

Evaluation of Implementation, Effectiveness, and Mechanisms of Change of
Measurement Based Care for Depressive and Anxiety Disorders

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Keywords: measurement-based care; implementation; effectiveness; mechanisms of change;
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ABSTRACT

Measurement-based care (MBC) is an evidence-based practice that centers on routine completion of patient-reported outcome measures (PROMs) and collaborative discussions between clinicians and clients to inform treatment and clinical decision-making. Despite its known benefits, MBC's unique added value over standard care and mechanisms through which it works remain unclear. Guided by the RE-AIM framework, the current study examined MBC's reach, effectiveness, implementation, and potential mechanisms of action in adults with depressive and/or anxiety disorders at an academic medical center. A pragmatic randomized controlled trial compared MBC with treatment as usual (TAU). Fifteen clinicians completed standardized MBC training, and 56 adults with depressive and/or anxiety disorders were randomized to MBC ($n = 27$) or TAU ($n = 29$). Both groups completed weekly PROMs assessing depression, anxiety, and overall psychological adjustment. Working alliance, psychotherapy processes, and global impressions were also assessed. The results evaluated Implementation (clinician and client attitudes toward MBC and adherence), Reach (enrollment, attendance, and attrition), Effectiveness (symptom change and psychological functioning) of RE-AIM components, alongside an exploratory mediation analysis. Implementation outcomes indicated high acceptability among clinicians and clients, and more than 90% adherence. Participants reflected the clinic's client population but not the broader regional community. Multilevel modeling showed faster improvements in the majority of outcome measures among MBC participants compared to TAU. However, hypothesized mediators demonstrated no between-group differences. These findings demonstrate that implementing MBC via the RE-AIM framework can enhance symptom reduction and psychological adjustment. The absence of group differences in working alliance and psychotherapy processes underscores the need to explore additional factors as possible mechanisms of change. Overall, the study demonstrates that MBC can be integrated into routine outpatient practice with high fidelity and acceptability, resulting in more rapid symptom improvement and adjustment.

Keywords: measurement-based care; implementation; effectiveness; mechanisms of change; depressive and anxiety disorders; psychological adjustment

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GENERAL AUDIENCE ABSTRACT

Measurement-based care (MBC) is an evidence-based practice that involves routine collection of clients' reports of their symptoms (e.g., depression or anxiety) and collaborative discussion of the results in therapy sessions to guide treatment. Although MBC has shown potential in enhancing mental health outcomes, its unique benefits over standard care and how it facilitates improvement remain unclear. This study applied the RE-AIM implementation science framework, which examines Reach (who participates), Effectiveness (how well it works), and Implementation (how consistently it is applied). At an academic medical center, 15 therapists were trained in MBC, and 56 adults with depression and/or anxiety were randomly assigned to receive either MBC or treatment-as-usual (TAU). Participants filled out brief weekly questionnaires assessing mood, anxiety, and overall functioning. The study also examined factors that might affect treatment outcomes, including the therapeutic alliance between clients and therapists. The findings demonstrated that MBC was perceived as acceptable and feasible for both clinicians and clients. In comparison to TAU, the MBC group showed faster improvement in depression, anxiety, and psychological adjustment. However, the strength of the client-therapist relationship did not differ between the two groups, which indicates that the advantages of MBC may be influenced by alternative factors. Overall, these findings highlight that MBC can be successfully integrated into routine care and accelerate improvements in symptoms and adjustment.

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Introduction

Measurement-based care (MBC) is an evidence-based practice which utilizes systematic and ongoing evaluation of client-reported data to inform treatment and clinical decision-making (Fortney et al., 2017). The core procedural components of MBC include routine administration of patient-reported outcome measures (PROMs), collaborative review of data between provider and client, and reevaluation of the treatment plan based on these discussions (Lewis et al., 2019; Barber & Resnick, 2023). MBC is recognized to have several clinical benefits, including decreased likelihood of worsening symptoms, shortened duration in and reduced dropout from treatment, and improvement in treatment outcomes (APA Presidential Task Force on Evidence-Based Practice, 2006; De Jong et al., 2021). While MBC appears to have demonstrated added value and utility in mental and behavioral health care settings, there are still ongoing debates that focus on whether MBC indeed demonstrates clinically significant and uniquely additive effectiveness compared to treatment as usual (Kendrick et al., 2016).

MBC Implementation

Successful implementation is necessary in order to accurately evaluate the added effectiveness of MBC. Despite the known benefits of utilizing MBC as an evidence-based practice (Boswell et al., 2015; Boyd et al., 2018; de Beurs et al., 2011), its implementation in clinical settings faces several challenges. Indeed, studies have shown that the actual percentage of clinicians in mental health settings who incorporate MBC into routine practice is fewer than 20% (Jensen-Doss et al., 2018; Ionita & Fitzpatrick, 2014). This low rate of adoption indicates the formidable barriers real world clinical practice faces in adapting this proposed practice, despite ample research supporting its effectiveness. Previous studies have

identified a range of barriers and facilitators that hinder or facilitate MBC utilization, which are detailed below.

Individual-level factors. In the context of implementing MBC as an addition to regular psychotherapy in mental health settings, individual-level barriers pose challenges for both clinicians and clients. On the clinician side, attitudes and beliefs have been identified as one of the major obstacles (Aboraya et al., 2018; Boswell et al., 2015). Some clinicians hold philosophical objections or doubt about the use of MBC, favoring their clinical intuition and judgment over standardized symptom measures, which are a part of MBC protocols (Bickman, 2008; Hatfield & Ogles, 2004). As a result, clinicians may reluctantly administer measures and show reduced commitment to encouraging their clients to complete them or engaging in collaborative treatment progress reviews and planning (Brooks Holliday et al., 2021). In addition, time constraints and additional documentation can be a significant challenge for clinicians, which may hinder their willingness and ability to incorporate MBC into their practice (Hatfield & Ogles, 2007; Kotte et al., 2016). With the demands of regularly checking their clients' completion and review of the results, clinicians might find it difficult to allocate sufficient time for MBC implementation, which could also result in underutilization of the approach.

Additionally, clients' lack of engagement and non-adherence are also reported as another significant individual-level barrier (Ko et al., 2023). Without clients' active participation in completing measures, clinicians lack data to effectively guide their ongoing clinical care. The level of client engagement can vary widely and is influenced by several factors, such as the client's understanding of the value of MBC, perception of measure appropriateness to their therapy goals, time limitations, and even familiarity with the technology to complete the assigned measures (Hall et al., 2014; Leav et al., 2023; Solstad et

al., 2021). Literature finds that clients were more likely to complete their assigned measurements and showed an improved willingness to participate if their clinicians effectively communicated the purpose and benefits of MBC (Börjesson & Boström, 2020; Cuperfain et al., 2021; Omer et al., 2016).

Organizational- and system-level factors. At the system and organizational levels, a notable barrier involves constraints related to resources and support, as organizations must account for the upfront financial expenses of integrating MBC into their existing infrastructure (Aboraya et al., 2018). While there are plenty of free and valid measures available, there are still additional costs to provide appropriate support for the clinicians, staff, and clients. Technological infrastructure support plays a vital role in successful implementation, and MBC often involves the use of a digital Measurement-Feedback System (MFS), a web-based electronic system that aids in the evaluation of client symptoms and therapy progress (Bickman, 2008). MFS utilizes reliable and valid PROMs to monitor client symptoms. Importantly, MFS typically has automatic scoring and graphing functions of clients' results, thereby allowing for efficient data analysis and feedback provision to both clients and clinicians (Bickman et al., 2012). A well-designed and efficient infrastructure also enhances positive user experience, increasing clients' participation in the service (Hall et al., 2014). Still, this also demands robust technical resources, ongoing maintenance, and dedicated support. Consequently, clinics with limited budgets or equipment may have challenges setting up a system for MBC.

Furthermore, systematic and standardized training is critical to ensuring successful implementation and maintenance of MBC (Scott & Lewis, 2015). Although several MBC training programs and guidelines have been developed and disseminated, their utilization remains notably limited (Freedman et al., 2023). Ongoing training and consultations are

essential in equipping clinicians with the expertise to employ MBC tools and integrate them into their clinical practice (Marriott et al., 2023). Senior leader engagement and supportive organizational culture facilitate effective adoption as well (Lambert & Harmon, 2018). MBC integration may necessitate adjustments to current practices and procedures to accommodate data collection and feedback processes. To facilitate implementation, having a dedicated ‘MBC champion’ within the department has been recommended, as they can advocate for MBC adoption, provide guidance, and foster a supportive environment (Cooper et al., 2021; Peterson & Fagan, 2017). Taken together, these barriers and facilitators' complexities must be addressed to effectively integrate MBC into routine clinical practice. Moreover, MBC implementation that successfully addresses these factors may result in more effective outcomes, confirming the added value of MBC. This study aims to investigate how structured and systematic implementation and evaluation can collectively facilitate effective and sustainable MBC uptake.

RE-AIM Framework. It is crucial to employ an appropriate implementation science framework when conducting a study that implements a proposed intervention and evaluates its effectiveness, especially in a real-world setting (Brownson et al., 2018; Tabak et al., 2012). These appropriate implementation science frameworks serve as a roadmap, providing structured approaches to guide the research process and ensure comprehensive assessments of an intervention’s impact and sustainability (Gleacher et al., 2016; Glisson & Schoenwald, 2005; Proctor et al., 2009; Proctor et al., 2011). Hundreds of frameworks and models exist to inform and facilitate evidence-based practices, and the RE-AIM framework is one of the most widely utilized, which focuses on five factors: Reach, Effectiveness, Adoption, Implementation, and Maintenance (Glasgow et al., 1999). It provides a comprehensive method for examining both the immediate impact and sustainability, which makes it

appropriate to comprehend the efficacy and practical applicability of interventions (Gaglio et al., 2013; Kessler et al., 2013). While there are other implementation frameworks, such as the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009), which emphasizes outer and inner contexts, or the Interactive Systems Framework (Wandersman et al., 2008), which focuses on system intervention and process, RE-AIM remains well-suited for this study's goals of evaluating intervention impact and feasibility, due to its emphasis on both individual and organizational levels. This study intends to utilize three specific components (i.e., Reach, Effectiveness, and Implementation) from the framework. Below is an overview of the core RE-AIM components, including precise definitions and practical applications within the context of implementation research.

Reach refers to the total count, proportion, and representativeness of individuals who choose to and are able to take part in the provided intervention (Glasgow et al., 1999). Recognizing the representativeness of study participants is crucial, as it can significantly affect the impact of an intervention. When study participants do not sufficiently reflect on the broader population, the results may misrepresent how the intervention would perform in a wider context, potentially leading to misleading or limited conclusions that fail to apply to the larger population (Sharma, 2017). Identifying the population who are willing to participate and those who are eligible but opt out provides further clarification about the generalizability of the treatment in real-world settings (Holtrop et al., 2021).

Effectiveness is defined as the impact or result of an intervention on individual outcomes, such as a change of behavior, either positive or negative, and intended or unintended consequences. The RE-AIM framework evaluates effectiveness at an individual level, which reflects the success or failure of treatment when implemented in routine care settings (Glasgow et al., 1999; Glasgow et al., 2022).

While reach and effectiveness are investigated at the individual level, *adoption* is evaluated on a broader organizational scale, including the number, proportion, and representativeness of settings or actual providers or staff who are willing to be part of the program and deliver the intervention. Identifying these setting-level variables allows researchers to assess whether differences exist across settings due to the varied resources, expertise, understanding, or commitment to the new intervention.

Implementation is evaluated to identify if the intervention was delivered as planned and intended (Glasgow et al., 1999). The components of implementation include the provider's fidelity to the stages and elements of interventions, and adaptations made during implementation and intervention stages (Reilly et al., 2020).

Lastly, *maintenance* refers to the long-term sustainment of intervention, specifically whether the implemented intervention, program, or policy becomes part of routine practice (Glasgow et al., 1999). This can also be investigated on an individual level by evaluating the long-term effects of the intervention on individual recipients or clients over time. While individual-level maintenance might be more feasible to investigate, it can be challenging to evaluate organizational or system-level sustainability of the intervention (Estabrooks et al., 2021; Shelton et al., 2020).

Empirical Evidence for the Effectiveness of MBC

Over the past two decades, MBC has demonstrated its strengths and benefits as an evidence-based practice (EBP) when incorporated into clinical care by showing improved treatment outcomes and decreased likelihood of deterioration while in therapy (Barkham et al., 2023; Brattland et al., 2018; Shimokawa et al., 2010), more objective assessment of clients' progress (Deschenes & Dugas, 2013; Lambert et al., 2005; Shimokawa et al., 2010), lower drop-out rates (Carlier et al., 2012; Levine et al., 2017), reduced cost of care (Delgadillo

et al., 2017), and increased level of therapeutic relationships (Fortney et al., 2017). Beyond these benefits from the treatment perspective mentioned above, the benefits of MBC have been recognized at multiple levels (Boswell et al., 2015; Connors et al., 2021; Jensen-Doss et al., 2020). Specifically, from a client perspective, MBC increases patient engagement and participation in treatment, promotes the exchange of information between the client and clinician, and enhances clients' understanding of their own symptoms (Scott & Lewis, 2015; Finn et al., 2012). At the provider-level, MBC offers objective data that can help prevent clinicians from overlooking treatment deterioration or overestimating treatment effectiveness (Hatfield & Ogles, 2007; Walfish et al., 2012). Notably, MBC has demonstrated strong effectiveness in identifying cases that are not on track or facing treatment failure (de Jong et al., 2021). Lastly, organizational-level benefits include data-driven decision-making, quality improvement for current services, and the development of new services or programs (Jensen-Doss et al., 2020). Additionally, enhanced reimbursement opportunities are reported as another organizational benefit, as specific insurance companies may request quantitative MBC data for payment processing (Axelson & Brent, 2020).

Limitations in MBC Effectiveness Literature

Mixed findings of effectiveness. Recent meta-analyses and review studies have indicated positive albeit varying effects of MBC on symptom improvement, with effect sizes ranging from small to large. Several studies suggested that MBC can be particularly beneficial in specific circumstances, such as when individuals are not on track or are at risk of treatment failure (de Jong et al., 2021; Lambert et al., 2018; Ostegard et al., 2020). However, evaluating MBC effectiveness across studies entails several limitations, which make it challenging to compare treatment outcomes (Fortney et al., 2017; Lewis et al., 2019). Specifically, a Cochrane review study focused on MBC with adult population showed that

measurement feedback itself did not demonstrate a statistically significant effect on symptom reductions and concluded that current evidence is insufficient to support MBC as a consistently effective practice (Kendrick et al., 2016). The authors pointed out, however, that incongruity in findings could have stemmed from substantial variability across the 17 included studies, such as differences in study quality and research design, inconsistency in feedback delivery, and adherence to MBC protocols.

Challenges with terminology. In MBC literature, the key components or protocols of MBC vary widely across studies. While commonly used terms such as routine outcome monitoring (ROM), progress monitoring and feedback, feedback-informed treatment, and data-driven decision making are often used interchangeably, they do not necessarily align with the formal definition of MBC. This variability in terminology and practices among studies poses a significant challenge when comparing treatment outcomes. For instance, one study may involve an intervention that includes both client and clinician data review followed by discussion, while the other focuses solely on client's routine completion of data, without review or follow up discussions. Hence, the inconsistent effectiveness may be a product of the lack of full fidelity to MBC implementation. Given the significance of identifying key components of practice, the current study will focus on the inclusion of all elements of MBC (i.e., routine completion of outcome measures, client and clinician review of the data, and collaborative discussion), which are addressed in each session. This approach underscores the importance of regular feedback and monitoring in the intervention processes.

MBC training and fidelity. Another limitation in MBC literature is the variation in implementation, training, and fidelity. Successful implementation of MBC in clinical settings requires systematic training but faces consistent challenges, and differences in conducting standardized training of clinicians may affect treatment outcomes (Boswell et al., 2023). In

particular, the way clinicians understand and employ MBC could vary widely, especially due to the local organizational cultures, resources, and interpretations of MBC's core components (van Sonsbeek et al., 2023). While formal workshops, training, or supervisions can be available to some clinicians, others may receive inadequate training and support for MBC, which can result in lower uptake (Keepers et al., 2023). Furthermore, not all studies track or report fidelity of MBC or how closely the practice adhered to the recommended protocol, which makes it challenging to attribute either positive or negative outcomes to the practice. Psychotherapy is a continuing and adaptable process, therefore not every session may reach full MBC fidelity. Part of the challenge in reporting fidelity can arise from the lack of widely accepted standardized tools to assess fidelity. So far, researchers have often relied on their own criteria. For example, Ehrenreich-May and their colleagues (2025) calculated the number of measure administrations and feedback report checking rates. Yet, session-level fluctuations in MBC are often not recorded.

Overall, these limitations led to a question of MBC's unique value, as MBC is an additional practice superimposed on top of other evidence-based practices and/or usual care. A lack of clearly identified added value might increase challenges when implementing MBC in regular clinical practice, as there are already a substantial number of barriers recognized from previous research. The challenges and obstacles faced in MBC implementation include financial considerations, time burden for both clinicians and clients, fear and mistrust of MBC, increased workload, and lack of protocols and training manuals (Arbuckle et al., 2013; Boswell et al., 2015; Cooper et al., 2021; Peterson & Fagan, 2017). Therefore, addressing previous limitations via clear identification of key components of MBC and systematic training of clinicians that ensures adherence can contribute to MBC's effectiveness and additional value. Moreover, narrowing the scope to the most commonly occurring

psychopathologies (e.g., depressive- and anxiety-related disorders) in adult populations (Hasin et al., 2018; Remes et al., 2016) can further offer insights into MBC's incremental benefits and better inform its integration into routine care.

Need for a Pragmatic RCT approach. Implementation science aims to translate scientific knowledge into practice and has introduced novel methods and models to bridge these gaps (Bauer et al., 2015; Bauer & Kirchner, 2020). One such method is a pragmatic clinical trial. While traditional RCT tests a hypothesis under ideal and controlled conditions to investigate the efficacy of treatments, the pragmatic RCT compares treatments under everyday, real-world clinical conditions (Gamerman et al., 2019; Murray et al., 2019). A pragmatic randomized control trial (RCT) is particularly pertinent in the context of MBC, as it emphasizes real-world conditions and broad inclusion criteria to capture a generalizable impact of specific practice in clinical settings. In traditional RCT designs, researchers test an intervention against a placebo or standard treatment using standardized study protocols with limited flexibility in treatment delivery. The participants are narrowly defined and selected with stringent inclusion and exclusion criteria. Data collection mostly occurs outside routine clinical care, considering the strictly controlled research conditions. As a result, while this design is efficient in determining the causes and effects of treatment, it may not always be generalizable to everyday practice (Carey & Stiles, 2016; Cartwright & Munro, 2010; Shean, 2014). Indeed, it is not uncommon to observe a significant decrease in effectiveness when implementing an intervention tested through randomized controlled trials into everyday clinical practice. One of the primary reasons that evidence-based practices are not adopted is that they are not regarded as relevant to the real world (Rothwell, 2005). Consequently, the need for practice-based evidence that is generalizable has been emphasized over the past decade (Glasgow & Chambers, 2012; Green, 2006).

