CHAPTER FOUR

mHealth Interventions For Gambling Problems

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Research has demonstrated that face-to-face delivered-interventions such as cognitive-behavioural therapy (CBT) and motivational interviewing (MI) are the most efficacious treatments for individuals experiencing gambling problems (Cowlishaw et al., 2012; Goslar et al., 2017). Despite the availability of these interventions, few individuals experiencing gambling problems access specialist face-to-face gambling services, with a recent meta-analysis estimating a global help-seeking rate of just 0.23%, with a rate of 0.31% for professional help-seeking (Bijker et al., 2020). These low rates have been attributed to numerous personal factors, including shame, stigma, wanting to handle the problem on their own, and unwillingness to admit there is a problem (Suurvali et al., 2009). Resource limitations like geographic inaccessibility, cost and time commitment, lack of available services and lack of trained clinicians have also been cited as probable factors. This situation has led to growing interest in psychological interventions delivered via alternative modalities that expand the access and reach of evidence-based interventions for people experiencing gambling problems.

Most research exploring interventions for gambling problems delivered via alternative modalities has focused on e-mental health interventions, which are delivered via computer-mediated communication (e.g., email, live chat; Sagoe et al., 2021; Van Der Maas et al., 2019). These e-mental health interventions consist mostly of CBT and have generally demonstrated promise in ameliorating gambling symptom severity and gambling behaviours (Sagoe et al., 2021;

Van Der Maas et al., 2019). Smartphones are particularly suited to mental health care delivery, granting unprecedented access to real-time interventions due to their internet connectivity and ubiquitous use (Harrison et al., 2011; Marcolino et al., 2018) — recently overtaking laptops as the most popular internet-enabled devices (Deloitte, 2019).

Mobile health, or "mHealth," consists of any intervention that supports health objectives using mobile or wireless technologies (World Health Organization, 2011). The advantage of mHealth interventions is the simple, immediate and 24/7 access to treatment it provides, that other treatment modalities cannot (Gajecki et al., 2014; Harrison et al., 2011). They are typically brief, cost-effective, able to reach populations where inequities in services exist, and provide the opportunity for people to take an active role in their treatment management (Gustafson et al., 2014; Harrison et al., 2011). While mHealth interventions can be used as a standalone treatment option, they can also be offered as part of a blended approach in which mHealth interventions can be offered before, after, or in conjunction with face-to-face treatment (Erbe et al., 2017; Rodda et al., 2019; Titzler et al., 2018). A recent feasibility study found that four in five gamblers would be interested in mHealth as a means of receiving their gambling treatment (Rodda et al., 2018).

Overall, research has shown mHealth interventions to be a highly accessible and empowering mode of care that can work well for gambling treatment. As such, this chapter aims to: (1) review the available evidence on mHealth interventions for gambling problems; and (2) provide an overview of publicly available smartphone applications that service providers can use as a guide to recommend to individuals trying manage their gambling problems.

mHealth Interventions for Gambling Problems

This section will address the first aim of this chapter by reviewing the available evidence on two categories of mHealth interventions for gambling problems: (1) static mHealth interventions and (2) just-in-time adaptive interventions (JITAIs).

Static mHealth Interventions

Static mHealth interventions refer to interventions that deliver fixed interactive intervention content to users via mobile devices (e.g., text, video, audio, answering questions). The content is fixed in that it the same for all users and cannot be adapted or tailored to meet changing individual needs. While static interventions typically allow users to choose the content they want to view and when, some interventions require the completion of specific intervention content before subsequent content is released releasing subsequent content. Despite the advantages outlined above, only four static mHealth interventions have been developed in the gambling treatment literature. Two of these have some published evaluation data, while the other two are still currently being evaluated.

First, Pfund et al. (2020) conducted a pilot study on the acceptability and feasibility of a CBT-based smartphone app. The app assigns "homework" aimed to increase motivation to change via a decisional balance exercise, increase awareness of gambling triggers and consequences via a functional analysis of gambling behaviour, highlight the importance of healthy alternatives to gambling behaviour via action planning, and prevent relapses by identifying high-risk situations and the developing healthy alternatives. While this pilot study only included nine U.S. treatment-seeking gamblers, it found that all nine completed the homework and rated the app highly.

Participants also indicated that they preferred completing the homework through the app as opposed to with a hard copy. Qualitative feedback on the app also indicated that while participants experienced some technical issues (e.g., notifications sent despite homework being completed), most thought the app was convenient, easy to use, and provided useful reminder notifications.

