ABSTRACT

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Therapist effects have been increasingly recognized as an important contributor of psychotherapy process and outcome. Most therapist factors studied so far, however, have been trait factors. Little is known about state factors. Given the emotional nature of psychotherapy, therapist affective states seem relevant. In particular, how does therapist affect change in sessions? What predict therapist affect change, and how is therapist affect related to psychotherapy process and outcome? Data involved 1,172 sessions of 15 therapists and 51 clients at a psychodynamically-oriented psychotherapy clinic. Therapists and clients rated pre-session affect and post-session affect, as well as post-session working alliance, session quality, and real relationship. Participants also wrote down their affect changes, and attributions to these changes, at the end of each session. Quantitative data were analyzed using multilevel modeling. Qualitative data were analyzed using Consensual Qualitative Research. Therapists qualitatively reported affect changes in 67% of sessions, with equal amounts of increases in positive and negative

affect. Therapists most frequently attributed their increase in positive affect to being able to collaborate with clients, and their increase in negative affect to having difficult clients. Therapist pre- to post-session change in affect was related to client pre-session affect and client pre- to post-session change in affect. After controlling for therapist change in affect from pre- to post-session, higher therapist pre-session positive affect was associated with better client-rated working alliance and session quality, whereas higher therapist pre-session negative affect was associated with poorer client-rated session quality. Increase in therapist positive affect from pre- to post-session was related to better client-rated session quality and therapist-rated working alliance, session quality, and real relationship, whereas increase in therapist negative affect was related to poorer client-rated real relationship and therapist-rated working alliance, session quality, and real relationship. Thus, therapist affect played a role in therapist functioning and contributed to psychotherapy process and outcome.

IN THE MOOD? THERAPIST AFFECT AND PSYCHOTHERAPY PROCESS

By

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Chapter 1: Introduction

Okiishi, Lambert, Eggett, Nielsen, Dayton, et al. (2006) observed that much of the research conducted on the outcome of psychotherapy has focused on the effectiveness of specific interventions but not on therapist effects. Randomized control trials using manualized treatments in particular have attempted to minimize therapist variability and its impact on outcome (Okiishi et al. 2006). Yet, therapist effects contributed on average 5-10% of variance in client outcome and up to 39% of outcome variance on some measures (Crits-Christoph & Mintz, 1991). These observations speak to the importance of studying therapist effects in psychotherapy research.

One therapist factor that seems particularly promising is the examination of therapist affect. Given that the therapist must listen attentively to the client, remember important details of the client's material and process them quickly, and decide upon therapeutic interventions, psychotherapy provision is a cognitively demanding task. These tasks are performed while the therapist attends closely to the client's emotions as well as to his or her emotional reactions. As such, a better understanding of cognitive and emotional factors that contribute to therapist functioning may be helpful.

Dumont (1993) summarized findings about cognitive biases that therapists should look out for when working with clients. One of these biases arises when a person accesses different information in relation to fluctuation in affect. Research has shown that individuals tend to encode and recall information that is mood-consistent (Bower, 1981). Mood can also influence social judgments, which are usually ambiguous and complex and necessitate inference from selected information (Forgas, 1990). In addition, relying on affect in judgment and decision-making is more efficient than conducting a thorough

analysis (Slovic, Finucane, Peters, & MacGregor, 2002). Given that therapists often need to arrive at clinical judgments and decide on interventions quickly during a session, it is conceivable that therapists' activities may be influenced by therapist affect.

Beutler, Malik, Alimohamed, Harwood, Talebi, et al. (2003) reviewed the current literature of therapist variables and therapy process and outcome. Variables included in the review were therapist age, gender, race/ethnicity, professional discipline, amount of training and experience, theoretical orientation, interpersonal style in therapy, dominance, type of intervention, treatment intensity, therapy relationship, and sociocultural values and attitudes. The only characteristic that related somewhat to affect was therapist "emotional well-being," which positively correlated with treatment benefits. However, it should be noted that none of the reviewed variables have a state-like quality, suggesting that not much attention has been paid to therapist factors that fluctuate in the course of therapy. The focus on factors across different therapists overlooks potentially important within-therapist variability, such as affect, which may also influence therapists' work with clients. In statistical terms, the variability of psychotherapy process and outcome unexplained by differences in therapist trait characteristics may not be immediately relegated to differences in characteristics of the client or the therapist-client relationship, but instead may be explained by within-therapist variability across time.

The first purpose of the present study was to obtain a description of therapist affect in relation to the conduct of psychotherapy. For instance, how did therapists feel before and after a session? Did therapists generally feel more positive or negative stepping out of a session in contrast to the beginning of sessions? How did therapists explain their changes in affect? Having a systematic and comprehensive description of

therapist affect and change of affect in relation to providing psychotherapy is an important first step toward understanding therapist affect.

Second, I examined the factors that contribute to therapist affect change. Because of the dyadic nature of individual psychotherapy, I was especially interested in the relationship between client affect and therapist affect. How was client pre-session affect related to therapist change in affect from pre- to post-session, and how was client change in affect from pre- to post-session related to therapist change in affect from pre- to post-session?

Third, I examined the relationship between therapist affect and therapy process and outcome. For instance, how did a therapist's affect before a session relate to his or her work with clients? How were changes in therapist affect related to client's and therapist's ratings of therapy process and outcome? Preliminary answers to these empirical questions will hopefully help us begin the process of refining our conceptualization of therapist effects on psychotherapy.

Chapter 2: Literature Review

The study of human emotion has a long history in the field of psychology. For instance, founders of psychology, such as William James, theorized about the nature of emotion (Keltner & Lerner, 2010). Emotion has also been actively studied in recent years in many specialties of psychology, such as cognitive psychology, developmental psychology, neuroscience, and social psychology (Keltner & Lerner, 2010). In addition, efforts have been made to transfer knowledge gained from basic science in emotion to clinical (e.g., Elliott, Watson, Goldman, & Greenberg, 2004; Rottenberg & Johnson, 2007) and industrial-organizational (e.g., Beal, Weiss, Barros, & MacDermid, 2005) applications. Thus, emotion is widely relevant in psychology.

In this chapter, I first review the definition of affect and differentiate it from related constructs, such as emotion and mood. Next, I review studies from the psychotherapy literature that touch on therapist affect, and attempt to provide a coherent framework that integrates separate lines of existing research. Then, I survey dyadic emotional regulation research to provide an overview of how therapist affect may interact with client affect and influence the psychotherapy process. Finally, I evaluate current methods of assessing affect, and deliberate on the merits and shortcomings of each of these methods for the present study on therapist affect in psychotherapy.

Definition of Affect and Related Constructs

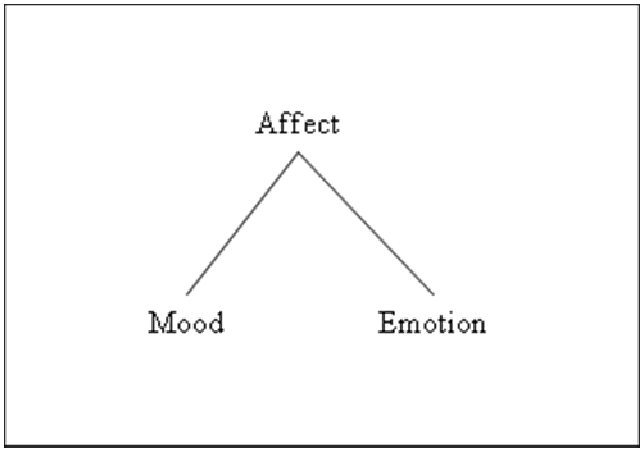
Despite being a widely studied phenomenon, researchers do not always agree on how to define emotion. According to Russell (2003), “There are no formal criteria for what is and what is not an emotion……few writers have failed to compare emotion as described by psychologists with the elephant as described by blind men in an old fable”

(p. 145). Because the goal of the present study is not to contribute to emotion theories but to look at the role of emotions in therapist functioning, a thorough discussion of different views of emotion is beyond the scope of this review. What is more relevant, however, is to look at some commonly used terms in the study of emotion, and discuss how they may apply to psychotherapy research and this study.

In emotion research, the term *affect* refers to "what one is experiencing or feeling, either pleasant or unpleasant, with varying levels of intensity, duration, and triggers or patterns of activation" (Humrichouse, Chmielewski, Mcdade-Montez, & Watson, 2007, p. 14). Hierarchically, affect is considered a broad domain under which specific constructs, such as *emotion* and *mood*, reside (Humrichouse et al., 2007; see Figure 1). *Emotion* refers to a brief and intense response to an identifiable event or trigger, with each response involving at least four biobehavioral systems: Subjective experience, physiological reaction, expression, and behavioral response (Humrichouse et al., 2007). Functionally, emotion is adaptive in that it facilitates our ability to process information quickly and then execute a response appropriate for the situation (Elliott et al., 2002). In contrast, *mood* is longer lasting, less intense, less contingent on the presence of a specific trigger, and may arise and dissipate with no clear change in the environment (Humrichouse et al., 2007). An example distinguishing emotion and mood is anger versus irritability (Humrichouse et al., 2007; Keltner & Lerner, 2010). Whereas anger is often elicited by a specific source (e.g., being cut off in traffic), irritability may be experienced with no identifiable cause. Both anger and irritability can be considered affect because affect is the more general term that encompasses a wide range of emotional experiences that vary in trigger, duration, and intensity.

Affect, *emotion*, and *mood* are subject to change from one moment to the next, and are considered state characteristics. On the other hand, *emotional traits* are "general styles of emotional responses that persist across context and time" (Keltner & Lerner, 2010, p. 313). Although I stated in the previous chapter that I am primarily interested in looking at how within-therapist variability in emotional factors may impact psychotherapy, it is important to recall that there are also between-therapist differences in emotional traits.

Figure 1. Hierarchical Relationship between Affect, Mood, and Emotion



In the current study, I adopted *affect* as my construct of interest for two reasons. First, it is a state variable and aligns with my purpose of investigating how a therapist's change in this variable over the course of therapy may be related to changes in the therapy process. Second, because the planned study was an observational study of actual psychotherapy with no experimental manipulation, it is difficult to know the causes underlying shifts in a therapist's emotional state. A change in emotional state may be related to specific *emotion* being elicited by clients or events outside of session, or due to nonspecific fluctuation in *mood*, or the combination of both. Hence, *affect* is a more accurate descriptor because it does not distinguish between specific and nonspecific

sources of change in emotional state. Although I tried to keep my use of terms consistent in this study, *affect*, *emotion*, and *mood* have often been used interchangeably in studies and on measures. The review below thus is based on a literature search of all three terms.

Therapist Affect in Psychotherapy

Research in therapist affect generally has involved two lines of inquiry. The first line of research examines therapist emotional reactions to clients, and the second line of research looks at therapist emotional well-being and baseline affect. As one can imagine, the two topics of research are related. A therapist may have strong emotional reactions to a client in one session and carry the affective experience into the next session. On the other hand, the therapist's pre-session affective state will likely influence the type and intensity of emotions that are elicited by his or her client. At present, however, these two lines of research appear to occupy different spheres in the literature, and have distinct sets of constructs and researchers interested in them.

Therapist emotional reactions. The bulk of studies on therapist emotional reactions to clients fall under the research area of countertransference. Other investigative efforts have examined therapist awareness of in-session affective change, and therapist reactions to specific client emotions, such as anger, and client conditions, such as personality disorders and trauma. I reviewed each of these research areas below.

Countertransference. The definition of countertransference has been a matter of debate for a long time (Gelso & Hayes, 2007). At one end, the classical view, countertransference involves a therapist's unconscious response to a client based on the therapist's unresolved conflict (Gelso & Hayes, 2007). Under this view, countertransference is seen as a hindrance to therapy and needs to be actively eliminated.

On the other end of the spectrum, the totalistic view, countertransference encompasses all therapist emotional reactions (Gelso & Hayes, 2007). These reactions are valuable information about the client and need to be studied. Hayes, Gelso, Hummel (2011) noted from their meta-analysis on countertransference that most researchers have adopted a definition in which countertransference stems from a therapist's unresolved conflict and triggered by client characteristics. This definition coincides with the classical view of countertransference, except that researchers in these studies tended not to consider countertransference a nuisance but a potentially useful phenomenon. The combination of the classical definition and an open attitude towards countertransference is what Gelso and Hayes (2007) termed as the integrative conceptualization of countertransference. Thus, research in countertransference constitutes studies of therapist emotional reactions in which the therapist's unresolved conflicts are implicated.

To examine the specific triggers of countertransference, Hayes et al. (1998) analyzed the transcripts of 127 post-session interviews with 8 therapists, each of whom conducted brief therapy (12-20 sessions) with 1 individual client. Triggers of countertransference included the content of client material, comparison between client and other persons, change in therapy structure such as late and missed sessions, perceived progress, perceptions of client, and client emotional arousal. In addition, participants identified the origins of their countertransference, such as issues pertaining to the family, personal values, and culture, and the manifestations of countertransference, such as having negative feelings towards the client, increasing or decreasing distance from the client, and changing treatment plans. These qualitative categories provide preliminary

understanding of the proximal and distal factors that contribute to therapist countransference reactions, as well as the expression these reactions in sessions.

How do therapist countertransference reactions impact therapy? Hayes et al. (2011) reported in their meta-analysis that favorable client outcome is related to low therapist countertransference, and better therapist countertransference management. For instance, Ligiero and Gelso (2002) reported that negative countertransference behaviors were associated with poorer working alliance. Gelso, Latts, Gomez, and Fassinger (2002) found that counseling outcomes, defined as the degree of improvement or regression in client feelings, behavior, self-understanding, and overall change, were related to therapists' ability to manage their own anxiety during the therapy hour. These findings underscore the possibility that unmanaged countertransference in session may be counterproductive to the work of therapy. Hence, it is critical to understand therapist affective reactions to clients because they may be directly or indirectly related to the process and outcome of counseling.

Therapist self-awarenss. Another research area that taps into therapist emotional reactions is therapist self-awareness. As noted by Williams, Hayes, and Fauth (2008), the term self-awareness has been used in various research areas to denote different constructs, such as self-knowledge, self-consciousness, and self-focused attention. I focus my review on research that specifically looked at therapist awareness of his or her affective change during a therapy session. It is important to note at the outset that therapist self-awareness may or may not pertain to countertransference reactions as defined using the integrative definition. For example, anxiety experienced by novice

therapists may be deemed universal and less related to specific unresolved therapist conflicts (although it could be both).

In an early study, Hill, Siegelman. Gronsky, Sturniolo, and Fretz (1981) asked volunteer clients and therapists to watch videotapes of their psychotherapy sessions and recall their in-session affect. Affect was rated categorically using 13 authors-derived categories (e.g., calm-relaxed, happy-joyful, etc.) on each 1-minute segment for 30 segments across 5 domains: major affect experienced, affect expressed through verbal content, affect expressed through voice tone, affect expressed through movement/facial expression/gesture, and partner's affect. Hill et al. found that congruence between the therapist's major affect and his/her affect associated with verbal content or tone was related to therapist-rated therapist facilitativeness. In other words, therapists judged themselves to be more facilitative if their verbal communication of affect matched how they felt. This early finding suggests that therapists should pay attention to how they feel internally and how they communicate their affect to clients.

Williams, Judge, Hill and Hoffman (1997) studied the experiences of seven novice therapists conducting therapy in their first semester of graduate training. On post-session open-ended questionnaires, all participants reported experiencing both positive and negative feelings during sessions. In particular, all participants reported feeling anxious or uncomfortable in at least two of nine to 11 sessions. Most participants reported feeling distracted at some point. More than half discussed positive feelings, such as caring for clients and feeling pleased with him- or herself, but a few talked about feeling inadequate or frustrated with clients. Participants also identified sources of their feelings, which included performance concerns and role confusion as beginning

therapists. In addition, participants described how they tried to manage their affective experiences in session, such as by redirecting their focus on clients, using self-awareness of feelings to guide interventions, and suppressing feelings. Using quantitative measures, Williams et al. (1997) found that novice therapists' anxiety level decreased over the semester, which was accompanied by an increase in supervisors' ratings of trainees' overall therapeutic and countertransference management skills. This study illustrates a broad array of affect that novice therapists may become aware of as they conduct psychotherapy. It also documents how novice therapists manage their affective experiences in session so that they remain effective therapeutic agents.

Williams, Polster, Grizzard, Rockenbaugh, and Judge (2003) extended the above research by investigating therapist self-awareness among more experienced therapists. In this study, Williams et al. compared six novice therapists with six experienced therapists. They found that novice therapists reported experiencing more anxiety, confusion, and self-criticism in sessions, supporting findings in Williams et al. (1997), whereas experienced therapists reported experiencing more boredom and outside distractions. Affect management among the two groups differed as well, with novice therapists more frequently disclosing their reactions to clients, whereas experienced therapists used thought stopping to manage their feelings. Both groups, however, shared self-coaching and refocusing on clients as common strategies to cope with distracting self-awareness. Essentially, the expressed need by both novice and experienced therapists to monitor and manage their own affective states during therapy speaks to the importance of studying therapist affect in depth.

Reactions to specific client affect and conditions. Finally, some researchers have examined therapist emotional reactions to specific client affect and conditions. These studies appear to be of a narrower scope, but are worthy of review given the scarcity of research in therapist affect. Learning about more extreme therapist emotional reactions and their impact on therapy can also shed light on the possible range of affect and impact that a therapist may experience on a regular basis.

Hill et al. (2003) studied therapist reactions to client anger. Based on qualitative interviews with 13 therapists, these authors found that overt client hostility typically resulted in therapists feeling anxious or incompetent, and annoyed or frustrated with clients. Unexpressed client anger, on the other hand, typically led therapists to become concerned about the client. Some therapists also reported surprise or guilt in response to overt or unexpressed client anger.

Besides reactions to specific client emotions, some client conditions are thought to be particularly challenging because of their potential to elicit intense emotional reactions from therapists. For example, Bourke and Grenyer (2010) found more negative emotional reactions and less satisfaction in therapists who treated patients with borderline personality disorder compared to those who treated patients with major depression.

