# Enhancing Dialectical Behavior Therapy Outcomes through Visual Feedback: A Comparative Study

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Routine monitoring of client's progress in therapy is considered to be an important aspect of evidence-based care (APA, 2006; Dozois et al., 2014). Therapists who collect regular data on client treatment progress and provide feedback clients about their progress have been consistently shown to obtain better outcomes, in particular, for clients at high risk of treatment failure (Bickman et al., 2011; Lambert et al., 2003; Reese et al., 2009). A recent meta-analysis found that providing feedback to clients reduced the rate of treatment dropout by 20% and was associated with greater reduction of symptoms (de Jong et al., 2021). Feedback is thought to improve therapy outcomes by facilitating a positive expectation of change, increasing clients' engagement, motivation, and insight, improving the therapeutic alliance, helping to maintain a focus on treatment goals, and empowering clients to make informed choices about their care (Jensen-Doss et al., 2018).

## The Impact of Visual Feedback

Research to date has focused mainly on examining the general efficacy of providing clients with feedback on their progress in therapy, while there has been considerably less focus on the method used for providing that feedback (e.g., visual vs. oral or other methods). In particular, the differential impact of these feedback methods on therapy outcome has remained largely unexplored. Exploring the impact of feedback methods in psychotherapy is important because research has demonstrated that individuals typically exhibit superior processing and engagement with visual information. The visual cortex is the largest system in the human brain. There are more neurons devoted to vision than any of the other four senses. Furthermore, research suggests that up to 85% of learning is facilitated through visual means, and that people remember information better when they both hear and see it (Garrett, 2014; Jensen, 2008; Wade & Swanston, 2013; Ware, 2008). The adage "a picture is worth a thousand words" encapsulates the effectiveness with which visual stimuli can convey information and promote a faster and more comprehensive understanding than text or speech alone.

In medicine, incorporating graphics into patient care has been shown to improve patient understanding, satisfaction, and overall care experiences. For example, Brand et al. (2019) conducted a study in which patients undergoing coronary procedures were randomised to receive informed consent with or without the addition of explanatory

comics. Results revealed that patients who were provided with comics reported better understanding of the procedure, lower anxiety levels, and higher satisfaction. These findings support the notion that visuals can be a useful aid in conveying information to patients in health care settings.

Psychotherapy traditionally relies heavily on verbal communication, with the therapeutic process unfolding largely through conversation between the therapist and client. Due to its conversational nature, the use of visual aids is not inherently integrated into the therapy process. However, given the evidence that visual information is processed more effectively by our brains, and the positive results observed with the use of visuals in medicine, incorporating visual elements when providing feedback to clients on their progress could offer substantial benefits. It is possible that by presenting feedback visually, rather than through speech alone, therapists could enhance clients' understanding, retention and engagement with the feedback, further enriching the therapeutic experience and outcomes.

## Dialectical Behaviour Therapy

Dialectical Behaviour Therapy (DBT) was developed by Marsha Linehan in the late 1980s to address the needs of individuals with chronically high levels of suicidal ideation and behaviours. These individuals, often diagnosed with Borderline Personality Disorder (BPD), were not adequately served by traditional cognitive behavioural and psychodynamic approaches available at the time. DBT was designed to provide a comprehensive treatment framework. Clients participate in regular individual and skills-based group therapy, in which cognitive-behavioural techniques are integrated with validation, acceptance and mindfulness strategies, with the goal of improving clients' ability to tolerate distress, regulate emotions, develop a stronger sense of identity, and better manage interpersonal situations (Linehan, 1993). Though DBT was initially developed for clients diagnosed with BPD, it has since been adapted to treat a wide variety of mental health issues, including eating disorders, substance use disorders, depression, and PTSD. The effectiveness of DBT has been well-documented through numerous literature reviews, meta-analyses, and comparative studies, which have shown DBT to reduce self-harm, suicidal ideation, and hospitalization rates, particularly among individuals with BPD (e.g., Feigenbaum et al., 2012; Hernandez-Bustamante et al., 2023; Panos et al., 2014).

