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**MORE TO GAIN:  
SUDDEN GAINS IN EXPERIENTIAL THERAPY FOR DEPRESSION**

TERENCE SINGH

A Dissertation

Submitted to the Faculty of Graduate Studies

through the Department of Psychology

in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

at the University of Windsor

Windsor, Ontario, Canada

2012

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More to Gain: Sudden Gains and Therapy Change  
Processes in Experiential Therapy

by

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**Author's Declaration of Originality**

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### **Abstract**

The present study involves the first attempt to identify sudden gains in a sample of clients undergoing experiential treatment for depression. “Sudden gains,” or sudden, substantial improvements in depressive symptomology between consecutive psychotherapy sessions, have been repeatedly observed among depressed clients in psychotherapy. Approximately 45% of depressed clients appear to experience sudden gains, and those clients who do experience sudden gains appear to have significantly better treatment outcomes than those who do not (Tang et al., 2007). While there exists some evidence for the generalizability of sudden gains across treatment modalities (e.g., Kelly et al., 2007; Present et al., 2008), to date there have been no published investigations demonstrating that sudden gains occur in experiential therapies.

An archival videotape data sample of therapist-client dyads was drawn from a larger subject pool originally recruited for a clinical trial at the York University Psychotherapy Research Clinic (Goldman, Greenberg, & Angus, 2006). Thirty-six dyads were identified as appropriate for inclusion in the present study. These cases were then coded moment-by-moment using selected psychotherapy process measures; this data was added to existing archival outcome data for analysis.

Results of the study revealed that sudden gains were present in the data set. Consistent with previous investigations (e.g., Tang et al., 2007), sudden gain onset was found to be associated with a significant increase in the number of cognitive changes experienced by clients. Sudden gain onset was also found to be associated with deepened client experiencing, and the observed changes in both of these constructs were found to be correlated. The bulk of the dramatic symptom decrease associated with sudden gains (74.89%) was found to occur within the session preceding the sudden gain. During this

critical session, therapists of clients who experienced sudden gains were found to be significantly more likely to focus on unmet client needs prior to sudden gain onset, while clients were significantly more likely to express "productive" emotions (e.g., assertive anger; as identified by Pascual-Leone & Greenberg, 2007). Both the research and clinical implications of the above findings, some of which appear to challenge existing assumptions regarding sudden gains, are discussed.

To my father  
Gurinder Jeet Singh

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1.

Ruby

Thank you all for your parts in this journey.



With school,  
you enter it, learn something,  
and then it's time to leave.

Haruki Murakami, 2008, pg. 36.

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## **More to Gain: Sudden Gains in Experiential Therapy for Depression**

### **Introduction: Toward a Clinically-Useful Study of Psychotherapy Process**

At its most ambitious, the following research project is an attempt to identify therapy change processes (i.e., therapist interventions) that appear to facilitate a specific client change process that, ultimately, is thought to enhance the likelihood of productive outcomes. However, before describing the present study with greater specificity, two points regarding the author's biases are worth noting. First, as the limitations to traditional research questions such as "Does psychotherapy A work?" and "Does psychotherapy A work better than psychotherapy B?" have become increasingly apparent (Goldfried & Wolfe, 1998), researchers have gradually turned toward the study of *how* psychotherapy works (Pachankis & Goldfried, 2007). The author views the answers to this question as important for both practical and theoretical reasons, for while client changes that occur in therapy are often measured in terms of symptom reduction, it is the psychological processes underlying these symptom changes that form the basis for interventions. Enhancing our knowledge of the changes that occur as symptoms decrease is thus important both to theory and treatment development (Llewelyn & Hardy, 2001).

Yet, despite strong interest in psychotherapeutic change, "investigations to date have yielded lamentably few interpretable results" (Doss, 2004, p. 368). Nonetheless, the second introductory point of note is that the author views the pursuit of findings which have alternately been described as "interpretable" or "clinically useful" (e.g., Goldfried, Borkovec, Clarkin, Johnson, & Parry, 1999, p. 1387) as a research task of the utmost importance. The field of psychology has long been subject to researchers' claims that practicing clinicians stubbornly value their own subjective clinical experience over research findings, with clinicians offering the rejoinder that the majority of existing

psychotherapy research bears only a slight resemblance to actual clinical practice (Baker, McFall, & Shoham, 2009). By aiming to produce empirically-supported, clinically-useful recommendations, the present study has been designed to contribute to the reduction of this “clinical-research gap” (Goldfried et al., 1999, p.1385).

Broadly speaking, the study of psychotherapy change requires three elements: (i) a theoretical framework, or a view of how change occurs; (ii) an empirical framework, or a method of defining and measuring change, and; (iii) an appropriate topic of study, selected in accordance with (i) and (ii) (Trull, 2004). Respectively, the present study first adopts the theoretical framework of dynamic systems theory, which posits that psychotherapy change occurs in a dynamic, non-linear fashion (Thelen, 2005). Second, the present study utilizes the empirical framework of Doss’ (2004) integrative approach to the study of change. From within these frameworks, the present study seeks to identify those therapist interventions that facilitate *sudden gains* among clients suffering from depression. Relative to clients who do not experience sudden gains, clients who experience sudden gains, or a dramatic reduction in symptom intensity between consecutive therapy sessions, appear to benefit from a significant, “long-lasting [positive] impact on therapy process and outcome” (Tang & DeRubeis, 1999, p. 902).

While examination of the client changes that appear to be associated with the onset of sudden gains has been a focus of research on the sudden gain phenomenon since its introduction to the literature (Tang & DeRubeis, 1999), the author is aware of no studies that have examined the therapist’s influence on clients who experience sudden gains. However, significant theoretical contributions to such a project exist. Goodridge and Hardy (2009), as part of a qualitative study of sudden gains, have suggested that sudden gains may be facilitated by clients’ repeated attempts to understand their

presenting problems, and the consolidation of several small insights. Examining clients experiencing moments of distress characterized by high expressive arousal and low meaningfulness, Pascual-Leone and Greenberg (2007) have suggested that distressed clients who experience good within-session outcomes are more likely to have experienced certain “productive” emotions (i.e., assertive anger, self-soothing, or grief/hurt). In a previous study, the author (Singh, 2008), working with a portion of the same dataset, reported that distressed clients who experience good within-session outcomes were significantly more likely to have therapists who focused on an unmet need.

Drawing on the above findings, the present study seeks to: (i) establish the generalizability of the sudden gains phenomenon to clients in experiential therapy for depression; (ii) examine clients’ change process in the therapy session preceding a sudden gain using a measure of client experiencing, and; (iii) investigate the impact of therapist interventions on sudden gains.

## **I. Theoretical Rationale: Understanding Psychotherapy Change**

### **How Does Psychotherapy Change Occur?**

**The shift from outcome to process.** In their recent effort to trace the evolution of the study of psychotherapy change, Pachankis and Goldfreid (2007) identify three “generations” of research. The primary objective of the first generation of psychotherapy research lay in straightforward assessment of treatment effectiveness, or whether psychotherapy does in fact facilitate productive change (Goldfried & Wolfe, 1998). The ascent of behavioural therapies in the 1960’s marked the onset of the second generation of psychotherapy research. This new wave of clinical research allowed for greater specification in research design, and led to the development of focused treatment manuals designed for specific target problems (e.g., phobias). In the third, current generation of

psychotherapy research, randomized clinical trials (RCT) became the standard approach of studying the treatment of psychopathology, as advocated by the National Institute of Mental Health (NIMH) Treatment of Depression Collaborative Research Program (Elkin, Parloff, Hadley, & Autry, 1985). The methodological sophistication which characterizes the current generation of research has led researchers to effectively move from questioning “Does treatment A work?” to asking “Does treatment A work better than treatment B?” (Pachankis & Goldfreid, 2007).

Despite the proliferation of different theories and numerous investigations demonstrating the overall efficacy of many psychological treatments, the field still knows relatively little about the *process* of psychotherapeutic change (e.g., Kazdin, 2001; Kopta, Lueger, Saunders, & Howard, 1999). Laurenceau, Hayes, and Feldman (2007) argue that the traditional focus on psychotherapy outcome (“Does treatment A work?”) has limited our understanding of psychotherapy process (“*How* does treatment A work?”) in a number of significant ways. First, the common RCT pretreatment-posttreatment measurement design allows for only brief glimpses into the process of change. Similarly, traditional methods of data analysis have been restricted in their ability to capture potential variability in the psychotherapeutic change process (Nowak & Vallacher, 1998). For example, in the interest of increasing the generalizability of their results, researchers have tended to cluster data along group averages. However, this strategy also has the effect of deemphasizing variability along individual change patterns. As Collins and Seyer (2000) note, relatively few studies have reported analyses of intra-individual variability. Instead, researchers often view such variability as “noise,” or a contributor to error variance. As a result, “clinicians may reasonably suspect that [these research findings] do not provide the kind of information that they could find useful, namely what

to do in therapy with a client with a particular clinical presentation” (Pachankis & Goldfreid, 2007, p. 761).

By aiming to discover the mechanisms underlying productive therapeutic change, psychotherapy process research seeks to provide empirically-based, clinically-useful information for the practicing clinician. One method of accomplishing this goal involves identifying significant in-session therapeutic events (or “markers”), and subsequently working to identify therapeutic interventions at these markers that appear to facilitate productive client change (Rice & Greenberg, 1984).

One area of investigation in which this method of process-focused research has proven fruitful involves studies of the *working alliance* (Orlinsky, 2004). Alternatively referred to as the “therapeutic alliance,” the working alliance refers to the extent to which a therapist-client dyad demonstrates the ability to work together purposefully and establish an emotional connection (Horvath & Greenberg, 1994). Process research examining the working alliance has yielded information regarding the effective identification of ruptures in the therapeutic relationship as well as strategies for interventions aimed at repairing such ruptures (e.g., Paivio & Pascual-Leone, 2010; Safran & Muran, 2000; Stiles et al., 2004). Similarly, Greenberg and colleagues (e.g., Greenberg, 2002; Greenberg & Paivio, 1997) have sought to identify in-session experiential markers alongside marker-specific strategies for productive intervention. As Pachankis and Goldfreid (2007) note, “such work can guide clinicians in providing flexible, adaptive treatment to clients with a variety of presenting problems throughout the change process” (p. 762).

**The shift from linear to non-linear process.** One consequence of the growing attention to the process of change is that researchers have begun questioning their

longstanding assumptions regarding the nature of client change. For example, one assumption underlying the pretreatment-posttreatment measurement model common to RCTs is that psychotherapeutic change occurs in a gradual, linear fashion. However, an increasing body of interdisciplinary evidence suggests that change can also occur in a discontinuous, non-linear manner (Hayes, Laurenceau, Feldman, Strauss, & Cardaciotto, 2007).

Non-linear change is frequently marked by sudden, dynamic shifts in therapist-client interaction. Moreover, these shifts are often intentionally facilitated by the therapist. While therapists do work to promote a stable therapeutic environment in order to enhance clients' strengths, they will also commonly introduce a number of interventions designed to interrupt or challenge existing patterns of clients' functioning over the course of therapy (Hayes et al., 2007). The therapist's efforts in this regard, toward encouraging a client's experience of an emotionally aroused, destabilized state, often lead to increases in client emotional processing and meaning-making. These increases, in turn, appear to contribute to more productive therapeutic outcomes (Davies et al., 2006). However, establishing the extent to which therapists actually contribute to this process has proven to be a difficult undertaking, and the findings are often not especially clear (Hall, 2007).

The study of change as a non-linear process requires that multiple observations be recorded over time. Consequently, the examination of non-linear therapy process focuses on individual change trajectories rather than mean change across groups. Some researchers have described this research strategy as especially promising, as attending to individual shifts may direct researchers to those segments of therapy wherein the process factors that serve to aid or inhibit productive client change are directly observable (Rice

& Greenberg, 1984; Greenberg, 1986). In this way, the study of non-linear change allows for a more precise examination of change than is possible through traditional pretreatment-posttreatment study designs, with the potential to yield predictors, mediators, moderators, and mechanisms of psychotherapeutic change processes (Hayes et al., 2007). As such, investigations of non-linear therapeutic change can be viewed as a vital component of treatment development, providing clinicians and researchers alike the opportunity “to better understand the ‘when,’ ‘how,’ and ‘why’ of change” (Paul, 1967; as cited in Hayes et al., 2007).

### **Dynamic Systems Theory: A Process-Oriented, Non-linear Change Framework**

**The importance of destabilization.** Non-linear dynamic systems theory is a conceptual framework for the study of psychotherapy change processes that has “gained momentum as a unifying paradigm for the study of pattern formation and change across a number of sciences” (Hayes & Strauss, 1998, p. 939). Dynamic systems theory presents a view of psychological growth as a lifelong process characterized by alternating periods of stability and variability (Hayes & Strauss, 1998). Stabilizing forces are thought to sustain the coherence or integrity of a system, while variability (or instability) is viewed as permitting the flexibility necessary for change. A system experiencing variability, or undergoing change, is experiencing a *transition*. Once the transition is complete, old, stable forces compete with the new, dynamic patterns until the system regains stability (Thelen, 2005). Thus, change is understood as an individual’s progression through a series of states of stability and variability (Thelen & Smith, 1994).

Dynamic systems theory posits that this process of change is not random. Rather, systems are thought to self-organize into preferred patterns, which are termed *attractor states*. The stability of a particular attractor state is a function of its history. Attractor



states that have been repeatedly maintained over time are generally more stable, are more strongly preferred (and thus are achievable through a greater variety of processes), and will require more energy to destabilize (Tschacher, Schiepek, & Brunner, 1992). Attractor states with the greatest potential for change are less stable, and therefore will often have a briefer history within the system. Consequently, a therapist with sufficient understanding of the history of a client's system may be able to facilitate client change through destabilization. One method of accomplishing this goal involves exposing the client to new, powerful information designed to challenge and change the client's existing patterns (Caspar, Rothenfluh, & Segal, 1992). Alternatively, the therapist may instruct and encourage the client to repeatedly engage in novel behavior (Teasdale & Barnard, 1993).

Destabilization, or a period of system-wide variability, is viewed as a necessary process which engenders individual growth and change (Mahoney, 1991). Within the psychotherapeutic context, unless the client's system is challenged, it will gravitate toward the existing (presumably maladaptive) attractor state. Schiepek, Fricke and Kaimer (1992) note that minor changes can be facilitated either through adjustments in the attractor state or by enhancing the system's ability to shift between existing attractor states. However, new patterns (i.e., new attractor states) can emerge only when old patterns are destabilized. If a state of destabilization is prompted when a client is ready, it can facilitate the emergence or discovery of a more adaptive attractor state. Conversely, if the client does not have the resources to adequately engage during the destabilization period, the client may maintain the same attractor state, or even regress to a less adaptive one (Mahoney, 1991).

Dynamic systems theory conceptualizes psychopathology as a state of *dynamic equilibrium*, wherein a maladaptive pattern (or patterns) of functioning interferes with an

individual's well-being (Mahoney, 1991). These patterns are often well-established within the individual, and can in fact become so entrenched that they are considered "lifestyles" (Schiepek et al., 1992). In this way, maladaptive patterns of functioning may contribute to the structure of the individual's daily living. The system's stabilizing, self-protective forces work to maintain the presenting patterns, despite their inhibition of optimal functioning (Hayes & Strauss, 1998). The role of the therapist then is to attend to these forces, as they influence the potential for productive client change. The client's stabilizing forces must be overcome before change is possible (Mahoney, 1991).

**Critical sessions: Not all change is created equally.** An important implication of the view that the process of psychotherapy change occurs in a discontinuous, non-linear manner is that some moments over the course of treatment will have a greater effect on outcome than others. Indeed, a number of researchers have suggested that certain *critical sessions*, during which significant client transitions are hypothesized to occur, are likely to have a much greater impact on treatment outcome than other therapy sessions (e.g., Elliott, 1983; Greenberg, 1991). Elliott (1984) has outlined a sophisticated method for identifying critical sessions within an individual client's treatment process. However, due to the significant time and labor requirements of this approach, the method appears to have limited feasibility for researchers working with larger samples (Tang & DeRubeis, 1999).

Drawing on dynamic systems theory, several psychotherapy studies have demonstrated that one important predictor of system transition is a type of within-session discontinuity called a *critical fluctuation* (e.g., Bak & Chen, 1991; Kelso, 1997; Schiepek, Eckert, & Weihrauch, 2003). Critical fluctuations occur when the destabilizing forces acting on a stable system are too great to assimilate, resulting in a sudden, dramatic

increase in system variability before the system is able to reorganize itself. During critical fluctuations, the client's existing system experiences destabilization and is open to new information, including the exploration of more adaptive patterns of functioning (Hayes et al., 2007). Kelso, Ding, & Schoner (1993) report that system transitions are preceded by critical fluctuations and followed by periods of increased stability, while other psychotherapy researchers have already started working to identify critical fluctuations in order to study system change and its causes (e.g., Vallacher, Read, & Nowak, 2002). Such a line of inquiry may well lead to a better understanding of whether different therapeutic interventions are "of particular importance at specific times in therapy" (Lambert, DeJulio, & Stein, 1978, p. 484).

### **Summary**

The adoption of the nonlinear, process-oriented approach to psychotherapy change provided by dynamic systems theory sharpens the focus of the author's overarching research goal of uncovering empirically-derived, clinically-interpretable results in two significant ways. First, dynamic systems theory understands client psychopathology as a maladaptive—yet stable—state of being, and views the psychotherapeutic change process as a dynamic tug-of-war between stabilizing and destabilizing forces. Following this perspective, periods of destabilization, and not stability, are thought to facilitate productive client change (i.e., movement toward more productive attractor states). The second point is that not all periods of destabilization are created equally. Researchers working within the dynamic systems theory framework have uncovered evidence suggesting that clients are particularly prone to productive change during periods of "critical fluctuation". Consequently, the identification and subsequent investigation of

client and therapist processes during such periods over the course of therapy appears a promising research strategy.

## **II. Empirical Rationale: How to Study Psychotherapy Change**

### **Operationalizing and Measuring Change**

Despite growing awareness of the importance of understanding the nature and causes of change in psychotherapy, the development of a number of diverse research approaches has led to little consensus regarding what an “examination of change” entails (Doss, 2004). One common approach to the study of psychotherapy change has been to examine therapy outcome in relation to specific aspects of a particular therapy (i.e., treatment-specific “active ingredients”) that are hypothesized to affect outcome (e.g., the cognitive restructuring interventions specific to cognitive behavioural therapy for Adolescent Depression and Anxiety; Spielmans, Pasak, and McFall, 2007). Other investigators, operating within a more treatment-inclusive framework, have explored the influence on treatment outcome of “common factors”, or elements common across different therapeutic modalities (e.g., the working alliance as a predictor of outcome; Horvath, 2007). Yet another common approach to studying change involves conducting an assessment of the amount of change in client variables created by therapy, followed by an investigation of the relation of those changes to therapy outcome. One study utilizing this strategy examined the relationship between changes in maladaptive client cognitions and overall reduction in depressive symptomology among clients undergoing cognitive behavioural couples therapy (Whisman & Snyder, 1997).

### **Operationalizing Change**

**Operationalizing process: Change processes and mechanisms.** In an attempt to integrate these historically distinct approaches, Doss (2004) distinguishes among three

primary components of an investigation of psychotherapy change: change processes, change mechanisms, and final treatment (or “ultimate”) outcomes. Generally speaking, while ultimate outcomes are understood to be identical among dissimilar treatment approaches targeting similar psychopathology (i.e., decreased client symptomology; Chambless & Ollendick, 2001), change processes and change mechanisms can vary significantly between treatment modalities. As a result, the distinction between change processes and change mechanisms for psychotherapy process researchers is crucial:

*Change processes* are aspects of therapy, occurring during the treatment session or as a direct result of therapy homework assignments, which subsequently create improvements in the change mechanisms... *Change mechanisms* are intermediate changes in client characteristics or skills, not under direct therapist control, that are expected to lead to improvements in the ultimate outcomes of therapy (italics in original; Doss, 2004, p. 369).

Doss (2004) views the widespread failure to attend to this distinction as “damaging to [the] systematic investigation of change in psychotherapy” (p. 370). For example, a lack of appreciation for the two types of change has resulted in treatment comparison studies wherein treatment conditions (i.e., therapy change processes) are carefully controlled, but which result only in postulations regarding important change mechanisms. Alternatively, researchers may erroneously equate change mechanisms with change processes (e.g., Kolko, Brent, Baugher, Bridge, & Birmaher, 2000; as cited in Doss, 2004).

Psychotherapy change processes can be further subdivided into therapy change processes and client change processes. *Therapy change processes* refers to “interventions, directives, or therapist-constructed therapy characteristics that are hypothesized to be the ‘active ingredients’ of a treatment and create subsequent client change processes” (Doss, 2004, p. 369). *Client change processes* are “client behaviors or experiences that occur as

a direct result of therapy change processes and are expected to lead to improvements in change mechanisms” (Doss, 2004, p. 369).

This distinction is of particular importance because therapy and client change processes may influence each other in multiple ways. Doss (2004) elaborates:

several therapy change processes may create the same client change process (e.g., that both behavioural activation and communication training may serve to increase the client’s frequency of positive behaviors)...[or] a therapy change process may not actually influence a client change process as hypothesized (e.g., that eliciting and testing a client’s automatic thoughts may not actually help that client replace his or her automatic thoughts). Finally...a client change process can occur without a specific therapy change process (e.g., that a client may become more tolerant of his negative emotions after entering a supportive romantic relationship) (p. 369).

With a multitude of therapy characteristics, and interactions among these characteristics, available for study, attending to the different components of change with an eye toward effectively narrowing the scope of a given study becomes an essential strategy of the psychotherapy process researcher (Stiles & Shapiro, 1994).

**Operationalizing outcome: Big "O"s and small "o"s.** The advantages of distinguishing between treatment “outcome” at various levels are elaborated upon by Greenberg and Pinsof (1986). Contrasting between in-session event outcomes (i.e., intermediate outcomes, or “small o’s”) and final treatment outcome (i.e., a “big O”), the authors advance the notion that conceptualizing outcome in this multi-leveled manner allows for consideration of final treatment outcome (i.e., good versus poor therapy; a big O), as well as, on a more detailed level of analysis, session outcomes or even within-session events (i.e., good versus poor sessions/events; little o’s). Interestingly, intermediate outcomes enable researchers to consider change mechanisms as within-session outcomes in themselves. For example, the presence of deepened client

experiencing at the end of a specific therapeutic intervention may be considered as either the outcome (little o) of the intervention itself, a productive change process in service of good final treatment outcome (big O), or both. This strategy allows for the consideration of little o's in relation to big O's, enabling researchers to investigate whether the processes evident in selected within-session events contributed to the larger treatment outcome.

See Figure 1 for a graphic summary of the step-by-step approach to conceptualizing psychotherapy change advocated by Doss (2004) and Greenberg and Pinsof (1986).

**An integrative approach to the study of change.** One method of effectively developing a study of psychotherapy change and relating it to treatment outcome is to investigate change processes as they are related to improvements in change mechanisms. Such an approach to psychotherapy process research operates according to the assumption that it is “more theoretically informative to relate specific change processes to improvements in change mechanisms than to improvements in outcome” (Doss, 2004, p. 371). Final treatment outcome, while serving as a natural end-point for client symptom assessment, appears to frequently result from a number of simultaneous and sequential change paths (Kazdin, 2007). Shifting the focus of inquiry to the relationship between change processes and change mechanisms allows for a far narrower scope of inquiry, as change mechanisms that have been identified as unrelated to change in outcome in a given area can be eliminated from relevant studies of change processes.

Another benefit of this approach is that improvements in change process are often more easily related to change mechanisms than to improvements in ultimate outcome. Researchers may hypothesize precisely when a given change process should create

improvements in a specified change mechanism, and what changes will result. Working in this manner, Greenberg and Malcolm (2002) are able to relate clients' experience of an evocative empty chair intervention (i.e., a change process) to short-term resolution of unfinished business (i.e., what Doss, 2004, argues to be a change mechanism) more robustly than to long-term reduction in client symptomology. Similarly, in their review of the evidence base for cognitive-behavioural therapy, Epp and Dobson (2010) note that the relationship between cognitive restructuring interventions and change in clients' maladaptive cognitions is more apparent than the relation between the same interventions and longer-term reductions in generalized anxiety.

From this perspective, the task of relating change processes to improvements in change mechanisms becomes a programmatic one. The fruitful study of change processes requires a prior phase of psychotherapy process investigation focused on the identification and testing of change mechanisms. Only once such an understanding of change mechanisms is established can targeted process research to identify important change processes be conducted (Doss, 2004).

### **Measuring Change**

A further difficulty involved in the study of psychotherapy process involves selecting an appropriate method of measuring change, and then accurately interpreting these measurements. One influential measurement framework, which underlies the vast majority of randomized clinical trials (RCTs), is called the *dose–effect model*. The dose–effect model of treatment seeks to determine the optimal “dose” of psychotherapy, where a higher quantity is presumed to represent a stronger dose (Barkham et al., 2006). This characterization of change encourages measurement in service of the question “How much is enough?” (Kopta, 2003, p. 728). This straightforward query is understandably



attractive to researchers seeking to find linear relationships between important process variables and psychotherapy outcome.

However, a number of researchers have characterized this approach to change measurement as untrustworthy (e.g., Hardy, Stiles, Barkham, and Startup, 1998). In seeking to discover linear relationships between process variables and psychotherapy outcome, the dose-effect model of measurement assumes that psychotherapy is a “ballistic” process, or determined at treatment onset and unresponsive to information that emerges during the treatment process (Stiles, Honos-Webb, & Surko, 1998, p. 439). Critics of this conceptualization of the therapy process argue that psychotherapy is not planned out in advance. Rather, psychotherapy is “responsive,” or an evolving, interactional process between client and therapist, in which both content and process emerge as treatment progresses (Stiles, 2009, p. 86). Therapists, rather than selecting specific interventions to meet predetermined quotas, work to employ techniques that are both appropriate to the client’s level of functioning and expected to produce productive client change (Stiles & Shapiro, 1994). Indeed, Krause and Lutz (2009) suggest that “therapists are responsible for actively managing the psychotherapy process” (p. 73). In this view, individual client change processes are to be viewed both as a result of the therapist’s interventions, and also as a *cause*. Common clinical guidelines, such as “If a client becomes defensive don’t push an interpretation,” capture the responsive nature of the therapy process (Stiles et al., 1998, p. 439). The view of psychotherapy treatment as “behavior being influenced by emerging context” is referred to as the *responsiveness critique* (Stiles, Barkham, Connell, & Mellor-Clark, 2008, p. 298).

**The problem of responsiveness.** The responsiveness critique is important to the project of measuring psychotherapy change because it highlights the contextuality of the

relationships between change variables and treatment outcome. Suggesting that a particular process component (e.g., therapist focus on a client's unmet need) is therapeutically significant suggests that treatment outcome is affected by the therapist's attention to it. However, it does not necessarily follow that clients who receive more of the process component will necessarily have better treatment outcomes than those who receive less. As Stiles (1996) elaborates:

More of a good thing is better when one is not already getting enough...if most clients' treatments include less-than-optimum amounts of an important process component, then...the level of process component will be positively correlated with outcome (p. 915).