Second, a messaging app used to deliver a chatbot-based CBT intervention for gambling problems (GAMBOT) was evaluated using a randomised controlled trial (RCT) in Japan (So et al., 2020). GAMBOT is a rule-based chatbot that cannot behave flexibly, instead can only respond to participants messages using simple greetings and words of encouragement. Participants in the GAMBOT group also received daily monitoring, personalised feedback, and CBT-based messages (e.g., triggers, coping with gambling urges, cognitive distortions) for 28 days. This RCT, of 197 gamblers, found that people using GAMBOT showed greater reductions in post-treatment gambling symptom severity measured by the Gambling Symptom Assessment Scale (G-SAS) but not the Problem Gambling Severity Index (PGSI), when compared to the assessment only control group. In addition, no differences between the two groups were identified for amount wagered and gambling frequency. The GAMBOT app showed relatively high retention rates, with 77% of participants using it throughout the intervention period.

Third, a study protocol for a RCT yet to be completed outlined the development and ongoing evaluation of an online self-directed intervention, called *Restart,* for treating gambling-related and emotional problems (Bücker et al., 2019). A smartphone app accompanied this desktop-based intervention with the aim of sustaining treatment benefits (i.e., reductions in gambling symptom severity, cognitive distortions, and depressive symptoms). The online self-directed intervention consists of CBT techniques, as well as third wave mindfulness and metacognitive intervention techniques. It delivers 11 modules that are recommended to be

completed at a rate of 2 modules per week during treatment, each taking between 30 and 60 minutes. The smartphone app delivers different content intended to be used in conjunction with the desktop-based intervention, including 50 small activities that complement the core content of *Restart*. It also sends daily push messages to participants to remind them to take time for their mental health in their daily life. This RCT is currently underway with a sample of 136 help-seeking German, Swiss and Austrian gamblers.

Lastly, a CBT-based smartphone app for gambling problems called *Manaaki* is currently being evaluated in a pragmatic RCT of up to 284 help-seeking gamblers from New Zealand. The RCT protocol paper (Humphrey et al., 2020) outlines that this app has been adapted for New Zealand users from an Australian online self-directed program called *GAMBLINGLESS: FOR LIFE* (Dowling et al., 2021; Merkouris et al., 2017), which has been shown to be effective in reducing gambling symptom severity, urges, frequency, expenditure, and psychological distress —with or without practitioner guidance. *Manaaki* consists of six interactive intervention modules, with intervention content including a range of motivational enhancement, behavioural, cognitive and relapse prevention strategies.

Taken together, these static mHealth interventions all provide a CBT-based intervention designed as an adjunct to in-person (Pfund et al., 2020) or online self-directed (Bücker et al., 2019) treatment, or as a stand-alone intervention (Humphrey et al., 2020; So et al., 2020). While only two of these apps have been evaluated to date, they have shown promising acceptability, feasibility and preliminary effectiveness, suggesting that static mHealth interventions may be a useful mode of treatment delivery that can overcome common barriers to professional help-seeking (e.g., accessibility). However, they are limited by their static content, which does not account for individual changing needs. The focus of this chapter will therefore move to an emerging type of

mHealth intervention called "just-in-time adaptive interventions," or JITAIs, which capitalise on advances in technology to deliver dynamic interventions where and when they are most needed.

Just-in-Time Adaptive Interventions

JITAIs are mHealth interventions that dynamically adapt to an individual's changing needs by using experience sampling to determine the best type and amount of treatment content to deliver in that particular moment (Nahum-Shani et al., 2015). Various terms have been used to describe JITAI interventions, such as "ecological momentary interventions" (Heron & Smyth, 2010) and "dynamic tailoring" (Krebs et al., 2011)). The umbrella term JITAI will be used to refer to all such approaches in the current chapter (Wang & Miller, 2020).

Mobile Health interventions can deliver content using 'pull' or 'push' mechanisms. Pull mechanisms allow the individual to access the app when they feel the need to, which requires insight and awareness from people in moments of potential crisis. Conversely, JITAIs can use push mechanisms, in which the support individuals receive is initiated by the app itself (Klasnja & Pratt, 2012). Specifically, push interventions utilise repeated assessments to collect information about the user's mood state or ecological context (e.g., in or near a gambling venue), through self-report assessments or automatically via sensors (e.g., GPS tracking). Based on the information collected, the app's algorithm provides individually-tailored support (Klasnja & Pratt, 2012; Nahum-Shani et al., 2015; Nahum-Shani et al., 2018). In doing so, JITAIs can be used as a tool to interrupt problematic behavioural patterns likes gambling in moments of need and in real world settings (Nahum-Shani et al., 2015; Nahum-Shani et al., 2018).

