Brief Digital Interventions: An Implementation-Sensitive Approach to Addressing School Mental Health Needs of Youth with Mild and Emerging Mental Health Difficulties

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E. Cwinn receives funding from the Innovation and Scale Up Lab which is funded by School Mental Health Ontario. John Weisz received funding from School Mental Health Ontario to develop the BDIs. C. Crooks co-directs the Innovation and Scale Up Lab and receives funding from School Mental Health Ontario. K. Georgiades receives funding from School Mental Health Ontario for measurement and monitoring work.

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doi:10.7870/cjcmh-2022-026
Published by Canadian Periodical for Community Studies Inc.

ABSTRACT

Brief digital interventions (BDIs) may help address the mental health needs of students when real-world resource constraints limit access to in-person or longer-form care. This article describes BDIs, which are conceptualized as being at the intersection of short-term interventions, internet-delivered cognitive behavior therapy programs, and measurement-based care. We use a real-world example of a BDI which was delivered in Ontario schools as a practice example for this mode of intervention. We then identify potential clinical and ethical considerations, and we highlight some of the challenges of implementing and evaluating innovative interventions and measurement-based care initiatives in Canadian schools.

Keywords: school mental health, iCBT, cCBT, single-session intervention, short-term intervention, measurement-based care, remote psychotherapy, psychotherapy, evidence-based implementation sensitivity

RÉSUMÉ

Les interventions brèves en ligne (*Brief digital interventions* [BDIs]) peuvent contribuer à répondre aux besoins des étudiants en matière de santé mentale quand les contraintes des ressources sur le terrain limitent l'accès en personne ou les soins de longue durée. Cet article décrit les interventions brèves en ligne qui sont conçues comme étant à l'intersection entre les interventions à court terme, les programmes de thérapie cognitivo-comportementale via Internet et les soins basés sur le monitorage. Nous analysons une intervention brève en ligne menée dans des écoles ontariennes comme exemple concret de ce type d'intervention. Nous déterminons ensuite les considérations cliniques et éthiques potentielles et nous mettons en évidence certains défis que représentent, dans des écoles canadiennes, la mise en œuvre et l'évaluation d'interventions novatrices, de même que les initiatives de soins basés sur le monitorage.

Mots clés : santé mentale en milieu scolaire, TCCi, TCC numérique, séance unique, intervention brève, monitorage des soins, psychothérapie en ligne, psychothérapie, difficulté de mise en œuvre basée sur des données probantes

A large proportion of Canadian youth who need mental health services do not receive adequate levels of care or support (Mental Health Commission of Canada, 2021). In Ontario, this may be especially problematic with estimates indicating that 5 to 6 children and youth do not receive the care they need (MHASEF Research Team, 2015). These unmanaged mental health difficulties may be associated with increased healthcare costs and utilization such as emergency department visits (Canadian Institute for Health Information, 2019), with high levels of functional impairment (Iorifino et al., 2018), and with poor long-term outcomes including poorer academic outcomes and substance use problems (Arria et al., 2019). Both youths and their caregivers report high levels of frustration and difficulty in accessing mental health care for a variety of reasons, including circuitous pathways to care, long wait times, low levels of knowledge and support regarding how to access care, and a dearth of early intervention and prevention efforts (Zifkin et al., 2021). Because schools operate as a de facto provider of mental health services and social-emotional learning curricula (Vaillancourt et al., 2021), schools are well-poised to provide prevention and early intervention services (Arango et al., 2018). At the same time, school mental health professionals report unmanageable workloads and high levels of burnout (Kim & Lambie, 2018; Schilling et al., 2018), suggesting that innovative solutions are required.

The purpose of this article is to describe the introduction of an evidence-informed prevention protocol designed to address an escalating demand for mental health services in schools, known as brief digital interventions (BDIs), highlighting the theoretical rationale for this novel approach, and associated implementation enablers and challenges. While we describe a specific BDI, we intend for this to serve as a practice example of how BDIs might be developed for specific clinical difficulties or with other therapeutic modalities.

A pilot investigation of BDIs is underway, the results of which will be discussed in future research. The goal of the current article is to describe the nature, rationale, and potential limitations of BDIs as a treatment model while also providing a descriptive account of how a BDI was developed to meet a need within a tiered school mental health setting. A secondary focus of the article is to identify the challenges of implementing and evaluating innovative interventions and measurement-based care initiatives within Canadian school contexts by considering lessons learned in the current BDI pilot and drawn from the literature.

While there are challenges with introducing new innovations in school mental health, it is important to continue to seek, test, and scale efficient and effective supports to meet service demands that are currently straining the child and youth system of care, particularly in light of pandemic realities that have exacerbated mental health needs amongst young people.

