

PROCESS–OUTCOME STUDIES

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If the effectiveness of psychotherapy is to increase, we need to understand exactly what processes lead to better client outcomes. This is the core challenge and potential contribution of process–outcome research in clinical psychology. In this chapter, we provide a succinct overview of process–outcome as a research approach.

Even 10 years ago it was estimated that more than 2,000 process–outcome studies had been published (Orlinsky, Ronnestad, & Willutzki, 2004). Several comprehensive reviews of this literature have already been published (e.g., Crits-Christoph, Gibbons, & Mukherjee, 2013; Gibbons et al., 2002; Orlinsky et al., 2004), so in this chapter we draw on these works and a number of other reviews. Our focus is primarily on psychotherapy, but readers will see that the same methods and principles are also applicable across the wider discipline of clinical psychology.

DESCRIPTION AND DEFINITION

The terms *process* and *outcome* have been defined in psychotherapy research in many ways. *Outcome* generally means a change in the client’s behavior, experiences, or characteristics after a therapeutic intervention. The term *process* originally referred to in-session events that lead to client change (Greenberg, 1986). In this chapter, we define *process* as

primarily the actions, experiences, and relatedness of client and therapist in therapy sessions when they are physically together, and secondarily the actions

and experiences of participants specifically referring to one another that occur outside of therapy sessions when they are not physically present together. (Orlinsky et al., 2004, p. 311)

Psychotherapy process can be differentiated into six categories (Orlinsky, 2009):

1. therapeutic contract (e.g., treatment model, rationale, goal setting, fees, and format);
2. therapeutic operations (e.g., client’s presentation, therapist’s construal and interventions, and client’s responsiveness);
3. therapeutic bond (e.g., personal rapport between therapist and client);
4. self-relatedness (e.g., self-awareness and self-esteem of therapist and client);
5. in-session impacts (e.g., insight and relief); and
6. temporal patterns (e.g., treatment stage).

Process–outcome research explores “both the events in psychotherapy sessions, or the constructs thought to change during or in between therapy sessions” and their association with subsequent change in “problems, symptoms and functioning” (Crits-Christoph et al., 2013, p. 299).

The breadth of process–outcome research highlights the variety of different process elements that can be explored (Elliott, 2010). These elements include (a) therapist processes (e.g., specific therapy techniques) that facilitate client change; (b) client processes (e.g., types of client action, topics brought for discussion, or level of motivation) that facilitate client change; (c) interpersonal processes between

the therapist and the client that facilitate client change (e.g., empathy, warmth, congruence and alliance); and (d) service contexts (e.g., social, historical, cultural, and political contexts) that facilitate change processes.

In addition to exploring these different process elements, researchers can study the effects (immediate or delayed change) of any of these particular processes within or between sessions. Each of these questions can be examined from the perspective of the client, the therapist, or a third-party observer. Finally, researchers might want to know what a particular change process looks like as it unfolds over time.

CORE PRINCIPLES AND APPLICATIONS

Process–outcome studies have often taken second place to outcome studies in psychotherapy research, perhaps because demonstrating the effectiveness of psychotherapy (and particular models of psychotherapy) has been an overriding imperative for most researchers. It has normally been much harder to secure funding for projects devoted to understanding how psychotherapy creates its effects. For this reason, process–outcome studies often seem to have been grafted on to randomized controlled trials (RCTs) as an added, secondary benefit of the outcome study.

Generally, the process–outcome arm of the project takes the form of sampling an aspect of psychotherapy process (e.g., by measuring a construct such as the alliance) and then correlating this aspect with measures of outcome. Some process–outcome studies, however, do go beyond correlation by experimentally manipulating a process variable (e.g., asking therapists to either increase or decrease the amount of self-disclosure they use in their sessions; Barrett & Berman, 2001). Other so-called component studies use experimental designs to test whether a certain component is necessary to produce therapeutic benefit by comparing treatments with the addition or subtraction of key process variables (e.g., comparing behavioral activation with behavioral activation plus cognitive techniques; Longmore & Worrell, 2007).