In Hoffart, Hedley, Thornes, Larsen and Friis's (2006) study of cognitive behavioral treatment of panic disorder, they found that therapists' ratings of their own insecure feelings at the end of treatment were directly related to the severity of clients' existing personality disorder (based on the Structured Clinical Interview for the DSM-III-R conducted by an external assessor prior to treatment). In terms of consequences of therapist reactions, therapists' insecure feelings were negatively correlated with clients'

symptom improvement during treatment. In contrast, symptom trajectory post-treatment was unrelated to therapist affect. These observations provide indirect evidence for the potential influence of therapist affect on client outcome during therapy.

Vicarious traumatization constitutes another growing area of research related to therapist affect. Adams and Riggs (2008) noted that disaster relief workers, police and medical personnel, and mental health professionals who work closely with individuals with trauma history are particularly at risk for negative psychological effects. Affectively, therapists may experience anxiety, sadness, suspiciousness, feelings of increased vulnerability, and emotional numbness in response to hearing about the clients' trauma (Adams & Riggs, 2008). When left unattended, vicarious traumatization may disrupt a therapist's ability to respond empathically and form emotional connections with clients (Adams & Riggs, 2008).

In sum, studies of countertransference, therapist self-awareness, and therapist reactions to specific client emotions and conditions offer preliminary understanding of therapists' affective experience in psychotherapy. With the exception of countertransference research, however, few systematic studies have examined the relationship between therapist affective reactions and psychotherapy process and outcome. Measurement of therapist affect has relied primarily on retrospective ratings that may be temporally remote from the actual session experience. Single data points, rather than repeated measurements, also preclude the examination of session-to-session fluctuation in affect.

Furthermore, the literature reviewed above has focused primarily on therapist negative affect (e.g., anxiety). Research has rarely explored positive affective reactions

and how they influence therapy. Yet, in domains of psychology outside of psychotherapy research, interesting studies have been conducted to reveal the power of helping on a person's positive affect. For example, Williamson and Clark (1989) showed significant improvements in mood and self-evaluation among undergraduate participants who helped compared to those who were not given the opportunity to help. Grant and Sonnentag (2010) also demonstrated that perceived prosocial impact, defined as the judgment of others benefitting from one's actions, may buffer against emotional exhaustion at work. It is thus conceivable that therapists experience positive affect in at least some of their sessions, particularly if they perceive that they have contributed to client progress. A more comprehensive examination of therapist positive and negative affective change and their relationships with the psychotherapy process may bridge the gaps in the literature.

Therapist emotional well-being and pre-session affect. Along with research in therapists' in-session affective reactions, a separate line of research has investigated therapist emotional well-being (or therapist pre-session affect) and its impact on therapy. What differentiates these research areas is that the former focuses on therapists' affective responses to client material during sessions, whereas the latter focuses on the affective experience that therapists carry into sessions, which may or may not be related to client issues.

Why is studying therapist pre-session affect important? Evidence from the cognitive psychology literature has shown many influences of affect on human cognition. For example, Mitchell and Madigan (1984) showed that healthy college students induced with depressed mood had impaired interpersonal problem-solving compared to those with induced elation. Happiness and fear/anxiety have also been associated with higher and

lower levels of creativity, respectively (Baas, De Dreu, & Nijstad, 2008). Given that therapy is an interpersonal encounter, and therapists of all theoretical persuasions engage in divergent thinking processes to facilitate client growth and problem resolution (Deacon, 2000), studying therapist baseline affect seems very relevant.

Two early studies examined therapist well-being in terms of therapist affect and its relationship with the therapeutic process. Gurman (1972) investigated the relationship between therapist adjustment, which was assessed based on the average of therapist daily mood reports across 14 days, and therapeutic facilitativeness in 12 postinternship doctoral student therapists. Therapeutic facilitativeness, such as empathy, warmth, and genuineness, was evaluated by raters using audiotapes of psychotherapy sessions (each therapist submitted two tapes, and two 4-minute segments from each tape was rated). Correlation coefficients revealed that average therapist positive affect such as elation, tranquility, and sociability was related to the ability to offer facilitative conditions in therapy, such that therapists who had more positive affect were judged to be more facilitative. Anxiety variability, which refers to a therapist's fluctuation in reported anxiety across 14 days, was also found to be related to therapeutic facilitativeness, such that facilitative therapists tended to report greater fluctuation in daily anxiety levels. Gurman interpreted the latter finding as facilitative therapists being "more aware of and willing to report nuances in their own emotional experiences and thereby are more able to identify, accept, and respond nondefensively to changes in both the intensity and meaning of their patients' feelings" (p. 170). Although this study was among the first to move beyond descriptive studies of the feelings of the therapist, limitations of this study include the small sample size, use of only a few psychotherapy sessions, and the use of measures

with inadequate psychometric evidence. The author also did not assess affect immediately before sessions, and so the temporal relationship between affect and therapy process cannot be established. In addition, the conclusion drawn about anxiety variability and therapist facilitativeness seems to lack theoretical support and is speculative at best.

In a follow-up study, Gurman (1973) compared the most (n=3) and the least (n=3) facilitative therapists among the 12 participants above. Instead of looking at average mood scores, Gurman (1973) collected data on therapist mood right before the start of a session for about 8 sessions. Observers also rated the therapists' facilitativeness (empathy, genuineness and warmth) at 5 points (first 4 minutes in each 10-minute segment) in session based on audio tapes. Gurman found that the most facilitative therapists were more facilitative in sessions if they had more negative pre-session moods (depression, anxiety, and withdrawal), whereas the least facilitative therapists were more facilitative in sessions if they had more positive moods (elation, tranquility, and sociability). Gurman explained that highly facilitative therapists might have been particularly attuned to the potentially adverse impact of their negative affect on therapy and worked successfully to mitigate that. Alternatively, elevated sensitivity while having negative moods may have allowed facilitative therapists to enter the client's experiential world more readily. Nevertheless, Gurman qualified his conclusions by noting the inconsistencies he found within each group (most vs. least facilitative). Given that there were so few participants, these findings need replication before we can interpret with confidence the impact of therapist pre-session affect. The lack of examination of therapist post-session affect also precludes assessment of a therapist's change in affect. This study, however, highlighted that therapist pre-session affect indeed was related to a therapist's

therapeutic functioning, and that the examination of affect fluctuation in the course of therapy (not just an aggregate score) is important for the finer patterns of impact to be detected.

Besides affect, therapist emotional well-being has been studied in terms of therapist stress. Early studies of therapist stress were descriptive in nature. For example, Deutsch (1984) identified numerous sources of stress that influence well-being of therapists. Mahoney (1997) reported that about half of his sample of 155 therapists experienced emotional exhaustion, and about a third of them were experiencing depression or anxiety at the time of the study. Furthermore, Briggs and Munley (2008) asked master's and doctoral level practitioners to rate their perceived levels of overall and work-related stress, and to think about their work with a particular client and rate the stress level and the working alliance associated with working with the specific client. The authors found that working alliance was negatively correlated with overall stress, work stress, and stress related to the particular client. Nevertheless, as highlighted by the authors, results were derived from correlating scores based on participants' retrospective impressions. It is unclear whether stress was a result or cause of poor working alliance. The relationship between session-to-session fluctuations in therapist stress level and the working alliance and/or other process variables was also not examined.

How is therapist emotional well-being important to therapist functioning? Littauer, Sexton, and Wynn (2005) found in a qualitative study that clients desire calmness in their therapists and perceive it as a contributing factor to good working alliance. The maintenance of calm and a sense of equanimity in therapists is related to therapeutic presence, a therapist characteristic that is defined as "bringing one's whole

self to the engagement with the client and being fully in the moment with and for the client, with little self-centered purpose or goal in mind (Geller & Greenberg, 2002, p. 72).” Therapeutic presence, in turn, is positively associated with working alliance and session outcome (Geller, Greenberg, & Watson, 2010). Thus, a therapist’s ability to be calm from the beginning of a session may help him or her to set aside distractions and thoughts about stressful life events, focus and be present with the client, and facilitate the therapeutic process. In other words, when compared to therapist immediate pre-session affect, therapist stress levels appear to exert a more distal influence on psychotherapy. A therapist’s ability to regulate affect and maintain a calm posture regardless of what is happening in his or her life before a session may proximally influence the therapeutic process.

In sum, therapist emotional well-being has been identified as a factor that contributes to therapeutic effectiveness. Therapist pre-session affect may be more proximally related to therapist functioning than other more distal variables such as overall stress level. Studies have also pointed to the importance of examining session-to-session fluctuation in therapist pre-session affect and its relationship with therapy process variables.

Relationship between therapist emotional reactions and pre-session affect. As seen above, research in therapist affect has so far been divided by temporal foci: some investigators focused on therapist emotional reactions in sessions whereas others focused on therapist pre-session affect and emotional well-being. However, there is value in studying both simultaneously. Let me illustrate this point using countertransference as an example.

Although the understanding of therapist countertransference is an important endeavor in psychotherapy research, countertransference studies conducted to date have mostly involved post-session therapist retrospective ratings, supervisor ratings, and observer ratings (Hayes et al., 2011). Early analogue studies also provided opportunities to test specific hypotheses about countertransference in controlled laboratory settings, albeit sacrificing validity for clinical relevance (Hayes et al., 1998). These field and laboratory designs do not take therapist affective states prior to sessions into consideration. Yet, mood before sessions seem to have an influence on therapist emotional reactions to clients. For example, as cited in Hayes et al. (2011), Baehr (2004) reported that therapists' self-care practices, such as resting and exercising, reduced the occurrence and intensity of in-session countertransference behaviors. Geller, Greenberg, and Watson (2010) also noted that experienced therapists use daily meditation to increase presence and calm in session, suggesting that pre-session emotional states influence the affect that a therapist experiences in session.

Not only does therapists' pre-session affect likely influence affective reactions in session, it also likely influences how therapists *explain* their affective change. For example, if a therapist begins a session with depressed affect and feels better after the session, the therapist may attribute the improved feelings to positive session process. Conversely, if a therapist begins a session with more positive affect but feels more negatively afterwards, the therapist may explain the downward change as evidence of poor session process.

I located two studies that examined therapist pre-session and post-session affect in the same study. Hill et al. (1994) studied therapist and client pre- and post-session moods

(using the Differential Emotions Scale-IV (DES-IV; Blumberg & Izard, 1985, 1986) in association with their ratings of therapist helpfulness and session quality for each of the therapist-client pairing across three therapy sessions. The authors found that therapists experienced an increase in positive affect from pre- to post-session, whereas clients experienced both an increase in positive affect and a decrease in negative affect from pre- to post-session. Therapist pre-session negative affect was related to lower therapist ratings of therapist helpfulness and session quality. In contrast, client pre-session positive affect was related to higher client ratings of therapist helpfulness and of the session. Therapist positive affect and client negative affect were not associated with their respective helpfulness and session ratings. Although small sample size may explain the lack of significant findings, it may also be possible that positive and negative affects influence clients and therapists in different ways. For example, therapist with negative affect may be more self-critical when completing helpfulness and session quality measures, whereas clients may attribute positive affect to helpfulness of the therapist and the therapy session.

Duan and Kivlighan (2002) examined the relationship among therapist pre-session and post-session mood, empathy, and session evaluation. In a sample of 27 doctoral level counseling psychology trainees at a university counseling center and their 58 clients, Duan and Kivlighan administered the self-reported Multiple Affect Adjective Check List-Revised (MAACL-R; Zuckerman, Lubin, & Rinck, 1983) before and after one middle therapy session to measure therapist and client moods. Therapists also completed a second post-session MAACL-R to indicate their perceptions of client moods. In addition, therapists and clients completed the post-session Session Evaluation

Questionnaire (Stiles & Snow, 1984) as a measure of perceived session quality. Therapist pre-session anxiety was positively associated with the accuracy of therapists' estimates of client mood after a therapy session, indicating that some level of anxiety may help trainees concentrate and understand client emotions (Duan & Kivlighan, 2002). On the other hand, therapist positive pre-session mood was negatively associated with the accuracy of therapist's estimate of client post-session mood, suggesting the possibility that therapists who experienced particularly positive emotions might have difficulty feeling negative emotions with clients in accordance to mood maintenance theory. Finally, client-rated session depth was positively related to therapists' accuracy of estimates of client mood. Perhaps therapists could access clients' inner emotional experience more readily in deeper sessions.

A common limitation of these two studies is that pre- and post-session affect data were only collected over a brief period of time (1 or 3 sessions). Given the changing nature of affect, it is conceivable that a more extended period of data collection would allow us to observe potentially meaningful fluctuations in affect and their relationship with therapy process variables. In addition, conclusions in these two studies were based on regression and correlation analyses, even though observations were not independent (e.g., multiple clients were seen by the same therapist in both studies, and multiple sessions were conducted in the same dyads in Hill et al.) Violation of statistical assumptions in regression type analyses likely inflated Type I error. Advanced statistical techniques such as multilevel modeling would take data dependence into account and correct for the inflated error rate (i.e., the effects of the therapist and the client would be taken into account when the relationship between affect and therapy process is

examined). Third, Hill et al. (1994) used volunteer clients and assessed therapist helpfulness during 10 interruption points in a therapy session. Although these helpfulness ratings may reflect immediate evaluations and minimize the effect of recall bias, the artificial setting is probably not representative of true therapy and thus generalizability of their findings is limited. Finally, although pre- and post-session affect data were collected and their respective relationships with session outcome variables were evaluated in both studies, it is unclear how changes in therapist affect at the session level may be related to the therapy process.

Affect and multiple perspectives in dyadic interaction. Most of the studies reviewed so far have considered therapist affect as an intrapersonal state, a variable that resides within the therapist. Studying therapist affect in isolation is, however, incomplete because psychotherapy is an interpersonal endeavor, and the experience and regulation of affect is interpersonal in nature. For instance, intercongruence, defined as a match between what the therapist feels and what the therapist thinks the client feels, is positively correlated with client- and therapist-rated therapist facilitativeness (Hill et al., 1981). Duan and Kivlighan (2002) also considered the convergence of therapist and client affect as evidence of empathy. In addition, Dales and Jerry (2008) reviewed the neuroscience evidence of affect regulation, and suggested that person-to-person attunement may underlie the effectiveness of individual psychotherapy. Although the focus of Dales and Jerry's review is on how therapists influence clients' affect regulation for therapeutic gains, the client undoubtedly also influences the therapist. In fact, recent conceptualizations of psychodynamic psychotherapy have increasingly attended to clients' influence on the therapist (e.g., intersubjectivity and the two-person view;

Wachtel, 2008). Taken together, therapist affect should be examined in conjunction with client affect in the context of therapy.

Of the three studies (Duan & Kivlighan, 2002; Gurman, 1973; Hill et al., 1994) that included client affect as a variable of interest in addition to therapist affect, only Duan and Kivlighan made direct comparisons between therapist and client affect (in terms of changes in the match of therapist and client affect from pre- to post-session). The other two studies did not specify the relationship between therapist and client affect. What the Gurman and Hill et al. studies did, however, was highlight the importance of evaluating therapy process from multiple perspectives. For instance, both Gurman and Hill et al. described how therapist and client pre-session affect may be uniquely related to their respective ratings of therapy process variables. It seems reasonable, then, that a comprehensive study of therapist affect should examine the therapy process from both client and therapist perspectives.

Interpersonal affect communication and regulation outside of psychotherapy. In view of the dearth of studies that look at therapist and client affect simultaneously, it may be beneficial to review the literature on dyadic emotional interaction outside of psychotherapy to gain insight so that hypotheses may be generated in the present study.

In couple research, Hicks and Diamond (2008) reported that telling a partner about the most positive event of the day or listening to a partner talk about one increased positive affect, whereas talking about or listening to a partner's most stressful event of the day did not increase negative affect, unless the stressful event directly involved the partner. In another study, Thompson and Bolger (1999) observed that partners of bar exam examinees experienced elevated feelings of anxiety and depression that positively

correlated with examinees' level of depressed mood, but this relationship diminished as the examination approached, possibly as partners "made allowances for examinees' negative affect (p. 38)" to be maximally supportive around the most crucial time. These studies illustrate the importance of contextual factors in dyadic emotional regulation. As reviewed below, the contextual differences between therapist-client relationship and relationships outside seem great enough that generalization of findings from other literature on dyads may be difficult to make in the study on therapist affect.

Rimé (2007) noted that when one sees another person in distress, he or she is likely to use interventions that are "low-level imperatives focused on action (p. 472)" to help. The goal is to resolve the immediate crisis at hand and remove the person from the unpleasant situation as quickly as possible. In training beginning helpers, who are more similar to lay persons than to experienced therapists, Hill (2009) commented on their tendency to offer suggestions and advice to fix the situation, rather than to encourage deep emotional exploration. Both of these instances reflect a general inclination for people to avoid negative affect, both for themselves and for the persons they are trying to help. On the other hand, therapists remain "empathic, open, and emotionally engaged (Fosha, 2001, p. 230)" so that clients feel safe to feel and increase in their capacity to process emotions without relying on strategies against experiencing. This alludes to therapists' attempt to maintain, if not increase, the emotional intensity in their interaction with clients, rather than to decrease it, as long as clients are able to tolerate emotions without becoming overwhelmed by them.

Another observation in the sharing of emotions between persons outside of psychotherapy is the decrease in verbal behaviors, and increase in nonverbal behaviors,

as the emotional intensity of the shared episode increases (Christophe & Rimé, 1997). The nonverbal behaviors included touching, body contact, hugging, and kissing. These behaviors may serve to sooth the sharer but may also sooth the listener, who experienced a linear increase in emotions that positively correlated with the emotional intensity of the heard episode (Christophe & Rimé, 1997). Clearly, body contact occurs infrequently in therapy setting, and behavior like kissing is not ethically permissible. How therapists regulate their emotions internally and sustain a high level of verbal response and a low level of nonverbal comforting behaviors when working with emotionally aroused clients makes the therapist role rather unique.