Context of the BDI Pilot in Ontario

School Mental Health Ontario (SMH-ON) is a provincial implementation support team that provides research-informed resources, coaching, training, and supports to help Ontario's 72 school districts with advancing student mental health. In addition to strong focus on universal mental health promotion and literacy, SMH-ON supports school mental health professionals with evidence-informed protocols and training to promote consistency and quality in prevention and early intervention services. These protocols have been introduced to support the development of a systematic stepped care model, whereby students have access to a range of preventive supports, varying in intensity according to their presenting needs.

In response to perceived elevations in mental health needs associated with the pandemic and its impacts, SMH-ON sought out a low-intensive intervention that could be added to the current suite of protocols and could be introduced and scaled quickly to support students with emerging and escalating mental health needs. A connection was made with the Harvard University Lab for Youth Mental Health, given similar interests in brief, transdiagnostic innovations (Schleider & Weisz, 2017, 2018). The Lab for Youth Mental Health had begun to develop a series of digital psychoeducation and skill modules derived from the FIRST treatment program for children and youth (Weisz & Bearman, 2020) in spring 2020. These modules were built upon principles from the short-term intervention and internet-delivered cognitive behavior therapy (iCBT) literatures, and research on the mechanisms of change in child and adolescent psychotherapy. With input from SMH-ON clinicians and the ThriveSMH student reference group (a group that provides real-time feedback about the needs and perspectives of students), an adapted set of four student-friendly BDIs was collaboratively created for use by Ontario school mental health professionals. The BDIs developed for use in Ontario schools comprise four modules or "coping kits" (*Project Calm, Project Solve, Project Think, and Practicing the Opposite*), each of which presents strategies that can help with a range of presenting problems. For example, *Project Calm* helps students learn how to use calming strategies to change how they

feel or to manage strong emotions and *Practicing the Opposite* focuses on the positive opposite of unhelpful behaviour, like exposure and behavioural activation techniques.

The BDIs were introduced to approximately 300 school clinicians in the summer of 2020 through a six-hour training session delivered virtually over three days. Feedback from the participants was used to create a more streamlined, self-directed training offering that was introduced in January 2021. The coping kits were also updated prior to the wider launch, with input from students, school mental health professionals, and members of the Innovation and Scale Up Lab at Western University. A progress monitoring tool was developed by researchers at Offord Centre/McMaster University to walk alongside the BDI implementation, to explore and advance measurement-based care amongst Ontario school clinicians.

Four hundred and eighty-six clinicians initially signed up to use BDIs when they were launched through virtual training sessions in the summer of 2020 or by accessing the online training system released in January 2021. All clinicians were invited to join a Learning Collaborative to develop the effective use of BDIs and associated progress monitoring tools (Short et al., 2022). Two meetings of the Learning Collaborative were held in spring 2021 that involved a combination of didactic presentation from the Harvard team, role play demonstrations, and small group share and solve discussions.

Researchers from the ISU Lab observed the Learning Collaborative sessions to gain insight about the use of the BDIs and implementation challenges encountered. Feedback from participants and from ThriveSMH was used to iteratively revise the BDI Coping Kits, training, and a progress monitoring tool. A culturally responsive review was conducted in summer 2021, and suggestions from clinicians who specialize in equity and mental health were incorporated in all revisions. In spring 2022, the updated Coping Kits and supports were launched, and two more Learning Collaborative meetings were offered. These focused on problems of practice identified by the those in the field (e.g., use of BDIs in group format, use of BDIs with students with special education needs). Clinicians using BDIs in the field participated as co-presenters during the Learning Collaborative meetings, highlighting enablers to improve the authenticity of practice experience. SMH-ON implementation coaches assisted with surfacing and addressing barriers to adoption throughout the implementation process. A process of iterative co-creation will continue as the BDIs are introduced and scaled throughout the province.

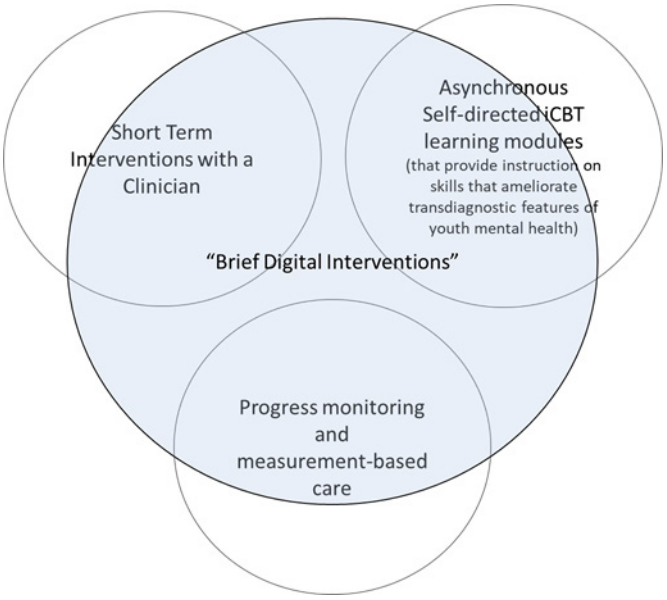
The Nature of a BDI and Its Theoretical Rationale

BDIs are a middle point between three well-researched and effective modes of intervention: short term interventions with a clinician, internet-delivered CBT programs (iCBT also known as computer-delivered CBT [cCBBT]), and measurement-based care. The BDI is composed of three components: time-limited and focused therapeutic encounters with a clinician, self-directed learning modules and home practice, and progress monitoring (See Figure 1). The BDI is not intended to be a linear or manualized approach; rather, it uses client feedback and data from progress monitoring to highlight appropriate next steps to help the client meet their goals.

