranged from acceptable to excellent (for clients: within = 0.83–0.86, between = 0.89–0.94; for therapists: within = 0.77–0.85, between = 0.83–0.87).

Procedure

The study procedures were part of the routine battery in the clinic. Clients were asked to sign consent forms, and were told that they could choose to terminate their participation in the study at any time without jeopardizing treatment. Clients were also told that their data would not be shown to their therapist and that their anonymity would be preserved.

The OQ-45 and BDI were administered to clients as part of the intake procedure (i.e., at pretreatment). The session questionnaires were completed by the clients electronically using computers located in the clinic rooms and software that time-stamped their responses. Clients completed the HSCL and the ORS before each therapy session. Both clients and therapists completed the POMS immediately after each therapy session. All research materials were collected upon approval of the authors' university ethics committee.

³ The decision to aggregate the subscales was supported by an examination of between-client and within-client correlations between the subscales of the POMS that showed that the associations within valence were positive and strong both at the between client (0.67–0.82) and the within client (0.47–0.65) levels, whereas the association across-valence were negative and markedly lower, both at the between client (–.08–.42) and the within client (–.28–.56) levels. In addition, we examined the study models for each of the POMS subscales separately, and obtained very similar results to those obtained with NE and PE.

Data Analysis Strategy

The dataset had a hierarchical structure, with session ratings nested within clients and clients nested within therapists. Thus, we used a Multi-Level-Model (MLM; Raudenbush & Bryk, 2002), with sessions at Level 1 and clients at Level 2.⁴

Testing Hypotheses 1.1, 1.2, and 1.3. To test whether the emotions experienced by clients and therapists during the session were congruent, we used an adaptation of the Truth and Bias model (West & Kenny, 2011) where the therapists' reports of their emotions constituted the outcome, which in turn was predicted by the clients' reports of their emotions. Thus, the slope coefficient of the model represented the extent to which the therapists' emotions were temporally similar to their clients' emotions. In addition, we person-mean-centered both the outcome (i.e., the therapist's emotions) and the predictor (i.e., the client's emotions) on the predictor variable (i.e., the client's mean emotions) across all sessions (i.e., subtracting each client's mean emotions across sessions from both session-level client's reported emotions and therapist's reported emotions). This centering procedure allowed us to remove trait-like individual differences (i.e., person means) when examining within-person fluctuations. More important, it allowed us to treat the intercept as representing the *directional discrepancy*, because with this centering the intercept represents the (centered) therapist emotion value when the client's emotion value equals zero. For example, in the case of a positive discrepancy, when the client's emotion equals zero (i.e., is at its average level), the centered therapist emotion variable will be positive because the therapist's average emotion minus the client's average emotion is positive; this is reflected in the (positive) intercept (or vice versa in cases of negative intercept).⁵

We ran a multivariate MLM (see Baldwin et al., 2014), with therapists' NE and PE as outcomes. This approach allowed us to obtain fixed effects simultaneously for NE and PE as well as cross-valence covariance between them. For each outcome, the model included (a) an intercept (representing directional discrepancy) and (b) a slope (representing temporal similarity). All estimates were considered to be random, which allowed us to examine their variances and covariances.⁶ In this model, PE and NE were combined into a single outcome variable, termed Therapist's Emotion_{c,s,j}, where c indexes the client, s indexes the session, and j indexes the outcome measure (PE or NE). We created two indicator variables (Neg_j and Pos_j), where Neg_j equaled 1 for NE and 0 for PE, and Pos_j equaled 0 for NE and 1 for PE. The resulting equation was as follows:

Therapist's Emotion_{sc} =

$$\text{Neg}_j * [(\gamma_{10} + u_{1c}) + (\gamma_{30} + u_{3c}) * \text{Client's NE}_{sc} + e_{1sc}] \\ + \text{Pos}_j * [\gamma_{20} + u_{2c} + (\gamma_{40} + u_{4c}) * \text{Client's PE}_{sc} + e_{2sc}]$$

where the therapist's emotions (j = 1 for NE, and j = 2 for PE) in session s with client c were predicted by the following: (a) the sample's average directional discrepancies (i.e., the fixed effects for the intercepts: γ_{10} and γ_{20}) plus the deviations of this particular therapeutic dyad from the sample's intercepts (i.e., the random effects for the intercepts: u_{1c} , u_{2c}); (b) the client's NE or PE in this particular session multiplied by the sample's slopes (i.e., the fixed effects for temporal similarity parameters γ_{30} and γ_{40}) plus this particular therapeutic dyad's slopes deviation from the sample's

slopes (i.e., the random effects for the temporal similarity parameters u_{3c} , u_{4c}); (c) the Level 1 residual terms quantifying the session's deviation from all these effects (i.e., random effects at Level 1: e_{1sc} and e_{2sc}). A first-order autoregressive structure was estimated for the Level 1 random effects, and they were allowed to correlate with each other.