Yet another aspect of interpersonal affect regulation in real life situations that differs from the therapy setting is the incidence of secondary sharing. The recipient of emotional information has a tendency to share such information with a third party, and the likelihood of sharing increased as the emotional intensity of the shared episode increased (Christophe & Rimé, 1997). Considering that therapists are obligated to uphold confidentiality agreements with clients, they do not share highly emotional information about their clients with others. If the function of secondary sharing is to relieve the emotional burden of the listener, where do therapists relieve such burdens day after day? Perhaps therapists develop higher threshold over time for what is deemed emotionally charged material so that they feel less of a need to share.

Although therapists' initial emotional response to clients' sharing of emotional materials is likely very similar to that of non-therapists' (e.g., empathy), therapists' role demands them to think and act differently on the emotional stimuli presented by clients. In particular, therapists stay with negative emotions rather than to avoid them, continue to

use verbal responses when confronted with emotionally charged materials, suppress the natural tendency to comfort another person by physical contact, and refrain from secondary sharing to protect client confidentiality. Such role demands may require unique affect regulation capacity that is different from other forms of dyadic emotional interaction. The one-way caretaking therapeutic relationship is quite different from the mutuality that ideally occurs in healthy couple relationships. It is therefore difficult to generalize findings from the literature on interpersonal emotional communication from other fields to generate hypotheses on therapist affect in the present study. Instead, research questions seem more appropriate for the exploratory phase of this line of inquiry.

Assessment of Affect

The assessment of affect can be broadly categorized into observer rating, physiological measure, and self-report. I first describe the characteristics of each category of assessment, its merits and shortcomings, and specific measures that are important in the field of affect research today, and the relevance and appropriateness of these measures to the present study on therapist affect in psychotherapy.

Observer ratings. Observer ratings of affect involve judges coding affect based on observable behavior such as facial expression and non-verbal behaviors. An advantage of using observer ratings is that it is relatively unobtrusive compared to physiological assessments that require that the person be hooked up to sophisticated equipment. Another advantage of observer ratings is that it is more “objective” than self-report. Multiple observers are usually recruited and are trained to code reliably within and among themselves. Thus, they all use the same criteria for evaluation. One disadvantage

of observer ratings is that only observable affect-related changes in behavior can be coded, neglecting the subjective component of an affective experience. Another disadvantage is the requirement of specialized video recording equipment to capture facial expressions of affect in great detail. This technology is costly and not always available to researchers.

The Facial Action Coding System (FACS; Ekman & Freisen, 1978; Ekman, Freisen, & Hager, 2002) is an elaborate system that categorizes changes in facial appearance based on activities of the facial musculature. In particular, the FACS breaks down changes in facial appearance into action units (AUs) that reflect the movement of one or more facial muscles. Observers score all the AUs that are responsible in producing a single change in facial appearance. For example, the facial expression of relief commonly includes AUs 7, 12, 26, 43, and 53, which represents the lid tightener, lip corner puller, jaw drop, eye closure, and head up, respectively (Krumhuber & Scherer, 2011). Each AU may also be rated on duration, intensity, and the presence of lateral asymmetry (Ekman et al., 2002). In terms of reliability, intercoder agreement on AUs have ranged from .76 to .82 (Ekman et al., 2002).

Another observer rating system for affect is the Specific Affect Coding System (SPAFF; Gottman, McCoy, Coan, & Collier, 1995), which was originally developed to evaluate emotional communication among family members. When using the SPAFF, observers base their judgments of affect on a person's verbal statements, nonverbal cues, tone of voice, and changes in facial appearance using AUs of the FACS. Two versions of the SPAFF are currently available, with one having 10 affect codes and another having

16 affect codes. In one study using the 16-code SPAFF, Cohen's kappas ranged between .75 and .95 (Gottman et al., 1995).

In psychotherapy research, the Achievement of Therapeutic Objective Scale (ATOS; McCullough, Larsen, Schanche, Andrews, & Kuhn, 2003) has been developed for observers to assess the effects of therapy on clients based on the coding of videotaped sessions. Client progress is rated on 7 dimensions, each with a scale from 0 to 100. Of particular interests to affect researchers are two ATOS subscales that provide ratings of client affect. The Exposure subscale measures the duration and intensity of a client's arousal due to adaptive affects (e.g., grief, joy, anger), as exhibited in a client's vocal tone, facial expression, nonverbal behaviors, and verbal statements. The Inhibitory Affects subscale measures observable inhibitory affects, such as anxiety, shame, guilt, and pain that prevent a client from fully expressing adaptive affects. Interrater reliability estimates are satisfactory for these two subscales, ranging from .68 to .70 for the Exposure subscale, and .65 to .72 for the Inhibitory Affects subscale (Valen, Ryum, Svartberg, Stiles, & McCullough, 2011).

In sum, observer rating of affect provides a relatively objective way of assessing affect based on multiple judges' evaluation of observable changes in behavior. The sophisticated technology involved, however, may be expensive to researchers operating on a minimal budget, and the establishment of reliable ratings can be a very labor intensive task. Perhaps the most compelling reason that observer rating is not a desirable method to study therapist affect is that therapists are trained to self-monitor displays of emotions. For example, Hill (2009) encouraged beginning therapists to be aware of their moment-to-moment feelings in session so that they "can make informed decisions about

how to act rather than having the reactions 'leaked out'" (p. 113). A therapist who becomes irritated with a client will probably work to not display the irritation but use the reaction to guide her conceptualizations and interventions, thus preventing coders from rating therapist affect accurately based on observations alone. Similarly, although judges' evaluations can capture changes in behavior, they cannot necessarily capture the subjective experience in the moment.

Physiological measures of emotions. Physiological measures of affect are methods of assessment that track bodily changes in relation to one's affective experience. One advantage of physiological assessment of affect over self-report and observer ratings is the lack of reliance on human judgment and subjectivity. Social desirability that accompanies self-report measures is also circumvented through the use of physiological measures (Santerre & Allen, 2007). A disadvantage of physiological measures is the relative expense and intrusiveness of many of these measures that make them unviable in a naturalistic setting. For example, hooking clients and therapists up to machines (e.g., for an electrocardiogram or electroencephalogram) creates extraneous tension in participants and make it less possible to conduct an undisrupted psychotherapy session.

Electrodermal activity. Activation of the sympathetic nervous system can be directly measured by examining a person's electrodermal activity (Santerre & Allen, 2007). Specifically, a small current is passed through two electrodes attached to the skin. The conductance of current is normally low across skin due to its relative electrical resistance. As sweat increases during sympathetic activity, however, the electrolytes present in sweat increases the conductance of current, resulting in what is commonly known as the skin conductance response (SCR).

Although the SCR is a widely used measure of emotion and arousal, a disadvantage of using SCR is the lack of specificity in the affect being assessed (Santerre & Allen, 2007). For example, an increase in sympathetic activity may be associated with many different affective changes, including but not limited to excitement, anger, or anxiety. Sexual arousal and physical activity are also associated with an activated sympathetic nervous system and cannot be distinguished from changes in affect. Although SCR is useful in measuring a person's response to a specific stimulus in a tightly controlled experimental setting (Santerre & Allen, 2007), its application in a naturalistic psychotherapy session may be limited.

Cardiovascular activity. Heart rate, contractability, and heart rate variability are three components of cardiovascular activity of interest to affect researchers (Santerre & Allen, 2007). These components can be determined using an electrocardiogram (EKG). To obtain an EKG, electrodes are placed on pairs of limbs to measure changes in voltage associated with the cardiac cycle. Heart rate, defined as the number of beats per minute, can be calculated based on the time elapsed between two consecutive ventricular depolarization. In affect research, heart rate can be used to reflect changes over a short interval in response to a brief emotional stimulus, or over a longer interval in response to a more prolonged stimulus, such as an emotional film or a stressful task (Santerre & Allen, 2007).

Contractility refers to the forcefulness and speed of ejection of blood in the ventricles (Santerre & Allen, 2007). Increased contractility is a reflection of increased activity in the sympathetic nervous system (Santerre & Allen, 2007). Using cardiac contractility as an index, researchers have found greater increase in sympathetic activity

during stressful tasks among individuals who reported more depressive symptoms compared to controls (Santerre & Allen, 2007).

In addition to the sympathetic nervous system, the heart is controlled by the parasympathetic nervous system. Specifically, the parasympathetic vagus nerve controls heart rate variability at rest. Vagal tone, or the extent to which the vagus nerve has inhibitory control over the heart, is an index of functioning between the central autonomic network and peripheral neural feedback (Santerre & Allen, 2007). In terms of psychological processes, high vagal tone is related to greater behavioral flexibility to meet changing demands of the environment, whereas low vagal tone is related to behavioral rigidity and lower self-regulation (Santerre & Allen, 2007). Vagal tone thus marks an individual difference in information processing that has implications on a person's affective experience. For example, Thayer, Friedman, and Borkovec (1996) found that individuals with generalized anxiety disorder have lower vagal tone compared to controls, and that both groups demonstrated reduction in vagal tone in an experimentally-induced worry condition.

Neural activity. Besides cardiovascular activities, affective changes may be examined in relation to activities in the brain. Common techniques that researchers in affective neuroscience apply include the electroencephalogram (EEG) and functional magnetic resonance imaging (fMRI).

In EEG, electrical activity in the brain is measured noninvasively from the scalp surface (Santerre & Allen, 2007). An advantage of using EEG to assess emotional response is its high temporal resolution (Santerre & Allen, 2007). Changes in neural activity can be reflected on an EEG immediately with little delay. EEG has also been

used to demonstrate individual differences at baseline in relation to trait affectivity. For example, higher basal activity in the left and right anterior brain is associated with a person's inclination to experience positive and negative affect, respectively (Tomarken, Davidson, Wheeler, & Doss, 1992). A disadvantage of EEG is its low spatial resolution (Santerre & Allen, 2007). Although dense electrodes may be placed across the scalp, electrical activity on the scalp represents a summation of postsynaptic potentials within the brain, and the source of activity within the brain cannot be precisely identified.

A newer and more technologically advanced method of examining neural activity is the fMRI. Compared to EEG, fMRI has superior spatial resolution but lower temporal resolution, and may provide corroborative evidence for EEG findings (Santerre & Allen, 2007). In essence, fMRI records changes in blood flow, which occur when oxygen- and glucose-rich blood flows to brain regions that are activated in response to a specific task. In studies of affect, specific brain regions that are responsible for the processing of emotional information can be located. Unfortunately, the technology involved in EEG and fMRI is expensive. The need to hook therapists and clients to sophisticated machines during therapy also does not seem feasible.

Biomedical measures. Changes in affect are associated with biochemical changes in the body. Although it is beyond the scope of this chapter to review the neurochemical pathways underlying affective experiences, an affect-related biomedical index often used in psychological studies is free salivary cortisol level. In essence, cortisol is a steroid hormone secreted in times of stress. In laboratory studies, cortisol response may be influenced by stress-inducing tasks such as arithmetic and public speaking, which provides some understanding of the mechanisms involved in stress-

related disorder (Kudielka, Hellhammer, & Wüst, 2009). Because of the time lag between stress stimulus and peak cortisol response (Kudielka, Buske-Kirschbaum, Hellhammer, & Kirschbaum, 2004), however, it may be difficult to interpret readings in a naturalistic setting based on generalized stressors. Furthermore, cortisol levels and responses vary with numerous factors, such as age, gender, phase in menstrual cycle, time of the day, physical activity, chronic stress, and intake of nicotine, caffeine, and alcohol (Kudielka et al., 2009). Findings obtained from repeated measurements of cortisol level in a naturalistic setting may be hard to interpret without controlling for the myriad of confounding factors.

In sum, physiological measures of affect offer an "objective" method for assessing emotion and emotional responses. SCR and EKG examine global changes in nervous system functioning that make identification of specific affective changes difficult. EEG and fMRI examine specific affective responses in the brain, but are difficult to conduct in a naturalistic setting due to the sophisticated equipment involved. Assessing hormonal fluctuations, such as changes in cortisol level, appears promising for psychotherapy research, but may be limited by delayed responses and confounding physiological factors. Thus, although seemingly more capable of assessing emotions, these physiological methods are expensive and intrusive. Furthermore, they generally assess overall arousal rather than specific emotions and are not capable at this time of measuring the inner subjective experience of people. Hence, they are not appropriate for this study.

Self-report measures. Self-report measures assess a person's subjective experience of affect. Some advantages of the self-report method include low cost, ease of

administration, and nonintrusiveness. These characteristics make self-report especially appealing when repeated measurements are desired in a naturalistic psychotherapy setting. One disadvantage of using self-report measures is the lack of objectivity. For example, the same ratings on a Likert scale may mean different things for different people. Social desirability may also impact on how people rate affect, although some evidence suggests that self-rated affect is not significantly influenced by social desirability (Humrichouse et al., 2007). In this review, self-report measures of affect are divided into two broad categories: Measures of discrete affect and measures of dimensional affect (Humrichouse et al., 2007). Examples of some important and widely used self-report measures are reviewed below.

Measures of discrete affect. Measures of discrete affect are derived from affect models that theorize the presence of specific, unique types of affect (Humrichouse et al., 2007). One of the earliest measures of discrete affect is the Mood Adjective Check List (MACL; Nowlis, 1965). The original MACL consisted of 130 words that participants rated on a 4-point scale to describe their feelings in the moment. Twelve affects were derived from factor analysis, and shorter forms were created for other studies (Nowlis, 1965). Although the MACL is historically important to our understanding of the structure and assessment of affect, the MACL is not widely used now because of unclear psychometric properties (Humrichouse et al., 2007). Tiller and Campbell (1986) also noted that the MACL was developed based on an arbitrary theorizing of the underlying structure of affect, and some adjectives were not representative of emotions.

The Differential Emotions Scale-IV (DES-IV; Izard, Libero, Putnam, & Haynes, 1993) is a 36-item measure that assesses affect on a 5-point scale. Authors of the original

DES incorporated cross-cultural research findings on emotion labeling during scale development, and the scale was revised multiple times to maximize usability across people with different educational levels. Factor analysis of DES-IV scores resulted in 12 affect factors. Although the DES-IV is convenient to administer due to its brevity, the few items used to measure each affect (three items for each affect) have contributed to low to moderate internal consistency in each affect subscale (Humrichouse et al., 2007).

The Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971) is a 65-item instrument that measures affects on a 5-point scale. Six subscales were derived from factor analysis: Tension-anxiety, depression-dejection, anger-hostility, fatigue-inertia, vigor-activity, and confusion-bewilderment. The POMS was originally developed to track changes in mood in psychiatric populations, but it has been shown to be applicable in non-clinical populations as well (Bourgeois, LeUnes, & Meyers, 2010; Humrichouse et al., 2007). However, the proposed factor structure of the POMS has not been consistently found. For example, Bourgeois et al. (2010) reported that the confusion subscale did not emerge in exploratory factor analysis, and confirmatory factor analysis provided only marginal support for the posited 6-factor structure (Bourgeois et al., 2010).

The Multiple Affect Adjective Check List – Revised (MAACL-R; Zuckerman, Lubin, & Rinck, 1983) is a 132-item instrument that involves 5 subscales of affect: Anxiety, Depression, Hostility, Positive Affect, and Sensation Seeking. In contrast to using a 4- or 5-point scale, respondents on the MAACL-R put check marks next to items that describe their feelings. The MAACL-R has been used in adults and adolescents in research and clinical settings (Craig, 2005). Internal consistency has been shown to be high and test-retest reliability has been shown to be low, providing support for the

MAACL-R as a valid instrument to measure state affect (Zuckerman et al., 1983). However, the length is a problem, especially for repeated measurements.

Although the MAACL-R appears to be one of the best measures of discrete affect because of its strong psychometric properties, a commonality among the DES-IV, POMS, and MAACL-R is high intercorrelation among subscales of affect. Affect that are posited to be unique in the discrete model of affect are therefore not as distinguishable as theorized (Humrichouse et al., 2007).

Measures of dimensional affect. Strong evidence for nonspecificity of affect, in addition to the lack of agreement among experts on the constituents of basic emotions, led researchers to develop dimensional models of affect and their accompanying measures (Humrichouse et al., 2007). Measures of dimensional affect are derived from dimensional models that consider affect to lie on a continuum. In other words, affect that were previously thought to be unique are subsumed under a smaller number of higher order dimensions. To date, two-dimensional models have received the most attention from affect researchers (Humrichouse et al., 2007). In Russell's (1980) conception, affect lie in a circumplex, with two bipolar dimensions: Pleasure-Misery, where pleasant and unpleasant affect lie on opposite ends of a continuum, and Arousal-Sleepiness, where activated and deactivated affect lie on opposite ends of another continuum. According to this model, one cannot experience positively- and negatively-valenced affect simultaneously because they are expected to be highly negatively correlated (Humrichouse et al., 2007). A measure developed to test Russell's model is the Current Mood Questionnaire (CMQ; Feldman Barrett & Russell, 1998, as cited in Humrichouse et al., 2007). Bipolarity and good internal consistency were demonstrated in

the Pleasant-Unpleasant scale, but the Arousal-Sleep scale showed a lack of full bipolarity and had less acceptable internal consistency (Humrichouse et al., 2007). Although the use of multiple response formats in the CMQ allows researchers to correct for random and systematic measurement error (Feldman Barret & Russell, 1998; Humrichouse et al., 2007), the length of the administration made the CMQ unattractive for use in many applied settings (Humrichouse et al., 2007).

Watson and Tellegen (1985) offered a rotational variant of Russell's (1980) model (Humrichouse et al., 2007; Watson, Clark, & Tellegen, 1988). Instead of describing affect along the pleasure and arousal dimensions, they used positive affect (PA) and negative affect (NA). The two continua in this model are thus high versus low PA, and high versus low NA. In essence, high PA refers to "high energy, full concentration, and pleasurable engagement, whereas low PA is characterized by sadness and lethargy" (Watson et al., 1988, p. 1063). On the other hand, NA denotes "subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and nervousness, with low NA being a state of calm and serenity" (Watson et al., 1988, p. 1063). Importantly, this model posits that PA and NA are largely independent, and that people may experience PA and NA simultaneously, particularly when neither affect is experienced in high intensity (Humrichouse et al., 2007).

