

# In Psychotherapy With Severe Patients Discouraging News May Be Worse Than No News: The Impact of Providing Feedback to Therapists on Psychotherapy Outcome, Session Attendance, and the Alliance

Paula Errázuriz  
Pontificia Universidad Católica de Chile

Sigal Zilcha-Mano  
University of Haifa

**Objective:** Our objective was to assess low-cost and feasible feedback alternatives and compare them to Lambert’s OQ feedback system. We also studied patient, therapist, and process characteristics that could moderate the effect of feedback on outcome, session attendance, and alliance. **Method:** A total of 547 patients, 75% female, average age 41 ( $SD = 13$ ), 95% Latino, treated in an outpatient individual psychotherapy setting in Chile were randomly assigned to five feedback conditions: no feedback, feedback on symptomatology, feedback on the alliance, feedback on both symptomatology and alliance, and Lambert’s OQ progress feedback report. The measures included the Outcome Questionnaire and the Working Alliance Inventory. We also had follow-up interviews with therapists. **Results:** We found through multilevel modeling that feedback had no effect on outcome, session attendance, and alliance. Contrary to previous findings, these results were maintained even when focusing only on patients “not-on-track.” However, patients’ former psychiatric hospitalization history and baseline severity, combined with lack of progress, significantly moderated the impact of feedback. For this more dysfunctional population, “positive feedback” (i.e., low symptomatology) to therapists had a positive impact on therapy outcome, while “negative feedback” (i.e., high symptomatology) had a negative impact. **Conclusions:** Providing feedback to therapists without offering them tools to improve treatment may be ineffective and even be detrimental. This may be especially the case for patients who suffer more severe mental health issues and whose therapists receive mostly discouraging news as feedback.

### What is the public health significance of this article?

This study suggests that one type of feedback does not fit all patients and that “negative feedback” to therapists may be harmful to treatment. Before implementing a large-scale feedback system, it is necessary to study its impact on that specific context.

**Keywords:** feedback, outcome, alliance, attendance, patient-focused research

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In order to monitor and enhance treatment outcome, a new line of research has emerged during the last decade, known as patient-focused research. Patient-focused research promotes systematic and ongoing evaluation of patient response to treat-

ment during the therapeutic process (Howard, Moras, Brill, Martinovich, & Lutz, 1996). The rationale behind patient-focused research is that providing therapists with timely feedback on patients’ therapy progress can help them make treatment decisions based on changes in patients’ symptoms. Therapists can be more responsive to patients’ needs when using feedback because they know how their symptomatology is evolving (Shimokawa, Lambert, & Smart, 2010).

Whereas therapists’ optimism has a positive effect on treatment, it can prevent their timely identification of patients who are not progressing as expected or whose symptomatology is deteriorating (Hannan et al., 2005). Not surprisingly, clinical judgment alone has proven to be less effective in predicting progress than has relying on statistical or actuarial methods (Ægisdóttir et al., 2006; Grove, 2005). Because of this difficulty, the importance of providing real-time feedback to clinicians regarding their patients’ progress so that they can adjust treatment as needed has been recognized (American Psychological Association, Presidential Task Force on Evidence-Based Practice, 2006).

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Paula Errázuriz, Department of Psychology, Pontificia Universidad Católica de Chile; Sigal Zilcha-Mano, Department of Psychology, University of Haifa.

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Correspondence concerning this article should be addressed to Paula Errázuriz, Department of Psychology, Pontificia Universidad Católica de Chile, Avendia Vicuña Mackenna 4860, Macul, Santiago, Chile. E-mail: [paulae@uc.cl](mailto:paulae@uc.cl)

Overall, research has supported the benefits of using feedback in psychotherapy for patients who are at risk of treatment failure, also known as “not-on-track” (see Davidson, Perry, & Bell, 2015 and Lambert, 2015 for recent reviews). Nevertheless, this positive effect tends to diminish with patients with more severe symptomatology (Davidson et al., 2015).

Until now, only therapy trajectory (“on-track” vs. “not-on-track”) and patient severity have been reported as possible moderators of the impact of feedback on outcome (Lambert, 2015). As some patients may benefit more than others from feedback, it is critical to conduct a systematic examination of the characteristics of patients and therapists that may moderate the impact of each type of feedback on the therapeutic process and outcome—beyond the trajectory of therapy—in order to provide patient-tailored feedback.

Most of the literature about the contribution of feedback to treatment success has been developed by Lambert and his research team and uses a feedback system based on the OQ 45 (Outcome Questionnaire—45; Lambert et al., 2004), which is one of several feedback systems. According to Lambert (2015), progress monitoring and feedback have roots in operant conditioning, which uses feedback to modify behavior. In this line, the OQ feedback system tracks the “consequences” of treatment and provides this information to therapists so that they can modify their behavior as needed. The objective of the OQ System is to monitor individual treatment progress, identify patients at risk of treatment failure, and intervene before premature termination occurs (see Lambert, 2015). During therapy, a patient’s change trajectory is compared by computer software to an expected treatment course, and therapists regularly receive a report with a progress chart. In addition, if a patient answers critical items (e.g., endorsing suicidal ideation), these items are included in the report; if a patient’s progress deviates significantly from the expected course, the report includes a colored warning signal.

The OQ feedback system has been assessed by Lambert and his colleagues through 12 studies and a meta-analysis (Shimokawa et al., 2010) that used combined data from six of the studies. The interventions examined in most of these studies include providing progress feedback to therapists, supplying them with clinical support tools (CST) for identifying the causes of patient deterioration, making suggestions for improving identified problems, and also providing feedback to patients. The feedback provided to therapists consists of an OQ progress report that includes a progress graph with all the patient’s OQ scores until that time and a message about the status of patient progress based on the OQ general scores that signals whether the patient is “on-track” or not (see Lambert, 2015 for more details).

Out of 12 published clinical trials that examine the effects of the OQ monitoring system (see Lambert, 2015 for a review), seven of them used CST and five of them did not (Amble, Gude, Stubdal, Andersen, & Wampold, 2015; de Jong, van Sluis, Nugter, Heiser, & Spinhoven, 2012; Lambert et al., 2001, 2002; Hawkins, Lambert, Vermeersch, Slade, & Tuttle, 2004). Eleven of the 12 studies found significant effects (one of them had mixed findings). The reported effect sizes ( $d$ ) for these studies ranged between .12 and .75 for the studies that used CST, and between .28 and .44 for the studies that did not include them.

According to Shimokawa et al. (2010), when CST are provided, feedback only to therapist (Fb) is indistinguishable in its treatment

effects from feedback to both therapists and patients (P/T Fb), the reason why both groups are aggregated in their meta-analysis. When looking at the specific studies included in their meta-analysis, we find that two studies (Harmon et al., 2007; Slade, Lambert, Harmon, Smart, & Bailey, 2008) did not find significant differences of P/T Fb over the Fb group. Nevertheless, one study (Hawkins et al., 2004) that combined in their analyses the treatment effects of “not-on-track” and “on-track” patients found improved outcome for those in the P/T Fb over the Fb group. Overall, the results of the meta-analyses including these three studies found that providing feedback to patients and therapists was not superior to providing feedback only to therapists.

The results of the OQ feedback system meta-analysis (Shimokawa et al., 2010) show that feedback was effective for improving outcome on “not-on-track” patients, but it only had a small impact on patients whose therapy was progressing well (i.e., “on-track” patients). Specifically, large effect size on outcome has been reported in the ideal scenario for feedback: “not-on-track” patients with mild symptomatology and whose therapists receive feedback and clinical support tools (Shimokawa et al., 2010). Nevertheless, for “not-on-track” patients with severe symptomatology, the effect size on outcome reported is small (Simon, Lambert, Harris, Busath, & Vazquez, 2012). A limitation of the OQ system body of research used to be that settings and samples were mainly from one counseling center in the United States, which works with a young-patient population that presents mild mental health issues, making it questionable whether their results could be generalized to other settings (Davidson et al., 2015). Nevertheless, during the last years the OQ system research has also included outpatient clinical settings (Amble et al., 2015; de Jong et al., 2012; Hawkins et al., 2004; Simon et al., 2012), a substance abuse clinic (Crits-Christoph et al., 2012), inpatient eating disorder patients (Simon et al., 2012), and a psychosomatic inpatient treatment setting (Probst et al., 2013). A second limitation of this body of research is the lack of independent research teams assessing this feedback system.

Because of the need to adapt feedback systems to the requirements of specific clinical settings, Connolly Gibbons et al. (2015) evaluated a clinician feedback intervention for use in community mental health settings named The Community Clinician Feedback System (CCFS). This feedback system consists of weekly performance feedback to clinicians as well as a clinical feedback report that assists clinicians with patients who are not progressing as expected. The results show that the CCFS was widely accepted by clinicians and patients and, compared with the control group, had a moderate effect in symptom improvement.

