

Collecting and Delivering Progress Feedback: A Meta-Analysis of Routine Outcome Monitoring

Michael J. Lambert
Brigham Young University

Jason L. Whipple
Veterans Affairs Hospital, Fairbanks, Alaska

Maria Kleinstäuber
Auckland University and Philipps-University

This systematic review and meta-analysis examines the impact of measuring, monitoring, and feeding back information on client progress to clinicians while they deliver psychotherapy. It considers the effects of the 2 most frequently studied routine outcome monitoring (ROM) practices: The Partners for Change Outcome Management System and the Outcome Questionnaire System. Like other ROM practices, they typify attempts to enhance routine care by assisting psychotherapists in recognizing problematic treatment response and increasing collaboration between therapist and client to overcome poor treatment response. A total of 24 studies were identified and considered suitable for analysis. Two-thirds of the studies found that ROM-assisted psychotherapy was superior to treatment-as-usual offered by the same practitioners. Mean standardized effect sizes indicated that the effects ranged from small to moderate. Feedback practices reduced deterioration rates and nearly doubled clinically significant/reliable change rates in clients who were predicted to have a poor outcome. Clinical examples, diversity considerations, and therapeutic advances are provided.

Clinical Impact Statement

Question: Does tracking client response to treatment improve the overall outcome? **Findings:** According to research, two common methods of tracking client mental health vital signs were found to improve outcomes compared with treatment without such monitoring. **Meaning:** These procedures help clinicians prevent treatment failure and enhance positive outcomes by becoming more responsive to the client's needs and difficulties. **Next Steps:** Implementation of these methods in routine care is recommended.

Keywords: psychotherapy outcome, Partners for Change Outcome Management System, Outcome Questionnaire-45, routine outcome monitoring, evidence-based practice

An often ignored but critical consideration in psychotherapy is the degree to which it is not helpful or even harmful to clients. An estimated 5% to 10% of adult clients participating in clinical trials leave treatment worse off than they began (Lambert, 2013). In routine care, the situation is frequently more problematic. Outcomes for more than 6,000 clients treated in routine practice settings suggest that clients did not fare nearly as well as those in clinical trials, with only about one-third showing improvement or recovery (Hansen, Lambert, & Forman, 2002). Although client and environmental contributions to negative outcomes explain deterioration in many cases, there is also variability in rates across

individual psychotherapists. Some therapists hardly have a single client who deteriorates, whereas others experience consistently high rates (Baldwin & Imel, 2013; Barkham, Lutz, Lambert, & Saxton, 2016; Okiishi et al., 2006). Research reviews find that the major contribution of therapists to negative change is usually found in the nature of the therapeutic relationship, with rejections of either a subtle or manifest nature being the root cause (Safran, Muran, Samstag, & Winston, 2005). Research on negative outcomes often finds little of the negative change is attributed to the misapplication of therapeutic techniques, whereas relationship factors instead loom large across treatment formats (e.g., couple,

Michael J. Lambert, Department of Psychology, Brigham Young University; Jason L. Whipple, Veterans Affairs Hospital, Fairbanks, Alaska; Maria Kleinstäuber, Department of Psychological Medicine, Faculty of Medical and Health Sciences, Auckland University, and Division of Clinical Psychology and Psychotherapy, Department of Psychology, Philipps-University.

This article is adapted, by special permission of Oxford University Press, by the same authors in J. C. Norcross & M. J. Lambert (Eds.) (2018), *Psychotherapy relationships that work* (3rd ed.). New York: Oxford University Press. The Interdivisional American Psychological Association Task Force on Evidence-Based Psychotherapy Relation-

ships and Responsiveness was cosponsored by the American Psychological Association Division of Psychotherapy/Society for the Advancement of Psychotherapy.

Michael J. Lambert is a partner of OQMeasures, a company that owns and distributes the OQ-Analyst, which is a software used to administer, score, and provide reports discussed in this article.

Correspondence concerning this article should be addressed to Michael J. Lambert, Department of Psychology, Brigham Young University, 1874 Michigan Avenue, Salt Lake City, UT 84108. E-mail: lambert.michaelphd@gmail.com

family, group, and individual) and theoretical orientations (Lambert, Bergin, & Collins, 1977).

Unfortunately, clinicians tend to hold overly optimistic views of their clients' treatment progress in relation to measured change (Walfish, McAlister, O'Donnell, & Lambert, 2012). Clinicians frequently overlook negative changes and experience difficulty accurately gauging the final benefit clients will receive during treatment, particularly with clients who are failing to improve. For example, even when therapists were provided with the base rate of deterioration in their clinic (8%), and were asked to rate each client at the end of every session (on the likelihood of final treatment failure and if the client was worse off at the current session than at intake), they rated only three of 550 clients as predicted failures and seriously underestimated worse functioning for a significant number of clients (Hannan et al., 2005). In addition, a retrospective review of case notes of clients who had deteriorated during treatment found infrequent mention of worsening, even when its degree was dramatic (Hatfield, McCullough, Frantz, & Krieger, 2010).

In an effort to reduce negative outcomes, routine outcome monitoring (ROM) has been proposed. It involves regularly measuring and tracking client progress with standardized self-report scales throughout the course of treatment and providing clinicians with this information before psychotherapy ends (Lambert, Hansen, & Finch, 2001; Newham, Hooke, & Page, 2010). Contextualized feedback theory suggests (Sapyta, Riemer, & Bickman, 2005) that the value of patient monitoring and systematic feedback through session-by-session assessments hinges on the degree to which the information provided goes beyond what a clinician can observe and understand about client progress without such information. The feedback must bring value added beyond the psychotherapist's understanding of a client's current well-being.

Professional bodies have been quick to recommend ROM methods. For example, the American Psychological Association (American Psychological Association Presidential Task Force on Evidence-Based Practice, 2006) has recommended that routine outcome monitoring be a part of effective psychological services because certain methods of monitoring have been shown to enhance client outcome. The Association of State and Provincial Psychology Boards (2015) have recommended that ROM be a part of competency-based supervision. Two systems have been listed in the Substance Abuse and Mental Health Administration's National Registry of Evidence-based Programs and Practices (www.nrepp.samhsa.gov/). These two ROM systems have been the most widely studied with regard to their impact on an individual client's psychotherapy outcome: the Outcome Questionnaire System (OQ-System [www.oqmeasures.com]; Lambert, Kahler, et al., 2013) and the Partners for Change Outcome Management System (PCOMS [www.pcoms.com, heartandsoulofchange.com]; Duncan, & Miller, 2008; Prescott, Maeschalck, & Miller, 2017).

Here we report the results of a systematic and meta-analytic review of the effects of these two ROM systems applied across varied psychotherapies and clinical contexts. We also review (a) definitions and measures of two ROM systems, (b) results of previous reviews, (c) the current systematic and meta-analytic review, (d) patient factors contributing to ROM effectiveness, and (e) limitations of the research base. In concluding, we review diversity considerations and recommend therapeutic practices for collecting and delivering ROM feedback.

Definitions and Measures

Many ROM systems that provide progress feedback have been developed and implemented in clinical settings worldwide, but few have been tested in clinical trials. Ten of these have been described in detail by Drapeau (2012). Although the specific procedures used in each system vary, their common features involve monitoring of client mental health functioning throughout the course of treatment and sharing the client's progress with clinicians (and clients) who can use the data to adjust their behavior as indicated.

OQ-Analyst Feedback System

The Outcome Questionnaire-45 (OQ-45; Lambert, Kahler, et al., 2013) is a 45-item self-report measure designed for repeated administration throughout the course of treatment and at termination with adult clients. The OQ-45 was conceptualized and designed to assess three domains of client functioning: symptoms of psychological disturbance (particularly anxiety and depression), interpersonal problems, and social role functioning. Consistent with this conceptualization of outcome, the OQ-45 provides a total score, based on all 45 items, as well as Symptom Distress, Interpersonal Relations, and Social Role subscale scores. Each of these subscales contains some items related to the positive quality of life of the individual (well-being). Higher scores on the OQ-45 are indicative of greater levels of psychological disturbance.

Research has indicated that the OQ-45 is a psychometrically sound instrument, with strong internal consistency (Cronbach's $\alpha = .93$), adequate 3-week test-retest reliability ($r = .84$), and strong concurrent validity estimates ranging from .55 to .88 when the total score and the subscale scores were correlated with scores from a variety of outcome measures. The OQ-45 items have been shown to be sensitive to changes in multiple client populations over short periods of time while remaining relatively stable in untreated individuals (Vermeersch, Lambert, & Burlingame, 2000; Vermeersch et al., 2004). In addition, evidence from factor-analytic studies suggests that it measures an overall psychological distress factor, as well as factors consistent with the three subscales (Bludworth, Tracey, & Glidden-Tracey, 2010; De Jong et al., 2007; Lo Coco et al., 2008).

A core feature of ROM systems is the prediction of treatment failure. To improve outcomes of clients who are responding poorly to treatment, such clients must be identified before termination and, ideally, as early as possible in the course of treatment. The OQ-System plots a statistically generated expected recovery curve for differing levels of pretreatment disturbance and uses this as a basis for identifying clients (starting with the second encounter) who are not making expected treatment gains and are at risk for a poor treatment outcome. Expected treatment response was based on over 11,000 clients who received treatment in a variety of routine care clinical settings (including independent practice). Patient progress was modeled over time using hierarchical linear models based on their OQ-45 intake scores. Expected treatment response is available at every possible starting score (except for seldom occurring extreme scores) and at each session of care (up to 20 sessions), using a large number of clients at each intake score (Finch, Lambert, & Schaalje, 2001).

The accuracy of the signal alarm system has been evaluated in several empirical studies of treatment-as-usual (TAU; Ellsworth, Lambert, & Johnson, 2006; Lambert, Whipple, Bishop, et al.,

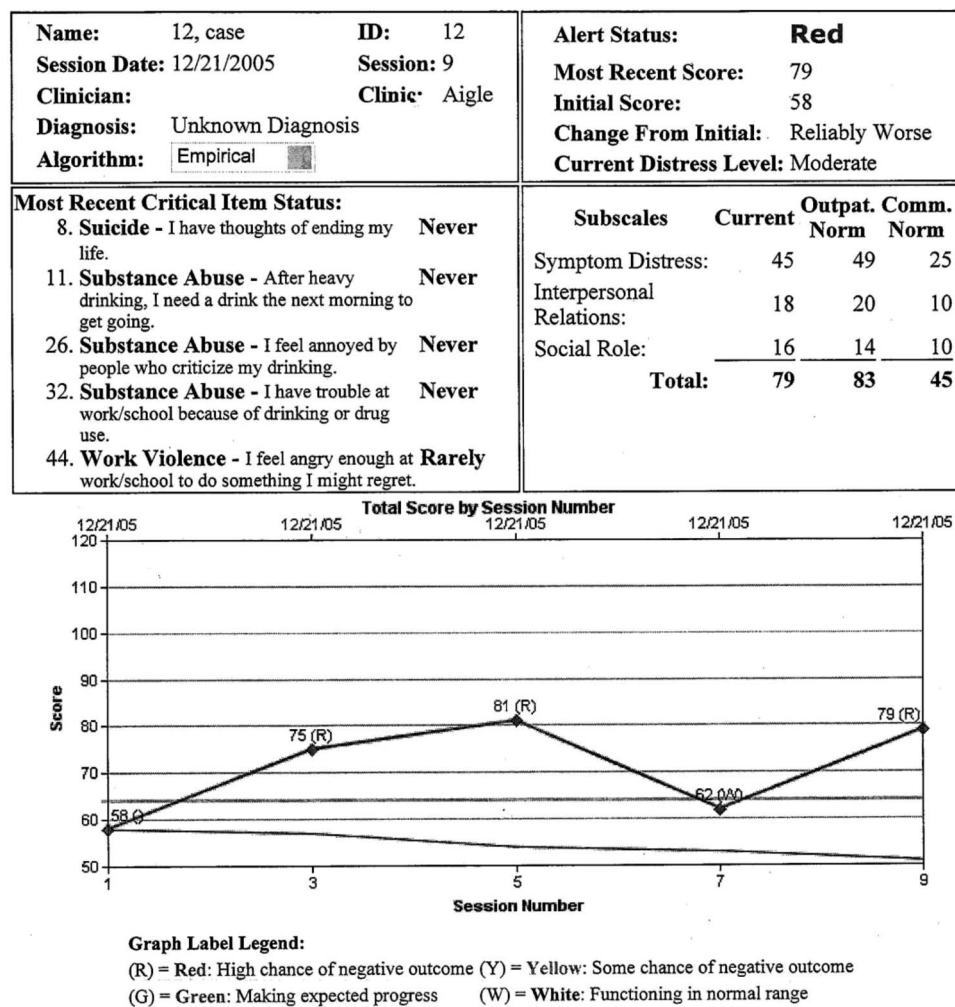
2002; Lutz et al., 2006; Spielmans, Masters, & Lambert, 2006). It has been found to predict final deterioration in 85% to 100% of cases and to recognize such cases early in the treatment process. Although it generates false positives (i.e., cases it identifies as off track who ultimately do not deteriorate), its ability to predict treatment failure far exceeds a clinician's ability to do so (Hannan et al., 2005).