Process–outcome studies often involve observer or participant ratings of processes thought to

contribute to change. Participant ratings are often made using standardized scales (such as alliance measures) or study-specific measures. Observer ratings can be made from transcripts, therapists' notes, audio recordings, or video recordings of sessions. Observer measures of therapy process, for example, can be categorized depending on their particular focus (McLeod, Islam, & Wheat, 2013) on (a) behavior (e.g., tears, leaving the room, offering of a Kleenex); (b) thematic content of what is talked about (e.g., early traumatic memories); (c) style (e.g., warm, critical, or condescending manner); and (d) quality (e.g., skill of therapist, completeness of the intervention).

Judges or raters may need considerable training before they can reliably use a given process measure, such as the Achievement of Therapeutic Objectives Scale, which codes emotional processes, or the Structural Analysis of Social Behavior, which codes moment-by-moment interpersonal processes. For example, to reliably use the Achievement of Therapeutic Objectives Scale coding system (Aafjes-van Doorn et al., 2014), before coding study data, raters attended a week-long training, then practiced for at least 20 hours through an online training tool, rated nine American Psychological Association therapy DVDs, and completed an online reliability test on 25 10-minute therapy segments. Once reliability is achieved, coding itself can be very labor intensive, and it may be necessary to monitor for coding “drift” (when ratings start out as reliable after training but begin to become more idiosyncratic as coding progresses).

Measured therapy processes can be either directly observable (verbal, physical) or unobservable (e.g., intentions or motivation, either inferred by observers or reported by participants). Furthermore, therapy processes can be analyzed on a macro level (a global focus on a therapy session or course of treatment) or a micro level (focusing on small units such as utterances, single words, or speaking turns), such as in the micro-analytic sequential process approach that explores the immediate sequential impact of a therapist speaking turn on clients or vice versa. Ideally, category systems should be parsimonious yet comprehensive and applicable across a range of settings and to a variety of different sizes of unit.

Process–outcome research can be designed to measure model-specific processes (e.g., the Achievement of Therapeutic Objectives Scale mentioned above or the Cognitive Therapy Adherence and Competence Scale; Barber, Liese, & Abrams, 2003), or it can focus on processes that have been hypothesized to promote positive outcomes across different theoretical orientations (e.g., the Working Alliance Inventory; Horvath & Greenberg, 1989). They can take either a qualitative or a quantitative form, or they can make use of a blend of both approaches.

Quantitative approaches yield numerical scores that can be subjected to statistical analysis and typically involve a large number of client and therapist participants. Although historically most process–outcome studies have been correlational (e.g., linking therapists' empathic statements with ratings of client improvement), several more sophisticated analytic techniques have recently been adopted (McLeod et al., 2013). Multilevel hierarchical modeling, for example, is ideal for analyzing process–outcome data for a number of reasons. First, it enables researchers to explore the impact of each individual therapist within the study in addition to analyzing the results at the client level. In other words, it addresses the nesting of clients within therapists and therapists within research sites. Second, hierarchical modeling can deal with a varying number of sessions per client and a varying number of clients per therapist. Moreover, hierarchical modeling can be used to assess the temporal relation of process and outcome variables, involving measurement at multiple time points, over the course of treatment (e.g., latent difference score models). Latent growth curve modeling statistics can be used to evaluate the rate and shape of change across key process variables and outcome measures across time.

Quantitative studies have dominated the process–outcome research field, but qualitative and blended quantitative and qualitative research designs also play an important part in the development of the understanding of process–outcome relationships. Qualitative approaches provide an opportunity to gather in-depth information from clients and hear their individual perspectives on and experience of therapy. Qualitative approaches can

involve face-to-face interviews, phone interviews, or written responses (perhaps included along with a questionnaire), either at the end of therapy or part-way through. Examples of qualitative approaches to process–outcome research are the Change Interview (Elliott, Slatick, & Urman, 2001) and the Helpful Aspects of Therapy Form (Llewelyn, 1988). Both of these approaches encourage clients to describe the most helpful or important things that happened in a recently completed session and to indicate what contributed to their helpfulness. Qualitative accounts of change processes can be used to enrich systematic single-case study research (Elliott et al., 2009) and can be analyzed using systematic qualitative analytic methods, such as grounded theory (Rennie, Phillips, & Quartaro, 1988), interpretive phenomenological analysis (Smith, Flowers, & Larkin, 2009), or consensual qualitative research (Hill et al., 2005). These methods frequently use much smaller samples of between four and 12 interviews. Typically, spoken or written accounts are transcribed, analyzed, and categorized into multilayered hierarchical systems of categories.