A measure developed based on Watson and Tellegen's conceptualization of affect is the Positive and Negative Affect Scale (PANAS; Watson et al., 1988). The PANAS is a 20-item measure of affect, with 10 items on each of the PA and NA scales. Responses are rated on a 5-point scale, and the question stem may be changed to enquire about

affect from different time perspectives (e.g., “right now,” “during the past week,” “in general, that is, on the average,” etc.). Excellent internal consistency (Cronbach’s $\alpha > .84$) has been found for the PA and NA scales among undergraduate students, university employees, and psychiatric inpatients across different time perspectives (Watson et al., 1988). Correlation between the PA and NA scales is also low, ranging from -.12 to -.23, indicating “quasi-independence” (Watson et al., 1988, p. 1065) in support of Watson and Tellegen’s (1985) two-factor model. Nevertheless, Tuccitto, Giacobbi, & Leite (2010) suggested content revision of the PANAS because of consistently low factor loadings of a few items. Thompson (2007) also observed item redundancy in the PANAS and demonstrated a psychometrically sound, abbreviated version that can be used across different cultures. In spite of these criticisms, a PSYCINFO search on August 16, 2012, shows that the PANAS has been cited 6,146 times since the original scale was published in 1988. Outstanding psychometric properties, brevity, and association with a clearly articulated theoretical framework likely have contributed to the popularity of the PANAS in affect research.

In sum, self-report measures offer investigators an opportunity to learn about a person’s subjective affective experience in a convenient, economical, and nonintrusive manner. The PANAS is especially appealing because of its well-established psychometric properties, sound theoretical underpinnings, and broad use in psychology. Repeated measurements are feasible using the PANAS because of its brevity. Although room for improvement exists for scale content of the PANAS, and findings may suffer from shortcomings related to the self-report method, such as social desirability and varied score anchoring across participants, data analysis may be designed to focus on intra-

individual fluctuation and its relationship with variables of interest to improve accuracy of interpretation. Other research approaches, such as qualitative methods, may also be used to supplement self-report quantitative findings to better our understanding of the meaning of different ratings of affect.

Chapter 3: Statement of Problem and Research Questions

In recent years, psychotherapy researchers have increasingly focused on therapist effects in psychotherapy. However, most of the therapist variables examined thus far have been trait (e.g., attachment) or trait-like (e.g., years of experience). The lack of examination of therapist state variables and their contribution to psychotherapy process is problematic because psychotherapy sessions are dynamic. Therapists influence the psychotherapy process not just by who they are, but also by their level of functioning as they step into each psychotherapy session. The study of therapist effects may be advanced by looking at therapist variables that change from one session to the next, and analyzing how these variables correlate with therapy process variables over the course of therapy.

A particularly interesting therapist state variable that begs investigation is therapist affect. Affect has been shown to influence cognition, such as attention, memory, decision making, creativity, and judgment (e.g., Baas et al., 2008; Bower, 1981; Dumont, 1993; Forgas, 1990). Therapist affect may therefore influence what a therapist focuses on, remembers, and how he or she makes clinical judgments and decisions, which in turn contributes to the overall effectiveness or quality of a session.

As reviewed in the previous chapter, separate lines of research have examined therapist emotional well-being/baseline affect and therapist emotional reactions to clients, but few researchers have simultaneously looked at therapist affect both before and after a session, and no one has tracked pre- and post-session affect over several sessions of therapy. The lack of a comprehensive depiction of therapist affect makes it impossible to

elucidate the relationship between fluctuations of therapist affect and other therapy process variables.

Although much research has been conducted on affect in other areas of psychology, most studies involved an experimental design where participants' affect were manipulated and the effects of such manipulations studied. We therefore cannot be certain how these findings may generalize to observational studies such as the present one. Perhaps a more compelling reason to question the applicability of affect findings obtained from the general population to a study on therapists is that affective functioning may differ due to role differences. Therapists, particularly those who orient towards psychodynamic/interpersonal theoretical frameworks, are often taught to immerse themselves in the client's affective experience to connect with the client through empathy, yet "pull back" sufficiently to remain objective. Therapists need to dampen the natural human inclination to avoid negative affect so that clients can deepen their affective experiencing. Therapists also try to "set aside" extraneous distractions, which may be affective in nature, to focus on clients. These role functions suggest that therapists may not be reacting spontaneously to affective stimuli like participants do in experimental studies on affect. Since little is known about therapist affect, I propose that we first ask research questions, rather than stating specific hypotheses, to provide a description of how therapist affect changes in a psychotherapy session, and understand the factors underlying these changes.

Therapist Affect in Psychotherapy

Since the first step is to describe therapist change in affect from pre- to post-session (a session-level variable), it is important to control for effects unrelated to

session-level variation. For example, a therapist may consistently score high on negative affect regardless of the session because of his or her trait affect negativity (a therapist-level effect). Another therapist may have a strong liking for a particular client and consistently score high on pre-session positive affect every time before seeing that client (a client-level effect). Hence, in the description of therapist change in affect from pre- to post-session, therapist and client effects need to be controlled. Also, as reviewed previously, the most frequently cited measure of affect is based on Watson and Tellegen's (1985) model of Positive and Negative Affect. I therefore focused my inquiry on therapist affect along these two affect dimensions. Taken together, I asked the following questions.

Research Question 1: Is there a significant change in therapist positive affect from pre- to post-session, after controlling for therapist and client effects?

Research Question 2: Is there a significant change in therapist negative affect from pre- to post-session, after controlling for therapist and client effects?

The second part in understanding therapist affect is to investigate potential predictors of pre- to post-session change in therapist affect. In the literature review, I noted that client affect likely interacts with therapist affect based on dyadic regulation of affect (e.g., Dales & Jerry, 2008). A client who comes to a particular session with intense negative affect may pull the therapist to feel more negative affect. Client pre-session affect thus serves as a potential predictor of change in therapist affect. In addition, as illustrated by Duan and Kivlighan (2002), client and therapist's affect may become more similar or dissimilar as a consequence of spending time together in a psychotherapy

session. The second predictor of change in therapist affect is thus the client's change in affect.

Again examining affect along two dimensions (positive and negative), and controlling for therapist-level and client-level effects unrelated to session-level variation, I asked the next two research questions. Note that I have restricted each research question to have one outcome variable and multiple predictor variables, which is the structure needed for data analysis.

Research Question 3: Can therapist change in positive affect from pre- to post-session be predicted by client pre-session positive affect, client pre-session negative affect, client change in positive affect, and client change in negative affect, after controlling for therapist and client effects?

Research Question 4: Can therapist change in negative affect from pre- to post-session be predicted by client pre-session positive affect, client pre-session negative affect, client change in positive affect, and client change in negative affect, after controlling for therapist and client effects?

Therapist Affect and Psychotherapy Process/Outcome

After obtaining a description of therapist affect, I moved on to exploring the relationship between therapist affect and the psychotherapy process/outcome. One of the most often studied therapy process variables is the working alliance. Theoretically, all three components of the working alliance: Agreement on therapy task, agreement on therapy goal, and affective bond between therapist and client (Bordin, 1979) might be related to therapist affect. A therapist may focus on and remember different aspects of a client's material depending on his or her affect, and develop therapeutic goals and tasks

that are collaborative to varying degree with the client's tasks and goals. The extent to which a therapist connects affectively with a client (the bond component) also might depend in part on the therapist's affective state. For instance, affect has been shown to be related to interpersonal functioning (Mitchell & Madigan, 1984). How much a therapist likes, cares, appreciates, and respects a client (i.e., items from Hatcher and Gillaspy's (2006) Working Alliance Inventory-Short Revised - Bond subscale) may not only reflect how a therapist feels towards a client but also the therapist's levels of positive and negative affect.

A session outcome variable construct of interest for this study is session quality. The evaluation of session quality can be operationalized using the Session Evaluation Scale (Hill & Kellems, 2002), which includes items that tap into the perceived helpfulness, satisfaction, and value of a therapy session. Session outcome, instead of more distal changes in symptoms or interpersonal functioning, has been chosen because it appears to be more immediately contingent upon the session-level variation in therapist affect that is being studied.

Another therapy process variable that has gained attention in recent research is the real relationship, which Gelso (2009) defined as "the personal relationship existing between two or more people as reflected in the degree to which each is genuine with the other and perceives and experiences the other in ways that befit the other" (pp. 254-255). The real relationship is comprised of the components of *genuineness* and *realism*. How may affect be related to the real relationship? Although no formal theory has been proposed to answer this question, one may imagine clinical scenarios where the experience of the real relationship may change with different therapist affect. For

example, a therapist who experiences very positive affect before a session may feel a need to mask such affect to empathize with a client's pain, thereby generating difficulty for him or her to be fully genuine. On the other hand, a therapist who experiences negative affect before a session due to extraneous circumstances (e.g., loss of a significant other) may perceive the client inaccurately because the therapist's lens is tainted by his or her own affect.

While working alliance, session quality, and real relationship represent three different theoretical constructs of the therapy process/outcome, no formal theory exists to suggest that affect is associated with one aspect of the therapy process/outcome but not another. Among these variables, the most frequently studied variable is the working alliance. Several studies (e.g., Kivlighan & Shaughnessy, 1995, 2000; Nissen-Lie, Monsen, & Ronnestad, 2010) have also used multilevel modeling methodology to look at changes in working alliance over the course of therapy and their predictors, suggesting that a continuous focus on this process variable using similar data analytic strategies would situate this study well within a particular body of research. On the other hand, given the exploratory nature of the present study, I conducted exploratory analyses of the other two process/outcome variables as well.

With respect to predictor variables, I included both therapist pre-session affect and therapist pre- to post-session change in affect as predictors. The distinction is important because they get at two empirical questions. When pre-session affect is entered as a predictor of therapy process, I am looking at how therapist's affective state immediately before a session might influence a session. This question is asked because previous studies (e.g., Duan & Kivlighan, 2002; Gurman, 1973; Hill et al., 1994) reported

inconsistent findings, where pre-session positive and negative affect were related to therapist effectiveness to varying degrees and in different directions. A clearer understanding of the relationship between pre-session affect and therapy process can hopefully help therapists to be more mindful of certain pre-session affect and better prepare for sessions. On the other hand, when therapist pre- to post-session change in affect is entered as a predictor, I am asking how therapist affective change in the session may be related to the therapeutic process. As reviewed, Duan and Kivlighan (2002) and Hill et al. (1994) collected data on pre- and post-session therapist affect, but they did not look specifically at the relationship between affect change and the therapy process. Examining such a relationship may allow us to estimate the degree to which variability in therapy process may be accounted for by changes in therapist affect, a state variable that is currently under investigated compared to trait variables (e.g., therapist attachment style).

Another consideration for the therapy process/outcome variable is rater perspective. Therapist and client likely view the therapy process differently for each session, and studies have shown that their perspectives are only moderately correlated (e.g., Tryon, Blackwell, & Hammel, 2007, on the working alliance). To fully describe the relationship between therapist affect and therapy process/outcome, I therefore asked separate research questions focusing on client- and therapist-rated therapy process/outcome. In addition, the rating of therapy process occurred at the end of the session where raters' post-session affect were likely related to the process rating. For example, a client who thought that the session went well likely experienced more positive affect. Alternatively, the experience of positive affect at post-session may lead the client

to believe that the session has gone well and rate the process favorably. It is therefore important to control for rater post-session affect when examining therapy process ratings. Although adding rater post-session affect as a covariate of therapy process makes theoretical sense, it can only apply to client ratings of the therapy process because the predictors of therapist pre-session affect and therapist change in affect will likely be correlated with therapist post-session affect. If therapist post-session affect was added as a covariate for therapist-rated therapy process, little variance may be left to be accounted for by the predictor variables. Thus, post-session affect of the therapist was not added as a covariate.

With this, I generated the next two questions.

Research Question 5: Can client post-session ratings of therapy process/outcome be predicted by therapist pre-session positive affect, therapist pre-session negative affect, therapist change in positive affect, and therapist change in negative affect, after controlling for client post-session positive affect and client post-session negative affect?

Research Question 6: Can therapist post-session ratings of therapy process/outcome be predicted by therapist pre-session positive affect, therapist pre-session negative affect, therapist change in positive affect, and therapist change in negative affect (with no covariate)?

Finally, because quantitative measure of affect and therapy process generate findings that are confined by the responses on the instruments, it may be good to supplement the results obtained for Research Questions 1 to 6 with an open ended question that asks about therapists' subjective experience of affect in relation to a psychotherapy session. In particular, since ratings of affect were collected before and

after a session, it may be beneficial to ask therapists what happened *during* a session in relation to their affect change. Hence, I asked *Research Question 7: How do therapists explain their change in affect, if any, from pre- to post-session?*

Chapter 4: Methods

Participants

Data for the present study were collected between June 1, 2011 and March 21, 2013 in the Maryland Psychotherapy Clinic and Research Laboratory (MPCRL). The MPCRL provides low-fee psychotherapy service for adult members of the community.

Clients. Fifty-one clients (29 female, 22 male; 32 European American, 7 African American, 7 multiethnic, 3 international; 1 Hispanic American, 1 Native American/Alaskan Native, 1 other) were included in this study. Clients' age ranged from 21 to 71 years (M = 33.33; SD = 11.01) at the start of therapy. In terms of symptom severity, mean score on the Outcome Questionnaire – 45 (OQ 45; Lambert et al., 1996) was 76.98 (SD = 20.03; range = 42-117), which was comparable to a group of psychotherapy clients at another university outpatient clinic (M = 78.01; SD = 25.71; Lambert et al., 1996). With respect to interpersonal functioning, clients scored on average 1.49 (SD = .57; range = .93-2.60) on the Inventory of Interpersonal Problems – 32 (Barkham, Hardy, & Startup, 1996). The mean IIP-32 score was also comparable to that reported in the scale development sample of psychotherapy outpatients (M = 1.51, SD = .68).

Therapists. Fifteen therapists (9 female, 6 male; 7 Asian/Asian American, 5 European American, 2 Latino/a, 1 African American) were included in the present study. Age range of therapists at the beginning of data collection was 25 to 52 years (M =30.73, SD = 6.91). Except for one therapist who had received the doctoral degree a year prior to data collection, all other therapists were current counseling psychology doctoral students from the same training program. All therapists reported having between 2 and 7 years of

experience providing psychotherapy (*M* = 4.17, *SD* = 1.59) at the beginning of data collection. On the Theoretical Orientation Profile Scale-Revised (Worthington & Dillon, 2003; 1 = never to 10 = always adhere to a particular orientation), therapists most identified with and used methods from the psychoanalytic/psychodynamic orientation (*M* = 8.07; *SD* = .70), followed by multicultural (*M* = 6.93; *SD* = 1.74), humanistic/existential (*M* = 6.33; *SD* = 1.69), cognitive/behavioral (*M* = 4.00; *SD* = 1.44), feminist (*M* = 3.22; *SD* = 1.95), and family systems (*M* = 2.67; *SD* = 1.26).

Judges. Three judges (2 female, 1 male; 2 Asian/Asian American, 1 European American) coded the qualitative data on affect. Age range of the judges at the time of coding was 20 to 31 years (*M* = 24.33, *SD* = 5.86). Two of the judges completed undergraduate helping skills training and one of the judges was a doctoral candidate in counseling psychology and author of this study.

Measures

Affect.

Quantitative measure. The Positive Affect and Negative Affect Schedule (PANAS; Watson & Clark, 1999; Watson, Clark, & Tellegen, 1988) is a widely researched measure of positive and negative affects. Responses to affect descriptors are anchored at 5 points (1 = *very slightly or not at all*, 2 = *a little*, 3 = *moderately*, 4 = *quite a bit*, and 5 = *extremely*). The 10 positive affect (PA) descriptors include *attentive, interested, alert, excited, enthusiastic, inspired, proud, determined, strong,* and *active*. The 10 negative affect (NA) descriptors include *distressed, upset, hostile, irritable, scared, afraid, ashamed, guilty, nervous,* and *jittery*. The PANAS may be used to measure state affects by using the wording "Indicate to what extent you feel this way

right now, that is, at the present moment." Based on a development sample of 2,213 undergraduate students (Watson & Clark, 1999), the internal consistency (coefficient alpha) for state PA and NA were .88 and .85, respectively and the intercorrelation between state PA and NA scales was -.06, indicating "quasi independence." Administering the measure twice within an 8-week interval (n = 101) showed test-retest reliabilities for state PA and NA of .54 and .45, respectively (Watson et al., 1988).

Qualitative inquiry of affect. Besides the PANAS, therapists were asked to write down their responses to the following questions: (1) Did your mood change during the session? (2) If yes, how has your mood changed? and (3) What happened during the session that could have resulted in this mood change?

Therapy process/outcome. The therapy process/outcome was assessed through measuring three conceptually distinct but empirically interrelated constructs: Working alliance, session evaluation, and real relationship.

Working alliance. The Working Alliance Inventory-Short Revised (WAI-SR; Hatcher & Gillaspy, 2006) is a 12-item measure assessing client perceptions of the working alliance using a 5-point rating scale (1 = *seldom* to 5 = *always*). This short form was constructed based on the results of extensive factor analysis on the original 36-item WAI (Horvath & Greenberg, 1989), and has maintained the theoretical components of bond, task, and goal in working alliance (Bordin, 1979). Hatcher and Gillaspy also showed that the Goal and Task subscales of the WAI-SR were better differentiated than those of the WAI through examining their pattern of correlations with other alliance measures, such as the California Psychotherapy Alliance Scale (CALPAS; Gaston, 1991; Marmar, Horowitz, Weiss, & Marziali, 1986) and the Penn Helping Alliance

Questionnaire (HAQ; Alexander & Luborsky, 1986). The internal consistency for the bond, task, goal subscales, and the total WAI-SR scale were between .85 and .92 for two development samples. Example items of the WAI-SR include "My therapist and I respect each other (bond)," "I believe the way we are working with my problem is correct (task)," and "My therapist and I collaborate on setting goals for my therapy (goal)." A comparable 12-item therapist version of the WAI-SR is also used to examine therapist perceptions of the alliance. Cronbach alpha for client- and therapist-rated WAI-SR based on 46 clients treated by 13 therapists at the MPCRL is .84 and .92, respectively.