## Study Objectives

While DBT has been shown to be an effective intervention for individuals with BPD, a review of the literature reveals a gap regarding the impact of providing clients

with regular feedback on their treatment progress when receiving DBT. Though studies have suggested a positive effect of incorporating regular feedback into therapy more generally, there is an absence of work exploring the impact of feedback in DBT specifically. Furthermore, though feedback has been shown to be related to improved outcomes in psychotherapy, broadly speaking, few studies, if any, have examined the differential effect of providing this feedback in an oral vs. visual format.

For individuals diagnosed with BPD participating in DBT, there is a strong theoretical basis suggesting that incorporating visual aids into feedback provision could be especially beneficial. Up to 90% of individuals with BPD report a history of childhood trauma (Gunderson et al., 2018) and they are prone to experiences of stress-related dissociation (Krause-Utz, 2022). Often the therapeutic encounter itself can be a source of significant distress, as it activates memories of traumatic attachment for individuals with BPD (Fisher, 2017). Visual aids can be incredibly beneficial in this context, as they help to circumvent some of the challenges that come with verbal communication and processing for individuals experiencing high levels of dissociation (Fisher, 2021).

As such, the objective of the proposed study is to examine the impact of providing weekly feedback on treatment progress to clients with BPD receiving DBT in an oral format alone vs. an oral format with a supplemental visual aid.

**Method**

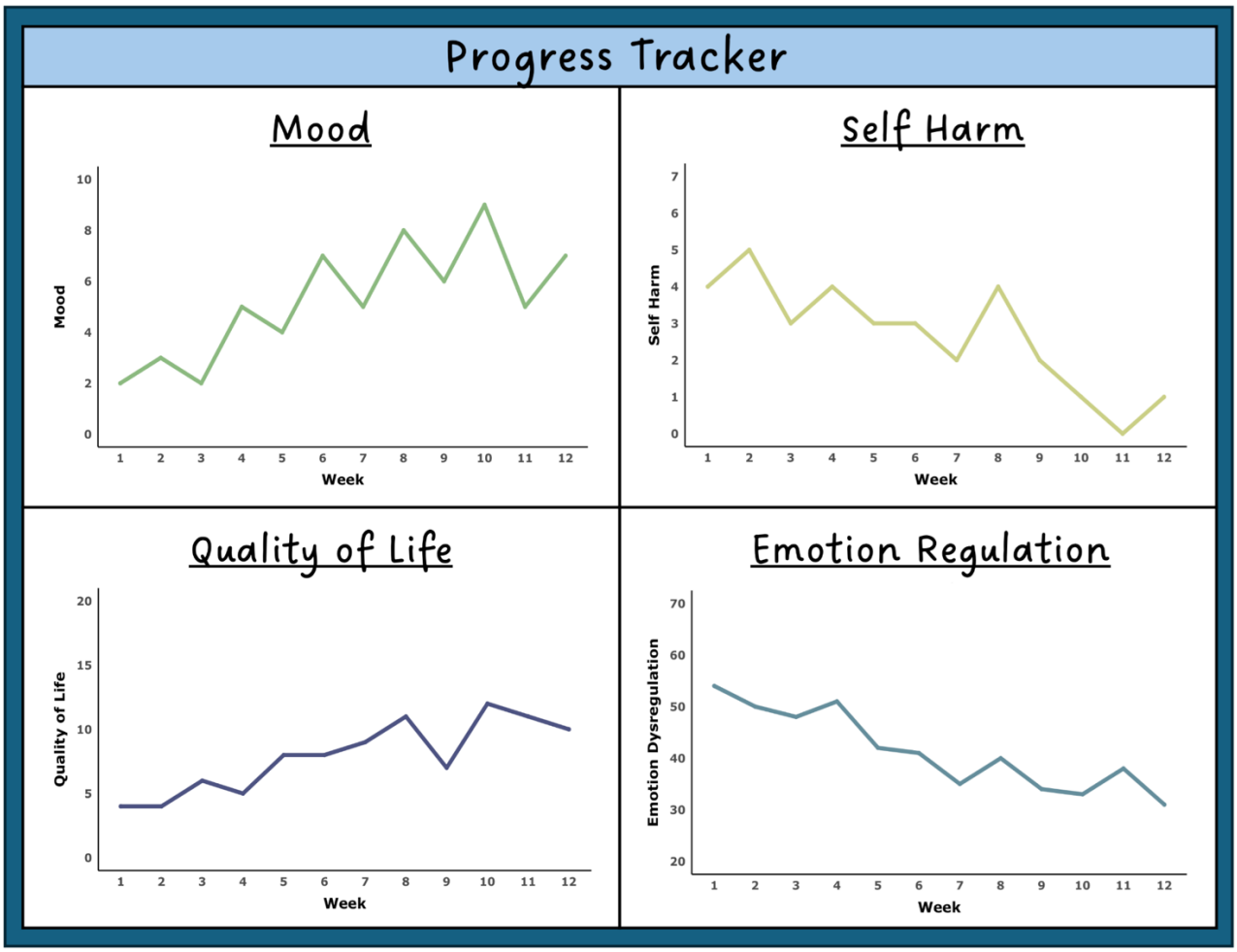
The study will employ a randomised controlled trial (RCT) design to compare the effectiveness of two feedback methods in enhancing therapy outcomes for clients with BPD undergoing DBT. Participants will be randomly assigned to one of two groups: 1) the oral feedback group, and 2) the visual plus oral feedback group. Participants will be adults aged 18-65 diagnosed with BPD. Recruitment will occur through the Borderline Personality Disorder Clinic at the Centre for Addiction and Mental Health (CAMH) in Toronto, Ontario. Informed consent will be obtained from all participants.

