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Deterioration in Individual Psychotherapy: The Effectiveness of the
Clinical Support Tools

Melissa Mallory White

A dissertation submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Doctor of Philosophy

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ABSTRACT

Deterioration in Individual Psychotherapy: The Effectiveness of the Clinical Support Tools

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Doctor of Philosophy

Researchers have found evidence that when clinicians use an evidence-based feedback system that uses Clinical Support Tools (CST) for not-on-track clients, deterioration rates fall and success rates improve (Shimokawa et al., 2010). Despite multiple studies finding evidence in support of using the CST, there has been a discrepancy between effect sizes (i.e., $d = 0.5$; Simon et al., 2012). As such, further replicate of these past studies is needed to discover if small effect sizes still persist and if so, what possible variables may contribute to inconsistent findings. For the current study, it was predicted that the use of the CST would result in significantly lower OQ-45 scores at treatment termination after controlling for the intake OQ-45 score. Additionally, previous research indicated that the combined intervention of the progress feedback plus CST would significantly reduce deterioration rates with those NOT. Out of 1,122 participants, 172 were randomly assigned to one of two conditions: The CST feedback group ($n = 71$) and the no CST feedback group ($n = 101$). There was not a significant difference in the mean OQ-45 scores for the CST feedback group ($M = 2.39$, $SD = 20.95$) and the no CST feedback group ($M = 4.17$, $SD = 19.74$). The results of this study raise questions about how regularly the therapists were monitoring their clients' progress feedback and whether the CST are effective. Additionally, the author evaluates the timing of when the CST were administered to clients and when therapists reviewed the feedback.

Keywords: deterioration, psychotherapy outcomes, progress feedback, off-track clients, Clinical Support Tools

ACKNOWLEDGMENTS

This dissertation process would not have been possible without the support of Dr. Michael Lambert and his colleagues at Brigham Young University's Counseling and Psychological Services (CAPS). I need to thank the support staff and therapists who willingly participated in this study and helped facilitate the day-to-day treatment process. I would like to personally thank Dr. Lambert. He has taught me, and many other students, more than we would ever be able to express here. Thank you for your years of dedication to the psychology field and for allowing me to be a small part of your journey here at BYU. I feel forever indebted to you for being my mentor and teaching me to see clients as more than just an outcome, to see them as people who need unconditional positive regard and an environment to be themselves. I would also like to personally recognize Dr. Jared Warren who was able to step in and guide me throughout the writing process of my dissertation. Thank you, Dr. Warren, for offering continued support and feedback even when the writing process appeared daunting. Moreover, I would also like to thank and recognize the rest of my committee members, Dr. Baldwin, Dr. Jones, Dr. Erikson, and Dr. Ogles, who have taken time to support me throughout this process.

I am grateful for those who have supported me in the day-by-day work of research. The data collection process took almost two years, and it would not have been possible without the many research assistants who took time to download and organize the data. Furthermore, a specific thank-you goes out to Dr. Russ Bailey, who guided me through setting up this study and who was always available to help with troubleshooting, data analysis, and to discuss methodology.

No one has been more important to me throughout this process than my close friends and family members. Thank you to my BYU classmates and internship cohort for allowing me to

learn and grow with you. Thank you to my siblings, cousins, aunts and uncles, and friends for the constant cheerleading and phone calls. And finally, thank you to my mom and dad for always believing that I was better than the little 6th grader who could barely read and write. It's been a long journey.

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Introduction

Deterioration in Individual Psychotherapy: The Effectiveness of the Clinical Support Tools

Deterioration and Being At-Risk for Deterioration

Rarely, if ever, do therapists begin a course of treatment believing their client will get worse under their care. It is hoped that most therapists believe they can help their clients. Unfortunately, in some cases clients leave treatment experiencing more disturbance than when they started. This has led researchers to further study what client variables lead to poor outcomes as well as how to help change the trajectory of a client's course of treatment.

Research has found that about 5–10% of clients who enter psychotherapy treatment will deteriorate or have a significant increase in global symptoms (Lambert & Ogles, 2004; Shimokawa, Lambert, & Smart, 2010). Similarly, other research has looked at clients who are at-risk of deteriorating (i.e., being *off track* or *not on track*). Going off-track during treatment is defined as a client not achieving the expected change during a course of treatment (Lambert et al., 2001). Most clients who are not on track (NOT) during treatment have experienced a significant increase in symptom distress compared to first entering treatment; however, there are instances when a client may have not experienced any improvement during the course of treatment and therefore is determined to be at risk of deterioration. Being at risk of deterioration is different from deterioration because a significant increase in psychological distress during treatment does not guarantee the client will leave treatment worse off. Past research has shown that approximately 20% of clients will become at risk of leaving treatment deteriorated compared to pre-treatment reports (Shimokawa et al., 2010), which is different from the 5–10% who are seen to deteriorate at the end of treatment (Lambert & Ogles, 2004; Shimokawa et al., 2010).

Over the years, researchers have conducted a variety of studies in order to better understand what contributes to clients becoming worse at their discharge from treatment (i.e., deterioration). Although previous studies provide a greater understanding of possible mediating and moderating variables on positive outcomes, many of these studies are difficult to generalize because of the inconsistent definitions of what it means to deteriorate or be at-risk of deterioration in psychotherapy. Even when overlooking the inconsistent definitions, it is difficult to find variables that contribute to becoming NOT for treatment success.

Bergin and Garfield (1971) were some of the first authors to discuss possible deterioration in psychotherapy. The authors explained that many researchers at this point were conducting outcome studies to ask the question, “What is the effect of psychotherapy?” and concluding different effects based on therapeutic approaches. However, Bergin and Garfield (1971) argued that because studies make conclusions on the *average* change, they have missed the possibility that clients may deteriorate in psychotherapy. Interestingly, they added that researchers may have overlooked the possibility of deterioration because the positive changes and negative changes produce a mean that concludes there is no change. In other words, the measure of central tendency is not capturing the spread of scores in an accurate way. Furthermore, in this review, the authors cited several studies from both adult and child populations that demonstrated both positive effects and deterioration effects. Although the authors concluded that no specific evidence can be generalized, they helped clinicians to start recognizing there could be negative effects from therapy.

Despite efforts to more clearly understand client deterioration and client’s being at risk of deterioration, researchers have struggled to maintain a consistent operational definition. Mohr (1995) claimed to have published one of the first literature reviews to focus specifically on

clients getting worse while in treatment. This review included studies on both deteriorated clients and NOT clients, because studies at this point in time did not differentiate between the two definitions. In his review, Mohr (1995) acknowledged the range of definitions that include “negative outcomes,” making it extremely difficult to generalize findings as well as study clients who have seemingly responded negatively to a course of treatment. Mohr (1995) reviewed literature of clients who deteriorated (i.e., left treatment with significant increase of distress compared to when they started), and clients who had a worsening of global symptoms at any point during treatment. Some studies operationalized a negative outcome as individuals who reported self-harming; suicidal ideation, suicidal gestures, or suicidal attempts; family financial struggles; or an increase in substance use. Additionally, Mohr (1995) explained that some studies described a negative outcome as the client’s nonadherence to the treatment plan (i.e., not completing homework or using skills), or even a lack of empathetic bond with the therapist. Other authors have also commented on the difficulty of studying this client population as a result of inconsistent definitions of how to measure deterioration. Lambert (2011) explained that in the past, authors have included in their operational definition even clients who experienced a sudden increase in global symptoms (i.e., deteriorated) despite having a good outcome at discharge, while others have defined negative outcomes as individuals who have relapsed after experiencing a positive outcome at discharge (Arch & Craske, 2011; Eisendrath, Chartier, & McLane, 2011; Lambert, 2011; Newman, 2011).

Despite past inconsistent definitions, newer research has begun to converge on a definition of deterioration as, according to a standardized measurement, the patient reliably worsening by the time of discharge (Lambert, 2011). This definition clarifies deterioration to mean clients who get worse while in treatment as opposed to clients who become at-risk of

leaving treatment worse off. It is unclear if this definition is an improvement on how other studies have operationally defined deterioration; however, researchers' maintaining a consistent definition helps generalize findings across studies. To learn more about who contributes, or what factors contribute to, deterioration or being at-risk of deterioration, multiple studies have evaluated deterioration rates in specific populations as well as explored potential risk factors for deterioration when using this definition of deterioration.

Focusing on the younger population, deterioration rates among children and adolescents are alarmingly higher than those among the adult population. For example, deterioration rates, in some instances, have been found to be over 20% (Warren, Nelson, & Burlingame, 2009). Another study also found high deterioration rates when comparing rates in clients ages 4–17 from a community mental health center and a managed care setting (Warren, Nelson, Mondragon, Baldwin, & Burlingame, 2010). Warren et al. (2010) found that despite similar symptom severity at pretreatment, 24% of patients in the community mental health setting experienced a significant increase in symptoms during treatment compared to 14% for those patients in a managed care setting. Moreover, 56% of patients in the community mental health setting either deteriorated or did not experience a change in symptoms at discharge. Similar findings were seen in the managed care setting, where 46% of patients either deteriorated or did not experience a change in symptoms at discharge. Both settings show a high level of symptom increase as well as a noteworthy lack of change at discharge. These results are concerning for child and adolescent treatment settings.

Some research has looked at rates of clients at-risk of deterioration with individuals who have been diagnosed with post-traumatic stress disorder (PTSD). One study found that 27% of adult individuals were at risk for deterioration at one point during treatment (Haugen, Goldman,

& Owen, 2015). Unfortunately, a deterioration rate at post treatment was not reported for this study and therefore could not be compared. However, this study provides evidence that clients suffering with PTSD may experience a larger increase in psychological distress during their course of treatment, possibly as a result of being exposed to anxiety-provoking experiences.

Next, research has found that cultural factors, such as race and economic well-being, result in different rates of being at risk of deterioration as well as deterioration within each group (DeGeorge, 2014; Moos, Moos, & Finney, 2001). A dissertation completed by DeGeorge (2014) looked at the outcome of adult individuals in mental health treatment. The authors found that 22% of Hispanics experienced a worsening of panic symptoms compared to 13% of both Caucasians and African Americans experiencing such symptoms. Furthermore, Moos et al. (2001) looked at predictors of deterioration among individuals with a substance-use disorder and found that African Americans were at high risk for deterioration. Interestingly, the results also showed that other predictors of deterioration included younger age and patient history (i.e., psychiatric symptoms, arrests, prior drug treatment, and recent inpatient or residential care). When looking at unemployment and deterioration, Moos et al. (2001) also found that if a client was unemployed at the start of treatment, he or she was almost three times as likely to deteriorate ($OR = 2.71$). Unemployment was also the strongest predictor of deterioration out of age, ethnicity (i.e., “nonwhite”), being physically violent to others, following through with self-harm, and thinking about self-harm. Clearly, a variety of risk factors and situations could put clients at risk of deterioration or lead to deterioration. These factors may help inform therapists of potential reasons for a client becoming at-risk of deterioration at some point during treatment.

When considering the prevalence and risk factors of deterioration, it is clear that effective resources are needed to aid therapists in decreasing the chance of their clients leaving therapy

worse off. However, as much as finding a simple explanation for deterioration could perhaps lead to a simple solution to eliminate deterioration, the variety of factors that can contribute to clients either deteriorating or going off-track shows there is not a simple solution. Therefore, the current study does not attempt to discover more of the risk factors of deterioration. Instead, this study seeks to understand if there is a way to help reduce deterioration for clients who are at risk. This way, clinicians can be confident in knowing that if their client becomes at risk for deterioration, they have a tool to help them decide how to approach the situation. By focusing on the tools that help reduce deterioration, they may experience more positive outcomes for clients regardless of the reasons a client deteriorates.

The Current Study

Tools to help reduce deterioration. Over the past few decades, the APA has put more emphasis on improving psychological practice by using evidence-based practice and evidence-based monitoring tools (American Psychological Association, 2006). Along with the APA, other initiatives have suggested a need to monitor patient progress throughout treatment, including those in England (“Improving Access to Psychological Therapy,” IAPT; Clark et al., 2009; Lutz, de Jong, & Rubel, 2015) and other areas of Europe (“ROAMER”; Emmelkamp et al., 2014; Lutz et al., 2015a). Progress feedback reports help provide session-by-session information to therapists about their clients’ global symptom functioning. Multiple studies have found that clients benefit significantly when therapists consistently use progress feedback to guide treatment (Berking, Orth, & Lutz, 2006; Bickman, Kelley, Breda, de Andrade, & Riemer, 2011; de Jong, van Sluis, Nugter, Heiser, & Spinhoven, 2012; Lutz et al., 2015a; Probst et al., 2013; Whipple et al., 2003). One common misconception among clinicians is that the use of progress feedback significantly helps all client outcomes. However, research has shown that when

clinicians consistently use progress feedback to guide their treatment, it actually helps clients at risk of deterioration more than all other clients (Finch, Lambert, & Schaalje, 2001; Krägeloh, Czuba, Billington, Kersten, & Siegert, 2015; Lambert et al., 2001; Lambert et al., 2002).

Attempts to provide therapists with timely feedback on the status of their clients in psychotherapy have become increasingly popular, especially to help clients before they terminate treatment. Tools have been developed to predict and prevent deterioration (Hannan et al., 2005; Lambert et al., 2002; Lambert, 2011; Whipple et al., 2003). These methods of monitoring have been necessary due to clinicians' lack of accuracy at predicting deterioration using their subjective impressions / clinical judgment. For example, although therapists may assume they are equipped with the knowledge needed to identify those who are at risk of deteriorating, research suggests that clinicians struggle with this task more than they believe (Hannan et al., 2005; Hatfield, McCullough, Frantz, & Krieger, 2010). Hannan et al. (2005) showed that when therapists were asked to predict which clients would deteriorate, only 3 of the 550 clients (<1%) were predicted to deteriorate and only 1 of those predicted actually deteriorated. By the end of therapy, 40 clients (7.3%) deteriorated, showing that clinicians tended to overpredict positive progress in therapy and underestimate the number of clients who will worsen. A more recent study also evaluated therapists' abilities to detect deterioration through their clinical impressions. After analyzing therapist progress notes, the researchers found that clinicians accurately identified only 21% of the cases that experienced a significant increase in symptom distress (Hatfield et al., 2010). Clinicians were able to recognize the increase of distress at a higher rate in Hatfield et al. (2010) compared to the clinicians in Hannan et al. (2005), but the clinicians still identified only about a fifth of these clients. Because of therapists' inconsistent recognition of

deterioration, other methods are needed to help therapists recognize deteriorating clients during treatment.