However,

if most treatments include enough of the component—in particular, if participants respond appropriately to client requirements—then more is not better. If clients are getting enough, those whose treatment includes less (perhaps because they required less) will not tend to have worse outcomes than those whose treatment includes more (Stiles, 1996, p. 915).

Alternatively, if a therapist elected to provide severely distressed clients more of a given intervention, but the same clients reported fewer gains than healthier clients, correlational measurement of the relationship between the frequency of the intervention and outcome gains would be negative (Stiles, 1996).

In sum, the potential for the responsiveness of the psychotherapy process to distort assessments of the relationship between process variables and outcome is great. Stiles and colleagues (1998) detail the ways in which inattention to responsiveness may undermine comparisons of the efficacy of different treatment modalities, suggesting that responsiveness may be a primary contributor to the so-called “Dodo bird effect,” or the finding that all psychotherapeutic modalities are roughly equivalent. With regard to the

measurement of psychotherapy change, the problem of responsiveness does not imply that all linear relationships between components of the change process and outcome are deficient. Rather, it suggests that they may be so if the interactional nature of the therapy process is not given consideration.

**Addressing the problem of responsiveness.** In order to address the concerns highlighted by the responsiveness critique, both Doss (2004) and Stiles (1998) have proposed a number of strategies designed to accommodate psychotherapy responsiveness when measuring change.

*Differentiating between change components.* In order to evaluate the process of change according to its component parts, researchers may pay keen attention to the relationship between therapist behaviour and client change. Both Doss (2004) and Stiles (1998) note that client change processes should not be understood as mere reflections of therapy change processes (e.g., client behaviour performed in response to therapist directives). Instead, researchers should work to include both therapist and client variables in their study design, and acknowledge therapist-client interaction.

This research strategy proceeds in a step-by-step fashion, beginning with (i) consideration of the relation of therapy change processes to client change process (e.g., by asking, “Which interventions facilitate clients’ experience of specific processes in therapy?”). The next step involves (ii) the examination of the relation of client change processes to change mechanisms (e.g., “Which in-session client experiences lead to within-session change?”). Finally, (iii) the relation between clients’ within-session outcomes and ultimate outcomes can be explored (e.g., “Which in-session changes contribute to the final treatment outcome?”). See Figure 1 for graphic depiction of this step-by-step approach to measuring change.

Overall, this approach to the study of psychotherapy change enables researchers to more readily tease apart and make specific predictions regarding improvements in change. For example, a client's experience of a specific intervention (e.g., a cognitive restructuring exercise; an empty-chair technique) may be more readily related to a hypothesized change mechanism (e.g., decreased depressive thoughts; resolution of unfinished business) than to a long-term reduction in depressive symptomology (Greenberg & Malcolm, 2002). In this way, a step-by-step, programmatic approach to the study of change may facilitate the integrative study of psychotherapy change mechanisms and processes.

***Using evaluative measures.*** A second strategy for addressing the problem of responsiveness in measuring psychotherapeutic change involves operationally defining client change processes according to their quality and not simply their frequency (Doss, 2004). To this end, Stiles and colleagues (1998) suggest the use of *evaluative measures* of process, which incorporate implicit judgments of responsiveness, as “descriptively equivalent events in treatment (e.g., therapist utterances coded as interpretations) are not reliably equivalent in value” (p. 445). Some examples of this type of qualitative measurement include the Experiencing Scale (Klein, Mathieu-Coughlan, & Kiesler, 1986), which assesses the depth to which clients are able to access and make sense of their internal experience, and the Dysfunctional Attitudes Scale (Weissman & Beck, 1978), which aids in identifying those client cognitive distortions that may perpetuate depression.

***Incorporating context.*** Third, Stiles and colleagues (1998) emphasize the importance of incorporating context in psychotherapy research. Rather than study isolated events, they suggest that researchers consider sequences or patterns of psychotherapy

change. Moreover, the authors encourage researchers to acknowledge that not all therapy events are of equal importance, and that some may be particularly significant (e.g., critical fluctuations). To this end, Doss (2004) suggests that researchers attempt to distinguish between in-session changes and changes which occur outside of the therapy session, in order to enhance the separation of the change process and change mechanism constructs. For example, researchers may elect to ask study participants to complete self-report measurement instruments both before and after each session of therapy as a means of distinguishing between within-session and between-session changes.

### **Summary**

The selection of dynamic systems theory as a theoretical framework for investigating the non-linear process of psychotherapy change highlighted the importance of critical fluctuations, or moments in therapy that may greatly impact treatment outcome. By adopting Doss' (2004) empirical framework for the study of psychotherapy change, the focus of the present study is further sharpened in two important ways.

First, Doss' (2004) strategy of operationalizing psychotherapy change by separating it into distinct components allows for greater specificity in the research task. An effort to produce empirically-derived, clinically-useful research findings must first begin with an understanding of change mechanisms (e.g., decreased depressive thoughts; resolution of unfinished business). Subsequently, investigation of client change processes (e.g., reduced maladaptive cognitions; deepened client experiencing) or therapy change processes (e.g., cognitive restructuring exercises; empty-chair techniques) can occur.

Second, the selection of measurement instruments should be conducted with a keen awareness of the responsive nature of psychotherapy. Change processes should be measured according to their quality, and not merely their presence or absence. For

example, rather than simply observing the presence of emotion in a given session, researchers should attempt to assess the nature of the client's emotional experience (e.g., is the emotion "productive" or "unproductive"?; Pascual-Leone & Greenberg, 2007). In addition, the context of psychotherapy change processes should be considered (e.g., through examination of a pattern of change, rather than an isolated event).

With theoretical and empirical frameworks now in hand, the researcher is able to identify criteria for an appropriate topic of study in line with the identified research agenda. In order to contribute empirically-derived, clinically-useful findings to the existing literature, the phenomenon to be investigated in the present study should be a type of critical fluctuation with identifiable change mechanisms, but without well understood change processes. The identification of "sudden gains" among some depressed individuals undergoing cognitive behavioural therapy for depression appears to fit these criteria.

### **III: Subject Rationale: Sudden Gains**

#### **Cognitive Behavioural Therapy for Depression**

Since its introduction to the field by Beck, Rush, Shaw, and Emery (1979), cognitive behavioural therapy (CBT) for depression has become one of the most widely investigated and commonly practiced forms of therapy for depression (DeRubeis & Crits-Christoph, 1998). Evidence has accumulated suggesting that it is at least as effective as pharmacotherapy and other psychosocial treatments in ameliorating acute depressive episodes, and that it may be more effective than pharmacotherapy in preventing relapse (Hegerl, Plattner, & Möller, 2004; Pampallona, Bollini, Tibaldi, Kupelnick, & Munizza, 2004).

The fundamental assumption of cognitive behavioural therapy for depression, called the cognitive mediation hypothesis, is the notion that depressive symptoms are effectively alleviated through the modification of client cognitive processes (Beck et al., 1979). As evidence for the efficacy of cognitive behavioural therapy for depression has accumulated, research in the field has shifted from investigations of whether Cognitive Behavioural Therapy for depression works to studies examining *how* it works.

In a seminal study, Ilardi and Craighead (1994) introduced time course analysis to the study of cognitive behavioural therapy for depression. By examining group mean depressive symptomology session-by-session across eight efficacy studies, the authors observed that approximately 65 percent of the symptomatic improvement measured over the course of the treatment occurred within the first four weeks of therapy, prior to the implementation of cognitive restructuring techniques (Ilardi & Craighead, 1994).

### **Sudden Gains**

For Tang and DeRubeis (1999), the most significant result of the introduction of time-course analysis to the study of depression was advancement of the notion that the reduction of depressive symptoms often does not occur in a linear fashion. In a critique of the methodology of Ilardi & Craighead (1994), the authors highlighted the fact that, while the pattern of improvement across group mean time courses appeared to be nonlinear, the shapes of individual patients' time courses often differ substantially from that of the group mean (Tang & DeRubeis, 1999a). Moreover, the “substantial heterogeneity of time courses across individual patients...makes it hazardous to infer mechanism from the group mean time course” (Tang & DeRubeis, 1999, p. 894).

Turning to analysis of the session-by-session time course of individual clients undergoing cognitive behavioural therapy for depression, Tang and DeRubeis (1999)

witnessed a striking trend emerge: “Many individual [clients’] depression severity improved suddenly, in some cases dramatically, in one between-sessions interval” (p. 894). Relative to typical between-session improvements, these improvements were both significantly greater in magnitude and appeared to account for a disproportionate share of clients’ total symptom improvements. These sudden, substantial improvements were termed *sudden gains*.

At the end of treatment, Tang and DeRubeis (1999) observed that clients who experienced sudden gains<sup>1</sup> reported significantly lower levels of depressive symptomatology than the patients who did not. Further analysis suggested that the observed sudden gains were not transient mood fluctuations, but rather appeared to be a clinically-meaningful phenomenon with long-lasting impact on therapy process and outcome. When compared to clients who did not experience a sudden gain, clients who experienced sudden gains reported significantly lower depressive symptomatology at 6- and 18-month post-treatment follow-up intervals (Tang & DeRubeis, 1999).

**Prevalence and impact at post-treatment.** Following Tang and DeRubeis (1999), a significant body of research on sudden gains has developed. The majority of this research has been conducted in the context of traditional short-term (i.e., 16-20 session) cognitive behavioural therapy for depression (e.g., Busch, Kanter, Landes, & Kohlenberg, 2006; Hardy et al., 2005; Kelly, Roberts, & Ciesla, 2005; Manning, Hardy, & Kellett, 2010; Pham, 2005; Tang, DeRubeis, Beberman, & Pham, 2005; Tang et al., 2007; Vittengl, Clark, & Jarrett, 2005; Zhiyan, 2000). Sudden gains have also been observed in supportive, psychodynamic, interpersonal, systemic, and pharmacotherapy approaches to

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<sup>1</sup> Hereafter, those persons who experience sudden gains will be referred to as *sudden gain responders*. Conversely, clients who do *not* experience a sudden gain will be referred to as *non-sudden gain responders*.



the treatment of depression (Gaynor et al., 2003; Kelly, Cyranowski, & Frank, 2007; Stiles et al., 2003; Tang, Luborsky, & Andrusyna, 2002; Vittengl, Clark, & Jarrett, 2005).

More recently, there has been growing evidence that sudden gains are not only circumscribed to treatment for depression but also play an important role in treatments for other disorders. In one of the earliest investigations of sudden gains outside the context of treatment for depression, Stiles and colleagues (2003) observed sudden gains among a sample of clients drawn from routine clinical settings. The individuals comprising this sample were suffering from a range of disorders, therapists had a variety of training backgrounds (e.g., clinical psychology, counselling, nursing), and an assortment of treatment approaches were offered (e.g., cognitive, psychodynamic, gestalt). Sudden gains have since also been observed in psychodynamic therapy for Generalized Anxiety Disorder (Present et al., 2008), cognitive behavioural therapy for Post-Traumatic Stress Disorder (Doane, Feeny, & Zoellner, 2010; K. A. Kelly, Rizvi, Monson, & Resick, 2009), cognitive behavioural therapy for Alcohol Dependence (Drapkin, 2007), group cognitive behavioural therapy and group exposure therapy for Social Anxiety Disorder (Hoffman, Schulz, Meuret, Moscovitch, & Suvak, 2006), group cognitive behavioural therapy for Panic Disorder (Clerkin, Teachman, & Smith-Janik, 2008), trans-diagnostic group cognitive behavioural therapy for anxiety disorders (Norton, Klenck, & Barrera, 2010), and integrative couples' therapy (Doss, Rowe, Carhart, Madsen, & Georgia, 2011). The wide range of treatment modalities and measurement instruments used across these studies suggest that the observation of sudden gains is not likely an artifact of a particular approach to treatment or measurement instrument.

On average, sudden gains appear to account for approximately 60% of symptom improvement from pre-treatment to post-treatment (e.g., Kelly, Roberts, & Ciesla, 2005;

Hopko, Robertson, & Carvalho, 2009; Tang & DeRubeis, 1999; Tang, DeRubeis, Hollon, Amsterdam, & Shelton, 2007). The proportion of depressed clients who experience sudden gains appears to be in the 40% to 50% range (e.g., 42%: Kelly et al., 2005; 39%: Tang & DeRubeis, 1999; 50%: Hopko et al., 2009; 40%: Tang et al., 2007), although some authors have suggested that sudden gains among clients in routine clinical practice settings (as opposed to controlled clinical trials) result in a relatively lower proportion of sudden gain responders, and a higher proportion of sudden gains that are "reversed", where more than 50% of the gain is subsequently lost (Hardy et al., 2005; Stiles et al., 2003). Sudden gains also appear more likely to occur in individual psychotherapeutic treatment as opposed to a group therapy format (Gaynor et al., 2003).

Hardy and colleagues (2005) have presented evidence indicating that sudden gains are not due to client demographical differences or external life events, as assessed through the Clinical Outcomes in Routine Evaluation-Short Forms questionnaires (Barkham et al., 2001; Evans et al., 2002). Through analyses of these post-session self-report data collected from a sample of clients receiving treatment in a routine clinical practice setting, the authors reported that client experience of a sudden gain was not associated with client age, initial symptom severity, or the presence of a comorbid personality disorder. Moreover, there was no association between the experience of a sudden gain and preceding significant life events (as assessed both according to number and type, i.e., positive or negative). These findings further strengthen the hypothesis that sudden gains can be part of the pattern of recovery from depression and a significant event in the psychotherapeutic process.

Other proposed predictors of sudden gains currently lacking research support include changes in clients' self-esteem (Kelly et al., 2005) and therapist treatment

adherence (Doane et al., 2010). In addition, it has been suggested that clients who experience sudden gains may begin treatment with higher levels of impairment, such that sudden gains simply reflect the statistical phenomenon of regression to the mean (Hofmann et al., 2006). This latter hypothesis has since been described as "unlikely", as a number of studies have failed to find a relationship between pre-treatment symptom measures and sudden gain occurrence (Aderka et al., 2011, p. 445).

**Long-term impact of and differences between early- and later-occurring sudden gains.** In most studies to date, sudden gain responders have been found to report significantly lower levels of post-treatment depression and lower scores on general symptom measures as compared to non-sudden gain responders (Aderka, Nickerson, Bøe, & Hofmann, 2012). Longer term follow-up results have been more mixed. Some authors have reported that sudden gains predict lower levels of depression at long-term outcome (e.g., Gaynor et al., 2003; Hardy et al., 2005; Tang & DeRubeis, 1999) and lower rates of relapse (Tang et al., 2007), while others have failed to find such differences (Kelly et al., 2007; Tang et al., 2002; Vittengl et al., 2005), or have described long-term benefits as restricted to particular areas of functioning (e.g., lower degree of interpersonal problems; Stiles et al., 2003). Importantly, the studies which have failed to find differences in the long-term impact of sudden gains had significant methodological differences compared to those studies in which long-term effects were found. Vittengl and colleagues' (2005) results were based on measurements taken every two sessions (rather than prior to each session), while Stiles and colleagues (2003) attempted to observe sudden gains in community treatment settings using a measure not necessarily designed to be sensitive to sudden therapeutic gains (i.e., the Clinical Outcomes in Routine Evaluation-Outcome Measure; Evans et al., 2002). The remaining two studies (i.e., Kelly et al., 2007; Tang et

al., 2002) involved examinations of sudden gains in the context of interpersonally-oriented treatments. Kelly and colleagues (2007) suggest that interpersonally-oriented treatments may produce sudden gains that are less robust than those produced by cognitive-behavioural treatments due to "differing set[s] of therapeutic expectations" (p. 2570). That is, clients undergoing interpersonally-oriented treatments are asked to discuss and process affective experiences, while clients receiving cognitive-behavioural treatments work to minimize negative affect through cognitive restructuring. As a result, these differential expectations may yield deviating patterns of symptom identification and reporting between the two treatment modalities (Kelly et al., 2007).

There has also been considerable discussion regarding the potential differences of the impact of sudden gains occurring in the "early phase" of treatment (e.g., within the first five sessions) versus those occurring later in treatment. However, to date, evidence regarding potential differences has been mixed. Some authors have reported that clients who experience a sudden gain in the early phase of treatment are more likely to respond to treatment and report greater reductions in depressive symptomology at post-treatment (Busch et al., 2006; Kelly et al., 2005; Tang et al., 2005; 2007). suggesting that early phase sudden gains may be related more strongly to good final treatment outcome than later sudden gains. In contrast, others have described early phase sudden gains as less stable than later sudden gains and more likely to be eroded (or "reversed") over the course of treatment (Aderka et al., 2012; Clerkin et al., 2008).

### **Research on the Sudden Gain Change Process**

**The three-session framework.** In their seminal study, Tang and DeRubeis (1999) focused on the temporal course of three variables: severity of depressive symptomology, cognitive change, and the working alliance. Using a three-session measurement

framework centered on the observed sudden gain, the authors measured the levels of each of the three variables in the *pregain session* (i.e., the therapy session immediately preceding the sudden gain), the *after-gain session* (i.e., the therapy session immediately after the sudden gain), and in a control, or *prepregain session* (i.e., the therapy session immediately preceding the pregain session).

The resulting data led Tang and DeRubeis (1999) to propose the following temporal chain of events: Between the control (prepregain) session and pregain session, a significant increase in observed client cognitive change occurs. This increase appears to trigger the sudden gain, as indicated by a marked decrease in depressive symptomology, between the pregain and after gain sessions. Finally, in the aftergain session, a significantly improved working alliance is observed, alongside a continued high level of (i.e., further) cognitive changes. See Figure 2 for a graphic depiction of the sudden gain change process.

The sudden gain change process was described by Tang and DeRubeis (1999) as providing evidence for the cognitive mediation hypothesis of cognitive behavioural therapy, which posits that cognitive changes are the active therapeutic ingredient which induce the amelioration of depressive symptoms (Tang et al., 2005). Superior treatment outcome was found to be preceded by sudden gains, which were in turn preceded by cognitive changes in pregain sessions (Tang & DeRubeis, 1999). Sudden gains were considered to mark the beginning of an *upward spiral* process specific to cognitive behavioural therapy, wherein client “cognitive changes and alliance improvements in the after-gain session [are] followed by additional cognitive changes, alliance improvements, and symptom improvements” as therapy progresses (Tang & DeRubeis, 1999, p. 901).

The upward spiral thus continues to propel the client toward recovery for the duration of treatment.

Integrating these findings with other work (e.g., Beck et al., 1979), the authors propose that clients who experience sudden gains respond to cognitive behavioural therapy for depression in a three-stage, nonlinear process. Central to this model is the suggestion that pregain sessions may be a type of critical session wherein important therapeutic events occur, and after which the nature of therapy appears to shift significantly, dramatically influencing therapy outcome.

Concluding with a call for increased attention to the nonlinear course of treatment for depression, the authors note that, “if cognitive changes lead to sudden gains, which then lead to good outcome, what leads to the cognitive changes?” (Tang & DeRubeis, 1999, p. 902). Borrowing the terminology of Doss (2004), we might rephrase the question as follows: “If cognitive changes are a client change process which leads to sudden gains, what are the therapy change processes which lead to the client change process?”

**Sudden gains research examining client change processes.** The earliest challenge to the idea that sudden gain onset is induced via an increase in client cognitive change came about through the discovery of sudden gains within alternate treatment modalities. As Tang, Luborsky, and Andrusyna (2002) note, the finding that sudden gains also occur in supportive-expressive dynamic therapy suggests that sudden gains may be "a general phenomenon common to many types of psychotherapies" (p. 446), particularly given the largely similar presentation of sudden gains across treatment modalities. In addition, as the literature on sudden gains continued to develop, a relationship between cognitive changes and sudden gain onset was not consistently discovered (e.g., Hoffman et al., 2006; Hopko et al., 2009; Kelly et al., 2005). For example, in supportive-expressive

dynamic therapy, cognitive changes were found to be unrelated to sudden gain onset, while greater therapist interpretation accuracy was found to precede sudden gains (Andrusyna, Luborsky, Pham, & Tang, 2006). Finally, the discovery of sudden gains with highly similar effects across a variety of treatment populations, including individuals with anxiety disorders, both children and adults suffering from post-traumatic stress disorder, and couples seeking therapy has led to the suggestion that sudden gains "may be a more general phenomenon of treatment response across different therapies, disorders, and treatment settings" (Pham, 2005, p. 50).

In addition, although sudden gains are typically associated with psychotherapeutic treatment, to date there have been two studies in which sudden gains were reported in the absence of controlled interventions, or in a placebo condition (Kelly, Roberts, & Bottonari, 2007; Vittengl et al., 2005). As pharmacotherapy and pill placebo depression treatments do not hold cognitive change as a focus of treatment, the occurrence of sudden gains in these treatments suggests that client cognitive change is not the active ingredient influencing the onset of sudden gains among depressed persons.

Moreover, these studies suggest that sudden gains may merely reflect transient "noise" in treatment data, or be indicative of a particular pattern of regression to the mean. Vittengl and colleagues (2005) entertain these possibilities, ultimately dismissing them as "too extreme" (Vittengl et al., 2005, p. 179). Specifically, they noted that this "noise hypothesis" is inconsistent with the repeated finding that sudden gains have both high convergent validity among depressive symptom severity measures, and high short-term predictive validity. That is, clients who experience sudden gains have repeatedly been found to report better functioning than clients who do not experience sudden gains on measures of depressive symptomology, cognitive content, and social–interpersonal

adjustment at post-treatment (Vittengl et al., 2005). The authors instead suggest that sudden gains likely "reflect one of two (sudden and non-sudden) or more pathways to acute phase treatment response" (Vittengl et al., 2005, p. 180).

A variety of treatment non-specific (or "common") factors have been proposed as potential predictors of sudden gain onset. Pham (2005) has highlighted the potential importance of client hopefulness in inducing cognitive and behaviour changes. The development of a sense of hope can be inspired through demonstration of the efficacy of specific techniques, or through increased belief in the competency and empathy of the therapist (Andrusyna et al., 2006). Others have suggested that factors such as working alliance and readiness for treatment may be promising areas for investigation (Ilardi & Craighead, 1994; 1999), particularly in cases of dramatic change occurring early in treatment (i.e., within the first four sessions). Such improvement in the "early phase" of treatment has been described as likely to be engendered by common factors (Pos et al., 2003), as treatment-specific interventions are typically introduced in the "working phase" of treatment, following case formulation and the establishment of a therapeutic alliance (Stiles et al., 2003).

**Qualitative exploration of sudden gain change processes.** Goodridge and Hardy (2009) sought to examine the sudden gain phenomenon through both quantitative and qualitative methodologies. In keeping with this aim, the authors conducting a study using the framework of the assimilation model (Stiles et al., 1990), a transtheoretical model focused on clients' insight and understanding of their problematic experiences and inclusive of both cognitive and affective processes. The results of this study led Goodridge and Hardy to conclude that "the term 'sudden gain' may be misleading" (2009, p. 121). Though the drastic symptomological improvements which characterize



sudden gains appear to occur very suddenly, the gain is triggered only after “repeated small attempted gains in understanding parts of a problem are consolidated” (Goodridge & Hardy, 2009, p. 122). Through moment-by-moment qualitative analysis of clients who experience sudden gains, the authors highlight the importance of making connections, of generalizing across situations and their accompanying feelings, cognitions, and behaviours. Such insight occurs in gradients and through repeated attempts, and is crucial to the process of change (Samoilov, Goldfried, & Shapiro, 2000).

By focusing on client levels of affect and understanding in addition to cognitive changes, Goodridge and Hardy (2009) offer a broader conceptualization of the sudden gain process than was previously available. Detailing the manner in which this gradual process of understanding unfolds, the authors report that the control (prepregain) session is characterized by the client’s *transitory insight*, reflecting only a limited understanding of the nature of their problem or conflict. In the prepain session, *partial insight* is achieved, in which an element of the client’s issue is resolved. However, by the aftergain session, *full insight* is arrived at, and all problematic areas identified by the client are resolved. Quantitatively, this gradual process resulted in significantly higher levels of assimilation in the aftergain session than in the two previous sessions. See Figure 2 for a graphic depiction of these findings.

**Change processes in clients responding to distress.** Potential insights into the change processes of clients who experience sudden gains can also be found in investigations of the psychotherapy change process conducted in parallel fields. In this regard, recent studies of the emotional processing of clients in experiential therapy are particularly promising, as client emotional processing has been reported as a significant

process predictor of outcome across a number of treatment modalities (Greenberg & Pascual-Leone, 2006).

Examining a sample of clients experiencing moments of distress characterized by high expressive arousal and low meaningfulness, Pascual-Leone and Greenberg (2007) developed and validated a moment-by-moment model for the emotional processing of distress. Moreover, the authors demonstrate that not all emotional experiences contribute equally to productive change, and that surface-level appraisals of emotion states (i.e., “sadness”; “anger”) are inadequate when assessing client change. A better query seems to be, “‘What type of anger?’ or ‘What type of sadness?’” (Pascual-Leone & Greenberg, 2007). In this vein, Pascual-Leone & Greenberg (2007) report that, for distressed clients, the experience of certain “productive” emotions appear to facilitate good within-session outcomes (i.e., assertive anger, self-soothing, or grief/hurt) while other, “unproductive” emotions may obstruct the same (i.e., rejecting anger, global distress, fear/shame). See Figure 3 for a graphic depiction of the Pascual-Leone and Greenberg (2007) model of clients' within-session emotional processing of distress.

Working with a portion of the same dataset, Singh (2008) reported that distressed clients who experience productive within-session outcomes were significantly more likely to have therapists who focused on an unmet need. This finding corresponds with the view that the expression of an unmet need can serve as a window to deepened emotional experiencing (Greenberg & Paivio, 1997). It also bolsters Pascual-Leone & Greenberg's (2007) assertion that, for distressed clients, good within-session outcome occurs through the recognition and expression of a previously unmet need alongside the productive emotional momentum of “productive” emotion states.

## Summary

Investigations of sudden gains in psychotherapy have identified the phenomenon as a type of critical fluctuation wherein important therapeutic events occur, and after which the nature of therapy appears to shift significantly (Tang et al., 2007). Sudden gains appear to have a dramatic influence on therapy outcome, and do not appear to be due to external life events (Hardy et al., 2005). While there exists some evidence for the generalizability of sudden gains (e.g., Kelly et al., 2007; Present et al., 2008), to date the majority of research in the area has examined clients undergoing cognitive behavioural therapy for depression.