Testing Hypotheses 2.1, 2.2, and 2.3. To test whether emotional congruence predicted session-level outcome, we used polynomial regression with response surface analysis (RSA; Edwards & Parry, 1993). Specifically, we ran a MLM analysis in which the outcome (i.e., ORS or HSCL scores from session s + 1) was predicted by the following five variables: (a) client's emotion in session s; (b) therapist's emotion in session s; (c) a first quadratic term that was formed by squaring the client's emotion; (d) a cross-product term that was formed by multiplying the client's emotion by the therapist's emotion; and (e) a second quadratic term that was formed by squaring the therapist's emotions (the last three parameters allowed us to estimate nonlinear associations between temporal similarity an outcome, for reasons explained below). To test for change in outcome, we also included the outcome level at session s. To control for the shared variance between NE and PE, we entered their parameters (the five parameters described above) into the same model.

Before constructing the quadratic and cross-product terms, the clients' and therapists' reports of their emotions were centered. Whereas Shanock et al. (2010) recommended centering variables around the scale midpoint, we opted for person-mean centering, which made it possible to remove between-subjects variability, as is recommended when analyzing hierarchically nested data (Raudenbush & Bryk, 2002; see also Kivlighan, Li, & Gillis, 2015, for a similar example of centering used with hierarchically nested psychotherapy data). In the context of our analysis, this centering approach means that the effects should be interpreted as changes in outcome associated with variation from the therapeutic dyad's average congruence or incongruence.⁷

The mixed-level equation in which the intercept, the main effects of the client's and therapist's emotions, and the lagged outcome (symptoms or functioning levels) were considered to be random at Level 2⁸ was:

⁴ In all models, we tested the need to include the therapist at Level 3, but a deviance test indicated no improvement in fit statistics.

⁵ We adapted this strategy from West and Kenny's (2011, pp. 374–375) Truth and Bias Model. Originally, this centering procedure was used to turn the intercept into a judgment bias parameter (i.e., underestimation and overestimation); however, it can be easily adapted to estimate discrepancy as described above.

⁶ The model including both slopes and intercepts as random effects showed better fit than the model including only the intercepts ($\chi^2[7] = 75.9, p < .001$), which itself showed better fit than the model without any random effects ($\chi^2[3] = 1,209, p < .001$).

⁷ Our analyses used person-mean centering and not time detrending, following recent recommendations from several authors (e.g., Falkenström et al., 2017; Wang & Maxwell, 2015) who pointed out that controlling for time-trends may actually not be necessary in situations in which the process that unfolds over time (such as treatment) is what one actually wants to explain.

⁸ Estimating the cross-product and quadratic terms as random at Level 2 did not improve the model fit.

$$\begin{aligned}
\text{Outcome}_{(s+1)c} = & (\gamma_{00} + u_{0c}) + (\gamma_{10} + u_{1c}) * \text{Client's NE}_{sc} \\
& + (\gamma_{20} + u_{2c}) * \text{Therapist's NE}_{sc} \\
& + (\gamma_{30}) * \text{Client's NE}_{sc}^2 \\
& + (\gamma_{40}) * \text{Client's} * \text{Therapist's NE}_{sc} \\
& + (\gamma_{50}) * \text{Therapist's NE}_{sc}^2 \\
& + (\gamma_{60} + u_{6c}) * \text{Client's PE}_{sc} \\
& + (\gamma_{70} + u_{7c}) * \text{Therapist's PE}_{sc} \\
& + (\gamma_{80}) * \text{Client's PE}_{sc}^2 \\
& + (\gamma_{90}) * \text{Client's} * \text{Therapist's PE}_{sc} \\
& + (\gamma_{100}) * \text{Therapist's PE}_{sc}^2 \\
& + (\gamma_{110} + u_{11c}) * \text{outcome}_{sc} + e_{cs}
\end{aligned}$$

where the outcome for client's c on session $s + 1$ was predicted by the sample's intercept (γ_{00}) and by the average (i.e., fixed) effects (γ_{10} - γ_{110}) of the 11 predictors, plus this client's deviation for the fixed effects (i.e., the random effects: u_{0c} - u_{11c}) and a Level 1 residual term quantifying the session's deviation from these effects (i.e., the random effect at Level 1; e_{cs}).

We used the fixed coefficients from the MLM analysis to calculate test values for the four parameters of the positive (or negative) emotion response surfaces, as follows (Edwards & Parry, 1993; Shanock et al., 2010): (a) the linear slope of the line of congruence (client's emotions = therapist's emotions; a_1), estimating the linear effect of congruence on outcome; (b) the curvature along the line of congruence (a_2), estimating the curvilinear effect of congruence on outcome; (c) the linear slope of the line of incongruence (client's emotions = -[therapist's emotions]; a_3), estimating the linear effect of incongruence on outcome; and (d) the curvature along the line of incongruence (a_4), estimating the curvilinear effect of incongruence on outcome. For further information regarding this model, see footnote.⁹

The a_1 parameter was used to test Hypothesis 2.1 that congruence resulting from high levels of PE would be associated with better next session outcome than congruence resulting from low levels of PE (with the opposite pattern expected for NE). The a_4 parameter was used to test Hypothesis 2.2, that incongruence (i.e., points further away from the midpoint of the line of incongruence) would be associated with higher symptom and lower functioning levels in the next session. The a_3 parameter was used to explore Hypothesis 2.3, which inquired as to whether Therapist > Client incongruence would be associated with higher symptom and lower functioning levels in the next session than Therapist < Client incongruence or vice versa. The a_2 parameter describing the curvature of the line of congruence were not tied to any specific hypotheses. In the analyses of our second broad aim we did not use a first-order autoregressive structure since the lagged outcome was included in the models themselves.