Finally, methodological pluralism is a research strategy that systematically combines different research strategies into an ongoing program of research (Elliott, 2010). The most established programmatic methodology of this kind is task analysis (Greenberg, 2007), which involves developing a model of achieving a specific task in therapy (such as rupture resolution) and requires different quantitative and qualitative research methods.

LIMITATIONS OF THE APPROACH

The strategy of correlating a measured process with treatment outcome accounts for the majority of process–outcome studies, but this kind of research involves several methodological problems (Crits-Christoph et al., 2013; Elliott, 2010). The most obvious limitation with correlational process–outcome research is that correlation does not necessarily imply causation. If x correlates highly with y , it is indeed possible that x causes y . However, it is also possible that y causes x (reverse causation) or indeed that some third factor, let's call it z , causes both x and y . Such causal gaps are often seen as

limiting the clinical usefulness of process–outcome findings and have contributed to process–outcome evidence being excluded from many reviews of psychotherapy research findings (e.g., DeRubeis, Brotman, & Gibbons, 2005) and from government guidelines on evidence-based practice (e.g., Kendall et al., 2011).

Furthermore, many researchers (e.g., Stiles & Shapiro, 1994) have argued that a persistent but unexamined and unhelpful medical model underlies many process–outcome studies. The so-called “drug metaphor” suggests that if a process component (e.g., interpretation, empathy, homework assignment) is an active ingredient of a successful psychotherapy, then administering a relatively higher level of it should yield a relatively more positive outcome, and levels of the process component and the outcome should be correlated across clients (Stiles & Shapiro, 1994). However, the expectation that a greater amount of any positive process variable should correlate more highly with outcome betrays an assumption of ballistic causality, meaning that it is assumed that the variable affects outcome irrespective of the emerging context within which it takes place. In reality, an effective therapist is likely to continuously modify the right dosage of the intervention in response to the client.

Another kind of causal gap occurs as a result of the interval between a given outcome measure, usually based on a symptom measure at the end of therapy, and the much more detailed level at which process is analyzed. Although process measures can range from whole sessions to elements of single utterances, they generally concern only a small proportion of the overall therapy (Elliott, 2010). For example, alliance might be sampled in say, Session 3, and then related to the measurement of therapy outcome, which may occur after a much longer sequence of sessions (e.g., after a course of 20 sessions). In this case, it becomes hard to know how representative the one sampled session is of the process that occurred in other treatment sessions (e.g., a rupture may have occurred in Session 3 that was subsequently resolved satisfactorily in Session 4). Not knowing whether the sampled unit of behavior can be generalized to the processes that occurred in other units of behavior or sessions makes it much harder to draw firm

conclusions about causal links between process variables and outcome.

Another limitation of the use of correlations in process–outcome research is the risk of reverse causation. For example, the association of alliance with outcome has been questioned on methodological and empirical grounds. The fact that alliance is likely to increase as the client begins to feel better could imply that improved outcome leads to better alliance (DeRubeis et al., 2005). A recent review of 11 studies in which methodological steps have been taken to explore the sequential unfolding of alliance and symptom change has indicated that a positive alliance does indeed precede symptom change.

A rather different but often overlooked limitation is that the perspective taken in process–outcome research (e.g., that of the client, the therapist, or an independent observer) leads to different results. It has now been clearly established that significant differences exist between the views of therapists, clients, and trained observers regarding the same event (Altimir et al., 2010). It is known, for example, that empathy rated by the therapist, client, and external observer correlates only moderately, in the .30s. Moreover, the client and therapist demonstrate discrepancies in their alliance ratings, with their views of the alliance being only moderately correlated ($r = .36$; Tryon, Blackwell, & Hammel, 2007). This complicates comparability of many process–outcome results and questions the validity of the assumption that process factors operate in the same way across different perspectives. Yet many studies use only one or at best two perspectives on the variable of central interest to the study, and they often do not use the client’s perspective.

