



REVIEW ARTICLE

Towards online delivery of Dialectical Behaviour Therapy: A scoping review

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ABSTRACT: *Dialectical Behaviour Therapy (DBT) programmes are often the only available treatment for people diagnosed with borderline personality disorder and were rapidly converted to online delivery during the COVID-19 pandemic. Limited research exists surrounding how the major elements of DBT are delivered in an online environment. This scoping review considered the operationalization of online delivery of DBT and its effectiveness. EBSCO host databases were searched using free text. Of 127 papers, 11 studies from 2010 to 2021 investigating online DBT for any clinical population were included in the review. A narrative synthesis of papers selected was undertaken. Seven articles reported results from five clinical trials (n = 437). Most adaptations mirrored face-to-face programmes although there was considerable variation in how therapy was facilitated. Attendance was reported to be greater online with comparable clinical improvements to face-to-face for those who remained in therapy. Additional challenges included managing risk, therapist preparedness and technology difficulties. Online delivery of DBT programmes is feasible and may be more accessible, acceptable and as safe and effective as face-to-face delivery. However, mirroring face to face delivery in an online environment may not be the most effective and efficient way to adapt DBT to online provision. Research is needed to identify areas which require further adaptation.*

KEY WORDS: *borderline personality disorder, COVID-19, DBT, dialectical behaviour therapy, telehealth.*

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INTRODUCTION

Dialectical Behaviour Therapy (DBT) is a programme of treatment for borderline personality disorder (BPD) and has a strong evidence base (Oud *et al.* 2018). It is one of the few effective psychotherapy programmes delivered in public mental health services for people diagnosed with BPD in which mental health nurses are often involved (Lakeman *et al.* 2021). DBT has been successfully adapted to other clinical populations such as those with alcohol and drug problems (Hurzeler *et al.* 2021), eating disorders (Bankoff *et al.* 2012) and others whose difficulties appear to be underpinned by problems with emotion regulation, distress tolerance

and skill deficits in interpersonal effectiveness (Cook & Gorraiz, 2016). The intent of DBT is to decrease impulsive and self-injurious behaviours through the acquisition, practice and generalization of skills to the person's everyday life (Linehan, 1993). The DBT programme consists of different modes of treatment which broadly and traditionally map to different functions. These include individual treatment (to gain insight, improve motivation and address individual treatment targets), skills training (to enhance capabilities), between session coaching by telephone (to generalize skills), occasional family interventions (to improve the psychosocial environment), and consultation amongst therapists (to maintain motivation and skills of therapists) (Linehan, 1993; Lungu & Linehan, 2017). The length of DBT programmes vary but typically people with a diagnosis of BPD are enrolled for more than 6 months and there appears to be a dose response. The longer the engagement in the programme the better the outcome (Lakeman & Emeleus, 2020).

Skills training has traditionally been undertaken in a weekly face-to-face group in cycles from 12 to 30 weeks according to the manual developed by Linehan (2015) and primarily serves the function of enhancing people's capabilities (Lungu & Linehan, 2017). Skills training as a standalone intervention (without the other DBT programme components) has also been trialled for a range of mental health problems with some success (Blackford & Love, 2011; Valentine *et al.* 2015). For example, skills training has been trialled with high school students in order to prevent the development of mental health problems (Burckhardt *et al.* 2018). There have also been attempts to develop and incorporate mobile applications to augment skills generalization through in-vivo skills coaching (Rizvi *et al.* 2016).

Reis *et al.* (2021) reviewed online interventions proven to be effective in the treatment of adolescents with personality disorders. Many of these share characteristics of DBT (e.g. they are in modular format and are therapist guided) but no studies reviewed were described as high fidelity DBT programmes. To date there has been very little research on delivering the major components of DBT in an online environment (Frías *et al.* 2020).

The mandated social distancing requirements as a consequence of the COVID-19 pandemic had an immediate impact on the provision of DBT programmes, with some programmes abruptly ceasing and at least anecdotally this had adverse consequences (Lakeman & Crighton, 2021). Some services convened

skills groups via video conferencing facilities such as Zoom, with little adaptation from the face-to-face format (Salamin *et al.* 2021). Younger service users have reported considerable anxiety about issues arising from COVID-19 and anxiety about ongoing treatment (Kvarstein *et al.* 2021). Services were not prepared for the transition to telehealth provision of DBT. This experience led to a call for a more careful consideration of how technology can assist in the provision of DBT and to address the challenges which it presents (Hyland *et al.* 2021).