When considering different types of feedback, it is important to consider feedback on the therapeutic alliance due to its relevance in the psychotherapy process. The therapeutic alliance has become the most widely studied aspect of the treatment process across different psychotherapies and psychological conditions (Castonguay, Constantino, & Holtforth, 2006; Zilcha-Mano, 2017). Such work has demonstrated that the alliance is positively related to a broad range of treatment outcomes, including symptom reduction, improvement in interpersonal functioning, global ratings of success, and improvement in target complaints (Castonguay et al., 2006). Even though Lambert and his colleagues (2002) proposed over a decade ago that alliance feedback may improve outcome by helping therapists quickly and directly respond to alliance difficulties, few studies have focused on whether adding alliance

feedback to progress feedback improves treatment outcome. To date, two studies have found that adding clinical support tools, which include gathering feedback about the alliance, is more effective than only tracking outcome in patients at risk for negative outcome. Specifically, these studies suggest that for patients at risk for negative outcome, adding clinical support tools results in patients staying longer in treatment and doubles their chances of achieving a clinically significant change (Harmon et al., 2007; Whipple et al., 2003). Even though these studies have included alliance feedback, they did not isolate alliance feedback from other types of feedback and clinical tools.

A recent dismantling study (Mikeal, Gillaspay, Scoles, & Murphy, 2016) investigated the relative efficacy of components of the Partners for Change Outcome Management System (PCOMS; Duncan, 2012). Their results suggest that similar therapy outcomes may be experienced by patients who receive only feedback about progress, only feedback about the alliance, and feedback about both progress and alliance. Nevertheless, it is unknown whether there are significant differences between subgroups such that one subgroup will benefit the most from one type of feedback and another subgroup from a different type of feedback.

Although feedback systems appear to be beneficial, at least to some of the patients, there is no systematic examination of who may benefit most from each type of feedback. Given the high heterogeneity in the effect of feedback, as well as the progress toward personalized treatments, there is great interest in developing feedback tailored to specific patient's needs and characteristics.

Reviewing the literature on feedback in psychotherapy, it appears that feedback generally benefits patients identified as "not-on-track" (e.g., Lambert et al., 2001, 2002, 2003; Whipple et al., 2003). Nevertheless, there is conflicting evidence on whether feedback helps all patients (including the ones "on-track"); some studies have found that it does (e.g., Harmon et al., 2007; Hawkins et al., 2004; Reese, Norsworthy, & Rowlands, 2009) and others claim that it does not (e.g., Lambert et al., 2002; Whipple et al., 2003). In a recent review by Davidson and colleagues (2015), four out of seven studies reported that feedback improves therapy outcome in the case of "not-on-track" patients. Nevertheless, only one out of five studies found positive effect of feedback on patients who were progressing as expected.

To the best of our knowledge, there is only one study that looks at the role that patients' or therapists' characteristics have on the usefulness of feedback, beyond patient severity and treatment trajectory. This study by de Jong et al. (2012) found that while there was no significant effect of feedback in general, feedback was effective for "not-on-track" cases of therapists who reported using the feedback. They also found that therapists with a positive attitude toward feedback reached faster progress with their patients. Nevertheless, when therapists with a high commitment to use the feedback actually received feedback, this slowed down the rate of change in their patients. The authors concluded that feedback is not effective in all circumstances and therapist characteristics are important to consider when implementing feedback systems.

Another patient characteristic that is relevant to consider when evaluating who benefits most from feedback is the tendency to self-conceal. This is especially important considering that half of the patients in psychotherapy report keeping secrets from their

therapists (Farber, Berano, & Capobianco, 2004), even when hiding information in this context is considered detrimental to the process (Cepeda-Benito & Short, 1998). To the best of our knowledge, feedback research until now has not considered this patient characteristic.

Considering economic restraints that may make the implementation feedback difficult, and following Lambert's suggestion about making routine outcome monitoring simple and minimally disruptive, this study was motivated by building a framework for providing a low-cost patient-tailored feedback. Assuming that not all patients will necessarily need, or even benefit the most, from the most expensive feedback methods, providing a patient-tailored feedback could improve treatment effectiveness and at the same time lower financial expenses. In order to do this, the current study assessed whether providing therapists with simple and inexpensive feedback alternatives in a naturalistic setting in Chile improved treatment. Following Lambert et al. (2001), we chose feedback options that did not require therapist training or a request for therapists to do anything different, which is why we excluded the PCOMS and the OQ system CST. We also compared these low-cost feedback alternatives to Lambert's OQ feedback system without CST. More specifically, we assessed if providing therapists with feedback about patient symptomatology and patient-rated alliance improved patients' outcome, session attendance, and alliance perception. We also assessed if the specific manner in which the information was provided to therapists (unprocessed data vs. Lambert's OQ progress report) had an impact on treatment. Secondly, we searched for significant moderators of feedback method. This study assessed whether course of treatment ("on-track" vs. "not-on-track"), previous psychiatric hospitalization, use of psychiatric medication, baseline psychological functioning, patients' tendency to self-conceal, therapists' previous use of questionnaires, therapists' theoretical orientation, and therapists' years of clinical experience moderated the relationship between therapists' access to feedback and impact on treatment. We consider these moderators to be relevant since we know that patient characteristics, such as baseline mental health and tendency to self-conceal, as well as therapists' characteristics, have an impact on treatment outcome (e.g., Lorenzo-Luaces, DeRubeis, & Webb, 2014) and the therapeutic alliance (Castonguay et al., 2006). Because feedback was based on data collected through questionnaires, we also thought therapists' previous use of questionnaires in their clinical practice could impact their attitude toward the feedback provided in our study.

In order to advance research in psychotherapy, it has been suggested (Laurenceau, Hayes, & Feldman, 2007) that it is necessary to study the shape of change, and not just compare pre- and post-treatment measures. This is possible by collecting longitudinal data that allow examining psychotherapy trajectories, that is, how individuals change during treatment. Because of this, this study measured the impact of feedback condition on trajectories of change by measuring symptomatology and alliance in every session.

It was hypothesized that therapist access to feedback about patient symptomatology and patient-rated alliance would improve therapy outcome, attendance, and patients' alliance perception. A second hypothesis was that how feedback was provided to therapists (unprocessed data vs. Lambert's OQ progress report) generally would not make a significant difference since each could have

its own benefits. While the OQ progress report has the benefit of providing an overview of how the patient is doing at the moment and evolving through treatment, unprocessed feedback provides more detailed information about symptomatology and functioning that patients may not spontaneously share in session. Finally, it was also hypothesized that the dyads that would generally benefit most from feedback would be the ones with patients “not-on-track,” patients with more severe symptomatology, patients with greater tendency to self-conceal, therapist with less years of clinical experience, and therapists who had a better predisposition toward the use of questionnaires.

## Method

### Participants

The randomized controlled trial (RCT) took place in an outpatient mental health center in Santiago de Chile that offers psychological and psychiatric services to adults of low and middle SES. Data was collected between 2011 and 2014. Participants included 547 patients and the 28 therapists that treated them. Of the 953 patients who were eligible to participate, 547 (59.40%) showed up to their scheduled appointment and accepted the invitation. None of them asked to be removed from the study. Of the patients, 74.82% were female and the average age was 41.33 years ( $SD = 12.82$  years). Almost all (98.54%) were Chilean citizens and only 5.42% identified as indigenous. The median monthly family income was \$1,130 U.S., ranging from \$452 to \$3,612. Patients' average years of education was 14.10 ( $SD = 2.90$  years). In relation to their mental health, 10.69% had previously been hospitalized for psychiatric reasons and 89.81% were taking psychiatric medication when they joined the study. The average of their OQ-30 score, which measures psychological functioning, was 58.59 ( $SD = 16.67$ ) at baseline, which is considered dysfunctional.

Most of the patients with an Axis I diagnosis were diagnosed with depressive disorders (73.5%), bipolar disorder (6.0%), adjustment disorder (1.2%), or dysthymic disorder (1.2%). In addition, 27.7% received a diagnosis of at least one comorbid Axis I disorder. The most prevalent comorbid diagnoses were substance-related disorders (4.8%), panic disorder without agoraphobia (4.8%), and dysthymic disorders (3.0%). Most patients with an Axis II diagnosis were diagnosed with dependent (2.4%), borderline (1.8%), and histrionic personality disorder (0.6%). All diagnoses were made through clinical interviews by the treating clinician.