Research on the change mechanisms of sudden gains has indicated that these sudden decreases in client depressive symptomology appear to be preceded by a significant increase in client cognitive changes and followed by an increase in the working alliance between therapist and client (Tang & DeRubeis, 1999). However, the change processes underlying these change mechanisms are not well understood. Nonetheless, researchers working in parallel fields have detailed significant findings that may be applicable to the study of the sudden gain change processes. Pascual-Leone and Greenberg (2007) have reported that, for distressed clients in experiential therapy, certain “productive” emotions appear to facilitate good within-session outcomes (i.e., assertive anger, self-soothing, or grief/hurt) while other, “unproductive” emotions may inhibit the same (i.e., rejecting anger, global distress, fear/shame). Among these clients, those who experience productive within-session outcomes are also significantly more likely to have had therapists whose interventions focused them on an unmet need following their expressed distress (Singh, 2008). Taken together, these results provide a strong

foundation upon which to explore the change processes underlying depressed clients who experience sudden gains.

#### **IV: The Present Study**

The present study seeks to investigate the change processes of sudden gains using an archival data set of clients undergoing experiential therapy for depression. The research project is organized according to three distinct phases.

The first phase of the study is designed to address the question “Do sudden gains occur among clients in experiential therapy for depression?” The second phase investigates the question “Are sudden gains associated with deepened self-insight and awareness?” This phase will also explore whether deepened experiencing is correlated with increased cognitive change during the sudden gain change process. The third phase of the study addresses the query “How do therapists impact the presence of sudden gains?”

The specific hypotheses of each phase of the study follow. See Table 1 for a summary of the hypotheses. The phrase *sudden gain change process* will be used to refer to the three-session sudden gain arc (i.e., the prepregain, pregain, and aftergain sessions).

#### **Phase I: Sudden Gain Identification and Change Process Replication**

As the archival data set to be studied consists of a client sample undergoing experiential therapy, the first aim of Phase I will be to establish the generalizability of the sudden gain phenomenon to this treatment modality.

In addition, because the archival dataset includes measures of client depressive symptomology both before and after each treatment session, this phase of analysis will also contain a hypothesis regarding the measurement of sudden gain change rooted in experiential therapy’s emphasis on within-session change (Greenberg & Watson, 1998).

Typically, the magnitude of a sudden gain is assessed through measurement of the degree of symptom reduction between two consecutive pre-session BDI scores. However, it is important to note that such a change interval actually consists of two distinct temporal intervals: (i) a period of within-session change, from the start to the end of the pregain session, and; (ii) a period of between-session change, from the end of the pregain session to the start of the next (aftergain) session.

The hypotheses of the first aim of Phase I are as follows:

H1. There will be sudden gains present in the data set.

H1a. Significantly greater symptom decrease will occur within the pregain session than between the pregain and after gain sessions.

H2. Treatment outcomes for sudden gain responders will be significantly better than outcomes for non-sudden gain responders.

The second aim of Phase I will be to replicate Tang and DeRubeis' (1999) findings regarding the sudden gain process in the present data set. The hypotheses of the second aim of Phase I are as follows:

H3. The observed change processes of the sudden gain responders will correspond with the findings of Tang and DeRubeis (1999). That is:

H3a. Significantly greater cognitive change will be accomplished in the pregain session than in the within-subject control (prepregain) session.

H3b. The working alliance post-sudden gain (i.e., in the aftergain session) will be significantly greater than the alliance pre-sudden gain (i.e., in the prepregain and pregain sessions).

## **Phase II: Exploring Sudden Gain Change Processes in Experiential Therapy**

In an effort to connect the present quantitatively-oriented study to previous qualitatively-oriented work on sudden gain change processes (e.g., Goodridge & Hardy, 2009), the second phase of the present study involves the moment-by-moment analysis of sudden gain responders' control (prepregain), pregain, and aftergain sessions.

Goodridge and Hardy (2009) elected to focus their investigations on five instances of sudden gains. As such, their selection of the Assimilation of Problematic Experiences Scale (APES; Honos-Webb, Stiles, & Greenberg, 2003) was apt, as the APES is a relatively time- and labour-intensive measurement instrument well-suited for analyses of smaller samples.

Due to the relatively wider scope of the current study, client experiencing will be assessed through the use of the Experiencing Scale (EXP; Klein, Mathieu-Coughlan, & Kiesler, 1986). Following Goodridge and Hardy (2009), who reported that sudden gain responders move from *transitory* to *partial* to *full* insight during the sudden gain change process, the author predicts that corresponding qualitative changes in client insight will occur in the present sample (See Table 2 for a comparison of the insight measure used in Goodridge & Hardy (2009) with the measure to be used in the present study). The hypotheses of this phase are as follows:

H4. Significantly higher levels of client experiencing will be observed in pregain sessions than in control (prepregain) sessions.

H5. Peak levels of client experiencing will increase from session to session across the sudden gain change process.

H6. Experiencing Scale scores will be positively correlated with Patient Cognitive Change Scale scores.

### **Phase III: Relating Therapy Change Processes to Client Change Processes**

The third phase of the present study seeks to produce empirically-based, clinically-useful recommendations regarding the facilitation of sudden gain response in clients. Through examination of the moment-by-moment process of sudden gain responders, this phase will investigate how the therapist might influence the sudden gain change process.

This phase will consist of hypothesis testing, drawing on previous work by Pascual-Leone & Greenberg (2007) and Singh (2008), followed by exploratory analyses as appropriate. The hypotheses of this phase are as follows:

H7. Therapists of sudden gain responders will be significantly more likely to focus on unmet client needs in pregain sessions than in control (pregain) sessions.

H8. Sudden gain responders will be significantly less likely to express “unproductive” emotions (i.e., rejecting anger, global distress, or fear/shame) in pregain sessions than in control (pregain) sessions.

H9. Sudden gain responders will be significantly more likely to express “productive” emotions (i.e., assertive anger, self soothing, or hurt/grief) in pregain sessions than in control (pregain) sessions.

### **Method**

#### **Sample**

The present study derived its sample of therapist-client dyads from a larger subject pool originally recruited for a clinical trial completed at the York University Psychotherapy Research Clinic between 1998 and 2000 (known as the “York II Depression study”). As described by Goldman, Greenberg, and Angus (2006),

participants for the clinical trial were recruited through clinic referrals and advertising in a variety of media. Potential candidates were subject to telephone pre-screening and in-person assessment to establish suitability for treatment. Clients were offered 16-20 sessions of individual psychotherapy, at a rate of one session per week.

**Clients.** In total, 60 clients participated in the original clinical trial. However, the following client demographic information is limited by instances of missing data, and participant totals reported below vary in accordance with available data.

Clients included 35 females and 16 males (gender information for 9 clients were missing). Clients ranged from 21 to 60 years of age ( $M = 39.24$ ,  $SD = 10.80$ ). Nineteen clients were never married (35.8%), 19 (35.8%) were married or living common-law, and 11 (20.8%) were separated or divorced (11 clients, 18.3%, were missing). Clients' highest level of education ranged as follows: 6 (11.3%) had high school experience, 36 (67.9%) had undergraduate college or university experience, and 5 (9.5%) had post-graduate experience (13 clients, 21.7%, were missing). Information regarding client ethnicity was not available.

All participants met Axis I criteria for major depressive disorder, as assessed through the use of the Structured Clinical Interview for DSM-III-R (Spitzer, Williams, Gibbon, & First, 1989). Individuals were excluded from the clinical trials if they were currently in crisis, were already receiving psychological treatment, expressed suicidal ideation, were in abusive relationships, had recently experienced a significant loss, or exhibited one of several pre-identified comorbid Axis I or II diagnoses (e.g., bipolar I).

**Therapists.** In total, 14 therapists (12 females) participated in the original clinical trial. Therapists ranged in age from 28 to 53 ( $M = 39.21$ ,  $SD = 7.11$ ). Three therapists were licensed clinical psychologists, 2 held a PhD in clinical psychology, and 9 were



advanced doctoral students in Clinical Psychology. The level of therapist clinical experience ranged from two to twenty years ( $M = 6$ ,  $SD = 5.79$ ).

### **Treatment: Experiential Therapy**

During the original clinical trial, participants were randomly selected to receive either emotion focused therapy (EFT) for depression ( $n = 38$ ) or client-centered therapy ( $n = 22$ ), two approaches to experiential therapy that are highly comparable in their general style of intervention and in-session process (Greenberg & Watson, 2005; Rogers, 1957, 1961). Drawing from similar humanistic-phenomenological theoretical backgrounds (e.g., Rogers, 1951; Perls, Hefferline, & Goddman, 1951), both EFT and client-centered therapy posit that emotion plays a foundational role in an individual's self-construction and is therefore an essential component of self-organization (Greenberg, 2004; Sharma, 2011). The client is understood to be a dynamic entity in constant flux, continually working to organize herself in reaction to her surroundings; the client is viewed as a "self-in-the-situation" (Greenberg & Watson, 2005). The maintenance of psychological health is dependent on the ability to adapt to novel situations and experiences. Psychological dysfunction is due to a client's being "stuck" in a (presently) maladaptive pattern of being. The aim of treatment is to overcome such maladaptive states in order to "reinststate a 'process of becoming'" (Greenberg & Goldman, 2007, p. 381).

In both EFT and client-centered therapy, emotions are viewed as having the potential to help individuals orient themselves to their environment in an adaptive way (Greenberg & Paivio, 1997). Emotion is also understood to serve an important role in information processing, as the presence of specific emotions can communicate to an individual how a significant need, value, or goal will be affected in a particular situation.

The individual's resultant appraisal of the situation influences both their subsequent priorities and the presence of certain physiologically-based *action tendencies* (Greenberg & Korman, 1993). Specific emotions have been found to correspond to specific action tendencies. The experience of fear, for example, is associated with an individual's mobilization for flight (Greenberg, 2004).

Following Rogers' (1957) "necessary and sufficient conditions" for therapeutic change, in both EFT and client-centered therapy the therapist's primary mode of engagement involves genuine, empathic attunement to client affect and meaning as it emerges moment-by-moment over the course of the therapeutic hour. As clients themselves have the best access to their own experiencing, it is they who are viewed as experts regarding their experience. This process of "emotion coaching" requires that therapist and client work toward building an active collaboration, with the aim of helping clients to:

...use their emotions intelligently to solve problems in living by accepting emotion rather than avoiding it, utilizing both the information and [action] response tendency information provided by it, and transforming it when it is maladaptive (Greenberg, 2004, p. 6).

The therapist's role is thus to enhance the client's "emotional intelligence" by increasing the client's awareness, acceptance, and understanding of their emotional experiencing (Greenberg, 2002). Interventions are commonly aimed at encouraging client expression of "previously unacknowledged wants or needs, and prompting individuals to use a more deliberate (and less automatic) style of processing to reflect on the ongoing flow of their emerging affect and meaning" (Pascual-Leone, 2005, p. 146).

## Measures

### **Client session outcome measures.**

***Beck Depression Inventory (BDI; BDI-SF).*** The Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21-item, self-report inventory used to assess severity of depressive symptoms. The Beck Depression Inventory—Short Form (BDI-SF; Beck, Steer & Garbin, 1987) is an abbreviated version of this measure, consisting of 13 of the BDI's 21 items. Respondents are asked to choose one of five alternatives for each item that most accurately describes their present functioning. The BDI includes items reflecting various aspects of depression, including affect, behaviour, and self-perception. Individual item responses are totaled, with higher scores indicative of greater levels of depression.

***Client Working Alliance Inventory—Short Form (WAI).*** The Client Working Alliance Inventory—Short Form (Horvath & Greenberg, 1986) is a 12-item self-report measure. The WAI is a measure of the “working alliance,” or the extent to which a therapist-client dyad works collaboratively and purposefully and establishes an emotional connection (Horvath & Greenberg, 1994). Clients use a seven-point scale to gauge how accurately each item reflects their current experience of therapy (with a score of 1 indicating "never" and a score of 7 indicating "always"). The working alliance has been repeatedly found to be positively correlated with a broad range of psychotherapy outcomes, leading to the widespread notion that the working alliance is a relatively strong predictor of client change (for reviews, see Castonguay, Constantino, & Holtforth, 2006; Horvath & Symonds, 1991; Martin, Garske, & Davis, 2000).

The WAI has three item subscales: Goals, Tasks, and Bond, following Bordin's (1979) multidimensional theoretical conceptualization of the working alliance. Horvath

and Greenberg (1989) describe each subscale as follows: The Goals subscale measures the level of client and therapist agreement on the goals, or outcomes, that are the targets of treatment. The Tasks subscale assesses the extent to which a client and therapist agree on the in-session content and interventions that comprise the substance of the counseling process. The Bond subscale is a measure of the extent to which a client and therapist possess mutual trust, acceptance, and confidence. Each subscale consists of twelve items, with each item being rated on a 7-point scale ranging from 1 (never) to 7 (always). Consequently, higher scale scores reflect more positive assessments of the working alliance.

**Client process measures.**

*Classification of Affective-Meaning States (CAMS).* The Classification of Affective-Meaning States (Pascual-Leone & Greenberg, 2007) was designed for the observation and identification of emotion and affective-meaning states moment-by-moment as they occur. Each affective-meaning state is evaluated according to three components: emotional tone, involvement, and meaning. The CAMS includes 11 categories of affective-meaning states in total. See Pascual-Leone (2005) for comprehensive descriptions of each category and their respective polythetic criteria.

The psychotherapeutic context is particularly appropriate for the CAMS, as a key assumption of the measure is that participants are not actively avoiding or interrupting their own emotional experience or arousal. The CAMS coding categories were explicitly designed to capture those emotional experiences that are “allowed” by engaged and emotionally involved individuals. The development of the CAMS came about as a result of previous psychotherapy process research which has indicated that certain emotional

experiences may be more productive than others (Greenberg, Rice, & Elliott, 1993; Greenberg & Paivio, 1997; Pascual-Leone & Greenberg, 2007).

In the present study, selected CAMS coding categories will be collapsed along theoretical lines, following Pascual-Leone and Greenberg's (2007) model of emotional processing for distressed clients (recall Figure 3). Specifically, coders will be instructed to rate sessions exclusively for the presence or absence of "productive emotions" (i.e., assertive anger, hurt/grief, or self-soothing) and "unproductive emotions" (i.e., rejecting anger, global distress, and fear/shame). The remaining three model components (i.e., need, negative evaluation, and acceptance and agency) will not be coded in the current study. See Appendix A for a visual flowchart of the CAMS coding categories that were rated in the present study and a sample CAMS coding sheet.

***The Experiencing Scale (EXP).*** The Experiencing Scale (Klein, Mathieu-Coughlan, & Kiesler, 1986) is a 7-point scale that assesses the process of an individual's self-exploration in psychotherapy. Lower scale levels reflect clients' attempts to identify and symbolize their internal experience, while higher scale levels represent clients' efforts at using this experientially-oriented understanding to resolve their presenting problems. Researchers distinguish between scale stages through the observation of client verbal communications, including features of content, expression, grammatical selection and paralinguage.

At lower levels of the scale (i.e., 1-3), clients describe their internal experiences in impersonal, superficial, or abstract-intellectual manners. At an intermediate level (i.e., 4), clients begin to realize and reflect on their bodily feelings and experiencing in richer, descriptive detail. Finally, the advanced stages of the scale (i.e., 5-7) reflect purposeful exploration and the emergence of freshly surfacing levels of experiencing. At these higher

levels of the scale, such emergent experiencing often serves as an internal referent for deepened understanding and problem resolution. See Appendix B for a descriptive summary of the Experiencing Scale's coding categories and a sample Experiencing Scale coding sheet.

***Patient Cognitive Change Scale (PCCS).*** The Patient Cognitive Change Scale (PCCS; Tang & DeRubeis, 1999) was designed to measure the extent of clients' reported cognitive changes through examination of their individual in-session statements. Raters classify cognitive changes identified by the client during therapy sessions according to two subscales: content and significance. The resulting data can be used to assess the frequency and salience of cognitive changes present during each session.

Clients' cognitive changes are assessed on a statement-by-statement level. The content of a cognitive change is recorded nominally, according to category. With regard to the content of possible cognitive changes, the PCCS includes seven categories: (a) bringing a belief into awareness; (b) identifying an error in cognitive process or belief; (c) arriving at a new belief on a specific issue; (d) bringing a schema into awareness; (e) identifying an error in a schema; (f) arriving at a new schema, and; (g) accepting a new cognitive technique. Each recorded cognitive change is also assigned a significance rating, according to a 4-point scale. Level 1 represents a possible/potential cognitive change. Level 2 reflects a definite cognitive change. Level 3 is indicative of an important cognitive change. Finally, cognitive changes at level 4 are reserved for those cognitive changes with extraordinary personal significance. See Appendix C for the full PCCS coding guidelines and a sample PCCS coding sheet.

**Therapist process measures.**

*Coding System for Therapist Focus (CSTF)*. The Coding System for Therapist Focus used in the present study is a 14-category instrument for the systematic observation of the focus of therapeutic interventions. The present study makes use of an adapted form of the measure derived by Ellison and Greenberg (2004). Extending the advancements in clinical utility made to the CSTF by Samilov, Goldfried, and Shapiro (2000), Ellison and Greenberg (2004) incorporated additional coding categories in order to enhance the applicability of the measure to therapists working within experientially-focused therapeutic approaches. Preliminary results suggest that the CSTF's additional coding categories lead to demonstrable improvements in the ability of research observers to conduct moment-by-moment analysis of therapist focus within sessions of emotion focused therapy and client-centered psychotherapy (Ellison & Greenberg, 2004). See Singh (2008) for a detailed description of the additional coding categories.

The CSTF's coding categories are organized along two dimensions. The first dimension, *Facilitating Action*, includes coding categories related to the therapist's focus on client expectations, behaviours, and external situations. The second dimension, *Constructing Meaning*, consists of coding categories for therapist focus on the client's emotions, self-appraisals, intentions or future-oriented volition, general thoughts, connections between various components of the client's functioning (intrapersonal links), and connections between various components of the client's functioning and those of another person (interpersonal links). See Appendix D for a definition and example of each coding category, and a sample CSTF coding sheet.

## Procedures

### **Sudden gain identification.**

*Criteria for defining sudden gains.* In their seminal study, Tang and DeRubeis (1999) reasoned that the magnitude of a sudden gain ought to be large (a) in absolute terms, (b) relative to pre-gain symptom severity, and (c) relative to individual symptom fluctuations before and after the gain. Respectively, a sudden gain was defined as a change in Beck Depression Inventory (BDI) scores between consecutive sessions that: (a) involves a reduction (i.e., a “gain”) of at least 7 points; (b) represents at least 25% of the previous session's BDI score, and; (c) contributes to a significant difference between the average BDI scores of the three sessions preceding the gain and the three sessions following it, as measured by an independent sample t-test. While some empirical justification was offered for these requirements (e.g., in light of previous analyses of Murphy, Simons, Wetzel, and Lustman, 1984, and Jacobson et al., 1996; see Tang & DeRubeis, 1999), the authors acknowledged that the criteria are “somewhat arbitrary” (p. 895). Indeed, since their initial description, several authors have modified the criteria for identifying sudden gains in different ways (e.g., Hardy et al., 2005; Kelly et al., 2005; Tang et al., 2005).

The present study adopts the technique used by Kelly et al. (2005) to modify criterion (c). Rather than comparing mean BDI scores in the three sessions preceding and following sudden gains, the standard deviation of each client's BDI scores is calculated using all available BDI session data and then compared to individual between-session changes in BDI scores. If a between-session BDI score reduction is at least 1.5 times the individual's standard deviation, it is considered to have met criterion (c). As noted by Kelly et al. (2005), this modification of criterion (c) possesses two key advantages over



the original. First, it allows for the inclusion of sudden gains that occur very early or very late in treatment (i.e., within the first and last three sessions). This advantage is especially significant in light of the evidence suggesting that sudden gains occurring early in treatment may have a stronger relationship to treatment outcome than those occurring later in treatment (Grilo, Masheb, & Wilson, 2006; Kelly et al., 2005; 2007). Second, comparison of between-session BDI change to each client's standard deviation accounts for the interrelated nature of the three sessions preceding and following the sudden gain. Consequently, it does not violate the statistical assumption of independence required for the independent sample t-test. Vittengl and colleagues (2005) describe this issue as a problem of *autocorrelation*, or the finding that clients' repeated observations are often related, and not independent (e.g., Kenny & Judd, 1986; Ostrom, 1990). It is also worth noting that the assessment of each client's standard deviation accounts for that individual's typical fluctuation in depressive symptomatology. In this way, the modified criterion adheres to the intent of Tang and DeRubeis' (1999) original third criterion. Kelly et al. (2007; 2005) have demonstrated that research using this modified third criterion identifies sudden gains at rates consistent with those obtained in previous studies.

***Defining sudden gains in the present study.*** In summary, for the present study, a sudden gain was defined as Beck Depression Inventory (BDI) symptom improvement that is (a) a decrease of at least 7 points; (b) at least a 25% decrease from the previous BDI score, and; (c) a difference that is at least 1.5 larger than the individual's standard deviation across all BDI assessments.

In contrast to the cognitive therapy sessions examined by Tang and DeRubeis (1999), which took place twice-weekly during approximately the first half of the treatment protocol and once-weekly during the second half, the present study draws its

archival dataset from a study of experiential therapy which involved weekly assessment for the duration of treatment. As such, the proposed implementation of the sudden gain criteria represents a partial departure from the measurement intervals of Tang and DeRubeis's (1999) study. However, a number of previous studies have produced fruitful results through the use of weekly assessments to examine sudden gains (e.g., Gaynor et al., 2003; Tang et al., 2002; Vittengl et al., 2005).

Finally, where a missing BDI assessment is encountered, that between-session interval will be excluded from consideration for sudden gains. Due to the unknown pattern of change over a missing assessment, missing data will not be extrapolated or considered as part of a contiguous time-line in the present study's data analyses.

***Defining recovery.*** The present research project is primarily focused on arcs of three consecutive sessions, and not the full course of treatment. However, it is important to consider whether selected cases are derived from successful or unsuccessful psychotherapy treatment. Final treatment outcome or "recovery" can thus be considered a descriptive variable for the proposed sample of therapist-client dyads.

Following the recommendations of Jacobson and Truax (1991), in the present study "recovery" was defined as the presence of clinically-significant change alongside a post-treatment Beck Depression Inventory score of less than 10 (Tang and DeRubeis, 1999; Elkin et al., 1989; Hollon et al., 1992).

#### **Scoring and coding procedures.**

##### ***Scoring client session outcome measures.***

All the client session outcome measures described below made use of existing archival data from the York II Depression study.

*Beck Depression Inventory.* The Beck Depression Inventory (BDI) and Beck Depression Inventory—Short Form (BDI-SF) data measuring the severity of client depressive symptoms was collected during the original clinical trial (Goldman, Greenberg, and Angus, 2006). Clients were asked to complete the full, 21-item BDI at pre-treatment (one week before treatment) and post-treatment (one week following treatment) intervals. Immediately preceding and following each psychotherapy session, clients completed the 13-item “short-form” version of the same measure (i.e., the BDI-SF). The correlation between the BDI and the BDI-SF has been reported as approximately .90, suggesting that the BDI-SF may serve as an appropriate alternative to the BDI (Beck, Rial, & Rickels, 1974).

Following previous studies that have attempted to analyze symptom change using both the BDI and BDI-SF (e.g., Kapeleris, 2007; Goldman, Greenberg, & Angus, 2006), BDI scores were multiplied by a factor of 13/21 (approximately 0.62). The resulting data transformation served to render the BDI and BDI-SF data statically equitable, and thus more suitable for analysis. This method of data transformation is preferable to manual selection of the 13 items from the 21-item BDI responses that match the 13-item BDI-SF inventory due to its preservation of existing data (Tabachnik & Fidell, 2001). In addition, as noted by Kapeleris (2007), “proportional scores are a more accurate and holistic representation of the client’s feelings of depression at the time the inventory was completed” (p. 13). Following Watson, Goldman, and Greenberg (2011), depression severity scores of 1-10 were interpreted as indicative of no depression, scores of 10-15 as indicative of mild depression, and scores of 15 or higher as indicative of severe depression.

*Working Alliance Inventory.* Data on the quality of the working alliance was collected during the original clinical trial (Warwar, 2003). Clients were asked to complete the Client Working Alliance Inventory—Short Form (WAI) immediately following each session of psychotherapy. Data were calculated both as total scores, as well as individual scores for each of the three WAI subscales (i.e., goals, tasks, and bond).

***Process measure procedures.***

*Classification of Affective-Meaning States; Patient Cognitive Change Scale.* Both the Classification of Affective-Meaning States (CAMS) and the Patient Cognitive Change Scale (PCCS) were coded from videotape data using an event-based protocol. Raters independently observed all sessions in their entirety, however, observations were recorded only when relevant constructs were observed. Unitization of observations was conducted at the discretion of the individual raters; raters were instructed to focus on assessing the presence of coding categories and tabulating the total number of codes obtained.

Coding criteria for the Patient Cognitive Change Scale (PCCS) were adjusted to accommodate the present sample. The PCCS which was originally designed exclusively for examination of cognitive behavioural therapy -oriented psychotherapy, a treatment modality which places greater focus on explicit session structure and the vocalization of the same than do experientially-oriented therapies. As a result, the PCCS coding instruction that ratings only be recorded when the client verbally confirms the presence of a cognitive change was loosened to allow for contextual information to influence coders (e.g., client nonverbal responses such as nodding; the therapist and client electing to collaboratively focus on a specific issue without verbally confirming their new focus).

*Coding System for Therapist Focus; Experiencing Scale.* The Coding System for Therapist Focus and the Experiencing Scale were coded from videotape data using a time-based interval coding strategy. Raters were instructed to independently review sessions in their entirety, and record one observation per two-minute time interval.

With regard to the Coding System for Therapist Focus (CSTF), while the present study's hypotheses are concerned with only one area of therapist focus (i.e., H7's focus on client unmet needs), raters were asked to code sessions using standard CSTF coding procedure. As a result, ratings were obtained for all therapist foci assessed by the measure. As such, these data will be available to perform post-hoc exploratory analyses on therapists' interventions across all foci assessed by the CSTF.

**Coding process: Coder training and coding protocol.** Observer ratings of the process measures were conducted by the author and three secondary coders. The secondary coders consisted of one graduate of York University who held a Honors Baccalaureate Degree in Psychology; one graduate of the University of Windsor who held a Honors Baccalaureate Degree in Psychology; and, one graduate student in the University of Windsor's Clinical Psychology program. All three secondary coders had a minimum of two years' exposure to formal training in experiential therapy theory and research methodology. In addition, the two secondary coders who were asked to work with the Classification of Affective-Meaning States and the Experiencing Scale had previous experience using these measures in the context of psychotherapy process research.

Each secondary coder was provided with a minimum of 20 hours of training focused specifically on differentiating the relevant constructs in psychotherapy sessions from videotape data. Training for each coding system was conducted independently and

consisted of: discussions of relevant theory; study and discussion of relevant coding manuals and specific coding criteria; practice coding on selected video segments; and preliminary coding to assess baseline reliability. As such, secondary raters were prepared through substantial practice with the process measures and understanding of relevant underlying theory.