AIMS

This review aims to describe how DBT, particularly the skills group mode of delivery, has been operationalized in the online environment. It will determine whether there is evidence for online provision being as effective as face-to-face modes. It will note differences in outcomes compared to face-to-face provision and how issues such as noncompletion and safety are managed in an online environment. The review will inform recommendations for providing DBT via online modes of delivery which preserve and enhance its functions and are in accord with DBT principles.

METHODS

Search strategy and review scope

Given that DBT as a programme is an effective intervention for BPD and other problems associated with emotional dysregulation (Lungu & Linehan, 2017), this project aims to address how DBT can be operationalized in an online environment. Hence a scoping review methodology is appropriate (Pollock *et al.* 2021). The PRISMA-Scoping Review Checklist guided the development and reporting of this project (Tricco *et al.* 2018). The scoping review protocol was registered with the open science network (<https://osf.io/4njqa>).

A scoping review approach invites consideration of a wide range of scholarly literature, not solely confined to trials. It aims to map and synthesis evidence from a range of sources to identify gaps in knowledge (Pollock *et al.* 2021). All peer reviewed journal articles published in English that provided an account of DBT provided online for any clinical population were included. Papers were excluded if they were protocols, reviews, opinion pieces, primarily about evaluating DBT mobile phone applications, or did not provide a description of how DBT was adapted or operationalized online.

Studies from 2010 were chosen because this coincides with the massification of what is known as Web 2.0 technologies in which interactive content rather than passive use of the Internet became the norm.

Searches were undertaken using EBSCO host research databases interface of CINAHL, Medline, Psycarticles, Psychology and Behavioural Sciences collection and APA Psycinfo from 2010 (January) until 2021 (June). Figure 1 details the search yield from the following search strategy: “(DBT OR dialectical behavior therapy OR dialectical behavioral therapy OR Dialectical behaviour therapy OR Dialectical behavioural therapy (5405 in total)) AND ((Online or telemedicine or telehealth or internet or COVID or COVID-19 or Coronavirus) (571 342))”. The search strategy used allowed searches for free text, rather than highly focused subject searches, to capture the greatest yield of potentially relevant material.

Data extraction and synthesis

A total of 127 papers were reviewed by title by the first author (see Fig. 1). A second researcher independently ran the search and completed a google scholar search. Data were extracted into an Excel spreadsheet with headings and themes determined by consensus in accord with the aims of the review. Twenty papers were reviewed. On full reading, a further nine papers were excluded. Eleven papers were included in the final review and are presented as a narrative synthesis under the superordinate headings reflective of the review's aims.

RESULTS

Characteristics of included studies

As illustrated in Table 1, the included studies were predominantly from the United States ($n = 7$). One survey was of an international audience, but 89.5% of respondents were from the United States (Zalewski *et al.* 2021). One study was based in each of Canada, Italy and the Netherlands. Several studies were trials which addressed effectiveness of online DBT interventions (Alavi *et al.* 2021; Austin *et al.* 2020; Lopez *et al.* 2020; van Spijker *et al.* 2014; Whiteside *et al.* 2019, 2021; Wilks *et al.* 2018, 2020). One attempted to understand dropout from a guided DBT (Wilks *et al.* 2020). Another studied the impact of online provision of group cohesion (Lopez *et al.* 2020). The remaining papers addressed how practices adapted to COVID-19

restrictions (Bossi *et al.* 2020; Hyland *et al.* 2021; O'Hayer, 2021).

How DBT has been operationalized in an online environment

Most accounts of DBT provided online appeared to mirror the content and process of face-to-face skills groups online. When social distancing was mandated due to COVID-19, Bossi *et al.* (2020) simply continued with four-weekly 2 to 3-hour group sessions, via Skype. O'Hayer (2021) reported on an adaption of a high fidelity DBT programme to Zoom within 2 weeks of social distancing being mandated. They continued the same format for skills group, but circulated handouts to participants the week before. They also detailed how they encouraged people to improvise with resources from home to learn and practice skills (e.g. using a bag of frozen vegetables or a bowl of chilled water for the 'TIP skill'). Therapists encouraged the use of particular skills to address challenges associated with online participation. For example, the 'DEARMAN' skill was rehearsed to enable people to ask for privacy.

Zalewski *et al.* (2021) surveyed 200 DBT providers and found that 74% had not used telehealth prior to COVID-19 but over 85% had switched to providing individual therapy, skills training and the consult group to 'telehealth'. A detailed account of how DBT was provided online was not elicited although challenges and potential recommendations were made. For example, providers suggested using editable PDF documents, sent in advance of skills groups, using the virtual whiteboard and encouraging chat, calling on individuals to make contributions, commencing groups early to allow clients to join and chat, and agreeing on how therapy interfering behaviours were managed by facilitator.