### Treatment and Therapists

The psychotherapy practiced was mostly short-term, from a variety of theoretical orientations. The mean length of treatment was 7.82 sessions ( $SD = 6.62$ ,  $Mdn = 6$ ), with a range between 1 and 55. On average, patients attended 74.15% ( $SD = 18.94$ ) of their scheduled sessions. Of the 28 therapists, 68% were female. The average age was 37.76 years ( $SD = 7.79$  years). All therapists had a professional degree in psychology, with an average of 8.38 ( $SD = 5.33$ ) years of clinical experience. On a scale from 1 to 5, therapists rated on average their theoretical orientation in the following order: systemic (3.75,  $SD = 1.16$ ), cognitive (3.39,  $SD = 1.41$ ), psychodynamic (3.00,  $SD = 1.60$ ), behavioral (2.77,

$SD = 1.63$ ), and humanistic/existential (2.00,  $SD = 1.65$ ). Regarding previous experience using questionnaires to collect data from patients, 31.87% had never used them, 38.26% used them occasionally, and 29.87% used them on a regular basis, even though there was no institutional requirement to do so.

## Measures

**Symptomatology.** Symptoms of psychological dysfunction were assessed before and during treatment on a weekly basis using the Outcome Questionnaire (OQ 30.2). This self-administered questionnaire is a shortened version of the OQ 45.2 (Lambert et al., 2004). It includes 30 Likert-type items, with five graded response alternatives ranging from never to almost always, which measure the current state of symptomatology of a person. The score ranges from 0 to 120 points, with higher scores being indicative of greater presence of distressing symptoms, mainly anxiety, depression, somatic problems and stress, and interpersonal, social role, and quality of life difficulties. Scores below 44 points suggest that the person is no more disturbed than the general population. The Spanish version of the OQ 30.2 (Errázuriz, Opazo, Behn, Silva, & Gloger, 2017) presents a high estimated internal consistency for the Chilean population with a Cronbach Alpha of .90, is sensitive to change during psychotherapy, and proved to have similar psychometric properties to the original OQ 30.2 (Lambert et al., 2004). In the current sample the mean internal reliability level across time points was .93 and the internal consistency .90.

**Alliance.** The short form of the Working Alliance Inventory—Patient (WAI-P; Hatcher & Gillaspay, 2006; Horvath & Greenberg, 1989) was used to assess the quality of the therapeutic alliance from patients' perspectives. This instrument consists of 12 items that assess Bordin's (1979) alliance dimensions: agreement on therapy goals, agreement on therapy tasks, and the patient–therapist bond. It is one of the most frequently used alliance measures, and has demonstrated good psychometric properties in its original version (Horvath & Greenberg, 1989) and the Chilean Spanish version (Santibáñez, 2001). In the current sample the mean internal reliability level across time points was .85.

**Attendance.** Patients' attendance rate was assessed calculating the percentage of attended sessions out of the total amount of scheduled sessions. Information on scheduled sessions, and whether the session actually occurred or not, was obtained from the administrative staff that scheduled appointments and received patients at the clinic.

**Self-concealment.** Patient's tendency to self-conceal personal information that is stressful or negative was measured at baseline with the Self-Concealment Scale (SCS), a self-administered 10-item questionnaire that produces scores ranging from 10 to 50 points, with higher scores being indicative of greater concealment. The SCS has shown adequate psychometric properties in its original version (Larson & Chastain, 1990) Spanish version validated to be used in Chile (Letelier, 2013).

**Patient information.** A self-administered questionnaire was used to collect patient sociodemographic characteristics, including gender, age, nationality, monthly household income, years of education, use of medication, and history of psychiatric hospitalizations. Patient severity was calculated by multiplying patients' baseline OQ and previous psychiatric hospitalization (1 = *never hospitalized*; 2 = *previously hospitalized*).



**Therapist information.** A self-administered questionnaire was used to collect therapist demographic information (gender, race, age, and socioeconomic status), years of clinical experience, and theoretical orientation across patients (identification with cognitive, psychodynamic, behavioral, humanistic/existential, and systems theories, measured on a 5-point scale).

**Procedure**

Recruitment started in December of 2011 and lasted until October of 2013. Data were collected throughout recruitment and ended in April of 2014 (see Figure 1 for a flow of participants at each stage). All new adult patients were invited to participate in the study, as well as all psychotherapists that work at the mental health center. There was no exclusion criterion. Therapists who agreed to participate were provided an explanation about the feedback information they would potentially receive in each feedback condition.

At baseline, patients completed the OQ 30, the SCS, and the WAI-P, and provided demographic information. All patient participants were offered a small present as a thank you gift after completing baseline measures, but therapists received no compensation. From session two, until the end of treatment, patients completed weekly the WAI-P and OQ 30. Therapists completed the Therapist Information Questionnaire at baseline. All measures were completed in Spanish.

Each patient–therapist dyad was randomly assigned to one of five feedback conditions: (0) control group: therapists did not receive feedback; (1) OQ: therapists received weekly unprocessed feedback about patients’ psychological dysfunction by having access to the OQ as was answered by the patient (i.e., the answer to each OQ item); (2) WAI: therapists received weekly unprocessed feedback about patients’ alliance perception by having access to the WAI as was answered by the patient (i.e., the answer to each WAI item); (3) OQ + WAI: therapists received weekly unprocessed feedback about patients’ psychological dysfunction and alliance perception; and (4) OQ progress report: therapists received Lambert’s OQ progress report in Spanish. This report consisted of a progress chart of the patients’ OQ average throughout treatment and critical items that the patient may have endorsed. In addition, when a patient’s progress deviated from what was expected, the report included a warning message. Patients were assigned to a feedback condition using a randomized block design,

with therapists as the blocking factor, in order to make sure that therapists had patients in different feedback conditions.

It is important to note that patients who agreed to participate in this study received treatment as usual and that participating in this study did not interfere with the kind of treatment they received, treatment length, or treatment quality. Patients were informed that there was a possibility that their therapists would have access to the information they reported, depending on the group they were assigned to. Like previous research (Lambert et al., 2001), weekly written feedback was always provided to therapists prior to the next session with a patient by including the feedback at the top of the patient’s clinical chart, and we explained to therapists that they could decide if they wanted to consider this information or not, and what to do with the feedback (e.g., keep it to themselves or share it with patients). It is also important to note that feedback was delivered as intended, and that all patient–therapist dyads remained in the feedback group they were assigned to during the RCT. Unless therapists openly discussed feedback with their patients (which was up to the therapist to decide), patients were not aware of the feedback condition they were in. All participating patients and therapists signed informed-consent forms, and the study was approved by the relevant ethical review boards.

After all quantitative data was collected, all therapists were contacted for follow-up interviews. All but one of the 28 therapists agreed to participate and were interviewed by a psychologist who is a member of our research team. Questions included whether they used or not the feedback, their reasons for using or not using it, and their opinion about the feedback received and how it impacted the therapy process.

**Data Analyses**

Baseline differences in patient demographic and clinical severity were investigated using a one-way analysis of variance (ANOVA) for continuous variables and  $\chi^2$  tests of independence for categorical variables. Because patients of the same therapist can be in different feedback groups there is no independence in therapists’ attributes in the different groups. Therefore, we used a permutation simulation to test for existence of differences between the feedback conditions in therapists’ attributes. We first calculated the F statistic (F\*) from the ANOVA table of an analysis of variance comparing the mean of each attribute in the different conditions in the original data. Then we randomly permuted the

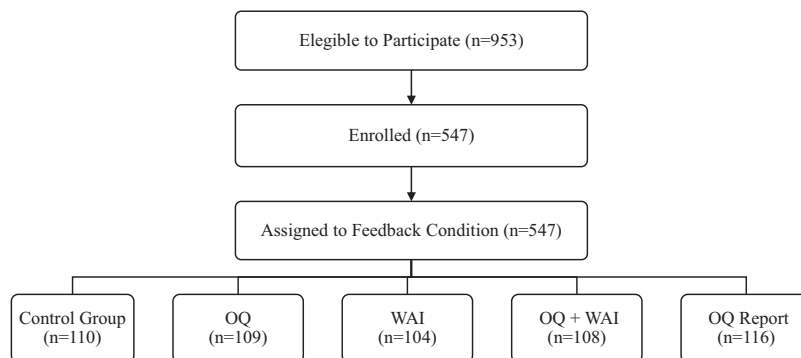


Figure 1. Flow of participants through each stage.

condition assignment of the patients and calculated a similar F statistic value on the new data. Repeating this permutation many times ( $n = 2000$ ), we were able to obtain an empirical distribution of the F statistic under the null hypothesis of no differences between the conditions. We defined  $\alpha$  as the quantile of  $F^*$  in this distribution, with  $1-\alpha$  as the  $p$  value of this test. If  $1-\alpha$  was less than 5% we rejected the null hypothesis and concluded there were differences between the conditions.

The data were hierarchically nested: sessions within patients, and patients within therapists. To account for the correlation between within-patient session observations and observations from patients of the same therapist, we added both the random intercept and random slope of log of time of patients nested within therapists, and the random intercept of therapists to the model using the SAS PROC MIXED procedure for multilevel modeling (Littell, Milliken, Stroup, Wolfinger, & Schabenberger, 2006).