The pragmatic RCT addresses some of the limitations present in traditional RCT designs by allowing for broader settings, providers, and participants. Specifically, the pragmatic RCT tests two or more interventions using flexible protocols and local customization in order to reflect the characteristics and needs of the specific settings (Chalkidou et al., 2012). Participants are more representative of the community as eligibility criteria are less strict, aligning with the actual target population in need of specific intervention. This pragmatic design recognizes the heterogeneity of the population to optimize the results. The results, being more representative of the setting where actual clients seek treatment, elucidate the effectiveness of interventions in a broader subset and inform clinical decision-making. Additionally, this real-world clinical trial should incorporate an appropriate comparison group according to the research question. An active control group is recommended instead of a simple placebo group (Gamerman et al., 2019; Tuzzio et al., 2019). Given the benefits of pragmatic RCTs and the aim of optimizing the generalizability of the study results, the present study aims to utilize a pragmatic RCT with a population in a naturalistic setting and include an appropriate active comparison group. More details of the research design will be described in the method section.

Mechanisms of Change in the Context of MBC

The significance of investigating the mechanisms of change in psychotherapy research has been a subject of ongoing discussion (Kazdin, 2007). Gaining insights into why and how, or for whom, therapy facilitates therapeutic change holds great importance for several reasons. First, identifying these mechanisms allows the optimization of the change process by understanding the specific pathways through which improvements occur. This knowledge allows clinicians to tailor interventions and target the most influential factors, enhancing treatment effectiveness (Kazdin, 2009). Furthermore, understanding the factors

that lead to successful treatment goes beyond merely knowing that evidence-based practices are effective. Mediators inform us about how treatment works, as they are variables or processes that explain the relationship between the independent (i.e., specific treatment component) and dependent variables (i.e., treatment outcome or changes observed) (Baron & Kenny, 1986; Johansson & Høglend, 2007). On the other hand, predictors and moderators of outcome clarify who benefits most from a given treatment, as it influences the magnitude or direction of the link between the independent and dependent variables. Moderators can assist in identifying which individuals benefit most and under which circumstances the therapy is most effective (Baron & Kenny, 1986; Kraemer et al., 2002). Recent studies have suggested that psychotherapy practice and research pivot toward a process-based and transdiagnostic framework that emphasizes core evidence-based therapeutic procedures and processes (Barber, 2007; Dalglish et al., 2020; Hofmann & Hayes, 2019). To adequately assess a mediation and moderation model, especially in the context of a psychotherapy study investigating processes and mechanisms of change, it is advised to collect a minimum of three or more measurements that are repeated. Prior research suggests that utilizing a longitudinal study design with repeated measures is the preferred approach for such investigations (Barber, 2007; Moldovan, 2015; Laurenceau et al., 2007).

Despite its importance, there is a dearth of studies that identify mechanisms of change or action to explain why and how MBC improves treatment outcomes, or which factors act as mediators or moderators throughout the procedure (Connors et al., 2021). A limited qualitative literature suggests that MBC facilitates therapeutic alliance, client engagement, and communication between client and clinician (Hovland et al., 2023; Krageloh et al., 2015). For instance, one study utilizing routine outcome monitoring (ROM) found that a working alliance between the provider and client mediated the effect of ROM (Brattland et al., 2019).

However, questions remain regarding how MBC improves treatment outcomes, and there is a lack of quantitative studies identifying MBC mediators and/or moderators. Moreover, MBC's session-by-session data collection provides a unique opportunity to track changes, yet few investigations have been conducted to assess mediation or moderation effects. Thus, to achieve a more comprehensive understanding of MBC, the current study proposed to explore this gap in literature by conducting a quantitative investigation of potential mediators.

Proposed mediators. Existing literature proposes that when client and therapist engage in regular measurement and feedback through MBC, clinicians report enhanced communication, mutual understanding, and shared decision making (Greenhalgh et al., 2018; Krageloh et al., 2015; Låver et al., 2023). In turn, the use of MBC can lead to a stronger therapeutic alliance, encourage collaboration between the client and therapist, facilitate agreement on treatment objectives, and enhance the personal bond that arises over the course of therapy (Castonguay et al., 2006; Hovland et al., 2023). Previous research in psychotherapy has consistently shown that the stronger the working alliance, the greater the therapeutic gain (Orlinsky et al., 2004; Taber et al., 2011), and alliance strength even predicts session-by-session symptom improvement (Falkenström et al., 2013). Given the qualitative studies of MBC and one quantitative ROM study that supported the association between ROM, working alliance, and improved treatment outcomes (Bratland et al., 2019; Connors et al., 2021), the current study hypothesized that a working alliance would positively mediate the relationship between MBC and therapeutic outcomes, such as symptom and adjustment improvement. In addition, as it was supported in several studies that MBC increases patient participation and satisfaction with the intervention (Eisen et al., 2000), the proposed study hypothesized that MBC would positively impact therapy processes itself, such as therapist exploration and client participation, which in turn, could contribute to improved treatment

outcomes.

Potential moderators. As mentioned above, moderators are variables that influence the direction or strength of the relation between an intervention and its outcome. Previous studies suggested that the successful implementation and effectiveness of MBC heavily rely on clinicians' perspectives regarding the utilization of standardized measurement and feedback processes (de Jong et al., 2021; Lutz et al., 2024). Furthermore, considering that the client's completion of PROMs is one major component of MBC and as client compliance has been reported as one of the challenging parts of MBC implementation (Ko et al., 2023), examining client attitudes toward and satisfaction with MBC and its impact on overall outcomes can inform whether that hinders or facilitates the therapy process. Although emerging evidence suggests that clinicians who hold positive attitudes toward MBC are more likely to implement it consistently (Jensen-Doss et al., 2025; Williams et al., 2022), to our knowledge, research has yet to demonstrate the relationship between the clinician and client attitudes toward engaging in MBC and treatment outcomes. Moreover, MBC requires multiple procedural steps, such as clients completing PROMs, clinicians reviewing results, and collaborative discussion of feedback, and adherence is critical for successful implementation. However, it remains unclear whether high fidelity (i.e., implementing MBC as intended) influences overall outcomes. If clinicians and clients fail to adhere to the recommended MBC procedures, it may limit the potential benefits of using MBC. Thus, examining in-session adherence as one of the moderators can provide insights into how effectively clinicians incorporate MBC practices into their therapy sessions, and how that may impact therapeutic gains. While the current study does not examine potential moderators, as the sample size was underpowered for such analyses, this literature review highlights how these variables may require further investigation in future studies. By

evaluating potential mediators discussed above, the present study aims to provide a more comprehensive understanding of the mechanisms through which MBC impacts outcomes, leading to more targeted and effective mental health interventions.

Specific Aims of the Current Study

The present study aimed to (1) utilize the RE-AIM framework to implement MBC in an academic medical center outpatient setting where MBC had not been incorporated into the usual practice, (2) provide evidence of MBC's added value and effectiveness via a pragmatic randomized controlled trial (RCT), and (3) explore the mechanisms of action of MBC by examining potential mediators that could affect the treatment trajectory. The objectives of the present study were carried out in two phases, concurrently evaluating implementation as guided by the RE-AIM framework. In Phase 1, we conducted standardized digital MBC training during this pre-intervention phase to ensure fidelity and adherence to MBC. In Phase 2, the implementation and intervention phase, a pragmatic RCT was conducted with adult clients who experienced clinically significant depressive or anxiety disorders. These participants were randomized to either an MBC or a TAU condition. The overarching goal of the study was to support the implementation and dissemination of MBC in an academic medical center outpatient setting, particularly among adults with the most commonly occurring psychopathology and for the clinicians who work with these populations.

Hypotheses

The hypotheses are as follows:

1. MBC will achieve successful implementation for psychotherapy clients and clinicians within an academic medical center.

1.1. Implementation

- a. Clinicians will perceive digital MBC training as acceptable, appropriate, and feasible.
- b. Clinicians will demonstrate positive attitudes (e.g., above a neutral point) toward the MBC.
- c. Clients will report positive attitudes toward, and satisfaction with, MBC at the end of the intervention.
- d. MBC fidelity rate will reach at least 80% of sessions.

1.2. *Reach*

- a. The gender, age, and race/ethnicity of the study participants will be comparable:
 - i. to the clinic population.
 - ii. to the community population.
- b. Attendance and attrition among participants in the MBC condition will:
 - i. be higher than the TAU group.
 - ii. not vary by demographic characteristics (e.g., gender, age).
- c. Client's attitudes toward MBC will not differ significantly based on gender, age, or baseline symptom severity within the MBC condition.

2. MBC will demonstrate *Effectiveness* via a pragmatic randomized controlled trial.

- a. Participants in the MBC condition will demonstrate significantly greater improvements compared to the TAU in the following domains:
 - i. Depression
 - ii. Anxiety
 - iii. Psychological maladjustment

3. Exploratory analyses will investigate the impact of potential mechanisms of change on clinical improvements.
 - a. Gains in working alliance and psychotherapy process variables will be associated with significantly greater improvements in the MBC condition compared to the TAU condition.

Method

Phase 1: Pre-Intervention Phase

Participants

Phase 1 participants consisted of 15 community mental health providers who met the following inclusion criteria: (1) licensed mental health professional (e.g., licensed clinical psychologist, licensed professional counselor, licensed social worker, MD) or doctoral level graduate students and medical residents who receive regular supervision from a licensed mental health professional, and (2) at least one year of experience delivering evidence-based practices (EBP) to adult clients with depressive- and/or anxiety-related disorders.

Additionally, participants were required to be employed at an academic medical center located in Southwest Virginia and provide routine care to clients, as this setting served as the primary recruitment site for client participants. Previous experience with MBC was neither an inclusion nor exclusion criterion for participation. Table 1 provides an overview of clinician demographics and professional characteristics. Participants had an average of 7.53 years of experience ($SD = 9.40$) in the mental health field. Regarding educational background, 40% held a PhD, followed by an MD (26.67%), a licensed clinical social worker (20%), and other degrees (13.33%). Clinicians were assigned a median of four participants each over the course of study. Overall, clinicians showed a diverse range of professional and educational backgrounds.

Procedure

Eligible clinicians who were interested in participating were invited to contact the research associate. Those who met the inclusion criteria and consented to participate completed a brief demographic and professional information survey, which collected data such as age range, gender, and years in clinical practice. Clinician recruitment was conducted

on a rolling basis to allow for continuous enrollment throughout the study period. After recruitment, participants completed a digital MBC training, which was initially developed by an institutional research team to standardize MBC practices and facilitate the long-term sustainment of MBC implementation within this mental health setting (Gatto et al., n.d.). The training comprised a 45- to 60-minute video organized into three modules: (a) a pre-assessment to gauge clinicians' MBC experiences and perceived challenges, (b) MBC psychoeducation, and (c) practical demonstrations for using PROMs to offer timely, individualized feedback and collaboratively adjust treatment plan as needed. Additional details about the training modules and content are provided in Appendix B. Following completion of the digital training, participants attended an interactive orientation session via a HIPAA-compliant video conferencing platform. The orientation session allowed opportunities for clinicians to ask any remaining questions regarding study procedures and workflow. This ensured consistency and fidelity to MBC procedures before they began the study.

Upon the completion of training and orientation, participants completed three measures assessing their attitudes toward MBC and one measure assessing clinicians' perception of digital MBC training. Ongoing consultations were provided to support clinicians, reinforce treatment integrity, and ensure fidelity to the MBC protocol.

Measures

Monitoring and Feedback Attitudes Scale (MFA; Jenson-Doss et al., 2018).

Clinicians' attitudes toward MBC were assessed using two different measures. The first, MFA, is a 14-item questionnaire that evaluates clinicians' perspectives on routine outcome or progress monitoring and providing feedback to clients. With 14 items, the MFA provides statements related to routine monitoring and feedback, and participants rate each item on a 5-

point Likert scale (1 = strongly disagree, 5 = strongly agree). Previous research indicated good internal consistency and identified two underlying constructs: perceived benefits (10 items) and risks related to MBC (4 items) (Patel et al., 2022).

Attitudes Towards Standardized Assessment Scales: Monitoring and Feedback (ASA-MF; Jensen-Doss et al., 2018). The second measure assessing clinicians' attitudes toward MBC was the ASA-MF, which evaluates attitudes toward standardized diagnostic questionnaires. Specifically, the ASA-MF aims to assess clinicians' perceptions of progress and outcome monitoring tools and their clinical utility in decision-making. Participants rate each statement using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Higher scores correspond to a more favorable attitude toward employing standardized assessment tools for monitoring and feedback. Previous research found a three-factor structure that comprises clinical utility (8 items), benefit for treatment planning (5 items), and practicality (5 items) (Patel et al., 2022).

Clinician Attitudes and Satisfaction Survey for Measurement-Based Care (CLASS). An additional questionnaire was administered to evaluate clinicians' attitudes and satisfaction with MBC, and their experience with the measurement-feedback system (MFS) used for MBC. This 7-item survey assessed clinicians' perception of MBC's usefulness and benefits, satisfaction with the current MFS, and actual engagement in MBC (e.g., clarifying the purpose of routine monitoring to patients, sharing PROMs results, and utilizing those results in clinical decision-making). Items were scored on a 5-point Likert scale, with 1 indicating an extremely negative view and 5 representing an extremely positive view. This query was previously developed as part of a quality improvement initiative within the clinic to inform future MBC training and implementation.

Implementation Outcome Measures (Weiner et al., 2017). Three measures were used

to evaluate implementation outcomes: the *Acceptability of Intervention Measure (AIM)*, the *Intervention Appropriateness Measure (IAM)*, and the *Feasibility of Intervention Measure (FIM)*. Collectively, these instruments assess implementation stakeholders' perceptions of a newly implemented intervention. Each measure consists of four items rated on a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). In this study, these were specifically administered to capture clinicians' views of the MBC digital training. Prior studies have demonstrated strong psychometric properties, with internal consistency ranging between 0.87 to 0.89.

Phase 2: Intervention Phase

Participants

Phase 2 of this study recruited a total of 56 clients, who met the following inclusion and exclusion criteria. The inclusion criteria were as follows: 1) having a primary concern or referral reason for psychotherapy related to depressive- or anxiety-disorder related symptoms and/or psychological distress, as evidenced by the following minimum scores: PHQ-9 (score ≥ 5), GAD-7 (score ≥ 5), and BASE-6 (score ≥ 19), and 2) being at least 18 years old or older. The exclusion criteria were: 1) having severe physical or psychiatric conditions that would hinder treatment participation (e.g., acute psychosis, intellectual disability, or neurocognitive disorders who do not have the capacity to undergo informed consent and participate in the study); 2) currently receiving psychotherapy from another provider or clinic; 3) presenting with significant suicidal or homicidal risk that would require immediate intervention; and/or 4) inability to complete PROMs either in person or remotely.

Eligible clients were randomly assigned to either MBC ($n = 27$) or TAU ($n = 29$) group (Figure 1). Table 2 shows key demographic and clinical characteristics for these participants. The majority of participants were female (73.2%), white (92.9%), and non-

Hispanic or Latino (100.0%). Although a waitlist control group was initially planned, it was excluded from the final analysis due to limited recruitment and slow enrollment rates. As a result, recruitment was discontinued, and data were not included in the main findings.

Measures

Treatment effectiveness related measures

Brief Adjustment Scale-6 (BASE-6; Cruz et al., 2020). The BASE-6 is a 6-item self-report questionnaire that evaluates overall psychological adjustment and functioning in adults. Each statement is scored on a 7-point Likert scale (1 = not at all, 4 = somewhat, 7 = extremely). The total score ranges from 6 to 42, and higher scores indicate poorer psychological adjustment. Previous research has shown that BASE-6 has strong psychometric properties, is reliable and valid across diverse racial/ethnic groups and is sensitive enough to track clinical changes as therapy progresses (Ko et al., 2023).

Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001). The PHQ-9 is a 9-item self-report instrument that was developed to assess depressive symptoms experienced during the past two weeks. Respondents score each item on a 4-point Likert scale ranging from 0 to 3 (0 = not at all, 3 = nearly every day), and the possible total score ranges from 0 to 27. The items evaluate depressed mood, loss of interest or pleasure, appetite changes, sleep disturbances, psychomotor agitation or retardation, low energy, feelings of worthlessness or excessive guilt, difficulty concentrating, and lastly, suicidal ideation. Higher scores indicate more severe depressive symptoms. Specifically, cutoff points of 5, 10, 15, and 20 indicate thresholds for mild, moderate, moderately severe, and severe depression, respectively. The PHQ-9 has established robust reliability and validity in various studies and has proven effective for tracking changes in depression severity over time (Löwe et al., 2004; McMillan et al., 2010).

Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006). The GAD-7 is a self-report questionnaire designed to evaluate anxiety symptoms. It was initially developed to investigate potential cases of generalized anxiety disorder (GAD) and evaluate the severity of GAD symptoms. It comprises a total of seven items, which include nervousness, difficulty controlling worries, excessive worry, restlessness, trouble relaxing, irritability, and fear of awful events occurring. Each item is rated on a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day), and the total score ranges from 0 to 21. Higher scores suggest more severe anxiety, and scores of 5, 10, and 15 indicate cutoffs for mild, moderate, and severe levels of anxiety, respectively. The GAD-7 has shown strong reliability and validity across diverse settings and populations (Löwe et al., 2008; Rutter & Brown, 2017).

Clinical Global Impressions – Severity/Improvement (CGI-S, CGI-I; Busner & Targum, 2007). The CGI was originally developed as part of an assessment battery in psychopharmacology trials conducted with severe mental illness (Guy, 1976). It has been widely utilized as a standard primary outcome tool as it captures clinicians' overall impressions of a client's global functioning, both the overall symptom severity (CGI-S) and the level of improvement demonstrated throughout the therapy (CGI-I). Specifically, for the CGI-S item, clinicians are asked to evaluate the client's condition and overall global severity, which can be conducted before and after the intervention. The illness severity is rated on a scale of 1 (normal, not at all mentally ill) to 7 (among the most extremely ill patients). For the CGI-I, the clinician assesses whether the client's condition has improved, deteriorated, or remains the same on a 7-point scale, ranging from 1 (very much improved since the initiation of treatment) to 7 (very much worse since the initiation of treatment).