Session quality. The Session Evaluation Scale (SES; Hill & Kellems, 2002) was developed to assess client perceptions of session quality. The SES includes 4 items rated on 5-point scales (1 = *strongly disagree*, 5 = *strongly agree*). Example item includes, "I am glad I attended this session." Internal consistency was .91. The SES correlated at .51 ($p < .001$) with the widely used measure of session quality, Session Evaluation Questionnaire – Depth Scale (Stiles & Snow, 1984), evidencing concurrent validity (Hill & Kellems, 2002). In this study, a fifth item was added to the SES as suggested in Lent et al. (2006) to assess client perception of overall session effectiveness and to increase scale variance. The fifth item also correlated strongly with the original 4-item SES (Lent et al., 2006). A parallel therapist version is used to assess therapist perception of session quality. Cronbach alpha for client- and therapist-rated SES based on 46 clients treated by 13 therapists at the MPCRL is .77 and .91, respectively.

Real relationship. The Real Relationship Inventory-Client and Real Relationship Inventory-Therapist (RRI-C and RRI-T; Gelso et al., 2005; Kelley, Gelso, Fuertes, Marmarosh, & Lanier, 2010) are 24-item instruments that measure client and therapist

perceptions of the real relationship in individual psychotherapy. Both measures demonstrated discriminant validity through non-significant correlations with a measure of social desirability. In terms of convergent validity, RRI-C was found to be related with measures of client-rated working alliance, therapists' congruence, client's observing ego, and an earlier measure of real relationship (Kelly et al., 2010). RRI-T showed convergent validity through its correlations with measures of therapist-rated working alliance, session outcome, client emotional and intellectual insight, and negative transference (Gelso et al., 2005).

Each item on the RRI-C and RRI-T is rated on a 5-point scale (1 = strongly disagree to 5 = strongly agree), and falls under one of the two factors: Realism or Genuineness. For the MPCRL, a shortened 12-item version was administered to clients and therapists to reduce the burden of having to complete long questionnaires after each session. The 12 items chosen were thought to best capture the theoretical components of the real relationship. Based on another data set of clients and therapists in long-term psychotherapy, correlations between the shortened and long forms were .91 for clients and .96 for therapists. In addition, internal consistency was adequate for the short versions of the RRI-C (.86) and RRI-T (.89).

Procedures

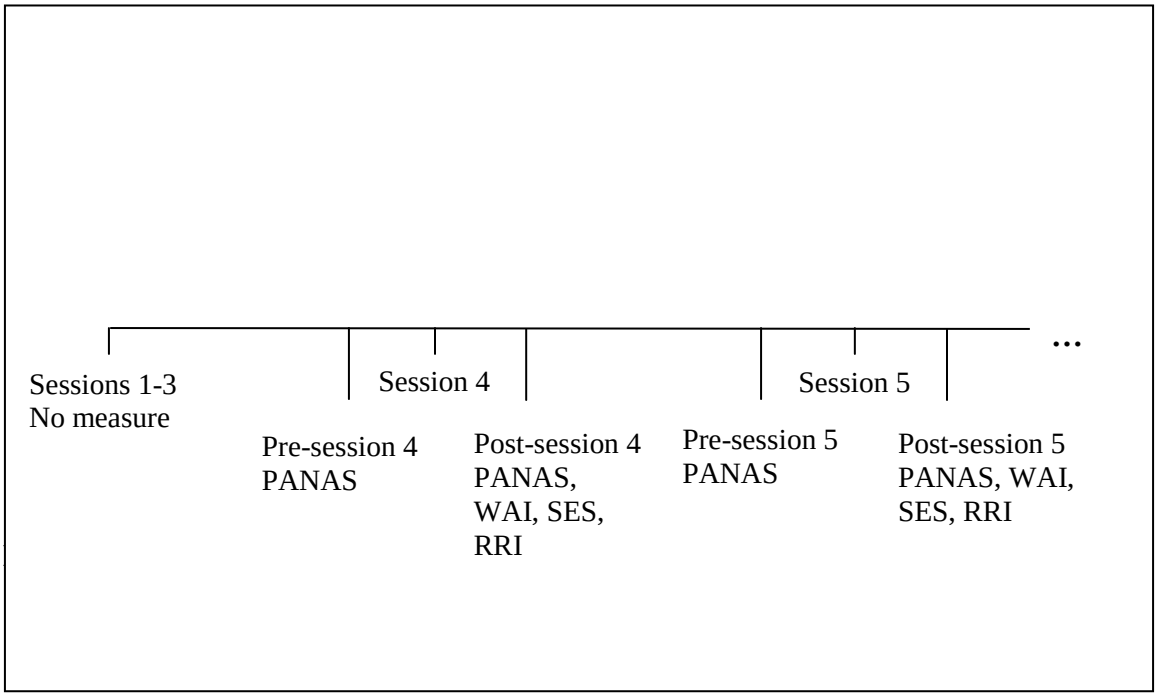
Recruitment. Clients learned about the MPCRL through website listings, flyers, word-of-mouth, and Maryland Day exhibits. All therapists and clients at the MPCRL were approached and asked to participate in the current study as part of a larger project.

Pre-session. Before the beginning of each therapy session after the third session, clients and therapists completed the state version of the PANAS using paper and pencil to

measure their affect *in that moment*. We administered the PANAS after the third therapy session because we were interested in examining therapist affect and the relationship between therapist affect and the therapy process in the context of psychotherapy, rather than in intake assessments. Also, because client or therapist lateness likely causes changes in affect, the measure was completed *after* both have arrived for the appointment.

Post-session. At the end of each therapy session after the third session, clients and therapists completed the state version of the PANAS using paper and pencil to measure their affect *in that moment*, and completed the additional 3 items about their fluctuations in affect during the session. Clients and therapists also completed their respective versions of the WAI-SR, SES, and RRI on the computer after each session. Refer to Figure 2 for a graphical illustration of the data collection procedure.

Figure 2. Data Collection Procedure



Quantitative data. This study employed a repeated measure design where therapist and client data were collected before and after each therapy session. Since each therapist saw several clients and had several sessions with each client, the collected data had a hierarchical structure where session-level data were nested within client-level data, which were nested within therapist-level data. Multilevel modeling (MLM) was conducted using *Mplus Version 7.11* (Muthén & Muthén, 1998-2012) for these analyses. The steps involved in model building are explicated along with the results in Chapter 5. Other descriptive statistics and bivariate correlations were computed using *IBM SPSS Statistics for Windows, Version 20.0* (IBM Corp., 2011).

Qualitative data. Because therapist responses to the open-ended questions (see Chapter 4) were brief (one to a few sentences), Consensual Qualitative Research – Modified (Spangler, Liu, & Hill, 2012) was used to analyze the data. Using this method, a team of three judges developed categories based on an initial subset of therapist written responses. These categories aimed at grouping qualitative data in meaningful themes. The rest of the data were then coded into these categories via consensus. The codings were audited, and the auditor's suggestions were discussed by the team. Revisions of the categories were made and followed by re-coding of all data to the revised categories. Prevalence of each category was then determined. To adjust for the different number of sessions that each client had, and for the different number of clients that each therapist had, the number of times that a category appeared in each case was first divided by the number of sessions that each client had. These proportions were then averaged across the clients of each therapist, and then averaged across all therapists to arrive at the relative prevalence of each category.

Chapter 5: Results

Preliminary Analyses

Measures were completed before and after each of the 1,245 psychotherapy sessions conducted by 15 therapists with 55 clients. Four transfer cases (73 sessions) were excluded from analysis because they contributed non-independent client data and violated statistical assumption of MLM (the present MLM models take data-dependence into account when considering one therapist seeing multiple clients, but not when the same client sees multiple therapists). In sum, data from 1,172 psychotherapy sessions, 51 clients, and 15 therapists were used for the present analysis.

Data checking. Because affect data were collected from therapists and clients before and after each session using paper forms (i.e., 4 paper forms were completed for each session), these data were subsequently entered into an SPSS file by undergraduate research assistants. The electronic data were checked against the paper measures for accuracy. A total of 464 completed forms were checked (approximately 10% of all affect data), and errors were found and corrected in 42 out of 12,992 entries (each of the 464 forms has 28 items). The data entry error rate was calculated to be 0.3%, which is relatively low. The affect data entered thus appeared trustworthy and were used for further analysis.

Missing data. As recommended by Schlomer, Bauman, and Card (2010), here I report the amount, type, and pattern of missing data present in this data set. Table 1 shows the number and percentage of sessions that contain missing data for the various measures.

Table 1. Amount of Missing Data by Measure

	# (%) of sessions with missing item(s)	# (%) of sessions with missing measure
Therapist		
Pre-session PA	0 (0.0%)	4 (0.3%)
Pre-session NA	1 item: 1 (0.1%)	4 (0.3%)
Post-session PA	1 item: 4 (0.3%); 3 items: 2 (0.2%)	10 (0.9%)
Post-session NA	1 item: 1 (0.1%); 2 items: 2 (0.2%); 3 items: 1 (0.1%)	10 (0.9%)
WAI	1 item: 11 (0.9%)	132 (11.3%)
SES	0 (0.0%)	132(11.3%)
RRI	0 (0.0%)	132 (11.3%)
Client		
Pre-session PA	1 item: 3 (0.3%)	3 (0.3%)
Pre-session NA	1 item: 2 (0.2%)	3 (0.3%)
Post-session PA	1 item: 1 (0.1%); 2 items: 1 (0.1%); 9 items: 1 (0.1%)	11 (0.9%)
Post-session NA	2 items: 1 (0.1%)	12 (1.0%)
WAI	1 item: 28 (2.4%); 2 items: 4 (0.3%); 3 items: 2 (0.2%); 4 items: 1 (0.1%); 5 items: 1 (0.1%)	38 (3.2%)
SES	0 (0.0%)	36 (3.1%)
RRI	0 (0.0%)	36 (3.1%)

Note. PA = Positive Affect Scale (10 items); NA = Negative Affect Scale (10 items); WAI = Working Alliance Inventory (12 items); SES = Session Evaluation Scale (5 items); RRI = Real Relationship Inventory (12 items)

In essence, there are two types of missing data: Missing items and missing measures. From Table 1, between 0.1% and 2.4% of the session data had at least one missing item across the 14 measures. The mode number of missing items is 1, suggesting that participants with nonresponse to items completed most of the other items on a measure most of the time. Given that this study focuses on the variation of predictor and outcome across sessions, it is best to handle missing items in a way that preserve variability across sessions (i.e., no averaging across sessions). As such, when missing items is limited (e.g., over 70% of the scale is completed), nonmissing scores on a measure for a particular session were averaged and the averaged score was imputed into the missing score(s) for that measure for that session. This imputation method maximizes the use of available session-level information. It is also considered a reasonable method given that each of the scales used in this study have good internal consistencies (Shafer & Graham, 2002). This imputation took care of the majority of the missing data due to item nonresponse (except for 1 session with 9 missing items on the client post-session PA, 1 session with 4 missing items on the client WAI, and 1 session with 5 missing items on the client WAI, which were handled as missing measures as discussed below). Total scores (for PA and NA) and average scores (for WAI, SES, and RRI) were then calculated based on the imputed numbers.

The other type of missing data, missing measures, cannot be easily imputed because there is no session-level information available for that measure. Because there is also a substantial amount of missing data, especially therapist-rated process data, multiple imputation may not be the optimal strategy. Instead, full information maximum likelihood (FIML) was applied in the estimation of model parameters. In essence, FIML

conducts analyses on the available data while considering the implied values of missing data based on available data (Schlomer et al., 2010). Advantages of using FIML include retaining the power and sample size for accurate standard error and confidence interval estimations and simplifying the analyses without first creating files of imputed data (Schlomer et al., 2010).

Internal consistency. Table 2 shows the Cohen's alpha for the different measures used in the present study. Because participants filled out measures multiple times, only data from one session (the earliest session with complete data) of each case were used in the calculation. Internal consistency across all the measures appeared adequate.

Table 2. Reliability Statistics for Measures

	Cohen's alpha
Therapist	
Pre-session PA	.79
Pre-session NA	.89
Post-session PA	.91
Post-session NA	.90
WAI	.94
SES	.88
RRI	.87
Client	
Pre-session PA	.87
Pre-session NA	.85
Post-session PA	.92
Post-session NA	.90
WAI	.92
SES	.89
RRI	.90

Descriptive statistics. Table 3 shows the means, standard deviations, and the range of scores for affect, working alliance, session evaluation, and real relationship. The number of sessions with completed measure was also included.

Table 3. Means and Standard Deviations for Affect, Working Alliance, Session Quality, and Real Relationship

	N	*M*	*SD*	*Min*	*Max*
Therapist					
Pre-session PA	1168	29.43	6.01	12.00	46.00
Pre-session NA	1168	13.55	4.47	10.00	35.00
Post-session PA	1162	30.76	6.31	14.00	49.00
Post-session NA	1162	13.30	4.91	10.00	38.00
PA-Δ	1159	1.29	6.06	-17.00	22.00
NA-Δ	1159	-.28	4.52	-23.00	20.00
WAI	1040	3.81	.59	1.50	5.00
SES	1040	3.98	.66	1.40	5.00
RRI	1040	3.73	.56	1.50	4.92
Client					
Pre-session PA	1169	24.84	8.86	10.00	50.00
Pre-session NA	1169	17.50	6.88	10.00	43.00
Post-session PA	1160	25.71	9.11	10.00	50.00
Post-session NA	1160	17.20	7.46	10.00	50.00
PA-Δ	1158	.92	6.09	-37.00	35.00
NA-Δ	1158	-.32	5.51	-24.00	29.00
WAI	1132	3.95	.82	1.42	5.00
SES	1136	4.22	.91	1.00	5.00
RRI	1136	4.14	.56	2.50	5.00

Note. PA = Positive Affect, NA = Negative Affect, Δ = pre- to post-session change; WAI = Working Alliance Inventory; SES = Session Evaluation Scale; RRI = Real Relationship Inventory.

Outliers. As evident from Table 3, some ratings could be considered univariate outliers. Using the criteria of $z > |3.29|$ (Tabachnick & Fidell, 2007), the outliers included 14 ratings of therapist pre-session NA, 15 therapist post-session NA, 1 therapist PA-Δ, 18 therapist NA-Δ, 3 therapist WAI, 8 therapist SES, 2 therapist RRI, 4 client pre-session

NA, 5 client post-session NA, 12 client PA-Δ, 17 client NA-Δ, 41 client SES. Given that none of the minimum or maximum scores fell outside of the range of each scale, these outliers were unlikely due to data entry error or missing data miscoding. The presence of more than a few outliers (e.g., > 5) on several of the scales also signaled that these ratings were unusual but not necessarily impossible in psychotherapy sessions. Outliers were thus kept in the multilevel analyses, and additional multilevel analyses were conducted without the outliers to see if the estimates were comparable (resulting n = 1063, after removing 109 sessions with one or more outlier values). In addition, a separate set of analyses were conducted excluding sessions in which the author served as the therapist (resulting n =1059), in case researcher expectations inadvertently influenced study findings. Marked discrepancies (e.g., change in direction of results) found in these analyses will be presented along with the main analyses in the sections below.

Bivariate correlations. Table 4 shows the intercorrelations between therapist and client ratings of affect, working alliance, session quality, real relationship, and session number. These correlation coefficients provide a preliminary look at the relationships among variables that were subsequently included in the multilevel models. Note that session number was significantly correlated with several of the affect and process/outcome variables, suggesting that these variables might change over the course of therapy. As such, session number was entered as a covariate when multilevel models were constructed.

Table 4. Intercorrelations for Affect, Working Alliance, Session Quality, and Real Relationship

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Therapist Pre-PA	__																	
2. Therapist Pre-NA	-.12‡	__																
3. Therapist Post-PA	.52‡	.02	__															
4. Therapist Post-NA	.02	.53‡	-.08†	__														
5. Therapist PA-Δ	-.46‡	.14‡	.53‡	-.10‡	__													
6. Therapist NA-Δ	.14‡	-.42‡	-.10‡	.55‡	-.25‡	__												
7. Therapist WAI	.09†	-.12‡	.28‡	-.24‡	.20‡	-.16‡	__											
8. Therapist SES	.09†	-.10†	.33‡	-.27‡	.25‡	-.21‡	.59‡	__										
9. Therapist RRI	.16‡	-.22‡	.22‡	-.25‡	.07*	-.07*	.65‡	.48‡	__									
10. Client Pre-PA	-.10‡	-.05	-.05	-.00	.05	.05	.02	.05	.06	__								
11. Client Pre-NA	-.06*	.10†	.02	.12‡	.08†	.03	-.01	-.01	-.12‡	-.02	__							
12. Client Post-PA	-.07*	-.05	-.01	.01	.07*	.04	.06	.11‡	.08*	.77‡	.01	__						
13. Client Post-NA	-.04	.07*	.08†	.10‡	.11‡	.05	.02	-.00	-.14‡	.06*	.71‡	-.06*	__					
14. Client PA-Δ	.04	.00	.06*	.00	.03	.00	.07*	.09†	.04	-.30‡	.05	.38‡	-.17‡	__				
15. Client NA-Δ	.02	-.03	.06*	.01	.05	.04	.03	.00	-.04	.11‡	-.30‡	-.10†	.47‡	-.30‡	__			
16. Client WAI	.13‡	-.16‡	-.01	-.07*	-.13‡	.08†	.36‡	.32‡	.45‡	.18‡	-.38‡	.27‡	-.41‡	.13‡	-.07*	__		
17. Client SES	.09†	-.11‡	.01	-.09†	-.07*	.01	.35‡	.41‡	.36‡	.16‡	-.26‡	.25‡	-.31‡	.14‡	-.10‡	.73‡	__	
18. Client RRI	.11‡	-.17‡	-.03	-.12‡	-.14‡	.03	.23‡	.29‡	.34‡	.09†	-.33‡	.16‡	-.32‡	.10‡	-.02	.74‡	.56‡	__
19. Session Number	.10‡	-.13‡	.02	-.16‡	-.08†	-.04	.05	-.16‡	.10†	-.28‡	.02	-.26‡	.02	.02	-.01	-.06*	-.27‡	.01

Note. Pre = pre-session; Post = post-session; PA = Positive Affect, NA = Negative Affect, Δ = pre- to post-session change; WAI = Working Alliance Inventory; SES = Session Evaluation Scale; RRI = Real Relationship Inventory. *$p < .05$. †$p < .01$. ‡$p < .001$.