Finally, many researchers have pointed out that if one is to assert that a causal relation between a process variable and an outcome variable exists (e.g., a good therapeutic alliance has a causal relationship with better outcome), three conditions must be met: First, the process and outcome variables must be shown to covary; second, other variables that may account for the process–outcome association must be ruled out; and third, the process variable must precede the outcome variable. Given that so much of the canon of psychotherapy research involves correlational studies, it can be

said that only a comparatively small proportion of process–outcome findings are fully substantiated in these terms.

LANDMARK STUDIES

Over the years, numerous larger and smaller process–outcome research programs have been initiated. In the sections that follow, we discuss several of the most influential research initiatives that played a pivotal role in further process–outcome studies.

Carl Rogers

Carl Rogers was an early proponent of the study of both therapeutic processes and outcomes and one of the founders—if not the founder—of process–outcome research. As early as 1940, Rogers started to record therapy sessions. This was a complex undertaking at that time because each recording lasted only a few minutes, so two recording machines were needed and around 800 recording discs were required for 50 hours of therapy (Kirschenbaum, 2007). Rogers’s publication of a fully recorded and transcribed course of psychotherapy (Rogers, 1942) was probably the first published verbatim therapy.

Having created an unprecedented level of transparency about the therapeutic process, Rogers and his colleagues were quick to use recorded therapy sessions as the basis for research on the therapeutic process. They developed ways of coding therapist and client responses and found, for example, that therapist acceptance and recognition and clarification of feelings were associated with client insight, whereas directive responses, such as asking questions, giving information and advice, persuading, and pointing out were not (Kirschenbaum, 2007). Rogers’s group adopted what were at the time state-of-the-art measures of personality functioning to explore client change and also developed Q-sort methodology to study changes in client self-concept. It has been estimated that between 1943 and 1957 as many as 140 process–outcome studies were performed (Kirschenbaum, 2007).

In a landmark article in 1957, Rogers set out what he considered “The Necessary and Sufficient Conditions for Change in Therapeutic Personality

Change.” He famously proposed that therapist positive regard, genuineness and congruence, and empathy, if successfully communicated to the client, would create therapeutic change (Rogers, 1957).

Soon after this, he secured funding for a major psychotherapy research project, the Psychotherapy With Schizophrenia Research Project (Rogers et al., 1967), not with the neurotically unhappy people for whom he had originally developed his client-centered approach but with clients with severe mental illness. This project has been described as the first true process–outcome study (Elliott & Farber, 2010). Furthermore, the team developed a number of process tools, such as a process scale that operationalized Rogers’s ideas about different levels of client experiencing in psychotherapy sessions and thereby securely established this new paradigm in psychotherapy research.

Rogers’s research work, which underlined the central importance of the therapist’s relational qualities, seems to have been amply substantiated in the 50 years since his 1957 article on the necessary and sufficient conditions for change was first published. For example, a recent important series of meta-analyses on evidence-based relational qualities (to be discussed further below) found strong support for the value of numerous relational qualities in therapy, including empathy (judged as demonstrably effective), positive regard (judged as probably effective), and congruence–genuineness (judged as promising but with insufficient evidence to judge; Norcross & Wampold, 2011a). Rogers’s clinical and research style has fueled the research-guided development of process-experiential therapy (Greenberg, Rice, & Elliott, 1993) and motivational interviewing (e.g., Miller & Rollnick, 2012). Perhaps most important, Rogers’s ideas have become so well accepted by psychologists and researchers alike that few, if any, now doubt the importance of the therapist’s relational qualities and empathic attunement to client outcomes.