Patient Global Impressions – Severity/Improvement (PGI-S/I; Yalcin & Bump, 2003). As with the CGI-S and CGI-I, the PGI-S and PGI-I are 1-item global impression

questionnaires that allow patients to report their own views on the severity of ongoing symptoms (PGI-S) and response to intervention (PGI-I) based on a 7-point scale. The previous study showed a significant correlation between PGI-S and PGI-I and other clinical parameters (Yalcin & Bump, 2003).

Mechanisms of change related measures

Working Alliance Inventory-Short Form Revised (WAI-SR; Hatcher & Gillaspay, 2006). The WAI-SR is a self-report measure of the strengths of the therapeutic alliance that clients perceive, and it has been used in both inpatient/outpatient settings and also for supervision and research purposes. The measure comprises 12 items that evaluate client perceptions of therapeutic relationships in three domains: agreement between client and therapist on the goals of the treatment (goal), agreement on the tasks needed to achieve those goals (task), and the quality of the bond between client and therapist (bond). Each domain comprises four items, rated on a 5-point Likert scale from 1 (never) to 5 (always). Higher scores indicate a stronger working alliance. The WAI-SR has shown high internal consistency (e.g., Cronbach's alpha between .85 to .90 for each subdomain and .90 to .92 for the total score) and construct validity (Falkenström et al., 2015; Munder et al., 2010).

Vanderbilt Psychotherapy Process Scale - Patient version (VPPS-P; Smith et al., 2003). The VPPS-P is a patient-report measure consisting of 42 items with five subscales, including therapist exploration, negative relationship, patient psychic distress, patient participation, therapist warmth and friendliness, and patient dependency. The VPPS-P was revised based on the original measurement, the Vanderbilt Psychotherapy Process Scale (VPPS; O'Malley et al., 1983), which assesses various psychotherapy process variables based on the rating from an external rater. The purpose of the revision was to allow patients to evaluate their own therapy process, including patient and therapist behaviors and attitudes

during psychotherapy, based on their perception and experience on a 5-point Likert scale. The original validation paper provided support that the VPPS-P is reliable and valid in capturing patients' perspectives.

Patient Attitudes and Satisfaction Survey (PASS). A 12-item tailored questionnaire was created to fully capture clients' attitudes towards and experience with MBC during their treatment. Specifically, items assessed the client's perception of the benefits of MBC, level of client's engagement with MBC or completion rates of their patient rated outcome measures (PROMs), their clinician's commitment to explaining and reviewing PROMs results, and attitudes toward measures and MBC procedures. The ratings were based on a 5-point Likert scale ranging from 1 (extremely negative) to 5 (extremely positive). As with the previous clinician measure, this measure was developed as part of ongoing quality assurance and improvement efforts to evaluate the client's overall perception of MBC.

Clinician-reported measure

MBC Adherence Checklist. A brief fidelity checklist was administered each session to evaluate whether MBC was properly incorporated into practice. The checklist was adapted from Scott (2018)'s study. The fidelity of the session was rated on a 4-point scale ranging from 0 to 3 (rated as: 0 = the client measures were not administered, 1 - the client measures were administered only, 2 – the client measures were administered and the clinician reviewed scores before session, and 3 – the client measures were administered, the clinician reviewed scores, and the clinician discussed with the client in session. This measure was completed by the clinician.

Procedure

Participants were recruited on a rolling basis from a waitlist for individual

psychotherapy services in the Psychiatry and Behavioral Medicine department at an academic medical center in Southwest Virginia. A research associate initially screened potential participants for eligibility based on referral documents. Then, a research assistant subsequently conducted further screening by phone, explained the study, and assisted participants in completing baseline measures. Lastly, individuals who met eligibility requirements were randomly assigned to the MBC or TAU groups using REDCap, a secure web-based platform developed to create and manage online surveys and databases (Harris et al., 2009). This study employed stratified randomization, which initially categorizes participants into subgroups according to demographic characteristics (i.e., age and gender), followed by random allocation within each subgroup to guarantee balanced representation across study conditions. Those who did not meet the study's criteria were offered standard outpatient treatment. Participants were informed regarding no direct incentives.

To minimize discrepancies in clinician characteristics or expertise between the MBC group and TAU group, the same clinicians worked with participants in both conditions. Over the 12-week intervention phase, participants completed primary outcome measures via the organization's measurement-feedback system (MFS), which provides automated scoring and graphical feedback on an individual's symptoms and progress. For secondary measures not supported by MFS, participants completed these measures via REDCap. Around the midpoint of the study, there was a transition from the original MFS platform to a new, functionally comparable system. The core features of MFS remained the same, and data integrity was maintained by securely transferring existing results into the new platform. Still, the shift caused a temporary disruption to recruitment efforts. This change required retraining of clinicians as well as brief guidance to clients to ensure continuity of data collection and to minimize disruptions in clinical care. As this transition was implemented at an organizational

level, ongoing support was provided to all participants involved throughout the process.

At the end of the intervention, participants were provided with an option to either continue therapy with their clinician or conclude treatment, depending on their individual needs and based on a collaborative decision-making process between clinicians and clients. The research team ensured that each individual's care remained flexible and responsive to their therapeutic goals.

In addition to these procedures, the original plan was to recruit a waitlist control group only after the intervention groups reached capacity. However, as recruitment for intervention groups proceeded on a rolling basis, participants who otherwise met eligibility requirements but were unable to commit to weekly in-person sessions (e.g., due to scheduling constraints, geographic barriers, or insurance issues) were instead offered waitlist enrollment. Consequently, the waitlist group was recruited in smaller waves.

This study was registered on ClinicalTrials.gov (Identifier: NCT06671158) to assure transparency and adherence to standardized reporting practices. The study was approved by the Carilion Clinic institutional review board (IRB-23-1992).

Group Conditions

MBC group. Participants in this group received standard care based on a cognitive behavioral therapy approach for 12 weekly sessions, and completed outcome measures prior to each session via smartphone, personal computer, or tablet in a waiting area. Clinicians trained in MBC reviewed and discussed the results with participants at each session using the MFS. When clinically indicated, clinicians were advised to work collaboratively with participants to discuss and adjust the treatment plan as needed. Follow-up assessments were conducted at one and three months after the completion of the 12-session treatment.

TAU group. Participants in this group received standard care, also based on cognitive-behavioral therapy, for 12 weekly sessions. Although participants completed the assigned outcome measures on a weekly basis, clinicians did not have access to these results and therefore did not incorporate them into treatment. As in the MBC group, follow-up assessments were administered at one and three months after completing the 12-session treatment.

Waitlist group. Participants in the waitlist group did not receive any intervention for 12 weeks but completed weekly outcome measures during this period. As with the other two groups, these participants provided informed consent, were advised of their right to discontinue participation in the study at any time, and were instructed to notify the research team if they began psychotherapy elsewhere. If participants did not pursue further intervention following the 12-week period, they were asked to complete follow-up questionnaires.

Analyses Plan

Aim 1 – Implementation.

Descriptive statistics (e.g., means, standard deviations, range) were conducted for implementation related variables, including adherence rates to the MBC protocol and attitudes of both clinicians and patients toward MBC. To investigate outcomes related to Reach, the demographics of the study participants were compared with both the clinic population seeking psychotherapy during the same timeframe and Roanoke County, VA's population (via Census.gov). Chi-square goodness-of-fit tests were conducted to determine whether the demographic distribution of participants aligned with that of the clinic and community populations. Then, independent samples t-test and chi-square tests were conducted for continuous and categorical variables, respectively, to examine group

differences in the number of sessions attended, and attrition rates between the MBC and TAU conditions. Lastly, independent samples t-test and Spearman's rank correlation analyses were conducted to assess demographic group differences in attitudes toward MBC.

Aim 2 - Effectiveness

Preliminary analyses were conducted to estimate descriptive statistics, including means, standard deviations, and confidence intervals for each outcome measure. Then, independent samples t-tests and chi-square analyses were conducted to explore any potential differences in age, gender, race/ethnicity, and symptom severity at a screening phase (i.e., psychological adjustment, depression, and anxiety) between the MBC and TAU groups. As no demographic or clinical variables emerged as significantly different, no covariates were included in subsequent analyses.

Next, a multilevel model was employed to account for the hierarchical and longitudinal structure of the data, where repeated measures were nested within individual participants. Each participant completed these primary measures up to 13 repeated times (screening plus 12 weekly assessments). Both fixed effects (e.g., impact of treatment and time) and random effects (e.g., individual-level variability) were captured using this method. Furthermore, this approach capitalized on all available data while appropriately handling the nested structure and potential missingness under the missing-at-random (MAR) assumption. The primary focus was on the interaction of group conditions (i.e., MBC vs. TAU) and time in order to test whether MBC yielded a significantly different rate of improvement compared to TAU. This study chose a random-intercept only model considering the main research question, rather than focusing on unexplained individual variability in weekly change rates. For effect size calculation, this study employed Feingold's (2013) recommended method for multilevel modeling analyses. Lastly, to compare clinician-rated symptom severity at

posttreatment (CGI-S) between MBC and TAU, an analysis of covariance (ANCOVA) was conducted, controlling baseline values (initial CGI-S). As clinician-rated improvement rating (CGI-I) was only conducted in week 12, an independent samples t-test was conducted to compare outcomes between the two conditions.

Aim 3 – Exploratory Mechanisms of Change.

Mediation. To investigate whether working alliance and psychotherapy processes mediated the effect of MBC on symptom improvement, an exploratory mediation analysis was conducted. The primary outcome measures were PHQ-9, GAD-7, and BASE-6 and potential mediators were WAI-SR and VPPS, which were measured at three and two time points throughout the course of treatment, respectively. In line with recent recommendations against the traditional Baron and Kenny (1986) framework (Fairchild & McDaniel, 2017; Zhao et al., 2010), this study proceeded with full mediation models for both mediators on each outcome. First, multilevel models were fit to examine the relationship between treatment (MBC vs. TAU) and each mediator. Then, the causal mediation framework (Tingley et al., 2014) with bootstrap methods was adopted to estimate direct, indirect, and total effects in models where the outcome was modeled as a function of treatment, the mediator, and random intercepts. As WAI-SR and VPPS were measured less frequently than the weekly PROMs, strong causal inferences regarding the timeline should be interpreted with caution (Kraemer et al., 2002).

Power Analysis. Previous MBC studies have reported effect sizes ranging from small to large ($d_s = .28 - .70$) for primary outcomes, with some studies showing larger effects ($d_s = .49 - .70$) when feedback is provided to both clinicians and clients. Given that the current study provides PROM feedback to both parties, a small to medium effect size ($f = 0.17$) was used for the power analysis. While multiple statistical analyses were proposed to evaluate

hypotheses in this study, the power analysis was conducted based on a repeated-measures ANOVA, within-between analysis, using G*Power software (Faul et al., 2007). For a two-arm design with multiple assessments, this study conservatively modeled 8 effective time points, anticipating dropouts and missing data from 13 planned assessments, with an average correlation among repeated measures of $r = .40$, and $\alpha = .05$ (two-tailed). Under these parameters, the results indicated that a total sample of 40 participants (i.e., 20 per arm) would be required to achieve 80% power to detect a moderate effect size for the group-by-time interaction effect.

Missing Data. All analyses were conducted according to the intent-to-treat principle, which allowed the utilization of all available data from randomized participants regardless of the completion of the study. To examine whether data were missing at random (MAR) or were related to treatment conditions or baseline characteristics (e.g., demographics, symptom severity), comparisons of cases were made between complete data sets and those with dropouts, using t-tests and chi-square tests. This analysis allowed for the detection of any trends in missing data and evaluated the possibility that data were missing not at random. The primary analysis, multilevel modeling, used maximum likelihood estimation, which incorporated participants with incomplete data at one or more time points without listwise or pairwise deletion, under the assumption that data are MAR. There were no missing values for the key baseline variables, including demographics, clinical characteristics, and symptom severity. All statistical analyses were performed in SPSS (version 29.0) and R software (version 4.3.3).

Results

Aim 1.1. Implementation

Clinician Attitudes. Descriptive statistics (see Table 3) indicated that clinicians generally held positive attitudes (i.e., above the neutral point) toward the incorporation of MBC into their clinical practice. Across various subscales (e.g., benefits, harm, clinical utility, and practicality), total scores indicated overall endorsement of MBC as a beneficial and clinically useful approach. In addition, ratings from the implementation outcome measures (i.e., IAM, AIM, FIM) demonstrated that the digital MBC training was perceived as acceptable, feasible, and appropriate by clinicians.

Client Attitudes. Clients from the MBC group completed the PASS scale at the end of their treatment (see Table 4). Descriptive statistics indicated a generally favorable view of MBC. Individual items demonstrated positive perceptions and willingness to engage in routine outcome monitoring and ongoing discussion regarding their progress with their clinician in session.

Fidelity to the MBC Protocol. Clinicians completed MBC adherence levels after each session using a four-point coding system. As shown in Table 5, more than 91% of sessions met the highest level of adherence (i.e., measures were administered, scores were reviewed, and the clinician and client discussed results in session). An additional 4.7% of sessions met with the second highest level of adherence. These results suggest that adherence exceeded the 80% benchmark proposed in aim 1.

Aim 1.2. Reach

Representativeness of the Study Sample. To evaluate the representativeness of the study sample, participants' demographic characteristics were compared to two reference groups: (1) the clinic population (i.e., therapy-seeking clients during the same timeframe),

and (2) residents of Roanoke County, VA (limited to gender and race/ethnicity comparisons as publicly available county data on age distribution was insufficient). Table 6 summarizes the findings from the chi-square goodness-of-fit tests. Compared to the clinic's population, the study sample did not differ significantly in gender or race/ethnicity distributions ($p > .05$). However, the age distribution of the participants was significantly different, with a proportionally lower number of older adults enrolling in the study. This suggests that older individuals were relatively underrepresented compared to the typical clinic population. In contrast, when compared to county-level demographics, the study sample was found to be significantly more female, predominantly White/Caucasian, and less likely to be Hispanic/Latino (all $p < .05$). These disparities suggest that the recruited participants did not fully reflect the broader community in gender and race/ethnic distributions.

Session Attendance and Attrition. Participants, including those who dropped out, attended an average of 8.70 sessions ($SD = 4.07$). An independent samples t-test indicated no significant difference in the number of sessions attended between the MBC group ($M = 9.33$, $SD = 3.56$) and the TAU group ($M = 8.17$, $SD = 4.47$), ($t(54) = 1.07$, $p = .29$), indicating that average attendance was similar across conditions. Regarding dropouts, 33.9% of participants discontinued treatment prior to an agreed-upon end point (e.g., week 12). A chi-square test indicated no significant difference in dropout rates between the two conditions, $\chi^2(1, N = 56) = 1.11$, $p = .29$, suggesting that the incorporation of routine MBC did not affect retention compared to standard care. Within the MBC group, chi-square tests were conducted to examine whether attrition (completers vs. non-completers) was associated with either gender or age category. For gender, the relation was not statistically significant, $\chi^2(1, n = 27) = 0.01$, $p = .94$. Likewise, for age category, the relation with attrition status was also nonsignificant, $\chi^2(4, n = 27) = 5.92$, $p = .21$. Although these findings should be interpreted with caution given

the small sample size, the overall pattern indicates that attrition in the MBC condition did not differ by participant's demographic characteristics.

Besides, on average, participants who discontinued therapy mostly dropped out around sessions 3 and 4 ($M_{\text{session attendance}} = 3.89$, $SD_{\text{session attendance}} = 2.69$). Independent samples t-test and chi-square analyses found no significant differences in age, gender, and baseline symptom severity between participants who completed the intervention and those who dropped out (all $p > .05$) (see Table 7).

Demographic Differences in Attitudes Toward MBC. An independent sample t-test and Spearman's rank correlation test were conducted to evaluate whether clients' attitudes toward MBC differ by gender or age. Given that participants were predominantly white (92.6%) and non-Hispanic/Latino (100.0%), race and ethnicity were not included in these comparisons. Results indicated no significant differences based on gender ($t(18) = 1.28$, $p = .33$), age (Spearman's $\rho = 0.11$, $p = .63$), and symptoms including depression (Spearman's $\rho = -0.04$, $p = .90$), anxiety (Spearman's $\rho = -0.08$, $p = .76$), and psychological adjustment (Spearman's $\rho = -0.02$, $p = .95$). These findings suggest that demographic or baseline clinical characteristics were not associated with clients' perceptions of or receptivity to MBC within the MBC group (see Table 8).

Aim 2: Effectiveness

Preliminary Analyses - Group Comparisons of Baseline Symptom Severity and Demographic Characteristics. There were no significant demographic differences (e.g., age, gender, race/ethnicity) between the two randomized conditions (MBC vs. TAU), as indicated by t-tests and chi-square analyses ($p > .05$) (see Table 2). Descriptive statistics indicated that participants in both groups reported clinically elevated symptoms across all three primary measures at screening. Specifically, participants reported moderate to moderately severe

depressive symptoms, moderate levels of generalized anxiety, and a clinical level of elevated distress and impairment in general psychological adjustment. Independent samples t-tests showed no significant group differences on the PHQ-9 ($t(54) = -0.89, p = .38$), GAD-7 ($t(54) = -1.11, p = .27$), and BASE-6 ($t(54) = -1.52, p = .13$) (see Table 9). Given the absence of any group differences at screening, no covariates were included in the following analyses.

Multilevel Model

Depression. Table 10 and Figure 2 present the results from the multilevel model for the PHQ-9, which included 56 participants assessed at 13 time points (540 total observations). The significant fixed effects indicated that participants started with a moderate baseline level of depressive symptoms ($\beta = 13.42, SE = 0.94, p < .001, 95\% CI [11.58, 15.26]$). Over time, participants demonstrated a significant negative linear rate of change ($\beta = -0.34, SE = 0.06, p < .001, 95\% CI [-0.46, -0.22]$), indicating that depressive symptoms improved over the course of treatment. The main effect of group (MBC vs. TAU) was not significant ($\beta = 0.72, SE = 1.35, p = .595, 95\% CI [-1.92, 3.36]$), indicating that the two groups started at comparable baseline levels. Notably, there was a significant time x group interaction ($\beta = -0.18, SE = 0.08, p = .027, 95\% CI [-0.35, -0.02], d = -0.44$), which indicates that the rate of change differed by group. The negative interaction coefficient for the time and group interaction implies that MBC group participants demonstrated a steeper reduction in depression scores over time compared to those in TAU. The random intercept variance indicated individual differences in initial depression levels, and the within-person residual variance showed unexplained variability in each individual's trajectory over time. Taken together, these results indicate that while participants in both groups improved over time, participants in the MBC group experienced a significantly faster rate of improvement.