The right type and level of support needed is ascertained by identifying the individual's state of vulnerability or opportunity (i.e., a period of susceptibility to negative health outcomes or

positive behaviour change) and receptivity (i.e., openness and willingness to receive and use the support provided; Nahum-Shani et al., 2015). They are also adaptive in that ever-changing information is repeatedly collected and used to inform how the content is tailored.

Similar to all mHealth interventions, JITAIs have the advantage of high accessibility, convenience, anonymity, portability, low cost, and reach into populations with unequal access to services (Gustafson et al., 2014; Harrison et al., 2011). They also provide further advantages as they can deliver dynamically adaptable and tailored intervention content that responds to the individual's current mood or situation (Nahum-Shani et al., 2015). Given this is a new and emerging technology, there is a paucity of research relating to their development and evaluation for gambling problems.

JITAIs for Gambling Problems

To date, there have been six JITAI apps that target gambling behaviour or gambling-related constructs, with varying levels of evaluation data on their acceptability, feasibility and/or effectiveness. Four of them use ongoing data collected via smartphone apps (i.e., Ecological Momentary Assessment [EMA]) to deliver content tailored to individual needs.

The Australian-based *GAMBLINGLESS: CURB YOUR URGE*, has been the most thoroughly evaluated JITAI to date. It was developed and evaluated by a team of researchers led by Deakin University (Hawker et al., 2021; Merkouris et al., 2020) based on relapse prevention principles, with intervention content adapted from an evidence-based online self-directed program for gambling (*GAMBLINGLESS;* Dowling et al., 2021; Merkouris et al., 2017).

During the user testing phase of the app, participants were recommended to complete any of the 10 activities aiming to curb gambling urges if they indicated they were experiencing a

gambling urge during the twice-daily EMA assessments (i.e., push intervention), but these activities were also available for participants to access at any time outside of the EMA process (i.e., pull intervention). These activities includes techniques that relate to distraction, delaying the decision to gamble, brief imagery, heavy breathing relaxation, belly breathing, urge surfing, accessing support, changing urge-related thoughts, re-appraising urge-related thoughts, and a reminder card (Merkouris et al., 2020). User testing with past or current regular gamblers (n = 10), gambling clinicians (n = 9) and gambling researchers (n = 10) was conducted for a one-week period (Merkouris et al., 2020). All ten activities had average ratings of perceived helpfulness higher than 5 out of 10, with mean scores ranging from 5.62 to 7.38. Belly Breathing, Heavy Breathing, and Urge Surfing were perceived to be the most helpful. The quality of the app was also evaluated with ratings indicating that *CURB YOUR URGE* met the minimally acceptable standard for app quality. Specifically, participants rated the functionality and information quality the highest, with the aesthetics and engagement of the app rated the lowest. Overall, participants indicated that they were likely to recommend *CURB YOUR URGE* to others and would use it frequently if it were relevant to them. Importantly, participants also indicated that the app would likely increase knowledge, attitudes, awareness, behaviour change, intention to change and help-seeking behaviour for future users. Lastly, qualitative feedback indicated that the app was acceptable (i.e., intervention content was appropriate and practical), could be helpful in managing short-term urges, somewhat interactive and engaging, and generally easy to use. Areas identified as needing improvement included engagement and interactivity and the tone of the intervention content.

Following the user testing study by Merkouris et al. (2020), Hawker et al. (2021) conducted a single-arm 5-week acceptability and feasibility trial with 36 help-seeking Australian gamblers.

Before beginning, the *Curb Your Urge* intervention was refined based on the findings of Merkouris et al. (2020). The EMAs were delivered three times a day rather than two, and the intervention content provided additional psychoeducation, mindfulness and relaxation-based activities, with the tone edited to be more normalising. The modified intervention content received above average ratings from participants (means ranging from 5.18 to 7.41 out of 10), who also reported high satisfaction with the intervention, and the app met the minimally acceptable standards for app quality.