The self-directed iCBT learning modules address transdiagnostic mechanisms that underly depression, anxiety, and behavioural difficulties in youth (Cho et al., 2020). Specifically, the modules provide skills training in relaxation, cognitive restructuring, problem solving, and trying behavioural experiments. The

Figure 1

A Conceptual Illustration of the Overlap Between Brief Digital Interventions and Its Component Interventions



progress monitoring component is a form of measurement-based care. Measurement-based care uses objective measures to inform the effectiveness of different interventions or their components. Clinical decisions are then informed by these data rather than adhering to a manual or clinical intuition alone.

From a process perspective, in the first meeting the student and regulated mental health professional complete several tasks such as orienting the student to the BDIs, establishing treatment goals, completing a brief assessment of mental health difficulties, establishing a rational for how completing the learning modules will help with the goals, and assign a self-directed learning module in collaboration with the student. Specifically, the student identifies three *top problems* (Weisz et al., 2017) and completes a brief measure of mental health symptoms (Weisz et al., 2020. The clinician explains the different self-directed learning modules, and the client and clinician collaborate to decide which module would be most helpful to start with. The clinician provides practical and emotional support to encourage the student to complete and try applying the module before the next meeting.

The student then completes one module that helps them to learn a core CBT skill, such as cognitive restructuring, relaxation, problem solving, or trying a behavioural experiment. The module is assigned with specific homework suggestions related to the therapy goals established in the first meeting. The BDIs are designed to be self-directed by young people, but they can also be completed by a youth during a session with a clinician for younger individuals, individuals with comprehension or information processing difficulties, and individuals with low motivation; this collaborative approach has been used frequently in Ontario schools.

After completing the self-directed module and homework, the student returns for a second meeting with the clinician to discuss their experience of applying the skill. The therapist supports the client in resolving any questions, problem solving the application of the skill in the student's life, and building motivation to use the skill where appropriate. In this session the student also completes the same brief measure of mental health symptoms they completed in the first session. Then the clinician shows the student the progress monitoring data, which includes reports of the ratings of their top problems and symptoms in a graphic display and guides a discussion on progress (or lack thereof) and the role of using the skill in relation to that progress. From these measures and the client's description of whether they are meeting their therapy goals, the clinician and client can choose to either (a) try the same module again, (b) use a new module, or (c) discontinue the use of BDIs. Because the model is grounded in measurement-based care, clients who are not responding to intervention are referred to other treatment models, such as, continuing therapy with no further use of the modules.

Therapist-student interactions are focused on skills acquisition and application, building and maintaining motivation, and monitoring and responding to crises rather than engaging in process-experiential or process-based interventions (other than those directed at increasing motivation); however, maintaining a therapeutic relationship is important, and so the therapist draws on professional acumen to remain attuned and affirming. When the therapist identifies that the client requires higher levels of interpersonal or therapeutic support than can be offered through the BDIs, alternate forms of intervention are offered.

Rationale Behind the BDI

The self-directed iCBT skills modules are conceptualized as the primary mechanism of change in the intervention, with clinical support and progress monitoring functioning to monitor risk and ensure safety while also augmenting the efficacy of the intervention by helping the student apply and generalize the skills in the complexity of their daily lives.

The clinical support provided in the BDI is conceptualized to function much like short term interventions, which help clients identify targeted areas where they can apply skills to resolve psychosocial difficulties. The progress monitoring tool is used to provide more objective feedback on therapeutic progress to the clinician which can be used to update the treatment plan, respond to barriers in generalizing and using the skills, or trigger a referral to more intensive care.

Because the iCBT modules are conceptualized as the primary mechanism of change, a review of iCBT programs in schools is provided first. Thereafter a brief review of short-term interventions (the analogue for the clinician support component) and progress monitoring are provided.