Through monitoring client progress with statistical methods and tools, clinicians can better identify negatively changing clients. These methods and tools eventually lead to approaches of reducing deterioration rates. One specific tool that has been used to assess progress during treatment includes graphical representations of progress as well as “alert signals” when clients are predicted by statistical algorithms to be at risk of treatment failure (i.e., NOT for a successful discharge). To detect those who are at risk of deterioration, the Outcome Questionnaire (OQ-45) uses algorithms to identify those who are predicted to deteriorate while in therapy (Finch et al., 2001; Lambert et al., 2002; Spielmans, Masters, & Lambert, 2006). This self-report feedback tool provides information on the initial severity of distress for a client, and from this information, provides an expected individual recovery curve for the patient. Next, the patient is coded to indicate whether he or she is at risk for deterioration or on track to succeed in therapy. Using the OQ-45 to identify those who are going off track is the first step in helping those clients who are predicted to deteriorate in psychotherapy.

Two studies were conducted to evaluate the effects of providing therapists with information about their clients’ status through the use of warning signals and graphs (Lambert et al., 2001; Lambert et al., 2002). Both studies specifically looked at whether the use of progress feedback (i.e., the OQ-45) made a significant improvement on client outcome and attendance. For clients who were identified as having acceptable treatment progress, the feedback decreased the number of sessions without affecting the final outcome. When a client was identified as getting worse in treatment (NOT), the therapist’s access to this feedback significantly improved outcomes and increased attendance for at-risk cases. Deterioration rates dropped from about 21%

to around 13% with a greater number of clients recovering and reliably improving, increasing the success rate from 21% to 35%. Although these studies (the original, 2001; and the replication, 2002) supported the notion that progress feedback use increased the benefits of psychotherapy for NOT cases, many of those who were NOT still failed to attain a satisfactory outcome at termination.

As a result, Whipple et al. (2003) developed and investigated the use of problem-solving tools for NOT clients in order to organize and target potential problems that might account for negative outcomes. This intervention was labeled Clinical Support Tools (CST) and consisted of measures of the therapeutic alliance, the client's motivation to change, the client's social support, and any significant life events. This was the first study that investigated whether using progress feedback (i.e., OQ-45) and the CST had a positive effect on NOT clients. The tool also included a decision tree that guided problem-solving for clinicians. Whipple et al. (2003) compared results of three groups of participants: clients who took the OQ-45 plus the CST, clients who had only OQ-45 feedback, and clients who were in the no-feedback condition. The authors hypothesized that those NOT clients in the OQ-45 plus CST Feedback group would result in a significantly better outcome as well as a decrease in deterioration rates at the end of treatment compared to the other groups. To test this hypothesis, the researchers tracked clinical distress levels of 981 participants receiving treatment at a university counseling center using the OQ-45. Participants were randomly assigned to either a feedback condition (experimental group) or a no-feedback condition (control group). After random assignment, the participants who were identified as NOT completed the requirements in the CST condition. Those in this condition were labeled the NOT-Fb + CST. Notably, the authors explained that one limitation of this study was the lack of random assignment within therapist for those in this condition. After the analysis, this study

found that the use of the OQ-45 plus the CST further increased positive outcomes and decreased deterioration rates in NOT clients compared to the other groups.

The work was replicated in two studies that followed (Harmon et al., 2007; Slade, Lambert, Harmon, Smart, & Bailey, 2008). Both studies used the OQ-45 to track client progress feedback and similar methodology to Whipple et al. (2003) as well as improved on that study's methodology by including random assignment within therapist. Both studies hypothesized that the use of the CST feedback would have a significantly positive impact on client outcomes and significantly decrease client deterioration at the end of treatment. Harmon et al. (2007) found an effect for feedback using a reliable change index (RCI) and odds ratio for reliable deterioration ($p < 0.05$, $d = 0.54$). Slade et al. (2008) also found a positive effect for feedback using a one-way ANCOVA with pretreatment OQ-45 as a covariate.

Similarly, Shimokawa et al. (2010) performed a meta-analysis of the six clinical trials carried out up to that point in time. This meta-analysis reported that treatment interventions that used progress feedback and the CST significantly reduced deterioration rates and positively affected outcomes for clients in psychotherapy, particularly with NOT cases. In fact, these researchers found a large effect size between no-feedback clients and feedback-plus-CST clients ($d = .70$) treated by the same therapists. Findings indicated that the combined intervention of progress feedback and CST reduced deterioration rates with those off-track or predicted to fail from 21% to 8% and increased success rates from 21% to 50%, finding a significant difference between the use of the CST and no use of the CST in psychotherapy.

More recent efforts of the Brigham Young University team applied the progress feedback plus CST intervention to a broader sampling of patient treatment sites other than a university counseling center. Crits-Christoph et al. (2012) examined outcomes for clients with substance

abuse problems across three outpatient clinics in New York City, Philadelphia, and Salt Lake City. Simon, Lambert, Harris, Busath, and Vazquez (2012) applied the interventions in a hospital-based outpatient clinic with an abundance of patients moving from inpatient behavior healthcare treatment to the less intense outpatient treatment setting. Simon et al. (2013) extended the research paradigm to patients receiving treatment in a private, inpatient service facility for individuals with eating disorders. Probst et al. (2013) applied the intervention in Germany with patients from two inpatient psychosomatic clinics. Amble et al. (2014) applied the intervention to patients who underwent treatment in a variety of settings in Norway. All these settings used the interventions (progress feedback) within the OQ-Analyst software, which made the interventions (progress feedback plus CST) somewhat standardized while also allowing clinicians a great deal of freedom to problem-solve based on their own understanding of the patient and the feedback. The general findings from these studies are consistent with each other and with past studies: outcomes for NOT cases are enhanced when CST feedback is given compared with treatment as usual (TAU) (no OQ-45 feedback) delivered by the same therapists. For example, in the Probst et al. (2013) study, the feedback group showed an improved outcome compared to the no-feedback group with an effect size of $d = .54$; additionally, the rate of deteriorated patients in the no-feedback group was 25% while it was 8.7% in the OQ-45 plus CST feedback group.

Nevertheless, the recent studies on average have produced smaller effect sizes (around $d = .30$ rather than the $d = .70$ found in the Shimokawa et al., 2010 meta/mega-analysis). For example, although Simon et al. (2012) found a significant difference between those clients in the OQ-45 plus CST feedback condition and those in the treatment-as-usual group (No OQ-45 or CST Feedback), the effect size in this study was much smaller (size of $d = .12$). This study had six therapists. Three of the therapists had an effect size of .34 compared to their treatment-as-

usual clients. The other three therapists were unable to use the CST to their clients' advantage, with the summed effect close to zero ($d = .05$). These findings suggest that although using the feedback system has been found to improve NOT client outcome, there could be some discrepancies in improvement depending upon therapist effects. These therapists' effects could be due to the training on how to use the CST, motivation to review the feedback output, or compliance with the study protocol.

Therapist use of feedback tools for NOT clients. The result of the small effect sizes in the CST studies has led researchers to evaluate possible moderating factors on progress feedback, specifically with those clients who have deteriorated or have been identified as NOT. Some authors acknowledge that even when therapists understand the benefits of using feedback systems, therapists still do not consistently look at or use the scores to guide them. It is believed that this lack of utilization has contributed to null findings (de Jong & De Goede, 2015). Some researchers have hypothesized as to why therapists do not use these tools after being informed of their potential benefit. One possible explanation for therapists not using the tool is the intimidating nature of possibly receiving negative feedback, which may result in loss of optimism as a therapist (Lambert, Whipple, & Kleinstäuber, 2019). Furthermore, other authors suggest that some therapists may fear they will see that they are not effective (de Jong & De Goede, 2015; Young, Kraus, & Castonguay, 2012). These beliefs about therapists' reluctance resulted in greater understanding of how therapists affect client outcomes.

The findings from one study looked at the impact of therapist effects, therapist attitudes, and therapist differences on treatment outcome (Lutz et al. 2015b). The researchers used a feedback instrument based on results from the Brief Symptom Inventory (BSI), the Inventory of Interpersonal Problems (IIP-D), and the Penn Helping Alliance Questionnaire (HAQ). In a

sample of 349 patients and 44 therapists, the results indicated that 10.62% of variance in all client outcomes were accounted for in the feedback group (i.e., therapists had access to the feedback), and 5.88% of the variance in all client outcomes were accounted for by the therapist. Both results suggest that both the use of feedback and the individual therapist may account for differences in outcome, but it should be noted that this was for all clients and not specifically NOT clients. Another study looked at how the therapist may impact deterioration and not just treatment outcome by using the Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM) and a total sample of 6,405 deteriorated clients and 85 therapists (Saxon, Barkham, Foster, & Parry, 2017). The researchers found that 10.1% of the variance in deterioration was accounted for by therapists.

Other studies have used the OQ-45 to study therapist effects on client outcome (de Jong et al., 2012; de Jong & De Goede, 2015). In a randomized clinical trial, the authors explored if therapist effects accounted for the study not finding a significant effect of feedback on the rate of change. Specifically, results of this study indicated a nonsignificant effect on feedback for all clients as well as no significant effect of feedback with NOT cases. However, the researchers reported that when the therapist used the feedback, there was a significant positive effect on the rate of change of NOT cases. Additionally, the effect did not help the NOT clients enter the normal ranks of functioning. Despite these findings, other results indicated that the commitment to use the feedback predicted both rate of change and the likelihood of using the feedback. Additionally, female therapists were four times more likely to use the feedback. Although the NOT clients were still struggling to enter the ranks of normal functioning at discharge, it is important to know that therapists do contribute to the client's rate of change, specifically for those NOT clients, and may be contributing to the inconsistency of effectiveness across studies.

Another study to use the OQ-45 feedback system and study therapist effects looked primarily at the therapists' attitudes of using feedback and the moderating effects on outcome (de Jong & De Goede, 2015). The researchers hypothesized that those therapists who reported a positive attitude when receiving feedback from others would have a better attitude toward feedback and better outcomes than therapists who reported a negative attitude toward receiving feedback from others. Unfortunately, the hypothesis was not supported by the results, although it was found that those therapists with a negative viewpoint toward receiving feedback from others took more sessions to achieve improvement with NOT cases and those therapists with a positive attitude toward receiving feedback from others fewer less sessions to achieve improvement with the NOT cases.

Anecdotally, it has been suggested that compliance with the research protocol has not been as good as in the early studies conducted in the BYU counseling center where therapists were involved in the development of the CST protocol. In addition, the kind and amount of training in the use of the CST has varied and been conducted by various research groups. In addition to training issues and possible therapist motivation problems in recent studies, anecdotal evidence suggests that there are problems with continued use of the CST once a study has been completed. Through discussion with the clinical director and some therapists at the BYU Counseling and Psychological Services, it appears that therapists seldom access the CST on their computer, nor do they make certain that clients who are off-track take the Assessment for Signal Clients (ASC), the 40-item measure that helps direct therapists to problem-solving strategies. As such, noncompliance with checking progress feedback may contribute to the small effect sizes or even nonsignificant findings. Therefore, training therapists and consistent fidelity strategies during a feedback study are important.

To summarize, despite multiple studies showing that utilizing feedback in treatment can increase the benefits of psychotherapy for NOT clients, many of these clients still did not reach satisfactory outcomes. As a result, a variety of studies have looked at the effectiveness of the CST in reducing deterioration rates further. Although the initial studies found significant effects and large effect sizes ($d = .70$; Shimokawa et al., 2010 meta-analysis), a more recent study found an effect size approaching zero ($d = .05$) when it included half of the therapists. This shows that despite past effectiveness in using these tools, there is importance in further replicating these past studies to discover if small effect sizes persist. If small effect sizes continue to persist, possible reasons for why these tools are not significantly benefiting those clients who are not on track need to be discovered. For example, therapists' attitude toward feedback, noncompliance to the research protocol, or even a dosage effect could account for some variability in the outcomes. Additionally, small effect sizes or even nonsignificant results could also indicate that the use of CST feedback for NOT cases may not be as effective in some settings, despite the positive results found in past research.

Study aims. The main purpose of this study is to determine if the use of decision support tools, the CST, enhances mental health functioning of NOT clients in psychotherapy compared to not using the tools, a replication of previous findings from Harmon et al. (2007) and Slade et al. (2008). Similar methodology and hypotheses were used in those studies. In the current study, the effectiveness of the CST was based on change scores at the time of termination by contrasting a treated group (progress feedback plus CST) with a control group made up of clients whose therapist provided treatment using progress feedback alone. The impact of the CST was assessed under standard training conditions that included monthly supervision sessions as well as

procedures designed to ensure that clients completed the ASC and that feedback reports were delivered to therapists.

As in past studies, it was predicted that use of the CST would result in significantly lower OQ-45 scores at treatment termination after controlling for the intake OQ-45 score. Additionally, previous research indicated that the combined intervention of the progress feedback plus CST will significantly reduce deterioration rates with those NOT or predicted to fail from about 13% to 8% and increase success rates from about 35% to 50% (Shimokawa et al., 2010). For this study, deterioration includes clients who leave psychotherapy with increased psychological disturbance compared to when they started treatment. For these reasons and the purposes of this study, systematic training of therapists took place to allow for more education for the therapist on how to use the system. Although the researchers provided the therapists with training, there was no statistical analysis of how the training affected the outcome of clients. The effect sizes of this study were compared with the effect sizes of past research to indicate the change in no CST versus CST use by therapists.

Methods

Participants

All clients entering psychotherapy at Brigham Young University's Counseling and Psychological Services (CAPS) from the winter semester 2014 through winter semester 2016 were invited to participate in this study. A total of 1,122 individuals (mean age = 22.9, $SD = 4.39$) consented to participate and were tracked during the study (42% male, 58% female) to monitor if they were NOT during treatment. A participant was considered NOT if they signaled yellow or red on the OQ-45 at any point during treatment. Out of those who consented to participate, 259 signaled during treatment, meaning that 23.08% of participants were deemed

NOT according to the actuarial algorithms. The rate of off-track cases (23.08%) was similar to past research, which indicates that approximately 20% of clients go off track from a positive outcome in CAPS (Shimokawa et al., 2010).