Results

The descriptive statistics for the study variables are presented in Table 1.

Temporal Similarity and Directional Discrepancy in Emotion Ratings

We used an adaptation of West and Kenny's (2011) Truth and Bias model to test the first broad aim. The results of the models testing Hypotheses 1.1, 1.2, and 1.3 are presented in Table 2 (top for the fixed effects, bottom for the random effects).

First, consistent with Hypothesis 1.1, the fixed effects of temporal similarity in both NE and PE were positive and significant. This finding indicates that therapists and clients showed temporal similarity in both types of emotions.

Second, we obtained only partial support for Hypothesis 1.2. Specifically, the fixed effect of the directional discrepancy of NE was not significant, but the counterpart fixed effect of PE was negative and significant. This indicates that therapists did not experience less or more intense NE than their clients, but did experience less intense PE.

Third, in direct contradiction to our Hypothesis 1.3, therapists' directional discrepancy in NE was positively associated with the extent to which they showed temporal similarity. This finding indicates that therapists who experienced more intense NE than their clients were more temporally similar to their clients in these negative emotions. No association was found between directional discrepancy and temporal similarity regarding PE. Notably, though not part of our set of hypotheses, we also found that therapists who were temporally similar to their clients in PE levels over time were also temporally similar to their clients in NE levels. Additionally, one negative cross-valence cross-index association was found. Specifically, the directional discrepancy random effect regarding NE was negatively associated with the temporal similarity random effect regarding PE.

Congruence, Incongruence, and Directional Incongruence and Their Association With Session-Level Outcome

We used polynomial regression with RSA to test our second broad aim.¹⁰ The RSA results are presented in Table 3 (left side for

⁹ The a_1 and a_2 parameters reflect the linear and quadratic slopes along the line of congruence, respectively. Thus, they represent the linear/quadratic change in the levels of the outcome resulting from the additive effects of the linear/quadratic slopes of clients' and therapists' emotions. This can be demonstrated by substituting the Y (i.e., therapist's emotion) variable in the quadratic polynomial regression equation ($Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + e$) with the X (i.e., the client's emotion) variable (i.e., $Y = X$) that will result in the following equation:

$$Z = b_0 + (b_1 + b_2) * X + (b_3 + b_4 + b_5) * X^2 + e$$

As can be seen, in this equation the first part $[(b_1 + b_2) * X]$ represents the linear effect when $X = Y$ (i.e., a_1); the second part $[(b_3 + b_4 + b_5) * X^2]$ represents the quadratic effect when $X = Y$ (i.e., a_2). The same logic follows when one wishes to test the parameters along the line of incongruence (i.e., when the Y variable is substituted by $-X$).

¹⁰ As suggested by Shanock et al. (2010), it is important to ascertain that discrepancies between the two constituent variables—in this case, clients' and therapists' emotions—exist to a substantial extent before conducting such models. Following the procedure outlined by Fleenor, McCauley, and Brutus (1996), we standardized the clients' and therapists' NE and PE variables, and then considered any session with a standardized level of one variable that was half a SD above or below the standardized level of the other variable as a discrepant session. Using this procedure with NE (PE) scores, we found that 34.4% (31.2%) of sessions could be characterized as nondiscrepant, 33.1% (33.4%) as sessions in which clients had stronger emotion than their therapists, and 32.4% (35.4%) as sessions in which clients had weaker emotion than their therapists.

Table 1
Means (SDs) and Zero-Order Correlations for the Study Variables

The study variables	1	2	3	4	5	6
1. Client's NE	1.75 (.54/.49)	-.443 ($p < .001$)	.243 ($p < .001$)	-.180 ($p < .001$)	-.319 ($p < .001$)	.416 ($p < .001$)
2. Client's PE	-.540 ($p < .001$)	3.10 (.75/.51)	-.209 ($p < .001$)	.243 ($p < .001$)	.281 ($p < .001$)	-.255 ($p < .001$)
3. Therapist's NE	.195 ($p = .042$)	-.291 ($p = .002$)	1.80 (.44/.40)	-.449 ($p < .001$)	-.057 ($p = .009$)	.106 ($p < .001$)
4. Therapist's PE	-.291 ($p = .002$)	.238 ($p = .013$)	-.190 ($p = .048$)	2.80 (.48/.46)	.058 ($p = .007$)	-.107 ($p < .001$)
5. ORS	-.403 ($p < .001$)	.547 ($p < .001$)	-.096 ($p = .320$)	.123 ($p = .203$)	25.23 (6.58/4.82)	-.528 ($p < .001$)
6. HSCL	.772 ($p < .001$)	-.434 ($p < .001$)	.085 ($p = .379$)	-.241 ($p = .012$)	-.566 ($p < .001$)	1.81 (.45/.32)

Note. Means (between-subject SDs/within-subject SDs) are presented at the diagonal; between-dyads correlations are presented below the diagonal and were calculated by averaging the session-level responses over the entire treatment period for each dyad. Within-dyads correlations are presented above the diagonal and were calculated using person-mean centered variables measured each session. ORS = Outcome Rating Scale; HSCL = Hopkins Symptom Checklist—Short Form. NE = Negative Emotions; PE = Positive Emotions.