iCBT Programs in Schools

Internet-based cognitive behavioural therapy (iCBT) utilizes digital devices to provide psychotherapy to clients. While interventions delivered remotely are as effective as those delivered in person, it is noteworthy that the presence of synchronous contact was a significant moderator in therapy outcome (Venturo-Conerly et al., 2021). The level of clinician support, duration, and program elements typically vary by iCBT program; however, as a general rule, most iCBT interventions primarily involve self-directed training in core CBT

principles and skills. While definitions of iCBT sometimes include synchronous therapy delivered through a digital medium, in the present study, iCBT refers to those interventions whose primary mechanism is the use of pre-developed, computerized, self-directed learning modules. A growing body of literature suggests that iCBT is effective in reducing several mental health concerns including both internalizing (e.g., anxiety and depression) and externalizing (e.g., behavioural difficulties and substance use) difficulties among children and adolescents (Berg et al., 2020; Calear et al., 2009; Hoek et al., 2012; Lenhard et al., 2014; March et al., 2009; Vigerland et al., 2013; Vigerland et al., 2016). Among children and youth populations, iCBT for anxiety has been evaluated using both randomized controlled trials (Donovan & March, 2014; March et al., 2009; O'Kearney et al., 2006; O'Kearney et al., 2009; Spence et al., 2017; Vigerland et al. 2016) and uncontrolled trials (Silfvernagel et al., 2015; Vigerland et al., 2013). In comparison to wait-list controls and traditional, in-person CBT, iCBT has performed equivalently or favourably March et al., 2009; Spence, 2011). For further information regarding iCBT programs that have been evaluated in community and clinical settings, including details on duration and clinician support, see Table 1, which illustrates examples of iCBT programs, the level of clinician support included, and their context (e.g., school, community).

Several iCBT programs have been developed for implementation in school-settings (Calear et al., 2009; Neil et al., 2009; O'Kearney et al., 2006; O'Kearney et al., 2009; Tillfors et al., 2011. Evaluations of these programs suggest that, overall, iCBT programs are a useful tool for treating mild to emerging mental health difficulties among children and youth. Previous research has explored the effectiveness of such programs in the school setting and has demonstrated that youth who received iCBT report reductions in symptoms of anxiety and depression (Calear et al., 2009; O'Kearney et al., 2006; O'Kearney et al., 2009). Other research on school-based iCBT programs has demonstrated that iCBT is a promising avenue for reducing social anxiety and comorbid depression among high-school-aged students (Tillfors et al., 2011).

While iCBT programs have the potential to effectively ameliorate a range of problems, issues with program adherence and variation in the level of clinician support offered by iCBT programs are two of the challenges associated with the school-based implementation of these programs. Program adherence and completion are frequently reported challenges in implementing iCBT programs in school settings (Calear et al., 2009, Tillfors et al., 2011; O'Kearney et al., 2009a; Spence et al., 2019). For example, the MoodGYM program was effective in reducing anxiety and depression; however, there were issues with adherence and completion rates (Berg et al., 2020; Hill et al., 2018). In a study investigating predictors of adherence for the MoodGYM program, Neil et al. (2009) compared adherence rates of youth who completed the program in a classroom setting with teacher monitoring with youth who accessed the program through an online URL link (i.e., a community sample). Youth who completed the program in the school setting had greater adherence compared to those in the community sample suggesting that a monitored environment is an important predictor of adherence (Neil et al., 2009). Similarly, in studies where iCBT was coupled with some level of clinician support, adherence rates were higher than programs that offer no clinician support (March et al., 2009; Spence et al., 2011; Vigerland et al., 2016). It is necessary to consider ways to address the issues of treatment adherence for children and youth engaging with iCBT programs (Neil et al., 2009; Spence et al., 2019).

Previous literature has suggested that even a brief amount of clinician support is beneficial in improving program adherence for children and youth (Berg et al., 2020; Hill et al., 2018). iCBT programs vary in

Table 1

Program and Demographic Information for Existing iCBT Programs

Authors (year)	Program Name/ Information	Number/ Length of Sessions	Age Range	Outcomes	Demographic Information	Used in School-Setting	Type and Degree of Teacher/Clinician Support
Calear et al. (2009)	MoodGym	5 sessions (20–40 minutes each)	12–17	Reductions in anxiety (RCMAS) and depressive symptoms (CES-D) for males only with moderate completion rates	*Country* Australia *Residence* Rural (16%) *School Demographics* private, public, coeducational, single-sex, metropolitan, rural	Yes	Teacher monitored and supported for technology issues in a computer lab
Hetrick et al. (2017)	Reframe-IT	8 modules		Reframe-IT group demonstrated greater reductions in levels of suicidal ideation compared to TAU group; however, study was underpowered	*Country Australia*	Yes	School well-being staff member administered online program at school. A message board that was monitored by a therapist was available for students to post questions and concerns, the therapist would send out individual standardized messages to students who post. School welfare staff monitored intent for suicide before and after every module and were available to respond to at risk students.
Khanna & Kendall (2010)	Camp-Cope-A-Lot	12 sessions (35 minutes each) 2 parent sessions	7–13	Reductions in anxiety for those in iCBT condition compared to control	*Country* United States	No	Self-directed learning for 6 sessions and clinician supported for final six sessions (exposure tasks and rehearsal in specific anxiety-arousing situations)