Anxiety. The significant fixed effects suggested that participants began treatment

with a moderate level of generalized anxiety ($\beta = 12.86$, $SE = 0.92$, $p < .001$, 95% CI [11.05, 14.67]) and GAD-7 scores declined significantly over the course of treatment ($\beta = -0.32$, $SE = 0.06$, $p < .001$, 95% CI [-0.43, -0.21]). The negative coefficient for the linear rate of change implies that the generalized anxiety symptoms improved over time, on average. The main effect of treatment group (MBC vs. TAU) was not significant ($\beta = 0.31$, $SE = 1.33$, $p = .817$, 95% CI [-2.29, 2.90]), indicating that the two groups started at comparable baseline levels. As a depression model, the interaction between time and group was statistically significant ($\beta = -0.19$, $SE = 0.08$, $p = .013$, 95% CI [-0.34, -0.04], $d = -0.41$), indicating that the rate of change differed by group. The negative interaction coefficient implies that participants in the MBC group showed a faster rate of symptom reduction compared to TAU group (see Table 11 and Figure 3).

Psychological Adjustment. The significant fixed effects indicated that participants began with a clinically elevated level of maladjustment ($\beta = 28.00$, $SE = 1.32$, $p < .001$, 95% CI [25.42, 30.57]). Over the course of treatment, BASE-6 scores declined significantly ($\beta = -0.57$, $SE = 0.10$, $p < .001$, 95% CI [-0.76, -0.37]) in both groups. The main effect of group (MBC vs. TAU) was not significant ($\beta = -0.39$, $SE = 1.89$, $p = .837$, 95% CI [-4.09, 3.31]), indicating that the two groups did not differ in their overall levels of adjustment at the beginning of the treatment. The interaction between time and group was statistically significant ($\beta = -0.46$, $SE = 0.14$, $p = .001$, 95% CI [-0.73, -0.18], $d = -0.66$), which suggests that the rate of change differed by group. The negative interaction coefficient implies that participants in MBC experienced a faster rate of symptom reduction compared to TAU (see Table 12 and Figure 4).

Clinician- and Patient-Rated Global Impressions. A one-way analysis of covariance (ANCOVA) results indicated no significant differences between MBC ($M = 3.42$,

$SD = 0.21$) and TAU ($M = 3.36, SD = 0.22$) conditions in post-treatment CGI-S scores after controlling for baseline, $F = 0.05, p = .83$. A similar result was observed for PGI-S, with no significant difference between MBC ($M = 3.35, SD = 0.29$) and TAU ($M = 2.92, SD = 0.33$), $F = 1.00, p = .34$ (see Table 13 and Figure 7). As shown in Table 14, an independent samples t-test also indicated no significant difference between the two groups for CGI-I and PGI-I scores at post-treatment. For CGI-I, MBC condition ($M = 2.17, SD = 1.03$) did not differ from TAU condition ($M = 2.50, SD = 0.60$), $t(43) = -1.32, p = .19$. Similarly, for PGI-I, MBC ($M = 2.24, SD = 1.14$) and TAU ($M = 2.35, SD = 1.00$) did not significantly differ in their post-treatment evaluation, $t(36) = -0.32, p = .75$.

Aim 3: Exploratory Mechanisms of Change

Mediation Analysis. A multilevel model showed no significant effect of treatment on WAI-SR ($b = -0.63, SE = 2.89, p = .83$) and VPPS total scores ($b = -1.17, SE = 4.62, p = .80$). In other words, the ‘path a’ from treatment (X) to mediator (M) was not statistically significant across PHQ-9, GAD-7, and BASE-6 ($p > .05$). As neither variable differs by treatment, these results suggest that these potential mediators may not mediate the effect of treatment (i.e., MBC condition) on outcomes. Subsequent mediation models confirmed that none of the indirect effects (Average Causal Mediation Effect; ACME) through WAI-SR or VPPS were significant across all three outcomes ($p > .05$). Thus, WAI-SR and VPPS did not emerge as meaningful mediators of MBC’s impact on symptom improvement (see Figures 5 and 6).

Discussion

The current study examined outcomes of implementation, effectiveness, and exploratory mechanisms of change of measurement-based care for depressive and anxiety disorders for adult clients within an academic medical center. Specifically, this study aimed to (1) employ the RE-AIM framework to guide incorporation of MBC into an academic medical center where it was not previously part of routine care for psychotherapy, (2) demonstrate added value of MBC in increasing the effectiveness of evidence-based practice for adults with commonly occurring psychopathologies, and (3) investigate potential mechanisms of change underlying the treatment trajectories of MBC. To achieve these aims, we conducted a pragmatic randomized controlled trial to best capture the outcomes by comparing two conditions: (1) MBC plus psychotherapy, in which MBC was integrated into an evidence-based practice (e.g., cognitive behavioral therapy) approach, and (2) an active control group receiving evidence-based psychotherapy without MBC component (treatment as usual, TAU). This design allowed us to evaluate the incremental benefits of incorporating MBC alongside standard care.

Aim 1.1: Implementation

Results supported the successful implementation of MBC guided via RE-AIM framework in an academic medical center. Clinicians perceived the digital MBC training as highly feasible, appropriate, and acceptable, and reported favorable attitudes toward MBC across multiple assessments (i.e., MFA, ASA-MF, CIASS). These assessments encompassed several aspects of MBC, including the usefulness of in-session monitoring, the value of standardized scales, and the practicalities of routine feedback and communication with clients. In addition, the current study achieved a high rate of MBC adherence, which was assessed after each session. More than 90% of visits met the highest adherence level,

indicating that clients administered PROMs in advance, clinicians reviewed the results, and both clinician and client collaboratively discussed these results in session. Achieving high fidelity in each session is significant, given that several MBC studies do not systematically monitor fidelity or face difficulties in attaining substantial adherence, despite formal implementation initiatives (Casline et al., 2023; Bickman et al., 2016; Lewis et al., 2022). Ensuring high fidelity is essential for assessing the added value of MBC, since low fidelity (e.g., inconsistent measure completion, absence of feedback/discussion) may obstruct the identification of whether changes are directly attributable to MBC.

These favorable attitudes and adherence correspond with literature suggesting that systematic training and organizational assistance (e.g., departmental leadership, user-friendly system) promote the adoption of new practices (Lewis et al., 2020; Whitmyre et al., 2024). Prior research on the adoption of MBC has revealed considerable obstacles and challenges within mental health settings (Oslin et al., 2019; Resnick & Hoff, 2020). Accordingly, our implementation process sought to address key factors in order to facilitate the implementation process, which can be acceptable and feasible for clinicians, clients, and the organization. Our findings align with recent research showing improvement in MBC fidelity in a youth mental health setting accomplished via improvement of robust implementation climate and leadership engagement (Williams et al., 2022). Even so, it is important to acknowledge that implementation still requires substantial resources and ongoing support. For instance, there were unexpected implementation challenges such as a sudden switch in MFS mid-study, which demanded further cooperation among departmental leadership, staff, and the research team to ensure a transition to a new MFS without disrupting clinical care and research objectives.

Clients also reported favorable attitudes toward MBC. Overall, clients found that

completing PROMs increased their understanding of symptoms and treatment progress. Clients also indicated that engaging in routine monitoring facilitated progress toward their treatment goals and was neither overly time-consuming nor burdensome. Since client buy-in is frequently indicated as one of the common challenges in MBC implementation (Lewis et al., 2019), these findings suggest that systematic and standardized training of clinicians and organizational support may enhance client experience and engagement.

Aim 1.2: Reach

The results regarding Reach partially validated the hypotheses. The study population was primarily composed of female, White/Caucasian, and non-Hispanic/Latino adults, with a limited representation of older adults. Although participants did not significantly differ from the clinic population on gender or race/ethnicity, they were significantly younger. This age discrepancy likely reflects the requirement to use a measurement-feedback system (MFS), which needs digital proficiency for navigating and completing patient-reported outcome measures (PROMs) (Hettiarachchi Senarath et al., 2024). A recent qualitative study indicated that clinicians often reported older adults' limited digital literacy, cognitive capabilities, and unfamiliarity with questionnaires as barriers to the adoption of technologies in outpatient geriatric mental healthcare (Frissen et al., 2025). These findings align with the reduced uptake of MBC among older adults and emphasize the need to address technological and usability barriers to ensure more equitable access to care. Meanwhile, when compared to the broader community, findings indicated significant differences in gender, race, and ethnicity distributions. These results are consistent with the literature that women are more likely to engage in psychotherapy than men (Eggenberger et al., 2021; Terlizzi & Zablotsky, 2020) and reflect persistent challenges in recruiting and representing participants from underrepresented communities in mental health research (Rad et al., 2018; Roberts et al.,

2020; Waheed et al., 2015). Although the region itself is not highly diverse, these results indicate the study's challenges to reach a more diverse population, which underscores the need for tailored outreach strategies such as partnering with community, creating culturally relevant materials, and offering program options at various times/locations. This may improve representativeness and enhance the overall reach of future initiatives.

Regarding session attendance and attrition, findings suggest no differences in attendance and attrition rates between the MBC and TAU conditions. These results can be encouraging, as it suggests that incorporating MBC, typically regarded as time-consuming and burdensome, does not adversely affect retention (Aboraya et al., 2018). However, it appears contradictory to prior research suggesting that MBC lowers dropout rates and enhances client engagement (Janse et al., 2020). A possible explanation may be attributed to the limited sample size employed to identify a statistically significant effect. The observed trend indicated a preference for MBC condition, with a retention rate of 74.1% compared to 58.6% in TAU.

Further analysis within the MBC group did not indicate differences in attrition rates based on demographic factors such as age or gender. In addition, client attitudes toward MBC were generally positive, with no significant associations between this attitude and demographic or baseline clinical characteristics. In other words, clients from diverse backgrounds viewed MBC favorably. This finding implies that once MBC is implemented, it can be broadly utilized across diverse client demographics which supports acceptability and feasibility across a broad clinical population.

Aim 2: Effectiveness

The second aim of this study was to evaluate the effectiveness of MBC by comparing it with TAU for adults with depressive and anxiety disorders via pragmatic randomized

controlled trials. As hypothesized, participants in the MBC condition showed significantly faster improvement than those in the TAU condition across all primary outcomes. The most substantial effect size was found in psychological adjustment, which showed a moderate effect, followed by anxiety and depression with small-to-moderate effect sizes. These findings align with prior research in that MBC improves overall treatment effectiveness with a faster rate of improvement (Lambert et al., 2018; Rognstad et al., 2023). On the other hand, there were no significant differences for the global impression measures (i.e., CGI-S/I and PGI-S/I) between the two groups, which implies that the added benefit of MBC over TAU conditions may not be as easily detected from a broad clinical standpoint. This discrepancy might reflect the CGI/PGI scale's relatively limited sensitivity as a single-item global measures to detect small but clinically meaningful changes (Busner et al., 2009; Forkmann et al., 2011) or the moderate level of symptom severity of our sample with less heterogeneity within an outpatient setting. Still, the overall outcome across symptom-specific measures supports that MBC can facilitate the benefits of evidence-based psychotherapy in usual care.

In the current study, both MBC and TAU conditions' psychotherapy was provided based on the cognitive behavioral therapy (CBT) approach, which has proven significantly efficacious in treating the most commonly occurring internalizing disorders (Carpenter et al., 2018; Cuijpers et al., 2023; Papola et al., 2024). As the TAU condition in the present study utilized CBT as the standard care, achieving an additional moderate effect size confirms an incremental benefit of MBC. Indeed, while CBT is an effective intervention for depressive and anxiety disorders, also evidenced by the current study's TAU participants' progress, it can achieve faster improvement when key MBC components are systematically implemented.

The findings provide further clarification of the effectiveness of MBC for adults, as few previous studies reported contradictory conclusions on whether MBC outperforms usual

care (Kendrick et al., 2016). As mentioned earlier, there has been a lack of consensus on a MBC definition, and the term MBC has been interchangeably used with other terms over the past decade, which does not necessarily include all aspects. Researchers have been defining the core components of MBC – for example, collect, share, act (Barber & Resnick, 2023). Yet, inconsistencies remain about which mechanisms drive MBC's effectiveness, and thus, ensuring fidelity to the critical features of MBC was considered essential. Accordingly, this study explicitly outlined MBC's core components and reached over 90% fidelity regarding MBC implementation. These results indicate that most sessions included collaborative review and discussion of systematically collected session-by-session outcome data. In addition, the MBC digital training and study orientation emphasized not only the collection and routine monitoring of data, but also the collaborative aspects of MBC. The moderate effect size and strong p-value of the results imply that MBC's added value can be reached when the integrity of MBC delivery is assured.

Lastly, the pragmatic RCT design emphasizes the relevance of these findings to actual clinical settings. By utilizing a pragmatic trial design, the study closely reflected standard practice, which is crucial for evaluating outcomes related to the implementation and effectiveness of MBC, considering the implementation challenges that often arise in routine care. As this study was embedded within a regional health care system, participants were recruited via ordinary referral pathways, received no monetary compensation, and clinicians were allowed to follow flexible treatment protocols. These characteristics differ from traditional RCTs, which aim to rigorously control external variables to ensure internal validity. Efficacy trials are optimal for assessing whether the intervention can work under ideal conditions, whereas effectiveness studies provide external or ecological validity (Marchand et al., 2011; Porzsolt et al., 2015; Singal et al., 2014). This study is timely in that

there has been an ongoing suggestion for testing MBC's added value and applicability in routine practice settings. Indeed, Lutz and their colleagues (2024) recently suggested the field's need for pragmatic trials to better indicate and validate the effectiveness of MBC in real-world settings rather than in a highly controlled context. Thus, it is hoped that the findings observed in this study are more likely to generalize to other standard healthcare environments.

Another noteworthy finding was the larger effect size for psychological adjustment compared to depression and anxiety. Although outcomes in all three domains significantly improved for MBC participants, psychological functioning and adjustment showed the most substantial gains, which emerged early in treatment. This trend may reflect how regular monitoring and collaborative feedback can assist clients in adopting more adaptive coping strategies, which could lead to an improved overall adjustment. It is also possible that the psychological adjustment measure, BASE-6, can be especially sensitive to clinical change assessed each session in clinical populations (Ko et al., 2022). Nonetheless, it is meaningful that the improvements across all three domains demonstrated MBC's capacity to enhance both symptom reduction and overall psychological functioning.

Aim 3: Exploratory Mechanisms of Change

The third aim of the current study was to explore potential mechanisms of action in MBC by examining hypothesized mediators, working alliance and specific psychotherapy processes. Contrary to our initial hypothesis, neither of them differed significantly based on group assignment. Although it is still early in finding exact pathways of mechanisms of change in MBC, a few studies have demonstrated how regular PROMs administration and review can positively impact the clinician-client working alliance, which in turn leads to improved treatment outcomes (Brattland et al., 2019; Fortney et al., 2017; Moltu et al., 2018).

However, the present study showed no significant group differences in alliance or psychotherapy process. One possibility is that both groups in our sample reported relatively high alliance ratings throughout the therapy, which could possibly create a ceiling effect that left insufficient variability to detect group-level differences. Recent systematic review and meta-analysis studies reported both large ceiling effects in many client-reported alliance measures, and ceiling effects were the largest for WAI-related measures, which were used in our study (Meier & Feeley, 2022; Paap et al., 2022). Another possible explanation for this effect could be due to having clinicians well trained in evidence-based interventions and relations, and thus capable of developing and maintaining strong alliances regardless of aid from MBC. This is further supported by the notable improvements observed in the TAU group. Taken together, a limited sensitivity at the upper end of its range could have restricted the ability to differentiate the outcome between the two conditions.

Additionally, unlike primary outcome measures that clinicians had direct access to in the MBC condition, the working alliance was captured via outside of regular MFS and data was collected through a different platform (i.e., REDCap). Thus, MBC discussions may not necessarily have included discussions regarding the therapeutic alliance or psychotherapy processes. Recent studies indicated growing support in multidimensional MBC, which pays attention to tracking both symptoms as well as the psychotherapy process indicators (Goldberg et al., 2020). In a multidimensional MBC setup, clinicians would have immediate and integrated access to alliance/process indicators. This approach could potentially enhance how alliances are leveraged in therapy, as it keeps the focus not only on symptom change but also on whether the therapeutic process is working optimally.

Beyond alliance and psychotherapy processes, it is possible that other unmeasured factors had an impact. For instance, therapists' decision-making, treatment plan modification,

therapist reflective practice, and/or client's insight might represent key mechanisms of action that go beyond establishing a strong alliance. Some of these factors were identified in a recent qualitative meta-analysis that highlighted clinicians' experience with in-session monitoring, which can provide guidance regarding factors that facilitate improvement in MBC compared to a TAU condition (Jonášová et al., 2025). However, these variables were not directly assessed in the present study, and it remains unclear whether or how often therapists modified their approaches, or whether clients experienced improved insight or motivation as a result of MBC. This limitation highlights the need for future research to integrate measures that directly assess mechanisms by which MBC may facilitate therapeutic improvement.

Limitations

Several limitations should be considered. First, although the total sample size reached what was suggested based on a power analysis, our sample size was comparatively modest. Participants were recruited from a single institution in southwestern Virginia, and the majority were female, White, and non-Hispanic/Latino. Although the race/ethnicity reflects the characteristics of this region, caution is needed when generalizing the outcomes to a broader population, given the homogeneity of the sample. Second, the therapy outcomes were assessed over a 12-week treatment period, which does not capture the longer-term maintenance of therapeutic gains. Considering that relapse rates in depressive and anxiety disorders remain considerable even after receiving evidence-based treatments (Chen et al., 2022; Levy et al., 2021; Steinert et al., 2014), it is important to track longitudinal outcomes, especially once individuals terminate the planned therapy. Although our study planned to utilize collected follow-up data at 1- and 3-month intervals, these data were subsequently excluded from analyses, as participants were given an opportunity to continue their therapy after a collaborative discussion with their clinician, which can influence follow-up outcomes.