Multilevel Modeling

Description of therapist affect.

Research Question 1: Is there a significant change in therapist positive affect from pre- to post-session, after controlling for therapist and client effects?

Research Question 2: Is there a significant change in therapist negative affect from pre- to post-session, after controlling for therapist and client effects?

To examine changes in affect across sessions within therapist-client dyads, multilevel modeling was used. In particular, multilevel models take data dependence into account so that effects related to therapists and clients are controlled for. Specific to the research questions (RQs), two unconditional models were constructed. Therapist pre- to post-session change in positive affect was the outcome variable for the first model (for RQ1), and therapist pre- to post-session change in negative affect was the outcome variable for the second model (for RQ2). Because session number was a significant correlate with therapist pre- to post-session change in positive affect (see Table 4), it was added as a covariate to both models so that changes in the outcome variables over the course of the therapy could also be characterized. In addition, based on visual inspection of individual ordinary least squares plots of session number and each of the outcome variables (Singer & Willett, 2003), linear models were fitted because they appeared to best characterize the relationships.

Using RQ1 as an example and following the notations and explanations by Raudenbush and Bryk (2002), the Level 1 unconditional model is:

$$PA - \Delta_{ijk} = \pi_{0jk} + \pi_{1jk}(session) + e_{ijk}$$

where *PA-Δijk* is the therapist pre- to post-session change in positive affect for session *i* of client *j* treated by therapist *k*, π_{0jk} is the mean therapist pre- to post-session change in positive affect for client *j* treated by therapist *k*, π_{1jk} is the linear rate of change in therapist change in positive affect for client *j* across sessions (i.e., session number as the predictor variable), and e_{ijk} is the random session effect, or the deviation of the session *ijk*'s score from the client mean. The session effect is assumed to be normally distributed with mean of 0 and variance σ^2.

At Level 2, the client-level, the model is:

$$\pi_{0jk} = \beta_{00k} + r_{0jk}$$

$$\pi_{1jk} = \beta_{10k}$$

where π_{0jk} is the mean therapist pre- to post-session change in positive affect for client *j* treated by therapist *k*, β_{00k} is the mean therapist pre- to post-session positive affect for therapist *k*, and r_{0jk} is the random client effect, or the deviation of client *jk*'s mean from the therapist mean. The client effect is assumed to be normally distributed with mean of 0 and variance τ_π . The rate of change in therapist change in positive affect (π_{1jk}) was fixed at Level 2 because its random slope was not significant.

At Level 3, the therapist-level, the model is:

$$\beta_{00k} = \gamma_{000} + u_{00k}$$

$$\beta_{10k} = \gamma_{100}$$

where β_{00k} is the mean therapist pre- to post-session change in positive affect for therapist *k*; γ_{000} is the grand mean of therapist pre- to post-session change in positive affect; and u_{00k} is the random therapist effect, or the deviation of therapist *k*'s mean from the grand mean. The therapist effect is assumed to be normally distributed with mean of 0

and variance τ_β . The rate of change in therapist change in positive affect was also fixed at Level 3 because its random slope was not significant. A similar three-level model was applied for therapist pre- to post-session change in negative affect for RQ2.

With respect to the research questions, the mean change in therapist positive affect was .638, with a standard error of .557. Using a 95% confidence interval (i.e., alpha = .05 because of the exploratory nature of this study), the lower and upper bounds of the mean were -.454 and 1.730, respectively. This interval spans zero, suggesting that the average change in therapist positive affect from pre- to post-session was close to zero. The mean change in therapist negative affect was .082, with a standard error of .421. The lower and upper bounds of a 95% confidence interval around the mean were -.743 and .907, respectively. This interval also spans zero, suggesting that the average change in therapist negative affect from pre- to post-session was close to zero. Given that therapist change in positive affect ranged from -17 to +22, and that therapist change in negative affect ranged from -23 to +20 (see Table 3), the average change of zero in positive affect and in negative affect indicated equally wide increases and decreases in either affect across all sessions.

Predictors of therapist affect change.

Although therapist change in affect from pre- to post-session was not significant, two research questions were generated a-priori to examine predictors of therapist affect change:

Research Question 3: Can therapist change in positive affect from pre- to post-session be predicted by client pre-session positive affect, client pre-session negative

affect, client change in positive affect, and client change in negative affect, after controlling for therapist and client effects?

Research Question 4: Can therapist change in negative affect from pre- to post-session be predicted by client pre-session positive affect, client pre-session negative affect, client change in positive affect, and client change in negative affect, after controlling for therapist and client effects?

Analyses were therefore conducted to examine these predictors, with the caveat that effects would likely be small given the non-significant change in therapist affect found.

The models constructed for RQ1 and RQ2 served as the initial unconditional models for RQ3 and RQ4, respectively. For therapist change in positive affect, the intraclass correlation coefficient (ICC) was .054 at the client level and .102 at the therapist level. For therapist change in negative affect, the ICC was .091 at the client level and .075 at the therapist level. The ICCs for both models indicated that generally under 10% of the variance in therapist pre- to post-session change in positive or negative affect were attributable to differences in clients and in therapists, and majority of the variance was due to session-level fluctuations. However, session number was not a consistent predictor of therapist change of affect. Specifically, therapist change in positive affect was predicted by session number (γ = -.024, p = .021), suggesting that therapist reported less elevation/greater drop in in-session positive affect over the course of therapy. On the other hand, therapist change in negative affect was not predicted by session number (γ = .002, p = .738). See Step 1 in Table 5 for results of the unconditional models for therapist change in positive affect and in negative affect.

In the second models for RQ3 and RQ4, the predictors of client pre-session positive and negative affect, and client pre- to post-session change in positive and negative affect were added to Level 1. Note that predictors were centered around client-level means so that the intercept, π_{0jk} , might be interpreted as the therapist pre- to post-session change in affect when client pre-session and pre- to post-session change in positive and negative affect were average for a client. Slopes for the Level 1 predictors were fixed at Levels 2 and 3 because no predictors were examined at the higher levels. Refer to Step 2 in Table 5 for the results of adding predictors to the multilevel models.

Therapist change in positive affect was significantly predicted by client pre-session positive affect (γ = .073, p =. 048) and client pre- to post-session change in positive affect (γ = .071, p = .014), although client pre-session negative affect (γ = -.035, p = .654) and client pre- to post-session change in negative affect (γ = -.023, p = .727) were not significant predictors. On the other hand, therapist change in negative affect was significantly predicted by client pre-session negative affect (γ = .132, p = .002) and client pre- to post-session change in negative affect (γ = .134, p = .010), although client pre-session positive affect (γ = .031, p = .123) and client pre- to post-session change in positive affect (γ = .018, p = .430) were not significant predictors. Interaction among predictors was examined by adding interaction terms (client pre-PA × client pre-NA, client PA-Δ × client NA-Δ, client pre-PA × client PA-Δ, client pre-NA × client NA-Δ) to each of the models predicting therapist change in positive affect and in negative affect. However, none of the interaction terms was significant.

Taken together, even though therapist affect was not found to change significantly from pre- to post-session, client pre-session affect and client pre- to post-session change

in affect predicted therapist change in affect. In particular, change in therapist positive affect was predicted by client pre-session and client pre- to post-session change in positive affect, such that when clients reported more positive pre-session affect or an increase in positive affect from pre- to post-session, therapists reported an increase in positive affect. In contrast, change in therapist negative affect was predicted by client pre-session and client pre- to post-session change in negative affect, such that when clients reported more pre-session negative affect or an increase in negative affect from pre- to post-session, therapists reported an increase in negative affect.

Table 5. Predictors for Therapist Pre- to Post-session Change in Positive and Negative Affect

	Therapist PA-Δ				Therapist NA-Δ			
	Step 1		Step 2		Step 1		Step 2	
	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*
Fixed effect								
Intercept	.638	1.145	.638	1.147	.082	.194	.079	.187
Session	-.024	-2.312*	-.022	-2.218*	.002	.335	.000	.039
Client Pre-PA			.073	1.977*			.031	1.542
Client Pre-NA			-.035	-.448			.132	3.093**
Client PA-Δ			.071	2.470*			.018	.789
Client NA-Δ			-.023	-.348			.134	2.572**
Random effect								
Level 1 residual	28.766	6.704***	28.509	6.780***	16.688	3.666***	16.319	3.775***
Level 2 intercept	1.870	1.145	1.883	1.068	1.832	1.642	1.846	1.646
Level 3 intercept	3.474	2.125*	3.469	2.121*	1.507	3.233***	1.507	3.234***

Note. PA = positive affect, NA = negative affect, Δ = pre- to post-session change, Coeff. = Unstandardized coefficient. *t* = Unstandardized coefficient / standard error

*$p < .05$, **$p < .01$, ***$p < .001$.

Therapist affect and therapy process/outcome.

Research Question 5: Can client post-session ratings of therapy process/outcome be predicted by therapist pre-session positive affect, therapist pre-session negative affect, therapist change in positive affect, and therapist change in negative affect, after controlling for client post-session positive affect and client post-session negative affect?

Research Question 6: Can therapist post-session ratings of therapy process/outcome be predicted by therapist pre-session positive affect, therapist pre-session negative affect, therapist change in positive affect, and therapist change in negative affect?

In RQ5 and RQ6, the outcome variable was therapy process/outcome (working alliance, session quality, and real relationship) as rated by the client and the therapist, respectively. Similar to models built for RQ3 and RQ4, session number was included as a covariate in the first models because it was found to be a significant correlate of process/outcome (i.e., client-rated session quality and working alliance, and therapist-rated session quality and real relationship; See Table 4). In other words, the process/outcome rating for session *i* of client *j* treated by therapist *k* ($process_{ijk}$) was predicted by the following Level 1 equation:

$$process_{ijk} = \pi_{0jk} + \pi_{1jk}(session) + e_{ijk}$$

where π_{0jk} was the mean client (RQ5) or therapist (RQ6) rating of the therapy process/outcome for client *j* treated by therapist *k*, π_{1jk} is the rate of change in process/outcome ratings for client *j* across sessions (i.e., session number as the predictor variable), and e_{ijk} was the random session effect.

At Level 2, the client-level, the model was:

$$\pi_{0jk} = \beta_{00k} + r_{0jk}$$

$$\pi_{1jk} = \beta_{10k}$$

where β_{00k} was the mean client or therapist rating of the therapy process for therapist *k* and r_{0jk} was the random client effect on the intercept. The rate of change in process/outcome (π_{1jk}) was fixed at Level 2 because the random slopes were not significant.

At Level 3, the therapist-level, the model was:

$$\beta_{00k} = \gamma_{000} + u_{00k}$$

$$\beta_{10k} = \gamma_{100}$$

where γ_{000} was the grand mean of client or therapist rating of the therapy process/outcome and u_{00k} was the random therapist effect on that grand mean. The rate of change in process/outcome ratings was also fixed at Level 3 because the random slopes were not significant.

For RQ5, the second step was to enter client post-session positive and negative affect as Level 1 predictors to statistically control for differences in client post-session affect. This control is important because client post-session affect is likely related to their post-session ratings of the therapy process. Adding covariates that correlate significantly with the dependent variable would help to explain the variance in therapy process that is unexplained by therapist pre-session affect and therapist change in affect, thereby increasing power to detect an effect (de Jong, Moerbeek, & van der Leeden, 2010). Therapist post-session positive and negative affect, however, were not added as covariates in RQ6, because they were expected to be correlated with the predictors of

therapist pre-session and pre-to-post change in affect. Adding them as covariates might leave little to be explained by the predictors.

Next, therapist pre-session positive affect and therapist pre-session negative affect were entered as Level 1 predictors of therapy process/outcome ratings (this is the third step for RQ5 and second step for RQ6). Then, therapist pre- to post-session change in positive affect and therapist pre- to post-session change in negative affect were entered as additional Level 1 predictors of therapy process/outcome (this is the fourth step for RQ 5 and third step for RQ 6). Therapist changes in affect were added in a separate step because it then allowed us to see how they moderated the effect of therapist pre-session affect on therapy process/outcome (in addition to see how session-related change in affect might be related to therapy process/outcome).

Working alliance. In the first model, client post-session ratings of the WAI were not predicted by session number ($\gamma < .001$, $p = .960$) (see Table 6). The intraclass correlation for client-rated WAI was .764 at the client-level and .032 at the therapist-level, suggesting that client differences accounted for most of the variance in client-rated WAI. Although therapist differences appeared to be small on this outcome variable, three-level modeling was used to be consistent with the rest of the study.

In the second model, client-rated WAI was significantly predicted by the covariates of client post-session positive affect ($\gamma = .013$, $p < .001$) and negative affect ($\gamma = -.007$, $p = .047$) (although client post-session negative affect was not a significant predictor, $\gamma = -.003$, $p = .408$, when outliers were removed). In the third model, therapist pre-session positive affect ($\gamma = .003$, $p = .271$) and negative affect ($\gamma = -.001$, $p = .918$) did not predict client-rated WAI after controlling for client post-session affect. When

therapist pre- to post-session change in positive and negative affect were added in the fourth model, therapist pre-session positive affect became a significant predictor of client-rated WAI (γ = .005, p = .034), while therapist pre-session negative affect remained not significant (γ = -.006, p = .240). Client-rated WAI was significantly predicted by pre- to post-session change in therapist negative affect (γ = -.007, p = .003), but not by therapist change in positive affect (γ = .003, p = .248) (therapist change in positive affect was also a significant predictor, γ = .005, p = .008, when analyses were conducted without the researcher's data, but therapist change in positive affect, γ = .002, p = .452, and change in negative affect, γ = -.006, p =.144, were not significant predictors in analyses that excluded outliers).

Results from the last two models suggest that after taking into account the changes in affect that therapists experience in sessions, therapists who reported more positive affect at the beginning of sessions had sessions with better client ratings of the working alliance. The predictive power of therapist change in affect on client-rated working alliance was less conclusive given the inconsistent findings across analyses that excluded researcher's data or outliers.

In terms of therapist post-session ratings of the WAI, session number was not a significant predictor (γ < .001, p = .921; see Table 7). The intraclass correlation of therapist-rated WAI was .446 at the client-level and .259 at the therapist-level, suggesting that variances in therapist-rated WAI were due both to differences in clients and in therapists. In the second model, therapist pre-session positive affect (γ < .001, p = .991) and negative affect (γ = -.005, p = .240) did not predict therapist-rated WAI. In the third model, therapist pre- to post-session change in positive affect (γ = .020, p = .002) and

negative affect (γ = -.026, p = .026) significantly predicted therapist-rated WAI. In addition, when these predictors were added, both therapist pre-session positive affect (γ = .013, p = .019) and negative affect (γ = -.024, p = .001) became significant predictors of therapist-rated WAI. Findings were consistent in analyses that excluded outliers or researcher's data.

Table 6. Predictors of Client Post-session Ratings of Working Alliance

	Step 1		Step 2		Step 3		Step 4	
	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*
Fixed effect								
Intercept	3.866	38.722***	3.866	38.617***	3.866	38.655***	3.866	38.653***
Session	.000	.050	.000	.317	.001	.363	.001	.388
Client Post-PA			.013	5.953***	.013	5.437***	.012	5.699***
Client Post-NA			-.007	-1.989*	-.007	-2.004*	-.006	-1.770
Therapist Pre-PA					.003	1.100	.005	2.114*
Therapist Pre-NA					-.001	-.102	-.006	-1.174
Therapist PA-Δ							.003	1.156
Therapist NA-Δ							-.007	-2.959**
Random effect								
Level 1 residual	.120	7.642***	.111	7.234***	.110	7.313***	.109	7.253***
Level 2 intercept	.460	4.153***	.459	4.149***	.459	4.146***	.460	4.152***
Level 3 intercept	.003	.067	.004	.092	.004	.091	.004	.926

Note. Coeff. = Unstandardized coefficient. *t* = Unstandardized coefficient / standard error

*p < .05, **p < .01, ***p < .001.

Table 7. Predictors of Therapist Post-session Ratings of Working Alliance

	Step 1		Step 2		Step 3	
	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*
Fixed effect						
Intercept	3.661	33.725***	3.662	33.726***	3.662	33.745***
Session	.000	-.099	.000	-.117	.000	.151
Therapist Pre-PA			.000	.012	.013	2.355*
Therapist Pre-NA			-.005	-1.174	-.024	-3.429***
Therapist PA-Δ					.020	3.104**
Therapist NA-Δ					-.026	-2.233*
Random effect						
Level 1 residual	.125	4.095***	.124	4.071***	.104	5.321***
Level 2 intercept	.189	3.910***	.189	3.917***	.193	3.876***
Level 3 intercept	.108	2.776**	.108	2.766**	.108	2.764**

Note. Coeff. = Unstandardized coefficient. *t* = Unstandardized coefficient / standard error
*$p < .05$, **$p < .01$, ***$p < .001$.

Thus, therapists who had an increase in positive affect or a decrease in negative affect rated the working alliance higher. After controlling for therapist change in affect from pre- to post-session, higher therapist pre-session positive affect was also associated with higher therapist-rated working alliance, whereas higher therapist pre-session negative affect was associated with lower therapist-rated working alliance.