The author served as the primary rater and coded video segments for all cases on the four process measures (i.e., the CAMS, CSTF EXP, and PCCS). To establish reliability, all cases were also coded independently on each measure by the secondary raters. One secondary coder rated all sessions on the Coding System for Therapist Focus; another rated all sessions on the Experiencing Scale; and the third secondary coder rated all sessions on both the Classification of Affective-Meaning States and the Patient Cognitive Change Scale (consequently, the third secondary coder received approximately 35 hours of training prior to coding start). Following the start of coding, the author held regularly scheduled one-on-one meetings with each secondary coder in order to prevent rater drift. All raters were blind to existing ratings of client process and outcome. In addition, psychotherapy session numbers were randomized using an online random number generator (Urbaniak & Plous, 2008). As a result, all raters were blind to the type of session they were coding (i.e., prepregain, pregain, or aftergain).

## **Data Collection**

### **Identifying sudden gain outcome and process samples.**

*Archival data set examination.* Examination of the archival data set revealed an initial sample size of 60 therapist-client dyads. The data for each case was then reviewed to ensure suitability for the present study. The process of defining the study sample is summarized in the top portion of Figure 4's participant flow chart.

Cases containing significant amounts of missing pre-session BDI data were excluded from the present study for one of two reasons. First, each case was examined to establish that BDI data were available for at least three consecutive sessions. Of the initial sample of 60 cases, 7 cases were excluded for not meeting this inclusion criterion. Second, a further 17 cases were excluded because available BDI data did not include a BDI score of 10 or higher, as analysis of these cases would be limited to durations of therapy wherein the client reported sub-clinical levels of depressive symptomology (Beck et al., 1961). The remaining 36 cases (i.e.,  $60 - 7 - 17 = 36$  cases) comprise the sudden gains study sample for the present study.

***Sudden gains study sample.*** In the current study, hypotheses H1 and H2 are outcome-oriented, and relevant analyses were conducted on the total sudden gains study sample of 36 cases (see middle of Figure 4). The present study's outcome sample is comparable in size to the reported sample sizes of previous studies that have used similar Beck Depression Inventory-centered criteria to identify the presence of sudden gains (15 studies in total; mean  $N = 38$ , median  $N = 31.5$ , range = 23 - 76).

The sudden gains study sample is comprised of 23 cases whose clients experienced sudden gains (or “sudden gain responders”), representing 63.9% of the total sudden gains study sample. The remaining 13 cases contain clients who did not experience a sudden gain (“non-sudden gain responders”); these clients make up 36.1% of the sample.

The 23 sudden gain responders experienced a total of 28 sudden gains. Five clients experienced two sudden gains over the course of treatment [e.g.,  $18$  (# of responders)\* $1$  (# of sudden gains) +  $5*2 = 28$  events]. Sudden gains were observed throughout the course of treatment; pregain sessions ranged from the first to the fifteenth

therapy sessions (of a maximum 20 sessions). The eighth session was the median pregain session, while the 1<sup>st</sup> session was the modal pregain session. Due to this variation between the sample median and mode, closer inspection of the chronological occurrence of the observed sudden gains was conducted.

Following terminology outlined by Pos, Greenberg, Goldman, and Korman (2003) regarding the course of psychotherapy treatment, 13 sudden gains (46.4%) can be described as having occurred in the "early phase" of therapy (i.e., prior to session five), with 11 of these 13 sudden gains occurring between the first two sessions of treatment. A further 15 sudden gains (53.6%) occurred in the "working phase" of therapy (sessions 6-15), and zero sudden gains occurred in the "late phase" of therapy (sessions 16-20).

*Pre-post BDI sub-sample (for Hypothesis 1a).* Hypothesis 1a sought to determine whether significantly greater symptom decrease occurred within the pregain session than between the pregain and aftergain sessions. This hypothesis is unique to the present study in that it required the collection of archival post-session Beck Depression Inventory (BDI) data, in addition to the pre-session BDI data collected for use in the sudden gains study sample. Nine sudden gains were excluded from the Hypothesis 1a analysis as post-session BDI scores were unavailable. The resulting sub-sample, particular to Hypothesis 1a, consisted of 16 clients who had experienced 19 sudden gains (3 clients had each experienced 2 sudden gains;  $13*1 + 3*2 = 19$  events). Of the 19 sudden gains which comprised this pre-post BDI sub-sample, 9 (47.4%) occurred in the early phase of therapy, while 10 (52.6%) occurred in the working phase of therapy.

The pre-post BDI sub-sample (for Hypothesis 1a) is concerned only with the analysis of sudden gain responders, a sub-sample which commonly consists of 40-50% of a study's total sample size (Aderka, Nickerson, Bøe, & Hofmann, 2012). This sub-sample



is comparable in size to the sudden gain responder sub-samples reported in the literature by previous studies that have used similar Beck Depression Inventory-centered criteria to identify the presence of sudden gains (15 studies in total; mean  $N = 16$ , median  $N = 14.5$ , range = 12-31).

***Sudden gains process sample.*** The reminder of the current study's process-oriented hypotheses (H3 to H9) are restricted to examination of instances of sudden gains ( $n = 28$ ; see above), and required that these sudden gains be subjected to further inclusion criteria (see bottom of Figure 4). First, these hypotheses rely on the established three-consecutive-session measurement framework of the sudden gain change process, which is comprised of the control (prepregain) session, the pregain session, and the aftergain session (Tang & DeRubeis, 1999). As such, sudden gains occurring between the first and second available treatment sessions were excluded from these analyses due to the lack of an existing control (prepregain) session. Thirteen sudden gains were excluded for this reason. One further sudden gain was excluded from these analyses due to unavailable videotape data for the sessions of interest, resulting in a sudden gains process sample size of 14 cases (i.e.,  $28 - 13 - 1 = 14$  cases). Of the 14 sudden gains which comprised the sudden gains process sample, two (14.3%) occurred in the early phase of therapy, and 12 (85.7%) occurred in the working phase of therapy.

There currently exists a paucity of process-oriented studies in the sudden gains literature with which to compare the present study's process sample. Previous examinations of sudden gain process have largely been confined to investigations of client cognitive changes through the use of the Patient Cognitive Change Scale, or adaptations of the same (Andrusyna et al., 2006; Norton, Klenck, & Barrera, 2010; Tang & DeRubeis, 1999). The size of the current study's sudden gains process sample is

comparable in size to these studies ( $N = 12, 11,$  and  $16,$  respectively). The investigative aims of Goodridge and Hardy's (2009) work, which centered on moment-by-moment client change processes, are perhaps closest to the goals of the present study. The size of the present study's process sample compares favorably to the sample size of Goodridge and Hardy's study ( $N = 5$ ).

### **Final sample demographics.**

The following participant demographic information is limited by instances of missing data. As such, participant totals reported below vary in accordance with available data. See Table 3 for a summary of participant demographic data.

Examination of the data presented in Table 3 reveals that available client and therapist demographic data do not vary substantially (i.e., greater than 15%) across the four samples used in the present study, with two exceptions. First, the proportion of female clients in the original archival data set and the sudden gains study sample were 58.3% and 61.1%, respectively, while the proportion of female clients in the pre-post BDI sub-sample and the sudden gains process sample increase to 75.0% and 78.6%, respectively. Second, the proportion of clients with a high school and college/university level education varied across the four samples. The proportion of clients with a high school level education in the original archival data set, the sudden gains study sample, and the sudden gains process sample were 11.3%, 10.8%, and 14.3%, respectively. In the pre-post BDI sub-sample (for Hypothesis 1a), a substantially greater proportion of clients, 37.5%, had a high school level education. The proportion of clients with a college/university level education in the original archival data set, the sudden gains study sample, and the sudden gains process sample were 67.9%, 61.7%, and 64.2%, respectively. In the pre-post BDI sub-sample (for Hypothesis 1a), a substantially lesser

proportion of clients, 37.5%, had a college/university level education. These potential implications of these differences are notably limited by the amount of missing data present across these variables (range, 0 - 21.7%).

***Sudden gains study sample.*** Participants comprising the sudden gains study sample included 22 females and 10 males (gender data for 4 clients, or 11.1% of the total sample, were missing). Individuals ranged from 22 to 60 years of age ( $M = 40.77$ ,  $SD = 11.23$ ). Twelve clients were never married (35.3%), 13 (38.2%) were married or living common-law, and 4 (11.8%) were separated or divorced (5 clients, 14.7%, were missing). Clients' highest level of education ranged as follows: 4 (10.8%) had completed high school, 21 (61.7%) had undergraduate college or university experience, and 3 (8.8) had post-graduate experience (6 clients, 17.6%, were missing). Demographic information for therapists in this sub-sample was not available.

***Pre-post BDI sub-sample (for Hypothesis 1a).*** Participants comprising the pre-post BDI sub-sample included 12 females and 4 males. Individuals ranged from 22 to 56 years of age ( $M = 38.07$ ,  $SD = 10.45$ ). Seven clients (43.8%) were never married, 6 (37.5%) were married or living common-law, and 1 (6.2%) was separated or divorced (marital status data for 2 participants, or 12.5% of the total sample, were missing). Clients' highest level of education ranged as follows: 6 (37.5%) had completed high school, 6 (37.5%) had undergraduate college or university experience, and 1 (6.2%) had post-graduate experience (3 clients, 18.8%, were missing). Demographic information for therapists in this sub-sample was not available.

***Sudden gains process sample.*** The sudden gains process sample consisted of 11 females and 3 males. Clients ranged from 22 to 60 years of age ( $M = 39.69$ ,  $SD = 11.46$ ). Six clients were never married (42.9%), 5 (35.7%) were married or living common-law,

and 2 (14.3%) were separated or divorced (data for 1 client (7.1%) were missing).

Clients' highest level of education ranged as follows: 2 (14.3%) had completed high school, 9 (64.2%) had undergraduate college or university experience, and 1 (7.1%) had post-graduate experience (2 clients, 14.2%, were missing).

Demographic information for therapists in this sub-sample was not available. However, examination of videotape data revealed that therapists in the sudden gains process sample consisted of 8 females (80.0%) and 2 males (20.0%).

### **Interrater Reliability for Process Data**

As indicated, 14 instances of sudden gains, comprising the sudden gains process sample, were identified as appropriate for psychotherapy process coding. As the current study utilizes the established three-session measurement framework of the sudden gain change process, coding was required to be conducted on a total of 42 sessions of psychotherapy. Of the 42 sessions subject to analysis, all sessions (i.e., 100% overlap) were randomized and independently re-rated on each measure by a second rater for the purposes of establishing reliability. Thus, estimates of reliability are based on the comparison of independently-derived codes.

As there was 100% data overlap, discrepancies in the dataset were subsequently resolved by consensus to produce a higher quality data set for use in the actual analyses. With regard to the measures that were coded using an event-based strategy, only events that were coded as present by both coders were included in the final data set. Errors of omission were not counted toward rater disagreement.

The average inter-rater reliability for scores on the CAMS was 0.86 Kappa. The average inter-rater reliability for scores on the CSTF was 0.83 Kappa. The average inter-rater reliability for scores on the EXP was 0.82 Kappa. The average inter-rater reliability

for scores on the PCCS was 0.78 Kappa. These values are comparable to previous reported scores on these measures (respectively: Pascual-Leone, 2005; Singh, 2008; Watson & Bedard, 2006; Tang, DeRubeis, Beberman, & Pham, 2005). According to the literature on the statistics of measurement, levels of agreement above 0.75 Kappa are considered excellent agreement above chance (Fleiss, 1981). Therefore, data collected using each of these measures was found to be highly reliable.

## **Results**

The following results are organized according to the current study's three phases of investigation. The aim of Phase I was to assess the generalizability of the sudden gains phenomenon on clients in experiential therapy for depression by (i) establishing whether sudden gains were present in the dataset, and (ii) determining whether the change processes of the sudden gains found were similar to those described by Tang & DeRubeis (1999). The aim of Phase II was to extend the findings of Goodridge & Hardy (2009) through examination of clients' change process in the therapy session preceding a sudden gain using a measure of client experiencing. Finally, the aim of Phase III was to draw from the findings of Singh (2008) and Pascual-Leone & Greenberg (2007) by investigating the roles of unmet client needs and specific "unproductive" and "productive" emotions in the sudden gain change process.

### **Phase I Findings: Sudden Gain Identification and Change Process Replication**

The first aim of Phase I was to determine whether sudden gains were present in the data set, and whether clients who experience sudden gains were significantly more likely to experience good final treatment outcomes.

### **H1. Are sudden gains present?**

Of the 416 between-session intervals present in the sudden gains study sample of 36 therapist-client dyads, 28 sudden gains (experienced by 23 clients) were identified. That is, 63.9% of clients in the sample experienced at least one sudden gain. The mean magnitude of all identified sudden gains was 12.0 Beck Depression Inventory (BDI) points ( $SD = 3.93$ ), a change which reflected an average of 69.4% of total symptom reduction.. For sudden gain responders, mean total BDI improvement from pre- to post-treatment was 17.30 points ( $SD = 6.99$ ). For clients who did not experience sudden gains, mean total BDI improvement from pre- to post-treatment was 10.69 points ( $SD = 5.75$ ). See Figure 5 for a graphic depiction of the “average” observed sudden gain.

In order to examine whether sudden gains simply represented transient “noise” not indicative of a sustained decrease in symptomology, the observed sudden gains were examined for *reversals* prior to treatment end (Tang & DeRubeis, 1999). A reversal is operationalized as having occurred when a client loses 50% or more of the symptom improvement resulting from a sudden gain. Of the 28 observed sudden gains, 8 were found to experience reversal before the end of therapy (28.6%). However, of these 8 sudden gains that experienced a reversal, 4 returned to sub-reversal levels prior to the end of treatment. That is, only 14.3% of observed sudden gains did not sustain the majority of their symptom reductions at post-treatment. In other words, sudden gains were found to reflect sustained improvement in 85.7% of observed cases.

In sum, within the sudden gains study sample, 52.8% of clients experienced sudden gains that reflected sustained improvements in depressive symptomology. For descriptive purposes, comparison of the observed sudden gains to the original archival data set (in which 7 cases were omitted due to missing data), the proportion of clients

who experienced sudden gains that reflected sustained improvements could be said to range from 44.2% (assuming that none of the omitted cases experienced a sudden gain reflecting sustained improvement) to 60.5% (assuming all omitted cases experienced a sudden gain reflecting sustained improvement).

Available archival client demographic data were examined to determine whether or not client characteristics were related to the presence of sudden gains. Regarding client characteristics, sudden gains were not found to be differentially related to client age,  $\chi^2(19) = 18.62, p = ns$  (data for 5 cases were unavailable); gender,  $\chi^2(1) = 1.57, p = ns$  (data for 4 cases were unavailable); marital status,  $\chi^2(2) = 1.00, p = ns$  (data for 7 cases were unavailable); and level of education,  $\chi^2(5) = 3.75, p = ns$  (data for 8 cases were unavailable). Regarding clinical diagnoses, sudden gains were found to be unrelated to clients' Global Assessment of Functioning scores,  $\chi^2(12) = 9.61, p = ns$  (data for 8 cases were unavailable); the presence of a preexisting Axis-II diagnosis,  $\chi^2(5) = 3.65, p = ns$  (data for 10 cases were unavailable); and the presence of a preexisting diagnosis of Generalized Anxiety Disorder,  $\chi^2(1) = 2.12, p = ns$  (data for 10 cases were unavailable). In addition, recall that therapists in the sample worked within either emotion focused therapy or client-centered therapy treatment frameworks. As such, analyses were conducted to determine whether the presence of sudden gains were differentially related to the therapist's treatment modality. Sudden gains were not found to be differentially related to treatment modality,  $\chi^2(1) = 0.84, p = ns$ ; data for 3 cases were unavailable.

In sum, sudden gain onset was not found to be related to available characteristics of clients or treatment modality. These results provide support for Hypothesis 1, and indicate that sudden gains are present in the dataset. This successful attempt to generalize

the phenomenon of sudden gains to experiential therapy represents a novel addition to the sudden gains literature.

*Additional analysis: Early- versus later-occurring sudden gains.* Recall that in the present study's sudden gains study sample, 13 of the 28 observed sudden gains (46.4%) were described as having occurred in the "early phase" of therapy (i.e., prior to session five). The remaining 15 sudden gains (53.6%) occurred in the "working phase" of therapy (sessions 6-15), and no sudden gains were found to occur in the "late phase" of therapy (sessions 16-20). Given the ongoing discussion in the sudden gains literature regarding the differential impact of early- versus later-occurring sudden gains on post-treatment, two sets of analyses were conducted. First, an independent sample t-test was conducted to determine whether clients who experienced sudden gains during the early phase of therapy differed from those who experienced sudden gains during the working phase of therapy in self-reported symptom severity at pre-treatment. Second, a repeated measures ANOVA was conducted in order to compare the degree of improvement experienced between the two groups over the course of therapy.

The results of these analyses revealed that, at pre-treatment, early phase sudden gain responders ( $M = 22.62$ ;  $SD = 6.19$ ) and working phase sudden gain responders ( $M = 23.83$ ;  $SD = 5.15$ ) were not found to differ significantly in terms of self-reported symptom severity at pre-treatment,  $t(23) = -0.53$ ,  $p = ns$ . Early phase sudden gain responders ( $M = 13.31$ ;  $SD = 5.69$ ) and working phase sudden gain responders ( $M = 11.58$ ;  $SD = 8.11$ ) also were not found to differ significantly in terms of degree of improvement over the course of treatment,  $F(1, 23) = 1.18$ ,  $p = ns$ .



**H1a. More change will occur within the pregain session.**

Hypothesis 1a posited that clients within the pre-post Beck Depression Inventory (BDI) sub-sample who experienced sudden gains would report significantly greater symptom decrease within the pregain session than between the pregain and aftergain sessions. Typically, the magnitude of a sudden gain has been assessed through measurement of the degree of symptom reduction between two consecutive pre-session BDI scores. However, it is important to note that such a change interval actually consists of two distinct temporal intervals: (i) a period of within-session change, from the start to the end of the pregain session, and; (ii) a period of between-session change, from the end of the pregain session to the start of the next (aftergain) session. The availability of both pre- and post-session BDI measures in the archival dataset allowed for the novel opportunity to determine the respective proportions of sudden gain change that occur (i) within the pregain session and (ii) between the pregain and aftergain sessions.

A paired-samples t-test revealed that significantly more symptom change occurred within the pregain session than did between the pregain and aftergain sessions,  $t(36) = 3.09, p < .01$ . The mean degree of depressive symptom decrease from the start to end of the pregain session was 10.05 BDI points ( $SD = 7.36$ ), representing 74.89% of the total mean symptom decrease, while the mean degree of symptom decrease from the end of the pregain session to the start of the aftergain session was 3.37 BDI points ( $SD = 5.89$ ), representing 25.11% of the total mean symptom decrease. See Figure 6 for a graphic depiction of these results. These findings provide support for Hypothesis 1a. The notion that clients who experienced sudden gains reported significantly greater symptom decrease within the pregain session than between the pregain and aftergain sessions represents a novel addition to the sudden gains literature.

## **H2. Do sudden gains lead to better final outcomes?**

In this set of analyses conducted on the sudden gains study sample, outcome was assessed by (i) initial comparison of pre-treatment Beck Depression Inventory (BDI) scores across groups; (ii) examining degree of improvement across treatment, and (iii) assessing the instance of clinically-significant change and “recovery” experienced by clients in both the sudden gain responder and non-sudden gain responder groups.

*Comparing pre-treatment scores.* Comparison of the mean pre-treatment scores of sudden gain responders and non-sudden gain responders revealed that, on average, sudden gain responders reported pre-treatment depressive symptoms measuring 26.13 BDI points ( $SD = 6.02$ ), as compared to non-sudden gain responders’ average pre-treatment BDI score of 21.61 ( $SD = 8.57$ ). This difference was found to be marginally significant,  $t(34) = 1.85, p = .07$ .

*Degree of improvement.* Calculation of total depressive symptom improvement from pre-treatment to post-treatment revealed that, on average, sudden gain responders were found to have experienced an improvement of 17.3 BDI points ( $SD = 7.0$ ), a decrease of 65.3% of depressive symptomology from pre-treatment to post-treatment. In comparison, non-sudden gain responders were found to experience an average improvement of 10.7 points ( $SD = 5.8$ ), or a decrease of 48% of depressive symptomology from pre- to post-treatment. A repeated measures ANOVA was conducted in order to compare the degree of improvement experienced across the two groups. Results of this analysis revealed that clients who experienced a sudden gain experienced a significantly greater decrease in depressive symptomology than those who did not,  $F(1, 34) = 8.39, p < .01$ .

Both sudden gain responders and non-sudden gain responders experienced relatively good final treatment outcomes. The mean post-treatment BDI score for sudden gain responders was 8.8 ( $SD = 5.4$ ), while the mean post-treatment BDI score for non-sudden gain responders was 10.9 ( $SD = 4.3$ ). Recall that, following Watson, Goldman, and Greenberg (2011), Beck Depression Inventory (BDI) scores of 1-10 are interpreted in the present study as indicative of sub-clinical depression, scores of 10-15 as indicative of mild depression, and scores of 15 or higher as indicative of severe depression. As such, the mean post-treatment BDI score for sudden gain responders was in the sub-clinical range, while the mean post-treatment BDI score for non-sudden gain responders was in the mild depression range.

***Additional analysis: Floor effect?*** The above findings reveal that (i) sudden gain responders' mean pre-treatment depressive symptom severity was marginally higher than non-sudden gain responders mean pre-treatment depressive symptom severity, and that; (ii) sudden gain responders experienced a significantly greater decrease in depressive symptomatology than non-sudden gain responders. This combination of results admits the possibility that the significantly greater degree of improvement experienced by sudden gain responders might be due to a "floor effect". The term "floor effect" refers to a situation wherein data cannot take on a value lower than some particular number, called the "floor" (Tabachnik & Fidell, 2001). In this instance, it reflects the possibility that a number of non-sudden gain responders may have been reporting depressive symptomatology scores of "zero" (i.e., the lowest possible score on the Beck Depression Inventory) at or preceding post-treatment. The presence of such a floor effect would suggest the significant discrepancy between groups was due to a limitation of the measure, and not an actual discrepancy in improvement.

Visual inspection of the dataset revealed that only three participants in the dataset reported post-treatment depressive symptom severity scores of zero, and that all were members of the sudden gain responder group. This finding suggests that the significant discrepancy observed across groups was not due to a floor effect, or simply reflective of a limitation in measurement. Rather, it is possible that the difference between groups was underestimated due to measurement limitations, as the only participants who reported the lowest possible score on the Beck Depression Inventory were sudden gain responders.

*Clinically-significant change and recovery.* To examine whether treatment outcomes for sudden gain responders were significantly better than outcomes for non-sudden gain responders, analyses were conducted to determine whether or not clients experienced a clinically-significant degree of symptomological change over the course of treatment.

Initially proposed by Jacobson and Truax (1991), a reliable change index (RCI) is a method of calculating pre-to-post-treatment change that is greater than normal fluctuations in the measuring instrument. The standard error of measurement for the Beck Depression Inventory (BDI) when applied to adult populations was estimated to be 2.88 BDI points in a meta-analytic review of the measure (Yin & Fan, 2000). When outcome was assessed on the basis of reliable change, 32 of the 36 clients in the sample (88.9%) were found to have experienced reliable decreases in depressive symptomatology. Of the four clients who did not experience reliable change, two were sudden gain responders and two were non-sudden gain responders.

To identify those clients who experienced good outcomes or “recovery”, a recovered index was constructed (Jacobson & Truax, 1991). A recovered index denotes post-treatment scores that are both below the clinical cut-off for distress and meet RCI

criteria for clinically-significant change. In the present study, the clinical cut-off for distress was defined as a BDI score of 10 points or greater (Tang & DeRubeis, 1999).

When recovery was assessed in this manner, 9 of the 23 (39.1%) sudden gain responders were identified as having experienced good outcomes, as compared to 4 of the 13 (30.7%) non-sudden gain responders. See Table 4 for the results of the analyses of recovery and RCI.

On balance, these results indicate partial support for Hypothesis 2. Sudden gain responders tended to enter treatment experiencing marginally higher degrees of depressive symptomology than non-sudden gain responders. At post-treatment, sudden gain responders did not report levels of depression that were significantly different from non-sudden gain responders, but were found to have experienced significantly greater symptom improvement from pre-treatment to post-treatment. In addition, the majority of the clients in the sample (88.9%) were found to have experienced clinically-significant decreases in depressive symptomology, while the proportion of clients who achieved recovery in both groups was not significantly different.

### **H3a. Do more cognitive changes occur in pregain sessions?**

Hypothesis 3 reflects the second aim of the first phase of the current study's investigation. After examining the dataset for the presence of sudden gains, and determining their impact on final treatment outcome in H1 and H2, Hypothesis 3's two sub-hypotheses are concerned with replicating the change process findings reported in Tang and DeRubeis (1999). This set of analyses was conducted on the sudden gains process sample.

To examine whether a greater number of cognitive changes would be accomplished by sudden gain responders in the pregain session than in the within-subject

control (prepregain) session, a paired-samples t-test was conducted. The resulting analysis revealed that, on average, these clients experienced 0.50 cognitive changes ( $SD = 0.76$ ) during the control (prepregain) session. That is, 64.3% of clients experienced 0 cognitive changes, while 35.7% experienced 1 to 2 cognitive changes. In comparison, during the prepain session, sudden gain responders experienced an average of 1.79 cognitive changes ( $SD = 1.85$ ). Specifically, 28.6% of clients experienced 0 cognitive changes, while 81.4% of clients experienced between 1 and 6 cognitive changes. In sum, sudden gain responders experienced significantly more cognitive changes during prepain sessions than control (prepregain) sessions,  $t(13) = 2.39, p < .05$ .

These results provide support for Hypothesis 3a, and represent a successful replication of Tang and DeRubeis' (1999) finding that a greater number of cognitive changes are accomplished by clients who experience a sudden gain in prepain sessions than in within-subject control (prepregain) sessions.

### **H3b. Does working alliance increase post-sudden gain?**

To test Hypothesis 3b, a one-way repeated measures ANOVA was conducted comparing the reported degree of the working alliance post-sudden gain (i.e., in the aftergain session) to the degree of the working alliance pre-sudden gain (i.e., in the prepain and prepain sessions). Recall that the Client Working Alliance Inventory (WAI) asks clients to rate their current experience of therapy on a Likert scale of 1 (lowest) to 7 (highest). The mean WAI level across the sudden gain change process were as follows: control (prepregain) session,  $M = 5.39, SD = 0.60$ ; prepain session,  $M = 5.32, SD = 0.72$ , aftergain session,  $M = 5.43, SD = 0.77$ . The strength of the working alliance did not significantly increase in the session following an observed sudden gain,  $F(2, 26) =$

0.678,  $p = ns$ . These results do not provide support for Hypothesis 3b, and reflect a divergence from the change process findings reported by Tang and DeRubeis (1999).