Analyses were conducted within the three-level hierarchically nested model (see Baldwin & Imel, 2013, for a comprehensive description), regardless of the significance of the therapists' random effect, as even small amounts of between-therapists variability may lead to biased estimates (Crits-Christoph & Mintz, 1991; Wampold & Serlin, 2000). To measure the amount of unexplained variance in outcome, because of the random effects of therapist and patient, we used intraclass correlations (ICCs), which reflect the proportion of variance explained by the random effects of therapist and patient. The analyses for percentage of session attendance were conducted within a two-level hierarchically nested model with patients nested within therapists.

To examine the outcome measures (psychological functioning and the alliance) behaviors over time, we evaluated the following trend models for each: linear, quadratic, cubic, linear in log of time, and stability over time either as fixed or random effects. We started with a model with only a fixed intercept and no random effects, and added sequentially a random intercept, fixed effect of week, random effect of week, and a quadratic effect of week in therapy. Next, we examined the models with fixed and random linear effect of log of week. We used the Akaike Information Criterion (AIC) index to determine whether the inclusion of each term improved the model fit.

To examine the effect of feedback condition on the slope of psychological functioning and the alliance, we conducted a series of multilevel models in which we introduced an interaction between time and feedback condition in predicting each outcome variable. To investigate potential moderators of the effect of feedback condition on outcomes, we examined the interaction between each potential moderator, time, and treatment condition in predicting outcome. We examined the following variables as potential moderators: baseline psychological functioning (as predictor of outcome starting at the second session), patients' tendency to self-conceal, therapists' previous use of questionnaires, therapists' theoretical orientation, and therapists' years of clinical experience. Analyses for attendance as the outcome variable were conducted on a two-level model, with two-way interactions of feedback condition and each potential moderator.

Since Lambert and colleagues found that feedback was helpful only for patients not progressing during the psychotherapy process, we repeated all analyses only including patients "not-on-track." We followed the same procedure as Lambert and colleagues (Hawkins et al., 2004), who defined patients "not-on-track" as

those who at any point of therapy were identified as failing to progress as expected (single or multiple yellow/red color-coded messages). We also repeated all analyses using an interaction with a dummy variable representing whether the patient was "on-track" or "not-on-track." Given the fact that the therapists decided whether or not to use the available feedback, we repeated all analyses only with the subgroup of therapists who reported using the feedback in a follow-up interview. Lastly, we also repeated the analyses with max number of sessions as a potential moderator.

The 3-level models were based on the following equation:

$$Y_{ij}(t) = b0c + (b1c + u1i) * \log(t + 1) + u2i + u3j + e_{ij}(t),$$

where  $Y_{ij}(t)$  is the outcome of patient  $i$  of therapist  $j$  on session  $t$ ,  $b0c$  is the intercept (which represents the average of  $Y$  on beginning of treatment,  $t = 1$ ) for condition  $c$  ( $c = 1, 2, \dots, 5$ ),  $b1c$  is the trend of  $Y$  for condition  $c$ ,  $u1i$  and  $u2i$  are random effects of slope and intercept of subject  $i$ ,  $u3j$  is the random effect of therapist  $j$  (who treated subject  $i$ ), and  $e_{ij}(t)$  is the random error. All random effects are normally distributed with zero mean.

Testing the condition effect is by the null hypothesis  $b11 = b12 = \dots = b15$ .

If we have a moderator  $M$  either categorical with values  $m = 1, 2, \dots, K$  or continuous with any value  $m$ , the model is

$$Y_{ij}(t) = b0c\_m + (b1c\_m + u1i) * \log(t + 1) + u2i + u3j + e_{ij},$$

where  $b0c\_m$  is the intercept for condition  $c$  and  $M = m$  (when  $M$  is continuous then  $b0c\_m = b0c + b2c * m$ ) and  $b1c\_m$  is the trend of  $Y$  for condition  $c$  when  $M = m$  (when  $M$  is continuous then  $b1c\_m = b1c + b3c * m$ ). Significance of the moderation of  $M$  is obtained by testing the null hypothesis that for each condition  $c = 1, 2, \dots, 5$ ,  $b1c\_m$  is constant over all values of  $M$  (or that  $b3c = 0$  when  $M$  is continuous).

The 2-level models were based on the following equation:

$$Y_{ij} = b0c + u_j + e_{ij},$$

where  $Y_{ij}$  is the outcome (proportion of sessions . . .) of patient  $i$  of therapist  $j$ ,  $b0c$  is the intercept (average of  $Y$ ) for condition  $c$  ( $c = 1, 2, \dots, 5$ ),  $u_j$  is a random intercept of therapist  $j$  (who treated subject  $i$ ), and  $e_{ij}$  is the random error. The random effects and errors are normally distributed with zero mean and independent. Testing the condition effect is by the null hypothesis  $b11 = b12 = \dots = b15$ .

For moderator  $M$ , the model is,

$$Y_{ij} = b0c\_m + u_j + e_{ij},$$

where  $b0c\_m$  is the intercept for condition  $c$  when  $M = m$  (when  $M$  is continuous then  $b0c\_m = b0c + b2c * m$ ). Testing the moderation of  $M$  is by the null hypothesis that for each condition  $c = 1, 2, \dots, 5$ ,  $b0c\_m$  is constant over all values of  $M$  (for continuous  $M$  it is tested by  $b2c = 0$ ).

## Results

### Preliminary Analyses

Table 1 presents patient demographic and clinical variables by feedback condition. There were no significant differences between feedback conditions in patient characteristics. Table 2 presents therapist demographics, previous use of questionnaires, and

Table 1  
Patient Demographic and Clinical Variables by Feedback Condition

Patient characteristics	Control ( <i>n</i> = 110) Mean ( <i>SD</i> )	OQ ( <i>n</i> = 110) Mean ( <i>SD</i> )	WAI ( <i>n</i> = 104) Mean ( <i>SD</i> )	OQ + WAI ( <i>n</i> = 107) Mean ( <i>SD</i> )	OQ Report ( <i>n</i> = 116) Mean ( <i>SD</i> )	Total ( <i>n</i> = 547) Mean ( <i>SD</i> )	<i>P</i> Value
Age	42.1 (12)	42.2 (14)	41.6 (14)	39.7 (12)	41.1 (12)	41.3 (13)	.60
Gender, %( <i>n</i> )							
Male	26.4 (29)	20.9 (23)	24.3 (25)	22.6 (24)	31.0 (36)	(137)	.45
Female	73.6 (81)	79.1 (87)	75.7 (78)	77.4 (82)	69.0 (80)	(408)	.45
Income in USD	1309.4 (802)	1357.2 (869)	1363.1 (777)	1436.4 (897)	1387.3 (778)	1370.5 (824)	.85
Education	13.8 (3)	14.1 (3)	14.2 (3)	14.2 (3)	14.2 (3)	14.1 (3)	.78
Severity	66.6 (28)	66.1 (31)	63.3 (29)	64.1 (23)	66.0 (28)	65.2 (28)	.89

Note. OQ = Outcome Questionnaire; WAI = Working Alliance Inventory.

clinical experience by feedback condition. There were no significant differences between feedback conditions in these therapist characteristics. Table 3 includes for each condition the average and standard deviation for (a) OQ before treatment, (b) OQ after treatment, and (c) difference in OQ before and after treatment. This table also includes the percentage of patients in each condition that during treatment were (a) “Not on Track”, (b) deteriorated, (c) had no change, (d) had reliable change, and (e) had clinically significant change.

We compared the fits of several models of change over time for symptomatology. According to the AIC criterion, the model with the best fit is the one with fixed effect of log of time, random therapist intercept, random patient intercept, and random log of time.<sup>1</sup> The estimated variance of the therapists’ random effect in the three-level model predicting outcome was not significant ( $p = .47$ ). This finding indicates that the therapists’ random effects did not contribute significantly to variance in patients’ psychological functioning. On the other hand, the estimated variance of the patients’ random effect in the three-level model predicting outcome was significant, indicating that that patients’ random effects contributed significantly to the variance in their psychological functioning ( $p < .0001$ ). The ICC for the patient random effect was 65.98%.

We used a two-level model with fixed effect of feedback condition and random therapist intercept for attendance. The estimated variance of the therapists’ random effect in the two-level model predicting attendance was significant ( $p = .01$ ). This finding indicates that therapists’ random effects contributed significantly to the variance in the percentage of sessions attended by patients. The ICC for the therapists’ random effect was 5.49%.

Finally, we compared the fits of several models of change over time for the alliance. The model that was found to have the best fit according to the AIC criterion is one with fixed effect of log of time, random therapist intercept, random patient intercept, and random log of time. The estimated variance of the therapists’ random effect in the three-level model predicting alliance was significant ( $p = .01$ ). This finding indicates that the therapists’ random effects contributed significantly to variance in alliance. The ICC for the therapists’ random effect was 4.14%. Meanwhile, the estimated variance of the patients’ random effect in the three-level model predicting alliance was significant, indicating that patients’ random effects contributed significantly to the variance in alliance ( $p < .0001$ ). The ICC for the patient random effect was 42.94%.