While *Curb Your Urge* was rated as highly acceptable, it also had relatively low recruitment and retention rates, low compliance with the assessments and intervention features of the app, and low intervention uptake comparable to traditional face-to-face treatment (despite the 24/7 accessibility). At the same time, the findings showed good preliminary effectiveness, with reductions in gambling episodes and urge occurrences during the intervention period, and a reduction in in-the-moment urge intensity immediately after accessing intervention content. At the group level, *Curb Your Urge* also demonstrated significant reductions in gambling symptom severity, urges, gambling frequency and gambling expenditures from pre-intervention to post-intervention and at one month follow-up.

Another app called Advanced Behavioral Management for Gambling (ABMG) is based on a freely available self-help workbook published by the Office of Problem Gambling in the California Department of Alcohol and Drug Programs (Fong & Rosenthal, 2010). This workbook has five sections aimed at identifying and analysing the severity of the gambling problems. It provides behavioural strategies for urge management, promotes alternatives to gambling, and tracks recovery progress (Rahman & Fong, 2020). From this workbook, the ABMG app was developed, with six distinct modules aimed at managing gambling urges: (1) identifying and

contacting a support person; (2) identifying healthy alternatives to gambling in the surrounding area; (3) identifying support group meetings in the surrounding area; (4) guided mindfulness-based relaxation techniques to alleviate gambling urges; (5) supportive messages from a user's therapist; and (6) encouraging self-reminders from a user's digital journal. The app includes additional therapeutic features, such as physical health monitoring, tracking recovery progress, and the ability to complete journal entries.

The ABMG app has been developed as an adjunct to in-person therapy, making ecologically valid data available to clinicians, which typically would not be available in traditional face-to-face therapy (Rahman & Fong, 2020). As such, it also includes a web application for clinicians with easy-to-read data on select variables for their patients (e.g., gambling urge frequency). Acceptability of the ABMG app was assessed with 20 individuals with gambling problems and 20 mental health clinicians specialising in gambling treatment in the USA. The results were promising with both sets of participants indicating that they would be interested in using the ABMG app during treatment and as an after-care option. All people with gambling problems indicated that they would use the app either daily or throughout the week, as needed, and rated several of the ABMG functions as very useful. Specifically, people with gambling problems found the identifying support groups function as very useful, followed by the guided mindfulness techniques, journaling, and contacting a friend/therapist. Most of the clinicians, on the other hand, reported that they would use the app a few times a week to check in on their patients, with fewer indicating that they would use the app daily. Clinicians rated the behavioural analytics and the messaging components of the ABMG app as the most useful. Together, most participants indicated that the ABMG app was better than any of the currently available real-time urge management methods for gambling (Rahman & Fong, 2020). The feasibility (i.e., demand) and preliminary

effectiveness testing of the ABMG app is currently underway (Rahman & Fong, 2020), with an RCT study design to compare treatment as usual with treatment as usual plus the ABMG app for an 8-week period with up to 10 participants.

Thirdly, *Jeu-contrôle* is a freely available app, available in the app stores in French and German. Based on the only available English summary, this app aims to help individuals set time and money limits via EMAs and adhere to these limits by delivering personalised feedback comparing their pre-set gambling limits to their actual behaviour (Khazaal et al., 2017). This app is publicly available but there has not yet been a published evaluation.

Fourthly, a protocol for a RCT exploring the effectiveness of an online intervention (n = 67) for individuals experiencing gambling problems in Spain compared to a waitlist control group (n = 67) has recently been published (Diaz-Sanahuja et al., 2021), based on an e-mental health intervention with eight modules based on CBT, MI and third-wave intervention principles (e.g., mindfulness). This RCT also consists of an JITAI component, in which participants will also be asked to complete a daily EMA evaluating gambling urges, urge self-efficacy, urge frequency, and occurrence of gambling episodes. Based on their responses, participants will be given abstinence-related automatic feedback and/or recommended strategies to bolster their urge-related self-efficacy. If participants indicate they have gambled they will receive feedback suggesting they complete a gambling event record (i.e., date, gambling type, money and time spent relating to that gambling event), as well as complete a functional analysis of that relapse. They will also receive positive reinforcement messaging and reminders to stay vigilant in future high-risk gambling situations if they report high urge-related self-efficacy.