At the time a participant first signaled as NOT, they were then randomly assigned to the CST feedback group (experimental group) or no CST feedback group (control group). Out of the 259 participants who signaled NOT (yellow or red signal), 87 NOT participants were excluded in the final analysis for several reasons. Participants were excluded from the analysis because they were not initially identified as NOT by the software system ($n = 19$), they did not return to the session following the NOT signal ($n = 41$), or they failed to take the ASC due to administrative error ($n = 27$). This left a total of 172 clients to be analyzed from the CST feedback group ($n = 71$) and the no CST feedback group ($n = 101$).

The inclusion criteria for both the NOT CST feedback group and the NOT no CST feedback group included participants with at least one attended session following the initial NOT signal for those in the NOT no CST feedback group and at least one attended session following the completion of the ASC for those in the NOT CST feedback group. This was required to help attribute group differences to CST feedback. More specifically, the therapist needed at least one session in order to see the ASC results, use the Clinical Support Tool decision tree, and then implement the CST feedback in a manner they deemed best for their client. Without the therapist seeing the clients for at least one session following the NOT signal, a change in OQ-45 scores could not be attributed to the therapist's use of the CST feedback. Consequently, regardless of group assignment, if the participant did not meet the necessary requirements of "completing the intervention" (i.e., did not return after signaling), they were not included in the analysis. Unfortunately, because the client needed to take the ASC and the therapist needed to see the

feedback in order to be included in the analysis for the experimental group, there was a large group difference between the CST feedback group ($n = 71$) and the no CST feedback group ($n = 101$).

Therapists ($n = 64$) were full-time and part-time staff at the university counseling center. They included varying levels of training (doctoral level clinicians, master level clinicians, doctoral psychology interns, and doctoral graduate students in training). The therapists provided treatment for clients in both groups based on random assignment. Information on therapeutic orientation or other therapist information was not available to be included in the analysis.

Instruments

Outcome Questionnaire-45 (OQ-45). Client progress and treatment outcome in this study was tracked using the Outcome Questionnaire-45 (OQ-45; Lambert et al., 2013), a 45-item self-report measure developed specifically for the purpose of tracking and assessing client outcomes in therapeutic settings. Each item on the OQ-45 is scored using a 5-point scale that yields a possible range of scores from 0 to 180. High scores on the OQ-45 indicate greater levels of symptom distress and/or poorer functioning. In addition to the total score, the OQ-45 has three subscales that measure quality of interpersonal relations, social role functioning, and symptom distress. Evidence supporting the factor structure of the OQ-45 has been reported by other authors (Bludworth, Tracey & Glidden-Tracey, 2012; de Jong et al., 2007; Lo Coco et al., 2009). These suggest that the total score of the OQ-45 is the best available indicator of mental health functioning.

The OQ-45 is a well-established instrument that has been validated across the United States and across a broad range of non-client and client populations. Lambert et al. (2013) reported an internal consistency reliability (Cronbach's alpha) for the OQ-45 as .93 and a 3-week

test–retest reliability value of .84 for the OQ-45 total score. Concurrent validity of the OQ-45 total score has been examined with a wide variety of commonly used and valid measures of psychopathology. All the concurrent validity figures with the OQ-45 and these other assessment instruments were significant at the .01 level with a range of r 's from .50 to .85 (Lambert et al., 2013). Most important, the OQ-45 has been shown to be sensitive to the effects of interventions on patient functioning while remaining stable in untreated individuals (Vermeersch et al., 2004; Vermeersch, Lambert, & Burlingame, 2000).

Cutoff scores for the Reliable Change Index (RCI) and normal functioning as used in this study were provided by Lambert et al. (2013) who analyzed clinical and normative data for the OQ-45 using formulas developed by Jacobson and Truax (1991). The RCI for the total score is 14. Pretreatment minus posttreatment change scores at or above this value are considered clinically meaningful change. Clients who reliably improve and end treatment at or below a total score of 63 are considered recovered. Support for the validity of the OQ-45's reliable change and clinical significance cutoff scores were reported by Beckstead et al. (2003) and Lunnen and Ogles (1998). After the score was obtained from the first session, algorithms were used to determine the predicted outcome using the OQ-Analyst software.

On the report, a color indicates the clients' alert status. The color red means there is a high chance of a negative outcome. Yellow indicates there is some chance of a negative outcome. Green means the client is making expected progress. White suggests that the client is functioning in the normal range, and blue means the client had a significant positive change. This instrument is administered electronically and is part of routine care at BYU's CAPS. The scales either can be completed online before the participant comes in for an appointment with their therapist or can be completed in person in the reception area when the client comes in for care.

Assessment for Signal Clients (ASC). The ASC-40 consists of a 40-item self-report scale that inquires into patient functioning using a five-point Likert scale with anchors ranging from strongly agree to strongly disagree. It has four subscales: Therapeutic Alliance (11 items), Social Support (11 items), Motivation for Therapy (9 items), and Life Events (9 items). These domain scores are associated with tailored interventions from the literature aimed at enhancing positive psychotherapy outcomes. According to Kimball (2010), the Cronbach's alpha coefficient for each subscale are as follows: Therapeutic Alliance (.87), Social Support (.88), Motivation for Therapy (.81), and Life Events (.81).

The Therapeutic Alliance items inquire about the therapeutic bond, shared goals, and agreement on therapeutic tasks as well as alliance rupture. Social Support items inquire into the degree to which individuals feel that their family and friends can be counted on. Social support, as demonstrated by Harmon et al. (2007), is especially low for psychotherapy clients when compared to controls, and for NOT clients when compared to on-track counterparts.

The Motivation for Therapy items focus on low or inadequate motivation. Problematic sources of motivation include poor intrinsic motivation, extrinsic motivation, or negative reactions to the treatment process. The assessment of Life Events, as provided by the ASC, inquires into recent negative events related to loss and are intended to alert therapists to life crises that might need to be addressed in therapy. Validity data for these subscales are limited. Detailed presentations of the theoretical background of the ASC domains can be found in Clinical Support Tools manual (Lambert et al., 2005). The 40 items composing the ASC do not sum to a total score. The feedback report based on the ASC and viewed by the therapist consists of a score for each domain, along with a cutoff score signaling an overall problem in that area. In addition, a cutoff score is provided for each item indicating that less than 20% of clients

answered at or below that specific level. The rationale for providing individual item feedback is that it enhances clinician problem-solving by making feedback more specific. From the specific answers to these questions, a report is given indicating which domain questions are indicated as a concern from the answers given by the client. There is also a CST decision tree for NOT feedback clients that is proposed by the CST. Therapists use the information provided by this tool at their discretion while providing therapy for their client. Use of the ASC is guided by a test manual (Lambert et al., 2005), which also includes a list of interventions and suggestions for addressing the problems that have been identified. This information can be accessed via the treatment manual but also within the OQ-Analyst that is used at CAPS.

CST Training Model. Before participants were assigned to treatment groups, the therapist participated in a CST training. The training took place during the weekly meetings for the therapists at CAPS. The training consisted of a Power Point training that outlined three different aspects of the study. First, there was information on how the feedback system works and how the client signals as NOT. Second, the training explained how to use the CST feedback for their clients and what information is shown in the report. This part of the training highlighted the four categories/subscales that are measured by the ASC. Intervention ideas for how to help their clients were also reviewed for all four of the categories. Third, logistics were reviewed for the CST, such as when and how therapists receive the report and how it is monitored. Lastly, the therapists were provided with information on why it is important to use these tools for NOT cases. Notably, there was no follow-up training for clinicians who were hired or started at CAPS after the initial training.

Procedure

Clients who came to BYU's CAPS for their first appointment for individual counseling were given the opportunity to participate in the study. Every individual received an informed consent form, given by BYU's CAPS receptionist with their intake paperwork. For those individuals who completed the informed consent form and agreed to participate, their eligibility to be included was then identified. Two different inclusion criteria were needed before entering the research:

1) *This was the individual's first course of treatment being monitored by the OQ-45 at the counseling center.* This was required because the algorithm signals were based on the initial or first score from the client. Some individuals who consented to participate had a pre-existing initial score despite entering a new course of treatment. As a result, signals could not be based on this course of treatment and could not be included in the study.

2) *The participant was entering individual psychotherapy.* Therapists at BYU's CAPS often had clients take the OQ-45 who were in couples counseling or group psychotherapy. This study included only participants who were receiving individual psychotherapy; therefore, identifying the type of therapy was necessary before monitoring of OQ-45 scores took place.

Once an individual was deemed eligible to participate in the study, participants continued with therapy as usual by completing the Outcome Questionnaire-45 before each of their therapy sessions. The participants were able to complete their OQ-45 either online the day before their appointment or before their session in the waiting room. Researchers monitored the participants' OQ-45 scores each session based on the algorithms developed by Lambert and colleagues (Finch et al., 2001) to identify clients who received a NOT signal (i.e., coded red/yellow). Participants were monitored throughout their course of treatment to determine if they signaled NOT at any

point during their treatment. Those participants who were never identified as at risk for treatment failure (i.e., on track) continued with therapy as usual without taking the ASC.

After being identified as being NOT, participants were randomly assigned to either have their therapist use the OQ-Analyst CST report (CST Feedback group / experimental group) or not have their therapist view the CST report (no CST group / control group).

After being randomly assigned, both groups (CST and no CST) were asked to take the ASC questionnaire by email. If the participant was in the CST feedback group, he or she was able to take the ASC online before the next session in order to give the therapist access to the CST report. If the participant was in the no CST feedback group, he or she was also able to take the ASC online any time after signaling and before the next session; however, the therapist did not have access to these scores or the CST report. If the client had not taken the ASC before their next session following their NOT signal, the receptionist was alerted to administer the questionnaire. It was important for the clients to take the ASC before the next session in order to provide the therapist with results as soon as possible following the initial red/yellow signal. Once the ASC was completed, the therapist was sent an email explaining that they had CST feedback to view as a result of their client signaling NOT (i.e., red or yellow). The CST manual was made available online to help the clinicians engage in the best problem-solving strategy for their individual clients. Therapists then were asked to return a paper slip to monitor if they had checked the CST feedback. See Figure 1 for a flow chart of the experimental design.

The therapist needed time between the signal session and the following session to see the ASC results and use the CST decision tree to problem solve. After the therapist was given the CST information, the therapist could then use the CST report in whatever manner the therapist deemed best for his or her client. Although the experiment was designed to provide CST

feedback to therapists to help with NOT cases before the session following the signal, this rarely occurred. For example, for participants in the CST group, therapists received a CST report at the session following the initial red or yellow (i.e., NOT) signal on only two occasions ($n = 2$). Most commonly, it took two sessions from the time the client signaled NOT for the therapist to receive the needed information ($n = 30$). Additionally, it was common practice to see clients every other week (i.e., bi-monthly) at BYU's CAPS. This meant that approximately four weeks passed before the therapists could have the knowledge of the CST and meet with their client face-to-face. This is a serious deviation from prior research that may have seriously limited the impact of the CST intervention in this study.

Statistical Analysis

The statistical analysis was performed using Stata. After ensuring that the experimental and control groups were equally distributed at the onset of treatment, a two-tailed independent t-test was calculated comparing the OQ-45 change scores from pretreatment to posttreatment of the experimental and control group applying a significance level of 0.05. To further determine the impact of the CST, final outcomes were categorized by clients who responded to treatment (i.e., met either reliable or clinically significant change criteria) and those who did not respond to treatment (deteriorated or experienced no change). Differences between frequencies and proportions of patients identified as potential treatment failures and meeting the outcome category criteria were calculated for both the NOT no CST feedback group and the NOT CST feedback group with a chi-squared test.

Issues in the methods related to how quickly the therapists received the CST report led to the creation of a timing variable from participants in the CST feedback group (i.e., experimental group). The variable was used to see if the timing of taking the ASC had a significantly negative

impact on feedback. A bivariate regression was used post hoc (applying a significant level of 0.05) to analyze the statistical difference between the means of OQ-45 change scores from pretreatment to post treatment and the number of days between signaling of NOT and taking the ASC.

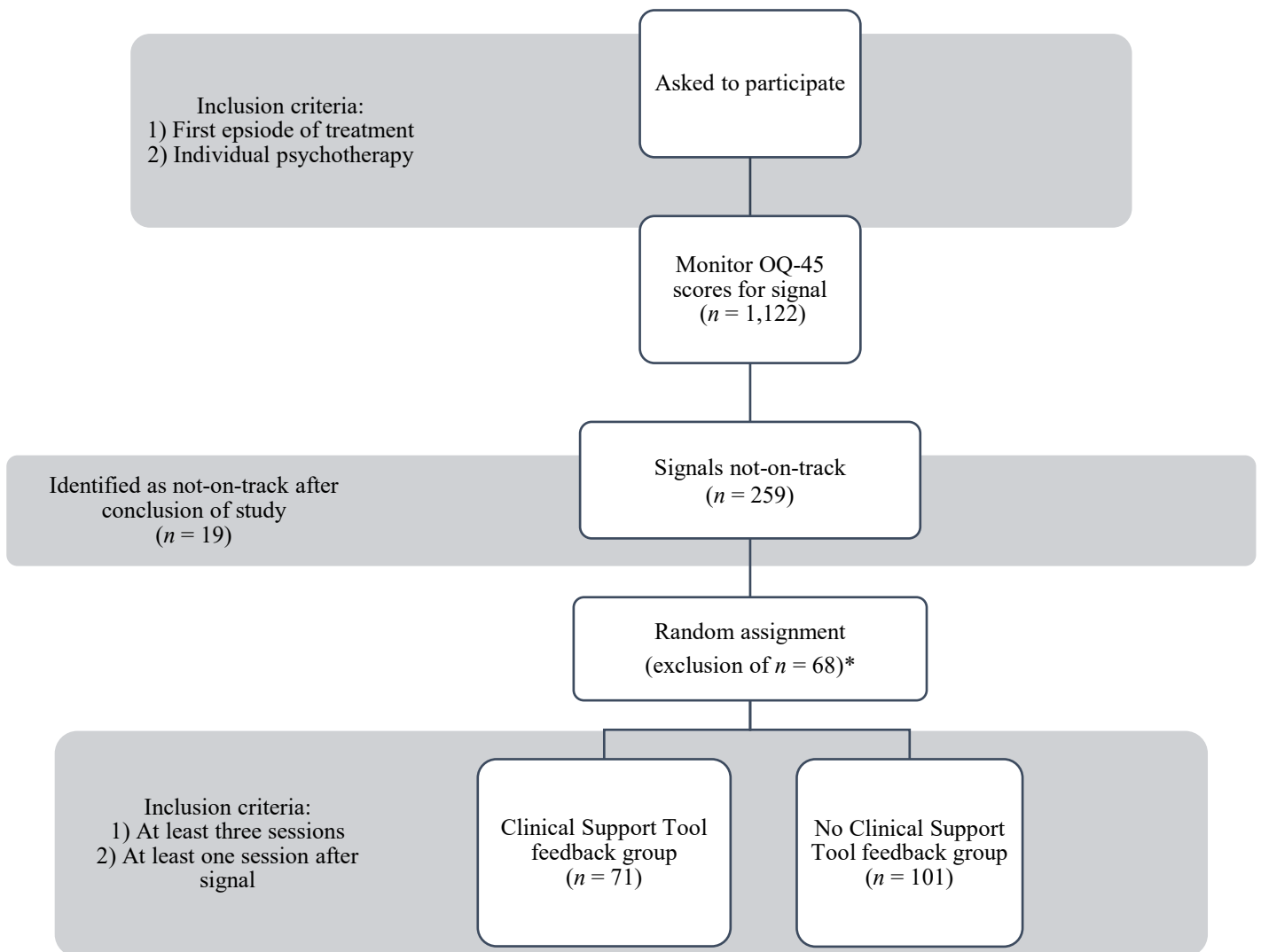


Figure 1. Research Design Flow Chart

*Exclusion reasoning is given in Participants section

Results

Changes on the OQ-45

Regarding the descriptive data for the entire sample, Table 1 shows the mean and standard deviations of the OQ-45 change scores from pre to post treatment. It includes the scores of all participants ($n = 1,122$), participants with an initial score in the functional range ($n = 440$, 39.2%), and participants with an initial score in the dysfunctional range of scores 64 or above ($n = 682$, 60.8%).