ORS as an outcome, right side for HSCL as an outcome). Figure 1 provides a graphic representation of the response surfaces of the association between clients' and therapists' positive emotions (Panels A and C) and negative emotions (Panels B and D) as predictors, with clients' functioning (ORS; Panels A and B), and symptoms (HSCL; Panels C and D) as outcomes. In Figure 1, the vertical axes represent the clients' outcomes on the next session (ORS and HSCL), the right horizontal axes represent the clients' levels of emotions (PE or NE), and the left horizontal axes represent the therapists' levels of emotions (PE or NE). The solid lines

represent the lines of congruence (clients' emotions = therapists' emotions). These lines, running along the bottom of each panel, extend from the closest corner (where the clients' and therapists' levels of congruent emotions are low) to the farthest corner (where the clients' and therapists' levels of congruent emotions are high) of each panel. The a_1 parameter tests the linear trend along this line, and the a_2 parameter tests the curvature of this line. The dashed lines represent the lines of incongruence (clients' emotions = - therapists' emotions). This line, which extends from the left corner (where the therapists' levels of emotions are higher than

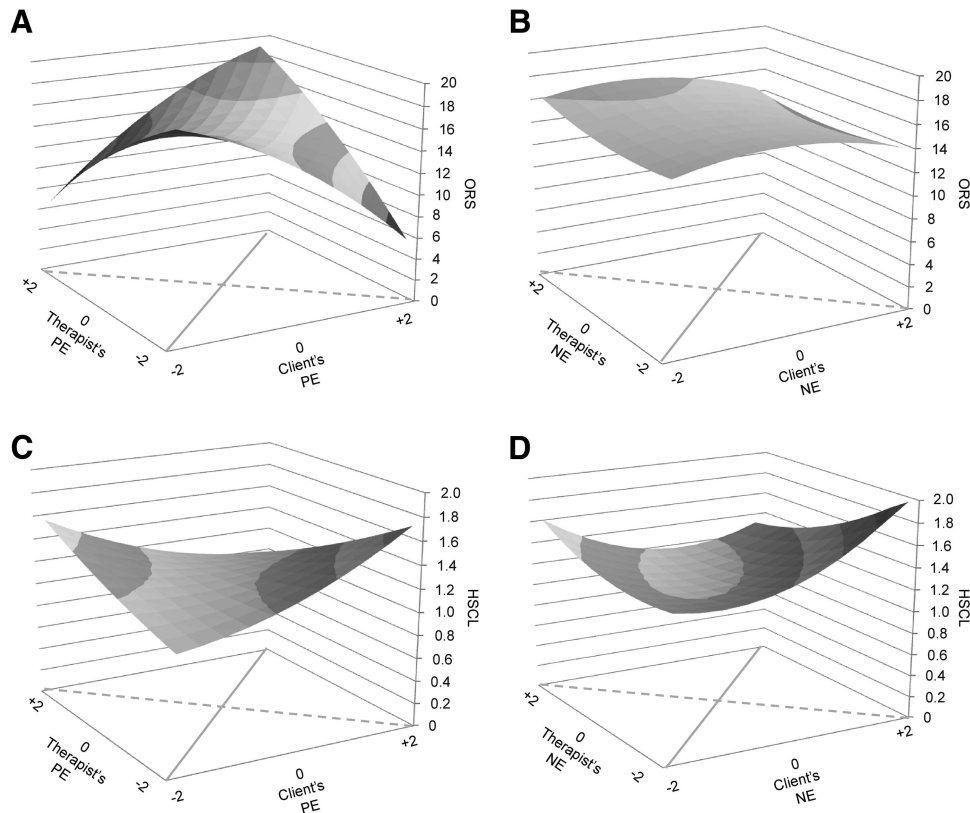


Figure 1. Client's ORS = Outcome Rating Scale (Panels A and B) and HSCL = Hopkins Symptom Checklist (Panels C and D) levels as predicted by client's and therapist's positive emotions (Panels A and C) and negative emotions (Panels B and D). Solid/dashed line represents the line of congruence/incongruence.