### **Phase II Findings: Exploring Sudden Gain Change Processes in Experiential Therapy**

The primary aim of the second phase of investigation was to extend the findings of Goodridge and Hardy (2009) regarding sudden gains containing a process of progressively deepening client insight to the current study's sample of clients undergoing experiential therapy through the use of a measure of client experiencing. A secondary aim of this phase was to determine whether ratings on the Patient Cognitive Change Scale and the Experiencing Scale would be correlated. The analyses in this phase of the study were conducted exclusively on the sudden gains process sample ( $N = 14$ ).

#### **H4. Does experiencing deepen in pregain sessions?**

To determine whether significantly higher levels of client experiencing occurred in the pregain session relative to the control (prepregain) session, a paired-samples t-test was conducted. The results of this analysis revealed that sudden gain responders experienced a mean experiencing level of 4.64 ( $SD = 0.63$ ) during the control (prepregain) session, and a mean experiencing level of 5.50 ( $SD = 0.65$ ) during the pregain session. This difference was found to be statistically significant,  $t = -3.12$ ,  $p < .01$ .

These results suggest that client experiencing deepened significantly from the control (prepregain) session to the pregain session. This finding provides support for Hypothesis 4, and represent a novel addition to the sudden gains literature. On average, clients appeared to move from generally reflecting and exploring their feelings and personal experiences (level 4 on the EXP scale) in the control (prepregain) session, to purposeful exploration and elaboration of specific feelings or experiences, often by

identifying a related problem or need (level 5 on the EXP scale), in the pregain session. Drawing from a larger sub-sample of the same archival data set as the current study, Pos, Greenberg, and Warwar (2009) have reported that the average EXP ratings across sessions reflects clients' reactions to external events with limited reference to feelings (i.e., between level 2 and 3 on the EXP scale). As such, the mean experiencing levels observed in both control (prepregain) and pregain sessions in the present study were substantially higher than the mean experiencing level across sessions in the parent sample from which the current study's data set derives.

#### **H5. Does experiencing deepen progressively over the three-session arc?**

This qualitatively-oriented hypothesis was rooted in Goodridge and Hardy's (2009) report that clients appear to move from *transitory* insight in the control (prepregain) session, to *partial* insight in the pregain session, to *full* insight in the aftergain session. A similar progressive deepening of experiencing was hypothesized to occur in the current study sample, differentiated through the EXP scale's discrete levels of experiencing.

To test this analysis, a repeated measures ANOVA was conducted. Sudden gain responders were found to have experienced a mean experiencing level of 5.00 ( $SD = 0.78$ ) during the aftergain session. See hypothesis 4 for the mean levels of experiencing observed during the control (prepregain) and pregain sessions. Level of client experiencing was found to change significantly over the three-session sudden gain change process,  $F(2, 26) = 6.65, p < .01$ . Post-hoc follow-up analyses were conducted using the Bonferroni test. The results of these tests indicated that the only significant change in client experiencing occurred between the control (prepregain) session and the pregain session (as previously presented under Hypothesis 4, above).



In sum, the above findings did not support Hypothesis 5. Client level of experiencing was found to deepen significantly solely between the control (prepregain) and pregain sessions.

**H6. Are the Experiencing Scale and Patient Cognitive Change Scale scores correlated?**

Hypothesis 6 posited that Experiencing Scale (EXP) scores would be positively correlated with Patient Cognitive Change Scale (PCCS) scores across the sudden gain change process. To test this hypothesis, a Kendall's tau correlation (a correlation test appropriate for nonparametric data) was conducted (Howell, 1997). The results of this test indicated that scores on the two measures exhibited a significant moderate positive correlation,  $\tau = .44, p = .001$ . This result provides support for Hypothesis 6, and suggests that Experiencing Scale scores and Patient Cognitive Change Scale scores are positively correlated to a moderate degree. This finding represents a novel addition to the sudden gains literature, as well as a contribution to the current understanding of process research using these process measures.

For descriptive purposes, correlations among all client process measures used in the present study are presented in Table 5. These descriptive analyses yielded the finding that that both Experiencing Scale scores and Patient Cognitive Change Scale scores were also positively correlated to the Classification of Affective-Meaning States' (CAMS) productive emotions to a low degree ( $\tau = .29, p < .05$ ;  $\tau = .29, p < .05$ , respectively). In addition, negative correlations between CAMS unproductive emotions and the Patient Cognitive Change Scale ( $\tau = -.02, p < .1$ ), and CAMS unproductive emotions and CAMS productive emotions ( $\tau = -.07, p < .1$ ) were found to be related at a level of marginal significance.

### **Phase III Findings: Relating Therapy Change Processes to Client Change Processes**

The third phase of investigation sought to incorporate the findings of Singh (2008) and Pascual-Leone and Greenberg (2007) to the context of sudden gains by investigating the roles of unmet client needs and specific “productive” and “unproductive” emotions in the sudden gain change process. Recall that Singh (2008) reported that distressed clients who experienced productive within-session outcomes were significantly more likely to have therapists who focused on an unmet need. This finding corresponds with Pascual-Leone & Greenberg’s (2007) assertion that good within-session outcomes occur through the recognition and expression of a previously unmet need alongside the productive emotional momentum of “productive” emotion states. Taken together, these findings provide a novel conceptualization of the manner through which sudden gain onset may be accomplished. The analyses in this phase of the present study were conducted exclusively on the sudden gains process sample ( $N = 14$ ).

#### **H7. Are therapists more likely to focus on clients’ needs in pregain sessions?**

To examine whether therapists of sudden gain responders were significantly more likely to focus on unmet client needs in pregain sessions than in control (prepregain) sessions, a paired-samples t-test was conducted to examine the number of times therapists were rated as focusing on unmet client needs in pregain sessions as compared to control (prepregain) sessions.

Preliminary analyses were conducted on all available therapist foci variables across the three-session sudden gain change arc as a means of confirming the theoretically- and empirically-informed decision to limit the scope of Hypothesis 7 to therapist focus on unmet client needs, and for descriptive purposes. The results of these analyses revealed that, consistent with Singh’s (2008) finding that client resolution of

within-session distress was precipitated by increased therapist focus on unmet client needs, in the current study therapist focus on unmet client needs was found to be the clearest predictor of sudden gain onset. Additionally, therapist focus on client emotion was found to increase significantly from the control (prepregain) session ( $M = 10.29$ ,  $SD = 4.76$ ) to the aftergain session ( $M = 14.50$ ,  $SD = 2.74$ ),  $t(13) = 3.42$ ,  $p < .01$ . Given its salient role in the prediction of sudden gain onset, therapist focus on unmet client needs is the only variable discussed below.

The results of the paired-samples t-test indicated that therapists of sudden gain responders were significantly more likely to focus on unmet client needs in pregain sessions ( $M = 2.57$ ,  $SD = 2.10$ ) than in control (prepregain) sessions ( $M = 1.14$ ,  $SD = 1.51$ ),  $t(13) = 3.15$ ,  $p < .01$ . During control (prepregain) sessions, 50.0% of therapists did not focus on unmet client needs at all, while the remaining 50.0% of therapists focused primarily on unmet client needs for 2 to 8 minutes. In comparison, during pregain sessions, 14.3% of therapists did not focus on unmet client needs, while 85.7% of therapists focused primarily on unmet client needs for 2 to 12 minutes.

This finding suggests that sudden gain onset occurs alongside increased therapist focus on unmet client needs. This finding provides support for Hypothesis 7, and represents a novel addition to the sudden gains literature.

#### **H8. Are fewer unproductive emotions expressed in pregain sessions?**

Hypothesis 8 posited that sudden gain responders would be significantly less likely to express “unproductive” emotions (i.e., rejecting anger, global distress, or fear/shame) in pregain sessions than in control (prepregain) sessions. As this hypothesis relied on analyses of Classification of Affective-Meaning States ratings, a nonparametric

Wilcoxon signed-rank test was conducted to assess the number of times clients expressed unproductive emotions in pregain sessions as compared to control (prepregain) sessions.

The results of this test indicated that the number of unproductive emotions expressed by sudden gain responders in pregain sessions ( $Mdn = 0.5$ ) was not significantly different than the number of unproductive emotions they expressed in control (prepregain) sessions ( $Mdn = 1.5$ ),  $z = -0.40$ ,  $p = ns$ . That is, during control (prepregain) sessions, 28.6% of clients were found to express 0 instances of unproductive emotion, while 71.4% of clients were found to express 1 to 5 instances of unproductive emotion. In comparison, in pregain sessions, 50.0% of clients were found to express 0 instances of unproductive emotion, while 50.0% of clients were found to express 1 to 7 instances of unproductive emotion. This finding did not support the hypothesis.

Individual analysis of the unproductive emotions failed to reveal significant differences in client expression across sessions. No significant differences were observed in client expression of fear/shame between the control (prepregain) ( $Mdn = 0.5$ ) and pregain sessions ( $Mdn = 0$ ),  $z = -1.43$ ,  $p = ns$ ; rejecting anger between the control (prepregain) ( $Mdn = 0$ ) and pregain sessions ( $Mdn = 0$ ),  $z = -0.33$ ; or global distress between the control (prepregain) ( $Mdn = 0$ ) and pregain sessions ( $Mdn = 0.5$ ),  $z = -0.60$ ,  $p = ns$ .

#### **H9. Are more productive emotions expressed in pregain sessions?**

Hypothesis 9 posited that sudden gain responders would be significantly more likely to express “productive” emotions (i.e., assertive anger, self soothing, or hurt/grief; as reported in Pascual-Leone & Greenberg, 2007) in pregain sessions than in control (prepregain) sessions. Due to the ordinal nature of the Classification of Affective-Meaning States ratings, a nonparametric Wilcoxon signed-rank test was conducted to

assess the number of times clients expressed productive emotions in pregain sessions as compared to control (prepregain) sessions.

The results of this test revealed that sudden gain responders are significantly more likely to express productive emotions in pregain sessions ( $Mdn = 1.5$ ) than in control (prepregain) sessions ( $Mdn = 0$ ),  $z = -1.97$ ,  $p < .05$ . During control (prepregain) sessions, 57.1% of clients were found to express 0 instances of productive emotion, while 42.9% of clients were found to express 1 to 3 instances of productive emotion. In comparison, in pregain sessions, 21.4% of clients were found to express 0 instances of productive emotion, while 78.6% of clients were found to express 1 to 5 instances of productive emotion. This finding provides support for Hypothesis 9, and represents a novel addition to the sudden gains literature.

Individual analysis of the productive emotions revealed a marginally significant increase in client expression of hurt/grief between the control (prepregain) ( $Mdn = 0$ ) and pregain sessions ( $Mdn = 1$ ),  $z = -1.88$ ,  $p = .06$ . In addition, a marginally significant increase in client expression of assertive anger was found to occur between the control (prepregain) ( $Mdn = 0$ ) and aftergain sessions ( $Mdn = 0$ ),  $z = -1.81$ ,  $p = .07$ . However, no significant difference in client expression of self-soothing was evidenced between the control (prepregain) ( $Mdn = 0$ ) and pregain sessions ( $Mdn = 0$ ),  $z = -1.34$ ,  $p = ns$ . See Table 6 for a summary of the presence of unproductive and productive emotions in the current study.

### **Summary of Findings**

See Table 7 for a summary of the present study's hypotheses, and the results of the corresponding analyses for each.

**Phase I: Sudden Gain Identification and Change Process Replication.**

Phase I's findings provided support for the notion that sudden gains occur in experiential therapy (H1). In the current study's sample, 63.9% of clients in the sample experienced at least one sudden gain, and that these gains were not found to be related to client age, gender, marital status, level of education, pre-treatment Global Assessment of Functioning scores, the presence of an Axis-II diagnosis, the presence of Generalized Anxiety Disorder diagnosis, or therapist treatment modality. Closer examination of the sudden gain change interval revealed that the majority of symptom change occurred during the pregain session (H1a). Clients who experienced a sudden gain experienced a significantly greater degree of improvement than those who did not, although they were *not* significantly more likely to experience recovery (H2). At pre-treatment, sudden gain responders were found to report depressive symptoms at a marginally higher level than non-sudden gain responders. However, the possibility that the difference in improvement between groups was due to a "floor effect" measurement limitation was ruled out. Similar to the results reported by Tang & DeRubeis (1999), clients experienced significantly more cognitive changes during the pregain session (H3a). In contrast to the results reported by Tang & DeRubeis (1999), working alliance was *not* found to increase significantly in the aftergain session.

**Phase II: Exploring Sudden Gain Change Processes in Experiential Therapy.**

Phase II's findings indicated that clients' level of experiencing deepened significantly between the control (pregain) session and the pregain session (H4), reflecting a move from generally reflecting and exploring their feelings and personal experiences (i.e., level 4 on the Experiencing Scale) in the control (pregain) session, to purposeful exploration and elaboration of specific feelings or experiences, often by

identifying a related problem or need (i.e., level 5 on the Experiencing Scale), in the pregain session. Client level of experiencing was *not* found to deepen progressively (H5) in a manner corresponding to Goodridge and Hardy's (2009) description of sudden gain responder's movement from *transitory* to *partial* to *full* insight over the course of the three-session arc. A significant moderate positive correlation was found between Experiencing Scale scores and Patient Cognitive Change Scale scores (H6).

### **Phase III: Relating Therapy Change Processes to Client Change Processes.**

Phase III's findings revealed that a significant increase, relative to the control (prepregain) session, in therapist focus on unmet client needs occurred alongside sudden gain onset in the pregain session (H7). Therapist focus on client emotion was also found to increase significantly from the control (prepregain) session to the aftergain session. Relative to the control (prepregain) session, sudden gain responders were *not* found to be significantly more likely to express "unproductive" emotions (i.e., rejecting anger, global distress, or fear/shame) in pregain sessions (H8). Relative to the control (prepregain) session, sudden gain responders were found to be significantly more likely to express "productive" emotions (i.e., assertive anger, self soothing, or hurt/grief) in pregain sessions (H9). Specifically, marginally significant increases in the expression of hurt-grief and assertive anger were found.

## **Discussion**

The three phases of the current investigation on the occurrence of sudden gains using an archival data set of clients undergoing experiential therapy for depression have yielded a range of insights into the nature of the sudden gain phenomenon. An overview of the core ideas that have been supported in the present study is summarized in six points, followed by a discussion of the clinical and research implications. This section

concludes with a description of the limitations of this study and a note on promising directions for future research.

### **Summary of Conclusions**

**1. Sudden gains occur in experiential therapy.** As predicted, sudden gains were found to occur among individuals undergoing experiential psychotherapy for depression. Consistent with previous studies (summarized in Aderka et al., 2012), sudden gain occurrence was not found to be significantly related to client age, gender, marital status, level of education, pre-treatment Global Assessment of Functioning scores, the presence of a preexisting Axis-II diagnosis, nor the presence of a preexisting diagnosis of Generalized Anxiety Disorder. Sudden gains were also not significantly related to therapist treatment modality. These findings reflect the first empirical demonstration of the presence of sudden gains among a client population undergoing experiential therapy. As such, this result represents a novel contribution to the existing sudden gains literature.

Comparison of the sudden gains observed in the current study with those reported in the literature provides a useful context for interpreting these results. It is standard for investigations of sudden gains to report (i) the proportion of clients who experienced a sudden gain; (ii) the average magnitude of the observed sudden gains, and; (iii) the proportion of sudden gains that are "reversed" prior to treatment end, and thus not representative of a sustained decrease in symptomatology. See Table 8 for a summary of the sample of existing studies to which the present study's results are being compared.

First, regarding the proportion of clients who experienced a sudden gain, sudden gains occurred in 63.9% of the present study's sudden gains study sample. This proportion appears to be significantly greater than the average percentage of clients who have been reported to experience sudden gains in the literature ( $M = 42.1\%$ , range =



25.9% - 52.2%). Second, concerning total symptom reduction, in the present study sudden gains were found to reflect an average of 69.4% of clients' total symptom reduction from pre-treatment to post-treatment. This figure is greater than the mean total symptom reduction reported by previous studies, although within the range of these results ( $M = 60.9%$ , range = 50.8% - 75.0%). Similarly, the mean magnitude of identified sudden gains in the present study was 12.0 Beck Depression Inventory points, a figure which is greater than the mean magnitude reported by previous studies, although within the range of these results ( $M = 11.0$ , range = 8.3 - 13.3). Third, in terms of the proportion of observed reversals, in the present study 14.3% of observed sudden gains were reversed prior to treatment end. The proportion of reversals observed in the present study is less than the mean proportion of reversal reported in existing studies, but within the range of these results ( $M = 37.3%$ , range = 9.1% - 85.7%). In other words, in the current study, sudden gains were found to reflect sustained improvement in 85.7% of observed cases.

In sum, when compared to the existing sudden gains literature, sudden gains in the present study were found to occur among the highest reported proportion of clients to date. These gains accounted for an above average proportion of total symptom change, and the number of sudden gains that were subsequently "reversed" was observed to be among the lowest reported proportions to date. Taken together, these results suggest that the sudden gain responders within the present study's sample experienced particularly good final treatment outcomes, even when compared to other samples of sudden gain responders.

Indeed, both the sudden gain responders and the non-sudden gain responders comprising the current study's sample were observed to experience relatively good final treatment outcomes. Final treatment outcomes were assessed using Beck Depression

Inventory (BDI) scores, with scores of 10 or higher reflecting clinical levels of depression. Sudden gain responders' and the non-sudden gain responders' mean BDI scores at post-treatment were 8.8 ( $SD = 5.4$ ) and 10.9 ( $SD = 4.3$ ), respectively. These results point toward an interesting limitation of the present study: Because few clients experienced poor final treatment outcomes, the variability of the treatment sample is restricted in this respect. As a result, the present study's findings regarding the impact of sudden gain onset on final treatment outcome may be an underestimate of their true benefits, as sudden gain responders in the current study were compared largely to non-sudden gain responders who also experienced good treatment outcomes. Visual inspection of the data set revealed that, of the 36 cases comprising the present study's outcome sample, only four clients reported post-treatment depression scores in the severe depression range (i.e., a BDI score greater than 15). The highest reported post-treatment score (reflecting the poorest outcome) was 23, out of a maximum score of 39.

This sample limitation provides a useful context for interpreting the current research finding that sudden gain responders did not experience significantly better final treatment outcomes than non-sudden gain responders. This finding is inconsistent with most previous studies of sudden gains, which commonly report that sudden gains are significantly associated with lower levels of post-treatment depression (Aderka et al., 2012). Nonetheless, it is notable that sudden gain responders were found to experience significantly greater symptom improvement than non-sudden gain responders. In combination, these results admit the possibility that, while sudden gain responders did experience significantly greater symptom improvement over the course of treatment, this advantage did not translate to significantly better symptom scores at post-treatment because most clients in the sample experienced relatively good final treatment outcome.

In addition, comparison of sudden gains which occurred during the early phase of treatment with sudden gains that occurred in the working phase of treatment, the two groups were not found to exhibit significantly differing levels of depressive symptom severity at pre-treatment, nor to experience significantly different reductions in depressive symptomology over the course of treatment. The current results differ from previous findings suggesting that sudden gains that occur during the early phase of treatment are more likely than later-phase sudden gains to lead to greater reductions in depressive symptomology at post-treatment (e.g., Kelly et al., 2005; Tang et al., 2007). The current results also differ from the alternate suggestion that early phase sudden gains are more likely than later-phase sudden gains to be reversed prior to post-treatment (e.g., Clerkin et al., 2008). In addition to the varied findings regarding early- versus later-phase sudden gains, the current results highlight the importance of further examination of the differences between sudden gains occurring at different time points over the course of treatment. Indeed, one might speculate that the sudden gain phenomenon actually encompasses distinctly different *types* of gains, primarily initiated by differing change processes according to the treatment phase in which they occur. For example, factors such as the instillation of a sense of hopefulness and readiness for treatment may be particularly relevant to sudden gain change in the early phase of treatment (Ilardi & Craighead, 1994; 1999), while demonstration of the efficacy of specific techniques (resulting in increased belief in the competency and empathy of the therapist) may play a more prominent role in sudden gain change in the working phase of treatment (Andrusyna et al., 2006). However, one noteworthy obstacle to obtaining process data from sudden gains occurring prior to the second treatment session is that the three-session sudden gain

change arc (consisting of the prepregain, pregain, and aftergain sessions) would not be applicable to such analyses, as these sudden gains lack a control (prepregain) session.

The discovery of the occurrence of sudden gains among persons undergoing experiential psychotherapy for depression provides further support for the notion that sudden gains are a type of common human change process, and not an artefact of a particular treatment or therapeutic modality. In this regard, the finding that sudden gains occur among individuals undergoing experiential psychotherapy for depression is consistent with previous studies documenting the occurrence of sudden gains among persons receiving supportive, psychodynamic, interpersonal, systemic, and pharmacotherapy approaches to the treatment of depression (Gaynor et al., 2003; Kelly, Cyranowski, & Frank, 2007; Stiles et al., 2003; Tang et al., 2002; Vittengl et al., 2005). Sudden gains have also been observed in treatments for anxiety disorders (Hoffman et al., 2006; Present et al., 2008), panic disorder (Clerkin et al., 2008), posttraumatic stress disorder (Doane et al., 2010; Kelly et al., 2009), and alcohol dependence (Drapkin, 2007).

**2. Sudden gain change is initiated *during* the pregain session.** As predicted, when the sudden gain change interval was examined as two distinct time intervals (i.e., within-session change followed by between-session change), comparison of the two intervals revealed that significantly greater symptom decrease occurred during the pregain session. This finding is important because it provides evidence contra to two widely-held assumptions regarding sudden gains present in the literature.

The first assumption challenged by this finding regards the standard definition of the pregain session. As introduced by Tang and DeRubeis (1999), the pregain session has consistently been defined in the sudden gains literature as “the therapy session immediately preceding the sudden gain” (e.g., Tang et al., 2005, p. 168). This definition

of the pregain session is not consistent with the present study's finding that the majority of sudden gain symptom change occurred *within* the pregain session, and not following it. In sum, the issue raised is whether it is accurate to identify the pregain session as occurring prior to (i.e., "pre") the sudden gain.

In addition, it must be noted that the original definition of the pregain session proposed by Tang and DeRubeis (1999) is not actually consistent with their reported measurement strategy of administering a self-report depression inventory *prior* to the start of each session while observing the presence of cognitive changes *within-session* (for visual reference, see the asterisks indicating measurement points in Figure 2).

Rather, such a strategy left open the twin possibilities that the pregain session was either the therapy session immediately preceding the sudden gain or the therapy session co-occurring with (a portion of) the sudden gain.

The second assumption challenged by the current finding that sudden gains occur *during* the pregain session involves the manner in which sudden gains are commonly defined. Beginning with Tang and DeRubeis' (1999) seminal work, sudden gains have commonly been characterized as occurring across "a single *between-sessions* interval" [italics added] (p. 894). This characterization is not necessarily incorrect, as it can be viewed as conveying that sudden gains occur over the course of two sessions, which is indeed the case. However, the indistinct use of the term "between-sessions" does appear to promote the potential for conflating the distinct time interval(s) which comprise the period when a sudden gain occurs. For example, an unfounded assumption common to many investigations of sudden gains is the idea that client symptomology (e.g., as assessed via the Beck Depression Inventory) remains constant over the time interval of the pregain session. One might speculate that this view is perhaps influenced by an a

priori assumption that dramatic symptom change does not or cannot occur so rapidly in response to in-session treatment interventions.

One result in particular that appears to have arisen from this inattention to the nature of the sudden gain time interval is the suggestion that sudden gains are "immediately preceded by substantial in-session cognitive changes" (Tang et al., 2005, p. 172). This conclusion has been forwarded repeatedly across the literature (e.g., Aderka et al., 2012; Norton et al., 2010; Tang & DeRubeis, 1999). Importantly however, the measurement strategy employed by all of the above studies (i.e., administering self-report depression inventories prior to the start of each session, while coding the presence of cognitive changes within-session) does not provide a basis for which to propose such a conclusion. Rather, the cognitive changes observed may have occurred prior to the sudden gain (assuming the gain occurred exclusively in the between-session interval), following the sudden gain (assuming the gain occurred exclusively in the within-session interval preceding any client cognitive change) or, perhaps most likely, have co-occurred with the within-session portion of symptom change represented by the sudden gain (assuming the gain occurred across both the within- and between-session intervals).

In short, following a close review of the literature, the question appear to remain: Does sudden gain onset occur primarily during the pregain session, presumably as a result of in-session processes? Or do these gains occur primarily over the course of the week between treatment sessions? Plainly, the data to date have been unable to address this question, as the essential methodological requirement for determining this issue involves the assessment of symptom change *both prior to and following* each treatment session. Moreover, it is possible that the proportion of sudden gain change occurring in the within-

and between-session intervals may vary in accord with the nature of the treatment being provided.

Graphic evidence of the potential for misunderstanding which may arise through inattention to the sudden gain time interval is also apparent in the literature. Visual depictions of sudden gains found in the current literature commonly depict symptom change as a single between-session interval, and omit the within-session interval. The first instance of this inconsistency can be found in Tang and DeRubeis (1999, p. 901), in which mean measured change in depressive symptomatology is visually depicted as a decrease between the end of the pregain session and start of the aftergain session. This presentation is discrepant with their reported measurement of depressive symptomatology, which was assessed prior to the start of each session, and thus comprised of both a within-session and between-session interval. Figures in a number of later investigations of sudden gains have similarly presented sudden gain symptom change in an imprecise, though not inaccurate, fashion (e.g., Busch et al., 2006; Drapkin, 2007; Greenfield et al., 2011; Hofmann et al., 2006; Norton et al., 2010; Pham, 2005; Stiles et al., 2003; Tang et al., 2005; Vittengl et al., 2005; Zhiyan, 2000). In his doctoral dissertation regarding sudden gains in the context of a behavioural activation treatment for depression, Andrusyna (2007) presents the lone accurate representation of the sudden gain time interval published to date, although his figure is presented above an inaccurate verbal description of pre-session Beck Depression Inventory (BDI) scores as applicable solely to the between-session interval. See Figure 7 for a side-by-side comparison of the inaccurate representation of the sudden gain time interval presented by Tang and DeRubeis (1999), and the accurate representation of the sudden gain time interval presented by Andrusyna (2007). See Figure 8 for an example of an imprecise

representation of sudden gain change across sessions. Figure 5, which depicts the average observed sudden gain in the present study, provides an example of a more precise manner in which to depict sudden gain change as assessed via pre-session Beck Depression Inventory scores.