For those participating in individual psychotherapy during this study, there was an average change of 6.83 OQ-45 points. Participants who began therapy in the functional range ($OQ < 64$) had an average change of 2.25 OQ-45 points. The largest amount of average change came from those participants in the dysfunctional group, having an average change of 12.69 OQ-45 points during treatment. For those who started treatment with an OQ-45 score in the dysfunctional range ($OQ > 64$), 25.2% of clients were classified as having achieved a clinically significant change, and 18.03% of participants were classified as having achieved reliable change.

Additional information was included in Table 1 for those participants in the CST feedback and no CST feedback groups. The mean for the number of sessions before a signal of NOT for those in the CST feedback group was 3.48 ($SD = 3.03$) with a range of 2 to 15 sessions. The mean for the number of sessions before a signal of NOT for those in the no CST feedback group was 3.58 ($SD = 2.52$) with a range of 2 to 19 sessions. Furthermore, the mean number of sessions after a signal of NOT for those in the CST feedback group was 6.87 ($SD = 8.58$) with a range of 0 to 54 sessions. The mean number of sessions after a signal of NOT for those in the no CST feedback group was 5.41 ($SD = 6.36$) with a range of 0 to 41 sessions.

Table 1

Descriptive Statistics for All Groups

	All Participants	NOT-CST Feedback	NOT-No CST Feedback
N	1,122	71	101
Mean Age (SD)	22.9 (4.39)	21.96 (2.69)	22.08 (2.87)
% Male	42%	41%	37%
% Female	58%	59%	63%
Pre-Treatment OQ Mean (SD)	69.38 (24.69)	68.63 (20.06)	67.27 (18.61)
Post Treatment OQ Mean (SD)	62.54 (22.62)	71.03 (24.69)	71.45 (20.09)
OQ Change Mean (SD)	6.83 (19.31)	2.39 (20.95)	4.17 (19.74)
Mean (SD) for Number of Sessions Before Signal	-	3.48 (3.03)	3.58 (2.52)
Mean (SD) for Number of Sessions After Signal	-	6.87 (8.58)	5.41 (6.36)

Note. CST = Clinical Support Tools

Frequency of Change

To understand the clinically significant change for client outcomes, frequencies were produced specifically for the CST Feedback group and no CST feedback group. The differences in frequencies between these groups did not reach statistical significance when tested with the chi-square statistic. As a result, these differences are potential trends rather than significant differences. Results showed that 32.40% ($n = 23$) of the NOT participants in the CST feedback

group had deteriorated at the end of treatment. This frequency was larger than the NOT no CST feedback group, which had 26.73% ($n = 27$) participants who deteriorated at the end of treatment. Those clients whose therapists did not receive any additional information on possible contributors to the client going off-track on average left treatment slightly but not significantly better off.

Table 2 shows additional frequencies for participants for both treatment conditions. For those clients in the NOT CST feedback condition, 50.70% of clients ended treatment unchanged, 1.40% ($n = 1$) showed only positive reliable change, and 15.50% experienced clinically significant change. Additionally, 32.40% of clients deteriorated at the end of treatment.

For those clients in the control group or the NOT No CST condition, 57.42% of clients were unchanged, 2.97% had a reliable change, and 12.87% experienced clinically significant change. There was no significant difference between both groups. Additionally, 32.40% of clients deteriorated at the end of treatment.

Comparing these results to another recent study, about fifty-three percent (52.9%) of clients recovered from those in feedback condition in the Simon et al. (2013) study, compared to about twenty-nine percent (28.6%) of clients who recovered in the NOT no feedback condition in the present study. Both the NOT CST feedback group and NOT no CST feedback group from this study have surprisingly low percentages of clients who recovered (i.e., experienced clinically significant change), when compared to these previous findings.

Table 2

Percentage of Clients Meeting Deterioration, No Change, Reliable Change, or Clinically Significant Change on Final OQ-45 Score

	CST Feedback	No CST Feedback
	Percent % (<i>n</i>)	Percent % (<i>n</i>)
	<i>n</i> = 71	<i>n</i> = 101
Deteriorated ^a	32.40% (23)	26.73% (27)
Unchanged ^b	50.70% (36)	57.42% (58)
Reliable Change ^c (Improved)	1.40% (1)	2.97% (3)
Clinically Significant Change ^d (Recovered)	15.50% (15)	12.87% (13)

^a The OQ-45 score worsened by at least 14 points from pre to post

^b The OQ-45 change scores ranged pre to post were 13 or -13, no reliable change pre to post

^c The OQ-45 score improved by 14 points or more, but did not reach the range of normal functioning

^d The OQ-45 score improved by 14 points or more, and ended in the range of normal functioning

Effect of CST

As reported previously, the final sample included 172 participants who were randomly distributed within therapists to either the experimental group (CST feedback, $n = 71$) or the control group (no CST feedback, $n = 101$).

An analysis of variance (ANOVA) was conducted to determine whether the CST vs. no CST groups differed significantly in regard to intake OQ-45 scores. Mean levels of the initial OQ-45 score for the CST feedback group ($M = 68.63$, $SD = 20.06$) and no CST feedback group ($M = 67.27$, $SD = 18.61$) were not found to be significantly different ($F_{(1, 170)} = 0.21$, $p = 0.649$). As a result, the initial OQ-45 scores were not controlled for during the analysis.

An independent two-tailed t-test was conducted to compare the Outcome Questionnaire-45 (OQ-45) change scores between the CST feedback group (experimental group) to the no CST feedback group (control group). Histograms and boxplots indicated that scores on the mean OQ-

45 change scores were approximately normally distributed within each group with only one outlier in each group. These outliers were not seen to be extreme and therefore were included in the analysis. The Levene test showed a nonsignificant difference between the CST feedback group and the no CST feedback group ($T = 0.71$).

There was not a significant difference in the mean OQ-45 change scores for the CST feedback group ($M = 2.39$, $SD = 20.95$) and the no CST feedback group ($M = 4.17$, $SD = 19.74$; $t(170) = 0.5656$, $p = 0.5724$). The effect size was not calculated due to the insignificant findings between groups. The 95% CI around the difference between these group means ranged from 4.41 to 7.96.

These results show that despite some therapists having access to the CST feedback when participants were not on track, it did not have a significant impact on the change OQ-45 score at the end of treatment. Interestingly, the mean OQ-45 change score for the control group was slightly but not significantly higher than the mean OQ-45 change score for the experimental group. It was hypothesized that the use of the CST would result in a significantly higher change in the OQ-45 scores from pretreatment to posttreatment, but the null findings of this study did not support this hypothesis.

Timing of the CST

Because of the substantial amount of time passing between a participate signaling NOT and the therapist being able to address the off-track signal, the relationship between the number of days of between a NOT signal and taking the ASC, and the change in OQ-45 scores pre to post treatment was analyzed. The mean and standard deviation of the number of days between a NOT signal and taking the ASC was 13.79 ($SD = 14.59$) with a range of 0 to 93.

A bivariate regression was performed to evaluate how well the change in OQ-45 scores could be predicted from the number of days between a NOT signal and taking the ASC. Preliminary data screening indicated that the change in OQ-45 scores was reasonably normally distributed. The days between a NOT signal and taking the ASC were positively skewed, but because a log-transformation did not make the shape of the distribution closer to normal, log-transformed scores were not used. A scatter plot indicated that the relation between variables was positive and reasonably linear. The correlation between the number of days between a NOT signal and taking the ASC and the change in OQ-45 scores was statistically significant, $r(69) = 0.239, p < 0.05$. The regression equation for predicting change in OQ-45 scores from days between a NOT signal and taking the ASC was found to be $Y' = -2.342 + 3.358 \times X$. The r^2 for this equation was 0.0435, meaning that about 4% of the variance in change in OQ-45 scores was accounted for by days between a NOT signal and taking the ASC. Therefore, although the analysis yielded a statistically significant relationship between these variables, the relationship was weak. The 95% CI for the slope to predict change in OQ-45 scores from days between a NOT signal and taking the ASC ranged from .0085 to 0.6784. In other words, for each day that passed from taking the ASC, the change in OQ-45 scores increased by .0085 to .6784 points.

Discussion

The purpose of this study was to further investigate how to help reduce deterioration in individual psychotherapy. Specifically, the main objective was to evaluate if clinicians using a problem-solving tool for clients at risk of leaving treatment worse off would have a significantly positive impact on a client's outcome. It was predicted that once the therapists of these clients were given problem-solving information about their individual clients, there would be a significant positive change in a client's outcomes compared to clients whose therapists were not

given this information. There has been previous research that supports this hypothesis, and this study sought to replicate these studies. These authors found that by using a problem-solving tool to help guide therapists, clients had a significant increase in positive outcomes and a significant decrease in deterioration rates (Crits-Christoph et al., 2012; Harmon et al., 2007; Probst et al., 2013; Shimokawa et al., 2010; Slade et al., 2008; Whipple et al., 2003). CST may help clinicians gain more insight about possible contributing factors that have led to the increase in psychological distress for their client. However, despite the success reported in these studies, some studies have found small effect sizes (Simon et al., 2012). Other research and anecdotal evidence have shown that the therapist may have an impact on the effectiveness of using tools for at-risk clients (i.e., NOT) (de Jong & De Goede, 2015; Simon et al., 2012; Young et al. 2012). As a result, therapists were trained before the study began in an attempt to help increase awareness of the tools. However, it is important to note that this study did not evaluate the effectiveness of the training and that the training was not as extensive as in some prior studies.

Despite trying to inform therapists more adequately before starting the study as well as knowing the results from previous research findings, we did not find a significant difference in a client's change in mental health functioning (i.e., Outcome Questionnaire-45) between the experimental group (i.e., CST feedback group) and the control group (i.e., no CST feedback group). Clients whose therapists were not given CST feedback had, on average, a larger but nonsignificant positive change in OQ-45 scores pre to post treatment (2.39 for the CST group compared to 4.17 for the no CST group). These small changes were like findings by Simon et al. (2012), who found a 4.11 change in OQ-45 scores pre to post treatment, although the 4.11 change was for a "treatment as usual group" (no OQ-45 feedback plus no CST feedback). Moreover, the small average change of these NOT groups puts into question how regularly the

therapists were monitoring their client's progress feedback or how well the therapists were complying to the treatment protocol. It may be that therapists were giving the measure only per request of the department. However, the small average change could also indicate that using the CST in this setting is not effective possibly due to the low dosage of treatment or the bimonthly appointments. Additionally, over 10% ($n = 46$) who were randomized had to be excluded from the analysis due to administration error. This alarming number of individuals makes it difficult to make a conclusion about the null findings and calls into question any potential conclusions as to the effectiveness of the CST.

Furthermore, it was not anticipated that psychotherapy in the current study as well as in the Simon et al. (2012) study would not be offered in sessions that occurred weekly. Nor that they would both have poor overall outcomes. Poor outcomes can be expected to be associated with such diluted intensity and may also be problematic for research on feedback. Generally, the effects of feedback are enhanced by immediacy (Bickman et al., 2011; Erekson, Lambert, & Eggett, 2015). This lack of immediacy of therapy was a limitation to this study that researchers in future studies will need to be aware of. Specifically, it is recommended that investigators are assured that the treatment (and feedback) are being offered at least once a week. This is especially important in progress feedback research.

Deterioration rates were also the same between groups, with the deterioration rates between each group being similar. The CST feedback group had a deterioration rate of 32.40%, and the no CST feedback group had a deterioration rate of 26.73%. This again shows that the use of the tools did not have a meaningful impact on reducing deterioration rates. These rates of deterioration are higher compared to the findings from Shimokawa et al. (2010), which showed that those clients in the NOT no CST condition had a deterioration rate of 21%. Additionally,

32.40% of those in the NOT CST group deteriorated, showing that not only did the CST not have a significant effect on the outcomes, but about one-third of clients who were NOT in this group ended up deteriorating.

As mentioned before, it may be that some therapists did not consistently use the OQ-45 and CST feedback due to negative attitudes toward the tools, as observed in other studies (de Jong & De Goede, 2015; Young et al., 2012). These negative attitudes may happen because a therapist's first reaction is to blame himself or herself, or the therapeutic alliance, when receiving a report that the client is getting worse. These discouraging feelings may lead to justifications for not using the feedback tools. Unfortunately, there have been no studies up to this point to test these ideas that therapists' attitudes contribute to poor outcomes. If these beliefs do exist, there is some research to suggest that a poor therapeutic alliance is not the sole contributor to being NOT. Research by White et al. (2015) found that most clients who signal as NOT reported problems related to social support and negative life events, or in other words, problems occurring outside the therapy room. These findings could be a relief for therapists who possibly see progress feedback as a means of telling therapists they are doing poorly. It is important that future researchers continue to show therapists that progress feedback identifies barriers to treatment success instead of identifying poor therapeutic performance.