Table 2

An Adapted Truth and Bias Model Assessing Directional Discrepancy and Temporal Similarity in Emotion Ratings

Parameters	Estimate (SE)	95% confidence interval	<i>p</i>	Effect size ^a
Fixed effects				
NE (negative emotions)				
Directional discrepancy (intercept)	.04 (.06)	[−.08; .16]	.482	
Temporal similarity (slope)	.21 (.03)	[.15; .27]	<.001	.259
PE (positive emotions)				
Directional discrepancy (intercept)	−.30 (.08)	[−.45; −.15]	<.001	
Temporal similarity (slope)	.19 (.02)	[.14; .24]	<.001	.260
Variances (on the diagonal), covariances (below the diagonal), and correlation (above the diagonal) of random effects				
	1	2	3	4
1. NE: Directional discrepancy	.38 (.05) (<i>p</i> < .001)	.28	−.16	−.38
2. NE: Temporal similarity	.04 (.02) (<i>p</i> = .050)	.04 (.01) (<i>p</i> < .001)	.03	.63
3. PE: Directional discrepancy	−.08 (.05) (<i>p</i> = .116)	.00 (.02) (<i>p</i> = .860)	.60 (.08) (<i>p</i> < .001)	.02
4. PE: Temporal similarity	−.03 (.01) (<i>p</i> = .043)	.02 (.01) (<i>p</i> = .013)	.00 (.02) (<i>p</i> = .920)	.02 (.01) (<i>p</i> = .011)

Note. Effect size was obtained by standardizing the raw scores and re-running the model (Baldwin et al., 2014). NE = Negative Emotions; PE = Positive Emotions.

those of their clients) to the right corner (where the therapists' levels of emotions are lower than those of their clients) of each panel. The a_3 parameter tests the linear trend along this line, and the a_4 parameter tests the curvature of this line.

Contrary to our prediction (Hypothesis 2.1), the a_1 parameters (the linear slope of congruence) for both types of emotions (i.e., NE and PE) and for both types of outcomes (i.e., ORS and HSCL)

were not significant. The a_2 parameters (the curvatures along the line of congruence) were also nonsignificant.

In partial support of Hypothesis 2.2 with next-session ORS as an outcome, the a_4 parameter (estimating the curvature along the line of incongruence for PE) was significant (Panel A), indicating that incongruence in PE was associated with a lower ORS level in the next session. No such pattern was found for incongruence in NE.

Table 3

Response Surfaces for Client and Therapist Emotions as Predictors of Session-Level Outcomes

Predictors/ Parameters	ORS				HSCL			
	Estimate (SE)	<i>p</i>	95% CI	Effect size	Estimate (SE)	<i>p</i>	95% CI	Effect size
Predictors								
Intercept	15.46 (.67)	<.001	[14.14; 16.78]		1.16 (.05)	<.001	[1.06; 1.26]	
C_NE	−.27 (.34)	.424	[−.94; .40]	−.015	.05 (.03)	.058	[.00; .10]	.053
T_NE	.17 (.31)	.592	[−.44; .77]	.010	−.05 (.02)	.018	[−.10; −.01]	−.052
C_NE ²	−.34 (.28)	.221	[−.89; .21]	−.028	.07 (.02)	<.001	[.03; .11]	.064
C_NE*T_NE	−.07 (.55)	.901	[−1.15; 1.02]	−.007	−.06 (.04)	.097	[−.13; .01]	−.042
T_NE ²	.19 (.44)	.670	[−.67; 1.05]	.009	.03 (.03)	.257	[−.02; .09]	.022
C_PE	−.03 (.25)	.893	[−.53; .46]	−.012	.02 (.02)	.241	[−.01; .05]	.033
T_PE	.06 (.25)	.805	[−.44; .56]	.003	−.03 (.02)	.095	[−.06; .00]	−.030
C_PE ²	−.42 (.29)	.143	[−.99; .14]	−.040	.03 (.02)	.113	[−.01; .07]	.044
C_PE*T_PE	1.59 (.48)	<.001	[.65; 2.53]	.108	−.08 (.03)	.011	[−.14; −.02]	−.086
T_PE ²	−.28 (.33)	.386	[−.92; .36]	−.013	.01 (.02)	.619	[−.03; .05]	.005
Response surface parameters								
NE								
a_1	−.10 (.44)	.811	[−.97; .76]	−.005	.00 (.03)	.885	[−.07; .06]	.000
a_2	−.22 (.59)	.707	[−1.39; .94]	−.027	.04 (.04)	.308	[−.04; .12]	.044
a_3	−.44 (.48)	.360	[−1.38; .50]	−.025	.10 (.03)	.004	[.04; .17]	.105
a_4	−.09 (.91)	.924	[−1.87; 1.70]	−.013	.16 (.06)	.007	[.04; .28]	.127
PE								
a_1	.03 (.33)	.930	[−.62; .68]	−.009	−.01 (.02)	.689	[−.05; .03]	.003
a_2	.89 (.52)	.091	[−.14; 1.92]	.054	−.04 (.04)	.259	[−.11; .03]	−.037
a_3	−.10 (.38)	.800	[−.84; .65]	−.014	.05 (.03)	.059	[.00; .10]	.063
a_4	−2.30 (.75)	.002	[−3.78; −.81]	−.161	.12 (.05)	.015	[.02; .22]	.134

Note. ORS = Outcome Rating Scale; HSCL = Hopkins Symptom Checklist; CI = confidence interval; C_NE = Client Negative Emotions; C_PE = Client Positive Emotions; T_NE = Therapist Negative Emotions; T_PE = Therapist Positive Emotions; a_1 = the linear slope of the line of congruence; a_2 = the curvature along the line of congruence; a_3 = the linear slope of the line of incongruence; a_4 = the curvature along the line of incongruence.