One possible factor contributing to the perpetuation of these misunderstandings throughout the literature may be the existing terminology used to describe the sudden gain change process itself. The description of the three-session sudden gain change arc as consisting of a "prepregain," "pregain," and "aftergain" session speak to the assumptive framework inadvertently introduced by Tang and DeRubeis (1999) in their initial conceptualization of sudden gains within the context of cognitive behavioural treatments for depression (i.e., the assumption that this therapeutic change occurs *between* session). The present finding that the majority of sudden gain change occurred during the *within*-session interval suggests that the current nomenclature is misleading. That is, the term *pregain session* is inaccurate insofar as a significant proportion of sudden gain change actually occurs *during* these sessions. However, the terminology itself obscures, to some degree, the possibility of examining this alternate interpretation. Indeed, the "pregain" session would appear to be more closely described as a *critical session*, or a session during which significant transitions occur, and which is likely to have a much greater impact on treatment outcome than other therapy sessions (Elliott, 1984). Interestingly, the notion that pregain sessions may be a kind of critical session was first forwarded by Tang and DeRubeis (1999), although their suggestion was that pregain sessions might be "critical" insofar as they are found to contain therapeutic breakthroughs that serve to trigger subsequent symptom reduction, rather than being the time interval during which sudden gain symptom reduction is initiated. In the aim of forwarding a more precise



nomenclature, the remainder of the present study's discussion will refer to these sessions as *critical* ("pregain") sessions.

Similarly, in light of the present study's finding that significant symptomatic change occurred *during* the critical (pregain) session, a more accurate definition of a sudden gain would appear to be, "A dramatic symptom improvement occurring over the course of one session *and/or* the period preceding the following session." Moreover, in the case of experiential therapy, the present finding suggests that a sudden gain entails "a dramatic symptom improvement occurring *largely* within the course of one session, and also over the period preceding the following session." (Recall that Figure 6 depicts a graphic representation of this change over time.)

Interestingly, the present study's finding that the majority of sudden gain symptom change occurs *during* the critical (pregain) session differs from the only other attempt to examine the sudden gain change interval as two distinct time intervals of which the author is aware. In a study of clients undergoing a course of cognitive behavioural therapy for depression, Pham (2005) recorded clients' mood ratings at both the start and end of each session in addition to administering pre-session Beck Depression Inventories. Therapist collection of mood ratings at the start and end of each session is a common feature of cognitive behavioural therapy (Beck et al., 1979). Clients were asked to verbally provide mood ratings on a scale of 0 to 100, with a score of 0 reflecting the worst a client had ever felt and a score of 100 reflecting the best a client had ever felt. Examination of these pre- and post-session mood ratings led Pham to the conclusion that "the majority of symptom improvements occurred between the pregain and aftergain sessions rather than within the pregain session" (2005, p. 51).

Notwithstanding the limitations of the unstandardized data collection procedure used to collect mood ratings in Pham (2005), the discrepancy between the present study's finding and the result reported by Pham (2005) presents an important point of consideration. The current study was conducted on a sample of clients receiving a course of experiential therapy, a treatment modality which places a strong emphasis on within-session change (Greenberg & Watson, 1998; Pascual-Leone, 2009). It is plausible that examination of sudden gains occurring in alternate treatment modalities, particularly those such as cognitive behavioural therapy, which place a greater emphasis on between-session change (e.g., through the use of active techniques such written homework assignments and behavioural experiments) may produce greater between-session change from the end of the critical (pregain) session to the start of the aftergain session (L. Greenberg, personal communication, June 30, 2011). Ongoing examination of the nature and magnitude of sudden gain change as two distinct time intervals appears to be a promising line of inquiry for future investigations.

**3. Cognitive changes and deepened experiencing occur together.** The present finding that the majority of symptom decrease related to sudden gains occurred within the critical (pregain) session highlights the importance of investigations of the change processes occurring during these critical sessions. To date, the debate regarding the factors which potentially contribute to sudden gains has been spirited, with the prominent theories having been broadly described as divided along treatment-specific versus common factor lines (Aderka, Appelbaum-Namdar, Shafran, & Gilboa-Schechtman, 2011).

The earliest and most influential theory regarding sudden gain change processes was initially proposed by Tang and DeRubeis (1999). In their seminal work, the authors

concluded that sudden gain onset was directly supportive of the cognitive mediation hypothesis, as superior treatment outcome was found to be preceded by sudden gains, which were in turn preceded by cognitive changes in critical (pregain) sessions. Sudden gains were thus conceptualized as marking the beginning of an "upward-spiral" process unique to cognitive behavioural therapy, in which cognitive changes and the combination of working alliance improvements and reduction in depressive symptomology propel the client toward recovery in a dialectical fashion for the remainder of treatment.

As previously noted, the view promoted by Tang and DeRubeis (1999) that sudden gains are preceded by cognitive changes is untenable in the context of the pre-session measurement strategy used by these authors to identify sudden gains. For this reason, it is all the more intriguing that a critical (pregain) session increase in client cognitive change has repeatedly, albeit not uniformly, been found in investigations of sudden gains (Aderka et al., 2012).

Consistent with Tang and DeRubeis (1999), the results of the present study revealed that sudden gains were accompanied by an increase in client cognitive change during the critical (pregain) session, relative to the control (prepregain) session. In addition, the current study presents the novel finding that client level of experiencing was also found to deepen significantly between the control (prepregain) session and the critical (pregain) session, reflecting a shift from general reflection and discussion of feelings and personal experiences to purposeful exploration and elaboration of specific feelings or experiences, often through the identification of a related problem or need. Interestingly, client experiencing in both critical (pregain) and control (prepregain) sessions was found to differ substantially (i.e., were indicative of greater experiential depth) from the average levels of experiencing observed in experientially-oriented

therapies, which are reflective of clients' reactions to external events with limited reference to feelings (Pos et al., 2009; Watson & Bedard, 2006). The greater mean depth of experiencing observed in the present study's sample is likely due to the sessions observed, which were selected based on their demonstrated uniqueness. In addition, the finding that mean levels of client experiencing in control (prepregain) sessions reflected greater experiential depth than the mean experiencing level across sessions in the parent sample from which the current study's data set derives (Pos et al., 2009) appears to support Goodridge and Hardy's (2009) suggestion that sudden gains come about through a relatively gradual process of deepening insight, brought about through repeated attempts at understanding. Significantly, a moderate positive correlation was found between clients' level of experiencing and frequency of cognitive changes. In sum, these results suggest that sudden gains among depressed clients in experiential therapy co-occur alongside related increases in clients' cognitive change and depth of experiencing.

The correlational overlap discovered between the critical (pregain) session changes in clients' cognitive changes and depth of experiencing is particularly significant in the context of the unique developmental history of the sudden gains literature. Sudden gains as originally defined and conceptualized by Tang and DeRubeis (1999) were hypothesized to be, if not a phenomenon unique to cognitive behavioural therapy, then certainly one that could be accounted for by theoretical underpinnings unique to the cognitive behavioural framework. However, it was not long before it became apparent that sudden gains could also be identified in alternate treatment modalities, leaving researchers in a position of having to align novel findings with already established results. For example, below is excerpted a portion of Tang and colleagues' (2002) discussion,

following comparison of sudden gains in both cognitive behavioural therapy (CBT) and supportive-expressive dynamic therapy (SE) samples:

The sudden gains in both treatments appear surprisingly similar, especially given CBT sudden gain's demonstrated relationship with CBT specific factors...General factors shared by both treatments might have contributed substantially to sudden gains in both treatments...[In addition], the specific factors of CBT and SE psychotherapy might have something important in common. Cognitive changes in CBT and psychodynamic insights in SE psychotherapy are uncannily similar in some ways. Although the content of a CBT belief change differs from the content of an insight in SE psychotherapy, both represent changes of conscious thoughts. This similarity in mechanism might account for the similarity in how these changes manifested in the time course of depressive severity. (pp. 446-447).

As the literature on sudden gains continues to expand, it is increasingly apparent that sudden gains are being observed across a number of treatment populations, modalities, and settings (Aderka et al., 2012). As a result, the suggestion that sudden gain onset is primarily facilitated through cognitive mediation appears too limited to account for such a variety of presentation.

The present study's finding that sudden gains among depressed clients receiving experiential therapy coincide with overlapping increases in cognitive change (a treatment-specific factor) and depth of experiencing (a common factor) suggests that both treatment-specific and common factors contribute to sudden gain onset. This idea is further supported by the current study's additional finding that both client cognitive change and depth of experiencing were positively correlated with the presence of productive emotions (as assessed by the Classification of Affective-Meaning States; recall Figure 3) to a low degree.

The significant correlation observed between these variables highlights the important point that it is unlikely that treatment-specific and common factors are mutually exclusive. This is perhaps a point so straightforward as to appear obvious, and it is not

suggested that previous researchers engaged in the examination of sudden gains believed the counterpoint to be true (i.e., that treatment-specific and common factors are mutually exclusive). It can, however, be an implicit assumption underlying attempts to make sense of a combination of existing results suggesting treatment-specificity (i.e., sudden gain onset as preceded by increased cognitive changes; a finding which the current study is the first to directly dispute) and novel, unexpected findings suggesting otherwise, particularly when such results follow a developmental path as documented above.

As Messer and Wampold summarize, "specific ingredients are necessary but active only insofar as they are a component of a larger healing context of therapy" (2002, p. 24). The limited attention given to the issue that sudden gains may be facilitated by overlapping changes across multiple areas of functioning is surprising, particularly given its correspondence with the theoretical framework of cognitive behavioural therapy, which highlights the interrelations between cognitive, emotional, and behavioural processing (Greenberger & Padesky, 1995; Watson & Bedard, 2006).

The suggestion that sudden gains may come about as a result of a combination of overlapping treatment-specific and common factors is consistent with emerging transtheoretical models of sudden gains (e.g., Hardy et al., 2005). Transtheoretical conceptualizations of the sudden gain change process have gained increasing prominence in the literature in light of the accumulated evidence (to which this study contributes) suggesting that sudden gains occur across a range of treatment populations, approaches, and settings (Aderka et al., 2012). For example, the assimilation model, as presented by Stiles and colleagues (2002), incorporates both cognitive and affective processes in its presentation of a developmental sequence through which clients' problematic issues are "assimilated" into their adaptive experiences. To date, case studies of sudden gains which

have adopted the assimilation framework have yielded results supportive of this framework (e.g., Reid, Castonguay, Beberman, & DeRubeis, 2002, as cited by Hardy et al., 2005). Examinations of the sudden gain change process adopting a transtheoretical approach have also offered significant insights into the course of sudden gain change, such as the suggestion that sudden gains are perhaps not so "sudden" after all. Rather, sudden gain onset appears to coincide with deepened client insight, a process which involves the consolidation of repeated, gradual attempts at understanding various aspects of a given issue (Goodridge & Hardy, 2009). In their elucidation of the importance of transtheoretical concepts such as client insight in the change process, transtheoretical models of sudden gains serve to highlight the importance of the client's ability to generalize new patterns of functioning across situations or cognitions, behaviors, and emotions (Samoilov et al., 2000).

**4. The role of the working alliance may differ according to treatment modality.** In the current study, sudden gains were not followed by a significant increase in working alliance during the aftergain session. This finding is dissimilar to the sudden gains observed by Tang and DeRubeis (1999), who described a significant shift in working alliance between the critical (pregain) and aftergain sessions. In their study, Tang and DeRubeis (1999) note that the gain in working alliance as measured by the Working Alliance Inventory was significant at a trend level, while the gain in working alliance as measured by the Penn Helping Alliance Scale (Luborsky, McLellan, Woody, O'Brien, & Auerbach, 1985) increased significantly.

Closer comparison of the current study's results with those reported by Tang and DeRubeis (1999) reveals an interesting difference. Penn Helping Alliance Scale scores are rated on a 6-point Likert scale, where a rating of 1 reflects a relatively weak alliance

and a rating of 6 reflects a relatively strong alliance. In Tang and DeRubeis (1999), average alliance ratings were found to shift from the lower half of the scale in the critical (pregain) session toward the midpoint of the rating scale in the aftergain session (i.e., from a mean of 2.8 in the critical (pregain) session to a mean of 3.5 in the aftergain session). In contrast, in the present study, working alliance was assessed through the Working Alliance Inventory, which utilizes a 7-point Likert scale. The current results suggest that average alliance ratings were relatively stable across the entirety of the sudden gain change process, i.e., including the control session preceding critical (pregain) session (prepregain session,  $M = 5.39$ ,  $SD = 0.60$ ; critical (pregain) session,  $M = 5.32$ ,  $SD = 0.60$ ; aftergain session,  $M = 5.43$ ,  $SD = 0.77$ ). These alliance rating levels are higher than the average Working Alliance Inventory ratings ( $M = 5.02$ ,  $SD = 1.03$ ) observed by Pos et al. (2003) among clients undergoing a course of experiential therapy. Notably, Pos et al. (2003) were reporting results derived from a broader subset of cases derived from the same archival data sample used by the current study. These results suggest that the therapist-client dyads in the present study had established a relatively strong working alliance prior to the occurrence of sudden gains.

Yet another pattern of mean alliance ratings across the sudden gain change process has been reported by Andrusyna et al. (2006). In their study of clients undergoing a course of supportive-expressive dynamic therapy, the authors observed a marginally significant level of mean alliance increase from control (pregain) session,  $M = 4.71$ ,  $SD = 0.26$ , to critical (pregain) session,  $M = 4.86$ ,  $SD = 0.25$ .

Considered in the context of existing findings regarding changes in mean alliance levels across the sudden gain change process, the current study's findings appear to contribute to the diversity of relations observed between working alliance and sudden



gain onset across treatment modalities. Mean alliance strength appears to be relatively lower prior to sudden gain onset among clients in cognitive behavioural-oriented treatments, relatively higher among clients in supportive-expressive dynamic-oriented treatments, and relatively higher still among clients in experiential-oriented treatments. For clients undergoing cognitive behavioural therapy, Tang and DeRubeis (1999) hypothesize that, consistent with cognitive behavioural theory, the initial therapist-client working alliance is likely to be strengthened post-sudden gain through a combination of client cognitive changes and consistent application of techniques. Reflecting on their own results obtained from a sample of clients receiving supportive-expressive dynamic therapy (SE), Andrusyna et al. (2006) suggest that the increase in working alliance prior to sudden gain onset is consistent with SE theories which posit that the alliance is important in both generating client insight and instilling hope in the therapist and the therapy process, thus reducing "depression about depression" (e.g., Klein, Schwartz, Santiago, Vivian, Vocisano, & Castonguay 2003; Martin et al., 2000; Teasdale, 1985).

The present study's finding that therapist-client dyads in the present study had established a relatively strong working alliance prior to the occurrence of sudden gains is similarly consistent with existing theory regarding experiential therapy. As Greenberg and Watson (2005) note, in experiential therapy, a strong working alliance is often a prerequisite to significant symptom change rather than a mechanism of change in and of itself. Given that a hallmark of experiential therapy involves focus on the exploration of emotional experience, the development of a sense of safety and trust becomes a crucial component of the early stages of therapy. Indeed, the strong emphasis of this element of the working alliance in the beginning stages of treatment may help to account for the differences in working alliance observed in examinations of sudden gains across

treatment modalities. In the context of experiential therapy, following the establishment of (i) a strong working alliance and (ii) the occurrence of a sudden gain in the context of experiential therapy, ongoing continuity in aftergain session working alliance strength would appear to correspond with experientially-oriented clinical theory. The results of the present study are consistent with these theoretical underpinnings.

**5. Therapist focus on unmet client needs increases in the critical (pregain) session.** In the current study, therapists of sudden gain responders were found to be significantly more likely to focus on unmet client needs in the critical (pregain) session than in the control (prepregain) session, and tended to focus on unmet client needs for greater durations of session time. This finding extends the work of Singh (2008) who found that, among distressed clients, greater therapist focus on unmet client needs was significantly associated with improved within-session outcome (i.e., the outcome of a within-session distress episode).

The present finding is significant in the context of the existing sudden gains literature because previous examinations of therapist contribution to sudden gain onset have been few and far between. Tang et al. (2005) have reported that sudden gains among depressed clients receiving cognitive behavioural therapy do not appear to be related to therapist adherence to cognitive behavioural techniques nor therapist competence. More recently, Doss and colleagues (2011) examined the relationship between session content and sudden gain onset among a sample of military veterans receiving integrative couples' counseling (i.e., a mixture of behavioural and emotional strategies) in an outpatient hospital setting. The authors found that, as might be expected, sudden gains were less

likely to occur following sessions<sup>2</sup> in which lack of commitment to treatment was discussed between therapist and client, while greater time spent reviewing homework assignments was related to a significantly higher likelihood of subsequent sudden gain onset. The present study's results support Doss and colleagues' (2011) suggestion that moment-by-moment ratings of common, central treatment topics (e.g., interpersonal relationship issues) are unlikely to prove sufficiently sensitive to capture variability across sessions, while examination of therapist focus on more specific topics and key processes may prove more fruitful in this regard. Pos and colleagues (2003) similarly conclude that the examination of treatment events based on theme is not as strong a predictor of outcome as the examination of treatment events based on key client processes (e.g., depth of experiencing based on emotion episodes). This suggestion appears particularly prudent in light of findings suggesting that it is commonly necessary for therapist and client to discuss a given topic numerous times before a pivotal change, or *critical fluctuation* (to borrow terminology from dynamic systems theory; Hayes & Strauss, 1998) can occur (Goodridge & Hardy, 2009; Helmeke & Sprenkle, 2000).

The present study's finding that therapists of sudden gain responders are significantly more likely to focus on unmet client needs in the critical (pregain) session than in the control (prepregain) session is also consistent with the theory and practice of experiential therapy. In the context of individual treatment, client expression of unmet needs has been repeatedly described as an important gateway to deeper emotional experiencing (e.g., Greenberg, 2002; Greenberg & Paivio, 1997; Greenberg and Watson,

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<sup>2</sup> Note that the language used to report the results of Doss and colleagues (2011) here reflects the original authors' interpretation of their findings (e.g.: "*following* sessions"). This interpretation, for reasons outlined in section 2 of this discussion, is likely inaccurate, insofar as some portion of sudden gain change is likely to occur *within* the critical (pregain) session itself.

2005; Paivio & Pascual-Leone, 2010). The articulation of unmet needs has also been described as predictive of good within-session outcome among distressed clients (Pascual-Leone & Greenberg, 2007), empirical work which followed Greenberg's (2002) suggestion that therapists can help clients to work through unproductive states by asking the client what he or she needs. In this view, therapist elicitation of unmet client needs serves to facilitate self-efficacy, and can engender feelings of control over a situation. In both assisting the client to identify a need, and by subsequently validating it, the client's ability to move from a maladaptive state is strengthened (Pascual-Leone, 2005).

**6. Increased productive emotional expression occurs in the critical (pregain) session.** The current study attempted to apply Pascual-Leone and Greenberg's (2007) model of within-session emotional processing for distressed clients to the sudden gain change process (recall Figure 3). Results indicated that (i) clients did not experience a significant discrepancy in frequency of expression of unproductive emotions (rejecting anger, global distress, fear/shame) when comparing the control (prepregain) session to the critical (pregain) session, but that; (ii) clients did express significantly more productive emotions (assertive anger, self soothing, hurt/grief) in critical (pregain) sessions, as compared to the preceding control (prepregain) sessions.

This combination of findings reveal that the sequential order of emotional processing identified in Pascual-Leone and Greenberg (2007) is applicable to the context of sudden gains, and particularly to the critical (pregain) session in which the dramatic sudden gain symptom decrease begins to occur. Indeed, these results suggest that Pascual-Leone and Greenberg's (2007) model of emotional processing may provide a useful basis for positing a three stage, trans-theoretical framework for understanding both the type and sequence of client changes which occur in the critical critical (pregain)

session. In the first stage, both sudden gain responders and non-sudden gain responders alike experience unproductive emotions in the early stage of treatment. Pascual-Leone and Greenberg (2007) did not find the experience of unproductive emotions to differentiate clients according to outcome, while the present study similarly found the sudden gain responders do not experience a significant decrease in unproductive emotions following sudden gain onset. In the second stage, in the critical (pregain) session, therapists of sudden gain responders are significantly more likely to focus on the client's unmet need(s). Finally, in the third stage, also in the course of the critical (pregain) session, sudden gain responders have a significant increase in their experience and expression of productive emotions.

The temporal sequence of therapist focus on unmet needs and client expression of productive emotions within the critical (pregain) session remains unclear, and may be clarified through further moment-by-moment analyses of the critical (pregain) sessions in the present study sample. Previous moment-by-moment analyses of these states suggest that such change processes are both complex and non-linear, and are unlikely simply to be triggered by a particular intervention (Pascual-Leone, 2009). Moreover, the finding that sudden gain onset in critical (pregain) sessions is associated with both increased therapist focus on unmet needs and client expression of productive emotions is consistent with the notion that, while "the expression of a need may herald more adaptive emotion, it is not synonymous with adaptive emotion and does not ensure deeper levels of experiencing" (Pascual-Leone & Greenberg, 2007, p. 885). Rather, it appears that therapist focus on an unmet client need occurring alongside client expression of productive emotions in the course of a session together contribute to the onset of the dramatic symptom change characteristic of a sudden gain.

## **Limitations**

The findings of the present study are consistent with existing psychological theory and the conclusions offered by previous investigations of sudden gains. One parsimonious interpretation of these results is that sudden gains represent one pathway to acute phase treatment response. In addition to a strong working alliance, deepened client experiencing, increased frequency of client cognitive changes, increased therapist focus on unmet client needs, and increased client experience and expression of productive emotions all appear to coincide with sudden gain onset.

However, it is not possible to infer from the above interpretation of the current study that, for example, increased therapist focus on unmet client needs caused the sudden gains. As highlighted by the problem of responsiveness, it is possible that the percentage of time a given therapist/client dyad spends focusing on unmet clients needs is a reflection of the dyad's functioning and/or engagement in treatment (Stiles et al., 1998). Therapists and clients are responsive to each other, and tend to systematically respond to emerging information regarding the client's progress, in the interest of promoting positive outcomes (Stiles, 2009). As such, it is possible that in-session focus on a particular topic is a reflection of a dyad's general functioning and/or engagement in treatment, and that it is functioning and/or engagement that is related to the onset of sudden gains.

Moreover, it cannot be stated definitively that all symptom change was due to these factors alone. Additional factors that might potentially contribute to sudden gains include spontaneous remission (irrespective of treatment or external factors), regression towards the mean, environmental changes, or other change process variables not accounted for in the current study. One alternative possibility of particular note is that clients who experience sudden gains may possess a more labile mood (Vittengl et al.,

2005). *Emotional lability*, or the intensity to which one reacts emotionally to internal and external events, has been described as an important psychological process (e.g., Muran et al., 2009). Indeed, possessing a reactive mood is an essential diagnostic criterion used to assess the presence of Major Depressive Disorder with Atypical Features<sup>3</sup> (American Psychiatric Association, 2000). Clients who are more emotionally labile may react more intensely to negative internal and external events, leading to clinically-significant levels of depressive symptoms and subsequently to treatment entry. During treatment, such individuals may respond more strongly to therapy and be more likely to report the dramatic symptom decreases characteristic of sudden gains. In short, determining the relationship between sudden gains and clients' emotional lability would appear to be of substantial theoretical and clinical value.

Although in the current study, client characteristics were not found to be differentially related to the presence of sudden gains, these results are limited by the fact that pre-treatment client characteristics are often either conceptually or empirically related to baseline levels of depressive symptomology. For example, the lifetime risk for Major Depressive Disorder is approximately twice as great for women as compared to men (American Psychiatric Association, 2000). As such, examination of residual gains cannot determine whether such client characteristics are associated with change directly. Rather, these results speak to whether or not the remaining variation in a client characteristic is associated with symptom change when the baseline level of depressive symptomology is identical across clients (Fitzmaurice, Laird, & Laird, 2004).

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<sup>3</sup> Counterintuitively, the "atypical" features specifier is the most commonly diagnosed subtype of depression among outpatient populations (Nierenberg, Alpert, Pava, Rosenbaum, & Fava, 1998).

The current study's results also cannot be generalized to the population at large or across therapeutic modalities. To begin, this study utilized a subset of data derived from a previously published data set. Future replication of these results with an independent sample will strengthen the current conclusions. As previously noted, the present study's sample was also limited in the diversity of final treatment outcomes (i.e., few non-sudden gain responders reported post-treatment symptoms in the "severe depression" range). It will be important for further investigations of experiential therapy to determine whether sudden gains among a sample of clients reporting a more diverse range of final treatment outcomes have a similar impact on final treatment outcome.

In addition, the archival dataset used had many of what Stiles and colleagues (2003) aptly refer to as the "familiar limitations" of secondary use data, including missed sessions, missing data, and lack of demographic information on both clients and participants. It is also unfortunate that information on the long-term impact of sudden gains on client symptomology was not available, particularly given the mixed findings reported in the literature to date. The sample of clients in this study was restricted to those individuals who suffered primarily from clinically significant levels of depression and met pre-screen criteria for suitability for brief treatment. All clients were treated with experiential therapy, and as such these results cannot be assumed to follow in other treatment contexts. Nonetheless, the suggestion that these findings in particular, and sudden gains in general, represent a particular pathway of generalized treatment response is grounded in both existing research reports and psychotherapy theory and thus might naturally invite consideration of the current study's results as reflective of a particular manner in which individuals experience the type of non-linear change characteristic of sudden gains.



## **Theoretical Implications**

The current study offers a number of important conclusions for researchers interested in examining the sudden gains phenomenon. First, the present study is the first to demonstrate that sudden gains occur among depressed clients undergoing a course of experiential therapy. This result indicates that experiential therapy is a treatment modality appropriate for further investigations of such dramatic symptom change.

Second, the observed correlation between client depth of experiencing and frequency of cognitive changes is important because it is inconsistent with the cognitive mediation hypothesis as it relates to sudden gains (i.e., the notion that sudden gains are directly facilitated through cognitive changes). Rather, these findings suggest that isolation of cognitive change may better be viewed as an artificial, research-driven distinction. A more naturalistic conceptualization of sudden gain change would appear to place cognitive changes within the context of a broader human change process not particular to a given treatment modality, inclusive of cognitive, behavioural, affective, and experiential components. In short, as the literature continues to suggest that sudden gains occur in a range of treatment approaches (in addition to cognitive behavioural therapy), it also appears to be indicating that in-session events that might precipitate a sudden gain similarly include a range of processes such as key emotions and deeper experiencing (in addition to cognitive changes).

Third, the finding that the majority of sudden gain symptom change occurred within critical (pregain) sessions marks a landmark discovery that calls into question the existing definition of what a sudden gain is understood to be, and suggests that conclusions drawn in previous investigations of sudden gains are worth revisiting to ensure that they are consistent with this new conceptualization of sudden gains as

occurring within the critical (pregain) session and continuing in the interval preceding the aftergain session.

### **Clinical Implications**

To the extent that they are generalizable, the results of this study have a number of implications for therapists working within the framework of experiential therapy. First, therapists should be mindful that sudden gains are experienced by a majority (63.9%) of depressed clients, and that these sudden gain responders experience significantly greater symptom improvement over the course of treatment. Moreover, when such gains occur, they ought to be welcomed rather than considered as transitory or false (e.g., as a "flight into health"; Frick, 1999). This recommendation seems particularly apt in light of the relatively small proportion of cases (14.3%) in which sudden gains were not found to reflect sustained improvement in symptomatology.