A sample feedback report from the OQ-Analyst (www.oqmeasures.com) is displayed in Figure 1. This report displays a client's progress at the ninth session of psychotherapy in relation to a horizontal line at a score of 64/63 marking normal functioning and a solid dark line displaying the expected treatment response. Most important is the "Red" alert signal in the upper right-hand corner, which indicates that this client is responding so poorly to therapy

that he or she is predicted to prematurely terminate or leave treatment having deteriorated.

In conjunction with identifying deteriorating cases, the OQ-Analyst also provides a method for directing clinician problem-solving with at-risk cases. Overall, this is known as the clinical support tool (CST; Lambert, Bailey, White, Tingey, Stevens, 2015). The CST is composed of a problem-solving decision tree that systematically directs a clinician's attention to factors that have been shown to be consistently related to client outcome. The CST decision tree is shown in Figure 2. As can be seen in the example of the failing case, it directs a therapist's attention to several treatment features.

A second measure, the Assessment for Signal Cases (ASC; Lambert, Bailey, et al., 2015), was developed to assist clinicians in



Feedback Message:

The patient is deviating from the expected response to treatment. They are not on track to realize substantial benefit from treatment. Chances are they may drop out of treatment prematurely or have a negative treatment outcome. Steps should be taken to carefully review this case and identify reasons for poor progress. It is recommended that you be alert to the possible need to improve the therapeutic alliance, reconsider the client's readiness for change and the need to renegotiate the therapeutic contract, intervene to strengthen social supports, or possibly alter your treatment plan by intensifying treatment, shifting intervention strategies, or decide upon a new course of action, such as referral for medication. Continuous monitoring of future progress is highly recommended.

Figure 1. OQ-Analyst screenshot illustrating the feedback report of client progress provided to the therapist.

Clinical Support Tools Decision Tree

Not-On-Track Feedback Cases

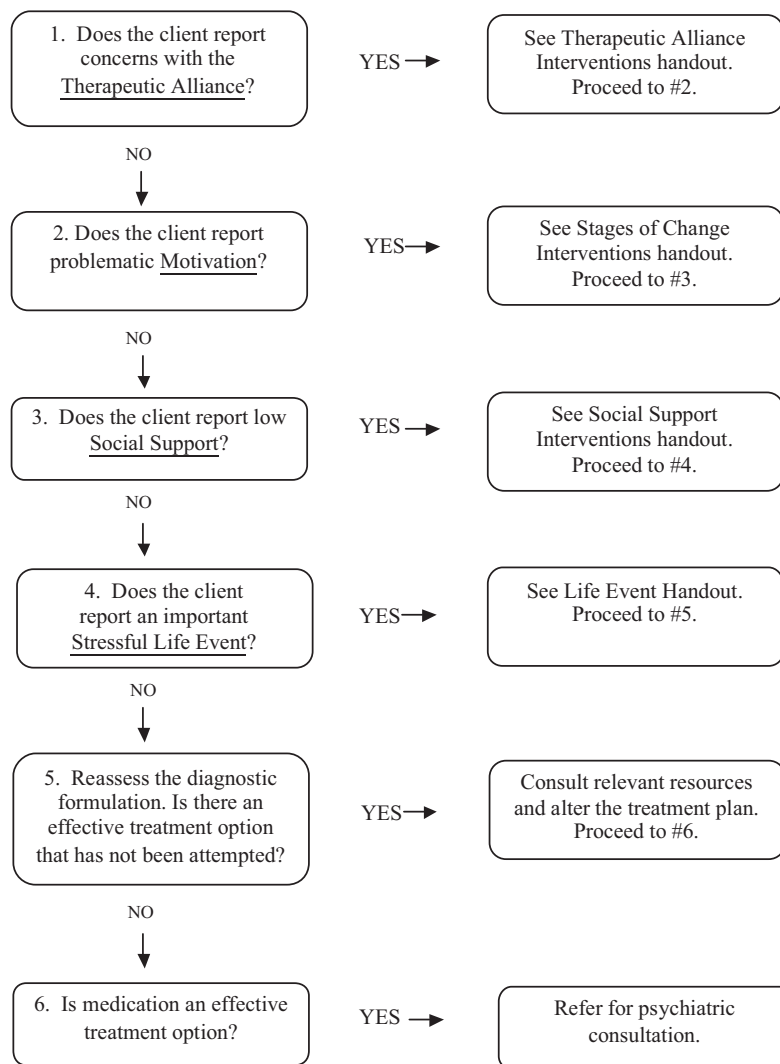


Figure 2. Clinical support tool problem-solving decision tree.

going through the decision tree. The ASC is a 40-item client self-report scale aimed at assessing the therapeutic alliance, motivation, social support, and negative life events. Rather than a total score, the ASC feedback to clinicians is provided for each assessment domain. The subscales have adequate reliability and validity, and, like the OQ-45, it is brief and suitable for routine use in ongoing treatment.

The OQ-Analyst is an online software application that facilitates real-time electronic feedback for clinicians (and clients). Once a client takes the OQ-45, commences treatment, and completes a psychotherapy session, the signal alarm system generates feedback regarding the client's progress. If it is off-track, the ASC is administered, and the CST is used to help clinicians solve problems with these clients. Figure 3 presents a sample feedback report of the ASC. Items that fall below an empirically based cutoff score

(about 1 standard deviation below the mean rating on the item by clients in normative samples) are brought to the therapist's attention. This is also true of subscales. For example, therapists can be notified not only if the therapeutic alliance, as a whole, is problematic, but also if it is the bond, in particular, that is problematic, while the task and goal consensus are not.

Partners for Change Outcome Management System

PCOMS (Duncan & Miller, 2008; Prescott et al., 2017) is a ROM system that uses two ultrabrief scales (four items each): the Outcome Rating Scale (ORS) and the Session Rating Scale (SRS). The ORS (Miller, Duncan, Brown, Sparks, & Claud, 2003) focuses on mental health functioning, modeled after the domains of outcome measured by subscales of the OQ-45 (Lambert, 2013).

Name: C-OQ45, GEORGE, R ID: MRN0101 Session Date: 12/25/2006 Session: 1 Clinician: Clinician, Bob Clinic: TX Dallas Clinic Diagnosis: Unknown Diagnosis Instrument: ASC Display Interventions Handout	<table border="1"> <thead> <tr> <th>Subscales</th> <th>Current Scores</th> <th>Alerts</th> </tr> </thead> <tbody> <tr> <td>Therapeutic Alliance:</td> <td>39</td> <td>RED</td> </tr> <tr> <td>Social Support:</td> <td>36</td> <td></td> </tr> <tr> <td>Motivation:</td> <td>30</td> <td>RED</td> </tr> <tr> <td>Life Events:</td> <td>29</td> <td></td> </tr> </tbody> </table>	Subscales	Current Scores	Alerts	Therapeutic Alliance:	39	RED	Social Support:	36		Motivation:	30	RED	Life Events:	29	
Subscales	Current Scores	Alerts														
Therapeutic Alliance:	39	RED														
Social Support:	36															
Motivation:	30	RED														
Life Events:	29															
Therapeutic Alliance: RED It is advisable that you address your relationship with the client. Please click 'Display Interventions Handout' button for more information. 1. I felt cared for and respected as a person. Neutral 2. I felt my therapist understood me. Neutral 3. I thought the suggestions my therapist made were useful. Neutral 4. I felt like I could trust my therapist completely. Slightly Agree 9. My therapist seemed to be glad to see me. Neutral 10. My therapist and I seemed to work well together to accomplish what I want. Slightly Disagree 11. My therapist and I had a similar understanding of my problems. Strongly Disagree	Social Support: 15. I got the emotional help and support I needed from someone in my family. Strongly Disagree 16. There was a special person who was around when I was in need. Neutral 21. I felt connected to a higher power. Strongly Disagree															
Motivation: RED It is advisable that you address your client's motivation in therapy. Please click 'Display Interventions Handout' button for more information. 23. I wonder what I am doing in therapy; actually I find it boring. Slightly Agree 26. I had thoughts about quitting therapy; it's just not for me. Slightly Agree 27. I don't think therapy will help me feel any better. Neutral 28. I have no desire to work out my problems. Strongly Agree 31. I am in therapy because someone is requiring it of me. Neutral	Life Events: 32. I had an interaction with another person that I found upsetting. Strongly Agree 38. I had health problems (such as physical pain). Strongly Agree															

Figure 3. Assessment for Signal Cases feedback report.

SRS(Duncan & Miller, 2008) is designed to assess the therapeutic alliance. Because of its brevity, this system is clinician friendly and allows ratings of mental health status and therapeutic alliance to be typically collected in the presence of the therapist. This facilitates the discussion of assessment results by the client and therapist in session. The PCOMS provides a rating of the helping relationship at every session (www.whatispcoms.com).

The ORS uses a visual analog scale that requires clients to rate their functioning on four items (subjective well-being, interpersonal relations, social functioning, and overall sense of well-

being). The test–retest correlations among nonclinical samples range from .49 to .66, with high international consistency (Cronbach's $\alpha = .93$; Miller & Duncan, 2004). Correlations between the ORS and OQ-45 over four waves of repeated administrations among 86 nonclinical individuals ranged from .53 to .69. It appears that these two measures share just a moderate amount of common variance ($r^2 = .28$.48).

The ORS incorporates expected trajectories of client change based on Bayesian inference, the initial score, and the change at a given session in relation to the initial score (Miller, Duncan,

Sorrell, & Brown, 2005). The identification of at-risk clients can be generated by using web-based software that “calculates trajectories of change at the 25th, 50th, and 75th percentile levels” (Anker, Duncan, & Sparks, 2009, p. 697) based on a large archival ORS database. Clients whose ORS scores at the third session fall below the 50th percentile mark of the expected trajectory of progress based on individual response are identified as at risk. Unfortunately, the accuracy of identifying cases at risk for treatment failure has not been cross validated (Schuckard, Miller, & Hubble, 2017).

The therapeutic relationship as measured by the SRS is based on the concept of therapeutic alliance by Bordin (1979) and the construct Duncan and Miller (2008) termed “client’s theory of change.” These interrelated alliance theories emphasize three aspects of the helping relationship: the affective bond, agreement on tasks during sessions, and consensus on treatment goals. Miller and colleagues (2005) developed three items to rate these constructs and a fourth item that provides an overall rating of the relationship. The concurrent validity of the SRS and Helping Alliance Questionnaire-II is $r = .48$.

Figure 4 provides a hypothetical example of feedback to both the clinician and client for a case falling under benchmark predictions. ORS scores are graphically portrayed in comparison with the 50th percentile trajectory, which is based on the client’s intake score. In research and practice, the use of the ORS and SRS is characteristic of ROM practices except that, in addition to client progress, the helping relationship is also the subject of feedback. Joint use encourages the client and the practitioner to discuss treatment options to avert a negative outcome when there seems to be a problem in either domain.

Clinical Examples

In this hypothetical example, the psychotherapist, a 62-year-old man, had been seeing a 22-year-old female undergraduate (Jane) at a university counseling center for 12 sessions of psychotherapy. The client originally complained of anxiety, indecisiveness, and excessive worry about her academic performance, her major, and her boyfriend, who had recently proposed to her. Her measured treatment progress had been steady and positive with the most recent signal indicating that she was functioning in the “normal” range. As a result, she and her therapist had reduced the frequency of their sessions with the goal of bringing the therapy to an end.