Vanderbilt Studies

Hans Strupp led one of the earliest and most provocative RCTs. This study, known as the Vanderbilt I psychotherapy research study, compared outcomes between professional psychotherapists and

nonprofessional college professors in the treatment of a group of young men with depression and relationship problems. The study found no significant differences in outcomes between the professionals and the amateurs (Strupp, 1993). There was also a series of intriguing findings about the impact of therapist behavior, in particular therapist hostility, on outcome. After intensive qualitative analyses of audiotaped therapies, Strupp (1980) concluded, "Therapists' negative responses to difficult clients are far more common and far more intractable than has generally been recognized." He noted, "We failed to encounter a single instance in which a difficult client's hostility and negativism were successfully confronted or resolved" (p. 954).

Strupp and his colleagues then sought to test this understanding by using quantitative process research. Findings showed that more hostile communications in the third session on the part of therapists predicted poor therapeutic outcome at the end of therapy. Such negative interpersonal behaviors on the part of the therapists often occurred immediately after hostile client communications, supporting the notion that it is extremely difficult for therapists to respond in a friendly way to client hostility. They discovered that therapist hostility frequently occurred in statements coded as both friendly and hostile. In other words, the hostility expressed by the therapists was frequently subtle and indirect. The development of this research in both qualitative and quantitative research paradigms is an early example of systematic methodological pluralism, illustrating how an important clinical process can be explored in complementary research paradigms.

Strupp and others replicated these findings and went on to show that traditional methods of training psychotherapists in working with client hostility failed to yield significant improvements in therapist interpersonal communication and, moreover, could have negative effects associated with more rigid application of techniques (Henry et al., 1993). Their work also laid the groundwork for more recent studies on the process of resolving ruptures in the therapeutic alliance (e.g., Safran, Muran, & Eubanks-Carter, 2011), showing that although ruptures appear to be endemic to therapy, recognition

by therapists is variable, and effective resolution is linked with improved outcome.

National Institute of Mental Health Treatment of Depression Collaborative Research Program

The National Institute of Mental Health (NIMH) Treatment of Depression Collaborative Research Program (TDCRP) was a major RCT comparing placebo, antidepressant medication, interpersonal psychotherapy (IPT), and cognitive-behavioral therapy (CBT). The study was well funded and set new methodological standards for research on the efficacy of psychotherapy, for example, by using multiple sites, a relatively large sample, a credible control group, well-designed measures of outcome, clear manualization, and a measurement of treatment adherence by the therapists. If any study was equipped to detect genuine differences between the efficacies of two different models of therapy, in addition to control and medication conditions, this was it.

The results of the study were firmly in line with the equivalence paradox in outcome research (i.e., that RCTs tend to find equivalence between different models of therapy). Both models of psychotherapy were broadly equivalent in their outcomes and failed to show differences in effectiveness on both process and outcome measures relevant to the hypothesized mechanisms of change associated with them. For example, CBT clients in the study showed as much change on a measure of interpersonal functioning as in IPT, which focuses on changing clients' interpersonal understanding and behavior.

One fortunate legacy of the NIMH TDCRP, however, was the decision to archive the data in a way that enabled access by different research teams so that they could conduct follow-up process-outcome research. For the past 20 years, research groups have investigated therapeutic processes in the methodologically clean waters of the NIMH TDCRP, resulting in contributions to the literature on the alliance and role of therapist and client factors in the TDCRP dataset. For example, an analysis of therapist effects and possible interaction of these effects with initial client severity and difficulty levels, using hierarchical linear modeling, found no significant differences in regard to either overall therapist effects or the

interaction with client severity and difficulty (Elkin et al., 2006). However, this result has been challenged by another research team, using a different statistical approach that did appear to show therapist effects (Wampold & Bolt, 2006).

There was some evidence of model-specific processes, as shown by another research team (Crits-Christoph et al., 2010). It used transcripts of treatment sessions from the NIMH TDCRP dataset, for 72 clients being treated with either CBT or IPT for depression, to rate an aspect of therapist skill: interpersonal accuracy of interventions. This was assessed by first identifying core conflictual relationship themes for each client and then by having judges rate therapist intervention statements for the extent to which each statement addressed each component of the client-specific interpersonal theme. Crits-Christoph et al. (2010) found that accurately addressing interpersonal themes was particularly important to the process of IPT but not to cognitive therapy.

