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Applying Technological Approaches to Clinical Supervision in Dialectical Behavior Therapy: A Randomized Feasibility Trial of the Bug-in-the-Eye (BITE) Model

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The growth of the evidence based practice (EBP) movement has created a need for efficient models of EBP training that provide timely feedback to trainees. This feasibility trial examined a technological approach to clinical supervision called bug-in-the-eye (BITE) among trainees learning Dialectical Behavior Therapy (DBT).

Eight DBT trainees within a psychiatry residency program were randomized to receive either supervision-as-usual (SAU; n = 4) or BITE group supervision (n = 4) during a 1-year elective clinical rotation. A mixed method design was used to evaluate acceptability, feasibility, and preliminary effectiveness of BITE to improve DBT knowledge transfer and reduce burnout relative to SAU.

Qualitative analyses indicate that BITE was feasible to implement and acceptable among trainees. Trainees assigned to the BITE condition had significantly better postsupervision scores on a DBT case formulation assignment compared to those receiving SAU. The BITE condition also showed a trend toward higher scores on an exam measuring knowledge of DBT skills and theory. There were no trends noted over time or between condition on pre-post reports of burnout or satisfaction with supervision.

This study finds preliminary support for a supervision approach using BITE technology as a feasible and acceptable model of clinical supervision that is associated with differentially greater learning for DBT case conceptualization compared to traditional supervision. A key limitation of the study is the small sample size, which limits both statistical power and generalizability; however, findings suggest that technological methods of enhancing supervision may be implemented successfully in evidence-based behavioral therapies.

There is almost universal acknowledgment that clinical supervision is an essential element in training evidence-based practices (EBPs), maintaining treatment fidelity, and assuring quality in behavioral health service delivery (Milne & Westerman, 2001; Schoenwald, Mehta, Frazier, & Shernoff, 2013; Weissman et al., 2006). With the increasing emphasis on EBPs (Tabak, Khoong, Chambers, & Brownson, 2012), clinical training and supervision models must strive to use the same empirical standard as the EBP interventions themselves (Dorsey et al., 2013). Emphasis in clinical supervision on achieving adherence to EBP treatment principles has been found to be strongly associated with both the quality of clinical care and positive patient outcomes (Schoenwald, Sheidow, & Chapman, 2009). Alternatively, clinicians who receive inadequate clinical supervision after completion of their training can experience a decline in the quality of their clinical practice (Cashwell & Dooley, 2001).

Research on developing psychotherapy expertise indicates that EBP adherence and competence requires active and ongoing learning strategies, such as in vivo coaching, deliberate practice, and direct observation with performance-based feedback (Beidas & Kendall, 2010; Garland & Schoenwald, 2013; Tracey, Wampold, Lichtenberg, & Goodyear, 2014). These supervision methods require considerable resources (e.g., availability of highly skilled supervisors, personnel time for both staff and trainees), limiting their feasibility in standard training and quality assurance programs. For example, many supervision models encourage the recording of trainee therapy sessions (Berger, 2004), but these are rarely seen or heard due to the time and cost for supervisors to review them (Garland & Schoenwald). If session recordings are reviewed, the delay between performance and feedback is often too great to effectively influence the trainee's behavior (Tracey et al., 2014). Yet, numerous studies report that ongoing observation and performance-based feedback is essential to achieving CBT proficiency and maintaining

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quality of care (Beidas & Kendall, 2010; Beidas, Koerner, Weingardt, & Kendall, 2011; Decker, Jameson, & Naugle, 2011; Dewing et al., 2013; Lyon et al., 2011; Rakovshik & McManus, 2010).

Providing supervision in a group format may overcome some of these implementation barriers, with significant cost- and time-saving advantages over individual supervision. Group supervision may also provide a greater quantity, diversity, and quality of feedback to psychotherapy (Bernard & Goodyear, 2004). The supervision group allows trainees to receive a broader range of feedback, including from peers who may be better able to understand the novice perspective and provide feedback that an expert supervisor may overlook. It also affords opportunities for trainees to observe and evaluate clinical competencies across a variety of therapist styles and clinical presentations. This format may be particularly effective in training therapists to conduct group interventions, because the supervision parallels the treatment format and provides contextually relevant practice opportunities (Dies, 1983).