A major contribution of the present study for clinicians is its demonstration that, contrary to common characterization, the majority of sudden gain symptom improvement occurs *within* the critical (pregain) session for experiential therapy. As a result, the moment-by-moment examination of the sudden gain change process detailed in the current study offers a model for therapist facilitation of sudden gain onset. Therapists familiar with the applicability of Pascual-Leone and Greenberg's (2007) emotion processing model to sudden gain onset may initially identify their client's presentation of unproductive emotions. Knowledge of the potential for therapist focus on unmet client needs to facilitate a shift toward increased client expression of productive emotion within the critical (pregain) session may serve to guide therapeutic work with clients suffering from depression and provoke the onset of sudden gains.

A broader clinical implication of the accumulating evidence that psychotherapeutic change does not occur in a linear fashion, but rather may be concentrated in certain critical sessions, is that therapists would do well to supplement their subjective perceptions of client symptom decrease through the use of standardized measures. This may particularly be appropriate in the context of sudden gains, which in the present study accounted for an average of 69.4% of total symptom improvement, as therapists may wish to shift the focus of treatment to maintenance or relapse prevention following such significant symptom decreases. Indeed, emerging evidence suggests that such monitoring of change in both individual (Lambert, Whipple, Hawkins, Vermeersch, Nielsen, & Smart, 2003) and couples' (Anker, Duncan, & Sparks, 2009) treatments can further improve treatment outcomes.

### **Future Research Directions**

Identification of sudden gains in a sample of clients receiving experiential therapy and initial investigation of sudden gain changes processes were the two overarching aims of this study. There are at least five important ways in which the present study's findings may be extended. First, this study marks the first reported observation of sudden gains in experiential therapy. Additional attempts at replicating these findings would provide valuable convergent evidence regarding the representativeness of the current study sample (e.g., Do sudden gains consistently occur among a majority of clients in experiential treatments?). Second, the suggestion that the presence of a strong working alliance may be an important precursor to sudden gain onset warrants further investigation, particularly in light of the evidence suggesting that this component may be unique to sudden gains occurring in experiential therapy (as compared to the relatively lower working alliance strength observed in cognitive behavioural- and supportive-

expressive dynamic-oriented treatments). Third, the finding that increased therapist focus on unmet client needs may facilitate sudden gain onset suggests that further investigation into the role of client expression of unmet client needs and other specific therapeutic foci may yield further clarification regarding the therapist's potential contributions to sudden gain onset. Fourth, this project presents evidence suggesting that Pascual-Leone and Greenberg's (2007) model of emotional processing is applicable to the change processes occurring in critical (pregain) sessions. As such, future research might extend the present study's findings by attempting to demonstrate the temporal sequence of the model components within the critical (pregain) session (i.e., Does therapist focus on an unmet client need precede increased expression of productive emotions?). Finally, the finding that the majority of sudden gain symptom change occurs within the critical (pregain) session suggests that it may be worth revisiting and perhaps replicating previous examinations of sudden gains with a new definition of sudden gains in mind: Namely, dramatic symptom improvement occurring over the course of one session *and/or* the period proceeding the following session. Attention should also be given to the potential for the proportions of symptom change occurring in the within- and between-session time intervals to differ according to treatment modality.

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Table 1

*Summary of Hypotheses*


---

	<b>Hypothesis</b>	
<b>Phase I</b>	H1	There will be sudden gains present in the data set.
	H1a	Significantly greater symptom decrease will occur within the pregain session than between the pregain and after gain sessions.
	H2	Treatment outcomes for sudden gain responders will be significantly better than outcomes for non-sudden gain responders.
	H3a	Significantly greater cognitive change will be accomplished in the pregain session than in the within-subject control (pregain) session.
	H3b	The working alliance post-sudden gain (i.e., in the aftergain session) will be significantly greater than the alliance pre-sudden gain (i.e., in the pregain and pregain sessions).
<b>Phase II</b>	H4	Significantly higher levels of client experiencing will be observed in the pregain session than in the control (pregain) session.
	H5	Peak levels of client experiencing will increase from session to session across the sudden gain change process.
	H6	Experiencing Scale scores will be positively correlated with Patient Cognitive Change Scale scores.
<b>Phase III</b>	H7	Therapists of sudden gain responders will be significantly more likely to focus on unmet client needs in the pregain session than control (pregain) session.
	H8	Sudden gain responders will be significantly less likely to express “unproductive” emotions (i.e., rejecting anger, global distress, or fear/shame) in pregain sessions than in (control) pregain sessions.
	H9	Sudden gain responders will be significantly more likely to express “productive” emotions (i.e., assertive anger, self soothing, or hurt/grief) in pregain sessions than in control (pregain) sessions.

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Table 2

*Comparison of Insight Measures: The Experiencing Scale (EXP) and the Assimilation of Problematic Experiences Scale (APES)*

Goodridge and Hardy (2009) findings			Potential EXP scale correlates	
Sudden Gain Session	APES Stage	Descriptions	EXP Level	Descriptions
<b>Prepregain</b> “Transitory” insight	2 Vague awareness/ emergence	Client is aware of a problematic experience but cannot formulate the problem clearly. Problematic voice emerges into sustained awareness.  - Affect includes acute psychological pain or panic associated with the problematic material.	4 Reflection/ Exploration	Client’s attempts to describe feelings and personal experiences  - including immediate emotions, past emotions, and immediate experiencing
<b>Pregain</b> “Partial” insight	3 Problem statement/ clarification	Content includes a clear statement of a problem—something that can be worked on. Opposing voices are differentiated and can talk about each other.  - Affect is negative but manageable, not panicky.	5 Elaboration	Client works to explore and <u>expand</u> feelings by stating a problem/need or proposition about them  - e.g., using bridging associations (“I get angry when I feel put upon.”)
	4 Understanding /insight	The problematic experience is formulated and understood in some way. Voices reach an understanding with each other (a meaning bridge).  - Affect may be mixed, with some unpleasant recognition but also some pleasant surprise.		
<b>Aftergain</b> “Full” insight	5 Application/ Working through	The understanding is used to work on a problem. Voices work together to address problems of living. Affect is positive, optimistic.	6 Newly Emerging	Client focuses on directly sensed, emergent, newly recognized, or more fully recognized feelings  - must be new and idiosyncratic; can be a tentative statement
			7 Integration	Client is able to move from one inner referent to another  - client links, builds upon, and integrates new realizations with others

Descriptions of EXP levels and APES stages have been adapted from Honos-Webb et al. (2003) and Klein et al. (1986), respectively.

*Note.* Goodridge and Hardy’s (2009) findings were obtained through the use of the Assimilation of Problematic Experiences Scale (APES; Honos-Webb, Stiles, & Greenberg, 2003).

Table 3

*Sample Demographic Data*

	Original (archival) sample		Sudden gains study sample		Pre-post BDI sub-sample (for Hypothesis 1a)		Sudden gains process sample	
<b>Clients</b>	Total (N = 60)		Total (N = 36)		Total (N = 16)		Total (N = 14)	
Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	39.24	10.80	40.77	11.23	38.07	10.45	39.69	11.46
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Sex								
Female	35	58.3	22	61.1	12	75	11	78.6
Male	16	26.7	10	27.8	4	25	3	21.4
(missing data)	9	15.0	4	11.1	--	--	--	--
Marital status								
Single	19	35.8	12	35.3	7	43.8	6	42.9
Married/common law	19	35.8	13	38.2	6	37.5	5	35.7
Separated/divorced	11	20.8	4	11.8	1	6.2	2	14.3
(missing data)	11	18.3	5	14.7	2	12.5	1	7.1
Level of education								
High school	6	11.3	4	10.8	6	37.5	2	14.3
College/university	36	67.9	21	61.7	6	37.5	9	64.2
Post-graduate	5	9.5	3	8.8	1	6.2	1	7.1
(missing data)	13	21.7	6	17.6	3	18.8	2	14.2
<b>Therapists</b>								
Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	39.21	7.11						
Clinical experience (years)	6	5.79						
	<i>n</i>	%					<i>n</i>	%
Sex								
Female	14	87.5					8	80.0
Male	2	12.5					2	20.0
(missing data)	--	--					--	--
Level of education								
Advanced doctoral	9	64.3						
Ph.D.	2	14.3						
Independently Licensed	3	21.4						

Table 4

*Assessment of Clinically-Significant Change and Recovery*

Variable	Description	Sudden gain responders (n = 23)		Non-sudden gain responders (n = 13)	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Total improvement	Average pre-post treatment change (BDI points)	17.3	7.0	10.7	5.8
RCI	% of group experiencing clinically-significant change	91.3		84.6	
Cut-off	% of group with post-treatment BDI score below 10	47.8		30.8	
Recovery	% of group meeting both RCI and cutoff	39.1		30.8	

*Note.* RCI = Reliable Change Index (Jacobson & Truax, 1991); BDI = Beck Depression Inventory

Table 5

*Client Process Measure Correlations*

	CAMS Total Productive Emotions	CAMS Total Unproductive Emotions	Experiencing Scale	Patient Cognitive Change Scale
CAMS Total Productive Emotions	1.00			
CAMS Total Unproductive Emotions	-0.07*	1.00		
Experiencing Scale	0.29**	-0.20	1.00	
Patient Cognitive Change Scale	0.29**	-0.02*	0.44**	1.00

$N = 42$

\*  $p < .1$ ; \*\*  $p < .05$

*Note.* The above table presents Kendall's tau correlation coefficients. The tau test is a correlation test appropriate for nonparametric data. Data for the Classification of Affective-Meaning States and Patient Cognitive Change Scale, both categorical measures, were assessed in terms of frequency of observations.

Table 6

*Presence of Productive and Unproductive Emotions across the Sudden Gain Change Arc*

	State	Control (pregain) Session	Critical (pregain) session	Aftergain session
Unproductive emotions	Global distress	9	13	9
	Fear/shame	13	6	9
	Rejecting anger	3	4	9
	Total	25	23	27
Productive emotions	Self-soothing	0	3	2
	Hurt/grief	5	15	6
	Assertive anger	4	8	12
	Total	9	26	20
TOTAL		34	49	47

$N = 14$

*Note.* The use of "critical (pregain) session" to refer to pregain sessions reflects a nomenclature shift, introduced in the current study's discussion (pp. 87-88), intended to increase this label's correspondence with the phenomena to which it refers.

Table 7

*Summary of Results*

	Hypothesis	n	p		Supported?	
			clients	SGs		
Phase I: Sudden Gain Identification and Change Process Replication	H1	There will be sudden gains present in the data set.	36	28	--	√ YES
	H1a	Significantly greater symptom decrease will occur within the pregain session than between the pregain and aftergain sessions.	16	19	.01	√ YES
	H2	Treatment outcomes for sudden gain responders will be significantly better than outcomes for non-sudden gain responders.	36	--	.05*	(PARTIAL SUPPORT)
	H3a	Significantly greater cognitive change will be accomplished in the pregain session than in the within-subject control (pregain) session.	14	14	.05	√ YES
	H3b	The working alliance post-sudden gain (i.e., in the aftergain session) will be significantly greater than the alliance pre-sudden gain (i.e., in the prepregain and pregain sessions).	14	14	ns	X NO
Phase II: Exploring Sudden Gain Change Processes in Experiential Therapy	H4	Significantly higher levels of client experiencing will be observed in the pregain session than in the control (pregain) session.	14	14	.05	√ YES
	H5	Peak levels of client experiencing will increase from session to session across the sudden gain change process.	14	14	ns	X NO
	H6	Experiencing Scale scores will be positively correlated with Patient Cognitive Change Scale scores.	14	14	.001	√ YES
Phase III: Relating Therapy Change Processes to Client Change Processes	H7	Therapists of sudden gain responders will be significantly more likely to focus on unmet client needs in the pregain session than control (pregain) session.	14	14	.01	√ YES
	H8	Sudden gain responders will be significantly less likely to express “unproductive” emotions (i.e., rejecting anger, global distress, or fear/shame) in pregain sessions than in control (pregain) sessions.	14	14	ns	X NO
	H9	Sudden gain responders will be significantly more likely to express “productive” emotions (i.e., assertive anger, self soothing, or hurt/grief) in pregain sessions than in control (pregain) sessions.	14	14	.05	√ YES

\* Level of significance reflects comparison of pre-post improvement between sudden gain responders and non-sudden gain responders.



Table 8

*Characteristics of Sudden Gains in 15 Previous Studies, and Comparison to the Current Study*

Study	<i>N</i>	Number of sudden gains	Percentage of sudden gain responders	Average magnitude of sudden gains (BDI points)	Average percentage of total improvement accounted for by sudden gains	Percentage of reversals*
Busch et al., 2006	38	16	42.1	9.3	50.8	43.8
Clerkin et al., 2008	30	13	43.3	—	—	85.7
Doane et al., 2010	23	12	52.2	12.4	61.0	16.7
Gaynor et al., 2003	27	7	50.0	10.7		18.8
Gaynor et al., 2003	28	11	25.9	8.3		57.1
Gaynor et al., 2003	32	16	39.3	10.8		9.1
Hardy et al., 2005	76	31	40.8	13.3	54.0	32.3
Hopko et al., 2009	26	13	50.0	11.8	74.6	30.8
Kelly et al., 2005	31	13	41.9	—	—	53.8
Present et al., 2008	29	13	34.5	11.9	75.0	40.0
Tang and DeRubeis., 1999	61	24	39.3	11.2	51.0	16.7
Tang et al., 2002	35	15	42.9	10.5	64.0	47.0
Tang et al., 2005	37	17	45.9	11.5	59.0	29.4
Tang et al., 2005	46	20	43.5	10.2	59.0	40.0
Tang et al., 2007	60	24	40.0	11.0	—	37.5
Average	38.6	16.4	42.1	11.0	60.9	37.3
Range	23 - 76	7 - 31	25.9 - 52.2	8.3 - 13.3	50.8 - 75	9.1 - 85.7
Current study	36	28	63.9	12.0	69.4	14.3

\* "Reversals" are sudden gains that do not represent sustained improvements (i.e., greater than 50% of symptom improvement is lost)

*Note.* This table is limited to existing studies which identified sudden gains using Beck Depression Inventory-centered criteria.

Figure 1

*Components of the Psychotherapy Change Process*

(Adapted from Doss, 2004; elements incorporated from Greenberg & Pinsof, 1986)

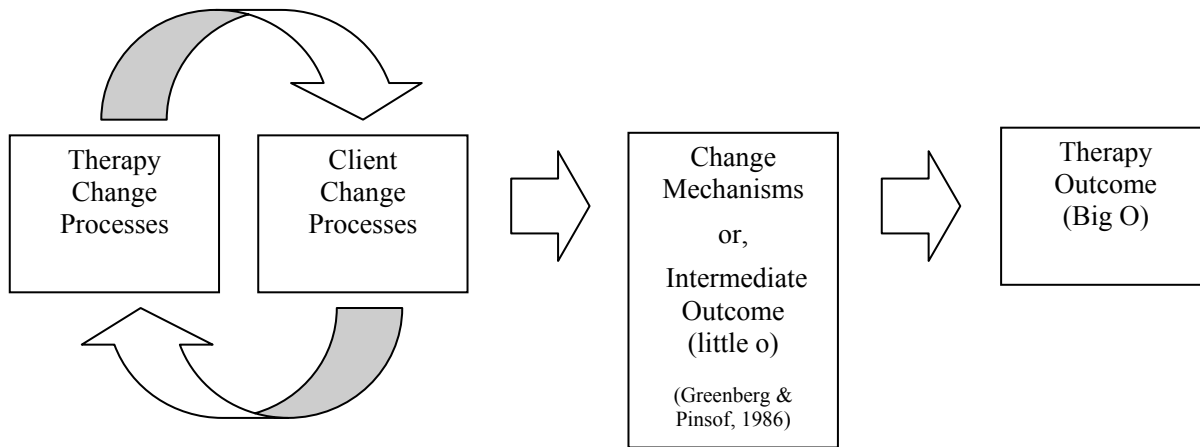
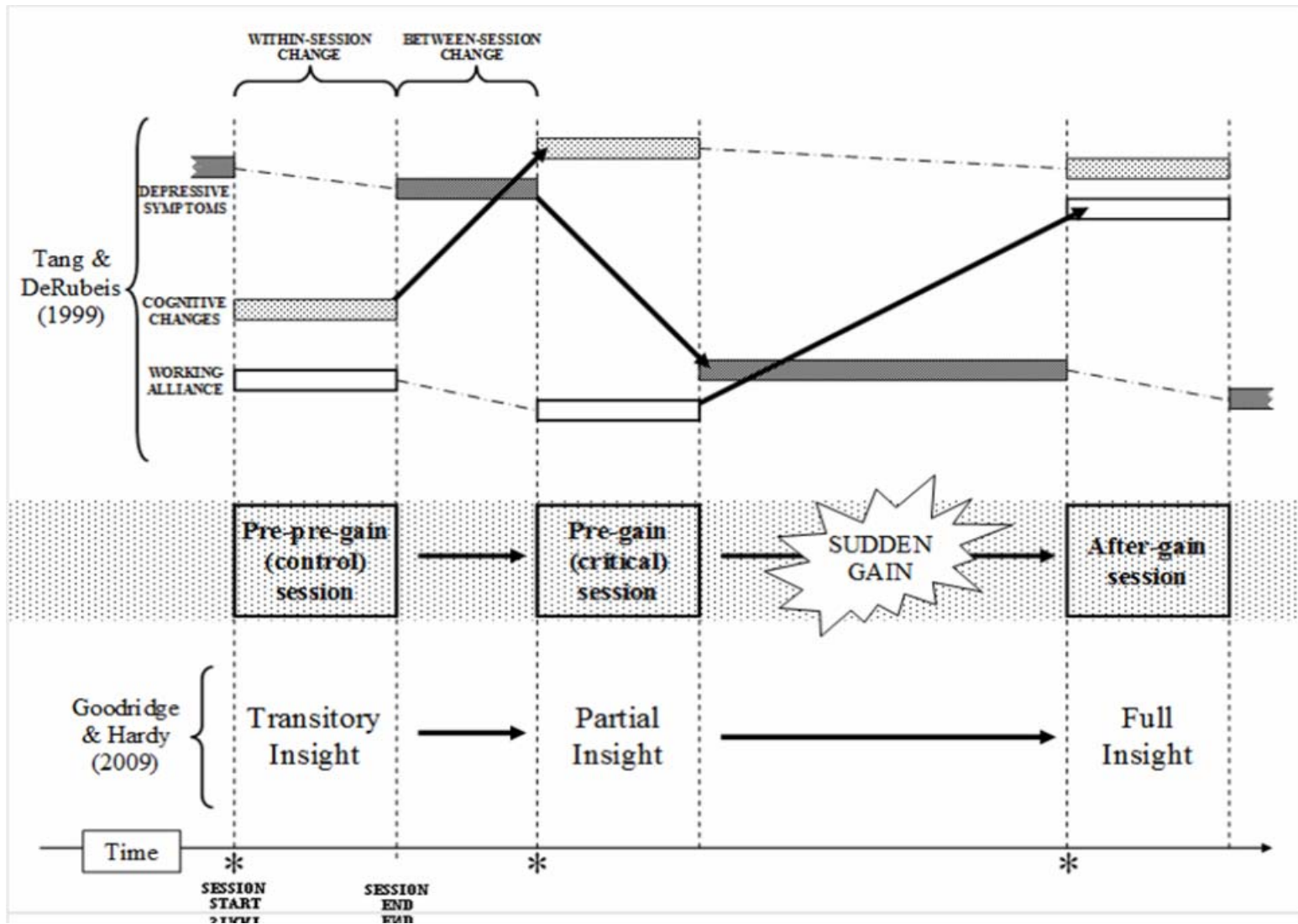


Figure 2

*The Sudden Gain Change Process, as Described in the Existing Literature*

(Adapted from Goodridge & Hardy, 2009; Tang & DeRubeis, 1999)

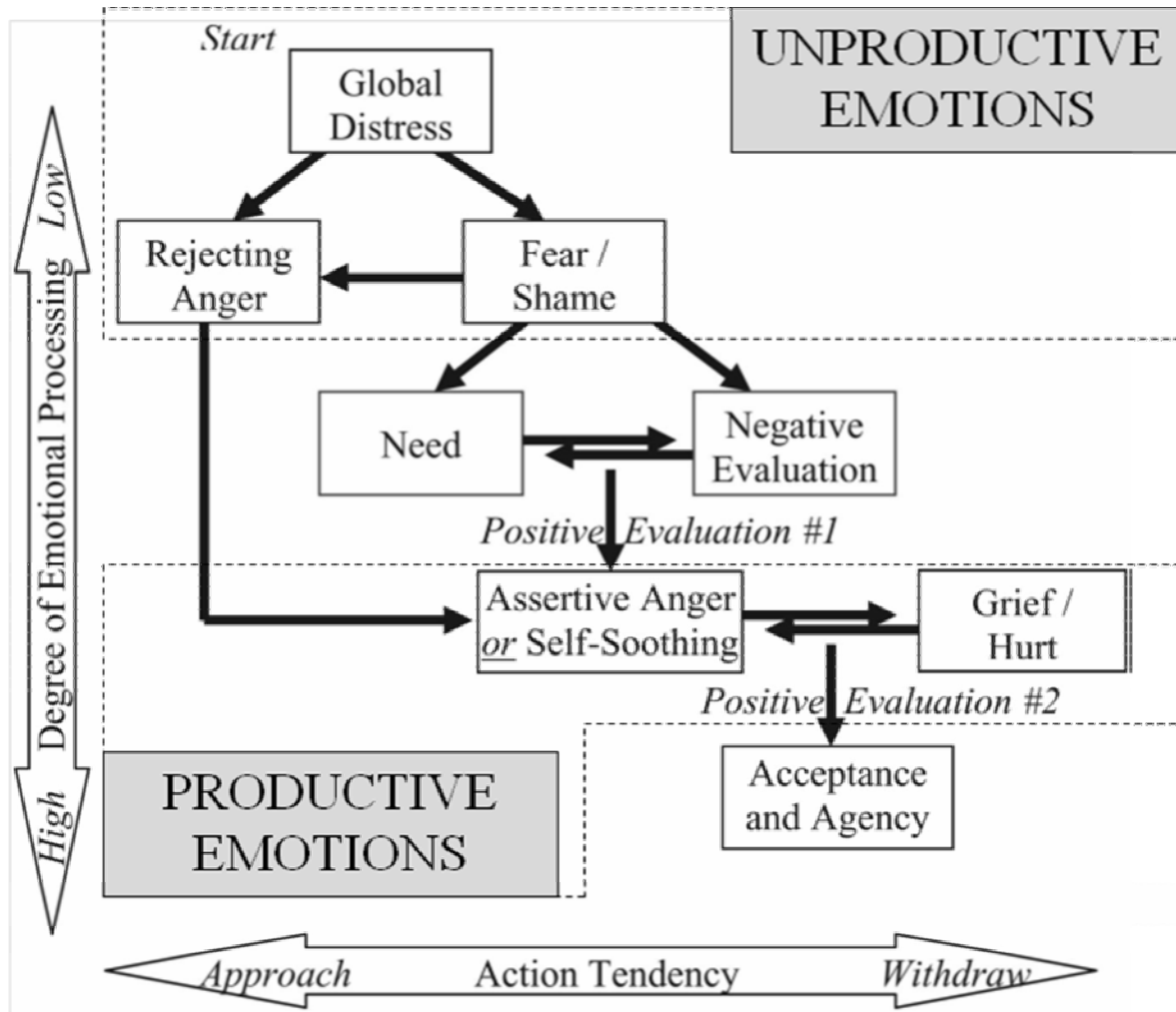


\* = In both studies, administration of Beck Depression Inventory occurred prior to each treatment session, as has been typical of sudden gains research.

Figure 3

*Sequential Model of the Emotional Processing of Distress*

(Adapted from Pascual-Leone & Greenberg, 2007)



*Note.* In the current study, coders were instructed to rate sessions exclusively for the presence or absence of “productive emotions” and “unproductive emotions”. The remaining three model components (i.e., need, negative evaluation, and acceptance and agency) were not coded.