Third, due to the small number of participating clinicians and variability in each provider's caseload, we did not statistically account for therapist effects in our analysis. Also, randomization was only conducted at the client level but not at the therapist level. Although participating clinicians served both MBC and TAU participants to minimize therapist variance, this overlap hindered accounting for variability in outcomes exclusive to therapist characteristics. As the literature recognizes effects that impact outcome differences attributable to individual providers (Hill & Castonguay, 2017; Johns et al., 2019), future research is recommended to integrate approaches that address these provider-level influences, including therapist-level randomization or clustering methods that account for the nesting of clients within therapists. Fourth, the potential impact of the MFS switch was not captured in the current study. During the 17-month data collection, the system change occurred in month 9. Although the new system maintained similar functionality, clinicians and clients were required to learn and adapt rapidly. As this switch was implemented at an organizational level, there was ongoing support from the leadership team to facilitate a smooth transition for both clinical practice and research. This sudden transition was not evaluated for its potential impacts that might have had on implementation outcomes. For example, evaluating clinician and client attitudes and experiences during the transition period would have provided insights into MBC implementation barriers, problem-solving strategies, and outcomes. Also, as the majority of participants continued their therapy during this transition, it limited our ability to assess changes that might have arisen pre-post MFS switch. Lastly, this study originally planned to have two comparison groups, including an active control (TAU) and a waitlist condition. Due to challenges in recruitment, such as limited incentives for participants, recruitment for the waitlist condition was discontinued. The waitlist group could have provided more explicit statistics regarding the added value of MBC in comparison to both

standard care and no treatment, where natural recovery or regression to the mean could take place. This reflects a common challenge in real-world effectiveness research, where waitlist controls are frequently impractical or ethically constrained, which makes an active comparison group more feasible and clinically relevant (Faltinsen et al., 2023; Guidi et al., 2018; Mohr et al., 2009).

Future Directions

Future research is recommended to evaluate the remaining domains of the RE-AIM framework, particularly Adoption and Maintenance. Regarding Adoption, replicating this study in diverse contexts (e.g., community mental health centers, integrated primary care, or telehealth platforms) would offer evidence of how MBC can be successfully integrated across different practice environments when similar implementation strategies are utilized. Exploring contexts with varying organizational structures, patient demographics, clinician characteristics, and resource levels would allow identifying factors that support or hinder the uptake of MBC. For Maintenance, longitudinal follow-up is critical to assess the sustainability of the program once it is fully implemented and to evaluate how well therapeutic benefits persist beyond the formal intervention period. In addition, a mixed method design would allow for obtaining a deeper understanding of both clinician and client experiences with MBC. A pre-post approach design and evaluating any changes in perception would be helpful to further assess mechanisms of action that might have worked throughout the therapy.

Conclusions

Despite its limitations, the present study highlights several implications and strengths. By utilizing the RE-AIM framework to guide and assess implementation and effectiveness, the findings demonstrated that MBC can be successfully integrated into an academic medical

center outpatient setting. High adherence to the practice and clinicians' and clients' positive attitudes toward MBC supports the practical feasibility and acceptability of MBC in routine clinical care. Additionally, the pragmatic RCT design implies real-world applicability and generalizability of the current study results. These findings suggest that systematically incorporating routine monitoring, feedback, and collaborative discussions within psychotherapy not only improves depressive and anxiety symptoms but also psychological functioning beyond standard care alone. Such evidence underscores the value of MBC as an evidence-based and efficient approach for improving outcomes in clinical practice (APA MBC Task Force, 2025). While the present study did not identify working alliance or psychotherapy processes as mediators, future research should explore other potential mechanisms of action, such as clinician decision-making processes, trajectories and tailored interventions for clients who are not on track, and multidimensional outcome monitoring. Future research exploring longer term sustainability, implementation in diverse contexts, and adaptations for diverse populations will further elucidate how to optimize MBC to ultimately inform robust evidence-based clinical practices.

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Tables

Table 1

Demographic Characteristics of Clinician Participants (N = 15)

	Clinicians (<i>n</i> = 15)
Age	
25-35	6 (40.00%)
36-45	3 (20.00%)
46-55	3 (20.00%)
>55	2 (13.33%)
Prefer Not to Answer	1 (6.67%)
Gender	
Female	7 (46.67%)
Male	6 (40.00%)
Other	2 (13.33%)
Length of time employed in mental health field	7.53 (<i>SD</i> = 9.40)
<1 year	2 (13.33%)
1-2 years	4 (26.67%)
3-5 years	2 (13.33%)
>5 years	7 (46.67%)
Length of time employed at this institution	
<1 year	5 (33.33%)
1-2 years	2 (13.33%)
3-5 years	4 (26.67%)
>5 years	4 (26.67%)
Degrees obtained	
MD	4 (26.67%)
PhD	6 (40.00%)
LCSW	3 (20.00%)
Other	2 (13.33%)
Caseload (total number of participants each clinician was assigned)	3.73 (<i>SD</i> = 4.01); Median = 4

Table 2

Demographic and Clinical Characteristics of Client Participants by Group (MBC vs. TAU)

	Total (<i>N</i> = 56)	MBC (<i>n</i> = 27)	TAU (<i>n</i> = 29)	<i>p</i>
Age range				.81
18-30	15 (26.79%)	7 (25.93%)	8 (27.59%)	
31-40	10 (17.86%)	4 (14.81%)	6 (20.69%)	
41-50	8 (14.29%)	3 (11.11%)	5 (17.24%)	
51-60	12 (21.43%)	6 (22.22%)	6 (20.69%)	
60+	11 (19.64%)	7 (25.93%)	4 (13.79%)	
Gender, <i>n</i> (%)				.64
Female	41 (73.21%)	19 (70.37%)	22 (75.86%)	
Male	15 (26.79%)	8 (29.63%)	7 (24.14%)	
Prefer not to answer/unknown	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Race, <i>n</i> (%)				1.00
White or Caucasian	52 (92.86%)	25 (92.59%)	27 (93.10%)	
Black or African American	4 (7.14%)	2 (7.41%)	2 (6.90%)	
Other	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Ethnicity, <i>n</i> (%)				
Not Hispanic or Latino	56 (100.00%)	27 (100.00%)	29 (100.00%)	
Education, <i>n</i> (%)				
>12 y	28 (60.87%)	13 (59.09%)	15 (62.50%)	.81
≤12 y	18 (39.13)	9 (40.91%)	9 (37.5%)	
Unknown	10	5	5	
Occupation/Employment, <i>n</i> (%)				.39
Employed	34 (62.96%)	14 (53.85%)	20 (71.43%)	
Unemployed	6 (11.11%)	3 (11.54%)	3 (10.71%)	
Other (e.g., retired)	14 (25.93%)	9 (34.62%)	5 (17.86%)	
Unknown	2	1	1	
Relationship (Marital Status), <i>n</i> (%)				.19
Single, never married	23 (41.07%)	13 (48.15%)	10 (34.48%)	
Divorced, separated, or widowed	12 (21.43%)	3 (11.11%)	9 (31.03%)	
Married	21 (37.50%)	11 (40.74%)	10 (34.48%)	
Clinical Diagnosis, <i>n</i> (%)				
Depressive disorders	32 (57.14%)	17 (62.96%)	15 (51.72%)	.40
Anxiety disorders	37 (66.07%)	20 (74.07%)	17 (58.62%)	.22
Bipolar disorders	8 (14.29%)	3 (11.11%)	5 (17.24%)	.71
Posttraumatic stress disorder	21 (37.50%)	8 (29.63%)	13 (44.83%)	.24
Substance use disorders	2 (3.57%)	2 (7.41%)	0 (0.00%)	.23
Sleep disorders	1 (1.79%)	0 (0.00%)	1 (3.45%)	1.0
Somatoform disorders	0 (0.00%)	0 (0.00%)	0 (0.00%)	
Neurodevelopmental disorders	3 (5.36%)	1 (3.70%)	2 (6.90%)	1.00
Personality disorders	0 (0.00%)	0 (0.00%)	0 (0.00%)	
Other disorders	7 (12.50%)	4 (14.81%)	3 (10.34%)	.70

Psychiatric medication	47 (83.93%)	22 (81.48%)	25 (86.21%)	.72
Insurance				.80
Medicaid/Medicare	26 (46.43%)	13 (48.15%)	13 (44.83%)	
Private/Commercial	30 (53.57%)	14 (51.85%)	16 (55.17%)	

Note. ‘Unknown’ indicates missing or not reported. Percentages for categories are calculated out of those who responded; Clients could have more than one diagnosis and thus, percentages reflect the proportion of clients with each diagnosis.

Table 3

Descriptive Statistics for Clinicians’ Pre-Intervention Measures (N = 15)

Attitude Scale	Subscale	α	Mean (SD)	Median (IQR)	Range
MFA (n = 15)	Benefit	0.81	4.79 (0.28)	4.80 [4.70, 5.00]	3.90, 5.00
	Harm	0.86	2.45 (0.97)	2.50 [1.75, 3.00]	1.00, 5.00
	Clinical Utility	0.63	3.44 (0.57)	3.63 [3.00, 3.88]	2.13, 4.13
ASA-MF (n = 15)	Treatment Planning	0.81	4.40 (0.42)	4.20 [4.00, 5.00]	3.80, 5.00
	Practicality	0.70	3.65 (0.82)	3.80 [2.80, 4.40]	2.60, 4.80
CLASS (n = 15)	Total	0.76	30.47 (4.64)	31.00 [26.00, 33.00]	23.00, 38.00
Implementation Outcome (n = 13)	AIM	0.86	4.15 (0.78)	4.25 [3.75, 5.00]	2.75, 5.00
	IAM	0.96	4.31 (0.74)	4.25 [4.00, 5.00]	3.00, 5.00
	FIM	0.92	4.44 (0.64)	4.75 [4.00, 5.00]	3.00, 5.00

Note. Monitoring and Feedback Attitudes Scale = MFA; Attitudes Towards Standardized Assessment Scales: Monitoring and Feedback = ASA-MF; Clinician Attitudes and Satisfaction Survey for Measurement-Based Care = CLASS; Acceptability of Intervention Measure = AIM; Intervention Appropriateness Measure = IAM; Feasibility of Intervention Measure = FIM.

Table 4

Descriptive Statistics for Patient Attitudes Toward MBC (N = 20)

Attitude Scale	α	Mean (SD)	Median (IQR)	Range
PASS	.81	44.30 (7.41)	46.50 [42.75, 49.25]	26.00, 51.00

Note. PASS = Patient Attitudes and Satisfaction Survey

Table 5

Clinician-Reported MBC Fidelity Ratings

Fidelity rating	Frequency (%)
0	5 (1.98%)
1	4 (1.58%)
2	12 (4.74%)
3	232 (91.70%)
Total Sessions	253

Note. 0 = (the patient) measures were NOT administered; 1 = (the patient) measures were administered ONLY; 2 = (the patient) measures were administered AND (the clinician) reviewed scores before session; 3 = (the patient) measures were administered, (the clinician) reviewed scores, AND (the clinician) discussed with the client in session

Table 6

Comparison of Study Sample Demographics to Clinic and Community Populations

Demographic	Total Sample (<i>N</i> = 56)		Clinic (%)	χ^2	<i>p</i>	Community (%)	χ^2	<i>p</i>
	<i>n</i>	(%)						
Gender				3.61	.16		9.73	.002
Female	41	73.2%	64.0%			52.4%		
Male	15	26.8%	31.6%			-		
Other	0	0.0%	4.4%			-		
Race				3.03	.22		21.38	< .001
White or Caucasian	52	92.9%	86.8%			63.2%		
Black or African American	4	7.1%	8.4%			29.3%		
Other	0	0.0%	4.8%			7.5%		
Ethnicity				1.03	.31		5.47	.019
Not Hispanic or Latino	56	100.0%	98.2%			91.1%		
Hispanic or Latino	0	0.0%	1.8%			8.9%		
Age range				12.07	.02	n/a		n/a
18-30	15	26.8%	14.7%			-		
31-40	10	17.9%	11.0%			-		
41-50	8	14.3%	13.2%			-		
51-60	12	21.4%	27.6%			-		
60+	11	19.7%	33.7%			-		

Note. Clinic refers to the outpatient clinic from which the sample was drawn; Community refers to the Roanoke County, VA's population (via Census.gov); n/a = not available

Table 7

Comparison of Baseline Characteristics by Group (Completers vs. Non-completers)

	Completers (<i>n</i> = 38)	Non-completers (<i>n</i> = 18)	<i>p</i>
Age, range, <i>n</i> (%)			.16
18-30	7 (18.42%)	8 (42.11%)	
31-40	5 (13.16%)	5 (26.32%)	
41-50	8 (21.05%)	1 (5.26%)	
51-60	9 (23.68%)	3 (15.79%)	
60+	9 (23.68%)	2 (10.53%)	
Gender, <i>n</i> (%)			.49
Female	26 (68.42%)	15 (78.95%)	
Male	11 (28.95%)	4 (21.05%)	
PHQ-9, <i>M</i> (<i>SD</i>)	14.84 (5.52)	15.05 (4.58)	.88
GAD-7, <i>M</i> (<i>SD</i>)	12.84 (4.48)	15.26 (5.37)	.08
BASE-6, <i>M</i> (<i>SD</i>)	28.62 (6.42)	30.63 (7.21)	.30

Note. Age range and gender values are *n* (%). PHQ-9, GAD-7, and BASE-6 values are *M* (*SD*).

Table 8

Associations Between Patient Attitudes Toward MBC and Demographic/Clinical Characteristics (N = 20)

Variable	Association with PASS	<i>p</i>
Gender (female vs. male)	<i>t</i> (<i>df</i>)= 1.28 (18)	.21
Age (continuous variable)	$\rho = 0.11$.63
PHQ-9	$\rho = -0.04$.90
GAD-7	$\rho = -0.08$.76
BASE-6	$\rho = -0.02$.95

Note. *T*-test was used for the binary demographic variable (gender). Spearman's rank correlation (ρ) was used to evaluate associations between attitudes and the continuous variables (Age, PHQ-9, GAD-7, and BASE-6). Race and ethnicity were not compared due to the predominantly White, Not Hispanic/Latino sample; Regarding gender, 13 of the 20 respondents identified as female; PASS = Patient Attitudes and Satisfaction Survey

Table 9

Baseline Clinical Measures by Group (MBC vs. TAU)

	Total (<i>N</i> = 56) <i>M</i> (<i>SD</i>)	MBC (<i>n</i> = 27) <i>M</i> (<i>SD</i>)	TAU (<i>n</i> = 29) <i>M</i> (<i>SD</i>)	<i>t</i> (<i>df</i>)	<i>p</i>
PHQ-9	14.91 (5.17)	14.30 (5.42)	15.48 (4.96)	-0.89 (54)	.38
GAD-7	13.66 (4.89)	12.96 (4.68)	14.31 (5.08)	-1.11 (54)	.27
BASE-6	29.30 (6.70)	27.93 (7.15)	30.59 (6.10)	-1.52 (54)	.13
CGI-S (<i>n</i> = 55)	4.36 (0.97)	4.33 (0.92)	4.39 (1.03)	-0.51 (54)	.61
PGI-S (<i>n</i> = 54)	4.39 (1.04)	4.35 (1.26)	4.43 (0.79)	-0.30 (54)	.77

Note. MBC = Measurement-Based Care; TAU = Treatment as Usual; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-7; BASE-6 = Brief Adjustment Scale-6; CGI-S = Clinical Global Impression-Severity; PGI-S = Patient Global Impression-Severity.

Table 10

Multilevel Model Results for PHQ-9 (N = 56)

Fixed/Random Effects	Parameter	<i>B</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI	
Fixed Effects								
	Initial Status (π_0)	β_{00}	13.42	0.94	64.19	14.26	< .001	[11.58, 15.26]
	Linear Rate of Change (π_1)	β_{10}	-0.34	0.06	498.87	-5.72	< .001	[-0.46, -0.22]
	Group (baseline difference)	β_{01}	0.72	1.35	63.60	0.53	.595	[-1.92, 3.36]
	Time \times Group	β_{11}	-0.18	0.08	495.84	-2.21	.027	[-0.35, -0.02]
Random Effects								
		Variance	SD					
	Intercept (τ_0)	22.10	4.70					
	Residual (Level 1)	10.84	3.29					
Model Fit Indices								
	-2 Log Likelihood	2,983						
	AIC	2,994.95						
	BIC	3,020.70						
	Observations (Level 1)	540						
	Participants (Level 2)	56						

Note. $N = 56$ participants, each assessed at 13 time points (for a total of 540 observations). Group is coded as 0 = TAU (reference) and 1 = MBC. “Initial Status (π_0)” = estimated outcome score at baseline (Time = 0). “Linear Rate of Change (π_1)” = average change per time unit. “Group” (β_{01}) is coded 0 = TAU (reference), 1 = MBC. Time \times Group (π_{11}) reflects the difference in slopes between groups. B = unstandardized coefficient; SE = standard error; df = approximate Satterthwaite degrees of freedom; t = t-statistic testing the null hypothesis that $B = 0$ (larger absolute values indicate stronger evidence against the null); p = p-value associated with t , indicating statistical significance ($p < 0.05$ suggests rejection of the null). Deviance = -2 Log Likelihood (REML criterion at convergence).

Table 11

Multilevel Model Results for GAD-7 (N = 56)

Fixed/Random Effects	Parameter	<i>B</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI	
Fixed Effects								
	Initial Status (π_0)	β_{00}	12.86	0.92	62.19	13.92	< .001	[11.05, 14.67]
	Linear Rate of Change (π_1)	β_{10}	-0.32	0.06	491.90	-5.68	< .001	[-0.43, -0.21]
	Group (baseline difference)	β_{01}	0.31	1.33	61.63	0.23	.817	[-2.29, 2.90]
	Time \times Group	β_{11}	-0.19	0.08	489.05	-2.48	.013	[-0.34, -0.04]
Random Effects								
		Variance	SD					
	Intercept (τ_0)	21.61	4.65					
	Residual (Level 1)	9.40	3.07					
Model Fit Indices								
	-2 Log Likelihood	2,886						
	AIC	2,898.03						
	BIC	2,923.73						
	Observations (Level 1)	535						
	Participants (Level 2)	56						

Note. $N = 56$ participants, each assessed at 13 time points (for a total of 535 observations). Group is coded as 0 = TAU (reference) and 1 = MBC. “Initial Status (π_0)” = estimated outcome score at baseline (Time = 0). “Linear Rate of Change (π_1)” = average change per time unit. “Group” (β_{01}) is coded 0 = TAU (reference), 1 = MBC. Time \times Group (π_{11}) reflects the difference in slopes between groups. B = unstandardized coefficient; SE = standard error; df = approximate Satterthwaite degrees of freedom; t = t-statistic testing the null hypothesis that $B = 0$ (larger absolute values indicate stronger evidence against the null); p = p-value associated with t , indicating statistical significance ($p < 0.05$ suggests rejection of the null). Deviance = -2 Log Likelihood (REML criterion at convergence).