Table 1, continued

Program and Demographic Information for Existing iCBT Programs

Authors (year)	Program Name/ Information	Number/ Length of Sessions	Age Range	Outcomes	Demographic Information	Used in School-Setting	Type and Degree of Teacher/Clinician Support
O'Kearney et al. (2006)	MoodGYM	5 sessions (20–40 minutes each)	15–16	No significant differences between groups on depression, attributional style or self-esteem but small short-term effects for boys who completed more than 40% of the program	*Gender* Male (100%)	Yes	Teacher monitored and supported for technology issues in a computer lab
O'Kearney et al. (2009)	MoodGYM	5 sessions (20–40 minutes each)	7–13	No initial reduction in depression (CES-D) but reduction in Tx group 20 weeks post intervention	*Gender* Female (100%) *SES* Moderate–high income	Yes	Teacher monitored and supported for technology issues
Spence et al., 2011	BRAVE-Online	10 child sessions (60 minutes each) 5 parent sessions (60 minutes each) Booster session at 1 and 3 months	12–18	iCBT program produced significant reductions in clinic rated anxiety. Reductions were comparable to clinic-based CBT	*Country* Australia	No	Clinician supported via web/email. Clinician monitors progress and sends brief email each week. Automated emails are sent on behalf of clinician throughout program

Note. TAU – treatment as usual; Tx – treatment

their level of clinician support. For example, programs like MoodGYM, a universal, self-directed program, offers little-to-no clinician support, depending on the context of implementation (e.g., school or community; Calear et al., 2009; Neil et al., 2009; O'Kearney et al., 2006; O'Kearney et al., 2009). Other programs provide much higher levels of support in the form of email check-ins, participation in discussion boards, or mid-point live clinician contact (Hetrick et al., 2017).

Implications for the BDIs. Given these concerns, much like short-term interventions, iCBT programs also appear to be insufficient to meet the needs of students if delivered as a stand-alone intervention. In the case of the BDIs, meeting with a clinician before completing the self-directed learning module and reconvening after completion is an intervention feature that is intended to promote program adherence and completion, in addition to personalizing to fit the youth's needs, consistent with previous research about the importance of clinician support (Berg et al., 2020; Hill et al., 2018). As an additional augmentative process, BDIs also include a progress monitoring component that is used to guide clinical decision making. The progress monitoring component of the BDI allows for outcome monitoring and feedback during the intervention, which might increase client belief that the intervention will work (an important common factor of psychotherapy; Wampold, 2015) or help with problem-solving barriers to treatment effectiveness (Tasca et al., 2019). In addition to supporting program adherence and skill use, the progress monitoring is used to inform clinician decision making and monitor potential adverse reactions.

While BDIs are grounded in a strong theory and research base, it is important to note that the effectiveness of any intervention is inherently dependent on the fit of that intervention for the context and needs of the recipient. In the subsequent sections the authors discuss implementation and clinical considerations that may qualify, if and when BDIs might be a useful solution.

Short-Term Interventions in Schools

There is robust evidence suggesting that short-term interventions can be effective in treating mild and emerging mental health difficulties (Lamprecht et al., 2007; Lee & Tratner, 2021 Matthews, 2018; Situmorang, 2021). Short-term interventions are based on the premise that significant gains can be achieved through minimal intervention, especially when the clinical interaction is focused on identifying behavioural solutions, is grounded in principals of behaviour change, and supports the identification, acquisition, or use of theoretically specific skills that have been identified as mechanisms of change in longer psychotherapies (Strosahl et al., 2012). While a fulsome review of short-term interventions is beyond the scope of this article, readers are directed to meta-analyses, reviews, and books to learn more (e.g., Schleider & Weisz, 2017; Strosahl et al., 2012).

Furthermore, research has suggested that in school-based mental health settings, higher doses of intervention do not necessarily result in better outcomes (Sanchez et al., 2018) and that reliable clinical improvement can occur in fewer than three sessions (Kirk et al., 2019). Because school mental health services are frequently over-subscribed, these findings suggest that short-term interventions may be part of a solution to address the mental health needs of students. Research on short-term interventions suggest that they are most effective when they have theoretically specific technologies that target mechanisms of change relevant to the developmental characteristics, population characteristics, and the pathogenesis of the mental

health difficulty being targeted (Schleider & Weisz, 2017). A limitation of short-term interventions is their decreased capacity to adequately monitor risk (e.g., of suicide) or adverse reactions to treatment (Schleider & Weisz, 2017). As such, using short-term interventions alone are insufficient.

Implications for BDIs. BDIs circumvent these limitations by having multiple points of therapist contact and using a progress monitoring tool grounded in measurement-based care. Clinician contact may bolster the effectiveness of digital interventions (Venturo-Conerly et al., 2021) which is important because treatment adherence in digital interventions is a barrier that is difficult to modify (Pihlaja et al., 2020).