In the interim, the client had taken her fiancé to visit her family, who were farmers in a rural area of a nearby state. She was not expecting approval from them because in almost all ways, he was nothing like their fantasies of her choice for a partner (preferably someone who would help with the farm). Early in her dating relationship, she was not especially upset by their reaction to him because she realized it would be a shock.

About 4 weeks later, her measured treatment progress took a strong turn for the worse, and the OQ-Analyst feedback report flagged her as a client at risk for treatment failure (red alarm). Upon signaling as off-track, the OQ-Analyst administered the ASC to her. The ASC report indicated that the therapeutic relationship was quite strong with regard to her affective bond, agreement on treatment goals, and agreement on the focus of therapy sessions. She felt certain that therapy would be helpful if she actively participated, according to her answers on the motivations scale. However, she indicated on the Social Support Scale that she was experiencing great difficulty in her family relationships. The ther-



Figure 4. Hypothetical example of Partners for Change Outcome Management System feedback for a client falling below benchmark predictions.

apist was prepared to discuss her negative change and its causes, particularly what had happened in her social support network, based on the ASC results.

The client (C) began the next session looking uncomfortable but with a covering smile:

C: *I am wondering if you would consider giving me your opinion about something. In this binder, I have several wedding dresses that I want to show you. I would like your opinion about which one you think is the best for me.*

Therapist (T): (Inner reaction: immediate surprise and a sense of shock—what in the world would make Jane think an old guy like me would have a valid opinion on wedding dresses; Thought 2: Wow, she is really avoiding the work of therapy) *Jane, I am surprised by your request. How come you are asking me of all people? (Perhaps if the therapist was female, she would be faster to pick up on the importance of choosing a wedding dress).*

C: (Immediately breaking into tears. Minutes pass.) *Every time I call my mom to talk about the wedding details, she immediately says, "Are you sure you want to get married?" She will say anything to sew doubt in me, and she will not help me make decisions or support me in any way. Every time we talk about the wedding details, we end up in a big fight. I need her help and support, not a fight.*

Toward the end of this emotional session, the therapist suggests:

T: *I can see that this conflict with your folks is getting much worse as the wedding date approaches and that you are thinking of writing them out of your life. Do you think they would drive down here and join us in a session?*

C: *Yes, I do. But they will be coming in hopes to convince you that he is not a good match and to see if you'll talk some sense into me.*

T: *Let's talk about how to make it work for you and how we can organize the meeting . . .*

This is a good example of how progress feedback with an alarm signal, the CST, and the ASC feedback work together to narrow a therapist's focus, in this case, to change from individual therapy to a family intervention. The ASC indicated that the client's problem had moved from an internal concern satisfactorily treated with individual therapy to an external stressor concerning the family of origin and the client's response to it. Thus, in response to feedback results and in collaboration with the client, they decided to address family stress in conjoint family sessions. In this case, the ASC (according to the therapist) helped him change the focus of therapy to quickly alter the crisis at hand.

Use of the PCOMS

The following excerpt is taken from Duncan and Reese (2015, p. 395) and provides a hypothetical example of a therapist introducing the ORS to a client in session:

T: *I like to start with this brief form called the Outcome Rating Scale, which provides a snapshot of how you are doing right now. It serves as an anchor point so we can track your progress and make sure that you get what came here to get and if you're not, we can regroup and try something else. It's also a way to make sure your perspective of how you are doing stays central. Would you mind doing it for me?*

T: *What I do is I just measure this up. Its four 10-cm lines and gives a score from 0 to 40 and I just pull out this ruler and add up the scores, and then I will tell you about what this says and you can tell me whether it is accurate or not. . . . Okay, you scored a 19.8. This scale, the Outcome Rating Scale, has what's called a cut-off score of 25, and people who score under 25 tend to be those who wind up talking to people like me, they're looking for something different in their lives. You scored about the average intake score of persons who enter therapy, so you've come to the right place. And it's not hard to look at this and see pretty quickly that it's the family/close relationships part you are struggling with most right now. Does that make sense?*

C: *Yes definitely.*

T: *So what do you think would be the most useful thing for us to talk about?*

C: *Well, I am in the middle of divorce and struggling with figuring this out. . . .*

T: *If I am getting this right, you said that you are struggling with the divorce, specifically about why it happened and your part in it so you are looking to explore this and gain some insight into what, perhaps, was your contribution. You marked the Interpersonally Scale the lowest [Therapist picks up the ORS]. Does this mark represent this struggle and your longing for some clarity?*

C: *Yes.*

T: *So, if we were able to explore this situation and reach some insights that resonate with you, do you think that it would move that mark to the right?*

C: *Yes that is what I am hoping for and what I think will help me. I know I was not perfect in the relationship and I want to understand my part. I already know his part!*

Results of Previous Reviews

At this point in time, many meta-analytic studies have been conducted on the effects of feedback on human performance generally (mainly positive effects), feedback in health care settings (with less positive outcomes, e.g., Boyce & Browne, 2013), and with ROM in mental health settings, in particular. Those considering ROM practices in psychotherapy have included overlapping collections of studies (Carlier et al., 2012; Davidson, Perry, & Bell, 2015; Gondek, Edbrooke-Childs, Fink, Deighton, & Wolpert, 2016; Knaup, Koesters, Schoefer, Becker, & Puschner, 2009; Krägeloh, Czuba, Billington, Kersten, & Siegert, 2015; Sapyta et

al., 2005) and mainly positive results. A recent meta-analytic review on feedback was published for the Cochrane Database of Systematic Reviews (Kendrick et al., 2016). This review considered studies of patient-reported outcome measures for improving treatment for mental health disorders in primary care, psychological therapy, and multidisciplinary mental health settings, and suggested that the evidence base for these methods was weak. In contrast to the Cochrane review, Fortney and colleagues (2017) analyzed 51 articles that examined the effects of feedback to practitioners delivering either medication or psychotherapy for mental disorders. They concluded that virtually all randomized clinical trials with frequent and timely feedback of client-reported symptoms to the practitioner significantly improved treatment outcomes. They reported evidence for the acceptability of such procedures to both clinicians and clients, as well as the feasibility of implementation on a large scale.

Four previous meta-analytic reviews have been conducted on outcomes using the specific methods under review in this article (OQ-System and PCOMS; Duncan & Reese, 2015; Lambert & Shimokawa, 2011a; Lambert, Whipple, et al., 2003; Shimokawa, Lambert, & Smart, 2010). As a group, they have provided strong evidence that these two methods improve the effects of psychotherapy in comparison with TAU often provided by the same therapists. Clients in feedback conditions achieved more pre-post treatment gains, achieved higher percentages of reliable and clinically significant change, and were less likely to drop out. All the studies summarized in these meta-analyses are included in the current study.

Systematic and Meta-Analytic Review

Inclusion Criteria and Search Strategy

Electronic databases such as Medline, PsycINFO, PsycEXTRA, Google Scholar, past reviews, and hand searches were used to identify studies that were of mental health outcomes and feedback using either the OQ-System or the PCOMS. Search terms included the Outcome Questionnaire-45; OQ-45, OQ-System, OQ-Analyst, Outcome Feedback, Progress Feedback, Routine Outcome Monitoring, PROM, Client Feedback, Feedback Informed Psychotherapy, Treatment Monitoring, Outcome Rating Scale, Session Rating Scale, and Partners for Change Outcome Management System.

The systematic review included studies that met all of the following eligibility criteria: (a) use of OQ-System or PCOMS for providing mental health feedback, (b) the intervention was provided to a mental health sample (without restrictions on diagnoses), (c) the intervention provided was a recognizable psychotherapy (e.g., cognitive behavior therapy, psychodynamic therapy, and eclectic psychotherapy) with no restrictions on treatment setting or modality (individual, group, and couple), and (d) patients were assigned (not necessarily randomly) either to a psychotherapy with feedback condition or to a psychotherapy without feedback (TAU) condition. To be included in the meta-analysis, the study needed to report client outcomes and statistics needed for calculating standardized mean differences (SMDs) and odds ratios (ORs) at the end of treatment. We limited our literature search to studies published in English language journals. There were no restrictions regarding the date of publication.

Outcome Measures and Computation of Effects

We collected the mean score, standard deviation, and number of participants at endpoint in the experimental (feedback) and TAU conditions from each original study to calculate an SMD with a 95% confidence interval (CI) for each trial. For computing treatment effects based on dichotomous data, which means in this meta-analysis to contrast the rates and odds of client deterioration and significant improvement between feedback groups and TAU, we collected the number of clients who deteriorated or improved (see the definition in the following text) and the total sample size at the endpoint in the experimental and TAU conditions and calculated an OR with 95% CI for each single trial (a 95% CI that includes 1.0 indicates nonsignificance of the OR).

A key element in psychotherapy research is operationalizing positive and negative outcomes for the individual client. Jacobson and Truax (1991) offered a methodology by which client changes on an outcome measure can be classified into the following categories: recovered, reliably improved, no change, and deteriorated. There are two necessary pieces of information needed to classify these client outcomes: a Reliable Change Index and a normal functioning cutoff score. Our analyses of deterioration rates, reliable change, and clinically significant change in this article are based on the work of Jacobson and Truax (1991). OQ-System cut-off scores and those based on the PCOMS have not been cross validated with each other, so their comparability is unknown.

When examining the odds of deterioration, we dichotomized clients into either the deterioration group or nondeterioration group and then calculated the OR of deterioration for a given comparison. Similarly, when comparing the odds of improvement in two groups, the OR was calculated as the odds of improvement versus those of nonimprovement (e.g., no change and deterioration). We defined a priori that in case two or more studies being eligible for inclusion were available, we would perform a meta-analysis. The SMDs or ORs of each single original trial were weighted by the generic inverse variance method offered by Review Manager 5.3 (Copenhagen, Denmark; Review Manager, 2014). The effect estimate of a single trial receives a weight that is equal to the inverse of the variance of the effect estimate (i.e., one divided by the standard error squared; Higgins & Green, 2011). Based on the assumptions of a random-effects model, these single weighted effects were aggregated across all available studies to a total, weighted SMD or OR, respectively, with a 95% CI (Higgins & Green, 2011).

In cases of multiple progress feedback arms in one trial (e.g., one arm with progress feedback plus CST and one arm with progress feedback only), we combined the groups to create a single pairwise comparison (Higgins & Green, 2011). For the determination of the heterogeneity of the aggregated single effects, we applied the Q statistic (Hedges & Olkin, 1985). The problem with this test is its low power, which means that although statistically significant results may indicate problems with the homogeneity of the results, a nonsignificant test statistic does not necessarily indicate heterogeneity. It is therefore recommended to use a p value of .10 to determine statistical significance (Higgins & Green, 2011). In addition to the Q statistic, we applied the I^2 statistic to quantify the percentage of variability in effect estimates, which is due to heterogeneity rather than the sampling error. All meta-analytical calculations were done with the Review Manager 5.3

(Review Manager, 2014). Following the recommendations of the Cochrane Collaboration (Higgins & Green, 2011), we provided a funnel plot and a test of funnel plot asymmetry based on linear regression (Egger, Smith, Schneider, & Minder, 1997) to check for a publication bias.

Systematic and Meta-Analytic Review of the OQ-System

Characteristics of included studies. Table 1 summarizes the 15 included studies examining the OQ-System that fulfilled the inclusion criteria. This represents a doubling of the available evidence from the earlier meta-analysis (Lambert & Shimokawa, 2011b) and includes studies published since. Three older dissertations that never made their way into publication (Copeland, 2007; Trudeau, 2000; Truitt, 2011) were identified in the literature search but were excluded from this meta-analysis due to such serious implementation flaws that their results were suspect (e.g., small *ns* precluded hypothesis testing with inferential statistics). One study (de Jong, van Sluis, Nugter, Heiser, & Spinhoven, 2012) fulfilled the criteria of our systematic review, but it did not provide the necessary statistics in order to be included in the meta-analysis.

With the exception of two studies (Harmon et al., 2007; Slade, Lambert, Harmon, Smart, & Bailey, 2008) that used an archival TAU group, all the included studies assigned clients to either receive psychotherapy as usually delivered (TAU) or to receive that same psychotherapy enhanced by some type of progress feedback. In short, we are reporting experimental rather than correlational evidence. In some studies, the effects of CSTs were tested and the question was as follows: Will the use of CST further enhance at-risk client outcome compared with progress feedback alone and with TAU? The 15 studies in the current systematic review expand upon the original research findings by examining outcomes across several European countries and include substance abusing individuals, eating disordered inpatients, psychosomatic inpatients, a vocational rehabilitation sample, and application with group psychotherapy.