Still other researchers have used the TDCRP dataset to examine the role of client characteristics, such as therapy expectancy and clients' level of reflective functioning, in both IPT and CBT. Regarding expectancy, clients who expected treatment to be effective were shown to engage more constructively in sessions, which then appeared to lead to symptom reduction. Therapists' expectancies for client improvement also predicted outcome, although this association was not mediated by the alliance. Another research group found that indications of high reflective functioning (i.e., the client's ability to recognize the existence and nature of mental processes taking place in the self and in others) were associated with good outcome, and indications of low reflective functioning (e.g., resisting examining thoughts, a passive stance) were associated with poor outcome. These diverse studies additionally illustrate the tradition of grafting process–outcome research onto RCTs whose primary purpose was to provide evidence for the efficacy of particular models of therapy. More than 20 years after its initial findings were published, this landmark study continues to serve up new process–outcome findings, of which we have only presented a small selection.

KEY ACCOMPLISHMENTS

To date, the process–outcome research literature, although far from conclusive, has provided evidence for the importance of certain common and more specific process factors that have consistently been linked with therapy outcome. In the sections that follow, we describe these key accomplishments within the process–outcome literature.

Evidence for Common Process–Outcome Factors

As noted in the discussion of the NIMH study, researchers have repeatedly found that supposedly different therapy processes lead to similar client outcomes, suggesting that common or pan-theoretical processes probably play a key role in psychotherapy outcomes. In a major review of the process–outcome research literature, using replication of findings across multiple observational perspectives as a criterion of the strength of the evidence, Orlinsky et al. (2004) identified three common processes that contribute jointly and variously to shaping the outcome of therapy: The therapeutic bond (global therapeutic bond, reciprocal affirmation), especially as perceived by the client, mediates the process–outcome link; the quality of the client's participation in therapy (which includes client suitability, client openness vs. defensiveness, client cooperativeness vs. resistance) is the most important determinant of outcome; and the therapist contributes to helping the client achieve a favorable outcome by empathic, affirmative, collaborative, and self-congruent engagement with the client. Overall, their conclusions suggest that effective psychotherapy requires more than a set of technical procedures conducted by the therapist, intentionally or otherwise, but also that it is considerably more than just a warm, supportive relationship.

Undoubtedly, the therapeutic relationship has received more research attention than any other process factor. The American Psychological Association Interdivisional Task Force on Evidence-Based Therapy Relationships systematically examined evidence for the impact of different elements of the psychotherapy relationship on outcome (Norcross & Lambert, 2011). The task force concluded that

relationship elements that demonstrably contribute to and predict positive treatment outcomes include (a) alliance in individual psychotherapy, (b) alliance in youth psychotherapy, (c) alliance in family therapy, (d) cohesion in group therapy, (e) empathy, and (f) collecting client feedback. Relationship elements that are probably effective, owing to less research, include (a) goal consensus, (b) collaboration, and (c) positive regard.

The alliance is the most heavily researched component of the therapy relationship. A recent meta-analysis (Horvath et al., 2011) located more than 7,000 references to the alliance, including 201 studies that were considered suitable for their meta-analytic quantitative review. Consistent with earlier reviews, they found an overall (r) effect size of .28, statistically significant at the $p < .0001$ level, indicating a moderate but highly reliable relation between alliance and psychotherapy outcome, which makes alliance the “strongest and most robust predictor of treatment success that research has been able to document” (Horvath et al., 2011, p. 56). Some have argued that the client’s experience of alliance is the one that consistently links best to actual outcome of the treatment (Horvath & Bedi, 2002), whereas others have concluded that exactly who rates the alliance does not moderate the relationship between alliance and outcome (Horvath et al., 2011).

A promising area of research, also identified by the Interdivisional Task Force on Evidence-Based Therapy Relationships, concerns the positive impact of matching particular therapeutic approaches to specific client characteristics, ranging from studies of client reactance, stage of change, coping style, and learning style, to those concerning client religion and culture. Some important findings emerging from this field include the evidence that more resistant clients do better in therapies that are nondirective (Beutler et al., 2011), evidence on the role of client preferences on outcome (Swift, Callahan, & Vollmer, 2011), and evidence concerning the value of engaging in a therapy that is culturally and religiously or spiritually congruent (Norcross & Wampold, 2011b).