Both groups will receive standard DBT therapy sessions, consistent with Linehan's model. Clients will be asked to arrive 10 minutes before the start of their session each week, to allow time for them to electronically complete questionnaires on their progress over the past week. They will asked to report the frequency of their target problem behaviours (e.g., self-harm, substance use, impulsive spending - a central focus in DBT treatment), rate their mood out of 10, complete an emotion regulation questionnaire, and a quality of life questionnaire. The oral feedback group will receive verbal feedback on these metrics of progress at the end of each weekly session. The visual plus oral feedback group will receive the same verbal feedback supplemented

with visual aids (see Figure 1) that illustrate their progress over time. The visual aids will be designed to be clear, engaging, and tailored to the therapy goals and progress metrics of each client.

**Figure 1**

Example of Weekly Progress Tracker Visual




*Note.* The above visual example is based on a client who has been receiving DBT for 12 weeks with a target problem behaviour of self-harm.

Prior to commencing treatment, all participants will complete an initial assessment to establish baseline measures. This assessment will include the administration of questionnaires designed to evaluation suicidal behaviours, mood, target problem behaviours, emotion regulation and quality of life. After the initial therapy session, participants will also complete a measure of the therapeutic alliance.

Participants will then complete the same set of questionnaires every 3-months throughout the year-long course of therapy. This will allow for the assessment of the impact of feedback on therapy over time. A follow-up assessment will then be conducted 6 months after termination of treatment to evaluate the long-term effects of the feedback method on the maintenance of therapeutic goals. This will include reassessments of suicidal behaviours, mood, problem behaviors, emotion regulation, and quality of life. Dropout rates and therapy attendance will also be recorded.

## Measures

Following are the measures that will be used to assess the variables of interest in this study.

**Suicidal Behaviors.** The frequency and severity of suicidal behaviors will be assessed using the Columbia-Suicide Severity Rating Scale (C-SSRS; Posner et al., 2011).

**Mood.** The Hamilton Depression Rating Scale (Hamilton, 1960) will be used to assess mood.

**Problem Behaviors.** The frequency of target problem behaviors (e.g., self-harm, substance use) will be tracked through self-report measures specifically designed for this study.

**Emotion Regulation.** The Difficulties in Emotion Regulation Scale - Short Form (DERS-SF; Kaufman et al., 2016) will be administered to evaluate changes in emotion regulation capabilities.

**Quality of Life.** The Mental Health Quality of Life Questionnaire (MHQoL; van Krugten et al., 2022) will be used to assess perceived quality of life.

**Working Alliance.** The Working Alliance Inventory (WAI; Horvath & Greenberg, 1989) will be used to measure the quality of the therapeutic relationship.

## Analysis

Mixed-effects models will be employed to account for the repeated measures design, comparing the two groups (oral feedback vs. visual plus oral feedback) across all time points (baseline, every 3 months during therapy, and at the 6-month follow-up). This approach allows for the analysis of both within-subject (time) and between-subjects (group) effects on the outcome measures. Dropout rates and therapy attendance will be

analysed using logistic regression to examine whether the type of feedback affects these outcomes.

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