In further support of Hypothesis 2.2 with next-session HSCL as an outcome, the a_4 parameters for both the PE and NE models were significant (Panels C and D), indicating that incongruence in NE or PE was associated with a higher HSCL level in the next session.

Finally, testing Exploratory Hypothesis 2.3, with next session ORS as an outcome, the a_3 parameter (estimating the linear slope along the incongruence line) of either NE or PE was not significant. In contrast, with next session HSCL as an outcome, this parameter was significant for the dyad's NE and approached significance for the dyad's PE. This pattern indicates that Therapist < Client incongruence in NE was associated with a higher HSCL level than Therapist > Client incongruence (Panel D), whereas Therapist < Client incongruence in PE was associated with a higher HSCL level than Therapist > Client incongruence (Panel C).

Discussion

Consistent with recent calls to examine the therapeutic process at a finer temporal resolution and from both perspectives of the therapeutic dyad (Castonguay, 2011; Norcross, 2002; Safran & Muran, 2000; Wiseman & Tishby, 2014), the current study used intensive repeated measures from both parties of the dyad with two broad aims: (a) to determine whether therapists' PE and NE are congruent with their clients' emotions as they fluctuate from session to session throughout treatment; and (b) to assess whether congruence predicts symptomatic and functioning changes from session to session.

To examine our first aim (i.e., the exploration of congruence itself), we used a recent adaptation of West and Kenny's Truth and Bias model to simultaneously examine temporal similarity and directional discrepancy, and the association between these two indices. The results supported Hypothesis 1.1 that clients and their therapists will show temporal similarity in both the PE and NE. This finding is in line with previous studies that have found significant temporal similarity between clients and therapists in other process variables in psychotherapy (e.g., Atzil-Slonim et al., 2015; Marci et al., 2007). It is also consistent with work documenting emotional similarity between clients and therapists (Duan & Kivlighan, 2002; Hill et al., 1981). However, whereas previous research has been based on the similarity of emotions rated once or twice during treatment, the current study demonstrates *temporal* similarity that occurs session-by-session across therapy. Although temporal similarity in experienced emotions has been reported extensively in other close relationships (e.g., parent-infant relationships: Feldman, 2012; romantic ties: Butler, 2015), the current study is the first to document it within the psychotherapeutic relationship.

In Hypothesis 1.2, we expected therapists to experience less intense emotions than their clients. The results indicated that therapists did experience less intense PE than their clients, but did not experience more or less intense NE than their clients. This echoes recent theoretical claims that PEs tend to be neglected and underestimated in both research and practice (Stalikas, Fitzpatrick, Mistkidou, Boutri, & Seryianni, 2015). Because clients tend to enter therapy with painful emotional experiences, it may be that therapists tend to focus on NE and are much less attuned to their client's PE and hence to their own PE. The finding that therapists tended to experience significantly less PE than their clients may

reflect therapists' underestimation of the importance of PE or the underutilization of these emotions. This is also in line with Atzil-Slonim et al. (2015), who found that therapists tended to underestimate the alliance and to adopt a somewhat more pessimistic approach than their clients. The finding may also reflect the asymmetry inherent in psychotherapy (e.g., Yalom, 1989), in which the relationship is characterized by greater significance and specialness in the life of the client than in that of the therapist.

The finding that clients and therapists experienced similar levels of NE is somewhat surprising, given that high levels of distress are expected for clients more than for therapists. However, this finding is in line with the considerable literature regarding emotional sharing (cf., Zaki & Ochsner, 2011) that shows that when observing targets experiencing an internal state, perceivers often experience many of the same emotions themselves. In particular, negative emotions appear to be more "contagious" than positive emotions (e.g., Levenson & Gottman, 1985; Saxbe & Repetti, 2010).

Contrary to Hypothesis 1.3, therapists who felt weaker NE than their clients exhibited lesser (rather than greater) temporal similarity with their clients' NE (and, though we made no prediction regarding it, also showed greater temporal similarity with their clients' PE). No such associations were found for directional discrepancy in PE. These results suggest that stronger negative emotions in therapists (relative to their clients) go hand-in-hand with shared NE, but not with shared PE.

Atzil-Slonim et al. (2015) found a positive association between temporal similarity and directional discrepancy in clients' and therapists' therapeutic alliance ratings. However, congruence with regards to the therapeutic alliance may be quite different from congruence in emotions. Atzil-Slonim and her colleagues argued that therapists who judge the therapeutic alliance to be lower than their clients may be adopting a vigilant approach that keeps them more attuned to their clients' changing experience. In contrast, when it comes to emotions, it may be that therapists who are more willing to acknowledge their own negative emotions may open themselves up to "catching" their clients' emotions (Schoebi & Randall, 2015). However, further studies are required to better understand these findings.