Session quality. In the first model, session number was a significant predictor of client ratings of session quality (γ = -.006, p = .008; see Table 8) (although it was not significant (γ = -.002, p = .216) when outliers were removed). The intraclass correlation for client-rated SES was .440 at the client level and .014 at the therapist level, indicating that over half of the variances in client-rated session quality were due to differences in session and error (1 – .440 – .014 = .546). In the second model, client post-session

positive affect (γ = .025, p = .038), but not negative affect (γ = -.002, p = .594), was a significant covariate of client-rated session quality. In the third model, neither therapist pre-session positive affect (γ = .005, p = .298) nor negative affect (γ = -.003, p = .593) predicted client ratings of session quality. After controlling for therapist pre- to post-session change in affect, therapist pre-session positive affect (γ = .013, p = .012) and negative affect (γ = -.012, p = .018) became significant predictors of client-rated SES. In addition, therapist change in positive affect (γ = .013, p < .001) and negative affect (γ = -.012, p = .003) were also significant predictors of client-rated SES (however, note that therapist pre-session negative affect predicted client-ratings of SES (γ = .008, p = .003) in the third model but not in fourth model (γ = -.005, p = .368) when outliers were removed). Thus, there is evidence that both therapist pre-session affect and therapist pre- to post-session change in affect predicted client-rated session quality. In particular, increase in therapist positive affect or decrease in therapist negative affect from pre- to post-session predicted higher client ratings of session quality. After controlling for therapist change in affect in session, higher therapist pre-session positive affect and lower therapist pre-session negative affect also predicted higher client ratings of session quality.

In terms of therapist-rated post-session ratings of the SES, the intraclass correlation was .201 at the client level and .129 at the therapist level, suggesting that session-level variation and error contributed 67% of the variance in therapist-rated SES (1 – .201 – .129 = .670). Session number was not a significant predictor of therapist-rated SES (γ = -.001, p = .587; see Table 9). In the second model, therapist pre-session positive affect (γ = .000, p = .979) and negative affect (γ = -.003, p = .401) were not significant predictors of therapist-rated SES. However, in the third model, therapist pre-session

positive affect (γ = .023, p < .001) and negative affect (γ = -.033, p = .014) became significant predictors after therapist pre- to post-session change in affect were added to the model. Therapist change in positive affect (γ = .037, p < .001) and negative affect (γ = -.041, p = .025) were also significant predictors of therapist ratings of session quality. Specifically, therapist increase in positive affect and decrease in negative affect were related to higher therapist ratings of session quality. After controlling for therapist change in affect, therapist pre-session positive affect and negative affect also predicted higher and lower therapist ratings of sessions, respectively.

Table 8. Predictors of Client Post-session Ratings of Session Quality

	Step 1		Step 2		Step 3		Step 4	
	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*
Fixed effect								
Intercept	4.287	56.438***	4.288	56.688***	4.288	56.924***	4.288	56.620***
Session	-.006	-2.662**	-.005	-3.018**	-.005	-2.949**	-.005	-2.558**
Client Post-PA			.025	2.080*	.025	2.107*	.024	2.058*
Client Post-NA			-.002	-.532	-.002	-.505	.000	-.010
Therapist Pre-PA					.005	1.041	.013	2.498*
Therapist Pre-NA					-.003	-.535	-.012	-2.356*
Therapist PA-Δ							.013	4.329***
Therapist NA-Δ							-.012	-3.009**
Random effect								
Level 1 residual	.316	4.841***	.292	6.302***	.291	6.445***	.285	6.272***
Level 2 intercept	.260	2.447*	.259	2.448**	.259	2.441**	.260	2.462**
Level 3 intercept	.008	.465	.009	.501	.009	.498	.009	.509

Note. Coeff. = Unstandardized coefficient. *t* = Unstandardized coefficient / standard error

*p < .05, **p < .01, ***p < .001.

Table 9. Predictors of Therapist Post-session Ratings of Session Quality

	Step 1		Step 2		Step 3	
	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*
Fixed effect						
Intercept	3.96	49.608***	3.960	49.498***	3.962	49.571***
Session	-.001	-.543	-.001	-.562	.000	-.087
Therapist Pre-PA			.000	-.026	.023	3.622***
Therapist Pre-NA			-.003	-.840	-.033	-.2.445*
Therapist PA-Δ					.037	8.624***
Therapist NA-Δ					-.041	-2.246*
Random effect						
Level 1 residual	.313	7.254***	.313	7.241***	.250	8.619***
Level 2 intercept	.094	2.081*	.094	2.085*	.099	2.223*
Level 3 intercept	.059	1.608	.059	1.613	.059	1.734

Note. Coeff. = Unstandardized coefficient. *t* = Unstandardized coefficient / standard error
*$p < .05$, **$p < .01$, ***$p < .001$.

Real relationship. In the first model, client-rated real relationship was significantly predicted by session number ($\gamma = .003$, $p = .040$; see Table 10). Intraclass correlation was .656 at the client level and .011 at the therapist level, indicating that most of the variances in client-rated real relationship may be explained by differences in clients. In the second model, client post-session positive affect ($\gamma = .008$, $p = .001$), but not negative affect ($\gamma = -.001$, $p = .734$), was a significant covariate of client-rated real relationship. In the third model, neither therapist pre-session positive affect ($\gamma = .000$, $p = .932$) nor negative affect ($\gamma = .002$, $p = .643$) predicted client ratings of the real relationship. In the fourth model, after controlling for therapist pre- to post-session change in affect, therapist pre-session positive affect ($\gamma = .003$, $p = .188$) and negative

affect (γ = -.004, p = .200) remained non-significant predictors of client-ratings of the real relationship. However, therapist change in negative affect (γ = -.008, p = .001) was a significant predictor of client-rated real relationship. Therapist change in positive affect also appeared to be a marginal predictor (γ = .004, p =.053) (and it was a significant predictor (γ = .005, p = .001) when the researcher's data were excluded from the analyses). Thus, client-ratings of the real relationship appears to be related to therapist affective changes in the session but not to therapist pre-session affect. Specifically, from pre- to post-session, increase in therapist positive affect and negative affect predicted higher and lower client ratings of the real relationship, respectively. Therapist pre-session positive and negative affect were not found to be related to client ratings of real relationship.

Table 10. Predictors of Client Post-session Ratings of Real Relationship

	Step 1		Step 2		Step 3		Step 4	
	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*	Coeff.	*t*
Fixed effect								
Intercept	4.130	76.264***	4.130	75.955***	4.130	75.981***	4.129	76.130***
Session	.003	2.053*	.003	2.121*	.003	2.113*	.003	2.110*
Client Post-PA			.008	3.449***	.008	3.271***	.007	3.383***
Client Post-NA			-.001	-.340	-.001	-.338	.000	-.057
Therapist Pre-PA					.000	.085	.003	1.315
Therapist Pre-NA					.002	.464	-.004	-1.282
Therapist PA-Δ							.004	1.938
Therapist NA-Δ							-.008	-3.327***
Random effect								
Level 1 residual	.080	6.642***	.077	6.593***	.077	6.601***	.076	6.591***
Level 2 intercept	.160	3.720***	.160	3.729***	.160	3.730***	.160	3.763***
Level 3 intercept	.003	.064	.003	.067	.003	.067	.003	.068

Note. Coeff. = Unstandardized coefficient. *t* = Unstandardized coefficient / standard error

*p < .05, **p < .01, ***p < .001.

In terms of therapist post-session ratings of the RRI, the first model showed that session number was not a significant predictor (γ = -.001, p = .543; see Table 11). Intraclass correlation was .635 at the client level and .008 at the therapist level, suggesting that most of the variance in therapist-rated real relationship was explained by differences in clients. In the second model, therapist pre-session positive affect (γ = .001, p = .759) and negative affect (γ = -.003, p = .547) did not significantly predict therapist ratings of the real relationship. In the third model, after controlling for therapist pre- to post-session change in affect, therapist pre-session positive affect (γ = .012, p =.018) and negative affect (γ = -.022, p <.001) emerged as significant predictors of therapist-rated RRI. Therapist change in positive affect (γ = .015, p < .001) and negative affect (γ = -.026, p = .003) were also significant predictors of therapist-rated real relationship. Thus, increase in therapist positive affect and decrease in therapist negative affect from pre- to post-session predicted higher therapist ratings of real relationship. After taking into account the change in affect that therapist reported from pre- to post-session, higher therapist pre-session positive affect and lower therapist pre-session negative affect also predicted higher therapist ratings of real relationship.

In sum, across the three process/outcome variables (i.e., working alliance, session quality, and real relationship), therapist ratings of these variables were predicted by therapist pre- to post-session change in affect. Increase in positive affect and decrease in negative affect were related to higher therapist ratings of process/outcome. Therapist pre-session affect was not directly related to therapist-rated process/outcome, but became significant predictors after controlling for therapist change in affect. In particular, higher therapist pre-session positive affect and lower therapist pre-session negative affect

predicted better therapist ratings of process/outcome after taking therapist pre- to post-session change in positive and negative affect into account.

Modeling of client ratings of process/outcome produced a less consistent picture across the three process/outcome variables. Therapist pre- to post-session change in affect predicted client-rated real relationship, but inconsistently predicted client-rated working alliance and session quality, depending on whether or not researcher's data and outliers were excluded from the analyses. Therapist pre-session affect *alone* generally did not predict any client-rated process/outcome variables, but predicted working alliance and session quality after controlling for therapist change in affect.

Table 11. Predictors of Therapist Post-session Ratings of Real Relationship

	Step 1		Step 2		Step 3	
	Coeff.	*T*	Coeff.	*t*	Coeff.	*t*
Fixed effect						
Intercept	3.650	22.838***	3.650	23.012***	3.651	21.038***
Session	-.001	-.609	-.001	-.619	.000	-.0327
Therapist Pre-PA			.001	.307	.012	2.364**
Therapist Pre-NA			-.003	-.603	-.022	-4.646***
Therapist PA-Δ					.015	3.487***
Therapist NA-Δ					-.026	-2.952**
Random effect						
Level 1 residual	.119	5.248***	.119	5.236***	.103	6.950***
Level 2 intercept	.212	1.108	.213	1.123	.215	1.022
Level 3 intercept	.003	.006	.003	.006	.003	.005

Note. Coeff. = Unstandardized coefficient. *t* = Unstandardized coefficient / standard error

*$p < .05$, **$p < .01$, ***$p < .001$.

Qualitative Findings

Research Question 7: How do therapists explain their change in affect, if any, from pre- to post-session?

After rating their post-session affect on the PANAS, therapists were asked to respond to three open-ended questions about their affect. First, therapists were asked, "Did your mood change during the session?" After adjusting for the number of sessions that each client had and the number of clients that each therapist had, therapists reported to have experienced a mood change in 67% of sessions and no mood change in 33% of sessions.

If therapists responded yes to having a mood change, they were then asked, "How has your mood changed?" and "What happened during the session that could have resulted in this mood change?" Therapists' responses to these questions were coded using CQR-modified and summarized in Table 12.

Of the sessions in which affect change was reported, at least one positive affect change was noted in 63% of these sessions and at least one negative affect change was noted in 50% of these sessions (therapists could indicate both positive and negative changes). Paired sample *t*-test indicated that the difference between positive and negative affect change was not significant ($t(14) = 1.20$, $p = .25$) The most common positive affect change involved therapists feeling more engaged and energized (32% of sessions in which affect change was reported). Examples of affect descriptors that fell under this category included interested, attentive, active, enthusiastic, intrigued, and excited. The next most frequently reported category of positive affect change was an increase in calm and/or a decrease in distress (19% of sessions in which affect change was reported).

Responses such as relaxed, relieved, centered, at ease, content, cathartic, less irritable, less guilty, and less ashamed were grouped here. Equally prevalent (19%) was a non-specific positive affect category containing descriptors like glad, happy, feel better, and more positive. This was followed by the category of confident/strong (11% of sessions with affect change). Words like proud, self-assured, efficacious, reassured, empowered, determined, resolute, fulfilled, productive, and gratified were included in this category. Finally, therapists sometimes reported feeling hopeful/optimistic about or inspired/encouraged/motivated by their clients (4%), and empathetic/caring/compassionate towards their clients (1%).

The most commonly reported negative affect change was feeling anxious or concerned (18% of sessions with affect change; e.g., worried, nervous, frightened, vulnerable, tense, jittery). Feeling depleted or tired after a session (17% of sessions in which affect change was reported) was the next most common negative affect change. Adjectives such as drowsy, sluggish, sleepy, low energy, and bored were included in this category. This was followed by depressed or down (11%; e.g., sad, upset, somber, bummed out), self-critical or inadequate (7%; e.g., less confident, less assured, weakened, disappointed at self, defeated, rejected, unsure), and frustrated or impatient (7%; e.g., angry, irritable, hostile, agitated, underappreciated).

When it came to explaining their change in affect, therapists most frequently attributed positive affect change to the process of working collaboratively with clients on their tasks and goals (23% of sessions with affect change). To protect the identity of therapists and clients, the female pronoun was used in all the quotes below. One therapist wrote that she felt more positive because she and her client “talked about (their)

relationship and got a better understanding of client needs." Another therapist felt energized when she and her client "agreed upon some action plans." Clients' engagement in therapy constituted the second most common explanation for therapist positive affect (20% of sessions with affect change). For example, a therapist reported feeling excited because her client "worked hard exploring her issues." Another therapist noted that she got more interested, attentive, and active during the session because her "client was very engaged and active and talked about what she would like from a romantic/sexual relationship at length."

Being a good therapist constitutes the third most common explanation for increase in positive affect (18% of the sessions in which affect change was reported). One therapist wrote, "Was proud of and happy with staying more empathic with client, and felt more centered after expressing to her some of my feelings about our relationship." Another therapist stated that she felt more energized and happy because "it was a good session in which (she) made good interpretations and observations." The connection that therapists experienced with clients also explained their positive affect (12%). One therapist wrote, "I was able to connect with the client during this session and that made me feel more interested and engaged." Another wrote, "I felt happy and encouraged that our relationship seemed to have taken a turn for the better."

Client's progress and demonstration of strength were often sources of positive affect for therapists as well (8%). For instance, a therapist reported feeling more relaxed as "client was able to go deeper, talked about experiences in session, gained better understanding, and feel better as a result." Another therapist reported feeling proud and happy when her client "got a job, which has been a struggle for years." Finally, some

therapists reported that conducting therapy was centering and helped them focus less on their personal problems (5%). A therapist said, “The client and I got to discuss her issues, which took me away from my own tension.” Another therapist noted, “I felt calmer as I attended to his voice and offered non-verbals.”

The most frequently cited reason for therapist negative affect change was having clients who were difficult to work with (17% of sessions in which affect change was reported). Examples of difficult client situations included clients who talked too much or too quickly, went on tangents, or came late to sessions. Clients were also considered difficult if they were superficial, boring, dismissive, hostile, disengaged, or resistant to change. For instance, one therapist wrote, “I was scared, annoyed, and surprised” when “client disclosed that she felt criticized by my comment.” Another therapist reported, “The client’s monotone caused me to feel drowsy halfway through the session.” Clients in distress and/or at risk also often led to an increase in negative affect among therapists (13%). For instance, a therapist wrote, “Client disclosed some very difficult experiences over last week. Feeling some of her pain and unsure of how to best help.” Another therapist reported feeling “nervous and fearful” because the client “expressed painful feelings and passive suicidal ideation.”

Therapists attributed some of their negative affect to having an unproductive session and/or being a poor therapist (13% of sessions with affect change). For example, one therapist reported feeling frustrated because “the session did not go the way I was hoping. We ended staying at a very surface level.” Another therapist wrote, “Unsure of my interventions. Was harder for me to be engaged. Possibly because of countertrasnference to the client.” The ending of a therapeutic relationship sometimes

triggered negative therapist affect as well (8%). One therapist said, “Client and I talked about termination at the end of therapy. She is not going to transfer because it's hard for her. I feel guilty about leaving.”

Negative affect arose among therapists during psychotherapy sessions because of the nature of the intervention (5%). For example, therapists reported feeling increased tension followed by fatigue when they needed to challenge or be immediate with clients. Discussion of fees and payment for missed sessions was also reported to increase therapist anxiety. However, it should be noted that positive affect often accompanied negative affect in this category. For instance, one therapist stated, “Client and I had immediacy more towards the end that was fascinating. It was exciting. But I also became nervous about timing and countertransference.” Another therapist reported that “risky immediate discussion” with her client led her to be “a bit more scared yet feeling (a) sense of centeredness.” Finally, external factors, such as a long day or illness, also explained a change in therapist negative affect (2%). One therapist commented, “I don't think it has to do with the session - I just felt tired after a long day.”

Table 12. Domain and Categories of Therapist Responses on Mood Change.

Domains and Categories	Prevalence* (% of sessions with mood change)
How did mood change?	
More positive (at least 1 positive mood category)	*63*
Engaged/energized	32
Calm/less distressed	19
Non-specific/generally positive	19
Confident/strong	11
Hopeful/inspired	4
Empathetic/caring	1
More negative (at least 1 negative mood category)	*50*
Anxious/concerned	18
Depleted/tired	17
Depressed/down	11
Self-critical/inadequate	7
Frustrated/impatient	7
Why did mood change?	
For positive mood change:	
Collaborated with client on tasks and goals	23
Client was engaged in therapy	20
Being a good therapist	18
Felt connected to client	12
Client made progress	8
Conducting therapy reduced own distress	5
For negative mood change:	
Client was difficult to work with/late/disconnected	17
Client was in distress/at risk	13
Unproductive session/being a poor therapist	13
Ending of therapeutic relationship	8
Nature of intervention	5
External factors (e.g., long day)	2

* Prevalence adjusted for number of sessions and clients that each therapist had.

Chapter 6: Discussion

In this study, therapist affect before, during, and after sessions did seem to make a difference for psychotherapy process and outcome. I integrate the quantitative and qualitative findings in this discussion.