There was a significant unanticipated flaw in the research methodology, and as a result, the therapists rarely received the CST information in a timely manner after the client signaled. The majority of the therapists whose clients were in the experimental condition did not receive the information from the CST until 14 days after initially signaling NOT. This may be because the counseling center where the data was collected saw the majority of clients bimonthly, contributing to the poor timeliness of implementing the information given from the CST in a

session with the client. This flaw led to the creation of a timing and implementation variable to measure the amount of days between a NOT signal and taking the ASC. A significance test and descriptive information showed that there was a significant positive difference in global functioning when the client took the CST. However, significant caution needs to be taken with these results as this was a small correlation ($r = 0.239$) between the change in OQ-45 change and the number of days between a NOT signal and taking the ASC. Despite this weak correlation, the results show that although there was no significant difference when therapists received CST feedback versus when they did not, the time in which the therapists received that information *may* have an impact on how well their clients progress in treatment. Specifically, these results show some support for a hypothesis that the sooner the therapist receives the CST information, the more the client will improve at discharge and maybe even have the ability to reach recovery. It needs to be noted that despite the researchers' attempt to explore the possibility of the timing of the intervention having a significant impact on CST effectiveness, this variable was completed post hoc, and the timing or implementation of the CST was not manipulated in an experimental design. Therefore, although a weak but significant relationship was found between the change in OQ-45 scores and the number of days between a NOT signal and taking the ASC, these findings should not be generalized without further research.

Timing was found to be important in another study that also examined the timeliness of therapists receiving the CST information. Slade et al. (2008) tested the hypothesis that those therapists who received the CST information at a 1-week delivery time compared to a 2-week delivery time would have a significant difference in how their clients fared in outcome at the end of treatment. There was no significant difference found between groups, but those in the 1-week delivery group achieved outcomes in three fewer sessions. Additionally, in the 1-week delivery

group, 63.9% of clients reached a reliable or clinically significant change compared to 42.1% of clients reaching a reliable or clinically significant change in the 2-week delayed CST feedback group. These groups, 1-week and 2-weeks delayed, showed a trend that was supported by the current study—that the more time between a NOT signal and using the CST, the less effective the tools become.

In theory, receiving timely information about clients going off-track would improve a therapist's ability to problem-solve with the client. It seems that because the client is currently reporting the distress and not waiting a session before considering the information, the client can more clearly articulate what he or she is thinking. Additionally, timeliness of using the CST may not just positively impact the therapists' use, but it may also positively impact the therapy session. The CST encourages therapists to look at specific problematic items from the ASC. Theoretically, the therapist could then ask the client about why they may have answered certain questions way (i.e., Social Support item "I have someone to share positive moments with") in a specific way to gain more insight as to how this may be impacting the client in a negative way. If the clinician waits too long to inquire about this information, the client may not be aware of why they answered a question in a specific way, losing out on a potentially therapeutic activity with the client.

Taking this information together, the findings from Slade et al. (2008) along with the information gathered from this study show that it would be beneficial for future research to evaluate the effectiveness of the therapist receiving CST information the same session the client signals as NOT. For future research, it would seem it is needed to evaluate how the timing of the therapist receiving information about their NOT client impacts the effectiveness of the CST. If additional information supports the theory that therapists need to use the CST shortly after the

signal to be effective, therapists may be more motivated to closely monitor client feedback from session to session instead of viewing the client's progress only based on their clinical intuition. This information could show that using feedback is not about *if* the therapist uses it, but *how quickly* they use it. In other words, the sooner a therapist attends to the NOT signal, the better client outcomes may be.

Another unanticipated finding showed a high proportion of participants not returning to their following session (i.e., dropping out) once signaling off-track ($n = 41$, 15.83%). Studies evaluating the effectiveness of the CST have not included individuals who signal NOT and fail to return the next session (Harmon et al., 2007; Slade et al., 2008). However, with such a high frequency of dropouts, future studies may benefit from understanding the relationship between signaling off-track and dropping out of treatment the next session. It may even be beneficial to study the interaction effects between the timing of the CST tools, client dropout, and CST effectiveness on outcome. It would be interesting to see if the use of the CST in the same session the client signals would positively affect clients' returning to treatment the following session. If clients are more likely to remain in treatment by using the CST right after the signal, these findings could change the approach to using the CST tools in a timely manner, specifically helping with dropout. Decreasing dropout rates in therapy could have a significant impact on populations with high dropout rates (i.e., community mental health).

Although this study focused primarily on individuals at risk of treatment failure, all clients' progress was tracked using progress feedback during the course of the study. Therefore, looking at this information may be useful for understanding client outcomes regardless of if they went off track. In sum, there was an average positive change for all clients' OQ-45 scores of 6.83 ($n = 1,122$). This average is lower when compared to Lambert et al. (2002), which showed an

average change of 12.06 ($n = 1,020$) for all clients. Additionally, the participants in this study that had an initial OQ-45 score in the functional range had a slight decrease in average OQ-45 scores pre to post treatment with 2.25 ($n = 440$), and participants whose initial score was in the dysfunctional range had an increase on average of 12.69 ($n = 682$). These scores were similar to the findings by Lambert et al. (2002) with the finding of an increase in OQ-45 points of 5.57 and 15.77, respectively. It is difficult to compare clients who presented in the functional range as a result of both not making a reliable change (-2.25 and 5.57). Furthermore, using the clinically significant change criteria by Jacobson and Truax (1991), the present study had 25.2% of clients in the dysfunction range reach a clinically significant change compared to 36.6% of clients in the Lambert et al. (2002) study reaching clinically significant change. Without looking at the significant difference between these values, this shows that the current study had fewer clients reach a clinically significant change compared to Lambert et al. (2002). This difference may be due to the therapists' attitudes toward using the feedback in this study, as was hypothesized and found to make a difference in other studies (de Jong et al., 2012; de Jong et al., 2015). Additionally, there may be a cohort effect. As explained earlier, there is anecdotal evidence to suggest that therapists were more invested in applying the results they received from the feedback (i.e., more compliant) and also had a smaller caseload to apply findings in previous feedback studies than the current and more recent studies with the CST. As a result, it may be important for future research to not only continue evaluating the impact of therapist effects and specific attitudes toward feedback, but to possibly control for therapist attitudes when testing the effectiveness of progress feedback tools.

There were a number of limitations in the current study that caused difficulty in generalizing the findings across settings. As noted previously, out of the 259 participants who

signaled NOT (yellow or red signal), 87 NOT participants were excluded in the final analysis for several reasons. Specifically, 46 of the participants were not included due to administrative error. This limitation created a discrepancy in the two groups and makes it difficult to conclude whether the CST have an impact on treatment. Furthermore, there was an unanticipated flaw in the research design as a result of the time between signaling of clients being NOT and therapists receiving the CST feedback. Although the researcher attempted to understand the impact of this flaw in the design, the lack of sample size and manipulation made it difficult to draw any conclusions from the findings. Additionally, it would be premature to conclude that there is no effect of using the CST during treatment and to stop using this tool. Instead, future research is needed to understand why there is only a small effect in some samples and a large effect in others. Another limitation of the study is using one measure (i.e., the ASC) to explore the possible contributing factors to the increase in psychological distress. A study by White et al. (2015) showed that although Social Support was found to be the most likely endorsed subscale as problematic, 41.4% of these clients did not endorse any subscale as being problematic. These results show that there are other factors that may be contributing to the clients' distress that the ASC is not capturing. Therefore, despite using the CST to help these clients, it may not cover the full range of clinical issues that contribute to deterioration.

Other inherent limitations were evident from the type of population that the study took place in. One limitation included the mean age of participants being about 23 years old. Therefore, although this was an adult population, these findings are applicable to a young adult college population. Similarly, studying only a college population offers a limitation to generalizing findings to other populations who are less educated or well-adapted. Third, although

there was diversity in the sex of the clients, no cultural and ethnicity information was gathered during the experiment as well as no diagnostic criteria.

The amount of research on progress feedback in the past decade has grown, and it is important to continue to ask the question, “What have we learned?” Lutz et al. (2015a) asked that specific question in a journal article entitled, “Patient-focused and feedback research in psychotherapy: Where are we and where do we want to go?” After reviewing the advances that the field has made in the past decade, they posed the following question of how to move forward with the research: “How can therapists use feedback most efficiently? Which elements of feedback reports are more important and which are less important?” (Lutz et al., 2015a). This study attempted to answer these questions, relying on research supporting CST as a useful intervention for deteriorators. Unfortunately, the limitations of the current study did not allow for a clear answer to these questions. Instead, this study does help clarify that more factors other than the therapist effects could play a role in the poor effect of feedback of more recent studies. Additionally, there is a possibility that the CST are not as effective as past studies have reported. Moreover, it is hoped that future research can better answer the question of how therapists can use feedback to best help their clients, specifically to help those clients who are not thriving in a therapy environment.

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APPENDIX

Journal-Ready Manuscript

Deterioration in Individual Psychotherapy: The Effectiveness of the
Clinical Support Tools

Abstract

Researchers have found evidence that when clinicians used an evidence-based feedback system that uses Clinical Support Tools (CST) for not-on-track (NOT) clients, deterioration rates fell from 21% to 8% and success rates increased from 21% to 50% (Shimokawa et al., 2010). Although studies have found that using these tools provides significantly better outcomes, there has been a discrepancy between effect sizes (i.e., $d = 0.5$; Simon et al., 2012). Therefore, despite the past effectiveness in using these tools with NOT clients, there is importance in further replicating these studies to discover if small effect sizes persist. It was predicted that use of the CST would result in significantly lower OQ-45 scores at treatment termination after controlling for the intake OQ-45 score. Additionally, previous research indicated that the combined intervention of the progress feedback plus CST would significantly reduce deterioration rates with those NOT. Out of 1,122 participants, 172 were randomly assigned to one of two conditions: the CST feedback group ($n = 71$) and the no CST feedback group ($n = 101$). There was not a significant difference in the mean OQ-45 scores for the CST feedback group ($M = 2.39$, $SD = 20.95$) and the no CST feedback group ($M = 4.17$, $SD = 19.74$). The results of this study raise questions about how regularly the therapists were monitoring their clients' progress feedback. Additionally, the author evaluates the timing of when the ASC questionnaire was administered and when therapists reviewed the CST to suggest a need for further research.

Keywords: deterioration; psychotherapy outcomes; progress feedback; off-track clients; Clinical Support Tools

Deterioration in Individual Psychotherapy: The Effectiveness of the Clinical Support Tools

Over the past few decades, the APA has put more emphasis on improving psychological practice by using evidence-based practice and evidence-based monitoring tools (American Psychological Association, 2006). Progress feedback reports help provide session-by-session information to therapists about their clients' global symptom functioning. Multiple studies have found that clients benefit significantly when therapists consistently use progress feedback to guide treatment (Berking, Orth, & Lutz, 2006; Bickman, Kelley, Breda, de Andrade, & Riemer, 2011; de Jong, van Sluis, Nugter, Heiser, & Spinhoven, 2012; Lutz, de Jong, & Rubel 2015; Probst et al., 2013; Whipple et al., 2003). One common misconception among clinicians is that the use of progress feedback significantly helps all client outcomes. However, research has shown that when clinicians consistently use progress feedback to guide their treatment, it actually helps clients at risk of deterioration more than all other clients (Finch, Lambert, & Schaalje, 2001; Krägeloh, Czuba, Billington, Kersten, & Siegert, 2015; Lambert et al., 2001; Lambert et al., 2002). Two recent studies have found significant effects of using progress feedback (Krägeloh et al., 2015; Shimokawa, Lambert, & Smart, 2010). Specifically, it has been found that when researchers look at how feedback benefits clients with an increase in disturbance during treatment, those are the clients who benefit most (Shimokawa et al., 2010). As these studies have found, despite the benefits of using empirically supported tools to guide treatment, there is a continued need for more research to support the use of feedback systems that inform therapists of patient progress, and a specific need for more empirically supported evidence for those who are predicted to deteriorate in psychotherapy.

Attempts to provide therapists with timely feedback on the status of their clients in psychotherapy have become increasingly popular. These feedback tools have been developed to predict and prevent deterioration (Hannan et al., 2005; Lambert et al., 2002; Lambert, 2011; Whipple et al., 2003). These methods of monitoring have been necessary due to clinicians' lack of accuracy at predicting deterioration using their subjective impressions / clinical judgment. For example, although therapists may assume they are equipped with the knowledge needed to identify those who are at risk of deteriorating, research suggests that clinicians struggle with this task more than they believe (Hannan et al., 2005; Hatfield, McCullough, Frantz, & Krieger, 2010). Hannan et al. (2005) showed that when therapists were asked to predict which clients would deteriorate, therapists predicted only 3 of the 550 clients (<1%) would deteriorate. By the end of therapy, 40 clients (7.3%) deteriorated, showing that clinicians tended to overpredict positive progress in therapy and underestimate the number of clients who will worsen. As a result of this research, there is evidence to support the use of empirically supported tools to track client progress instead of relying on clinical intuition.