Though not part of our set of hypotheses, we also found a cross-valence association in temporal similarity, suggesting that therapists whose PE were similar to their clients' PE over time also experienced NE that were similar to their clients'. Therapists' similarity to their client's changing experiences may be a general phenomenon that applies to some clinicians more than to others. To the extent that this similarity reflects emotional empathy (Duan & Kivlighan, 2002), it may suggest that some therapists are better attuned to changes in emotion, regardless of valence. This finding echoes previous studies that found that therapists who were effective (or ineffective) within one outcome domain were also effective (or not) within another outcome domain (e.g., Green, Barkham, Kellett, & Saxon, 2014). Future studies may benefit from examining whether therapists who are more temporally similar to their clients in emotional experience are also more temporally similar in other process variables.

To examine our second aim (i.e., the exploration of the possible effects of congruence), we used polynomial regression with RSA (Edwards & Parry, 1993), a statistical model particularly suited for examining the predictive value of congruence. Contrary to our

prediction (Hypothesis 2.1), the level of emotions for which therapists and clients were congruent (as indexed by the $a1$ parameter in the response surface model) proved to be irrelevant to the next session outcome. This finding appears to run counter to results reported by Chui et al. (2016) who found that clients' and therapists' higher PE and lower NE were associated with better session-level outcomes. However, Chui and colleagues did not assess congruence between clients and therapists—instead, they reported the additive effects of the parties' emotions. Our results imply that, though both the client and the therapist may have experienced strong or weak emotions, what mattered was whether they were congruent or not, as demonstrated by our next finding.

In support for Hypothesis 2.2, incongruence between therapists and clients in their emotions (both positive and negative) was related to higher symptom reports in the following session. In addition, though partial, support for this hypothesis, incongruence in PE (though not in NE) was related to poorer reports of functioning in the next session. These results are consistent with several contemporary psychotherapy theories that have noted the importance of client-therapist emotional congruence as a key transformational agent that promotes better treatment outcomes (e.g., Aron & Harris, 2014; Fosha, 2001; McCullough et al., 2003). It is also in line with research regarding other close relationships, which shows that emotional congruence between an infant and caregiver (cf., Feldman, 2012), as well as between romantic partners (cf., Butler, 2015) is associated with various socio-affective outcomes.

Many congruence studies have treated emotion as a single factor; thus, conflating the presence of both shared PE and shared NE into a single emotional congruence score (e.g., Keown & Woodward, 2002). Recent studies have argued for the need to differentiate between PE and NE congruence, which may have different consequences (e.g., Saxbe & Repetti, 2010). Our findings are consistent with this need and reveal somewhat different patterns for each kind of congruence.

With regard to symptoms, the positive impact of a congruent experience of both PE and NE may signal to clients that they are not alone in their experience. This signal may lead to positive interactional dynamics and thus better outcomes (as has been found in other relational contexts; Schoebi & Randall, 2015).

With regard to functioning, the finding that congruence in PE (but not NE) was associated with better outcomes may reflect a shared agreement about the quality of the therapy process; specifically, such congruence may emerge when both clients and therapists feel satisfied with a therapy that is progressing well (and that leads to improved client functioning). This explanation is in line with Chui et al. (2016) who found bidirectional links between clients' and therapists' moods, with initial affect as well as change in affect in one partner being tied to the other's postsession evaluation, a change that was attributed to session content (e.g., collaboration and engagement quality).

Another possible explanation is that congruence in PE works differently from congruence in NE. As several studies from both the developmental and intimate relationship literature have demonstrated, congruence in NE may actually lead to an escalation process in which partners respond to each other negatively, producing a closely linked pattern of negative responses over time, especially in situations of conflict (e.g., Pasiak & Menna, 2015; Saxbe & Repetti, 2010). Though we did not find evidence for patently negative outcomes associated with negative emotional congruence, the absence of a

positive outcome (with regards to functioning) may be due, in part, to such a process occurring alongside the more positive interactional dynamics described above. However, our findings may differ because of the nature of the relationship under study. The patterns of negative escalation documented by Pasiak and Menna, Saxbe and Repetti, and others were observed in parent-child relationships as well as romantic relationships. In such relationships, congruence in NE may lead to escalating negativity because of the inherent closeness and reciprocity between the members of the dyad. In contrast, congruence in NE between therapists and their clients may not run the same risk of escalation, given the constrained meaning of mutuality in such relationships. Even when therapists are emotionally affected, the focus of therapeutic work is explicitly one-sided, as therapists have the responsibility (and presumably the skill and training) to regulate their NE so that this explicit focus is not lost. Nonetheless, cycles of escalation are not unheard of even within psychotherapy (Fosha, 2001). In particular, it would be important to examine whether congruence in NE decreases in situations of conflict in psychotherapy (e.g., when alliance ruptures occur) and whether therapists who are skilled at repairing such ruptures differ in their congruence patterns. Furthermore, future studies could examine whether the slightly different patterns between symptoms and functioning as an outcome is replicated and examine whether emotional congruence differently impacts other outcome measures.

Finally (exploratory Hypothesis 2.3), our findings indicated that incongruence in NE predicted worse subsequent symptoms when the therapists experienced weaker as compared with stronger emotions than their clients. The results regarding PE were in the same direction, but only approached significance. One possible explanation is that in situations of incongruence, clients who feel that their therapists' emotions are stronger than theirs may feel more understood and less alone in their experience, which may lead to better outcomes. However, it is important to recognize that this was an exploratory analysis and this finding warrants replication in future hypothesis-driven research.