Technology may provide additional means to overcoming barriers to implementing effective supervision methods. Bug-in-the-eye (BITE) is an innovative model of clinical supervision that builds on the gold standard of direct observation and performance-based feedback (Klitzke & Lombardo, 1991). The BITE supervisor observes live therapy sessions through video broadcasting and transmits real-time feedback and coaching to the trainee via computer monitor placed behind the patient's chair, with informed consent provided to the patient in advance. The BITE trainee can read the supervisor's bite-sized comments with little disruption to the session and without the client's awareness of the feedback being received. This allows the trainee to incorporate performance-based feedback into the current therapy session while it is still relevant, thus creating opportunities for the supervisor to immediately shape the behavior of the trainee (Klitzke & Lombardo). The BITE protocol requires two rooms, each equipped with computer stations, webcams, and secure desktop-sharing software (such as Abode Connect, VSee or join.me) capable of video-broadcasting and live text messaging. At the beginning of a therapy session, the trainee turns on the webcam and uses the desktop-sharing program to connect to the supervisor's computer. The webcam is positioned to capture both trainee and client, and the computer monitor is placed behind the client's chair and within direct view of the trainee. The software broadcasts the session in real time so the supervisor (or supervision team) can observe the session from a remote location, either within or outside the therapy clinic. The supervisor(s) will generate brief, actionable feedback on the trainee's performance intended to evoke and reinforce EBP adherence and competence. Using word-processing software (such as Microsoft Office), the supervisor types a few words of feedback that the trainee can see on the computer monitor and incorporate into the clinical intervention.

There are similar models of live supervision, such as Real-Time Training (RTT; Rosenberg, 2006), that involves videotaping a trainee through a one-way mirror while the trainee conducts a therapy session. Unlike BITE, which provides real-time observation and coaching, feedback in RTT is provided by the supervisor after the therapy session is completed. The advantage of BITE as a supervision model is that real-time feedback is provided with minimal disruption within the live session, providing the opportunity to immediately improve quality of care and requiring less staff time from both supervisors and trainees (Miller, Miller, & Evans, 2002). In an open trial, counseling trainees ($n = 6$), supervisors ($n = 5$), and patients ($n = 10$) agreed that BITE was a useful supervision model and did not find the use of a computer or the live feedback from the supervisor to be particularly disruptive (Jakob, Weck, & Bohus, 2013). However, trainees and supervisors agreed more strongly than patients that the BITE therapy session was more clinically effective.

In spite of these initially promising results, there is limited published research on the effectiveness of BITE compared to standard approaches of supervision. In a randomized controlled trial of 23 trainees learning cognitive behavioral therapy that were assigned to BITE or delayed video-based supervision, therapeutic alliance and therapist competence were found to be significantly higher in the BITE group (Weck et al., 2015). One study conducted qualitative interviews with master's-level practicum trainees comparing their experience receiving BITE supervision to a different approach where the supervisor intervenes directly within the session via phone. The trainees reported that BITE (a) was a more effective learning tool for correcting mistakes and improving counseling effectiveness, (b) increased their confidence in the therapy session, and (c) was comfortable to use and easy to implement (Miller et al., 2002). The findings are consistent with previous studies reporting that BITE is less distracting than other live-feedback models, including telephone call-in and bug-in-the-ear supervision (Jakob et al., 2013; Scherl & Haley, 2000). BITE technology was also reported to be less physically invasive than the similar bug-in-the-ear model, which requires trainees to wear earbuds (Gallant, Thyer, & Bailey, 1991).

These findings suggest that BITE holds promise as a training model to improve counseling effectiveness and increase therapist confidence. BITE may appeal to supervisors and clinic administrators as it allows for less meeting time (combining the therapy session with the supervision meeting), less clinic space, and keeps the session focused on EBP adherence (Jakob et al., 2013). BITE offers immediate performance-based feedback to trainees within a naturalistic environment, and fosters many opportunities for their