Table 12

Multilevel Model Results for BASE-6 (N = 56)

Fixed/Random Effects	Parameter	<i>B</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>	95% CI
Fixed Effects							
Initial Status (π_0)	β_{00}	28.00	1.32	68.59	21.23	< .001	[25.42, 30.57]
Linear Rate of Change (π_1)	β_{10}	-0.57	0.10	504.65	-5.72	< .001	[-0.76, -0.37]
Group (baseline difference)	β_{01}	-0.39	1.89	67.76	-0.21	.837	[-4.09, 3.31]
Time \times Group	β_{11}	-0.46	0.14	500.71	-3.28	.001	[-0.73, -0.18]
Random Effects		Variance	SD				
Intercept (τ_0)		40.40	6.36				
Residual (Level 1)		30.45	5.52				
Model Fit Indices							
-2 Log Likelihood		3,515.1					
AIC		3,527.06					
BIC		3,552.81					
Observations (Level 1)		540					
Participants (Level 2)		56					

Note. $N = 56$ participants, each assessed at 13 time points (for a total of 540 observations). Group is coded as 0 = TAU (reference) and 1 = MBC. “Initial Status (π_0)” = estimated outcome score at baseline (Time = 0). “Linear Rate of Change (π_1)” = average change per time unit. “Group” (β_{01}) is coded 0 = TAU (reference), 1 = MBC. Time \times Group (π_{11}) reflects the difference in slopes between groups. B = unstandardized coefficient; SE = standard error; df = approximate Satterthwaite degrees of freedom; t = t-statistic testing the null hypothesis that $B = 0$ (larger absolute values indicate stronger evidence against the null); p = p-value associated with t , indicating statistical significance ($p < .05$ suggests rejection of the null). Deviance = -2 Log Likelihood (REML criterion at convergence).

Table 13

Analysis of Covariance (ANCOVA) Results for CGI-S and PGI-S

Measure	Group	Baseline <i>M</i> (<i>SD</i>)	Post <i>M</i> (<i>SD</i>)	Adjusted Post <i>M</i> (<i>SE</i>)	<i>F</i>	<i>p</i>
CGI-S	MBC (<i>n</i> = 24)	4.29 (0.95)	3.38 (1.41)	3.42 (0.21)	0.05	.83
	TAU (<i>n</i> = 22)	4.45 (1.01)	3.41 (0.91)	3.36 (0.22)		
PGI-S	MBC (<i>n</i> = 21)	4.29 (1.35)	3.29 (1.65)	3.35 (0.29)	1.00	.34
	TAU (<i>n</i> = 17)	4.53 (0.72)	3.00 (1.22)	2.92 (0.33)		

Note. *M* = mean; *SD* = standard deviation; *SE* = standard error. “Adjusted Post *M*” refers to the least-squares (LS) mean from the ANCOVA model, controlling for each measure’s baseline. The *F* and *p* values shown reflect the omnibus test for group differences at posttreatment after adjusting for baseline (covariate).

Table 14

*Independent Samples *t* Test Results for CGI-I and PGI-I by Group*

Measure	Group	Mean (<i>SD</i>)	<i>t</i> (<i>df</i>)	<i>p</i>
CGI-I	MBC (<i>n</i> = 23)	2.17 (1.03)	-1.32 (43)	.20
	TAU (<i>n</i> = 22)	2.50 (0.60)		
PGI-I	MBC (<i>n</i> = 21)	2.24 (1.14)	-0.32 (46)	.74
	TAU (<i>n</i> = 17)	2.35 (1.00)		

Note. CGI-I = Clinical Global Impression–Improvement score. Mean (*SD*) = unadjusted descriptive statistics for each group. The *t*-value, degrees of freedom (*df*), and *p*-value indicate whether the difference between the two group means was statistically significant.

Figures

Figure 1

CONSORT Diagram for Client Recruitment

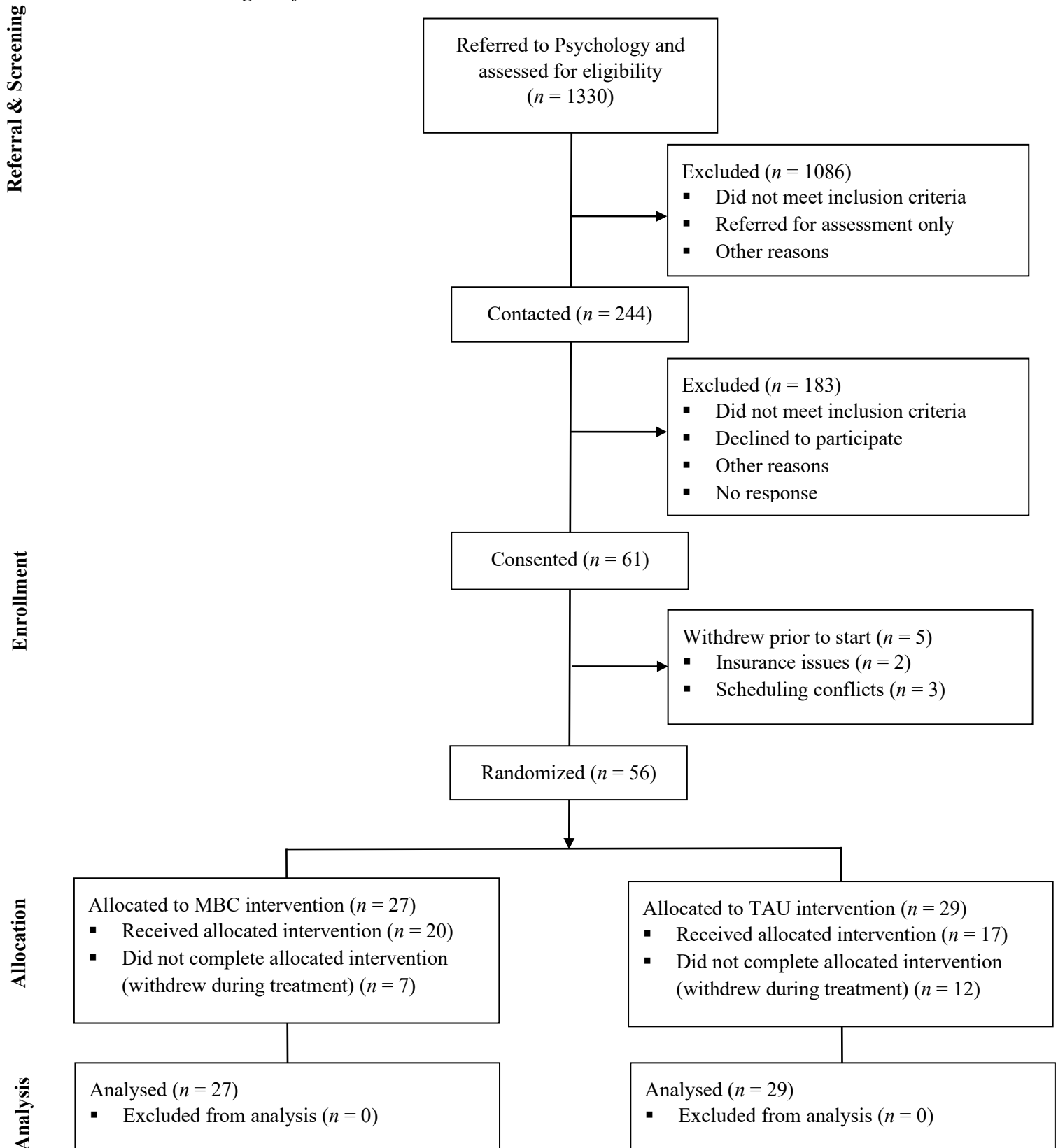
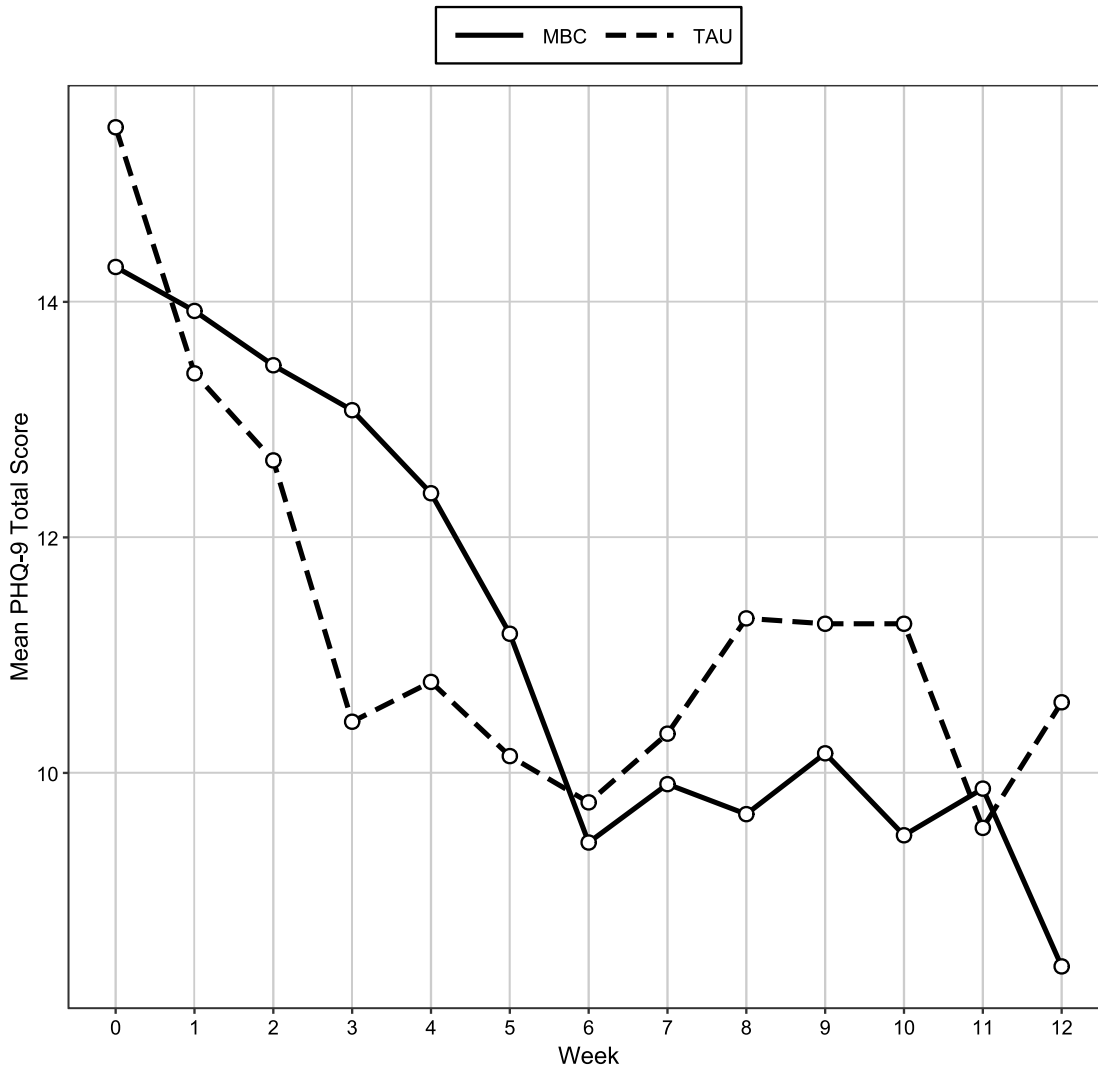


Figure 2

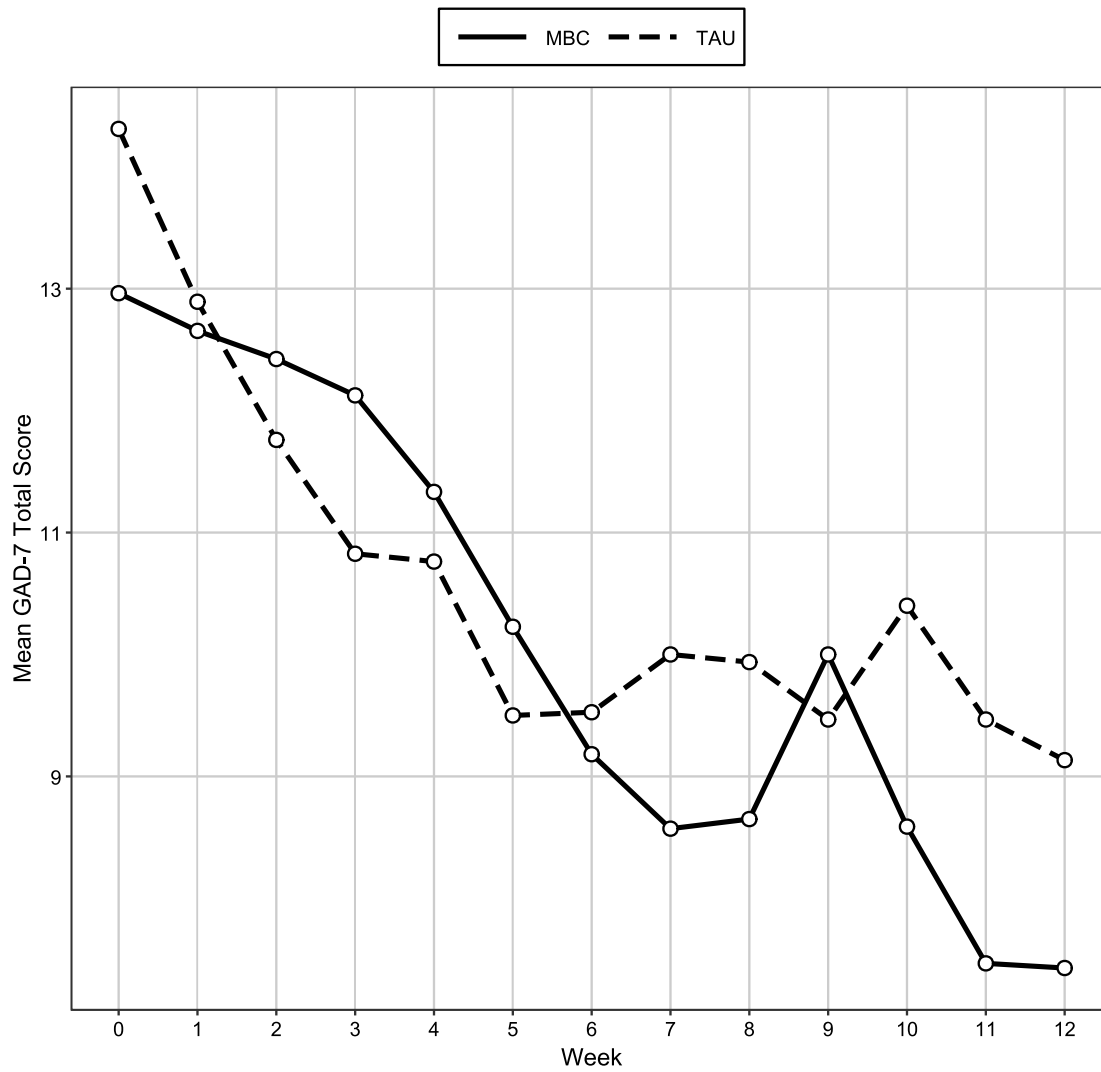
Weekly PHQ-9 Trajectories by Treatment Group (Baseline–Week 12)



Note. PHQ-9 = Patient Health Questionnaire-9; MBC = Measurement-Based Care; TAU = Treatment as Usual

Figure 3

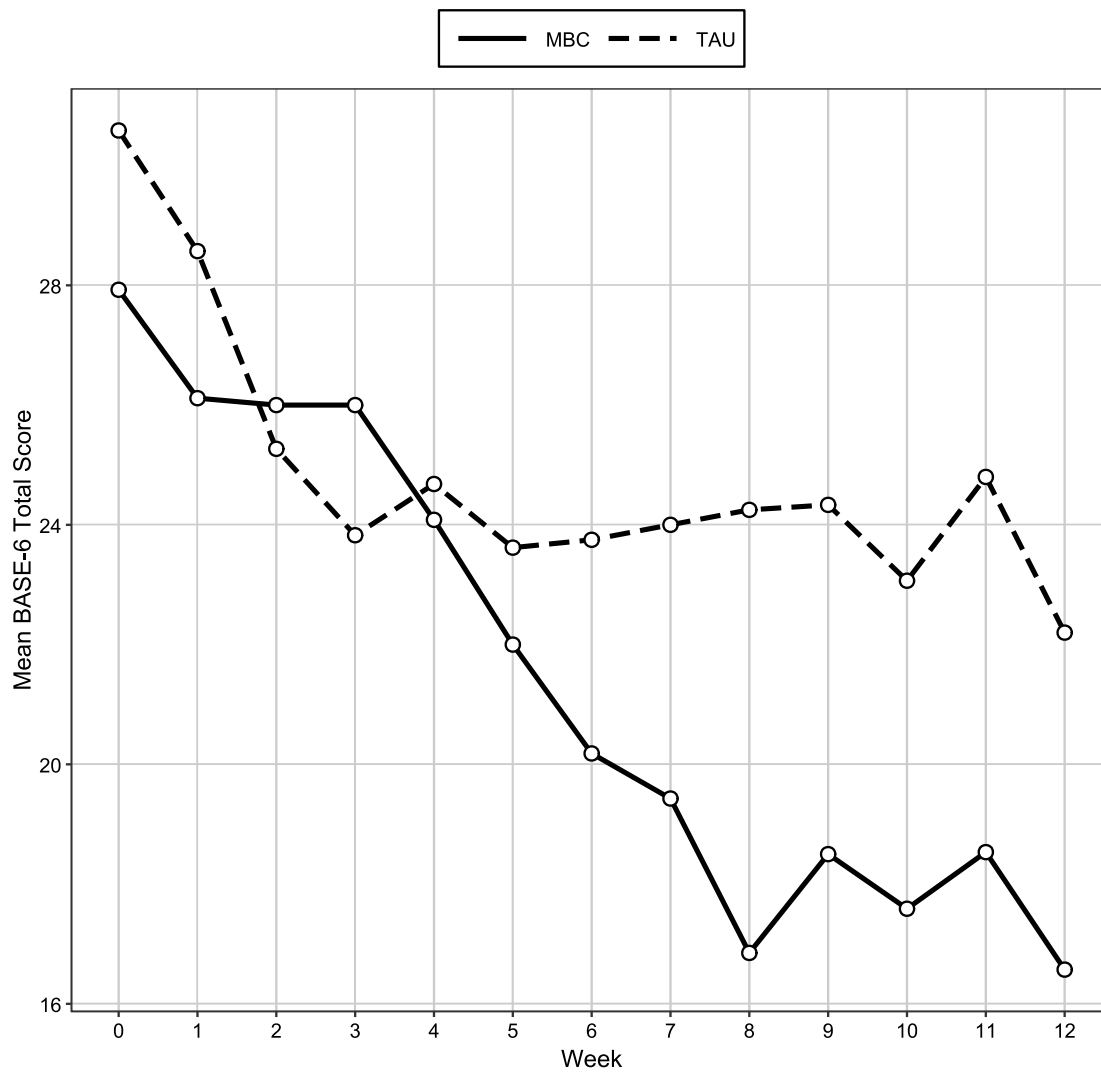
Weekly GAD-7 Trajectories by Treatment Group (Baseline–Week 12)