Alavi *et al.* (2021) trialled an asynchronous skills training intervention in which those who elected not to attend a face-to-face group were emailed 30–40 powerpoint slides each week (a 15-week programme) with skills content and homework sheets to be completed before seeing an individual therapist and before the next weeks material was sent. Wilks *et al.* (2018) recruited participants to an 8-week skills training online intervention consisting of modules of approximately 50 min duration. In each module two to three skills were introduced by a video. After each skill was introduced, they were presented with key points, followed by computer guided practice, and the selection of homework tasks. Participants were sent their chosen

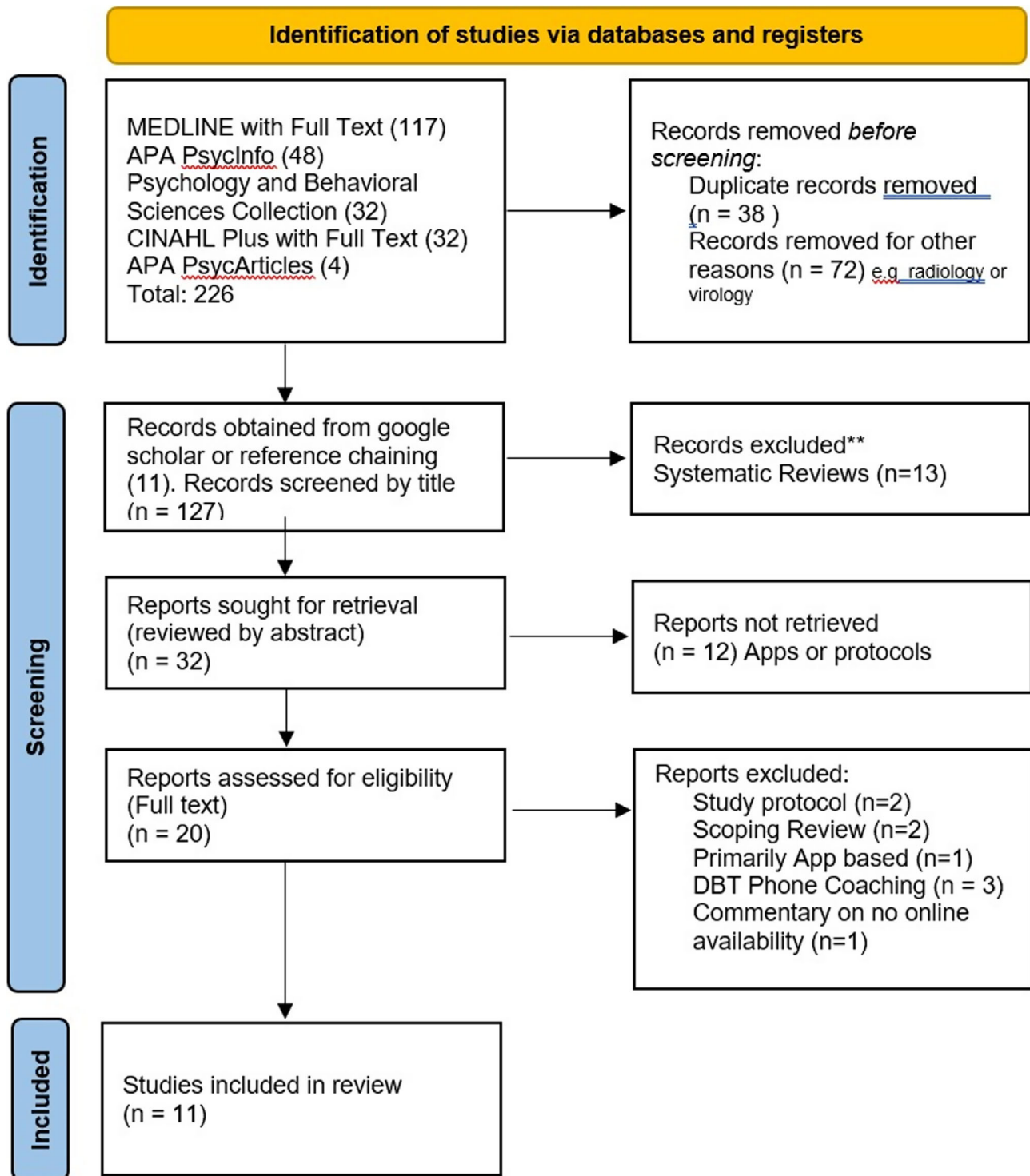


FIG. 1 PRISMA flow diagram for systematic reviews.