Because short-term interventions are most effective when they comprise theoretically specific technologies that are developmentally appropriate and target core mechanisms of pathogenesis, the BDI's self-directed learning modules are composed of skills-training activities that address core features of anxiety, depression, and behaviour problems (Cho et al., 2020). Importantly, completion of single-session computerized interventions akin to the learning modules is associated with significant treatment gains even in the absence of clinician support (Schleider & Weisz, 2017, 2018; Schleider et al., 2019). Because the choice of skill module (cognitive restructuring, relaxation, problem solving or trying a behavioural experiment) is jointly made by the student and clinician, and because the clinician meets with the student to discuss barriers and successes in using the skill in their life and context, these modules can be delivered in ways that are responsive to different populations and contexts (e.g., urban, rural, cultural, socioeconomic status). Even though clients receive guidance and support from the therapist in applying the skills, the program developers hypothesize that the primary mechanism of change in BDIs is the self-directed learning modules which are akin to other iCBT interventions. Future research will be required to evaluate the mechanisms of change.

Progress Monitoring

While psychotherapy is generally beneficial for children and adolescents, the average effect size is only moderate for anxiety and conduct problems and is small for depression, attention-deficit/hyperactivity disorder (ADHD), and co-occurring disorders (Weisz et al, 2017). This is problematic because many clinicians overestimate their effectiveness (Walfish et al., 2012) and are more likely to use therapies they are comfortable with rather than choosing interventions that match the client's needs and presentation (Wolk et al., 2016).

Progress monitoring and measurement-based care is one solution that is associated with augmented treatment responsiveness (CPA, 2018). Progress monitoring is a component of measurement-based care where valid and reliable measures are used to evaluate changes in either overall symptomatology and well-being or specific treatment foci and processes (CPA, 2018). Monitoring the response of students throughout treatment can alert the clinician to whether the intervention is working overall, and specifically which treatment foci are improving (Weisz et al. 2020). This information can be used to change the therapeutic approach, change the treatment foci, or terminate treatment altogether (Weisz et al., 2020). Indeed, the Canadian Psychological Association notes that progress monitoring is an ethical requirement and best practice in psychotherapy (CPA, 2018).

Implications for BDIs. The import of progress monitoring is especially salient in digital interventions where spontaneous observations or complaints about non-response are inherently sparser. The BDI uses the Top Problems Questionnaire and the Behavior and Feelings Survey to monitor response to intervention and

to make changes to the intervention strategy if needed. Because BDIs are conceptualized to be most effective in a tiered system of care, progress monitoring can also be used to make decisions about referrals to more intensive types of intervention if required.

Implementation Considerations

SMH-ON has established several implementation initiatives to support the uptake and effective use of the BDIs. For example, implementation coaches worked with individual schools to support clinicians in using the tool in ways that work in their context. Managers and supervisors were also trained on using the BDIs so that high quality support could be given internally. This is an important consideration for program sustainment and promotes more sensitive implementation of evidence-based interventions (EBIs) because the leadership is aware of the unique strengths and challenges in the community. The authors have also identified potential ethical and implication challenges and barriers described below.

To support an implementation-sensitive approach, in addition to the consultatory process during the adaptation phase described above, province-wide *learning collaboratives* were also held to promote the flexible implementation of the program without sacrificing fidelity. These communities of practice involved peer-to-peer problem solving, case consultation, and demonstrations. As an adjunctive feature, the Implementation and Scale-Up lab *walked-along* the implementation process and provided feedback to the BDI team on emerging implementation challenges.

Implementation and Clinical Considerations and Barriers. There are a number of implementation barriers that should be considered when delivering BDI programs in school settings such as student access to technology, literacy and technological literacy, self-regulation skills, and the potential lack of a private space. BDIs may not be sufficient for youth with more severe or complex mental health difficulties, and that can be a barrier, as well, because often these are the youths being referred for service (Canadian Agency for Drugs and Technologies in Health, 2018). The BDI was developed to be used within a tiered-care model. Because demands for services are so high, and because the BDI is potentially very efficient, there may be pressure to use the BDI with youth for whom it is inappropriate. Prior research has suggested the following exclusion criteria for iCBT programs which might inform exclusion criteria for BDIs: severe substance abuse, severe conditions of ADHD, acute suicidal ideation, a Full Scale IQ below 80, insufficient language skills to engage with the program material, active psychosis, and ongoing psychological treatment with the potential to interfere with iCBT (Berg et al., 2020; Khanna & Kendall, 2010). For this reason, it is important to conceptualize BDIs within a larger tiered system of care (Vaillancourt et al., 2021). The BDI is intended to support youths who have mild and emerging mental health difficulties within a multi-tiered system of support. BDIs are one tool that a school mental health professional might use when presenting concerns are relatively mild and amenable to CBT-based strategies. Schools are an optimal setting to address mild and emerging mental health difficulties and orient families towards the wider mental health system which is often difficult to understand and navigate (Vaillancourt et al., 2021). The progress monitoring component of the BDI is used to quickly and efficiently identify students who are not progressing in treatment so that clinicians can support referral processes to more appropriate forms of care, which may exist outside the school system. Another clinical consideration is the risk of adverse outcomes that might occur because youth who require more intensive services are assigned to this treatment first, potentially delaying access to appropriate care.