### Differences Between Feedback Conditions Across Time

The interaction between feedback conditions and log of session was not significant for symptomatology  $F_{(4,3136)} = 0.7, p = .59, d < 0.0001$ , suggesting that no significant differences exist in the rate of change in psychological functioning across conditions. Similarly, no significant differences were found between feedback conditions in percentage of session attendance,  $F_{(4,87)} = 0.39, p = .82, d = 0$ , and in the rate of change in alliance  $F_{(4,3136)} = 0.18, p = .95, d = 0$ .

### Analysis of Potential Moderators<sup>2</sup>

We added to the model predicting symptomatology the interaction between each potential moderator, time, and treatment condition. The interaction term between log of time, feedback condition, and psychiatric hospitalization in a model predicting psychological functioning was significant ( $F_{(4, 3064)} = 3.35, p = .009$ ), indicating that former psychiatric hospitalization significantly moderates the association between feedback condition and time in predicting symptomatology (see Figure 2). Specifically, when there was former psychiatric hospitalization, the control group, WAI, and OQ showed a significant reduction in symptoms across treatment ( $\beta = -20.2, SE = 4.02, t_{(3064)} = -5.02, p < .0001, \beta = -11.4, SE = 3.4, t_{(3064)} = -3.35, p = .0008$ , and  $\beta = -7.2, SE = 3, t_{(3064)} = -2.45, p = .01$ , respectively), whereas the other feedback conditions showed no significant reduction ( $\beta = -3.2, SE = 3.34, t_{(3064)} = -0.96, p = .33$  for the WAI + OQ and  $\beta = -3.1, SE = 3.1, t_{(3064)} = -0.88, p = .37$ , for the OQ progress report). However, when there was no former psychiatric hospitalization, all feedback conditions showed a significant reduction in OQ, and thus, improvement in psychological function (all  $ps \leq 0.0001$ ). Whereas for patients with former psychiatric hospitalization, the reduction in symptoms was significantly stronger in the control group than in the OQ, OQ + WAI, and OQ progress report ( $F(1, 3064) = 6.74, p = .009, F(1, 3064) = 10.61, p = .001$  and  $F(1,$

<sup>1</sup> For psychological functioning and alliance the chosen models had the best fit irrespectively of whether feedback condition was introduced in the model or not.

<sup>2</sup> Tables with the results of the models that assess potential moderators of the relationship between feedback and therapy outcome, attendance, and alliance—for all patients as well as for “not-on-track” patients only—can be found in the online supplemental materials.

Table 2  
 Therapist Demographics, Previous Use of Questionnaires, and Clinical Experience by Feedback Condition

Therapist characteristics	Control ( <i>n</i> = 24) Mean ( <i>SD</i> )	OQ ( <i>n</i> = 25) Mean ( <i>SD</i> )	WAI ( <i>n</i> = 24) Mean ( <i>SD</i> )	OQ + WAI ( <i>n</i> = 26) Mean ( <i>SD</i> )	OQ Report ( <i>n</i> = 20) Mean ( <i>SD</i> )	<i>P</i> Value
Age	38.1 (8)	37.5 (8)	37.9 (8)	38.0 (8)	37.9 (9)	.95
Gender, %( <i>n</i> )						
Male	31.8 (7)	34.8 (8)	34.8 (8)	30.4 (7)	36.8 (7)	1.00
Female	68.2 (15)	65.2 (15)	65.2 (15)	69.6 (16)	63.2 (12)	
Income in USD	2826.4 (809)	2860.7 (808)	2848.9 (798)	2860.7 (808)	2773.3 (852)	.81
Used questionnaires, %( <i>n</i> )						
Never	40.9 (9)	43.5 (10)	39.1 (9)	40.9 (9)	31.6 (6)	.66
Sometimes	40.9 (9)	34.8 (8)	39.1 (9)	40.9 (9)	47.4 (9)	
Frequently/always	18.2 (4)	21.7 (5)	21.7 (5)	18.2 (4)	21.1 (4)	
Years of experience	8.2 (6)	8.0 (5)	8.2 (5)	8.2 (6)	7.9 (6)	.92
Theoretical orientation						
Analytical	3.1 (1)	3.0 (2)	3.0 (2)	3.1 (1)	3.0 (1)	.65
Behavioral	2.9 (2)	2.7 (2)	2.8 (2)	2.9 (2)	2.8 (2)	.67
Cognitive	3.4 (1)	3.4 (1)	3.4 (1)	3.4 (1)	3.3 (2)	.36
Humanistic	1.9 (2)	1.9 (2)	2.0 (2)	1.9 (2)	2.1 (2)	.60
Systems	3.7 (1)	3.7 (1)	3.7 (1)	3.7 (1)	3.7 (1)	.14

Note. OQ = Outcome Questionnaire; WAI = Working Alliance Inventory.

3064) = 10.09,  $p = .001$ , respectively); when there was no former psychiatric hospitalization, there were no significant differences among the conditions ( $ps \geq 0.20$ ).

There was no statistically significant moderating effect of medication, baseline symptomatology (OQ), self-concealment, therapist frequent use of questionnaire, or therapists' theoretical orientation (analytical, behavioral, cognitive, humanistic, or systems) on the effect of feedback condition on symptomatology reduction throughout therapy.

Regarding attendance and the alliance, there was no statistically significant moderating effect of former psychiatric hospitalization, medication, baseline OQ, self-concealment, therapist frequent use of questionnaire, or therapists' theoretical orientation (analytical, behavioral, cognitive, humanistic, or systems) on the effect of feedback condition on session attendance and the alliance.

### Patients "Not-on-Track" Analyses

Since Lambert and colleagues found that feedback was particularly helpful for patients not progressing during the psychotherapy process, we repeated all analyses including only patients "not-on-track." Regarding symptomatology, the interaction between feedback conditions and log of session was nonsignificant even when only patients "not-on-track" were included in the analyses ( $F_{(4,1530)} = 1.31, p = .26, d = 0.001$ ), suggesting that no significant differences exist in the rate of change between feedback conditions.

When only patients "not-on-track" were included in the analyses, baseline symptomatology (OQ) was found to significantly moderate the association between feedback conditions and time in predicting symptomatology reduction throughout therapy,

Table 3  
 OQ-30 Results by Feedback Condition

Result	Control ( <i>n</i> = 110) Mean ( <i>SD</i> )	OQ ( <i>n</i> = 110) Mean ( <i>SD</i> )	WAI ( <i>n</i> = 104) Mean ( <i>SD</i> )	OQ + WAI ( <i>n</i> = 107) Mean ( <i>SD</i> )	OQ Report ( <i>n</i> = 116) Mean ( <i>SD</i> )	Total ( <i>n</i> = 547) Mean ( <i>SD</i> )
First OQ	62.36 (13)	58.22 (13)	59.71 (14)	60.65 (11)	61.46 (12)	60.50 (13)
Last OQ	51.95 (13)	50.51 (13)	50.90 (14)	51.01 (13)	53.53 (14)	51.61 (14)
OQ Difference	10.41 (13)	7.72 (12)	8.81 (13)	9.63 (13)	7.93 (11)	8.89 (13)
Not on Track	33%	34%	36%	30%	38%	34%
Deteriorated	5%	6%	7%	5%	9%	6%
No Change	52%	59%	46%	48%	61%	53%
Reliable Change	22%	15%	24%	18%	10%	18%
Clinically Significant Change	21%	21%	23%	30%	20%	23%

Note. OQ = Outcome Questionnaire; WAI = Working Alliance Inventory; OQ Difference = The difference between a patient's first and last OQ; Not on Track = Patients who were identified at any point during the course of treatment as failing to progress as expected (single or multiple yellow/red color-coded messages); Deteriorated = Worsened by at least 10 points on the OQ from pre to post treatment; No Change = Improved less than 10 points and worsened by less than 10 points on the OQ; Reliable Change = Improved by at least 10 points on the OQ but did not pass the cutoff between dysfunctional and functional populations; and Clinically Significant Change = Improved by at least 10 points on the OQ and passed the cutoff between dysfunctional and functional populations.