homework assignments by email and sent encouraging text messages or emails each day (Wilks *et al.* 2017, 2018). Wilks *et al.* (2020; p. 13) stated that the

intervention "...was topographically identical to in-person skills training (i.e. mindfulness then homework review, followed by new skill teaching, practice and

TABLE 1 Summary of studies included in review

Title and reference	Country of origin	Population/condition	Study design	n	Intervention and duration	Outcome measure/s	Findings
Effectiveness of Delivering Dialectical Behavioral Therapy Techniques by Email in Patients With Borderline Personality Disorder: A Nonrandomized Controlled Trial (Alavi <i>et al.</i> 2021)	Canada	Borderline Personality Disorder	Non RCT	107	Comparison of eDBT Group and DBT Group (15 weeks). All content and the format of the e-DBT program were designed to directly correspond with those of the in-person group.	SAQ, DERS	There were no significant differences between groups in measures at baseline or between groups on completion. Both SAQ and DERS scores significantly improved in both groups.
A web-based group treatment for patients with alcoholic liver diseases at the time of the COVID-19 pandemic (Bossi <i>et al.</i> 2020)	Italy	Severe alcohol use disorder	Case study (Commentary)	8 (40% male)	Description of a DBT web-based programme that was a delivered over a 3-week period comprising of 4 group sessions a week lasting 2 to 3 hrs. Overall participants attended the DBT group for a minimum of 3-months.	CORE-OM, DERS	CORE-OM and DERS questionnaires after 3 weeks were comparable to those recorded within 1-month before lockdown, reflecting stability of the patients regarding their psychological global distress and difficulties with emotional regulation
Telehealth for Dialectical Behavioral Therapy: A Commentary on the Experience of a Rapid Transition to Virtual Delivery of DBT (Hyland <i>et al.</i> 2021)	USA	University Students	Case study (Commentary)	na	Description of a tele-health DBT program that included a weekly 50-minute individual therapy session, weekly 2.5-hour skills training in a group (13-week cycle), and telephone coaching by individual therapists, and weekly consult group.	na	The service transition to DBT entirely via tele-health in 5 weeks. Clients reported that the convenience and removal of barriers to treatment access and participation, as reflected in higher attendance rates in the online group format (i.e. reflective of acceptability of DBT provided via telehealth).
Therapeutic groups via video teleconferencing and the impact on group cohesion (Lopez <i>et al.</i> 2020)	USA	Depression	After comparison	35 (online: 73% female / in-person: 70% female)	Comparison of a video teleconferencing (VTC) DBT group using the same format, the same materials, and which had the same facilitator as the in-person DBT group. For the VTC group, a virtual whiteboard was used, screen sharing of pictures and mindfulness activities, chat and breakout rooms utilized.	Rovai Community Connection Scale	Lower group cohesion but similar satisfaction and higher rates of attendance in the online group.

(Continued)

TABLE 1 (Continued)

Title and reference	Country of origin	Population/condition	Study design	<i>n</i>	Intervention and duration	Outcome measure/s	Findings
Building a Life Worth Living During a Pandemic and Beyond: Adaptations of Comprehensive DBT to COVID-19 (O'Haver, 2021)	USA	Trans / non-binary identifying population including history of chronic health condition	Case study (commentary)		Webcam delivered comprehensive DBT. A supplemental skills group was described which was intended to focus more on COVID-19-related adaptations	DBT Completion	There were noted benefits of skills groups being run online for example, observers could be present (with video and audio off) and participants could consult with facilitators during break. This author noted greater engagement with use of chat features. Those who might ordinarily be reticent commenting might use text chat and participants could privately request coaching. Facilitators could privately message participants experiencing dissociation and offer coaching. The chat facility was controversial in that they could prove distracting and not in accord with 'one-minded practice' of skills learning and teaching.
Effectiveness of Online Self-Help for Suicidal Thoughts: Results of a Randomised Controlled Trial (van Spijker <i>et al.</i> 2014)	Netherlands	Mild to moderate depression and mild to moderate suicidal ideation.	RCT	236	Unguided online self-help	Beck Depression scale	A large number of people were screened as ineligible due to severe depressive symptoms. 37% reported receiving professional care. The results show significantly greater improvement in suicidal thoughts in the intervention group compared with the control group (Between group effect size was 0.33). The only other significant difference between groups was worry but the intervention group showed non-significant improvements in all areas.