In addition, youth with histories of being invalidated and misunderstood might experience some asynchronous content as invalidating which could lead to more treatment resistance, or some iatrogenic harm could be introduced (e.g., not being aware of how self-critical someone is until they begin watching their thoughts, then ruminating and fixating on self-criticism). This may be especially important when considering the provision of BDIs with persons from equity-seeking groups and persons from groups that likely experience discrimination and systemic oppression. Moreover, some youths do experience bullying, discrimination, or outright racism, which cannot be fully addressed by simply completing a BDI. Additionally, because the BDI is based on Western models of psychological health (e.g., CBT assumptions of psychopathology and healing, that psychological difficulties are intrinsic to the person rather than a mismatch between person and context, etc.), the BDI may not be appropriate for people from all cultural backgrounds. The presence of live clinical support before and after each module, ongoing guidance regarding appropriate use of modules, combined with progress monitoring, can serve to mitigate these risks provided that clinicians are intentional about the use of the BDI and its effects on the recipient.

Ethical Considerations and Challenges. A number of ethical considerations are also relevant to this model of care. One salient consideration is equity and access to service. Youth with low English or French language and literacy skills, inadequate access to technology, and inadequate access to private spaces (common exclusion criteria for digital interventions) are often youth who are marginalized or multiply barriered. For example, studies have consistently demonstrated that recent immigrants and refugees struggle with finding affordable rental arrangements with adequate space (Bell, 2019; Forchuk et al., 2021, Mensah & Williams, 2013), which may impact their ability to complete a BDI privately. Family finances may also limit access to the internet. We describe these as ethical considerations or concerns rather than problems, because school mental health initiatives should provide high quality care regardless of the social location of the student. By considering multiple layers of barriers to care, implementation-sensitive solutions can be developed to ensure equitable access to care for all students. While we do not argue that this is sufficient to address systemic oppression, it does serve as a call to action for service providers to be flexible and creative about how they meet the needs of the populations they serve. Furthermore, there are limited resources overall, and having BDIs be available to some might actually free up resources for marginalized or multiply barriered youth. Nonetheless, addressing these obstacles would require intentionality and dedicated funding to ensure that adequate support is provided.

A second ethical concern is inequitable access for individuals with higher mental health needs and greater complexity. In some ways, these are the youths who require help the most, and this raises a question as to whether it is appropriate to adopt a conservative policy that excludes them from this service a priori. In one study, youth who endorsed risk issues of suicidality or self-harm planning were initially excluded from treatment based on their complexity (Anderson et al., 2017). Parents of these youth expressed concern that this exclusion exacerbated their children's distress and argued that some form of treatment is better than none. The BDI is intended to function within a larger system of tiered care. By reducing the demand for services upstream through prevention and early treatment efforts, more resources are available for youth with higher levels of need. Rather than seeing this as an ethical problem, we view this as a systems problem where it is the responsibility of systems personnel to use a variety of intervention strategies to meet different levels of need rather than focusing simply on the cost of different inputs such as time and money, or simply

focusing on throughput. In other words, it is important that system planners avoid relying solely on STIs and computer-assisted models of care like a BDI and that these services are complemented by more intensive supports for those who need them. Thus, there is a potential problem if BDIs are the *only* intervention available, but they can play an important role within a multi-tiered system.

A third ethical consideration pertains to the responsiveness of care. It is well established that interventions are more effective when adapted to meet the cultural, gender, and sexuality, urbanicity, and SES characteristics of the recipients (e.g., Arora et al., 2021). Because the self-directed learning modules are a pre-packaged prevention program broadly targeted for use with youth with a broad range of presenting problems, the skills modules are inherently imprecise with regard to very specific recipient characteristics. Thus, it is important that the youth-clinician contact between modules accurately and effectively attend to means of adapting the skills for the client's lived experience and to address any experiences of invalidation that might occur as a result of the program content (see Bryant & Arrington, 2022; Cwinn et al., 2022), for discussion about these principles). Furthermore, it is important that clinicians and school systems strive for anti-racist and anti-discriminatory practices and that they engage in ongoing critical evaluations of their practices. This anti-racist and anti-discriminatory lens should include an evaluation and appropriate distribution of care to different equity-seeking groups, ensuring that there are not disparities in the type and quality of care for different groups.

Evaluation Considerations

This article seeks to advance and promote innovative, evidence-based, implementation sensitive approaches to school mental health challenges. Part of this broad agenda is promoting the evaluation and study of novel solutions, their mechanisms of action, and the client characteristics for whom they are (and are not) effective. To this end, we turn now to implementation and evaluation challenges that emerged during the initial pilot of the BDIs in Ontario.