Through monitoring client progress with statistical methods and tools, clinicians can better identify negatively changing clients. These methods and tools eventually lead to approaches of reducing deterioration rates. One specific tool that has been used to assess progress during treatment includes graphical representations of progress as well as "alert signals" when clients are predicted by statistical algorithms to be at risk of treatment failure (i.e., NOT for a successful discharge). To detect those who are at risk of deterioration, the Outcome Questionnaire (OQ-45) uses algorithms to identify those who are predicted to deteriorate while in therapy (Finch et al., 2001; Lambert et al., 2002; Spielmanns, Masters, & Lambert, 2006). This self-report feedback tool provides information on the initial severity of distress for a client, and

from this information, provides an expected individual recovery curve for the patient. Next, the patient is coded to indicate whether he or she is at risk for deterioration or on track to succeed in therapy. Using the OQ-45 to identify those who are going off track is the first step in helping those clients who are predicted to deteriorate in psychotherapy. Thus, patients' mental health functioning could be tracked over the course of therapy and messages could be sent to clinicians (and sometimes clients) indicating the likelihood of treatment success and, more importantly, treatment failure. Moreover, two studies were conducted to evaluate the effects of providing therapists with information about their clients' status through the use of warning signals and graphs (Lambert et al., 2001; Lambert et al., 2002). Both studies specifically looked at whether the use of progress feedback (i.e., the OQ-45) made a significant improvement on client outcome and attendance. For clients who were identified as having acceptable treatment progress, the feedback decreased the number of sessions without affecting the final outcome. When a client was identified as getting worse in treatment (NOT), the therapist's access to this feedback significantly improved outcomes and increased attendance for at-risk cases. Deterioration rates dropped from about 21% to around 13% with a greater number of clients recovering and reliably improving, increasing the success rate from 21% to 35%. Although these studies (the original, 2001; and the replication, 2002) supported the notion that progress feedback use increased the benefits of psychotherapy for NOT cases, many of those who were NOT still failed to attain a satisfactory outcome at termination.

As a result, Whipple et al. (2003) developed and investigated the use of problem-solving tools for NOT clients in order to organize and target potential problems that might account for negative outcomes. This intervention was labeled Clinical Support Tools (CST). Results showed that the use of the CST further increased positive outcomes and decreased deterioration rates in

NOT clients. The work was replicated in two studies that followed (Harmon et al., 2007; Slade, Lambert, Harmon, Smart, & Bailey, 2008). Harmon et al. (2007) found an effect for feedback using a reliable change index (RCI) and odds ratio for reliable deterioration ($p < 0.05$, $d = 0.54$). Slade et al. (2008) also found a positive effect for feedback using a one-way ANCOVA with pretreatment OQ-45 as a covariate. Similarly, Shimokawa et al. (2010) performed a meta-analysis of the six clinical trials carried out up to that point in time. This meta-analysis reported that treatment interventions that used progress feedback and the CST significantly reduced deterioration rates and positively affected outcomes for clients in psychotherapy, particularly with NOT cases. In fact, these researchers found a large effect size between no-feedback clients and feedback-plus-CST clients ($d = .70$) treated by the same therapists.

Other studies have examined using the CST in specific populations, such as a substance abuse population (Crits-Christoph et al., 2012); an intensive outpatient population (Busath & Vazquez, 2012); a private, inpatient facility for individuals with eating disorders (Simon et al., 2013); a German population with patients from two inpatient psychosomatic clinics (Probst et al., 2013); and an outpatient facility in Norway (Amble et al. 2014). The general findings from these studies are consistent with each other and with past studies: outcomes for Not-On-Track (NOT) cases are enhanced when feedback is given compared with treatment as usual delivered by the same therapists.

Nevertheless, the recent studies on average have produced smaller effect sizes (around $d = .30$ rather than the $d = .70$ found in the Shimokawa et al., 2010 meta/mega-analysis). For example, although Simon, Lambert, Harris, Busath, and Vazquez (2012) found a significant difference between those clients in the progress plus CST feedback condition and those in the treatment-as-usual group, the effect size in this study was much smaller size of $d = .12$. This

study had six therapists. Three of the therapists had an effect size of .34 compared to their treatment-as-usual clients. The other three therapists were unable to use the tools (or did not use them) to their clients' advantage, with the summed effect close to zero ($d = .05$). These findings suggest that although using the feedback system has been found to improve NOT client outcome, there could be some discrepancies in improvement depending upon therapist effects. These therapists' effects could be due to the training on how to use the CST or motivation to review the feedback output.

Therapist Use of Feedback Tools for NOT Clients

The result of the small effect sizes in the CST studies has led researchers to evaluate possible moderating factors on progress feedback, specifically with those clients who have deteriorated. Some authors acknowledge that even when therapists understand the benefits of using feedback systems, therapists still do not consistently look at or use the scores to guide them. It is believed that this lack of utilization has contributed to null findings (de Jong & De Goede, 2015). Some researchers are confused as to why therapists do not use these tools even after being informed of their potential benefit. One possible explanation for therapists not using the tool is the intimidating nature of possibly receiving negative feedback, which may result in loss of optimism as a therapist (Lambert, Whipple, & Kleinstäuber, 2019). Furthermore, other authors suggest that some therapists may fear they will see that they are not effective (de Jong & De Goede, 2015; Young, Kraus, & Castonguay, 2012). These beliefs about therapists' reluctance resulted in greater understanding of how therapists affect client outcomes.

Some researchers used the OQ-45 to study therapist effects on client outcome (de Jong et al., 2012; de Jong & De Goede, 2015). In a randomized clinical trial, there was no significant effect of feedback on the rate of change for the client as well as specifically no significant effect

of feedback with NOT cases. However, when the therapist used the feedback, there was a significant positive effect on the rate of change of NOT cases. However, the effect did not help the NOT clients enter the normal ranks of functioning. Although the NOT clients were still struggling to enter the ranks of normal functioning at discharge, it is important to know that therapists do contribute to the client's rate of change, specifically for those NOT clients, and may be contributing to the inconsistency of effectiveness across studies.

Another study to use the OQ-45 feedback system as well as study therapist effects looked primarily at the therapists' attitudes of using feedback and the moderating effects on outcome (de Jong & De Goede, 2015). The researchers hypothesized that those therapists who reported a positive attitude when receiving feedback from others would have a better attitude toward feedback and better outcomes than therapists who reported a negative attitude toward receiving feedback from others. The hypothesis was not supported by the results, although it was found that those therapists with a negative viewpoint toward receiving feedback from others had slower improvement with NOT cases, and those therapists with a positive attitude toward receiving feedback from others had a faster improvement with the NOT cases.

To summarize, despite multiple studies showing that utilizing progress feedback in treatment can increase the benefits of psychotherapy for NOT clients, many of these clients still did not reach satisfactory outcomes. As a result, a variety of studies have looked at the effectiveness of the CST in reducing deterioration rates further. Although the initial studies found significant effects and large effect sizes ($d = .70$; Shimokawa et al., 2010 meta-analysis), more recent studies have found some effect sizes approaching zero ($d = .05$), showing that despite the past effectiveness in using these tools, there is importance in further replicating these studies to discover if small effect sizes persist. If small effect sizes continue to persist, possible

reasons for why these tools are not significantly benefiting those clients who are NOT need to be discovered.

Study Aims

The main purpose of this study is to determine if the use of decision support tools, the CST, enhances mental health functioning of NOT clients in psychotherapy compared to not using the tools, a replication of previous findings from Harmon et al. (2007) and Slade et al. (2008). Similar methodology and hypotheses were used from those studies. In the current study, the effectiveness of the CST was based on change scores at the time of termination by contrasting a treated group (progress feedback plus CST) with a control group made up of clients whose therapist provided treatment using progress feedback alone. In the current study, the impact of the CST was assessed under standard training conditions that included monthly supervision sessions as well as procedures designed to ensure that clients completed the ASC and that feedback reports were delivered to therapists.

As in past studies, it was predicted that use of the CST would result in significantly lower OQ-45 scores at treatment termination after controlling for the intake OQ-45 score. Additionally, previous research indicated that the combined intervention of the progress feedback plus CST will significantly reduce deterioration rates with those NOT or predicted to fail from about 13% to 8% and increase success rates from about 35% to 50% (Shimokawa et al., 2010). For these reasons and the purposes of this study, systematic training of therapists took place to allow for more education for the therapist on how to use the system. Although the researchers provided the therapists with training, there was no statistical analysis of how the training affected the outcome of clients. The effect sizes of this study were compared with the effect sizes of past research to indicate the change in no CST versus CST use by therapists.

Methods

Participants

All clients entering psychotherapy at Brigham Young University's Counseling and Psychological Services (CAPS) from the winter semester 2014 through winter semester 2016 were invited to participate in this study. A total of 1,122 individuals (mean age = 22.9, $SD = 4.39$) consented to participate and were tracked during the study (42% male, 58% female) to monitor if they were NOT during treatment. A participant was considered NOT if they signaled yellow or red on the OQ-45 at any point during treatment. Out of those who consented to participate, 259 signaled during treatment, meaning that 23.08% of participants were deemed NOT according to the actuarial algorithms. The rate of off-track cases (23.08%) was similar to past research, which indicates that approximately 20% of clients go off track from a positive outcome in CAPS (Shimokawa et al., 2010).

At the time a participant first signaled as NOT, they were then randomly assigned to the CST feedback group (experimental group) or no CST feedback group (control group). Out of the 259 participants who signaled NOT (yellow or red signal), 87 NOT participants were excluded in the final analysis for several reasons. Participants were excluded from the analysis because they were not initially identified as NOT by the software system ($n = 19$), they did not return to the session following the NOT signal ($n = 41$), or they failed to take the ASC due to administrative error ($n = 27$). This left a total of 172 clients to be analyzed from the CST feedback group ($n = 71$) and the no CST feedback group ($n = 101$).

The inclusion criteria for both the CST feedback and the no CST feedback groups included participants with at least one attended session following the initial NOT signal. This was required to help attribute group differences to CST feedback. More specifically, the therapist

needed at least one session in order to see the ASC results, use the Clinical Support Tool decision tree, and then implement the CST feedback in a manner they deemed best for their client. Without the therapist seeing the clients for at least one session following the NOT signal, a change in OQ-45 scores could not be attributed to the therapist's use of the CST feedback. Consequently, regardless of group assignment, if the participant did not meet the necessary requirements of "completing the intervention" (i.e., did not return after signaling), they were not included in the analysis. Unfortunately, because the client needed to take the ASC and the therapist needed to see the feedback in order to be included in the analysis for the experimental group, there was a large group difference between the CST feedback group ($n = 71$) and the no CST feedback group ($n = 101$).

Therapists ($n = 64$) were full-time and part-time staff at the university counseling center. They included varying levels of training (doctoral level clinicians, master level clinicians, doctoral psychology interns, and doctoral graduate students in training). The therapists provided treatment for clients in both groups based on random assignment. Information on therapeutic orientation or other therapist information was not available to be included in the analysis.

Instruments

Outcome Questionnaire-45 (OQ-45). Client progress and treatment outcome in this study was tracked using the Outcome Questionnaire-45 (OQ-45; Lambert et al., 2013), a 45-item self-report measure developed specifically for the purpose of tracking and assessing client outcomes in therapeutic settings. Each item on the OQ-45 is scored using a 5-point scale that yields a possible range of scores from 0 to 180. High scores on the OQ-45 indicate greater levels of symptom distress and/or poorer functioning. In addition to the total score, the OQ-45 has three subscales that measure quality of interpersonal relations, social role functioning, and symptom

distress. Evidence supporting the factor structure of the OQ-45 has been reported by other authors (Bludworth, Tracey & Glidden-Tracey, 2012; de Jong et al., 2007; Lo Coco et al., 2009). These suggest that the total score of the OQ-45 is the best available indicator of mental health functioning.

The OQ-45 is a well-established instrument that has been validated across the United States and across a broad range of non-client and client populations. Lambert et al. (2013) reported an internal consistency reliability (Cronbach's alpha) for the OQ-45 as .93 and a 3-week test-retest reliability value of .84 for the OQ-45 total score. Concurrent validity of the OQ-45 total score has been examined with a wide variety of commonly used and valid measures of psychopathology. All of the concurrent validity figures with the OQ-45 and these other assessment instruments were significant at the .01 level with a range of r 's from .50 to .85 (Lambert et al., 2013). Most important, the OQ-45 has been shown to be sensitive to the effects of interventions on patient functioning while remaining stable in untreated individuals (Vermeersch et al., 2004; Vermeersch, Lambert, & Burlingame, 2000).

Cutoff scores for the Reliable Change Index (RCI) and normal functioning as used in this study were provided by Lambert et al. (2013) who analyzed clinical and normative data for the OQ-45 using formulas developed by Jacobson and Truax (1991). The RCI for the total score is 14. Pretreatment minus posttreatment change scores at or above this value are considered clinically meaningful change. Clients who reliably improve and end treatment at or below a total score of 63 are considered recovered. Support for the validity of the OQ-45's reliable change and clinical significance cutoff scores were reported by Lunnen and Ogles (1998) and Beckstead et al. (2003). After the score was obtained from the first session, algorithms were used to determine the predicted outcome through the use of the OQ-Analyst software.

On the report, a color indicates the clients' alert status. The scales either can be completed online before the participant comes in for an appointment with their therapist or can be completed in person in the reception area when the client comes in for care.

Assessment for Signal Clients (ASC). The ASC-40 consists of a 40-item self-report scale that inquires into patient functioning using a five-point Likert scale with anchors ranging from strongly agree to strongly disagree. It has four subscales: Therapeutic Alliance (11 items), Social Support (11 items), Motivation for Therapy (9 items), and Life Events (9 items). These domain scores are associated with tailored interventions from the literature aimed at enhancing positive psychotherapy outcomes. According to Kimball (2010), the Cronbach's alpha coefficient for each subscale are as follows: Therapeutic Alliance (.87), Social Support (.88), Motivation for Therapy (.81), and Life Events (.81).

The Therapeutic Alliance items inquire about the therapeutic bond, shared goals, and agreement on therapeutic tasks as well as alliance rupture. Social Support items inquire into the degree to which individuals feel that their family and friends can be counted on. Social support, as demonstrated by Harmon et al. (2007), is especially low for psychotherapy clients when compared to controls, and for NOT clients when compared to on-track counterparts.

The Motivation for Therapy items focus on low or inadequate motivation. Problematic sources of motivation include poor intrinsic motivation, extrinsic motivation, or negative reactions to the treatment process. The assessment of Life Events, as provided by the ASC, inquires into recent negative events related to loss and are intended to alert therapists to life crises that might need to be addressed in therapy. Validity data for these subscales are limited. Detailed presentations of the theoretical background of the ASC domains can be found in Clinical Support Tools manual (Lambert et al., 2005). The 40 items composing the ASC do not

sum to a total score. The feedback report based on the ASC and viewed by the therapist consists of a score for each domain, along with a cutoff score signaling an overall problem in that area. In addition, a cutoff score is provided for each item indicating that less than 20% of clients answered at or below that specific level. The rationale for providing individual item feedback is that it enhances clinician problem-solving by making feedback more specific. From the specific answers to these questions, a report is given indicating which domain questions are indicated as a concern from the answers given by the client. There is also a CST decision tree for NOT feedback clients that is proposed by the CST. Therapists use the information provided by this tool at their discretion while providing therapy for their client. Use of the ASC is guided by a test manual (Lambert et al., 2005), which also includes a list of interventions and suggestions for addressing the problems that have been identified. This information can be accessed via the treatment manual but also within the OQ-Analyst that is used at CAPS.