The total number of clients in the 15 studies was 8,649, of whom 1,958 were not-on-track (NOT) cases. Of the 15 studies reported in Table 1, three (Amble, Gude, Stubdal, Andersen, & Wampold, 2015; De Jong et al., 2014; Grizzell, Smart, Lambert, & Fargo, 2016) did not include a separate analysis of outcomes for NOT clients. The average number of NOT cases per study was 242 (2,899/12), although some studies had more than one feedback condition, shrinking the number per group. The mean percent of NOT clients within the 12 studies that reported this number was 31.2%, with a range of 11% to 56%. This suggests considerable variability in the portion of patients off track. The cause of this variability is unknown, but the nature of both the client population the treatment is probably explanatory. The studies conducted in a university counseling center had a NOT proportion ranging from 11% to 30%. Practitioners can anticipate the percentage of NOT cases using the OQ-Analyst's algorithms to be related to the difficulty of their caseload.

As shown in Table 1, one study (Grizzell et al., 2016) was seriously underpowered with an *n* prior to the randomization of only 30 clients. The small *n* in experimental and control groups was further reduced when client outcomes were examined separately for on-track and NOT cases. Thus, the portion of NOT cases

and their outcomes could not be analyzed and were not reported in the publication of the study. The other 14 studies in this meta-analytic review started with a minimum of 133 clients (Simon et al., 2013) and, in most cases, had hundreds of clients assigned to TAU or feedback conditions.

Pattern of statistically significant findings. The usual standard for concluding that one treatment is superior to another is that of a statistical significance (reliable) superiority of one over the other. Of the 15 identified studies, 11 (73%) found a statistically significant difference between the NOT feedback group and the NOT TAU control on the primary outcome variable (OQ-45). If the single underpowered study is excluded from this analysis, 79% (11/14) of studies reported a statistically significant effect for feedback compared with TAU within a therapist's caseload. The practical implication of this finding that clinics and practitioners are highly likely to find implementing feedback in routine care will reliably enhance client outcomes for NOT clients (i.e., about one-third of their caseload). The size of this treatment effect and its clinical significance will now be addressed.

Meta-analyses and effect sizes. The meta-analysis showed that the progress feedback intervention outperformed TAU in the total sample by a very small but statistically significant effect at the end of the treatment (SMD = .14, 95% CI [.08, .20]). There was consistency in the data, $Q(9) = 11.38, p = .250; I^2 = 21\%$. Although not statistically significant, the OR shows a tendency for feedback, in contrast to TAU, to reduce the number of clients who deteriorated, OR = .87, 95% CI [.51, 1.50]; $Q(2) = .86, p = .650; I^2 = 0\%$, and increased the number of improved clients at the end of therapy, OR = 1.30, 95% CI [.97, 1.73]; $Q(2) = 0.64, p = .730; I^2 = 0\%$. These ORs have to be interpreted cautiously because they are both, for deterioration and improvement rates, based on only three studies. Results are summarized and depicted in Figure 5.

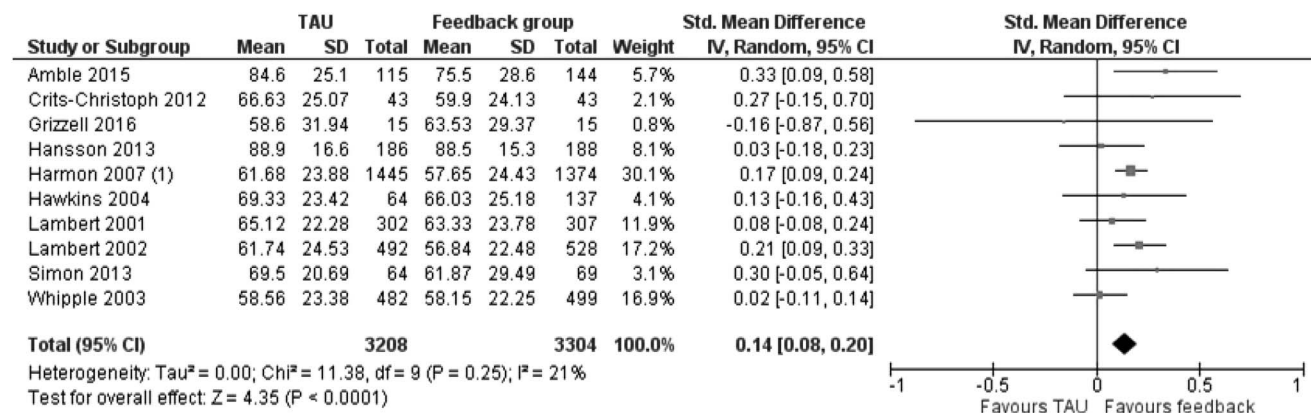
The effects identified in the total sample are larger when the effect sizes are calculated with data only from clients who were NOT clients (see summary in Figure 6). The effect of the feedback intervention was larger and reached significance with a weighted effect size of .33 (95% CI [.25, .41]). The heterogeneity index, $Q(7) = 3.79, p = .800; I^2 = 0\%$, indicated absolute homogeneity in the data. Consistent with this finding, the ORs show a significantly reducing effect of feedback, in contrast to TAU, on the rate of clients who deteriorated, OR = .61, 95% CI [.46, .81]; $Q(5) = 2.47, p = .780; I^2 = 0\%$, and a significantly increasing effect on the number of improved clients, OR = 1.89, 95% CI [1.50, 2.37]. Both kinds of analyzed OR data demonstrated high consistence, $Q(5) = .49, p = .990; I^2 = 0\%$.

Of the eight studies in which the CST was added to the progress feedback, six studies (Crits-Christoph et al., 2012; Harmon et al., 2007; Probst, Lambert, Dahlbender, Loew, & Tritt, 2014; Simon et al., 2013; Slade et al., 2008; Whipple et al., 2003) provided sufficient data for calculating a total, weighted SMD. We identified a moderate weighted effect size of .49 (95% CI [.25, .73]) for the comparison between the feedback plus CST condition and the TAU condition in the NOT sample. The OR analyses showed a significant benefit of feedback plus CST on the rate of deteriorating clients (OR = .37, 95% CI [.22, .63]), as well as on the rate of improving clients (OR = 2.40, 95% CI [1.73, 3.35]). Effect sizes based on the feedback plus CST versus TAU comparisons in the NOT group are substantially larger compared with the effect sizes based on feedback versus TAU comparisons in the NOT group (OQ-45 total

Table 1
Clinical Trials Examining the Effects of Progress Monitoring With Alarm Signals and Clinical Support Tool Feedback Using the Outcome Questionnaire-45^a

Study	N Total	N Total Fb/ TAU	N NOT (% of N total)	N NOT Fb/ TAU	Therapy Setting ^{b/} Mental Dis-orders ^c	Country	Significant effect	CST ^d	Total sample Fb vs. TAU				NOT sample Fb vs. TAU			
									OR [95% CI]				SMD [95% CI]			
									SMD [95% CI]	Deterioration	Improvement	Improvement	SMD [95% CI]	Deterioration	Improvement	Improvement
Anble, Gude, Stubbald, Andersen, & Wampold, 2015	259	144/115	na	na/na	OP-I/mix	N	Yes	No	.33 [.09, .58]	.62 [.24, 1.62]	1.51 [.90, 2.51]	na	na	na	na	na
Cris-Christoph et al., 2012	304	165/139	116 (38.16%)	54/62	SA-I/SA	USA	Yes	Yes	.27 [-.15, .70]	na	na	na	.47 [-.16, 1.10]	na	na	na
De Jong et al., 2012	413	207/206	67 (16.22%)	na/na	OP-I/mix	NL	No/Yes	No	na	na	na	na	na	na	na	na
De Jong et al., 2014	475	331/144	na	na/na	OP-I/mix	NL	No	No	na	.98 [.48, 1.99]	1.17 [.79, 1.73]	na	na	na	na	na
Grizzell, Smart, Lambert, & Fargo, 2016 ^e	30	15/15	na	na/na	Voc Rehab-G/mix	USA	No/Yes	Yes	-.16 [-.56, -.87]	na	na	na	na	na	na	na
Hansson et al., 2013	262	188/186	72 (19.25%)	37/35	OP-I/mix	S	No	No	.03 [-.18, .23]	na	na	na	na	na	na	na
Harmon et al., 2007 ^f	2,819	1,374/1,445	655 (23.23%)	369/286	CC-I/mix	USA	Yes	Yes	.17 [.09, .24]	na	na	na	.33 [.18, .49]	1.13 [.75, 1.71]	3.83 [2.62, 5.61]	na
Hawkins, Lambert, Vermeersch, Slade, & Tuttle, 2004	306	70/64	101 (33.01%)	69/32	OP-I/mix	USA	Yes	No	.13 [-.16, .43]	na	na	na	na	.44 [.08, 2.31]	2.14 [.88, 5.17]	na
Lambert, Hansen, & Finch, 2001	609	307/302	66 (10.84%)	353/1	CC-I/mix	USA	Yes	No	.08 [-.08, .24]	na	na	na	.44 [-.05, .93]	.21 [.04, 1.09]	1.80 [.53, 6.10]	na
Lambert et al., 2002	1,422	528/492	240 (16.88%)	116/124	CC-I/mix	USA	Yes	No	.21 [.09, .33]	na	na	na	.42 [.17, .68]	.72 [.39, 1.36]	2.17 [1.19, 3.97]	na
Probst et al., 2013	252	134/118	43 (17.06%)	23/20	IP-I/G/Som	DE	Yes	Yes	na	na	na	na	.23 [-.37, .84]	na	na	na
Probst, Lambert, Dahlbender, Loew, & Tritt, 2014	370	na/na	207 (55.95%)	109/98	OP-I/mix	USA	Yes	Yes	na	na	na	na	.12 [-.16, .39]	.49 [.19, 1.30]	1.68 [.91, 3.09]	na
Simon, Lambert, Harris, Busath, & Vazquez, 2012	133	69/64	71 (53.38%)	33/38	IP-I/G/ED	USA	Yes	Yes	.30 [-.05, .64]	1.41 [.23, 8.72]	1.38 [.65, 2.93]	na	na	na	na	na
Simon et al., 2013	3,920	2,475/1,445	983 (29.79%)	697/286	CC-I/mix	USA	Yes	Yes	na	na	na	na	.37 [.23, .51]	na	na	na
Slade, Lambert, Harmon, Smart, & Bailey, 2008 ^g	1,339	499/482	278 (20.76%)	147/131	CC-I/mix	USA	Yes	Yes	.02 [-.11, .14]	na	na	na	.28 [.05, .52]	.55 [.28, 1.08]	1.94 [1.16, 3.24]	na
Whipple et al., 2003																

Note. Fb = feedback group; TAU = treatment-as-usual; NOT = not-on-track cases (predicted treatment failure); na = number of clients/data not available (were not reported in the original study report); OR = odds ratio; SMD = standardized mean difference; CI = confidence interval; NL = The Netherlands, S = Sweden, DE = Germany, N = Norway; USA = United States. ^a This summary excludes the results of three unpublished doctoral dissertations with serious implementation problems and very small *N*s (Trudeau, 2000; Copeland, 2007; & Truitt, 2011). ^b Therapy settings of included studies: CC = college counseling center clients; OP = outpatient clinics; SA = substance abuse clinics; IP = inpatient treatment setting; Voc Rehab = vocational rehabilitation clients; I = individual psychotherapy; G = group psychotherapy; IG = individual and group psychotherapy. ^c Mix = sample comprised clients with different mental disorders; SA = substance abuse disorder clients; ED = eating disorder clients; Som = clients with psychosomatic disorders. ^d Study used clinical support tools (CST), as well as progress feedback. ^e In the Fb condition all clients received CST (but not only the NOT clients, as it was done in the other trials including CST). ^f Includes archival TAU sample (N = 1,445) consisting of TAU samples from Lambert et al., 2001; Lambert et al., 2002 and Whipple et al., 2003. ^g Includes archival TAU sample (N = 1,374) from Harmon et al., 2007.



Footnotes

(1) The TAU group in this study is an archival control group composed of TAU group of the studies by Lambert 2001, Lambert 2002, Whipple 2003.