Note. GAD-7 = Generalized Anxiety Disorder-7; MBC = Measurement-Based Care; TAU = Treatment as Usual

Figure 4

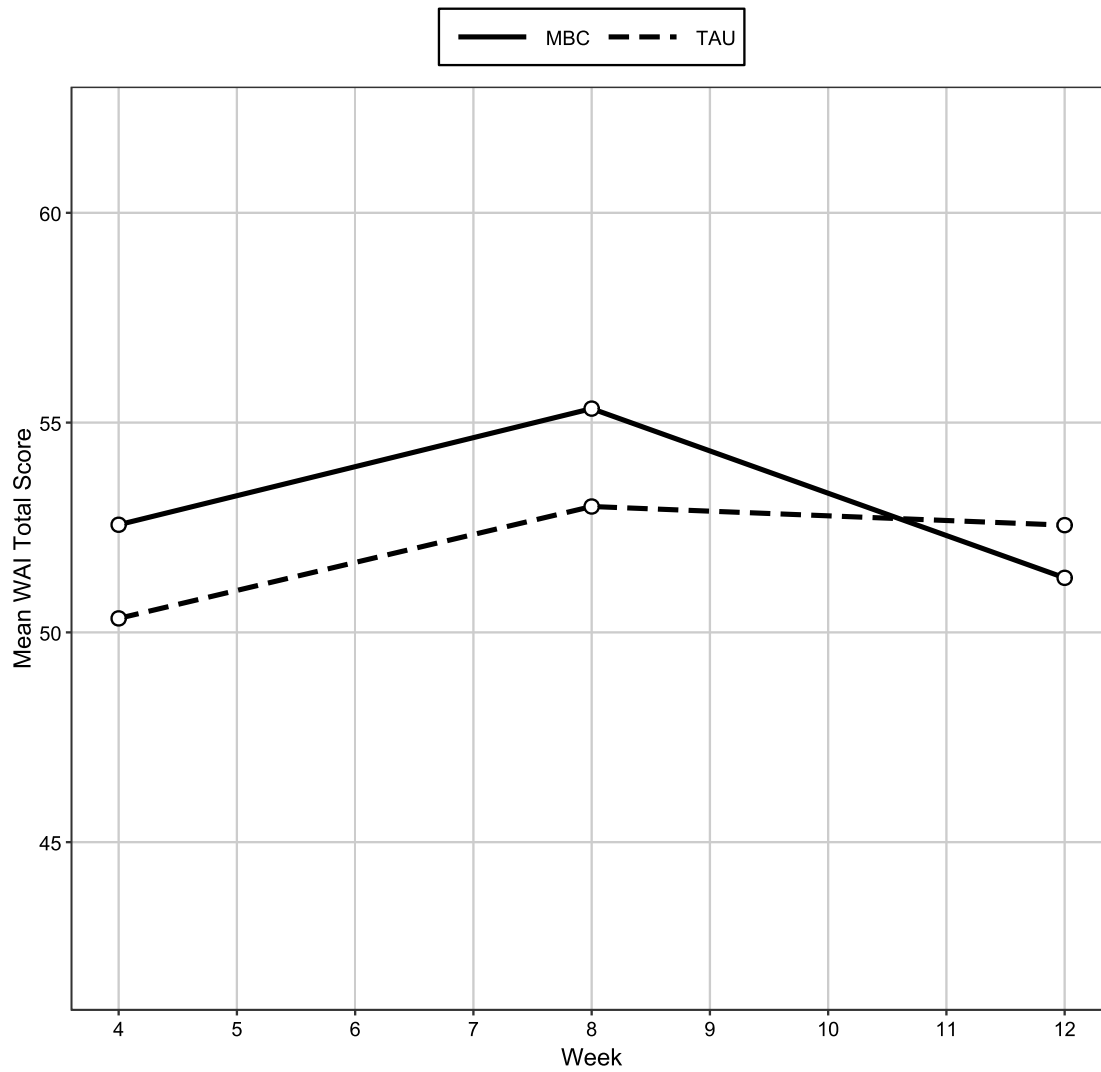
Weekly BASE-6 Trajectories by Treatment Group (Baseline–Week 12)



Note. BASE-6 = Brief Adjustment Scale-6; MBC = Measurement-Based Care; TAU = Treatment as Usual

Figure 5

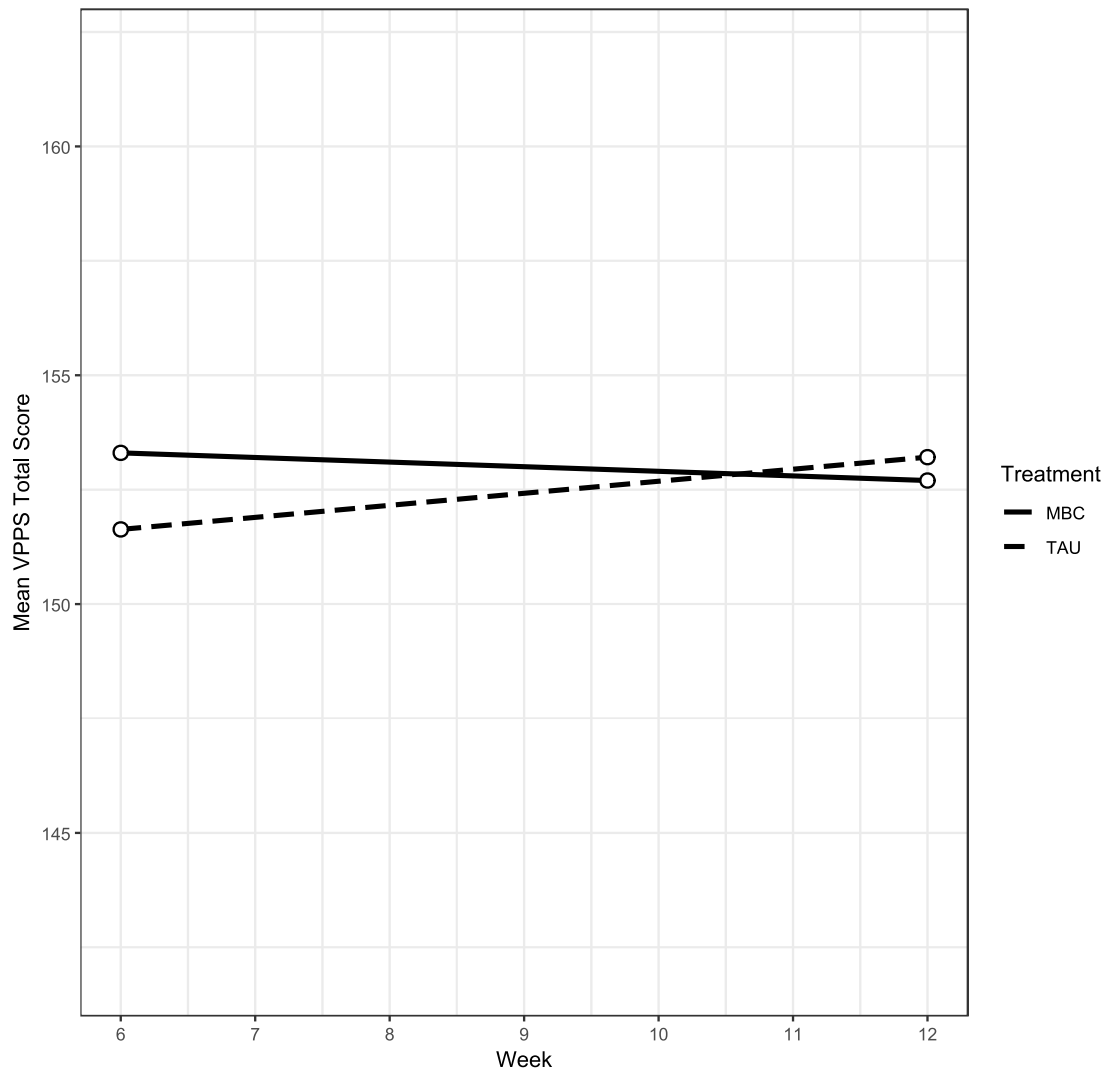
WAI-SR Trajectories by Treatment Group (Weeks 4, 8, and 12)



Note. WAI-SR = Working Alliance Inventory-Short Form Revised; MBC = Measurement-Based Care; TAU = Treatment as Usual

Figure 6

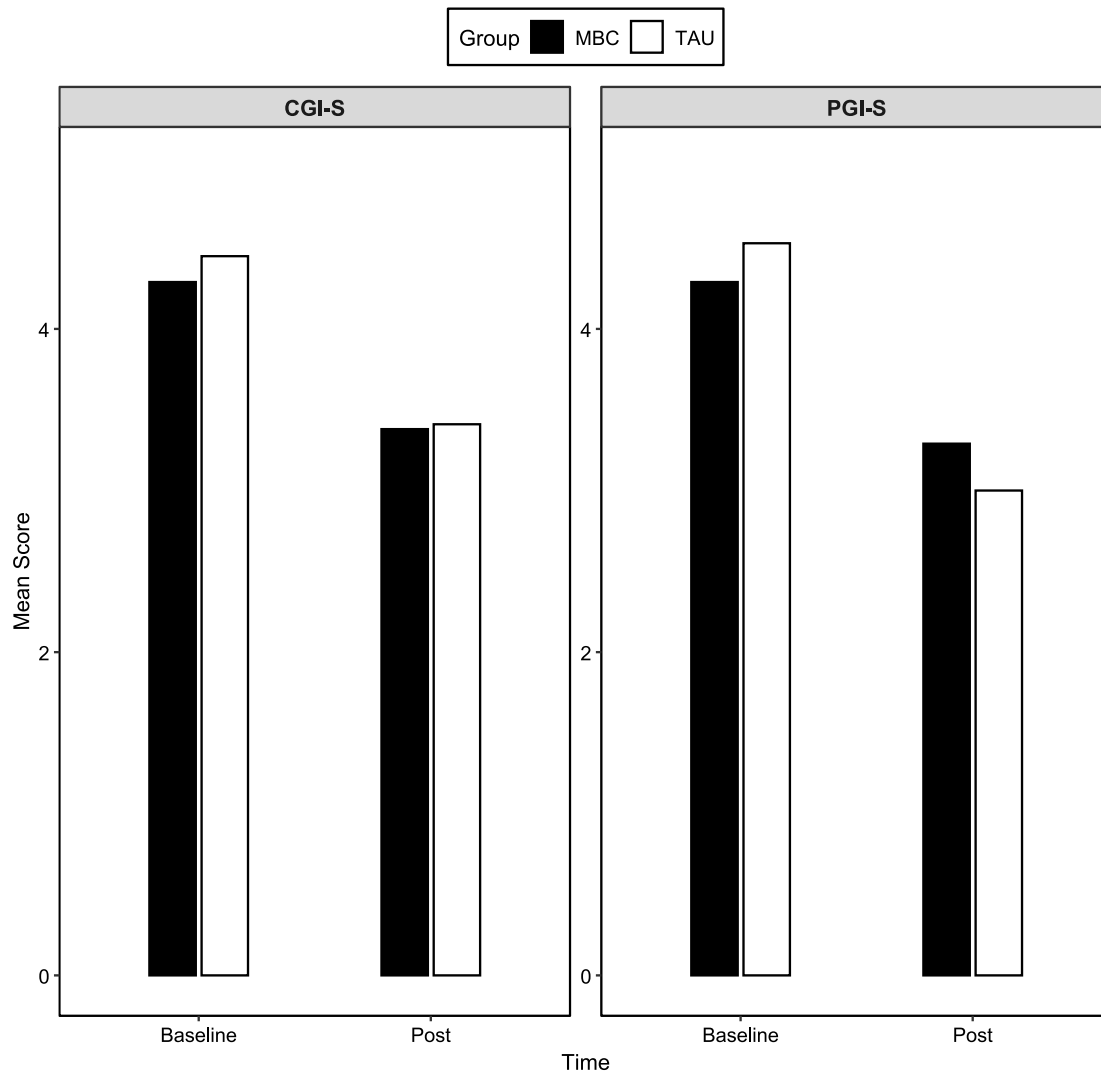
VPPS-P Trajectories by Treatment Group (Week 6 and Week 12)



Note. VPPS-P = Vanderbilt Psychotherapy Process Scale-Patient; MBC = Measurement-Based Care; TAU = Treatment as Usual

Figure 7

Pre-Post Intervention CGI-S and PGI-S Scores by Treatment Group



Note. CGI-S = Clinical Global Impression-Severity Scale; PGI-S = Patient Global Impression-Severity Scale; MBC = Measurement-Based Care; TAU = Treatment as Usual

Appendix A. Measures

I. Respondent - Client

- A. BASE-6 (Brief Adjustment Scale-6)
- B. PHQ-9 (Patient Health Questionnaire-9)
- C. GAD-7 (Generalized Anxiety Disorder-7)
- D. WAI-SR (Working Alliance Inventory - Self Report Revised)
- E. VPPS-P (Vanderbilt Psychotherapy Process Scale - Patient version)
- F. PGI-S (Patient Global Impression - Severity)
- G. PGI-I (Patient Global Impression - Improvement)
- H. PASS (Patient Attitudes and Satisfaction Survey)

II. Respondent - Clinician

- A. Implementation Outcome Measures
- B. CLASS (Clinician Attitude and Satisfaction Survey)
- C. MFA (Monitoring and Feedback Attitudes Scale)
- D. ASA-MF (Attitudes Towards Standardized Assessment Scales - Monitoring and Feedback)
- E. CGI-S (Clinician Global Impression - Severity)
- F. CGI-I (Clinician Global Impression - Improvement)
- G. MBC Adherence Measure

I. Respondent - Client

A. BASE-6 (Brief Adjustment Scale-6)

Thinking back on the week, tell us about how you have been feeling.

1) To what extent have you felt irritable, angry, and/or resentful this week?

Not at All			Somewhat			Extremely
1	2	3	4	5	6	7

2) To what extent have you felt tense, anxious, and/or afraid this week?

Not at All			Somewhat			Extremely
1	2	3	4	5	6	7

3) To what extent have you felt unhappy, discouraged, and/or depressed this week?

Not at All			Somewhat			Extremely
1	2	3	4	5	6	7

4) How much has emotional distress interfered with feeling good about yourself this week?

Not at All			Somewhat			Extremely
1	2	3	4	5	6	7

5) How much has emotional distress interfered with your relationships this week?

Not at All			Somewhat			Extremely
1	2	3	4	5	6	7

6) How much has emotional distress interfered with your ability to perform at work, school, etc. this week?

Not at All			Somewhat			Extremely
1	2	3	4	5	6	7

B. PHQ-9 (Patient Health Questionnaire-9)

Over the last 2 weeks how often have you been bothered by any of the following problems?

1. Little interest or pleasure in doing things
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
2. Feeling down, depressed, or hopeless
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
3. Trouble falling or staying asleep, or sleeping too much
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
4. Feeling tired of having little energy
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
5. Poor appetite or overeating
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
6. Feeling bad about yourself - or that you are a failure or have let yourself or your family down
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
7. Trouble concentrating on things, such as reading the newspaper or watching television
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day

8. Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
 9. Thoughts that you would be better off dead or of hurting yourself in some way
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
-

C. GAD-7 (Generalized Anxiety Disorder-7)

Over the last 2 weeks, how often have you been bothered by the following problems?

1. Feeling nervous, anxious, or on edge
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
2. Not being able to stop or control worrying
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
3. Worrying too much about different things
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
4. Trouble relaxing
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
5. Being so restless that it is hard to sit still
0 = Not at all
1 = Several days
2 = More than half the days
3 = Nearly every day
6. Becoming easily annoyed or irritable
0 = Not at all

- 1 = Several days
- 2 = More than half the days
- 3 = Nearly every day

7. Feeling afraid as if something awful might happen

- 0 = Not at all
- 1 = Several days
- 2 = More than half the days
- 3 = Nearly every day

D. WAI-SR (Working Alliance Inventory - Self report Revised)

On the following pages there are sentences that describe some of the different ways a person might think or feel about his or her therapist (counselor). Please enter their name below.

-What is the name of your therapist (counselor)?

Instructions: Below is a list of statements and questions about experiences people might have with their therapy or therapist. Some items refer directly to your therapist (whose name you provided). Think about your experience in therapy and decide which category best describes your own experience.

IMPORTANT!!! Please take your time to consider each question carefully.

1. As a result of these sessions I am clearer as to how I might be able to change.
 - 1 = Never
 - 2 = Sometimes
 - 3 = Fairly Often
 - 4 = Very Often
 - 5 = Always
2. What I am doing in therapy gives me new ways of looking at my problem.
 - 1 = Never
 - 2 = Sometimes
 - 3 = Fairly Often
 - 4 = Very Often
 - 5 = Always
3. I believe (therapist name) likes me.
 - 1 = Never
 - 2 = Sometimes
 - 3 = Fairly Often
 - 4 = Very Often
 - 5 = Always
4. (Therapist name) and I collaborate on setting goals for my therapy.
 - 1 = Never
 - 2 = Sometimes
 - 3 = Fairly Often

4 = Very Often

5 = Always

5. (Therapist name) and I respect each other.

1 = Never

2 = Sometimes

3 = Fairly Often

4 = Very Often

5 = Always

6. (Therapist name) and I are working towards mutually agreed upon goals.

1 = Never

2 = Sometimes

3 = Fairly Often

4 = Very Often

5 = Always

7. I feel that (therapist name) appreciates me.

1 = Never

2 = Sometimes

3 = Fairly Often

4 = Very Often

5 = Always

8. (Therapist name) and I agree on what is important for me to work on.

1 = Never

2 = Sometimes

3 = Fairly Often

4 = Very Often

5 = Always

9. I feel that (therapist name) cares about me even when I do things that he/she does not approve of.

1 = Never

2 = Sometimes

3 = Fairly Often

4 = Very Often

5 = Always

10. I feel that the things I do in therapy will help me to accomplish the changes that I want.

1 = Never

2 = Sometimes

3 = Fairly Often

4 = Very Often

5 = Always

11. (Therapist name) and I have established a good understanding of the kinds of changes that would be good for me.