(Continued)

TABLE 1 (Continued)

Title and reference	Country of origin	Population/condition	Study design	n	Intervention and duration	Outcome measure/s	Findings
Development and Evaluation of a Web-Based Resource for Suicidal Thoughts: NowMattersNow.org (Whiteside <i>et al.</i> 2019)	USA	Users of the website NowMattersNow.org - a resource for individuals with suicidal thoughts	User experience survey	3670 The sub-samples included men aged 36 to 64 years (n = 512)	NowMattersNow.org - online video-based free public resource for suicidal ideation reduction drawn largely from DBT skills	Self-Reporting, Survey items adapted from DBT 'diary cards'.	Reductions in intensity of suicidal thoughts and emotions, including those rating their suicidal thoughts as completely or almost completely overwhelming.
Internet-Delivered Dialectical Behavioral Therapy Skills Training for Suicidal and Heavy Episodic Drinkers: Protocol and Preliminary Results of a Randomized Controlled Trial (Wilks <i>et al.</i> 2017)	USA	Suicidal ideation and heavy episodic drinking (HED) - two episodes of heavy drinking in the last month	RCT (Preliminary Analysis) And secondary analysis to explore the high rate of treatment drop-out	59 male = 18 (30.5%) female = 41 (69.5%)	8-week Internet-delivered dialectical behaviour therapy (DBT) skills training comparing an Internet-delivered Dialectical Behavioural with a waitlist control	online surveys tools (Qualtrics & Articulate Online)	Of the 398 individuals who expressed interest in participating, 91 were determined to be eligible through the screening process. A total of 60 individuals returned their informed consent and were randomized, of whom 59 individuals were intended-to-treat. A total of 50 participants in the study were retained through the 16-week enrolment. The only significant pre-treatment predictor of dropout was the presence of a barrier, with technological and unknown barriers being most strongly associated with dropping. No clinical characteristics emerged as significant predictors of dropout (including clinical complexity)

(Continued)

TABLE 1 (Continued)

Title and reference	Country of origin	Population/condition	Study design	n	Intervention and duration	Outcome measure/s	Findings
A randomized controlled trial of an internet delivered dialectical behavior therapy skills training for suicidal and heavy episodic drinkers (Wilks <i>et al.</i> 2018)	USA	As above	RCT (as above but with different outcomes reported)	59 male = 18 (30.5%) female = 41 (69.5%)	As above	Demographic Data Schedule – Short Version. Treatment History Interview NIAAA recommended questions for binge drinking. The DERS-16 The Suicide Behavior Questionnaire-Revised Acceptability, feasibility, and usability	The sample had significant reductions in suicidal ideation, alcohol use severity, alcohol quantity, and emotion dysregulation over the course of the sixteen-week study, with faster reductions when participants were enrolled in active treatment. At 4-month post intervention 70% of all participants reported not having engaged in binge drinking in the past month. The proportion of individuals not meeting the initial study criteria for heavy drinking was higher in the intervention group. Suicidal ideation was reduced but there was no great reductions in emotional dysregulation scores. The authors state that the study was underpowered to detect differences between groups.
Lessons Learned Conducting Dialectical Behavior Therapy via Telehealth in the Age of COVID-19 (Zalewski <i>et al.</i> 2021)	International but 89.5% from the USA	200 completed close questions and 180 open-ended questions	Qualitative study	200	Thematic analysis	Semi-structured interviews	Findings were primarily around DBT stage 1 treatment targets. Some noted pre-treatment for new clients via telehealth was challenging as was assessing risk. Therapy interfering behaviours were noted relating to technology for example, clients avoiding sessions, turning off their cameras, logging off prematurely, snoring, drinking or falling asleep during sessions. Some noted that clients were more easily distracted and homework compliance lower. Encouraging engagement, group cohesion, and maintaining privacy were challenges in skills groups as was lack of access to typical materials.

homework assignment), without evidence on the salience of any aspect or component in building new behaviour into participant behavioural repertoires.”

Whiteside *et al.* (2019, 2021) developed a website (nowmattersnow.org) to teach four DBT skills (mindfulness, opposite action, mindfulness of current emotion and paced breathing) to manage upsetting or painful emotions than can precipitate suicidal thoughts and behaviour. Marsha Linehan consulted on the website development and it included a video landing page and links to each skill, a 30-second video introduction, a 5- to 8-minute didactic video of the skill as it might be taught in a skills group, several videos of first-hand accounts of skills use and a one-page practice assignment. The pilot study included a coach for 3 months who sent caring and encouraging messages to people via secure text messaging.