Lastly, protocol papers for micro-randomised trials exploring the effectiveness of two new JITAI apps for gambling have recently been published by the same international team of

researchers. The first, *GAMBLINGLESS: IN-THE-MOMENT* (Dowling et al., 2022), is theoretically informed by the relapse prevention model and evidence-based as it builds on the *GAMBLINGLESS: CURB YOUR URGE* app. It aims to reduce the likelihood of gambling episodes in real time by assessing and delivering tailored CBT and third-wave interventions that address urge intensity, self-efficacy in high-risk situations, and positive outcome expectancies. The second app, *Gambling Habit Hacker* (Rodda et al., 2022), is based on principles of the Health Action Process Approach and self-determination theory. It aims to help gamblers stick to their gambling expenditure limits by delivering tailored action and/or coping planning intervention content based on assessments of whether individuals are sticking to their limits in real time, strength of intention to stick to gambling limits, goal self-efficacy, urge self-efficacy and being in high risk situations. Both micro-randomised trials will tailor intervention needs based on EMAs conducted via smartphone apps three times a day over a 28-day period, with up to 200 individuals seeking support for their own gambling from Australia and New Zealand.

While the previously outlined JITAIs use self-report data to identify moments of vulnerability/opportunity, the two use automated geolocation to identify proximity to a gambling venue and sends notifications in response (Coral et al., 2020; Humphrey et al., 2019). The first of these two apps, *Smartphone-based Problem Gambling Evaluation and Technology Testing Initiative, or SPGeTTI,* focuses on electronic gaming machine users in New Zealand (Humphrey et al., 2019). It sends automatic alerts when entering a gambling venue encouraging alternatives to gambling in that moment. It also has several features that can be accessed at any time including a self-monitoring gambling diary, tips on relapse prevention, and contacts to local help services. While an RCT to evaluate the effectiveness of *SPGeTTI* was intended, extremely low recruitment and retention rates made this unfeasible. However, focus group interviews with a new group of 20

participants revealed some specific issues with the app, such as excessive battery drainage. These interviews also showed a high interest in mHealth interventions like JITAIs for gambling treatment among the focus group participants.

Similar to *SPGeTTI*, a US app called *Don't Go There* uses geolocation to send push notifications to users near or in gambling venues to encourage alternatives (Coral et al., 2020). This notification can be visually and auditorily customised, and users can control the list of gambling venues they want to avoid. Users can also access a history of venues visited as recorded by the app and add social supports that can be alerted if they remain near a gambling venue for too long. Specified healthcare professionals can also be granted access to users' data. Unlike *SPGeTTI, Don't Go There* provides no intervention content beyond the geolocation-related functions. The app is still in being developed and refined, with a usability study planned after its development in a sample of treatment-seeking gamblers.

Taken together, while a handful of JITAI apps for gambling-related behaviour have been developed, few have been evaluated. Nonetheless, JITAI apps show great promise for the treatment of gambling problems, with interventions found to be a highly acceptable form of gambling treatment and potentially effective in reducing gambling behaviour both in-the-moment and over time, as well as gambling symptom severity. Still, as a newly emerging area of research, more evaluation studies are needed for these types of mHealth interventions.

Publicly Available Smartphone Apps for Gambling Problems

With the exception of *Jeu-contrôle*, none of the mHealth interventions described in this chapter are yet available for public use. In contrast, the vast majority of publicly available apps for gambling problems have not yet been evaluated (Brownlow, 2021). To date, there have been two

systematic reviews of the evidence for publicly available mHealth apps for gambling problems in Australia. In a review of 42 publicly available mHealth apps, Ridley and colleagues (2020) found the vast majority of them intended to help users cease their gambling completely, with fewer aiming to help people control, diagnose, or raise awareness of their gambling. Less than one quarter used a recognisable treatment model, of which the 12-step approach was the most common, followed by CBT, acceptance and commitment therapy, MI, and aversion therapy. Most of the apps have only one feature: a sobriety/abstinence time tracker. Other common features include links with local support services, prompts/reminders to use the app, and motivational quotes.

A more recent systematic review by Brownlow (2021) identified 17 publicly available mHealth apps for people experiencing gambling problems. Unlike Ridley et al. (2020), this review was limited to apps that were specifically developed for helping users quit or control their gambling, therefore generic apps that can be used to help problems adjacent to direct gambling behaviours like financial/budget tracking apps were not included. Very few of the reviewed apps were designed by individuals with experience in treating gambling problems, and most included three or fewer functions. The most common functions were blocking software and information features (i.e., repository of information on numerous gambling-related topics), followed by abstinence trackers, motivation tools and directories of support services.