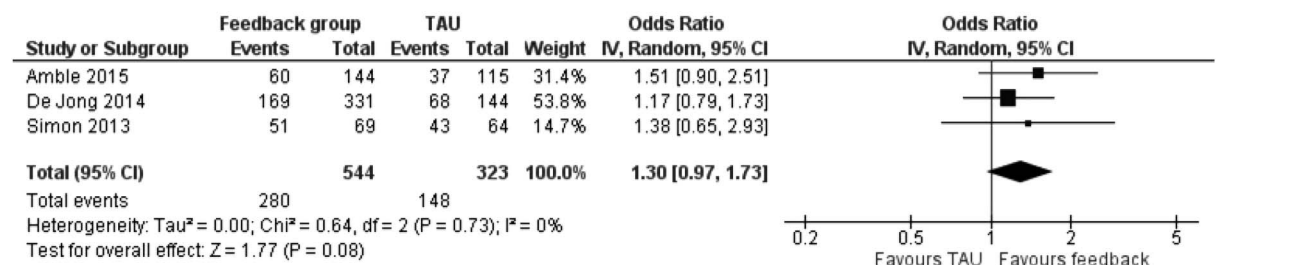
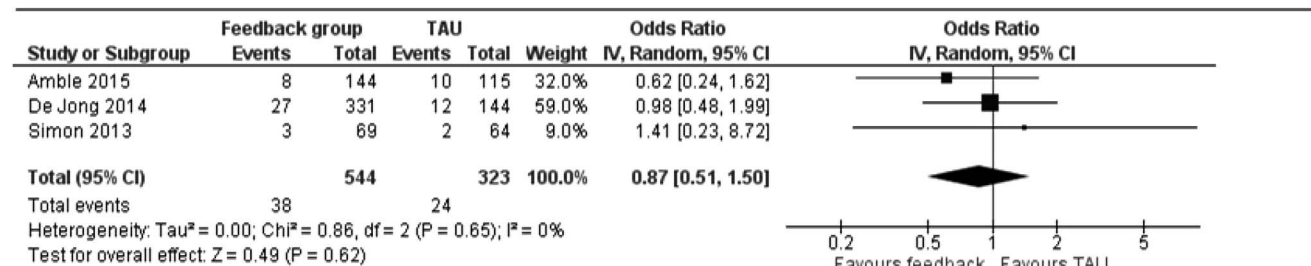


Figure 5. Forest plot of the comparison progress feedback versus treatment-as-usual in the total sample for the outcomes: Outcome Questionnaire-45 sum score (standardized mean difference), cases of deteriorated clients (odds ratio), and cases of improved clients (odds ratio).

score: $SMD_{Fb + CST \text{ vs. TAU}} = .49$ vs. $SMD_{Fb \text{ vs. TAU}} = .33$; rate of deteriorated clients: $OR_{Fb + CST \text{ vs. TAU}} = .37$ vs. $OR_{Fb \text{ vs. TAU}} = .61$; rate of improved clients: $OR_{Fb + CST \text{ vs. TAU}} = 2.40$ vs. $OR_{Fb \text{ vs. TAU}} = 1.89$).

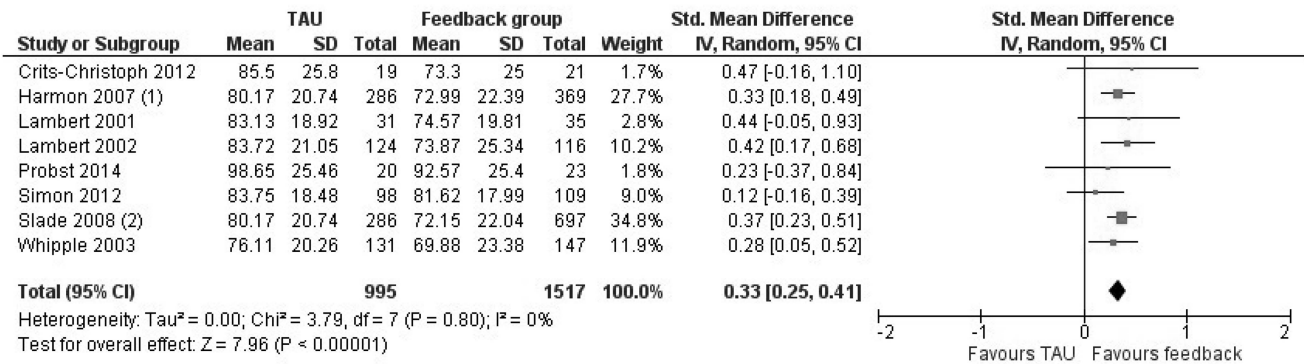
We created a funnel plot for the 10 studies that compared an OQ-based feedback intervention with TAU in the total sample that were entered in the meta-analysis (Figure 5). This funnel plot (Figure 8a) indicates asymmetry and a publication bias. The funnel plot shows that the effect estimates of the single trials mainly have a low standard error and are close to a total SMD of .14. The sole study (Grizzell et al., 2016) that deviates from the pattern had the smallest sample size and accordingly a high standard error. The test of the funnel plot asymmetry confirms the graphic result and the publication bias with an intercept of 6.01 (90% CI [1.99, 10.03]), which significantly deviates from zero ($p = .039$). However, these results have to be interpreted carefully because feedback studies generally have large sample sizes and small standard

errors. Thus, the results of the current funnel plot analysis could underlie a statistical artifact.

This finding is consistent with our earlier meta-analysis (Lambert & Shimokawa, 2011a). Overall, the results of examining effect sizes across the published studies suggest a very small effect of .14 for feedback on the whole sample, a larger effect (.33) for feedback on NOT clients, and a still larger effect (.49) when CSTs are provided to therapists. The pattern of results is similar to our previous meta-analysis, but the average effect sizes for each condition are slightly lower.

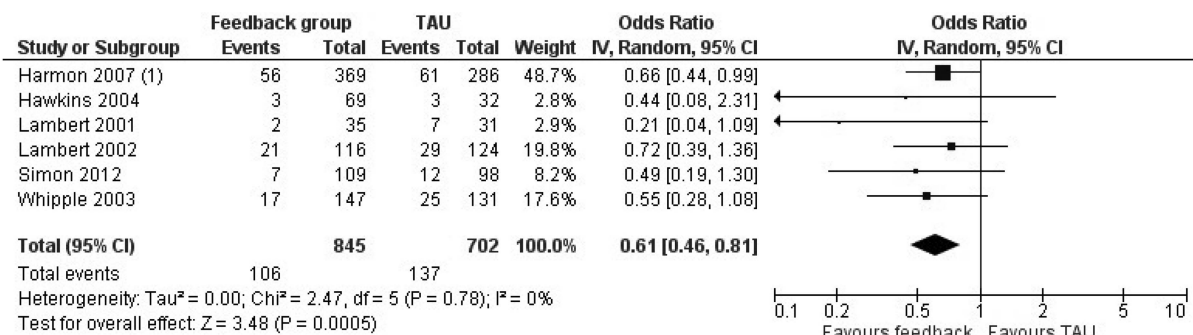
Systematic and Meta-Analytic Review of the PCOMS

Characteristics of studies. Nine studies, based on eight articles studying the effects of the PCOMS, were identified in our search (www.pcoms.com and www.heartandsoulofchange.com). This represents a threefold increase from our earlier review (Lam-



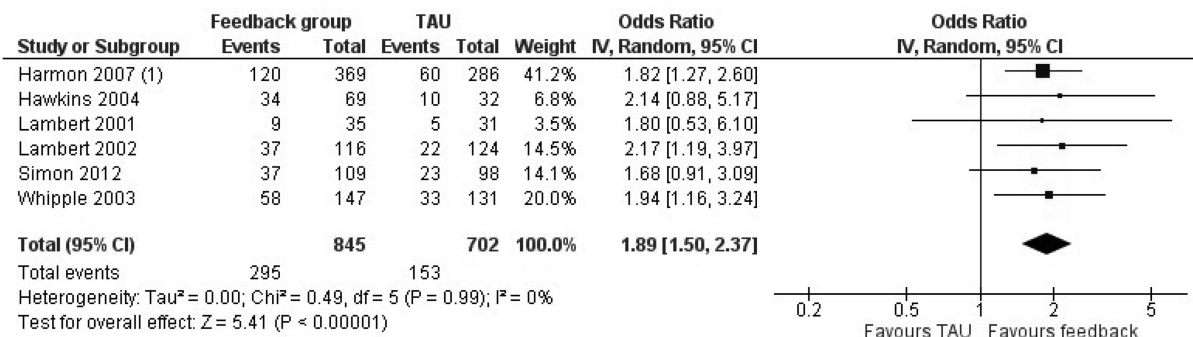
Footnotes

- (1) The TAU group in this study is an archival control group composed of TAU group of the studies by Lambert 2001, Lambert 2002, Whipple 2003.
 (2) This study shares the archival TAU group and partly the Fb group with the study by Harmon 2007.



Footnotes

- (1) TAU group in this study = archival control group composed of TAU group of the studies by Lambert 2001, Lambert 2002, Whipple 2003.



Footnotes

- (1) TAU group in this study = archival control group composed of TAU group of the studies by Lambert 2001, Lambert 2002, Whipple 2003.

Figure 6. Forest plot of the comparison progress feedback versus treatment as usual in the sample of clients who are not-on-track for the outcomes: Outcome Questionnaire-45 sum score (standardized mean difference), cases of deteriorated clients (odds ratio), and cases of improved clients (odds ratio).

bert & Shimokawa, 2011b). These studies are summarized in Table 2, which provides the number of clients included in each study but not the number of NOT clients. In contrast to studies with feedback based on the OQ-45, studies of PCOMS published results mainly focused on all clients, not just offtrack clients. In addition, Table 2 specifies the sample/setting of the study, if the difference between the experimental group and control group was statistically significant, and the size of the treatment effect.

Results of these studies are expected to be generalized to those who are in routine care rather than selective samples typically reported in randomized clinical trials. As shown in Table 2, the total number of clients in the nine studies of PCOMS was 2,272, with a mean per study of 252. An outlier study, with regard to its sample size (Janse, De Jong, Van Dijk, Hutschemaekers, & Verbraak, 2017), included 1,006 clients of the 2,272, giving it excessive weight. When this study is removed, the mean number of

Table 2
Clinical Trials Examining the Effects of PCOMS Progress Monitoring and Alliance Feedback Using the ORS and SRS

Study	N Total ^a	N Fb/TAU	Therapy Setting ^b / Mental disorders ^c	Country	Significant effect	SRS ^d	Total sample Fb vs. TAU		
							SMD[95% CI]	Deterioration	Improvement
Anker, Duncan, & Sparks, 2009	410	206/204	OP-COP/mix	N	Yes	No	.50 [.30, .69]	.36 [.10, 1.22]	3.96 [2.27, 6.90]
Davidson et al., 2017	159	80/79	ED-G	DK	No	Yes/No	.22 [-.12, .57]	na	na
Janse, De Jong, Van Dijk, Hutschemaekers, & Verbraak, 2017 ^f	1006	461/545	OP/mix	NL	No	Yes	.001 ^e	1.20 [.75, 1.91]	2.83 [1.08, 7.43]
Murphy, Rashleigh, & Timulak, 2012	110	59/51	CC-I/mix	IRL	No	No	.09 [-.29, .46]	.49 [.11, 2.17]	.78 [.36, 1.71]
Reese, Norsworthy, & Rowlands, 2009 (Study 1)	74	50/24	CC-I/mix	USA	Yes	Yes	.25 [-.24, .74]	.29 [.05, 1.88]	3.38 [1.17, 9.78]
Reese et al., 2009 (Study 2)	74	45/29	OP-I/mix	USA	Yes	Yes	.58 [.10, 1.06]	1.30 [.11, 15.05]	2.83 [1.08, 7.43]
Reese, Toland, Slone, & Norsworthy, 2010	92	54/38	OP-COP/mix	USA	Yes	Yes	.51 [.09, .94]	.68 [.16, 2.91]	3.99 [1.65, 9.65]
Schuman et al., 2015	263	137/126	SA-G/SA	USA	Yes	No	.37 [.13, .62]	1.26 [.62, 2.59]	1.50 [.92, 2.46]
Slone, Reese, Mathews-Duval, & Koder, 2015	84	43/41	CC-I/mix	USA	Yes	Yes	.54 [.10, .97]	.95 [.13, 7.09]	3.37 [1.34, 8.45]

Note. PCOMS = Partners for Change Outcome Management System; ORS = Outcome Rating Scale; SRS = Session Rating Scale; COP = couples—410; G = group therapy; SMD = standardized mean deviation; 95% CI = 95% confidence interval; OR = odds ratio; na = number of clients/ data not available (were not reported in the original study report); Fb = feedback group; TAU = treatment-as-usual; OR = odds ratio; SMD = standardized mean difference; N = Norway, IRL = Ireland, DK = Denmark, NL = The Netherlands; USA = United States.