Former psychiatric hospitalization

No former psychiatric hospitalization

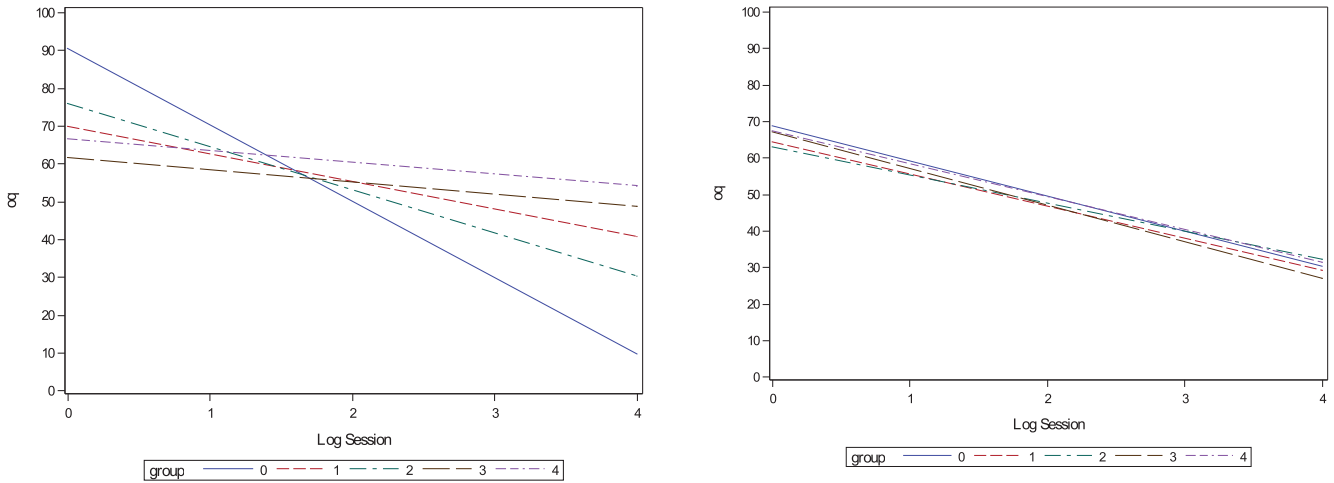


Figure 2. The moderating effect of former psychiatric hospitalization on the effect of feedback condition on symptom reduction across treatment. See the online article for the color version of this figure.

( $F_{(4,1387)} = 2.94, p = .02$ ) (see Figure 3). Specifically, in the low levels of baseline symptomatology (OQ), the conditions in which patients showed a significant reduction in symptoms across treatment were the OQ ( $\beta = -10.65, SE = 2.67, t_{(1387)} = -3.99, p = 0.00$ ), the OQ progress report ( $\beta = -7.19, SE = 3.12, t_{(1387)} = -2.31, p = .02$ ), and the WAI ( $\beta = -5.31, SE = 2.60, t_{(1387)} = -2.04, p = .04$ ). However, for patients who had high levels of baseline symptomatology (OQ), the control group ( $\beta = -13.56, SE = 2.57, t_{(1387)} = -5.28, p = .00$ ) and the WAI ( $\beta = -7.42, SE = 2.70, t_{(1387)} = -2.75, p = .01$ ) showed a significant reduction in symptoms across treatment. For patients with low

levels of baseline symptomatology (OQ), the reduction in outcome was significantly stronger in the OQ than in the OQ + WAI ( $F_{(1,1387)} = 6.44, p = .01$ ). For patients with high levels of baseline symptomatology (OQ), the reduction in outcome was significantly stronger in the control group than in the OQ progress report ( $F_{(1,1387)} = 7.77, p = .01$ ), the OQ ( $F_{(1,1387)} = 6.94, p = .01$ ), and the OQ + WAI ( $F_{(1,1387)} = 4.65, p = .03$ ). When only patients “not-on-track” were included in the analyses, there was no statistically significant moderating effect of baseline symptomatology (OQ) on the effect of feedback condition on the alliance.

Low Baseline OQ

High Baseline OQ

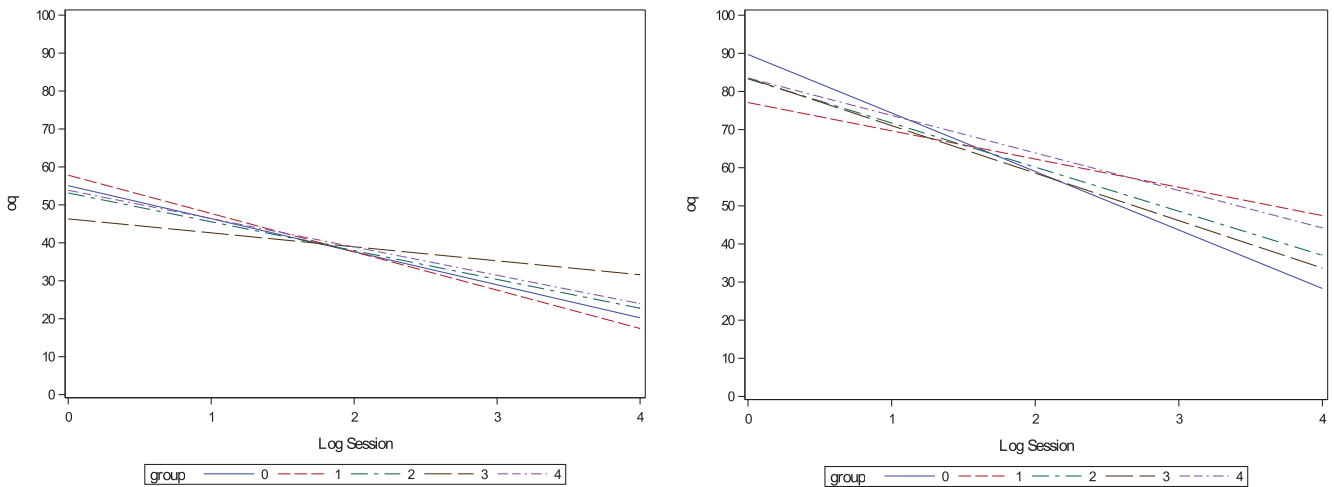


Figure 3. The moderating effect of baseline OQ on the effect of feedback condition on symptom reduction across treatment when only patients “not-on-track” were included in the analyses. On the right it is 1 SD above the moderator mean and on the left it is 1 SD below the moderator mean. See the online article for the color version of this figure.

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When only patients “not-on-track” were included in the analyses, baseline OQ levels were found to significantly moderate the association between feedback conditions and time in predicting therapy outcome,  $F_{(4,1520)} = 3.43, p = .008$  (see Figure 3). Specifically, in the low levels of baseline OQ, the OQ condition showed a significant reduction in symptoms across treatment ( $\beta = -5.8, SE = 2.04, t_{(1520)} = -2.85, p = .004$ ), whereas the other conditions showed no significant reduction ( $\beta = -3.6, SE = 2.37, t_{(1520)} = -1.52, p = .12$  for the OQ progress report,  $\beta = -3.3, SE = 1.99, t_{(1520)} = -1.68, p = .09$  for the WAI,  $\beta = 1, SE = 2.87, t_{(1520)} = 0.36, p = .71$  for the control group, and  $\beta = 1.8, SE = 2.37, t_{(1520)} = 0.76, p = .44$  for the OQ + WAI). However, for patients who had high levels of baseline symptomatology, the control group ( $\beta = -11.3, SE = 1.98, t_{(1520)} = -5.72, p < .0001$ ), the WAI ( $\beta = -6.5, SE = 2.09, t_{(1520)} = -3.09, p = .002$ ), and the OQ + WAI ( $\beta = -4.5, SE = 2.31, t_{(1520)} = -1.97, p = .04$ ) showed a significant reduction in symptoms across treatment, whereas the other conditions showed no significant reduction ( $\beta = -2.6, SE = 1.89, t_{(1520)} = -1.4, p = .16$  for the OQ progress report and  $\beta = -2.5, SE = 2.54, t_{(1520)} = -0.97, p = .33$  for the OQ). For patients with low levels of baseline symptomatology, the reduction in outcome was significantly stronger in the OQ condition than in the WAI + OQ ( $F_{(1,1520)} = 5.97, p = .01$ ). For patients with high levels of baseline symptomatology, the rate of change in outcome was significantly stronger in the control group than in the OQ progress report, the OQ, and the OQ + WAI ( $F_{(1,1520)} = 10.06, p = .001, F_{(1,1520)} = 7.59, p = .005$ , and  $F_{(1,1520)} = 5.01, p = .02$ , respectively).

There was no statistically significant moderating effect of former psychiatric hospitalization, medication, self-concealment score, therapist frequent use of questionnaire, or therapists’ theoretical orientation (analytical, behavioral, cognitive, humanistic, or

systems) on the effect of feedback condition on symptomatology reduction among patients “not-on-track.”

In regard to attendance, findings based only on patients “not-on-track” were similar to those where all patients were included. Specifically, no significant differences were found between treatment conditions in percentage of sessions attended when only patients “not-on-track” were included in the analyses ( $F_{(1,159)} = 0.59, p = .44, d = 0$ ).

There was no statistically significant moderating effect of former psychiatric hospitalization, medication, baseline OQ, self-concealment score, therapists’ frequent use of questionnaire, or therapists’ theoretical orientation (analytical, behavioral, cognitive, humanistic, or systems) on the effect of feedback condition on percentage of sessions attended among patients “not-on-track.”