During the pilot it became apparent that many clinicians implemented BDIs as an adjunct to existing treatment plans; that is, some used them in nested short-term interventions as intended, but a greater number used them to support existing plans of care. This use of BDIs as an adjunct tool might be effective, but unless the use of them is clear, this pairing would confound any conclusions drawn from evaluation attempts and confuse estimates of healthcare cost and utilization resulting from a BDI. Conversely, BDIs are sensible adjuncts to some treatment plans and so this might better reflect real-world use of the tool. To understand the implementation and outcomes of the BDI, comprehensive program evaluation is required. This challenge highlights a principle, namely, that school mental health research occurs within real-world systems of care, and that intentionality is required in research design and evaluation to ensure that research questions can be answered with rigor, while simultaneously maintaining the quality of care students typically receive. To do that, school boards must become more open to approving program evaluation research from third party researchers. The research approval process should move toward multi-year approvals, prioritization of research that evaluates the effectiveness of programming, and involve a coordinated approval process between boards.

Another barrier is that the culture of measurement-based care in school mental health is relatively new in Canada, and clinicians are not used to measuring outcomes as a standard of practice. This paradigm shift is

understandably slow and so it limits the pace at which measurement can be implemented, and this in turn limits prospects for accumulating the data needed for credible program evaluation. In the BDI pilot, the Harvard group had intended to use progress monitoring data for preliminary evaluation purposes, but the utilization of these measures was too sporadic to produce useable data. Thus, the pilot experience provides important direction for next steps. Some potential solutions for this barrier might include clear guidelines on what and how progress monitoring data can be used and IT infrastructure support to enable the deidentification and sharing of these data in a manner that is compliant with provincial health information laws. Additionally, it may be important to ensure that clinicians do not feel fear of reprisal regarding the outcome measures of their students. Moreover, measurement-based care should also include proximal and process change targets to better articulate why and how students are improving (or not). Another possibility might involve creating a consortium of school boards who agree to collaborate in the planning and implementation of a common measurement-based care program, and in the review process, thus, to produce a large enough body of data for true outcome evaluation of novel school mental health programs, such as the BDIs.

Implications for Evidence-Based, Implementation-Sensitive Approaches to School Mental Health

The BDI pilot was developed from an evidence-based implementation-sensitive lens. This was accomplished by considering the intervention characteristics that would meet the wide range of needs encountered in school mental health, providing ongoing implementation support, providing the training in a nested-model so that different boards have support from their local leadership, and using measurement-based care as an integral feature of the program. The evidence base supporting the intervention, the implementation supports and strategy, and measurement-based care are pieces of a puzzle that are all required for an evidence-based, implementation-sensitive program.

The intervention characteristics were carefully considered to address a need in existing school mental health pathways. Specifically, the BDI was developed with theoretically and empirically validated mechanisms of psychotherapeutic change as a core feature. Furthermore, the BDI targets transdiagnostic features that underlie a range of child and adolescent mental health difficulties that allows for greater flexibility in establishing agreement between the goals and tasks of the intervention (Marchette & Weisz, 2017). Because the behavioural expression of these mechanisms of change can vary between individuals and groups, the BDI empowers clinicians to use their expertise and experience to language and to implement the intervention in ways that make sense for their clients or students. In this way, the BDI relies on robust therapeutic technology, coupled with the flexibility in presentation and delivery required for students to adopt and use those technologies.

There have been numerous implementation supports provided throughout the BDI pilot, including webinars, provision of implementation coaches, multi-site learning collaboratives, videos illustrating clinician sessions using the BDIs, online clinician guides explaining implementation procedures for the BDIs and the measurement-based care program, ongoing learning opportunities, and different training formats. Throughout this process, feedback was solicited from users to identify and better meet their needs and the needs of their students. Feedback was also solicited from users to identify *how* they are using the program, the strengths of the program, and the limitations of the program given the clinical needs they encounter.

Measurement-based care is another that situates the BDI as an evidence-based, implementation sensitive approach. Measurement-based care is a process that facilitates implementation sensitivity at multiple levels. At the individual level, clinicians and students collaborate and co-discover which techniques are helpful, what barriers exist in the use of those techniques in the student's real life, and they problem solve and attempt solutions to circumvent those barriers. At a broader level, measurement-based care allows for population-level evaluation to explore whether the BDI is helpful and if so, the conditions in which it is helpful.

CONCLUSION

In this article, we describe BDIs as an innovative and promising intervention. We believe that BDIs could meet a service gap for youth with mild and emerging mental health needs in schools and in a way that is responsive to real-world resource constraints. We suggest that BDIs might be an effective solution because they address the limitations of both short-term interventions and iCBT interventions and are delivered within a system of measurement-based care that informs decision making. We also discuss some potential risks, limitations, and ethical concerns related to BDI. While we believe these can be well managed, it will require conscientiousness on the part of program implementers to ensure that youth are referred to the appropriate type of care and that they are adequately supported throughout the process. We also describe some challenges related to the study of the implementation and evaluation of innovative solutions in Canadian schools. Overall, we hope that our approach may serve as one example of a promising model for adapting scalable mental health interventions to address challenges within school mental health. We look forward to empirical tests in the days ahead evaluating the mental health impact of this highly accessible form of intervention, and to the development of other novel approaches to meeting the needs of students in an evidence-based and implementation sensitive manner.

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