- 1 = Never
- 2 = Sometimes
- 3 = Fairly Often
- 4 = Very Often
- 5 = Always

12. I believe the way we are working with my problem is correct.

- 1 = Never
- 2 = Sometimes
- 3 = Fairly Often
- 4 = Very Often
- 5 = Always

E. VPPS-P (Vanderbilt Psychotherapy Process Scale - Patient version)

1 = Very Poor; 2 = Poor; 3 = Fair; 4 = Good; 5 = Excellent

1. What is your global impression of the quality of the relationship between you and your therapist?
2. How productive was your session so far?
3. How are you getting along emotionally and psychologically at this time?

- Characterize your behavior during the sessions so far:

1 = Not At All; 2 = Some; 3 = Fair Amount; 4 = Pretty Much; 5 = Great Deal

4. I actively participated in the interaction.
5. I took the initiative in bringing up subjects that were talked about.
6. I was motivated for the sessions.
7. I asked for advice on how to deal more effectively with myself and others.
8. I was concerned with how to deal more effectively with myself and others.
9. Tried to get approval, sympathy, or reassurance from my therapist.
10. I replied upon the therapist to solve my problems.
11. I reacted negatively to my therapist's comments.
12. I tried to learn more about what to do in therapy and what to expect of it.
13. I was logical and organized in expressing thoughts and feelings
14. I talked about my feelings.

- Describe your demeanor and feelings during the sessions so far:

1 = Not At All; 2 = Some; 3 = Fair Amount; 4 = Pretty Much; 5 = Great Deal

15. Guilty
16. Optimistic
17. Depressed
18. Frustrated
19. Self-critical
20. Defeated
21. Dependent
22. Defensive

23. Inhibited
24. Spontaneous
25. Passive
26. Ashamed

- Characterize your therapist behavior in sessions so far:

1 = Not At All; 2 = Some; 3 = Fair Amount; 4 = Pretty Much; 5 = Great Deal

27. Communicated approval of some aspects of my behavior.
28. Placed the things I said in a new perspective or reorganized my experiences.
29. Showed warmth and friendliness towards me.
30. Helped me feel accepted in the therapy relationship.
31. Supported my self-esteem, confidence, and hopefulness.
32. Responded in a concerned and understanding way to me.
33. Tried to get a better understanding of me, of what was really going on.
34. Tried to help me recognize my feelings.
35. Tried to help me understand the reasons behind my actions.
36. Encouraged deep discussion/understanding rather than shallowness.
37. Identified important issues in my behavior and experiences.
38. Maintained focus on therapy-related topics.

- Describe your therapist's demeanor during this session.

1 = Not At All; 2 = Some; 3 = Fair Amount; 4 = Pretty Much; 5 = Great Deal

39. Intimidating
40. Authoritarian
41. Optimistic
42. Lecturing
43. Defensive
44. Judgmental
45. Respectful

F. PGI-S (Patient Global Impression - Severity)

PGI-S is the Patient or Parent Global Impression of Severity Scale

PGI-I is the Patient or Parent Global Impression of Improvement Scale

At Intake: The PGI-S should be completed at intake (first three sessions) and reported in the Intake Report

At Discharge: The PGI-S and PGI-I completed at discharge (last two sessions) and reported in the Discharge Report

For the patient, parent and/or child, ask them to provide a single global rating of the severity (at intake and discharge) and improvement (at discharge) of their overall condition including

symptomology, social functioning, work/school, etc. You can show the client, parent and/or child, a chart of the ratings to help with their ratings.

PGI-S (Severity) Ratings (Intake and Discharge)

1	NORMAL – Not at all ill, symptoms of disorder not present past seven days
2	BORDERLINE ILL - Subtle or suspected pathology
3	MILDLY ILL - Affected but functioning reasonably well
4	MODERATELY ILL – Overt symptoms causing noticeable but modest, functional impairment or distress; symptom level warrants intervention
5	MARKEDLY ILL – Intrusive symptoms that distinctly impair social/occupational/school function or cause intrusive levels of distress
6	SEVERELY ILL- Disruptive pathology, behavior and function are frequently influenced by symptoms, may require assistance from others
7	AMONG THE MOST EXTREMELY ILL PATIENTS – Pathology drastically interferes in many life functions, may be hospitalized

PGI-S rating _____

G. PGI-I (Patient Global Impression - Improvement)

- Improvement scores should reflect change in overall functioning (including symptomology, daily living skills, work/academic performance, and social functioning)
- Information from baseline assessment of severity should be used to gauge improvement/worsening

1	VERY MUCH IMPROVED – nearly all better; good level of functioning; minimal symptoms; represents a very substantial change
2	

	MUCH IMPROVED – notably better with significant reduction of symptoms; increase in the level of functioning but some symptoms
3	MINIMALLY IMPROVED – slightly better with little or no clinically meaningful reduction of symptoms. Represents very little change in basic clinical status, level of care, or functional capacity
4	NO CHANGE – symptoms remain essentially unchanged
5	MINIMALLY WORSE – slightly worse but may not be clinically meaningful; may represent very little change in basic clinical status or functional capacity
6	MUCH WORSE – clinically significant increase in symptoms and diminished functioning
7	VERY MUCH WORSE – severe exacerbation of symptoms and loss of functioning

PGI-I rating _____

H. PASS (Patient Attitudes and Satisfaction Survey)

At our clinic, you have likely been asked to complete online questionnaires at owloutcomes.net. These questionnaires are called Patient-Reported Outcome Measures (PROMs). They are part of our effort to conduct measurement-based care (MBC), which is concerned with the systematic, ongoing collaborative evaluation of patient symptoms to monitor a patient’s symptoms over time to inform clinical decision-making and evaluate the treatment progress. Please answer the following items about measurement-based care (i.e., regularly completing questionnaires about your symptoms and functioning and consulting with your clinician).

1. What best describes how often you completed PROMs?
 1. Never
 2. Sporadically (three or less times during treatment)
 3. Occasionally
 4. Approximately once a month
 5. Nearly every session

2. How often did your clinician provide feedback to you about your PROMs?
 1. Never
 2. Sporadically (three or less times during treatment)
 3. Occasionally
 4. Approximately once a month

5. Nearly every session
3. My clinician explained the purpose of regularly monitoring my symptoms:
 1. Completely disagree
 2. Partially disagree
 3. Neutral
 4. Partially agree
 5. Completely agree
4. I felt the measures I completed accurately assessed my current symptoms:
 1. Completely disagree
 2. Partially disagree
 3. Neutral
 4. Partially agree
 5. Completely agree
5. My clinician discussed my PROMs in session:
 1. Completely disagree
 2. Partially disagree
 3. Neutral
 4. Partially agree
 5. Completely agree
6. I felt that completing PROMs was a waste of time:
 1. Completely disagree
 2. Partially disagree
 3. Neutral
 4. Partially agree
 5. Completely agree
7. Reviewing my PROMs in session helped me to better understand my symptoms and treatment progress:
 1. Completely disagree
 2. Partially disagree
 3. Neutral
 4. Partially agree
 5. Completely agree
8. Reviewing my PROMs in session helped me to better understand my current functioning (e.g., emotional distress interfering with work, relationships, etc.).
 1. Completely disagree
 2. Partially disagree
 3. Neutral
 4. Partially agree
 5. Completely agree

Please note: The following two questions have to do with you completing (i.e., filling out) the PROMs rather than reviewing them with your therapist:

9. Completing PROMs helped me reach my treatment goals:
 1. Completely disagree
 2. Partially disagree
 3. Neutral
 4. Partially agree
 5. Completely agree

10. Completing PROMs helped me become more aware of my symptoms and progress in treatment:
 1. Completely disagree
 2. Partially disagree
 3. Neutral
 4. Partially agree
 5. Completely agree

11. I felt that completing PROMs took away from my treatment time:
 1. Completely disagree
 2. Partially disagree
 3. Neutral
 4. Partially agree
 5. Completely agree

12. How easy is it for you to complete PROMs?
 1. Very Easy
 2. Easy
 3. Neither Easy nor Difficult
 4. Difficult
 5. Extremely Difficult

II. Respondent - Clinician

A. Implementation Outcome Measures

The following questions pertain to the measurement-based care (MBC) training module you recently watched and completed. Please answer according to your experience with the MBC training.

Acceptability

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. This MBC Training meets my approval.					
2. This MBC Training is appealing to me.					
3. I like this MBC Training.					
4. I welcome this MBC Training.					

Appropriateness

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
5. This MBC Training seems fitting.					
6. This MBC Training seems suitable.					
7. This MBC Training seems applicable.					

8. This MBC Training seems like a good match.					
---	--	--	--	--	--

Feasibility

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
9. This MBC training seems implementable.					
10. This MBC Training seems possible.					
11. This MBC Training seems doable.					
12. This MBC Training seems easy to use.					

B. CIASS (Clinician Attitude and Satisfaction Survey)

At our clinic, you have likely been asked to conduct measurement-based care (MBC) with your patients. MBC is the systematic ongoing collaborative evaluation of patient symptoms (through Patient-Rated Outcome Measures or PROMs) to inform clinical decision-making and behavioral health treatment. Please answer the following items about measurement-based care.

1. I feel that MBC is helping my patients become more aware of their symptoms:
 - a. Completely disagree
 - b. Partially disagree
 - c. Neutral
 - d. Partially agree
 - e. Completely agree
2. I feel that assessing my patients' symptoms regularly is important to clinical practice:
 - a. Completely disagree
 - b. Partially disagree
 - c. Neutral
 - d. Partially agree

- e. Completely agree
- 3. I feel that the Owl Insights interface is easy to navigate:
 - a. Completely disagree
 - b. Partially disagree
 - c. Neutral
 - d. Partially agree
 - e. Completely agree
- 4. I explain the purpose of regular monitoring to my patients:
 - a. Completely agree
 - b. Partially agree
 - c. Neutral
 - d. Partially disagree
 - e. Completely disagree
- 5. In general, I provide feedback to my patients about their PROM measures:
 - a. Nearly every session
 - b. Approximately once a month
 - c. Occasionally
 - d. Sporadically
 - e. Never
- 6. How often do you use MBC results to inform clinical decision making?
 - a. Very often
 - b. Often
 - c. Sometimes
 - d. Rarely
 - e. Very rarely
- 7. How likely are you to continue to incorporate MBC into your clinical practice?
 - a. Extremely likely
 - b. Somewhat likely
 - c. Neither likely nor unlikely
 - d. Somewhat unlikely
 - e. Extremely unlikely
- 8. I feel I use the knowledge provided in the MBC training I received:
 - a. Completely agree
 - b. Partially agree
 - c. Neutral
 - d. Partially disagree
 - e. Completely disagree
- 9. Is there anything else you would like to share about your experience conducting MBC or the Owl Insights system for your patient care?

C. MFA (Monitoring and Feedback Attitudes Scale)

1. Monitoring treatment progress is an important part of treatment.
 - 1 = Strongly disagree
 - 2 = Disagree
 - 3 = Neutral
 - 4 = Agree

- 5 = Strongly Agree
2. Monitoring treatment progress is valuable for supervision.
- 1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
3. Providing feedback to clients about treatment progress helps to increase client motivation and engagement.
- 1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
4. Providing clients with feedback about their treatment progress empowers them to make informed decisions about their care.
- 1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
5. Providing clients with feedback about treatment progress facilitates collaboration between clients and clinicians.
- 1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
6. Clients want their therapist to provide them with information about treatment progress.
- 1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
7. Providing clients with feedback about treatment progress can increase their insight.
- 1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
8. Providing clients with feedback about treatment progress helps keep treatment focused on treatment goals.
- 1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
9. Providing clients with regular feedback about treatment progress creates an expectation for positive change.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

10. Providing feedback to clients about treatment progress (or lack thereof) can lead to better treatment outcomes.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

11. Providing feedback to clients about treatment progress (or lack thereof) would potentially harm the therapeutic alliance.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

12. Providing clients with negative feedback about their progress would lead to client deterioration or premature treatment termination.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

13. Providing clients with negative feedback about their progress would decrease their motivation for and/or engagement in treatment.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

14. Providing clients with negative feedback about their progress would make them think their therapist is incompetent.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

D. ASA-MF

(Attitudes Towards Standardized Assessment Scales: Monitoring and Feedback)

1. Standardized progress measures don't tell me anything I can't learn from just talking to Clients.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

2. Using clinical judgment to monitor progress is superior to using standardized assessment measures.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

3. Standardized progress measures provide more useful information than other assessments like informal interviews or observations.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

4. Standardized progress measures don't capture what's really going on with clients.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

5. Clinical problems are too complex to be captured by a standardized progress measure.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

6. Standardized progress measures gather information about the client that may not otherwise come up in person.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

7. Standardized progress measures are not able to detect meaningful changes as they occur.

1 = Strongly disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

8. Standardized progress measures don't measure the outcome domains most important to clients.

1 = Strongly disagree

2 = Disagree

- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

9. Standardized progress measures help gather objective information about whether treatment is working.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

10. Standardized progress measures help identify when treatment is not working well.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

11. Standardized progress measures can provide helpful information about whether it is time to terminate treatment.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

12. Information from standardized progress measures can help me plan for sessions.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

13. Standardized progress measures help identify when to change the overall treatment Plan.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

14. Standardized progress measures can efficiently gather information.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

15. The information I receive from standardized progress measures isn't worth the time I spend administering, scoring, and interpreting the results.

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral

- 4 = Agree
5 = Strongly Agree
16. Standardized progress measures interfere with establishing rapport during a session.
1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
17. Completing a standardized progress measure is too much of a burden for my clients.
1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree
18. I do not have time to administer standardized progress measures on a frequent basis.
1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

E. CGI-S (Clinician Global Impression – Severity)

CGI-S is the Clinician Global Impression of Severity Scale

CGI-I is the Clinician Global Impression of Improvement Scale

At Intake: The CGI-S should be completed at intake (first three sessions) and reported in the Intake Report

At Discharge: The CGI-S and CGI-I completed at discharge (last two sessions) and reported in the Discharge Report

The clinician should conduct an interview with the patient, parent and/or child, and base ratings on all available information (e.g., ADIS, review of self-report measures, social functioning, work/academic performance, daily living skills, and emotion regulation). At intake, the clinician should take note in the Intake Report any patient, parent and/or child reported concerns, in order to refer back to them at discharge and ask the patient, parent and child about them. Ratings are based on all available information.

CGI-S (Severity) Ratings (Intake and Discharge)

1	NORMAL – Not at all ill, symptoms of disorder not present past seven days
2	BORDERLINE ILL - Subtle or suspected pathology

3	MILDLY ILL - Affected but functioning reasonably well
4	MODERATELY ILL – Overt symptoms causing noticeable but modest, functional impairment or distress; symptom level warrants intervention
5	MARKEDLY ILL – Intrusive symptoms that distinctly impair social/occupational/school function or cause intrusive levels of distress
6	SEVERELY ILL- Disruptive pathology, behavior and function are frequently influenced by symptoms, may require assistance from others
7	AMONG THE MOST EXTREMELY ILL PATIENTS – Pathology drastically interferes in many life functions, may be hospitalized

CGI-S rating _____

F. CGI-I (Clinician Global Impression – Improvement)

- Improvement scores should reflect change in overall functioning (including symptomology, daily living skills, work/academic performance, and social functioning)
- Information from baseline assessment of severity should be used to gauge improvement/worsening

1	VERY MUCH IMPROVED – nearly all better; good level of functioning; minimal symptoms; represents a very substantial change
2	MUCH IMPROVED – notably better with significant reduction of symptoms; increase in the level of functioning but some symptoms
3	MINIMALLY IMPROVED – slightly better with little or no clinically meaningful reduction of symptoms. Represents very little change in basic clinical status, level of care, or functional capacity
4	NO CHANGE – symptoms remain essentially unchanged

5	MINIMALLY WORSE – slightly worse but may not be clinically meaningful; may represent very little change in basic clinical status or functional capacity
6	MUCH WORSE – clinically significant increase in symptoms and diminished functioning
7	VERY MUCH WORSE – severe exacerbation of symptoms and loss of functioning

CGI-I rating _____

G. MBC Adherence Checklist

Please rate the MBC adherence on a scale of 0 to 3 after each session, considering the client’s administration of the measure, clinician review of scores, and discussion of scores with the client in the session.

0 = (the patient) measures were NOT administered

1 = (the patient) measures were administered ONLY

2 = (the patient) measures were administered AND (the clinician) reviewed scores before session

3 = (the patient) measures were administered, (the clinician) reviewed scores, AND (the clinician) discussed with the client in session

Appendix B. MBC Digital Training Contents

Part 1: Motivational Interviewing Process

1. *Pre-assessment* (checking the goals for training)
2. *Expectations*
 - a. Participants establish their learning objectives and refine their goals for training

Part 2: Education on MBC

1. *What is MBC?*
 - a. Measurement-Based Care (MBC) is the regular evaluation of patient symptoms and well-being to monitor treatment progress and inform clinical decision-making
 - b. MBC can be divided into three core components: 1) Patient routine completion of outcome measures, 2) Practitioner review of data, 3) Practitioner-Patient collaborative review of data and treatment plan
2. *Components & Terminology*
 - a. Measurement-Based Care (MBC), Routine Outcome Monitoring (ROM), Patient Reported Outcome Measures (PROM), Measurement-Feedback System (MFS)
3. *MBC Evidence Base*
 - a. Effectiveness of MBC over usual care: Review articles and randomized controlled studies show that MBC outperforms usual care with significantly improved outcomes
4. *Utility of MBC*
 - a. Benefits to patients (e.g., active involvement, symptom understanding, communication)
 - b. Benefits to practitioners (e.g., alerts lack of progress, informs treatment decisions)
5. *MBC Mechanisms*
 - a. MBC is a collaborative process between a patient and provider that engages several evidence-based mechanisms: Highlight self-monitoring, feedback, and shared established goals
6. *Practical Challenges*
 - a. Barriers to implementing MBC can be either practical or philosophical. Specific reasons for not utilizing MBC are summarized: Time burden, financial constraints, insufficient training, diverse client needs, fear or mistrust, privacy or ethical concerns
7. *Critical Facilitators*
 - a. Utilizing software, auto-scoring, systematic training, collaborative utilization reviews, transparency
8. *Long Term Organizational Benefits*
 - a. Practice-based aggregated MBC data can be used for: Enhancing professional development at the provider level, quality improvement metrics, information about outcomes and overall performance for accreditation/insurance bodies, and informing payers at the health care system level

Part 3: Video Demonstrations

1. *Introducing the MBC System*
2. *Introducing MBC to your client*

3. *Explaining MBC process*
4. *Addressing client ambivalence*
5. *Interpreting PROMs*
6. *Suicide risk protocol*