Evidence for Specific Techniques

In contrast to the common process–outcome argument, some researchers have vigorously contended

that certain processes and treatment outcomes are exclusive to a single psychotherapeutic approach. Space permits only a brief summary of major process findings for each of the best-researched models in the psychotherapy research field.

Behavior therapy. Studies on the process of exposure therapy for anxiety (e.g., phobias, obsessive–compulsive or posttraumatic stress disorder) have reported high correlations between fear activation ($r = .57$), habituation within sessions ($r = .42$), and habituation across sessions ($r = .41$). Although we do not know whether these correlations are causal, there is reasonable consensus that exposure to feared situations is an effective process in the treatment of anxiety (Crits-Christoph et al., 2013). More specifically, inhibitory processes (i.e., ways of developing competing, nonthreat associations) are now recognized as being central to extinction learning because these processes shape the level of fear, regardless of how much fear was expressed during or at completion of extinction training (Craske et al., 2008).

Cognitive therapy. Cognitive theorists have argued that the modification of dysfunctional beliefs is crucial in achieving change in CBT. Indeed, researchers have found moderate to large effects ($r_s = .33$ – $.60$) between the use of concrete CBT techniques (e.g., setting and following an agenda, reviewing homework) and subsequent treatment outcome. However, a review (Longmore & Worrell, 2007) highlighted the fact that comparing behavioral activation with behavioral activation plus cognitive techniques has shown no added benefit of the cognitive techniques. Furthermore, studies have appeared to show no differences between the degree of cognitive change (assumed to mediate outcome) in CBT and that found in other noncognitive models of therapy or antidepressant medication. A review of the evidence for cognitive mechanisms of change in the treatment of depression (where most research has been carried out) concluded, on methodological grounds, that “no fully adequate test of these potential mediators has been done to date” (Crits-Christoph et al., 2013, p. 319). However, there are some promising data relating to the role of changing cognitions and learning compensatory skills (i.e., a kind of problem-solving technique using

alternative therapeutically generated explanations for negative events) in CBT for depression. It is not currently known whether these change mechanisms are unique to CBT or whether they are common factor change mechanisms and take place in all therapeutic models.

Psychodynamic therapy. In the psychodynamic arena, correlational studies of change mechanisms have found moderate associations between various processes and outcome. These include studies focusing on the use of dynamic interpretations ($r = .50$), transference interpretations ($r = -.49$), emphasis on affect ($r = .30$), self-understanding or insight ($r_s = .42-.59$), and clients' gains in understanding their maladaptive relationship patterns or defenses ($r_s = .28-.64$; Crits-Christoph et al., 2013). Unlike the work on cognitive mediators of change discussed above, two recent studies that explored the temporal sequence of process and outcome have found some evidence that the mechanism of increased self-understanding may be unique to psychodynamic therapy.

Humanistic and experiential therapy. Although there has been a strong tradition of humanistic and experiential therapy process–outcome research over the past 20 years, dating back to the seminal work of Carl Rogers, fewer process–outcome studies in this tradition have overcome the methodological obstacles reviewed above. Nevertheless, there have been some notable studies, particularly on the role of emotional processing ($r_s = .32-.44$) in emotion-focused therapy (Elliott et al., 2013). Much of this work has adopted systematic methodological pluralism as a means of incrementally building up knowledge of change processes and overcoming the methodological weaknesses associated with individual studies or any one type of research (Elliott, 2010). Emotion-focused therapy as a model of therapy was, in fact, largely developed from task analytic studies of key therapeutic tasks. In this tradition, processes are often related to micro-outcomes rather than to end-of-therapy outcomes. Work of this kind has provided support for many therapeutic processes, including the value of the two-chair dialogue for conflict splits and the empty-chair dialogue for unfinished business (Elliott et al., 2013).

FUTURE DIRECTIONS

Important landmark studies have been conducted, and process–outcome research has led to some clear accomplishments. However, the real value of these findings will depend on their application in clinical practice, training, and future research.