The effectiveness of online DBT

The studies reviewed consisted of several trials of online delivery of DBT relative to face-to-face or waitlist controls. All studies suggested that online delivery was feasible and at least as effective as control conditions (waitlist or face-to-face), but all were also underpowered or had methodological flaws which preclude making generalizations about the efficacy of online adaptations.

van Spijker *et al.* (2014) provided one of the earliest examples of a trial of an unguided Internet intervention ($N = 236$) informed by DBT principles for people with mild to moderate depression. This intervention fell on the margins of a DBT programme (and inclusion in this review) but did demonstrate that over 6 weeks and compared to waitlist controls ($n = 120$), completing a weekly DBT informed modular programme with motivating email prompts led to a significant reduction in suicidal ideation. Modules included specific information on the nature of suicidal thoughts, regulating intense emotions and principles of CBT self-help. People with more severe suicidal ideation (37%) were referred to tertiary mental health services. There was a low drop-out in the full sample but over 30% of eligible participants declined to participate in the study.

More recently Whiteside *et al.* (2021) piloted a population-based suicide prevention intervention in the Kaiser Permanente Washington healthcare catchment. People who had responded to secure email message from the organization in the last year and had responded to the Patient Health Questionnaire item on suicide, ‘over the last two weeks have you been

bothered by thoughts that you would be better off dead or of hurting yourself in some way’ (more than half days or nearly every day) were invited to participate. In all, 60 people were invited by secure email message to visit the landing page of the DBT skills intervention. 56 opened the invite and 21 were further reminded by secure message. 24 people visited the web site (on average 5.3 times). Those that did engage reported practicing skills. Whiteside *et al.* (2019) had earlier reported on surveys of general users of the website. These surveys were triggered after several page visits and after more than 8 minutes on the site. They found that there were significant self-reported improvements in intensity of negative emotions and suicidal thoughts after visiting the site. Whilst a population-based measure, this project does suggest ways that DBT skills can be taught online with minimal guidance from a therapist.

The earliest reported trial of a therapist guided DBT intervention was a pilot study by Wilks *et al.* (2017; Wilks *et al.* 2018). Participants with a history of binge drinking in the past month, and with high score on the brief version of the Difficulties in Emotion Regulation Scale (DERS) (Bjureberg *et al.* 2016) were recruited via advertisement into an 8-week therapist assisted online skills group or a waitlist control group. The group included weekly modules on mindfulness ($\times 2$), addiction ($\times 2$), emotion regulation ($\times 3$) and distress tolerance ($\times 1$). The skills group closely mirrored a traditional face-to-face skills group and was reportedly adapted from a programme developed for a PhD study by Lungu (2015). 50 of 60 participants were retained in the study but there was a very low skills group completion rate. Both groups had reductions in binge drinking behaviour and suicidal ideation over the course of the study and a 4-month follow-up with faster reductions in the intervention group. There were no significant differences between groups and no significant reduction in emotion regulation scores (Wilks *et al.* 2018).

Alavi *et al.* (2021) recruited 107 individuals with a confirmed diagnosis of BPD who elected to attend either a face-to-face skills group ($n = 52$) or an e-DBT group ($n = 53$). The content and format of the e-DBT group mirrored the face-to-face group and consisted of slides, handouts and homework being emailed to participants and homework was required to be returned to the individual therapist before the next weeks slides were sent. Both groups improved significantly on the Self-Assessment Questionnaire and Difficulties in Emotion Regulation Scale (Weiss *et al.* 2015) after the

15-week programme. Over 50% prematurely terminated in both groups but those who dropped out persisted for longer in the e-DBT group.

The acceptability of online DBT and maintaining engagement

The two case studies on adaptation of DBT to COVID recommended extending online DBT, beyond COVID social distancing requirements as online skills training reached more people and attendance was often better than in previous face-to-face groups (Bossi *et al.* 2020; Hyland *et al.* 2021; O'Hayer, 2021). In the survey of DBT practitioners during COVID-19, there were some accounts of people 'treading water' until therapy might recommence, despite online modes of delivery being rated as effective by most people. 76 respondents also reported access or technical difficulties and some speculated that some participants may have dropped out because they did not like showing their faces on video.

Lopez *et al.* (2020) developed an online skills group (which mirrored the content and process of a face-to-face group) for people unable to access face-to-face skills group due to transportation problems or other commitments. They noted that those in the online skills group had lower levels of connection with each other, but weekly attendance was greater (91% vs 75% for the face-to-face group) and there were high levels of satisfaction.

The trials of therapist guided online DBT had relatively high non-completion rates. 44% of online skills group participants and 49% of face-to-face participants completed the programme in one naturalistic trial of DBT for BPD (Alavi *et al.* 2021). However, those who prematurely disengaged completed more skills sessions in the on-line group. Wilks *et al.* (2020) reported drop-outs of more than 50% in their small pilot study of computer-guided DBT for episodic heavy drinkers. Follow-up surveys suggested that the only significant pre-treatment predictor of dropout was the presence of an unknown obstacle or technological problem.