^a The study N = the total sample. ^b CC = college counseling center clients; OP = outpatient clinics; SA = substance abuse clients; I = individual psychotherapy; COP = couples therapy. ^c mix = sample comprises clients with different mental disorders; SA = substance abuse disorder clients; ED = eating disorder clients. ^d Study used Outcome Rating Scale (ORS) and the Session Rating Scale (SRS). ^e When data for calculating SMD/OR were not available the effect size reported by the authors of the original report is provided (however the 95% CI is usually not provided in the original study reports). ^f Effect sizes are based on the outcome Global Severity Index of the Symptom Checklist-90.

clients per study is reduced to 158 clients, typically divided into either feedback or TAU conditions.

Pattern of statistically significant findings. Across the nine studies, six (67%) reported a statistically significant difference between feedback and TAU conditions. This finding suggests that most of the time researchers designed and implemented studies showing a reliable difference favoring PCOMS feedback over TAU. The practical implication of this finding is that clinics and practitioners are likely to find implementing PCOMS will reliably improve clients' outcomes beyond what is achieved in TAU.

Meta-analyses and effect sizes. Our meta-analytic calculations indicate that PCOMS feedback shows a statistically significant and small-to-moderate benefit (according to Cohen's criteria [Cohen, 1992], effect >.30, <.50) in comparison with the TAU in the total sample (SMD = .40, 95% CI [.29, .51]). Results of the included studies are highly consistent, $Q(7) = 6.17$, $p = .520$; $I^2 = 0\%$.

PCOMS feedback does not have a significant benefit in contrast to TAU on reducing the number of deteriorating clients, OR = .97, 95% CI [.70, 1.36]; $Q(7) = 6.55$, $p = .480$; $I^2 = 0\%$. However, in contrast to TAU, the feedback showed a significant benefit on the number of improved clients (OR = 2.11, 95% CI [1.29, 3.44]). Findings are presented in Figure 7. The results have to be interpreted cautiously, however, because the heterogeneity of the effects is large, $Q(7) = 33.85$, $p < .001$; $I^2 = 79\%$. The higher heterogeneity levels found in the data from the PCOMS studies suggest that the size of the treatment effect is not uniform across studies. The clinical results may vary as a function of client, clinician, and/or method variations. Within this set of nine studies, four were conducted outside of the United States (Anker et al., 2009; Davidssen et al., 2017; Janse et al., 2017; Murphy, Rashleigh, & Timulak, 2012), and three of these did not show an advantage for feedback.

We created a funnel plot for the eight studies that compared a PCOMS-based feedback intervention with TAU in the total sample and that were entered in the meta-analysis. This funnel plot (Figure 8b) indicates asymmetry and a publication bias. The funnel plot shows that the effect estimates of the trials all have a low standard error and are close to a total SMD of .40. The test of the funnel plot asymmetry confirms the graphic result and the publication bias with an intercept of 3.22 (90% CI [1.46, 4.98]), which significantly deviates from zero ($p = .024$).

In sum, aggregated findings from the nine studies indicate that the PCOMS rests on a growing empirical base that boosts confidence in its use as an ROM system. Practitioners can expect that PCOMS feedback will enhance client outcomes with an average effect size of .40, and at 95% CI, it will be between .29 and .51. Nevertheless, as our summary shows (Table 2), there is considerable heterogeneity in results ranging from SMD = 0 to .58. At this point in time, there are not enough studies to quantitatively analyze the mediators and moderators of outcome, so one is left to speculate as to the causes of seeming discrepancies.

The effect size estimate based on this review is lower than that based on the first three studies examined in earlier meta-analyses (Duncan & Reese, 2015; Lambert & Shimokawa, 2011a). This is not only largely due to the newer studies having smaller effects but also because several new studies failed to find a statistically significant effect for feedback. Despite this, the classification of each client's individual change through the Jacobson and Truax

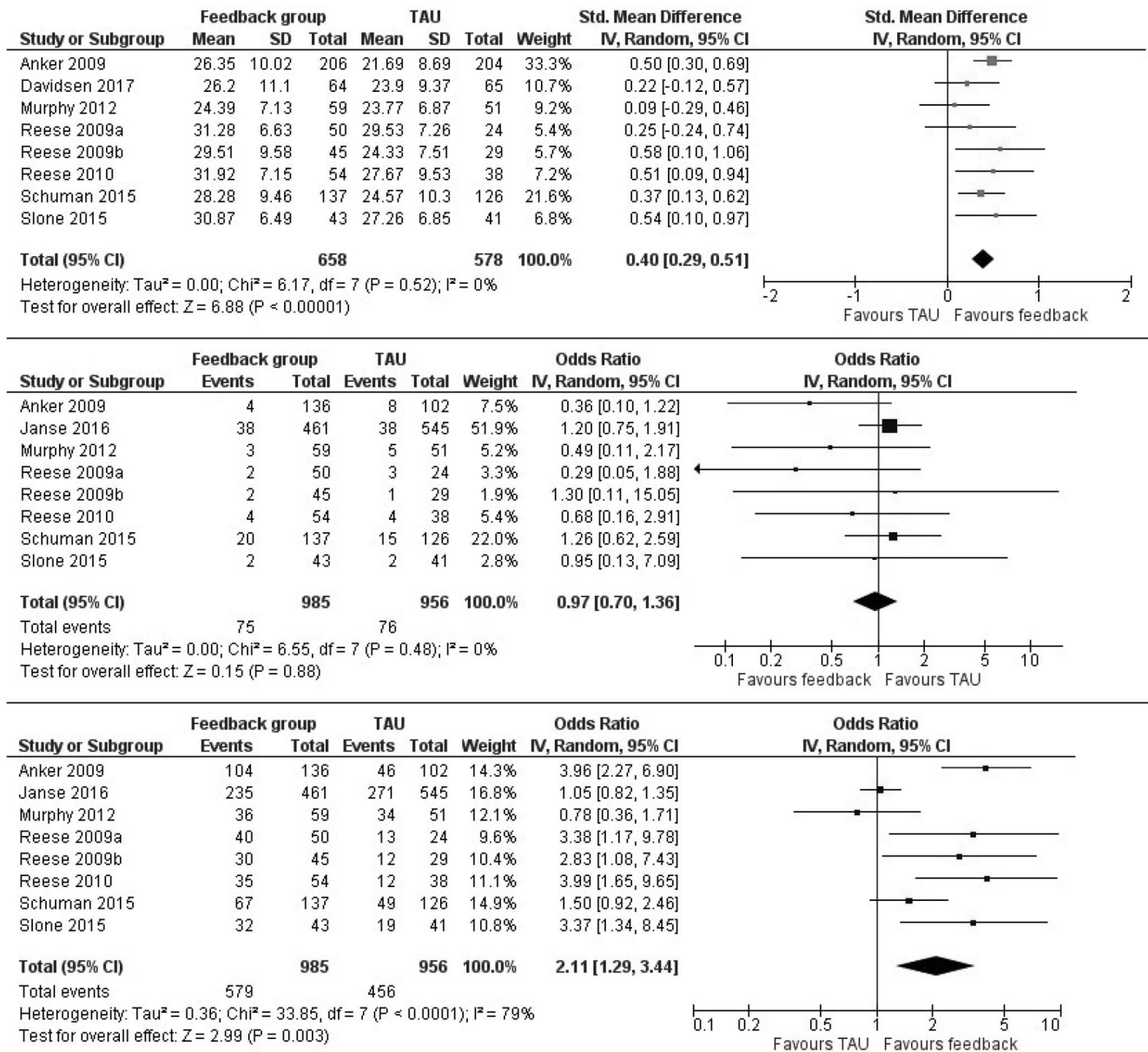


Figure 7. Forest plot of the comparison progress feedback versus treatment as usual in the total sample for the outcomes: Outcome Rating Scale sum score (standardized mean difference), cases of deteriorated clients (odds ratio), and cases of improved clients (odds ratio; extracted data for effect size calculation are based on the ORS sum score except for the study by Janse et al., 2017, which used the Global Severity Index of the Symptom Checklist-90).

(1991) method suggests that the use of the PCOMS substantially reduces the number of clients classified as “not changed” at termination. These clients are found to change enough to be considered reliably improved when the PCOMS is used.

Patient Contributions

We do not know from this meta-analysis the extent to which client variables are particularly important in ROM. PCOMS

feedback appears to work across the entire caseload regardless of the initial level of disturbance. Across the 24 studies examined in this review, patient diagnosis does not seem to exert much influence with regard to ROM feedback effects. At the same time, the impact of diagnosis has not been carefully studied, and diagnoses have usually been made by the treating clinician without the benefit of using standardized and reliable methods. We know from the published studies that a number of patients do not respond to feedback methods, but we have no

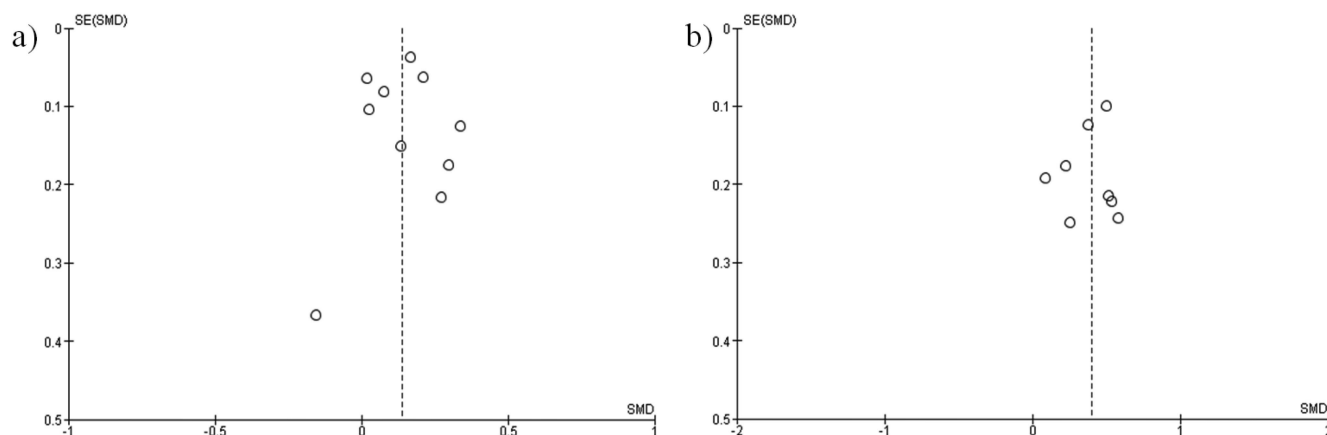


Figure 8. Funnel plot for studies included to a meta-analysis of the comparison between progress feedback and treatment-as-usual in the total sample with regard to (a) the OQ score (10 studies) and (b) the ORS score (eight studies) at the end of therapy (SE = standard error of the effect estimate; SMD = standard mean deviation of a single trial).

knowledge of the extent to which this is a function of patient variables, therapist factors, or something connected to the nature of the feedback.

Limitations of the Research

Major limitations of feedback research include the small number of studies evaluating effectiveness, the limited number of researchers responsible for the findings reviewed here, and the sole reliance on single self-report measures. An especially salient limitation across almost all the studies reviewed here is that the same measure was used to track progress and to quantify the end-of-treatment outcome. Although it would be ideal to assess mental health status at the beginning and end of treatment using several standardized measures, this was rarely done. As a result, effect sizes reported here may be inflated. Limiting our literature search to the English language may mean we missed valuable studies. The researcher's allegiance effect (Luborsky et al., 1999) may be operating in the studies as well. The developers of the respective feedback systems have been directly involved or indirectly consulting on the majority of published studies considered here. Future research needs to be conducted across a wider range of treatment settings and client populations, thus illuminating the limits of these practices and clarifying the factors that maximize client gains. The results reported in this meta-analytic review probably come close to those that will be found in the routine adoption of ROM where psychotherapists, some quite resistant, will be asked to change the way they usually practice with patients.