Practice

One means of making clinical use of process–outcome findings is to introduce systematic checks of key process variables into the practice of psychotherapy to trigger more immediate recognition of problematic processes and heighten the chances of successful problem resolution (Macdonald & Mellor-Clark, 2014). A method for identifying clients who are at risk of treatment failure uses client-completed outcome questionnaires as a means of alerting therapists to clients who are not making expected progress in therapy (Lambert, 2010). For clients identified as being at risk of treatment failure, the system triggers a review of potential barriers to therapeutic progress by highlighting the client's "off-track" status and introducing a formal review of therapy processes to the therapist. RCTs in naturalistic settings that compare therapists using this kind of feedback versus not using it have shown that outcomes for clients who are not making progress are significantly better in the feedback condition. Indeed, such feedback can nearly halve the number of clients at risk of treatment failure who go on to deteriorate at the end of therapy and double the number who go on to have a favorable outcome (Lambert & Shimokawa, 2011). In the future, we believe that computerized process–outcome feedback tools will be increasingly accepted as part of routine clinical practice. Furthermore, integration of process findings into such resources is likely to be an increasingly important mechanism for disseminating process–outcome findings into clinical practice.

Training

A challenging but important issue concerns the ability of training programs to teach therapists how to facilitate processes that have been shown to be effective. An especially important area of training clearly concerns the relational aspects of trainees' work, given the robust links in the process–outcome

literature between relational qualities (e.g., therapeutic alliance) and client outcomes. Currently, some training programs have been developed that are aimed at helping therapists improve their alliances (Crits-Christoph et al., 2006) or manage ruptures in the therapeutic alliance (Safran et al., 2011). A meta-analytic review of studies in which therapists were trained in relational skills associated with repairing alliance ruptures showed that these trainings were related to significant client improvements relative to the outcomes of therapists who did not receive the training. This may, therefore, be a particularly promising way of integrating process skills into clinical practice (Safran et al., 2011). We anticipate that specific pan-theoretical process skills (such as dealing with ruptures in the alliance or client ambivalence) will be increasingly integrated into model-specific training programs (Boswell & Castonguay, 2007).

Research

We anticipate that major efforts will be needed to translate the plethora of process–outcome research findings into systematic take-home messages for clinicians and services. As this work develops, a new breed of practice-based implementation research will be required to investigate how implementing process skills in routine settings can be translated into improvements in service outcomes.

We believe that process–outcome research will become increasingly differentiated in future decades, taking the field beyond the common factors, which have created most of the headline findings to date. It seems likely that increasingly differentiated findings will build on the existing work on client–treatment matching, taking account of both client and therapist characteristics that may be associated with outcome. We anticipate that future research will enable us to learn more about individual therapist variables involved in more or less successful therapies for different kinds of clients. We suspect that progress will be made as researchers focus further on participant characteristics that affect their relational style (e.g., recent research that has explored transference and countertransference dynamics in particular client–therapist dyads; Tishby & Wiseman, 2014). Such research will go some way toward exploring the mechanisms involved in therapist effects—the

widespread and largely unexplained finding of different levels of effectiveness in different therapists.

Process–outcome research will also involve cross-fertilization of ideas and findings from related fields. In particular, progress is likely to be made at the interface between process–outcome research and neuroscience as knowledge about brain functioning is consolidated and developed. In addition to this, basic science research on psychopathology and on relationship processes may lead to increasingly pan-theoretical models of therapeutic processes and process–outcome research, albeit with specific applications within differing models. Furthermore, scientific developments in other fields will also open up new possibilities for process–outcome study, including more powerful computer-assisted coding processes. Technological developments will enable new forms and formats for therapy (e.g., online therapy), and it will be important for the field to explore both similar and different processes related to outcome in these new modes of therapy.

Finally, we expect that use of a number of more sophisticated methodological advances will be increasing. These advances include research designs that enable researchers to establish temporal relationships between processes and outcomes and more sophisticated statistical techniques, such as multi-level modeling, that take into account the impact of individual therapists and services on client outcomes.

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