Findings based only on patients “not-on-track” were similar to those where all patients were included in the analyses in predicting alliance. Specifically, the interaction between feedback conditions and log of session was not significant ( $F_{(4,3136)} = 0.18, p = .94, d = 0$ ), suggesting that no significant alliance differences exist between feedback conditions in the rate of change among patients “not-on-track”.

Tendency to self-conceal was found to significantly moderate the association between feedback condition and time in predicting the rate of change in alliance,  $F_{(4,1520)} = 2.87, p = .02$  (see Figure 4). Specifically, in the low levels of tendency to self-conceal, the OQ progress report, the OQ + WAI, and the control group showed a significant increase in alliance across treatment ( $\beta = 2.2, SE = 1.03, t_{(1520)} = 2.1, p = .03, \beta = 2.4, SE = 1.21, t_{(1520)} = 1.97, p = .04$ , and  $\beta = 4.5, SE = 1.28, t_{(1520)} = 3.54, p = .0004$ , respectively), whereas the other conditions showed no significant change ( $\beta = 1.2, SE = 1.01, t_{(1520)} = 1.14, p = .25$  for the OQ and  $\beta = 1.3, SE = 0.99, t_{(1520)} = 1.3, p = .19$  for the WAI). In the high levels of tendency to self-conceal, the WAI, the control group, and

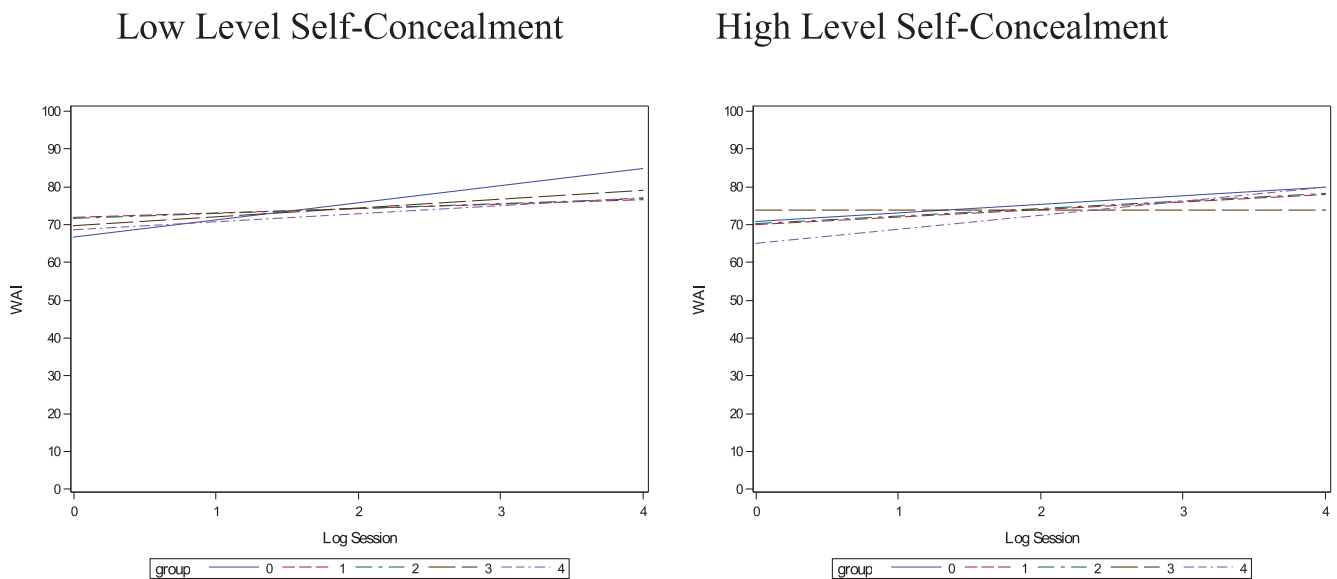


Figure 4. For the moderating effect of tendency to self-conceal on the effect of feedback condition on alliance increase across treatment, only patients “not-on-track” were included in the analyses. On the right it is 1 SD above the moderator mean and on the left it is 1 SD below the moderator mean. See the online article for the color version of this figure.

the OQ progress report showed a significant increase in alliance across treatment ( $\beta = 1.9$ ,  $SE = 0.98$ ,  $t_{(1520)} = 1.98$ ,  $p = .0476$ ,  $\beta = 2.2$ ,  $SE = 1.14$ ,  $t_{(1520)} = 1.96$ ,  $p = .0498$ , and  $\beta = 3.7$ ,  $SE = 1$ ,  $t_{(1520)} = 3.72$ ,  $p = .0002$ , respectively), whereas the other groups showed no significant change ( $\beta = 0$ ,  $SE = 1.14$ ,  $t_{(1520)} = 0$ ,  $p = .99$  for the OQ + WAI, and  $\beta = 2$ ,  $SE = 1.04$ ,  $t_{(1520)} = 1.92$ ,  $p = .05$  for the OQ). However, for the low levels of tendency to self-conceal, the rate of change in alliance was significantly stronger in the control group than in the OQ and the WAI ( $F_{(1,1520)} = 4.25$ ,  $p = .03$  and  $F_{(1,1520)} = 4.02$ ,  $p = .04$ , respectively); for the high levels of tendency to self-conceal, the rate of change in alliance was significantly stronger in the WAI + OQ than in the OQ progress report ( $F_{(1,1520)} = 6.02$ ,  $p = .01$ ).

There was no statistically significant moderating effect of former psychiatric hospitalization, medication, baseline therapy outcome, therapist frequent use of questionnaire, therapists' theoretical orientation (analytical, behavioral, cognitive, humanistic, or systems) on the effect of feedback condition on alliance among patients "not-on-track." Further analyses testing whether "not-on-track" versus "on-track" status can serve as a significant moderator revealed nonsignificant results, for reduction in symptomatology ( $F_{(4,3126)} = 1.37$ ,  $p = .24$ ) and for the alliance ( $F_{(4,3126)} = 1.04$ ,  $p = .38$ ).

We repeated all analyses only with the subgroup of therapists who had reported using the feedback; findings in all analyses were similar. Additionally, using maximum number of sessions as a moderator revealed no significant findings. Specifically, there was no statistically significant moderating effect of max number of sessions on the effect of feedback condition on the rate of change in symptomatology throughout therapy,  $F(4, 3126) = 0.99$ ,  $p = .41$ , on session attendance ( $F_{(4,509)} = 1.33$ ,  $p = 0.26$ ), or on the rate of change in alliance ( $F_{(4,3126)} = 0.47$ ,  $p = 0.75$ ).

### Follow-Up Interviews

When therapists were asked whether they had actually used the feedback provided to them during the study, 64.70% reported that they had sometimes or always used it (we repeated the analyses only with therapists who had reported using the feedback and found the same results as with the complete therapist sample; see above). Therapists who reported using the feedback generally were capable of understanding the graphs, critical items, and/or warning messages. In addition, most of them had a positive impression of the feedback measures and thought they were helpful to them and their patients. For example, one of the therapists explained that his patient felt "better cared for" and "more contained" thanks to the experience of completing the measures every session. In addition, therapists explained that the OQ was especially helpful to monitor depressive symptomatology, and that the WAI was very useful in understanding how they could improve their relationship with their patients. To our surprise, in these interviews therapists reported little resistance to using the feedback measures, and those who did not use them reported they had forgotten about them or had no time, and that they would like to receive feedback in the future.

### Discussion

This randomized controlled trial was designed to investigate the effects of several types of feedback on treatment success, including

the following weekly feedback conditions: control group with no feedback; providing OQ data; WAI data; OQ and WAI data; and Lambert's OQ progress report. The effect of providing therapists with each type of feedback was tested on outcome (changes in symptomatology), patient-rated alliance, and patient session attendance on a sample of 547 patients and their 28 therapists. We were particularly interested in potential moderating effects of the various types of feedback.

The differences in the outcomes of treatment were explained mostly by the variability at the patient level, not the therapist level. Differences between therapists did not significantly contribute to differences in outcome, while differences between patients contributed most of the variability in outcomes. In relation to the alliance, differences between patients had a much larger contribution to the variability in alliance than differences between therapists. However, therapist effect was significant for patients' attendance and alliance and accounted for 4%–5% of the variance. The present findings are generally consistent with previous research, demonstrating some contribution of the therapist although still showing that most of the variance is coming from the patient (Baldwin & Imel, 2013).

Contrary to our hypothesis, whether or not therapists received feedback on patients' symptomatology and alliance perception had no overall impact on outcome, attendance, or the alliance. This continued to be true even when we only included patients "not-on-track" and/or only therapists who reported actually using the feedback provided. Also, contrary to our hypotheses, therapists' previous use of questionnaires, therapists' theoretical orientation, and therapists' years of clinical experience had no impact on whether feedback helped or not to improve symptomatology, increase attendance, or improve the alliance. The finding that these therapist characteristics did not influence the effect of feedback on the therapeutic process is consistent with our finding that most of the variability in psychological functioning, alliance, and attendance is due to patient characteristics, and not therapist characteristics.