Risks and safety

In the naturalistic DBT programmes, risk was managed in much the same way as in conventional DBT programmes. Alavi *et al.* (2021) informed participants that therapists would read their emails once a week and they could not respond to crisis, that in case of emergencies then they should contact emergency services.

Some of Zalewski *et al.* (2021) survey respondents noted that undertaking risk assessments were more challenging via tele-health but quoted one respondent as saying that suicide risk had been managed remotely (via phone coaching) since the conception of DBT. Hyland *et al.* (2021) acknowledged that DBT clients were at high risk and recommended that a thorough risk assessment be conducted, and that clinicians focus on building rapport and attending carefully to non-verbal cues when meeting online.

Most trials reported specific protocols for dealing with risk. For example, in the Wilks *et al.* (2017) protocol, participants completed a weekly questionnaire related to suicidal ideation over the past week and a 2-point increase on previous measures prompted a phone call and suicide risk assessment and a safety plan developed if the person was deemed at high risk. However, no adverse events were reported.

The online environment provided some advantages in relation to risk assessment, such as being able to see the person's home environment and provide coaching. Hyland *et al.* (2021) provided examples of observing alcohol in the background and in one instance a formed noose, which enabled the therapist to provide coaching. They also suggested that recorded therapy sessions could be shared with the consult group and allow discussion of critical incidents. van Spijker *et al.* (2014) excluded participants with severe depression on the Becks Depression inventory (>39) or high levels of suicidal ideation on the Beck Scale for Suicidal Ideation (>26) and referred them back to their general practitioner. Those who exceeded these scores during the study were called by therapists and in some instances their GP was called. Those in the intervention group were called less often than the control group and by self-report 11 participants made a suicide attempt during the course of the study (no completed suicides occurred).

Online provision conferred some different risks to face-to-face provision. These included privacy concerns (addressed through providing secure connections and contracts with participants). Therapy interfering behaviours such as disconnecting, non-participation or refusal to share videos were noted (O'Hayer, 2021; Zalewski *et al.* 2021). It was recommended that such issues be anticipated and dealt with using the principles of DBT. In skills groups (run similarly to face-to-face) it was recommended that co-facilitators attend to online chat and also attempt to engage and provide coaching to those who disengage during the skills group.

DISCUSSION

This small body of literature suggests that delivering DBT online is feasible and in small scale trials has been found to be as effective as providing face-to-face skills training and individual therapy. These findings need to be interpreted cautiously as there are no large-scale trials comparing online DBT with high fidelity face-to-face treatment with people with BPD. Nevertheless, the social distancing requirements that have arisen because of the COVID-19 pandemic have led to a rapid adaptation of DBT to online provision. DBT has undergone considerable adaptation since its conception but has until recently been delivered and adapted in-line with treatment manuals (Lungu & Linehan, 2017) which largely conceived of skills-training and individual therapy proceeding in particular ways and serving particular functions. Attempting to mirror face-to-face processes online may not be the most efficient, acceptable or effective way to adapt DBT to the online environment. A concern which this body of work does not consider is what has been coined the 'digital divide' in which those with the poorest health outcomes often have the least access to technology (Saeed & Masters, 2021). It is unclear whether this is the case for people who might benefit from DBT.

There is tentative evidence that unguided skills training may be effective for some populations, but clinical populations are likely to need more assistance and coaching from skilled therapists. Online skills training should be developed using sound pedagogical principles drawn from the now well-established discipline of online teaching and learning (Martin *et al.* 2020). Making part of the skills training available outside of the traditional skills training group convened at a fixed time, would potentially make DBT more accessible and free-up therapists to spend more time on goal directed therapy tasks and coaching.

The mechanisms of guided and unguided skills training methodologies, within this review, have sought to achieve the original aims of a traditional multi-modal version of DBT. Traditionally DBT focuses on developing insight into maladaptive behaviours, increasing motivation and capacity to change unwanted behaviours by learning and applying DBT skills within an individual's usual environment (Linehan, 1993). Whilst the online variations reviewed were operationally different to the traditional DBT approach, most maintained a clear focus on mindfulness and distress tolerance to increase awareness, reduce emotional

dysregulation and suicidal ideation. For most this achieved the most important targets of DBT – reducing suicidal ideation and maladaptive behaviours (Linehan, 1993).