Figure 4

Participant Flow Chart

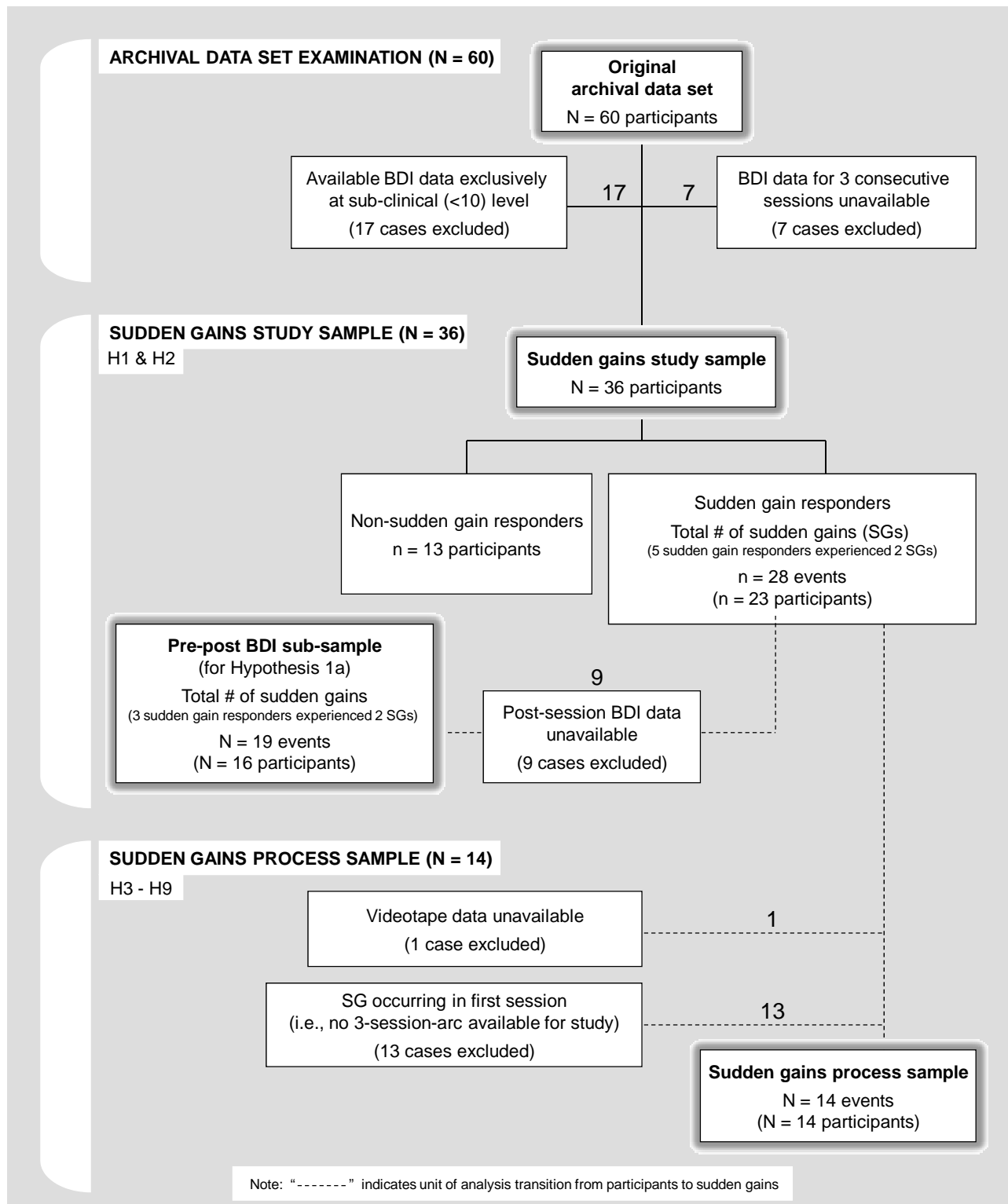
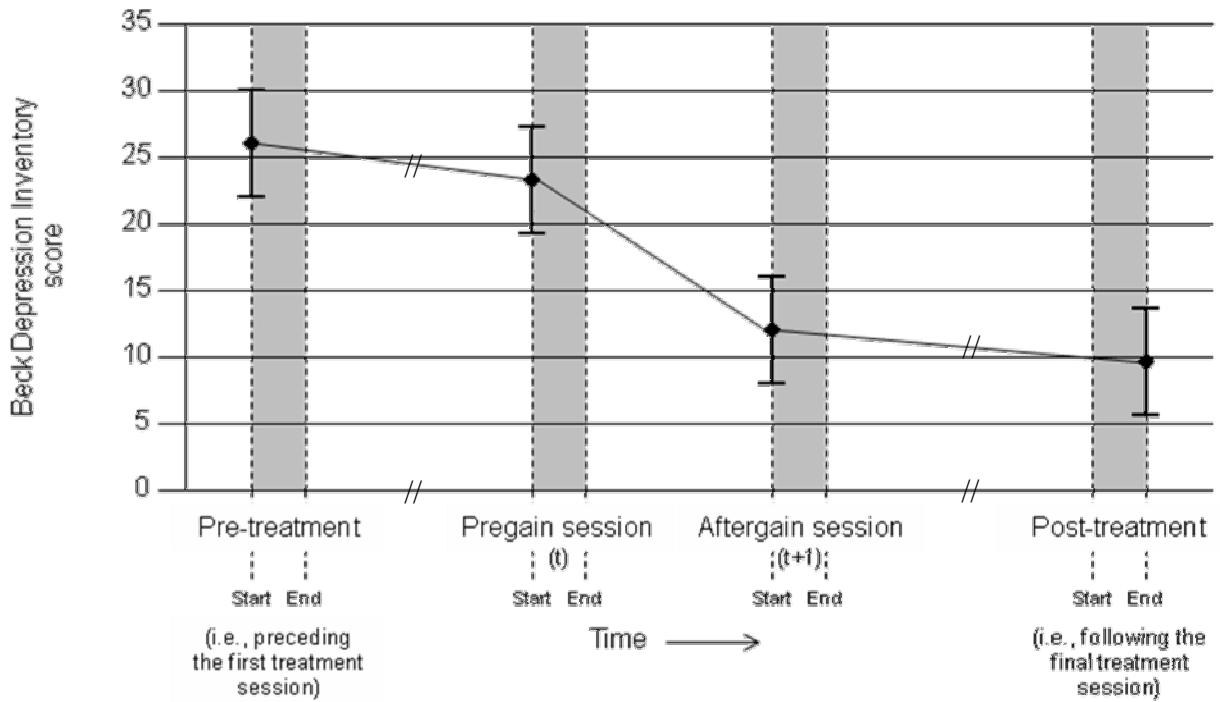


Figure 5

*Average Observed Sudden Gain*



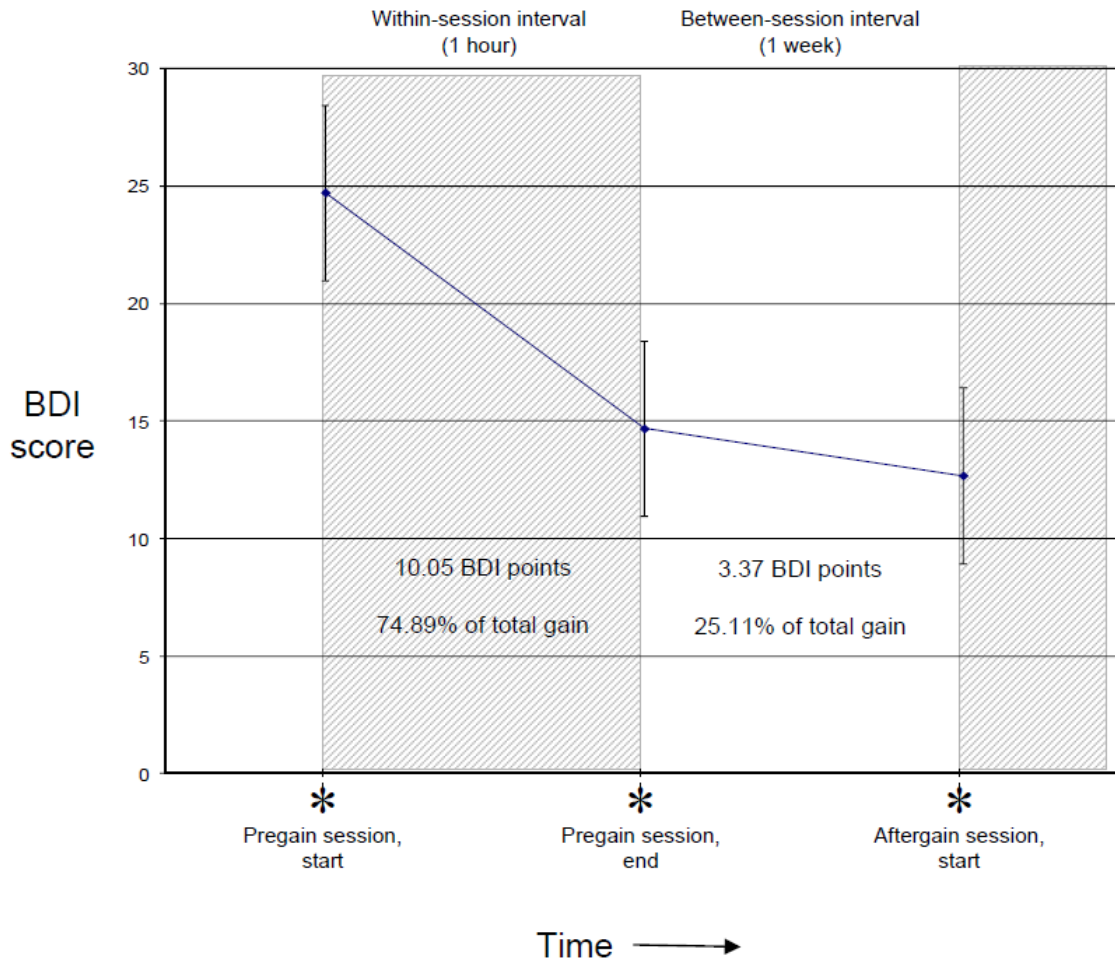
$N = 23$ ; data based on 28 observed sudden gains

The median pregain session occurred at session 8 (range = session 1 - session 15).

*Note.* Error bars reflect standard error (SE) of the mean.

Figure 6

*Average Observed Sudden Gain as Two Distinct Time Intervals*



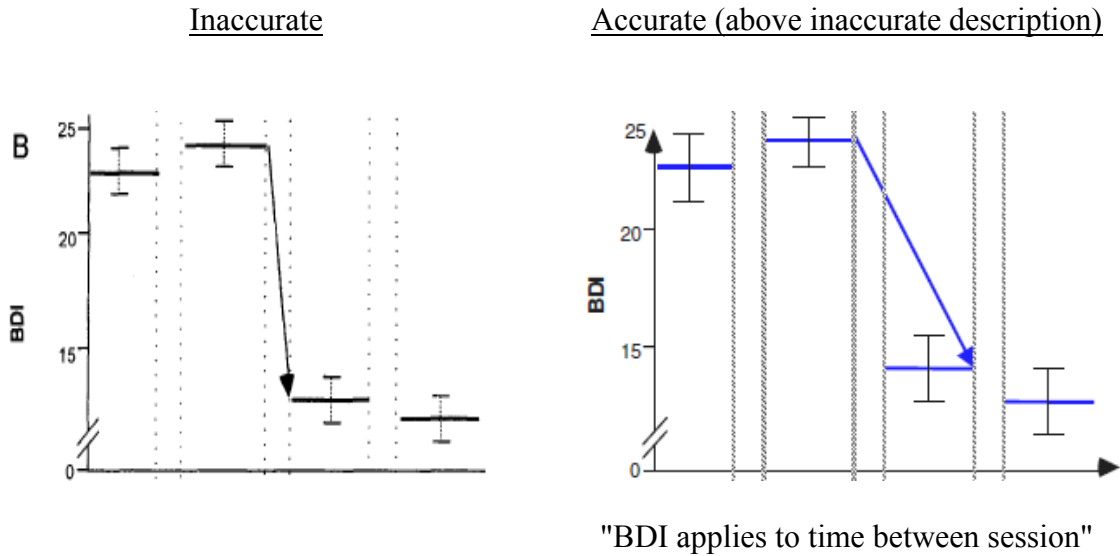
\* = Administration of Beck Depression Inventory (BDI) prior to and following each treatment session.

N = 16; data based on 19 observed sudden gains

Note. Error bars reflect standard error (SE) of the mean.

Figure 7

*Inaccurate and Accurate Representations of the Sudden Gain Time Interval*



Tang and DeRubeis, 1999, p. 901

Andrusyna, 2007, p. 81

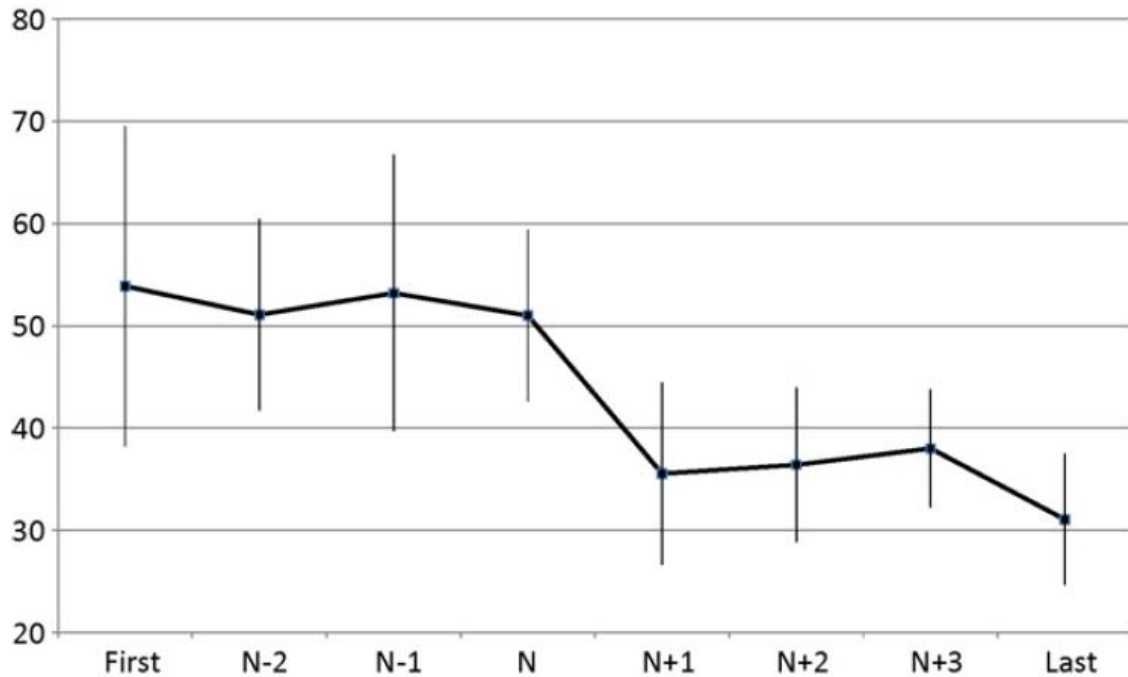
*Note.* In the graph of Tang and DeRubeis (left), the arrow which represents a drop in Beck Depression Inventory (BDI) scores has been drawn from the end of one session to the start of the next, suggesting a between-session change. (Despite the fact that measurement occurred only prior to each session). In contrast, the graph of Andrusyna (right) shows the same arrow as correctly extending across both between *and within* session intervals. Unfortunately, although Andrusyna's graph is an accurate representation, his accompanying text oversimplified the conclusion (as Tang & DeReubeis did) to one that is uniquely about between session changes.



Figure 8

*Example of Imprecise Representation of Sudden Gain Change across Sessions*

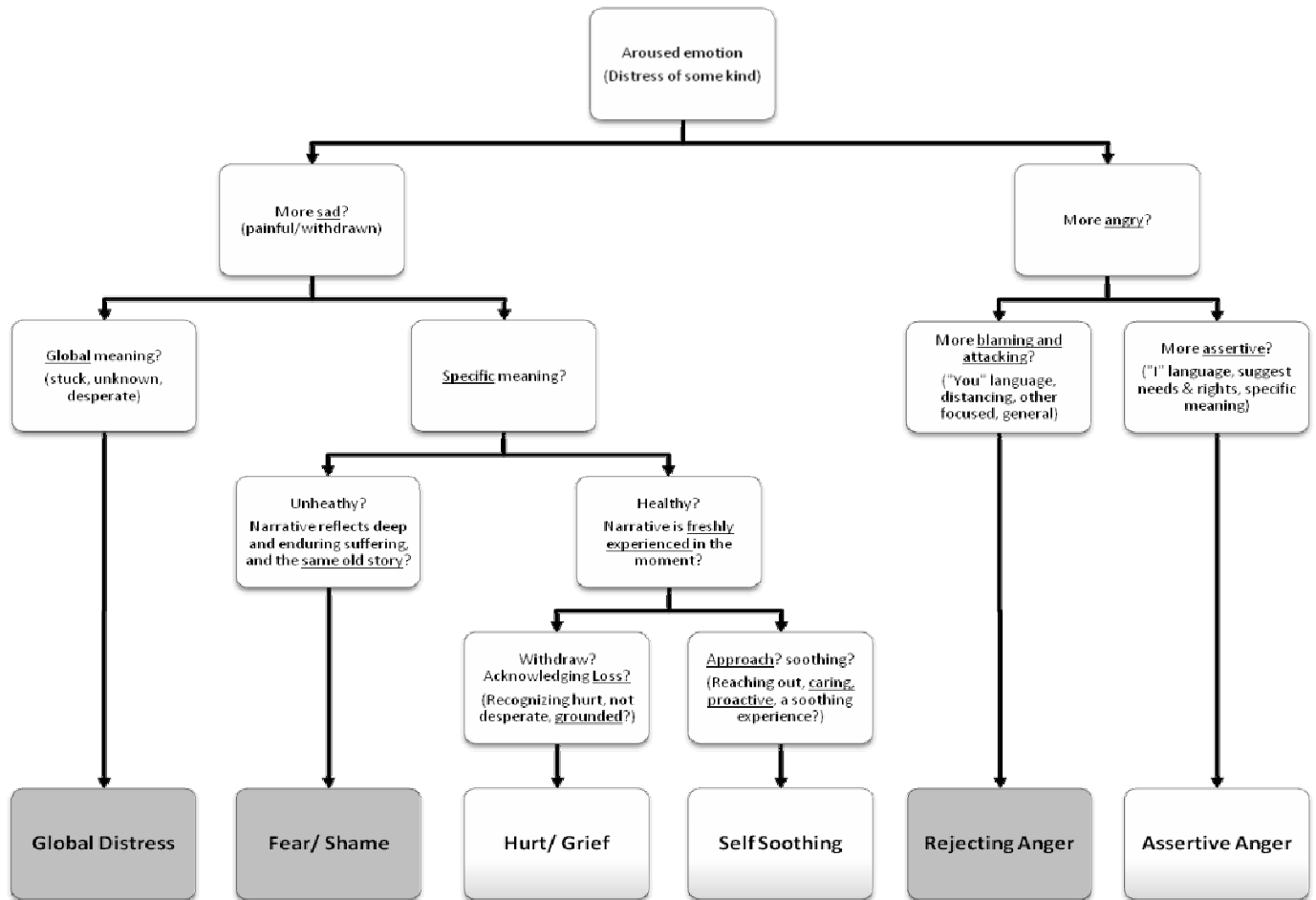
(Norton et al., 2010, p. 890)



*Note.* Norton and colleagues' (2010) above graph represents a typical presentation of sudden gains in the current literature. Sessions are represented as single data points, omitting the within-session contribution to symptom change. The measurement strategy is also not clearly represented (Norton et al. administered measures prior to the start of each session, and at post-treatment). See the present study's Figure 5 for an example of how the accuracy of a visual presentation of sudden gains, using measures exclusively administered prior to session start, might be improved.

Appendix A  
 Classification of Affective-Meaning States (CAMS) Coding Category Flowchart and  
 Sample CAMS Coding Sheet

CAMS Coding Category Flowchart (Pascual-Leone, 2012)





## Appendix B

## Experiencing Scale (EXP) Coding Category Reference Sheet and Sample EXP Coding Sheet

## EXP Coding Category Reference Sheet (Ellison &amp; Greenberg, 2007)

LEVEL	DESCRIPTION	EXAMPLE
1	Events external to, or not about, the client	-client talks about something unrelated to the issues “I had a sandwich for lunch”
2	Events including the client w/ behavioural or intellectual elaboration of client’s thoughts, but <u>not</u> emotions	“I thought it was interesting”
3	Client’s <u>rxn</u> to external events w/ some reference to feelings but, these are limited to <u>behavioural</u> or <u>descriptive</u> comments	“...and then I went out drinking” -feelings mentioned but not described or elaborated “I was angry”
4	<b>Reflection/Exploration</b> Client’s feelings and personal experiences -including immediate emotions, past emotions, and immediate experiencing	“...I’m feeling very hopeless”
5	<b>Elaboration (Need/Problem)</b> The client explores and <u>expands</u> feelings by stating a problem/need or proposition about them -incl. bridging associations (e.g., “I tend to get angry when I feel put upon”)	“Why am I so depressed?” “I feel like I’m struggling w/ that” “I feel that I shouldn’t be loved b/c of what I have done, yet I have a need to feel loved” “It’s not just anger that I feel, there’s more”
6	<b>Newly Emerging</b> Client focuses on directly sensed, emergent, newly recognized, or more fully recognized feelings -must be new; idiosyncratic (to the client); can be a tentative statement	-e.g., when the therapist walks the client through an experiencing exercise to guide newly emerging feelings (e.g. felt sense) “I’m angry, but I also feel some sadness as I think about my anger”
7	<b>Integration</b> The client demonstrates the ability to move from one inner referent to another -client’s ability to link, build upon, and integrate new realizations with others	Discussion of: - how one realization relates to another concern - the “whole picture” of their issue(s)

Sample EXP Coding Sheet

(Adapted from Singh, 2008)

EXP
-----

Session #:		Start Time:	
Total # of Mins:		Stop Time:	
Coder Initials:			

Time	Min	REF
Zero-Min	00'	
&	1 & 2	
&	3 & 4	
&	5 & 6	
&	7 & 8	
&	9 & 10	
&	11 & 12	
&	13 & 14	
&	15 & 16	
&	17 & 18	
&	19 & 20	
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&	31 & 32	
&	33 & 34	
&	35 & 36	
&	37 & 38	
&	39 & 40	
&	41 & 42	
&	43 & 44	
&	45 & 46	
&	47 & 48	
&	49 & 50	
&	51 & 52	
&	53 & 54	
&	55 & 56	
&	57 & 58	
&	59 & 60	

## Appendix C

### Patient Cognitive Change Scale (PCCS) Coding Guidelines and Sample PCCS Coding Sheet

#### **Patient Cognitive Change Scale Coding Guidelines (Tang & DeRubeis, 1999)**

##### **General Instructions:**

1. Rate only cognitive changes achieved during the session. If a client reached a new understanding before a session and comes to tell the therapist about it, do not rate it here.
2. Rate only changes that fit the description of one or more of the items 1-8.

##### **Rating Cognitive Changes:**

For each instance of cognitive change, first decide if each item is applicable, and then rate the significance of the change.

All items should be rated independently. Each instance of change is only to be rated once, so you may have to select the content category MOST APPROPRIATE to the change.

##### **I. Content Ratings**

Each changes should be given a rating of 1-4, in accordance with the following descriptions:

##### **1. Became aware of a belief/schema behind negative feelings**

The client became aware of a belief that he/she was unaware of before, and this belief should be related to the client's distress. For example, if a client became aware that he thought about doing shopping after therapy, and the thought is unrelated to his depression in any way, then it should not be rated here. A more appropriate example would be: a client's date did not show up last night, and she was upset but did not consciously know what thoughts triggered the negative feelings. After working with the therapist, she finally realized that she had the thought "he did not show up because I am so ugly."

##### **2. Changed belief; new belief; mistakes**

The client changed his/her beliefs. This could take several forms, including acknowledging errors in old beliefs, acknowledging errors in old thinking habits, arriving at an alternative explanation, coming to a new belief, or adopting a rational response to the old beliefs.

##### **3. Accepted a new cognitive technique**

The client acknowledged a specific cognitive technique (ex: the Dysfunctional Thought Record) as potentially beneficial and showed a willingness to use it.

##### **4. Reached decision to work on belief/schema**

The client has been made aware of his/her belief or schema and has come to the decision to work on the particular belief. For example, the client may uncover his negative belief of "I am

a worthless person” through earlier sessions and have at this point in the session made the decision of “I am going to work on that belief”.

## II. Significance Ratings

Several factors should be taken into account when deciding the magnitude, including the relevance of the issue and the sincerity and enthusiasm of the client. We will use a 4-point scale to mark the magnitude.

0 = no cognitive change

1 = a possible/potential cognitive change

2 = a definite cognitive change

3 = a substantial cognitive change

4 = a cognitive change with extraordinary personal significance

\*\* Please be careful in distinguishing an important issue and a small part of an important issue. For example, a client’s relationship with his wife might be an important issue, but whether the client should go to an opera with his wife is only a small part of the important issue. It is important for the rater to clearly understand the scope of the issue being discussed.

## III. Breakthrough/Acceptance/Relevance

Finally, the following three categories should be rated on the 1-4 significance scale described above:

### - **New breakthrough**

Rate *how likely the reported cognitive changes were new* to the client. If the client is simply restating something they knew all along, it should not be rated at all (for all items!)

### - **Client acceptance**

Rate *how much the client seemed to believe* in the stated progress and *how much enthusiasm* s/he has about the progress. A high rating would be given if the client showed enthusiasm and sincerity when acknowledging the progress. On the other hand, if the client were hesitant, equivocal, doubtful, seemingly half-hearted, and potentially just trying to be polite to the therapist, this item would receive low ratings.

### - **Relevance of the progress**

Rate *how important the involved issues seemed to be for the client’s recovery*. For belief and schema changes, this means to rate how important the belief and the schema are to the client’s depression. For solutions to life problems, this means to rate both how important the life problems are and how promising the solutions seem. (Please do NOT consider how much the client believes in the progress when making this rating. This item should be independent of item 6, client acceptance.)





## Appendix D

## Coding System for Therapist Focus (CSTF) Coding Categories and Sample CSTF Coding Sheet

## CSTF Coding Categories (Ellison &amp; Greenberg, 2007)

Category	Definition	Example
Emotion	Focus on client's feelings	"You <i>felt</i> angry at me."
Need/Wish	Focus on client's desire for fulfillment of a basic concern, need, or wish.	"You really <i>wish</i> that you could be closer to him."
Physiological Sensation	Focus on physical sensation associated with an emotional response (NOT things like nausea, tired, etc.)	"You felt this <i>churning in your stomach</i> when he told you he was leaving." "There was this <i>pressure on your chest</i> , like you were going to suffocate from fear."
Action Tendency	Focus on client's action disposition or tendency associated with an emotional response	"You felt like <i>lashing out</i> at him." "You just wanted to <i>slink away and hide</i> . You were just so ashamed."
General Thought	Reference to unspecified thinking	"You <i>think</i> the relationship is over."
Self-evaluation	Focus on self-appraisal, involving an evaluation of self	"You're telling yourself that <i>you're a loser</i> ."
Expectation	Focus on client's anticipation about the future	"You're <i>waiting</i> for something to go wrong."
Intention	Focus on client's future-oriented volition (future-orientation associated with plans or goals)	"You're <i>determined</i> to make that happen."
Behaviour	Reference to performance or specific action	"You were <i>pacing around</i> ."
Situation	Focus on circumstances external to the client	" <i>When you got the promotion</i> , you began to doubt your abilities."
Other	Focus on other person and/or people (who are <i>not</i> the client)	"He went to the party. He said he felt very angry afterward."
Intrapersonal link	Connections between various components of client's functioning	"You often <i>wanted</i> to do it, but you <i>never did</i> ."
Interpersonal link	Connections between various components of client's functioning and those of another person.	"She left you <i>because of</i> your gambling."
Unspecified	Focus on client's functioning where no specific component has been identified	" <i>What happens</i> when you walk through the hall?"



## Appendix E

### Three Inspirational Quotations, for the Graduate Student Experiencing Difficulties

#### Soldiering on

##### I.

When nothing seems to help, I go and look at a stonecutter hammering away at his rock perhaps a hundred times without as much as a crack showing in it. Yet at the hundred and first blow it will split in two, and I know it was not that blow that did it, but all that had gone before.

- Jacob August Riis (1901)

##### II.

Hey hey hey, the end is near  
On a good day, you can see the end from here  
But I won't turn back now, though the way is clear  
I will stay for the remainder.

- Joanna Newsom, *On a Good Day* (2010)

##### III.

Just fucking do it.

- K. Krawiec (personal communication, 2009)

*Note.* Above are a collection of inspirational quotations, referred to by the author on those (typically sunny) days when dissertating was the last thing that he wanted to do. Just to be clear—generally speaking, the author very much enjoys the research enterprise. But the inescapable truth is that writing a dissertation can occasionally feel like long and arduous work, even in the best of circumstances. The three quotations on this page helped to keep him going in the face of that transient, though occasionally quite powerful human desire to be as unproductive as possible.

### Vita Auctoris

Terence Singh was born in 1983 in Edmonton, Alberta, Canada. He obtained his high school diploma from Archbishop MacDonald High School (Edmonton, Alberta), and graduated from the University of Alberta with a B.A. (Honors) in Psychology (First-Class Distinction) in 2001. He received an M.A. degree in Psychology (Adult Clinical) from the University of Windsor (Ontario, Canada) in 2008. He began his Ph.D. studies in Psychology (Adult Clinical) at the University of Windsor in 2008 and, in addition to his ongoing work in Windsor, Ontario during this time, would engage in clinical and research activity in Calgary (Alberta, Canada), Detroit (Michigan, USA), and Toronto (Ontario, Canada) before obtaining his Ph.D. degree in autumn 2012.