Diversity Considerations

The research reported in this review has not focused on patient diversity, including their gender, race/ethnicity, age, sexual orientation, SES, and other intersecting cultural dimensions. Nor do the small number of studies permit moderator analyses that could potentially identify the degree to which ROM practices may prove differentially effective with some patients.

Therapeutic Practices

The research evidence supports the use of routinely and formally monitoring the mental health of clients as they undergo a course of psychotherapy using either of the ROM methods reviewed here; specifically, it is recommended that psychotherapists use either the OQ-System or the PCOMS with adults across treatment modalities (e.g., individual, couple, and group) and clinical settings; use electronic versions of ROM systems that expedite and ease practical difficulties; use real-time ROM feedback with an alert that identifies at risk cases to compensate for the limited ability of clinicians to accurately detect client worsening in psychotherapy; examine the feedback progress reports and alerts as vital signs of patient progress, not as a reflection of one's ability as a mental health practitioner; and use the ASC and CSTs to elicit discussion with patients and to solve problems with at-risk cases in order to provide additional clinical benefits beyond progress feedback alone.

References

An asterisk (*) indicates studies included in the systematic review.

- *Amble, I., Gude, T., Stubdal, S., Andersen, B. J., & Wampold, B. E. (2015). The effect of implementing the Outcome Questionnaire-45.2 feedback system in Norway: A multisite randomized clinical trial in a naturalistic setting. *Psychotherapy Research*, 25, 669–677. <http://dx.doi.org/10.1080/10503307.2014.928756>
- *Anker, M. G., Duncan, B. L., & Sparks, J. A. (2009). Using client feedback to improve couple therapy outcomes: A randomized clinical trial in a naturalistic setting. *Journal of Consulting and Clinical Psychology*, 77, 693–704. <http://dx.doi.org/10.1037/a0016062>
- American Psychological Association Presidential Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. *American Psychologist*, 61, 271–285. <http://dx.doi.org/10.1037/0003-066X.61.4.271>
- Association of State and Provincial Psychology Boards. (2015). *Supervision guidelines for education and training leading to licensure as a health service provider*. Retrieved on February 16 2018 from <https://>

- c.ymcdn.com/sites/www.asppb.net/resource/resmgr/Guidelines/Final_Supervision_Guidelines.pdf
- Baldwin, S. A., & Imel, Z. E. (2013). Therapist effects. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change* (6th ed., pp. 258–297). New York, NY: Wiley.
- Barkham, M., Lutz, W., Lambert, M. J., & Saxton, D. (2016). Therapist effects, effective therapists, and the law of variability. In L. G. Castonguay & C. E. Hill (Eds.), *How and why are some therapists better than others?: Understanding therapist effects* (pp. 13–36). Washington, DC: APA Press.
- Bludworth, J. L., Tracey, T. J. G., & Glidden-Tracey, C. (2010). The bilevel structure of the Outcome Questionnaire-45. *Psychological Assessment*, 22, 350–355. <http://dx.doi.org/10.1037/a0019187>
- Bordin, E. S. (1979). The generalizability of the psychoanalytic concept of the working alliance. *Psychotherapy*, 16, 252–260. <http://dx.doi.org/10.1037/h0085885>
- Boyce, M. B., & Browne, J. P. (2013). Does providing feedback on patient-reported outcomes to healthcare professionals result in better outcomes for patients? A systematic review. *Quality of Life Research*, 22, 2265–2278. <http://dx.doi.org/10.1007/s11136-013-0390-0>
- Carlier, I. V., Meuldijk, D., Van Vliet, I. M., Van Fenema, E., Van der Wee, N. J., & Zitman, F. G. (2012). Routine outcome monitoring and feedback on physical or mental health status: Evidence and theory. *Journal of Evaluation in Clinical Practice*, 18, 104–110. <http://dx.doi.org/10.1111/j.1365-2753.2010.01543.x>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155–159. <http://dx.doi.org/10.1037/0033-2909.112.1.155>
- Copeland, B. T. (2007). *Outcome and process measure feedback as they effect therapy outcome* (Doctoral Dissertation). Department of Psychology, George Fox University, Tacoma, WA.
- *Crits-Christoph, P., Ring-Kurtz, S., Hamilton, J. L., Lambert, M. J., Gallop, R., McClure, B., . . . Rotrosen, J. (2012). A preliminary study of the effects of individual patient-level feedback in outpatient substance abuse treatment programs. *Journal of Substance Abuse Treatment*, 42, 301–309. <http://dx.doi.org/10.1016/j.jsat.2011.09.003>
- *Davidsen, A. H., Poulsen, S., Lindschou, J., Winkel, P., Tróndarson, M. F., Waadegaard, M., & Lau, M. (2017). Feedback in group psychotherapy for eating disorders: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 85, 484–494. <http://dx.doi.org/10.1037/ccp0000173>
- Davidson, K., Perry, A., & Bell, L. (2015). Would continuous feedback of patient's clinical outcomes to practitioners improve NHS psychological therapy services? Critical analysis and assessment of quality of existing studies. *Psychology and Psychotherapy: Theory, Research and Practice*, 88, 21–37. <http://dx.doi.org/10.1111/papt.12032>
- de Jong, K., Nugter, M. A., Polak, M. G., Wagenborg, J. E. A., Spinhoven, P., & Heiser, W. J. (2007). The Outcome Questionnaire (OQ-45) in a Dutch population: A cross-cultural validation. *Clinical Psychology and Psychotherapy*, 14, 288–301. <http://dx.doi.org/10.1002/cpp.529>
- *De Jong, K., Timman, R., Hakkaart-Van Roijen, L., Vermeulen, P., Kooiman, K., Passchier, J., & Van Busschbach, J. (2014). The effect of outcome monitoring feedback to clinicians and patients in short and long-term psychotherapy: A randomized controlled trial. *Psychotherapy Research*, 24, 629–639. <http://dx.doi.org/10.1080/10503307.2013.871079>
- *de Jong, K., van Sluis, P., Nugter, M. A., Heiser, W. J., & Spinhoven, P. (2012). Understanding the differential impact of outcome monitoring: Therapist variables that moderate feedback effects in a randomized clinical trial. *Psychotherapy Research*, 22, 464–474. <http://dx.doi.org/10.1080/10503307.2012.673023>
- Drapeau, M. (2012). Ten tools for progress monitoring in psychotherapy. *Integrating Science and Practice*, 2, 1–45.
- Duncan, B. L., & Miller, S. D. (2008). *The Outcome and Session Rating Scales: The revised administration and scoring manual, including the Child Outcome Rating Scale*. Chicago, IL: Institute for the Study of Therapeutic Change.
- Duncan, B. L., & Reese, R. J. (2015). The partners for change outcome management system (PCOMS) revisiting the client's frame of reference. *Psychotherapy*, 52, 391–401. <http://dx.doi.org/10.1037/pst0000026>
- Egger, M., Smith, G. D., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *British Medical Journal*, 315, 629–634. <http://dx.doi.org/10.1136/bmj.315.7109.629>
- Ellsworth, J. R., Lambert, M. J., & Johnson, J. (2006). A comparison of the Outcome Questionnaire-45 and Outcome Questionnaire-30 in classification and prediction of treatment outcome. *Clinical Psychology and Psychotherapy*, 13, 380–391. <http://dx.doi.org/10.1002/cpp.503>
- Finch, A. E., Lambert, M. J., & Schaalje, B. G. (2001). Psychotherapy quality control: The statistical generation of expected recovery curves for integration into an early warning system. *Clinical Psychology and Psychotherapy*, 8, 231–242. <http://dx.doi.org/10.1002/cpp.286>
- Fortney, J. C., Unützer, J., Wrenn, G., Pyne, J. M., Smith, G. R., Schoenbaum, M., & Harbin, H. T. (2017). A tipping point for measurement-based care. *Psychiatric Services*, 68, 179–188. <http://dx.doi.org/10.1176/appi.ps.201500439>
- Gondek, D., Edbrooke-Childs, J., Fink, E., Deighton, J., & Wolpert, M. (2016). Feedback from outcome measures and treatment effectiveness, treatment efficiency, and collaborative practice: A systematic review. *Administration and Policy in Mental Health and Mental Health Services Research*, 43, 325–343. <http://dx.doi.org/10.1007/s10488-015-0710-5>
- *Grizzell, S., Smart, J., Lambert, M. J., & Fargo, J. (2016). The use of feedback in group counseling in a state vocational rehabilitation setting. *Journal of Applied Rehabilitation Counseling*, 47, 10–19.
- Hannan, C., Lambert, M. J., Harmon, C., Nielsen, S. L., Smart, D. W., Shimokawa, K., & Sutton, S. W. (2005). A lab test and algorithms for identifying clients at risk for treatment failure. *Journal of Clinical Psychology*, 61, 155–163. <http://dx.doi.org/10.1002/jclp.20108>
- Hansen, N. B., Lambert, M. J., & Forman, E. V. (2002). The psychotherapy dose-response effect and its implications for treatment delivery services. *Clinical Psychology: Science and Practice*, 9, 329–343. <http://dx.doi.org/10.1093/clipsy.9.3.329>
- *Hansson, H., Rundberg, J., Österling, A., Öjehagen, A., & Berglund, M. (2013). Intervention with feedback using Outcome Questionnaire 45 (OQ-45) in a Swedish psychiatric outpatient population. A randomized controlled trial. *Nordic Journal of Psychiatry*, 67, 274–281. <http://dx.doi.org/10.3109/08039488.2012.736534>
- *Harmon, S. C., Lambert, M. J., Smart, D. W., Hawkins, E. J., Nielsen, S. L., Slade, K., & Lutz, W. (2007). Enhancing outcome for potential treatment failures: Therapist/client feedback and clinical support tools. *Psychotherapy Research*, 17, 379–392. <http://dx.doi.org/10.1080/10503300600702331>
- Hatfield, D., McCullough, L., Frantz, S. H., & Krieger, K. (2010). Do we know when our clients get worse? An investigation of therapists' ability to detect negative client change. *Clinical Psychology and Psychotherapy*, 17, 25–32.
- *Hawkins, E. J., Lambert, M. J., Vermeersch, D. A., Slade, K., & Tuttle, K. (2004). The therapeutic effects of providing client progress information to therapists and patients. *Psychotherapy Research*, 14, 308–327. <http://dx.doi.org/10.1093/ptr/kph027>
- Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. San Diego, CA: Academic Press.
- Higgins, J. P. T., & Green, S. (Eds.). (2011). *Cochrane handbook for systematic reviews of interventions 5.1.0* [updated March 2011]. The Cochrane Collaboration. Retrieved from www.cochrane.org
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59, 12–19. <http://dx.doi.org/10.1037/0022-006X.59.1.12>