Unguided web-based modalities to teach a range of skills (van Spijker *et al.* 2010, 2014; Whiteside *et al.* 2019, 2021; Wilks *et al.* 2017, 2018) are supported by recent evidence suggesting that DBT skills as standalone interventions can result in change in disruptive behaviours (Valentine *et al.* 2015). The findings from this review lend tentative support to the hypothesis that a combination of skills and different exposure periods, focusing on mindfulness and distress tolerance can lead to a reduction in depressive symptoms, emotional dysregulation and suicidal ideation. These types of standalone interventions are valuable as they have been designed under the rational of effective secondary prevention (Gordon, 1983) and the premise that many individuals with experiences of suicidality do not engage in therapy. Therefore, they may be more suitable for use of unconventional modalities via the Internet, scaled up to deliver interventions to those otherwise hard to reach (Hayes *et al.* 2016). They have also addressed previous identified challenges related to conceptualization, methodology, logistics and ethics (Whiteside *et al.* 2021), which have hindered progress in the field of suicide prevention (Stoll *et al.* 2020).

The reported proportion of participants who actively engaged with unguided skills training confirms that the web-based interventions are feasible and accepted by users. Nevertheless, it was also observed that the greater the complexity of procedures to access treatment, the more prone participants were to dropout and the less likely to engage. Hence, the recommendation, made by Whiteside *et al.* (2021) to simplify processes and to ensure proper preparation of clients and therapists prior to the intervention (Zalewski *et al.* 2021), should be applied to increase access, retention and completion.

Wilks *et al.* (2018) recommended making support readily available in real time. The integration of mobile Apps into DBT programmes has shown promising results (Austin *et al.* 2020). However, Frías *et al.* (2020) recommend caution with utilizing apps in populations which may have a propensity to addiction. More research on standardization of web-based modalities is warranted to inform appropriate models of care for complex patients. In guided interventions, both synchronous and asynchronous, therapists still appear to play an important role on participants' engagement and completion of therapy, just as teachers play a role in

online learning environments (Martin *et al.* 2020). In addition to quantity, quality of the interaction is an important factor influencing the retention of clients in therapy.

Among significant ethical issues preventing engagement in online mental health interventions are privacy, confidentiality, safety and security. Interventions delivered online have been presented as a cost-effective solution, especially for patients. However, the transference of therapies to a secure telehealth platform has been reported to be costly (Zalewski *et al.* 2021). The current lack of regulatory guidelines and standards of practice or care in this area remains a concern. Data security might be undermined when technology fails, with potential breaches of confidentiality that may not be under therapists' control (Stoll *et al.* 2020). Privacy has also been reported as an obstacle when therapy takes place outside of clinical environments.

A sense of group cohesion in skills group training does not seem to have as much impact on outcomes as client satisfaction (Lopez *et al.* 2020). Encouragement, however, can be considered an important means of connecting with service users in a meaningful way. Common to all the interventions, in which the therapist was not in direct contact with the client, the use of frequent encouraging messages was reported. Messaging has proven to act as a means of retention in therapy, leading to decrease in suicidal ideation. Most trials carefully attended to risk which was noted to be elevated in clinical populations who receive DBT. No serious adverse events were reported in any study and it seems that careful attendance to risk assessment, protocols for managing escalation of suicidal behaviour and application of the principles of DBT in online programmes can be effective in managing risk.

CONCLUSION

From a public health perspective, the use of telecommunication technology to deliver DBT, and its adaptations, appear to be a cost-effective strategy to improve the mental health outcomes of vulnerable populations affected by emotion dysregulation and related disorders such as BPD. DBT skills can be used as a standalone intervention for populations affected by conditions underpinned by emotional dysregulation. Although DBT skills manuals were not developed for telehealth use originally, the principles can be adapted to respond to access problems and mental health issues arising from the COVID-19 pandemic. The transition to online settings has highlighted the need to prepare both

therapists and clients prior to commencing active skills training. In addition, there are important considerations to bear in mind regarding privacy, confidentiality, safety, access, engagement, retention and problem solving for interventions to be effective. The lack of extant guidelines for the delivery of DBT online leave many knowledge gaps relating to the use of telecommunication technologies for the treatment and support of patients with complex needs, especially regarding operationalization, acceptability, effectiveness and long-term outcomes relative to in-person treatment.

RELEVANCE FOR CLINICAL PRACTICE

Dialectical Behaviour Therapy (DBT) has a moderate evidence base as a face-to-face programme for the treatment of a range of problems underpinned by problems with emotional regulation. It is often the only therapy available to people with a diagnosis of borderline personality disorder in public mental health services. Social distancing requirements in response to the COVID-19 pandemic led to a cessation of some programmes and forced a rapid adaptation to the provision of DBT in online environments. This review found that such adaptations reported so far have been safe and well accepted. This review proposes some guidelines on the adaptation of DBT skills training to online environments.

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