Limitations, Future Directions, and Summary

One limitation of this study is that emotional congruence was studied at a relatively low time resolution (once each session, typically weekly), whereas emotions often fluctuate at a much higher time resolution (Butler, 2015). Moreover, the results derive solely from self-reported measures, and people who suffer from emotional problems often find it hard to recognize their emotional experiences (Grabe, Spitzer, & Freyberger, 2004). Future studies should implement microlevel analyses in which clients' and therapists' emotions are coded by objective observers continually during sessions to afford a richer examination of the role of both the therapist's and the client's emotions in the process of change in psychotherapy.

Another limitation is that we used an aggregated total score of PE and NE. There is evidence that the distinction between congruence in specific negative emotions (e.g., sadness vs. anger) could be meaningful (e.g., Schoebi & Randall, 2015). On the other hand, our results indicated high correlations between specific emotions within valence, and a similar pattern of results for these specific emotions as for the aggregated scales. Conversely, it is possible that important information is lost when negative and positive emotions are treated in isolation from each other. Future studies should examine different possible patterns of associations between PE and NE among both clients and

therapists; for example, it would be interesting to see whether clients whose affect is less polarized (i.e., who display more instances of mixed positive/negative affect) benefit from therapists whose own affect is similarly less polarized.

Additionally, therapists in this study were trained in a psychodynamic model whose key features include a focus on affect and the experience and expression of emotions. It is possible that studying emotion in this sample of therapists limits the generalizability of the findings. Future studies should explore emotional congruence and its consequences within other therapeutic orientations.

Though the random effects in our analyses were significant and demonstrated variability among therapists in the extent to which they were congruent with their clients, we could not examine therapist effects, since most of the therapists in our sample treated only one client each. Based on the empirical literature that shows that therapists tend to have consistent emotions across clients (Holmqvist, 2001), it would be interesting for future studies with larger number of clients per therapist to examine whether therapists who have a more flexible repertoire of emotions across clients are more congruent with their clients compared with therapists who have a more rigid emotional style.

The issue of effect sizes in the context of multilevel modeling is a complicated one, and currently there is no consensus regarding the optimal way to compute effect sizes. In the current study we adopted Baldwin et al.'s (2014) method of standardizing the raw scores and rerunning the models. Using this approach we obtained small to medium effect sizes.

Our use of client and therapist reports limited our ability to establish whether therapist-client congruence also involved the *accurate* assessment of the client's subjective level of emotions or whether the clients and/or therapists were *objectively* congruent. Future studies could further examine the therapists' perception of the clients' own subjective emotional experience, which would allow us to explore the effect of therapists' empathic accuracy regarding their clients' subjective experience. Alternatively, studies would benefit from using objective indices (or judges) to assess emotional congruence in treatment.

Additionally, pretreatment characteristics of both clients and therapists can have a substantial impact on the therapeutic process and outcome (e.g., DeRubeis, Gelfand, German, Fournier, & Forand, 2014). Most of our effects showed significant between-person variation, which encouraged us to look for client or therapist level moderators of these effects. Though these examinations are beyond the scope of the present study, future analyses should explore whether pretreatment characteristics moderate temporal similarity, discrepancy, and/or their association with treatment outcome.

These limitations notwithstanding, the current findings extend the study of emotional processes in psychotherapy in several respects. Unlike previous studies which have focused mostly on clients' emotional processes, this study points to the importance of dyadic emotional dynamics, and specifically the process of emotional congruence and its association with treatment outcomes. To the best of our knowledge, this study is the first to use session-by-session measures from both members of the dyad to assess congruence in clients' and therapists' emotions. Using an adaptation of the Truth and Bias model, we simultaneously assessed temporal similarity and directional discrepancy and showed that the two were related. Using response surface analysis, we found that congruence in both PE and NE predicted better next-session outcome. We also found that in

situations of incongruence, sessions in which the therapists experienced stronger emotions than their clients were associated with better outcomes at the session level. This exploration contributes to the growing effort by psychotherapy researchers to bridge the gap between theory and data. Although theoretical advances in the last three decades have argued for the central role played by mutual processes between clients and therapists with therapeutic change (e.g., Safran & Muran, 2000), empirical work on such dyadic processes has lagged behind.

Thus overall, our results may have several clinical implications. They show the importance of client-therapist shared emotions in therapy. They advance the idea that therapists who are more open to experiencing stronger NE than their clients may be more attuned to their clients' painful experiences. Therapists who tend to be sensitive to their clients' painful emotional experiences are the same therapists who tend to share their clients' positive experiences. They show that PE are somewhat neglected by therapists (as reflected by the significant directional discrepancy found with these emotions), particularly given their strong ability to predict future functioning. Finally, therapists who share their clients' experiences and let themselves be touched by deep emotions, whether positive or negative, may better help their clients tolerate their own emotions and eventually attain better therapeutic outcomes.

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