- *Janse, P. D., De Jong, K., Van Dijk, M. K., Hutschemaekers, G. J. M., & Verbraak, M. J. P. M. (2017). Improving the efficiency of cognitive-behavioural therapy by using formal client feedback. *Psychotherapy Research*, 27, 525–538. <http://dx.doi.org/10.1080/10503307.2016.1152408>
- Kendrick, T., El-Gohary, M., Stuart, B., Gilbody, S., Churchill, R., Aiken, L., . . . Moore, M. (2016). Routine use of client reported measures (PROMs) for improving treatment of common mental disorders in adults. *Cochrane Database of Systematic Reviews*. Advance online publication. <http://dx.doi.org/10.1002/14651858.CD011119.pub2>
- Knaup, C., Koesters, M., Schoefer, D., Becker, T., & Puschner, B. (2009). Effect of feedback of treatment outcome in specialist mental healthcare: Meta-analysis. *The British Journal of Psychiatry*, 195, 15–22. <http://dx.doi.org/10.1192/bjp.bp.108.053967>
- Krägeloh, C. U., Czuba, K. J., Billington, D. R., Kersten, P., & Siegert, R. J. (2015). Using feedback from patient-reported outcome measures in mental health services: A scoping study and typology. *Psychiatric Services*, 66, 224–241. <http://dx.doi.org/10.1176/appi.ps.201400141>
- Lambert, M. J. (2013). The efficacy and effectiveness of psychotherapy. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change* (6th ed., pp. 169–218). New York, NY: Wiley.
- Lambert, M. J., Bailey, R. J., White, M., Tingey, K. M., & Stevens, E. (2015). *Clinical support tool manual* (Brief Version-40). Salt Lake City, UT: OQMeasures.
- Lambert, M. J., Bergin, A. E., & Collins, J. L. (1977). Therapist induced deterioration in psychotherapy clients. In A. S. Gurman & A. M. Razin (Eds.), *Effective psychotherapy: A handbook of research* (pp. 452–481). New York, NY: Pergamon Press.
- Lambert, M. J., Hansen, N. B., & Finch, A. E. (2001). Patient-focused research: Using patient outcome data to enhance treatment effects. *Journal of Consulting and Clinical Psychology*, 69, 159–172. <http://dx.doi.org/10.1037/0022-006X.69.2.159>
- Lambert, M. J., Kahler, M., Harmon, C., Burlingame, G. M., Shimokawa K., & White, M. M. (2013). *Administration and scoring manual: Outcome Questionnaire OQ®-45.2*. Salt Lake City, UT: OQMeasures.
- Lambert, M. J., & Shimokawa, K. (2011a). Collecting client feedback. In J. C. Norcross (Ed.), *Psychotherapy relationships that work* (2nd ed., pp. 203–223). New York, NY: Oxford University Press. <http://dx.doi.org/10.1093/acprof:oso/9780199737208.003.0010>
- Lambert, M. J., & Shimokawa, K. (2011b). Collecting client feedback. *Psychotherapy*, 48, 72–79. <http://dx.doi.org/10.1037/a0022238>
- Lambert, M. J., Whipple, J. L., Bishop, M. J., Vermeersch, D. A., Gray, G. V., & Finch, A. E. (2002). Comparison of empirically derived and rationally derived methods for identifying clients at risk for treatment failure. *Clinical Psychology and Psychotherapy*, 9, 149–164. <http://dx.doi.org/10.1002/cpp.333>
- Lambert, M. J., Whipple, J. L., Hawkins, E. J., Vermeersch, D. A., Nielsen, S. L., & Smart, D. W. (2003). Is it time for clinicians to routinely track patient outcome? A meta-analysis. *Clinical Psychology: Science and Practice*, 10, 288–301. <http://dx.doi.org/10.1093/clipsy.bpg025>
- *Lambert, M. J., Whipple, J. L., Smart, D. W., Vermeersch, D. A., Nielsen, S. L., & Hawkins, E. J. (2001). The effects of providing therapists with feedback on patient progress during psychotherapy: Are outcomes enhanced? *Psychotherapy Research*, 11, 49–68. <http://dx.doi.org/10.1080/713663852>
- *Lambert, M. J., Whipple, J. L., Vermeersch, D. A., Smart, D. W., Hawkins, E. J., Nielsen, S. L., & Goates, M. (2002). Enhancing psychotherapy outcomes via providing feedback on client progress: A replication. *Clinical Psychology and Psychotherapy*, 9, 91–103. <http://dx.doi.org/10.1002/cpp.324>
- Lo Coco, G., Chiappelli, M., Bensi, L., Gullo, S., Prestano, C., & Lambert, M. J. (2008). The factorial structure of the Outcome Questionnaire-45: A study with an Italian sample. *Clinical Psychology and Psychotherapy*, 15, 418–423. <http://dx.doi.org/10.1002/cpp.601>
- Luborsky, L., Diguer, L., Seligman, D. A., Rosenthal, R., Krause, E. D., Johnsons, S., . . . Schweizer, E. (1999). The researcher's own therapy allegiances: A "wild card" in comparisons of treatment efficacy. *Clinical Psychology: Science and Practice*, 6, 95–106. <http://dx.doi.org/10.1093/clipsy.6.1.95>
- Lutz, W., Lambert, M. J., Harmon, S. C., Tschitsaz, A., Schurch, E., & Stulz, N. (2006). The probability of treatment success, failure and duration- what can be learned from empirical data to support decision making in clinical practice? *Clinical Psychology and Psychotherapy*, 13, 223–232. <http://dx.doi.org/10.1002/cpp.496>
- Miller, S. D., & Duncan, B. L. (2004). *The Outcome and Session Rating Scales: Administration and scoring manual*. Chicago, IL: Institute for the Study of Therapeutic Change.
- Miller, S. D., Duncan, B. L., Brown, J., Sparks, J. A., & Claud, D. A. (2003). The outcome rating scale: A preliminary study of the reliability, validity, and feasibility of a brief visual analog measure. *Journal of Brief Therapy*, 2, 91–100.
- Miller, S. D., Duncan, B. L., Sorrell, R., & Brown, G. S. (2005). The partners for change outcome management system. *Journal of Clinical Psychology*, 61, 199–208. <http://dx.doi.org/10.1002/jclp.20111>
- *Murphy, K. P., Rashleigh, C. M., & Timulak, L. (2012). The relationship progress between progress feedback and therapeutic outcome in student counselling: A randomized control trial. *Counselling Psychology Quarterly*, 25, 1–18. <http://dx.doi.org/10.1080/09515070.2012.662349>
- Newham, E., Hooke, G. R., & Page, A. C. (2010). Progress monitoring and feedback in psychiatric care reduces depressive symptoms. *Journal of Affective Disorders*, 117, 139–146. <http://dx.doi.org/10.1016/j.jad.2010.05.003>
- Okiishi, J. C., Lambert, M. J., Eggett, D., Nielsen, L., Dayton, D. D., & Vermeersch, D. A. (2006). An analysis of therapist treatment effects: Toward providing feedback to individual therapists on their clients' psychotherapy outcome. *Journal of Clinical Psychology*, 62, 1157–1172. <http://dx.doi.org/10.1002/jclp.20272>
- Prescott, D. S., Maeschalck, C. L., & Miller, S. D. (2017). *Feedback-informed treatment in clinical practice: Reaching for excellence*. Washington, DC: American Psychological Association. <http://dx.doi.org/10.1037/0000039-000>
- *Probst, T., Lambert, M. J., Dahlbender, R. W., Loew, T. H., & Tritt, K. (2014). Providing patient progress feedback and clinical support tools to therapists: Is the therapeutic process of patients on-track to recovery enhanced in psychosomatic in-patient therapy under the conditions of routine practice? *Journal of Psychosomatic Research*, 76, 477–484. <http://dx.doi.org/10.1016/j.jpsychores.2014.03.010>
- Probst, T., Lambert, M. J., Loew, T., Dahlbender, R., Gollner, R., & Tritt, K. (2013). Feedback on client progress and clinical support tools for therapists: Improved outcome for clients at risk of treatment failure in in-client psychosomatic therapy? *Journal of Psychosomatic Research*, 75, 255–261. <http://dx.doi.org/10.1016/j.jpsychores.2013.07.003>
- Reese, R. J., Norsworthy, L. A., & Rowlands, S. R. (2009). Does a continuous feedback system improve psychotherapy outcome? *Psychotherapy*, 46, 418–431. <http://dx.doi.org/10.1037/a0017901>
- *Reese, R. J., Toland, M. D., Slone, N. C., & Norsworthy, L. A. (2010). Effect of client feedback on couple psychotherapy outcomes. *Psychotherapy*, 47, 616–630. <http://dx.doi.org/10.1037/a0021182>
- Review Manager. (2014). (*RevMan*) [Computer program]. Version 5.3. Copenhagen, Denmark: The Nordic Cochrane Centre, The Cochrane Collaboration.
- Safran, J. D., Muran, J. C., Samstag, L. W., & Winston, A. (2005). Evaluating alliance-focussed intervention for potential treatment failures: A feasibility and descriptive analysis. *Psychotherapy*, 42, 512–531. <http://dx.doi.org/10.1037/0033-3204.42.4.512>
- Sapyta, J., Riemer, M., & Bickman, L. (2005). Feedback to clinicians. *Journal of Clinical Psychology*, 61, 145–153. <http://dx.doi.org/10.1002/jclp.20107>

- Schuckard, E., Miller, S. D., & Hubble, M. A. (2017). Feedback-informed treatment: Historical and empirical foundations. In D. S. Prescott, C. L. Maeschalck, & S. D. Miller, (Eds.), *Feedback-informed treatment in clinical practice: Reaching for excellence* (pp. 13–36). Washington, DC: American Psychological Association.
- *Schuman, D. L., Slone, N. C., Reese, R. J., & Duncan, B. (2015). Efficacy of client feedback in group psychotherapy with soldiers referred for substance abuse treatment. *Psychotherapy Research*, 25, 396–407. <http://dx.doi.org/10.1080/10503307.2014.900875>
- Shimokawa, K., Lambert, M. J., & Smart, D. W. (2010). Enhancing treatment outcome of patients at risk of treatment failure: Meta-analytic and mega-analytic review of a psychotherapy quality assurance system. *Journal of Consulting and Clinical Psychology*, 78, 298–311. <http://dx.doi.org/10.1037/a0019247>
- *Simon, W., Lambert, M. J., Busath, G., Vazquez, A., Berkeljon, A., Hyer, K., . . . Berrett, M. (2013). Effects of providing patient progress feedback and clinical support tools to psychotherapists in an inpatient eating disorders treatment program: A randomized controlled study. *Psychotherapy Research*, 23, 287–300. <http://dx.doi.org/10.1080/10503307.2013.787497>
- *Simon, W., Lambert, M. J., Harris, M. W., Busath, G., & Vazquez, A. (2012). Providing patient progress information and clinical support tools to therapists: Effects on patients at risk of treatment failure. *Psychotherapy Research*, 22, 638–647. <http://dx.doi.org/10.1080/10503307.2012.698918>
- *Slade, K., Lambert, M. J., Harmon, S. C., Smart, D. W., & Bailey, R. (2008). Improving psychotherapy outcome: The use of immediate electronic feedback and revised clinical support tools. *Clinical Psychology and Psychotherapy*, 15, 287–303. <http://dx.doi.org/10.1002/cpp.594>
- *Slone, N. C., Reese, R. J., Mathews-Duval, S., & Kodet, J. (2015). Evaluating the efficacy of client feedback in group psychotherapy. *Group Dynamics*, 19, 122–136. <http://dx.doi.org/10.1037/gdn0000026>
- Spielmans, G. I., Masters, K. S., & Lambert, M. J. (2006). A comparison of rational versus empirical methods in prediction of negative psychotherapy outcome. *Clinical Psychology and Psychotherapy*, 13, 202–214. <http://dx.doi.org/10.1002/cpp.491>
- Trudeau, L. S. (2000). *Effects of a clinical feedback system on client and therapist outcomes in a rural community mental health center* (Unpublished doctoral dissertation). Iowa State University, Ames, IA.
- Truitt, K. G. (2011). *Modeling treatment outcomes in eating disorders: Does therapist feedback support individually tailored service allocation?* (Unpublished Doctoral Dissertation), Scholars Repository, Loma Linda University, Loma Linda, CA.
- Vermeersch, D. A., Lambert, M. J., & Burlingame, G. M. (2000). Outcome Questionnaire: Item sensitivity to change. *Journal of Personality Assessment*, 74, 242–261. http://dx.doi.org/10.1207/S15327752JPA7402_6
- Vermeersch, D. A., Whipple, J. L., Lambert, M. J., Hawkins, E. J., Burchfield, C. M., & Okiishi, J. C. (2004). Outcome Questionnaire: Is it sensitive to changes in counseling center clients? *Journal of Counseling Psychology*, 51, 38–49. <http://dx.doi.org/10.1037/0022-0167.51.1.38>
- Walfish, S., McAlister, B., O'Donnell, P., & Lambert, M. J. (2012). An investigation of self-assessment bias in mental health providers. *Psychological Reports*, 110, 639–644. <http://dx.doi.org/10.2466/02.07.17.PR0.110.2.639-644>
- *Whipple, J. L., Lambert, M. J., Vermeersch, D. A., Smart, D. W., Nielsen, S. L., & Hawkins, E. J. (2003). Improving the effects of psychotherapy: The use of early identification of treatment failure and problem-solving strategies in routine practice. *Journal of Counseling Psychology*, 50, 59–68. <http://dx.doi.org/10.1037/0022-0167.50.1.59>

Received February 19, 2018

Revision received February 27, 2018

Accepted February 28, 2018 ■