Regarding patient characteristics, significant moderators were previous psychiatric hospitalization, as well as the tendency to self-conceal, and intake psychological dysfunction for patients "not-on-track." Because psychiatric hospitalization and psychological dysfunction both refer to the severity of the mental health issues a patient presents, we will discuss them together in discussing self-concealment.

For "not-on-track" patients, their tendency to self-conceal moderated the relationship between the type of feedback and changes in the alliance. The difference between patients with high versus low tendency to self-conceal is that the former comparatively benefit more from the OQ and WAI feedback, while the later benefit more from the WAI only feedback. Nevertheless, for both groups no feedback is just as helpful. From this we can conclude that even for patients who are "not-on-track," and who tend to self-conceal relevant information about themselves, providing therapists with feedback is not beneficial per se.

The severity of the mental health issues of patients (i.e., previous hospitalization and/or high baseline psychological dysfunction in addition to no improvement) proved to be a significant moderator of feedback effect on therapy outcome. Specifically, whether feedback could make a difference or not

on patients' symptomatology depends on patients' severity. Overall, patients with former psychiatric hospitalization were negatively affected by their therapists receiving feedback, and thus, the control group with no feedback was the one with greatest reduction in symptoms across treatment. In addition, patients "not-on-track" who presented high psychological dysfunction at the beginning of treatment (i.e., high OQ score) benefited the most if their therapists received no feedback. One potential post hoc explanation for these findings is that providing therapists with feedback for this low-functioning subgroup could potentially be detrimental for some patients' therapy outcome as therapists may perceive it as "negative feedback."

The accumulating findings from the present study suggest that feedback had an adverse effect for those patients with a severe condition. This is contrary to the findings that feedback improves outcomes for patients with more severe mental health problems, even though the effect sizes reported are smaller for this population than for patients with mild problems (Davidson et al., 2015). Considering the present findings, it may be hypothesized that detailed weekly feedback on severe symptomatology (OQ data); an OQ progress report that shows lack of progress—or deterioration—accompanied by a warning message; or weekly feedback showing specific alliance difficulties (WAI data), such as distrust in the therapist, may all discourage therapists or make them insecure, which could lead to worse results than receiving no feedback. Nevertheless, it is important to consider that other factors, such as patient's motivation and commitment to therapy, acceptance of treatment, and previous experiences in therapy may have contributed to the outcome with the more severe cases.

In the case of patients "not-on-track" who presented low psychological dysfunction at the beginning of treatment (i.e., low OQ score), their symptomatology decreased if their therapists received as feedback unprocessed OQ data, alliance data, or the OQ progress report. Complementary to our previous hypothesis, it appears that providing therapists with feedback for patients who have low symptomatology overall may encourage and/or assure therapists and have a positive impact on treatment. One way to explain the findings based on the analyses on the subsample "not-on-track" may build on the assumption that for patients with low symptomatology any feedback (i.e., feedback on symptomatology, alliance, or a progress report) is helpful because it is perceived as "positive feedback" by therapists.

We had also hypothesized that how feedback on psychological functioning was provided to therapists (unprocessed OQ data vs. the OQ progress report) would not make a significant difference and both would be helpful. Our aforementioned findings show that whether the OQ information is provided to therapists as unprocessed data or within the OQ progress report does not make a difference, but overall neither one is helpful.

Our findings differ from previous findings reporting that feedback improves therapy outcome (Shimokawa et al., 2010), but is in line with de Jong et al. (2012) who found that feedback is not effective in all circumstances and that it may slow down progress. In comparing our findings to previous literature, it is important to consider several differences between our study and previous studies. First, most of the previous studies (e.g., Whipple et al., 2003) that provided progress feedback to therapists also supplied therapists with problem-solving tools (clin-

ical support tools; CST) for identifying the causes of patient deterioration, and made suggestions for improving identified problems. Because we wanted to test several feedback options that would require little economic and time resources, we only explained to therapists the types of feedback they would receive, but we did not supply them with any tools to improve treatments. As previously stated, the OQ system is expected to allow therapists to modify their behavior according to the feedback received (Lambert, 2015), but this may not be possible if therapists do not receive any help, such as in the form of CST, to do so. While it is not clear from the literature if and how therapists in other studies were trained, a potential limitation of the current study is having therapists who were less prepared to use the feedback in a productive manner.

Second, previous studies took place in the northern hemisphere, in developed English-speaking countries. Our study took place in Chile, a Latin American country with different cultural and economic conditions. Third, we collected data in an outpatient mental health center, which constitutes a naturalistic setting with experienced therapists providing therapy as usual. At this center, data is not collected on a regular basis, and only one out of five therapists in our study reported frequently using questionnaires before the study. And fourth, patients in our sample had lower psychological functioning at baseline as measured with the OQ than most previous studies (Shimokawa et al., 2010). The possibility that our more severe sample may have contributed to our result is supported by our findings that more severe patients were found to be a subgroup that did better with no feedback.

In trying to understand our unexpected findings, we hypothesized that therapists may have ignored the feedback because they did not understand it, found it irrelevant, or felt discouraged by the results. Not being used to having their patients complete questionnaires, it is also possible that they felt threatened by this, feeling that their competence was being "measured" and possibly exposed to others (even though we had previously explained the confidentiality of all data). As Lambert (2015) suggests, fear and mistrust can make therapists resist monitoring. We also hypothesized that some therapists could philosophically or theoretically disagree with the idea of measuring outcome and the therapeutic relationship through questionnaires.

Nevertheless, the previous post hoc hypotheses were not confirmed with this sample of therapists. Through the follow-up interviews we learned that 64.70% of the therapists had sometimes or always used the feedback and that they valued feedback and thought it was a useful tool. While we consider our follow-up interviews a strength of this study, a limitation is that we only asked in general if therapists used or not the feedback, but not specifically for each condition they were randomized to. In addition, like previous studies (see Shimokawa et al., 2010 for a review), we did not closely monitor during the RCT how feedback was actually used by therapists.

Even though most of our results were different from what we expected, we consider this randomized controlled trial had several strengths: We had four different feedback conditions in addition to the control group; we had a large sample and did not use archival data; we had the same therapist across different feedback conditions; therapists worked from a variety of treat-



ment approaches (i.e., psychodynamic, cognitive, etc.); all participating clinicians were psychologists with several years of experience; and we included follow-up interviews to monitor if therapists had actually used the feedback, which has not been done previously (Davidson et al., 2015). In addition, our sample was very different from mainstream research samples used so far to study feedback, and this diversity is strongly needed in psychotherapy research, since previous studies use mainly homogeneous samples (Davidson et al., 2015). Finally, our research team has no interests in proving either that the instruments used are helpful or not helpful.

We agree with the conclusion of Davidson et al. (2015), who after reviewing the best quality studies about feedback state that it cannot be assumed that findings from those studies can be replicated in other mental health settings. In line with this, we suggest that future research continue to look for low cost feedback systems that are effective and culturally appropriate to the specific population in question. Since we found divergent results in a different cultural setting, it seems necessary to continue replicating this kind of research in diverse countries and contexts, and by different research groups, in order to understand if previous research findings in the U.S. and Europe are culturally specific and to make sure they are not biased by the “researcher allegiance” (Leichsenring et al., 2017).

In terms of practical implications, since we found that providing feedback alone is not beneficial per se, and may even be detrimental, we suggest that before implementing any feedback system in large scale, it would be important to study its impact in that specific context and patient population.

Finally, it is important to consider the multiple barriers that may interfere with the implementation of feedback systems, its implementation and acceptance by practitioners and managers (Boswell, Kraus, Miller, & Lambert, 2015; Hamilton & Bickman, 2008), especially in low-income countries. Because it is likely that many institutions and independent practitioners that would be interested in implementing a feedback system have not done so due to lack of economical, administrative, and time resources, it is important to find new feedback options that can complement the ones available. Even the PCOMS feedback system, which according to its authors (Miller, Duncan, Sorrell, & Brown, 2005) is the fastest to implement, requires some processing of data in order to provide the feedback, and requires training of therapists. And while we do not know the exact cost of implementing the OQ feedback system, Boswell and colleagues (2015) suggest a \$25 U.S./month reimbursement for routine monitoring for each client. We estimate that this cost is higher than the total amount reimbursed for psychotherapy treatment in Chile due to its scarce public mental health funding (Errázuriz, Valdés, Vöhringer, & Calvo, 2015). The same can be expected in many other countries considering that worldwide the median mental health per capita expenditure was reported at \$1.63 U.S. only a decade ago and that mental health expenditures are 200 times greater in the United States than in low-income countries (World Health Organization, 2011). Considering the worldwide need to make mental health treatment as effective as possible, we encourage researchers to continue looking for ways to provide inexpensive feedback options that could be disseminated in developing and low-income countries.

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