CST Training Model. Before participants were assigned to treatment groups, the therapist participated in a CST training. The training took place during the weekly meetings for the therapists at CAPS. The training consisted of a Power Point training that outlined three different aspects of the study. First, there was information on how the feedback system works and how the client signals as NOT. Second, the training explained how to use the CST feedback for their clients and what information is shown in the report. This part of the training highlighted the four categories/subscales that are measured by the ASC. Intervention ideas for how to help their clients were also reviewed for all four of the categories. Third, logistics were reviewed for the CST, such as when and how therapists receive the report and how it is monitored. Lastly, the therapists were provided with information on why it is important to use these tools for NOT cases.

Procedure

Clients who came to BYU's CAPS for their first appointment for individual counseling were given the opportunity to participate in the study. Every individual received an informed consent form, given by BYU's CAPS receptionist with their intake paperwork. For those individuals who completed the informed consent form and agreed to participate, their eligibility to be included was then identified. Two different inclusion criteria were needed before entering the research:

1) *This was the individual's first course of treatment being monitored by the OQ-45 at the counseling center.* This was required because the algorithm signals were based on the initial or first score from the client. Some individuals who consented to participate had a pre-existing initial score despite entering a new course of treatment. As a result, signals could not be based on this course of treatment and could not be included in the study.

2) *The participant was entering individual psychotherapy.* Therapists at BYU's CAPS often had clients take the OQ-45 who were in couples counseling or group psychotherapy. This study included only participants who were receiving individual psychotherapy; therefore, identifying the type of therapy was necessary before monitoring of OQ-45 scores took place.

Once an individual was deemed eligible to participate in the study, participants continued with therapy as usual by completing the Outcome Questionnaire-45 before each of their therapy sessions. The participants were able to complete their OQ-45 either online the day before their appointment or before their session in the waiting room. Researchers monitored the participants' OQ-45 scores each session based on the algorithms developed by Lambert and colleagues (Finch et al., 2001) to identify clients who received a NOT signal (i.e., coded red/yellow). Close monitoring ensured that NOT clients were identified on the same day as the OQ-45

administration. Participants were monitored throughout their course of treatment to determine if they signaled NOT at any point during their treatment. Those participants who were never identified as at risk for treatment failure (i.e., on track) continued with therapy as usual without taking the ASC.

After being identified as being NOT, participants were randomly assigned to either have their therapist use the OQ-Analyst CST report (CST Feedback group / experimental group) or not have their therapist view the CST report (no CST group / control group).

After being randomly assigned, both groups (CST and no CST) were asked to take the ASC questionnaire by email. If the participant was in the CST feedback group, he or she was able to take the ASC online before the next session in order to give the therapist access to the CST report. If the participant was in the no CST feedback group, he or she was also able to take the ASC online before the next session; however, the therapist did not have access to these scores or the CST report. If the client had not taken the ASC before their next session following their NOT signal, the receptionist was alerted to administer the questionnaire. It was important for the clients to take the ASC before the next session in order to provide the therapist with results as soon as possible following the initial red/yellow signal. Once the ASC was completed, the therapist was sent an email explaining that they had CST feedback to view as a result of their client signaling NOT (i.e., red or yellow). The CST manual was made available online to help the clinicians engage in the best problem-solving strategy for their individual clients. Therapists then were asked Therapists then were asked to return a paper slip to monitor if they had checked the CST feedback. *See Figure 1 for a flow chart of the experimental design.*

The therapist needed time between the signal session and the following session to see the ASC results and use the CST decision tree to problem solve. After the therapist was given the

CST information, the therapist could then use the CST report in whatever manner the therapist deemed best for his or her client. Although the experiment was designed to provide CST feedback to therapists to help with NOT cases before the session following the signal, this rarely occurred. For example, for participants in the CST group, therapists received a CST report at the session following the initial red or yellow (i.e., NOT) signal on only two occasions ($n = 2$). Most commonly, it took two sessions from the time the client signaled NOT for the therapist to receive the needed information ($n = 30$). Additionally, it was common practice to see clients every other week (i.e., bi-monthly) at BYU's CAPS. This meant that approximately four weeks passed before the therapists could have the knowledge of the CST and meet with their client face-to-face. This is a serious deviation from prior research that may have seriously limited the impact of the CST intervention in this study.

Statistical Analysis

The statistical analysis was performed using Stata. After ensuring that the experimental and control groups were equally distributed at the onset of treatment, a two-tailed independent t-test was calculated comparing the OQ-45 change scores from pretreatment to posttreatment of the experimental and control group applying a significance level of 0.05. To further determine the impact of the CST, final outcomes were categorized by clients who responded to treatment (i.e., met either reliable or clinically significant change criteria) and those who did not respond to treatment (deteriorated or experienced no change). Differences between frequencies and proportions of patients identified as potential treatment failures and meeting the outcome category criteria were calculated for both experimental and control groups.

Issues in the methods related to how quickly the therapists received the CST report led to the creation of a "timing" variable from participants in the CST feedback group (i.e.,

experimental group). The variable was used to see if the timing of taking the ASC had a significantly negative impact on feedback. A bivariate regression was used post hoc (applying a significant level of 0.05) to analyze the statistical difference between the means of OQ-45 change scores from pretreatment to post treatment and the number of days between signaling of NOT and taking the ASC.

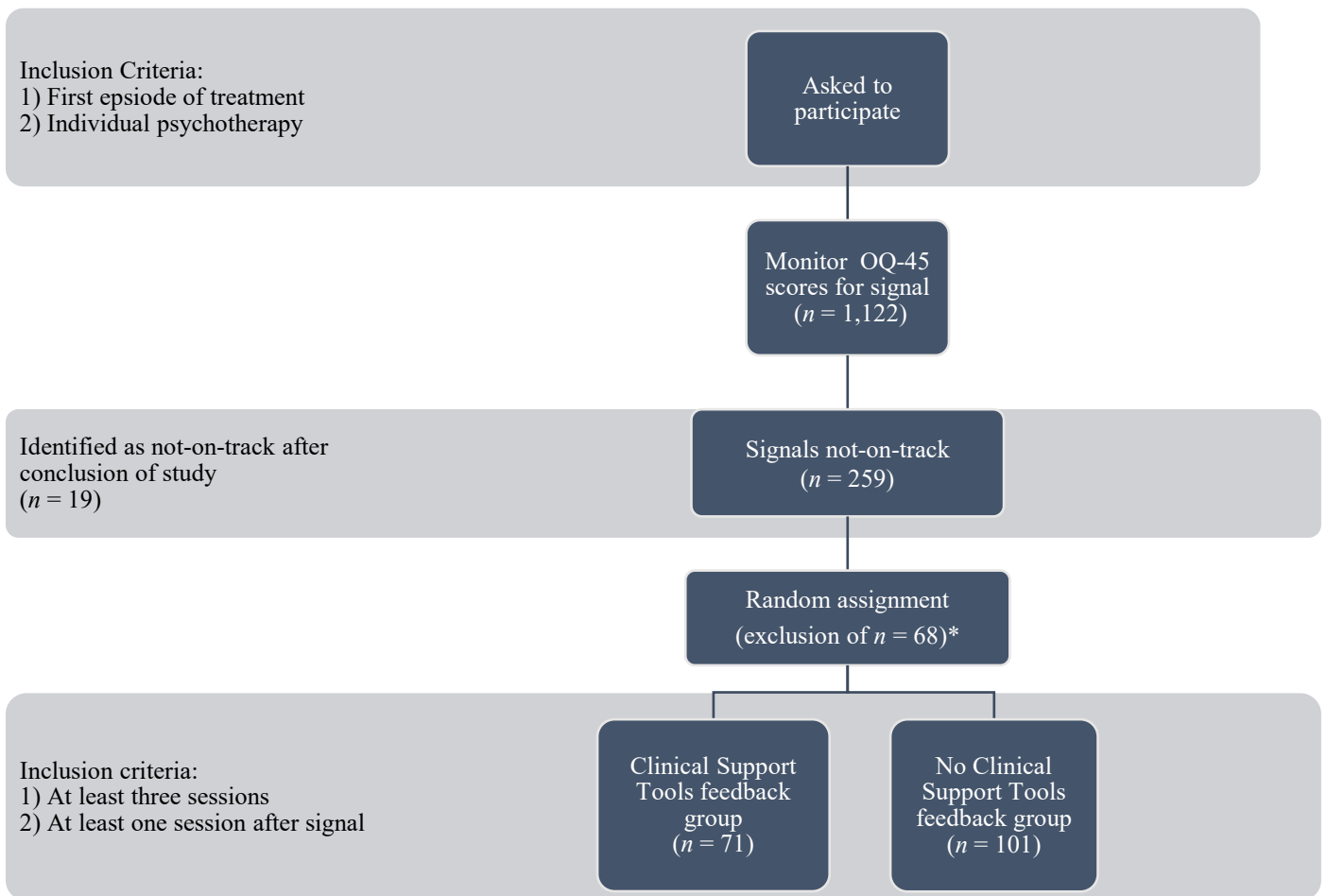


Figure 2. Research Design Flow Chart

**Exclusion reasoning is given in Participants section*

Results

Changes on the OQ-45

Regarding the descriptive data for the entire sample, Table 1 shows the mean and standard deviations of the OQ-45 change scores from pre to post treatment. It includes the scores of all participants ($n = 1,122$), participants with an initial score in the functional range ($n = 440$, 39.2%), and participants with an initial score in the dysfunctional range of scores 64 or above ($n = 682$, 60.8%). No significance tests were administered for significant changes pre to post treatment for clients due to the possibility of committing Type II error. Therefore, only means, standard deviations, and frequencies were reported.

For those participating in individual psychotherapy during this study, there was an average change of 6.83 OQ-45 points. Participants who began therapy in the functional range ($OQ < 64$) had an average change of 2.25 OQ-45 points. The largest amount of average change came from those participants in the dysfunctional group, having an average change of 12.69 OQ-45 points during treatment. For those who started treatment with an OQ-45 score in the dysfunctional range ($OQ > 64$), 25.2% of clients were classified as having achieved a clinically significant change, and 18.03% of participants were classified as having achieved reliable change.

Additional information was included in Table 1 for those participants in the CST feedback and no CST feedback groups. The mean for the number of sessions before a signal of NOT for those in the CST feedback group was 3.48 ($SD = 3.03$) with a range of 2 to 15 sessions. The mean for the number of sessions before a signal of NOT for those in the no CST feedback group was 3.58 ($SD = 2.52$) with a range of 2 to 19 sessions. Furthermore, the mean number of

sessions after a signal of NOT for those in the CST feedback group was 6.87 ($SD = 8.58$) with a range of 0 to 54 sessions. The mean number of sessions after a signal of NOT for those in the no CST feedback group was 5.41 ($SD = 6.36$) with a range of 0 to 41 sessions.

Table 3

Descriptive Statistics for All Groups

	All Participants	CST Feedback	No CST Feedback
N	1,122	71	101
Mean Age (SD)	22.9 (4.39)	21.96 (2.69)	22.08 (2.87)
% Male	42%	41%	37%
% Female	58%	59%	63%
Pre-Treatment OQ Mean (SD)	69.38 (24.69)	68.63 (20.06)	67.27 (18.61)
Post Treatment OQ Mean (SD)	62.54 (22.62)	71.03 (24.69)	71.45 (20.09)
OQ Change Mean (SD)	6.83 (19.31)	2.39 (20.95)	4.17 (19.74)
Mean (SD) for Number of Sessions Before Signal	-	3.48 (3.03)	3.58 (2.52)
Mean (SD) for Number of Sessions After Signal	-	6.87 (8.58)	5.41 (6.36)

Note. CST = Clinical Support Tools

Effect of Clinical Support Tools

As reported previously, the final sample included 172 participants who were randomly distributed within therapists to either the experimental group (CST feedback, $n = 71$) or the control group (no CST feedback, $n = 101$).

An analysis of variance (ANOVA) was conducted to determine whether the CST vs. no CST groups differed significantly in regards to intake OQ-45 scores. Mean levels of the initial OQ-45 score for the CST feedback group ($M = 68.63$, $SD = 20.06$) and no CST feedback group ($M = 67.27$, $SD = 18.61$) were not found to be significantly different ($F_{(1, 170)} = 0.21$, $p = 0.649$). As a result, the initial OQ-45 scores were not controlled for during the analysis.

An independent two-tailed t-test was conducted to compare the Outcome Questionnaire-45 (OQ-45) change scores between the CST feedback group (experimental group) to the no CST feedback group (control group). Histograms and boxplots indicated that scores on the mean OQ-45 change scores were approximately normally distributed within each group with only one outlier in each group. These outliers were not seen to be extreme and therefore were included in the analysis. The Levene test showed a nonsignificant difference between the CST feedback group and the no CST feedback group ($T = 0.71$).

There was not a significant difference in the mean OQ-45 change scores for the CST feedback group ($M = 2.39$, $SD = 20.95$) and the no CST feedback group ($M = 4.17$, $SD = 19.74$; $t_{(170)} = 0.5656$, $p = 0.5724$). The effect size was not calculated due to the insignificant findings between groups. The 95% CI around the difference between these group means ranged from 4.41 to 7.96.

These results show that despite some therapists having access to the CST feedback when participants were not on track, it did not have a significant impact on the change OQ-45 score at

the end of treatment. Interestingly, the mean OQ-45 change score for the control group was slightly but not significantly higher than the mean OQ-45 change score for the experimental group. It was hypothesized that the use of the CST would result in a significantly higher change in the OQ-45 scores from pretreatment to posttreatment, but the null findings of this study did not support this hypothesis.

To understand the clinically significant change for client outcomes, frequencies were produced specifically for the CST Feedback group and no CST feedback group. The differences in frequencies between these groups did not reach statistical significance when tested with the chi-square statistic. As a result, these differences are seen as tendencies and descriptions rather than significant differences. Results showed that 32.40% ($n = 23$) of the NOT participants in the CST feedback condition had deteriorated at the end of treatment. This frequency was larger compared to the no CST feedback group, which had 26.73% ($n = 27$) participants deteriorated at the end of treatment. Those clients whose therapists did not receive any additional information on possible contributors to the client going off-track, left treatment slightly but not significantly better off.