Description of Therapist Affect

Based on their quantitative ratings, therapists had increases or decreases in positive and negative affect from pre- to post-session. When averaged, the changes in therapist positive and negative affect were approximately zero, suggesting about equal increases and decreases in either affect across all sessions. Corroboratively, therapists qualitatively reported change in affect in approximately 67% of sessions, with increases in positive affect occurring as frequently as increases in negative affect. These findings were interesting given that many studies on therapist reaction to clients focused on therapist negative affect (e.g., Adams & Riggs, 2008; Bourke & Grenyer, 2010; Hill et al., 2003; Hoffart et al., 2006; Williams et al., 2003), although Hill et al. (1994) showed that therapists experienced an increase in positive affect from pre- to post-session, and Lent et al. (2009) showed that therapists-in-training recalled positive information about their counseling efficacy in post-session surveys. Protective self-serving bias might be at play, such that therapists focused on positive helping experiences in psychotherapy sessions. Alternatively, therapists' experience of being helpful might have increased positive moods and self-evaluation, similar to participants in social psychological experiments of altruism (e.g., Williamson & Clark, 1989). Indeed, being able to collaborate with clients on tasks and goals and being good therapists were among the

most frequently endorsed reasons for therapists' increase in positive affect in the present study.

As therapy proceeded (i.e., as session number increased), therapists reported less positive affect on the PANAS. One possible explanation was that therapists and clients achieved more success in the early phases of therapy from working on more changeable problems, but as they delved deeper into clients' issues, engrained difficulties were less amenable to change and the work became more difficult. This hypothesis is supported by the observation that symptomatic change occurs more quickly than characterological change (Kopta, Howard, Lowry, & Beutler, 1994), and that improvement in psychotherapy follows a negatively accelerated pattern over the course of therapy (Stulz, Lutz, Kopta, Minami, & Saunders, 2013).

Predictors of Therapist Affect Change

When clients had high positive affect pre-session or increased in positive affect from pre- to post-session, therapists also increased in positive affect from pre- to post-session. On the other hand, when clients rated pre-session negative affect high or had an increase in negative affect from pre- to post-session, therapists reported increases in negative affect from pre- to post-session. Thus, the affective experience of therapists in sessions was concordant with the kind of affect that clients brought to sessions and also with how client affect changed in session. Qualitatively, therapists attributed their positive and negative affect changes to client factors (e.g., clients were engaged, clients made progress, clients were difficult to work with, clients were in distress or at risk) in 58% of the sessions in which therapist affect change was reported. These observations

reflect that therapists had emotional reactions to being with their clients (Gelso & Hayes, 2007).

When considering the variables entered to "predict" therapist pre- to post-session change in affect, it is important to be careful about inferring causality of findings given that this was a naturalistic study. In particular, client pre- to post-session change in affect may be a correlate, rather than a true predictor, of therapist affect change. For example, one interpretation of the association between increase in therapist and client positive affect from pre- to post-session is that therapists felt more energized as clients became engaged in session. Another is that clients gained hope as they interacted with enthusiastic and active therapists. Yet another interpretation is that both therapists and clients became energized towards the end of a session (i.e., a third variable). The mutual influence between therapists and clients, and the influence of extraneous variables, are all possible explanations, even when client affect change was entered as a "predictor" and therapist affect change was entered as an "outcome" in the multilevel models.

On the other hand, client pre-session affect was measured prior to therapist affect change from pre- to post-session and *appeared* to be a predictor of therapist affect change. However, sources of client pre-session affect were not directly investigated in this study. Client pre-session affect may reflect the impact of events and relationships in clients' lives outside of therapy, but may also reflect anticipation about the impending session or even carryover effects from previous sessions. Thus, the affect that clients brought to sessions may not always be independent of the therapist and the therapeutic relationship. Time-series analysis and cross-lagged correlation (Borckardt, Nash,

Murphy, Moore, & O'Neil, 2008) may provide the tools needed to elucidate nuanced temporal relationships between client and therapist affect.

Regardless of the direction of influence, current results suggest a dyadic affect regulation, which may be a key mechanism of change in psychotherapy (Dales & Jerry, 2008). Recent findings in psychophysiological studies in psychotherapy support dyadic affect interaction. For instance, in their single case study of psychodynamic therapy, Marci and Reiss (2005) found significant concordance in skin conductivity between a therapist and a client throughout a session, even though the client's amplitude of arousal was consistently higher than that of the therapist. Messina et al. (2013) found that therapists exhibited higher concordance in skin conductivity with volunteer clients than non-therapists when both listened to the volunteer clients' personal problems. Importantly, the therapist in Marci and Reiss was rated by the client as highly empathic, and the level of concordance in Messina et al. correlated positively with perceived empathy, suggesting a close relationship between psychophysiological synchrony of emotions and subjective experience of empathy. Besides skin conductance, synchrony in vocally encoded emotional arousal has also been found to be positively correlated with observer-rated therapist empathy (Imel et al., 2014).

In contrast to electrodermal and vocal concordance, reciprocal facial expression of emotion between therapist and client have had mixed effects on therapeutic process and outcome. For example, mutual smiling may facilitate affiliation and foster the development of alliance early in the course of therapy, but may also be used to minimize the damage of conflicts and maintain clients' dysfunctional relationship schemes (Roten, Gilliéron, Despland, & Stigler, 2002). Rasting and Beutel (2005) compared successful

and unsuccessful inpatient psychotherapy cases and found that patients with unsuccessful courses of therapy often had therapists who responded to them with more similar facial expressions at intake. Such reciprocity correlated positively with therapist reported affect intensity, which the authors posited to be signs of therapist over-involvement. These findings illustrate that therapist affective engagement and support may need to be balanced with self-awareness, objectivity, and intentionality to maximize client gains.

In spite of the emerging knowledge in psychophysiology and facial expression of affect in psychotherapy, the clinical significance of the correlation between therapist and client self-reported affect change found in the present study remains unclear. In particular, skin conductance, vocally encoded arousal, and facial affect display probably occur at an unconscious and preconscious level, whereas self-reported affect reflects participants' conscious emotional experience. Rasting and Beutel (2005) also reported no association between therapist facial display of affect and their reported level of affect. Because it is easier to attend to, and hence do something about, the conscious than the unconscious aspects of one's affective experience, research into the synchrony of conscious affect variables and its relationship with therapy process and outcome may be particularly fruitful.

Therapist Affect and Psychotherapy Process/Outcome

The multilevel analysis offers an opportunity to examine the partitioning of total variability of process and outcome variables across therapists, clients, and sessions (plus error). After controlling for session number (and hence regardless of the time point in the course of therapy), variances in client and therapist ratings of working alliance and real relationship were most attributable to differences among clients, whereas variance in

session quality was most attributable to session-level fluctuation. Therapist differences contributed the least variance in each of the three variables rated from either perspective. These findings suggest that session quality may be a particularly relevant outcome to examine when studying session-level variables, such as state affect, and the lack of therapist-level variability may reflect the sampling of a small group of therapists in this study who received training from the same program and had a similar level of experience providing therapy. It is important, however, to acknowledge that these conclusions are only tentative given that other studies have provided somewhat different estimates of variability across the three levels. For example, although Gelso et al. (2012) found that client differences accounted for the most variance in client-rated real relationship, they reported that session differences accounted for the most variance in therapist-rated real relationship. Kivlighan and Shaughnessy (1995) also reported that session differences accounted for the most variance in therapist-rated working alliance.

Therapist pre-session affect in relation to client-rated session outcome. When therapist pre-session affect was initially added to the multilevel model, it was not related to client-rated working alliance, session quality, or real relationship. However, therapist pre-session affect became a significant correlate of working alliance and session quality after therapist pre- to post-session change in affect was also entered into the multi-level models. Thus, the relationship between therapist pre-session affect and client-rated process/outcome might have been masked by the relationship between therapist change in affect and client-rated process/outcome, such that the latter relationship had to be controlled before the former relationship became evident. Ceiling effects and regression-to-the-mean effects may have been responsible for such masking. For example, high pre-

session positive affect was associated with a drop in positive affect from pre- to post-session. One possible explanation was that pre-session positive scores were already very high and there was no room to go higher. The positive association between pre-session positive affect and client-rated process/outcome therefore only became evident when the drop in affect was considered. While in need of replication, these findings highlight the changing nature of therapist affect within sessions and emphasize the importance of analyzing therapist affect at different time points of a session to gain a better understanding of how it may be related to psychotherapy process and outcome. Ceiling effects in self-reported affect measures may not be trivial and need to be taken into account before important relationships are uncovered.

Practically, after controlling for ceiling/regression-to-the-mean effects, when therapists reported higher pre-session positive affect, clients rated the session quality and working alliance higher. On the other hand, when therapists reported higher pre-session negative affect, clients rated session quality lower at post-session. Therapist pre-session positive affect thus appeared to offer therapists an advantage in executing better sessions and developing stronger working alliance with clients. Perhaps positive affect helped therapists to be more creative in their work (Baas et al., 2008; Deacon, 2000). In her broaden-and-build theory, Fredrickson (2001) suggested that positive emotions expand people's attention and cognition so that they are open to hear and integrate diverse materials. In contrast, negative emotions narrow people's attention to focus on details and reduce their cognitive flexibility. Therapists with high level of pre-session positive affect may have therefore gone into sessions with a more "open mind," facilitating more creative exploration and recognizing client patterns more quickly, whereas therapists with

high levels of pre-session negative affect may have had difficulty attending to clients and considered only a limited range of therapeutic interventions. Relationally, if therapists walked into sessions with high positive affect they may have felt positively towards their clients, who experienced this positivity reciprocally through affect regulation processes, which then fostered their perception of a good alliance. Indeed, de Roten, Drapeau, and Michel (2008) noted in their review that positive emotions are probably crucial in building a "basic collaborative relationship" (p. 214).

Interestingly, we did not find support Duan and Kivlighan's (2002) findings that therapist positive affect was related to less empathic emotions towards clients whereas therapist anxiety was related to more accurate empathy for clients, and that higher therapist empathy (feel what clients feel) and empathic accuracy (know what clients feel) were related to greater client-rated session depth. Perhaps empathy specifically facilitated clients' experience of session depth in Duan and Kivlighan's study, whereas session quality in the present study was a global session evaluation that was influenced by empathy as well as other aspects of the therapeutic process. A supporting observation for this hypothesis is that empathy was *not* found to be related to client perception of session smoothness in Duan and Kivlighan's study. Alternatively, therapists may need a balance between positive and negative pre-session affect for maximally effective therapy, which had not been investigated in either study. The ratio between positive and negative emotions for optimal human functioning is the subject of heated debate in recent years in psychology (e.g., Brown, Sokal, & Friedman, 2013; Fredrickson & Losada, 2013) and may offer some interesting ideas for the study of therapist affect and therapist functioning in the future. In good therapy, therapists need to be affected by clients' negative emotions

without losing themselves, like Erich Fromm's analogy of sand being penetrated by ocean water, and then letting the water go (Gelso, personal communication, March 28, 2014).

Therapist pre-session affect in relation to therapist-rated session outcome. After controlling for therapist affect change from pre- to post-session, therapist pre-session affect was found to be related to therapist-rated process/outcome. In particular, when therapist reported more positive pre-session affect, they rated session quality, working alliance, and real relationship higher at post-session. On the other hand, when therapist reported more pre-session negative affect, they rated these process/outcome variables lower. It is not clear, however, whether pre-session positive affect and negative affect truly facilitated and hindered therapy process/outcome, respectively, or if pre-session positive affect and negative affect enhanced and diminished therapists' evaluation of therapy process/outcome, respectively. In this regard, client ratings of therapy process/outcome seem more valuable in the study of therapist affect.

Therapist pre- to post-session change in affect in relation to client-rated session outcome. An increase in therapist positive affect from pre- to post-session was associated with higher client ratings of session quality (but not related to working alliance or real relationship), whereas an increase in therapist negative affect was associated with lower client ratings of the real relationship (but not related to working alliance or session quality). It is unknown why positive and negative affect changes were related to different process and outcome variables. In addition, the direction of influence in the relationship is unclear. Therapists might have experienced more positive affect because the session went well. Another possibility is that clients had good sessions because therapists became

increasingly engaged in the course of a session. Yet another possibility is that clients experienced positive events outside of therapy (e.g., getting a job), which positively influenced how clients rated the session and improved therapists affect when therapists heard the good news.

Nevertheless, in spite of reaching statistical significance, the effect was generally small: Adding therapist affect change as predictor for client-rated process/outcome did not result in a substantial increase in the amount of variance explained (2% for session quality, 1% each for working alliance and real relationship). The small numbers indicate that most of the session-to-session fluctuation in client-rated process/outcome remained unexplained by change in therapist affect.

Therapist pre- to post-session change in affect in relation to therapist-rated session outcome. Adding therapist pre- to post-session change in affect resulted in an increment of 16%, 20%, and 13% of modeled variance for therapist-rated working alliance, session quality, and real relationship, respectively. These percentages were substantially higher than those found for client-rated process/outcome, suggesting that change in therapist affect explained a greater proportion of the variance in therapist-rated than client-rated process/outcome. In particular, therapist increase in positive affect or decrease in negative affect from pre- to post-session were related to better session quality and stronger working alliance and real relationship. The qualitative findings also corroborated the quantitative results, showing how therapists often attributed their increase in positive affect to collaboration with clients on tasks and goals, client engagement, client progress, and feeling connected to clients, and their increase in negative affect to difficulty working with clients, feeling disconnected from clients, and

having an unproductive session. Mono-rater bias may in part explain the discrepancy between change in therapist affect and client- versus therapist-rated process/outcome. How therapists, as opposed to clients, rated a session and the therapeutic relationship would inevitably be associated with therapist affective changes in the session.

Strengths and Limitations

The data collected from a large number of sessions within therapist-client dyads in this study offered a unique opportunity to look at how fluctuation of therapist affect across sessions was related to psychotherapy process and outcome. Affect data were collected before and after each session so that we simultaneously characterized what therapists brought to sessions (i.e., therapist emotional well-being) and what got triggered in therapists during sessions (i.e., therapist emotional reactions), allowing us to examine the relationship between therapist affect and psychotherapy process and outcome. The use of qualitative method in addition to quantitative measures further supplemented numerical findings with rich experiential data that aimed to explicate therapist affective processes.

In terms of limitations, we had a small sample of therapists, which did not allow more nuanced relationships to be detected. For example, therapist trait factors (e.g., trait affectivity) could not be added as covariates and partialled out so that the predictive power of affect could be enhanced. In addition, the therapists in this study were all trainees from the same doctoral program, which limits generalizability.

The present study was observational in nature and did not allow causality to be established between therapist affect and psychotherapy process and outcome. Although the directionality of cause and effect may be speculated through the use of pre- and post-

session measurements, we cannot rule out the influence of extraneous variables (e.g., time of day). Furthermore, a limited number of process and outcome variables were used. In particular, only session-level process (i.e., working alliance and real relationship) and outcome (i.e., session outcome) were examined.

Research participation may have contributed to the results in the present study. The act of filling out measures of affect before sessions may have increased therapist self-awareness and influenced psychotherapy process and outcome. Similarly, five-minute centering exercise prior to sessions involving guided mindfulness practice resulted in higher therapist-rated presence and client-rated session effectiveness (Dunn, Callahan, Swift, & Ivanovic, 2013).

Implications

Implications for practice. Given that therapist pre-session positive affect had facilitative effects on clients' perception of session quality and working alliance, whereas therapist pre-session negative affect had hindering effects, therapists might want to pay attention when they experience particularly low positive affect or particularly high negative affect before therapy sessions. They may want to engage in methods, such as mindfulness practice (Shapiro, Brown, & Biegel, 2007), to regulate their emotions.

Furthermore, given that therapists' change in affect was concordant with clients' change in affect, clients' pre-session affect, and client ratings of the therapy process and outcome, therapists should be aware of the emotional pull to feel similarly as clients, particularly when the pull was to experience more negative affect. These findings serve as a reminder of the need for therapist awareness.

Implications for research. In the present study, we focused on therapist affect in psychodynamic/interpersonal psychotherapy. It would be interesting to see if similar results would apply to therapists who practice psychotherapies that focus less on emotional experiencing (e.g., cognitive-behavioral, solution-focused therapy).

It would also be important to look at therapist affect in therapists with different training experiences and experience levels. In particular, trainee therapists might experience higher levels of stress and have more "porous emotional boundaries (p. 98)" in practice compared to experienced therapists (Skovholt & Trotter-Mathison, 2011). Examining the relationship between therapist affect and psychotherapy process and outcome across therapist experience levels may illuminate key affective regulation capacities that therapists develop over time.

This study illustrates the presence of dyadic regulation of affect between therapists and clients. It would be interesting to see how such regulation unfolds during a session and over the course of therapy. Does therapist and client affect become more or less synchronized from the beginning to the end of a session, and over time in a course of therapy? In addition, how does affect synchrony and complementarity relate to therapeutic process and outcome? It may be that empathic concordance needs to be modulated with a certain degree of therapist emotional distance, especially when client negative affect is high so that therapists continue to instill hope in clients and have the cognitive and emotional resources associated with positive affect to execute therapeutic interventions.

Future research could include other psychotherapy outcome variables (e.g., symptoms, interpersonal distress) so that changes in client well-being could be

investigated in relation to therapist affect. Other therapist process variables contiguous to affect, such as therapeutic presence, could also be studied as potential mediators to improve our ability to formulate a coherent theory of therapist affect and therapeutic effectiveness. In addition, other therapist state variables could be investigated. For example, long work hours and physical exhaustion have been attributed to the decrease of empathy among medical students and residents over time (Neumann et al., 2011). How may therapist fatigue and energy levels be related to psychotherapy process and outcome?

Analog studies using experimental manipulation of therapist affect may help clarify the impact of affect on therapist functioning. Furthermore, examination of cognitive variables (e.g., attention, judgment, decision making, verbal response) and therapist variables (e.g., empathy) that change with affect manipulation may shed light on the mechanism underlying the relationship between therapist affect and psychotherapy process and outcome.

Finally, perhaps a follow-up study looking at alternate sessions with and without affect measures will help clarify whether completing affect measures has an impact on therapists and their work. If so, the usefulness of affect measures as therapist self-awareness tools should be further investigated.

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