Table 2 shows additional frequencies for participants for both treatment conditions. For those clients in the CST feedback condition, 50.70% of clients ended treatment unchanged, 1.40% ($n = 1$) showed only positive reliable change, and 15.50% experienced clinically significant change. Additionally, 26.73% of clients deteriorated at the end of treatment.

For those clients in the control group or the no CST condition, 57.42% of clients were unchanged, 2.97% had a reliable change, and 12.87% experienced clinically significant change. It appears both groups had similar changes across these levels. Additionally, 32.40% of clients deteriorated at the end of treatment.

Comparing these results to another recent study, about fifty-three percent (52.9%) of clients recovered from those in feedback condition in the Simon et al. (2013) study, compared to about twenty-nine percent (28.6%) of clients who recovered in the no feedback condition in the present study. Both the CST feedback group and no CST feedback group from this study have surprisingly low percentages of clients who recovered (i.e., experienced clinically significant change), when compared to these previous findings.

Table 4

Percentage of Clients Meeting Deterioration, No Change, Reliable Change, or Clinically Significant Change on Final OQ-45 Score

	CST Feedback	No CST Feedback
	Percent % (<i>n</i>)	Percent % (<i>n</i>)
	<i>n</i> = 71	<i>n</i> = 101
Deteriorated ^a	32.40% (23)	26.73% (27)
Unchanged ^b	50.70% (36)	57.42% (58)
Reliable Change ^c (Improved)	1.40% (1)	2.97% (3)
Clinically Significant Change ^d (Recovered)	15.50% (15)	12.87% (13)

^a The OQ-45 score worsened by at least 14 points from pre to post

^b The OQ-45 change scores ranged pre to post were 13 or -13, no reliable change pre to post

^c The OQ-45 score improved by 14 points or more, but did not reach the range of normal functioning

^d The OQ-45 score improved by 14 points or more, and ended in the range of normal functioning

Timing of the CST

As a result of the substantial amount of time passing between a participant signaling NOT and the therapist being able to address the off-track signal, the relationship between the number

of days of between a NOT signal and taking the ASC, and the change in OQ-45 scores pre to post treatment was analyzed. It was believed that these effects would help describe any trends that existed in regard to the timeliness of therapists' access to the CST. The mean and standard deviation of the amount of days of between a NOT signal and taking the ASC is 13.79 ($SD = 14.59$) with a range of 0 to 93.

A bivariate regression was performed to evaluate how well the change in OQ-45 scores could be predicted from the amount of days between a NOT signal and taking the ASC. Preliminary data screening indicated that the change in OQ-45 scores was reasonably normally distributed. The days between a NOT signal and taking the ASC were positively skewed, but because a log-transformation did not make the shape of the distribution closer to normal, log-transformed scores were not used. A scatter plot indicated that the relation between variables was positive and reasonably linear. The correlation between the amount of days between a NOT signal and taking the ASC and the change in OQ-45 scores was statistically significant, $r(69) = 0.239, p < 0.05$. The regression equation for predicting change in OQ-45 scores from days between a NOT signal and taking the ASC was found to be $Y' = -2.342 + 3.358 \times X$. The r^2 for this equation was 0.0435. Meaning that about 4% of the variance in change in OQ-45 scores was accounted for by days between a NOT signal and taking the ASC. Notably, although the analysis yielded a statistically significant relationship between these variables, this is a weak relationship. The 95% CI for the slope to predict change in OQ-45 scores from days between a NOT signal and taking the ASC ranged from .0085 to 0.6784. Therefore, for each day that passed from taking the ASC, the change in OQ-45 scores increased by .0085 to .6784 points.

Discussion

The purpose of this study was to further investigate how to help reduce deterioration in individual psychotherapy. Specifically, the main objective was to evaluate if clinicians using a problem-solving tool for clients at risk of leaving treatment worse off would have a significantly positive impact on a client's outcome. It was predicted that once the therapists of these clients were given problem-solving information about their individual clients, there would be a significant positive change in a client's outcomes compared to clients whose therapists were not given this information. There has been previous research that supports this hypothesis, and this study sought to replicate these studies. These authors found that by using a problem-solving tool to help guide therapists, clients had a significant increase in positive outcomes and a significant decrease in deterioration rates (Crits-Christoph et al., 2012; Harmon et al., 2007; Probst et al., 2013; Shimokawa et al., 2010; Slade et al., 2008; Whipple et al., 2003). Despite the success reported in these studies, some studies have found small effect sizes (Simon et al., 2012). Other research and anecdotal evidence have shown that the therapist may have an impact on the effectiveness of using tools for at-risk clients (i.e., NOT) (de Jong & De Goede, 2015; Simon et al., 2012; Young et al., 2012). As a result, therapists were trained before the study began in an attempt to help increase awareness of the tools. However, it is important to note that this study did not evaluate the effectiveness of the training and that the training was not as extensive as in some prior studies.

Results showed that we did not find a significant difference in a client's change in mental health functioning (i.e., Outcome Questionnaire-45) between the experimental group (i.e., CST feedback group) and the control group (i.e., no CST feedback group). Clients whose therapists were not given CST feedback had, on average, a larger but nonsignificant positive change in

OQ-45 scores pre to post treatment (2.39 for the CST group compared to 4.17 for the no CST group). These small changes were similar to findings by Simon et al. (2012), who found a 4.11 positive change in OQ-45 scores pre to post treatment. However, this change was for a “treatment as usual group” (no OQ-45 feedback plus no CST feedback). The results from this study question how regularly the therapists were monitoring their clients’ progress feedback. It may be that therapists were giving the measure only per request of the department. Additionally, over 10% ($n = 46$) who were randomized had to be excluded from the analysis due to administration error. This alarming number of individuals makes it difficult to make a conclusion about the null findings and calls into question any potential conclusions as to the effectiveness of the CST.

Other results from this study also did not find a difference between using and not using the CST, with the deterioration rates between each group being similar. The CST feedback group had a deterioration rate of 32.40%, and the no CST feedback group had a deterioration rate of 26.73%. This again shows that the use of the tools did not have a meaningful impact on reducing deterioration rates. These rates of deterioration are higher compared to the findings from Shimokawa et al. (2010), which showed that those clients in the no CST condition had a deterioration rate of 21%. Additionally, 32.40% of those in the CST group deteriorated, showing that not only did the CST not have a significant effect on the outcomes, but about one-third of clients who were NOT in this group ended up deteriorating.

As mentioned before, it may be that some therapists did not consistently use the OQ-45 and CST feedback due to negative attitudes toward the tools, similar to the negative attitudes observed in other studies (de Jong & De Goede, 2015; Young et al., 2012). Unfortunately, there have been no studies up to this point to test these ideas that therapists’ attitudes contribute to

poor outcomes. If these beliefs do exist, there is some research to suggest that a poor therapeutic alliance is not the sole contributor to being NOT. Specifically, research by White et al. (2015) found that most clients who signal as NOT reported problems related to social support and negative life events, or in other words, problems occurring outside the therapy room.

It needs to be noted that there was a significant unanticipated flaw in the research methodology, and as a result, the therapists rarely received the CST information in a timely manner after the client signaled. This flaw led to a creation of a timing and implementation variable to measure the amount of days between a NOT signal and taking the ASC. A significance test and descriptive information showed that there was a significant positive difference in global functioning when the client took the ASC. However, significant caution needs to be taken with these results as this was a small correlation ($r = 0.239$) between the change in OQ-45 change and the number of days between a NOT signal and taking the ASC. Despite this weak correlation, the results show that although there was no significant difference when therapists received CST feedback versus when they did not, the time in which the therapists received that information *may* have an impact on how well their clients progress in treatment. Specifically, these results show some support for a hypothesis that the sooner the therapist receives the CST information, the more the client will improve at discharge and maybe even have the ability to reach recovery. It needs to be noted that despite the researchers attempt to explore the possibility of the timing of the intervention having a significant impact on CST effectiveness, this variable was completed post hoc, and therefore the timing or implementation or the CST was not manipulated in an experimental design. Therefore, these findings are not recommended to be generalized at this time. Although generalizing these findings may not be appropriate, it was discovered that one particular study also looked at the timeliness of therapists

receiving the CST information. Slade et al. (2008) tested the hypothesis that those therapists who received the CST information at a 1-week delivery time compared to a 2-week delivery time would have a significant difference in how their clients fared in outcome at the end of treatment. There was no significant difference found between groups, but those in the 1-week delivery group achieved outcomes in three fewer sessions. Additionally, in the 1-week delivery group, 63.9% of clients reached a reliable or clinically significant change compared to 42.1% of clients reaching a reliable or clinically significant change in the 2-week delayed CST feedback group.

Taking this information together, the findings from Slade et al. (2008) along with the information gathered from this study show that it would be beneficial for future research to evaluate the effectiveness of the therapist receiving CST information the same session the client signals as NOT. For future research, it would seem it is needed to evaluate how the timing of the therapist receiving information about their NOT client impacts the effectiveness of the CST. If additional information supports the theory that therapists need to use the CST shortly after the signal to be effective, therapists may be more motivated to closely monitor client feedback from session to session instead of viewing the client's progress only based on their clinical intuition. This may show that the sooner a therapist attends to the NOT signal, the better client outcomes may be.

Another unanticipated finding showed a high proportion of participants not returning to their following session (i.e., dropping out) once signaling off-track ($n = 41$, 15.83%). Many studies evaluating the effectiveness of the CST have not included individuals who signal NOT and fail to return the next session (Harmon et al., 2007; Slade et al., 2008). However, with such a high frequency of dropouts, future studies may benefit from understanding the relationship between signaling off-track and dropping out of treatment the next session. It may even be

beneficial to study the interaction effects between the timing of the CST tools, client dropout and CST effectiveness on outcome. It would be interesting to see if the use of the CST in the same session the client signals would positively affect clients' returning to treatment the following session. If clients are more likely to remain in treatment by using the CST right after the signal, these findings could change the approach to using the CST tools in a timely manner, specifically helping with dropout. Decreasing dropout rates in therapy, it could have a significant impact on populations with high dropout rates (i.e., community mental health).

Although this study focused primarily on individuals at-risk of treatment failure, all clients' progress was tracked using progress feedback during the course of the study. Therefore, looking at this information may be useful for understanding client outcomes regardless of if they went off track. In sum, there was an average positive change for all clients' OQ-45 scores of 6.83 ($n = 1,122$). This average is lower when compared to Lambert et al. (2002), which showed an average change of 12.06 ($n = 1,020$) for all clients. Additionally, the participants in this study that had an initial OQ-45 score in the functional range had a slight decrease in average OQ-45 scores pre to post treatment with 2.25 ($n = 440$) and participants whose initial score was in the dysfunctional range had an increase on average of 12.69 ($n = 682$). These scores were similar to the findings by Lambert et al. (2002) with the finding of an increase in OQ-45 points of 5.57 and 15.77, respectively. It is difficult to compare clients who presented in the functional range as a result of both not making a reliable change (-2.25 & 5.57). Furthermore, using the clinically significant change criteria by Jacobson and Truax (1991), the present study had 25.2% of clients in the dysfunction range reach a clinically significant change compared to 36.6% of clients in the Lambert et al. (2002) study reaching clinically significant change. Without looking at the significant difference between these values, this shows that the current study had fewer clients

reach a clinically significant change compared to Lambert et al. (2002). This difference may be due to the therapists' attitudes toward using the feedback in this study, as was hypothesized and found to make a difference in other studies (de Jong et al., 2012; de Jong et al., 2015). As a result, it may be important for future research to not only continue evaluating the impact of therapist effects and specific attitudes toward feedback, but to possibly control for therapist attitudes when testing the effectiveness of progress feedback tools.

There were a number of limitations in the current study that caused difficulty in generalizing the findings across settings. As noted previously, out of the 259 participants who signaled NOT (yellow or red signal), 87 NOT participants were excluded in the final analysis for several reasons. Specifically, 46 of the participants were not included due to administrative error. This limitation created a discrepancy in the two groups and makes it difficult to conclude whether the CST have an impact on treatment. Furthermore, there was an unanticipated flaw in the research design as a result of the time between signaling of clients being NOT and therapists receiving the CST feedback. Although the researcher attempted to understand the impact of this flaw in the design, the lack of sample size and manipulation makes it difficult to draw any conclusions from the findings. Additionally, it would be naïve to generalize that there is no effect of using the CST during treatment and to stop using this tool. Instead, future research is needed to understand why there is only a small effect in some samples and a large effect in others. Another limitation of the study is using one measure (i.e., the ASC) to explore the possible contributing factors to the increase in psychological distress. A study by White et al. (2015) showed that although Social Support was found to be the most likely endorsed subscale as problematic, 41.4% of these clients did not endorse any subscale as being problematic. These results show that there are other factors that may be contributing to the clients' distress that the

ASC is not capturing. Therefore, despite using the CST to help these clients, it may not be tapping into other problems going on.

Other inherent limitations were evident from the type of population that the study took place in. One limitation included the mean age of participants being about 23-years-old. Therefore, although this was an adult population, these findings are more related to a young adult college population. Similarly, studying only a college population offers a limitation to generalizing findings to other populations who are less educated or well-adapted. Third, although there was diversity in the sex of the clients, no cultural and ethnicity information was gathered during the experiment as well as no diagnostic criteria.

The amount of research on progress feedback in the past decade has grown, and it is important to continue to ask the question, “What have we learned?” Lutz, de Jong, and Rubel (2015a) asked that specific question in a journal article entitled, “Patient-focused and feedback research in psychotherapy: Where are we and where do we want to go?” After reviewing the advances that the field has made in the past decade, they posed the following question of how to move forward with the research: “How can therapists use feedback most efficiently? Which elements of feedback reports are more important and which are less important?” (Lutz et al., 2015a). This study attempted to answer these questions, relying on research supporting CST as a useful intervention for deteriorators. Unfortunately, the limitations prevented finding an answer to that question, and it seems that the same questions these researchers are asking are relevant. Therefore, it is hoped that future research can attempt to answer the question of how therapists can use feedback to best help their clients, specifically to help those clients who are not thriving in a therapy environment.

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