Taken together, while these reviews provide insight into the publicly available apps for individuals seeking help for gambling problems, they were limited to only apps available in Australia. Despite the lack of evaluation data available for these apps, they could be helpful as adjuncts to treatment delivered by professionals, or as a starting point for individuals looking to manage their gambling problems. Given the number of publicly available apps for gambling-related problems, the remainder of this chapter will provide an overview of some of the most

common ones that can be a resource for clinicians to recommend to clients. It is not intended to present an exhaustive list of all available apps, but it will include apps available in other countries beyond Australia.

To find these apps, the following search terms were entered into the Apple App store: gambling help, gambling therapy, gambling addiction, quit gambling, and problem gambling. While numerous apps were identified, many were not specific to gambling, but were for managing various other addictions or habits. This section focuses on apps that were specifically designed for gambling problems. Note that such apps are constantly being developed and released and taken down from app stores. The above search terms can therefore be used at any given time to identify newly released apps.

This search identified 14 publicly available apps, which are shown in Table 1. The most commonly available features were: (i) providing direct access or links to other help services (e.g., helplines, live chat; n = 7); (ii) savings/budget tracking, gambling duration and expenditure tracking, or goal progress tracking (n = 5); (iii) quizzes identifying gambling-related problems or harms (n = 5); (iv) psychoeducation (n = 4); (v) blocking software (n = 3); and (vi) psychological interventions like urge management activities and mindfulness (n = 3). Two apps also had content specific to people affected by the gambling problems of others or indicated that the app was also available for such people. This highlights the need for the development and release of publicly available apps for affected others.

Table 1

Overview of Publicly Available Apps for Gambling Problems

App name	Developer	Available languages	Costs	Registration required?	Rating out of 5 (# of ratings)	Available functions	
12 Steps Gamblers Anonymous	Look Before You Leap Net, LLC	English	In-app purchases	Yes	5.0 (*n* = 1)	Recovery journal Gratitude list Abstinence tracker	Spot check inventories for expressing resentment
100 day challenge	Victorian Responsible Gambling Foundation	English	Free	Yes	2.8 (*n* = 12)	Goal setting Harm identification via quiz Goal tracking via daily check-ins	Finance management Urge management Community forum
888-ADMIT-IT	Florida Council on Compulsive Gambling	English	Free	No	No ratings	Problem identification via quiz Information on warning signs Prevention tips	Direct links and access to the FCCG website, blog, Facebook, Twitter, YouTube and LinkedIn Direct links and access to support services (helpline, email, text, live chat and online self-help program)
BetBlocker	BetBlocker	English, Dutch	Free	No	2.3 (*n* = 3)	Blocking software	
BetQuit	Ram Naresh	English	~5 to 8 USD monthly	Yes	No ratings	Blocking software	

Gamban	Beanstalk HPS	English	Free 7-days, then £24.99 per year	Yes	2.2 (*n* = 6)	Blocking software, including Facebook gambling games Access to other resources	
Gambless: Addiction Recovery	Mind Solutions Eood	English	In-app purchases	Yes	No ratings	Resources on self-growth and mental wellbeing Self-help exercises for mental health	Personal development courses Emergency chatbot Mood tracker
Gambling Addiction Calendar	App Diggity, LLC	English	In-app purchases	No	4.8 (*n* = 10)	Progress tracker Savings tracker Identification of reasons to quit Personalised skins Badges and rewards	Identification of support person and panic button that contacts support person in time of crisis Activities to distract Motivational quotes
Gambling Addiction Test	Inquiry Health LLC	English	Free	No	5.0 (*n* = 5)	Problem identification via quiz Information on addiction, stages of change and effective treatments Information for affected others on how to help someone else	
Gambling Therapy	Gordon Moody Association	English	Free	No	No ratings	Problem identification via quiz Mindfulness exercises Self-help exercises Links to crisis support Motivational quotes	Information on limit setting and self-exclusion Directory of support orgs Access to Gambling Therapy online forums

						Links to blocking software	Access to live chat support
Jeu-Controle	E-Unit	German and French	Free	Yes for full access – some content available without	No ratings	Time and money spent tracker Limit setting Personalised feedback based on limits and actual behaviour Link to helpline	Journaling Problem identification via quiz Tips for overcoming barriers Communication with other users
PlayChange	State Office for Gambling Addiction in Bavaria	German	Free	Yes	No ratings	Talk to a counsellor Information and tip provision Also available for use by affected others	
playRIGHT	Playright Online Ltd	English	Free	Yes	No ratings	Limit setting Time spent gambling tracker	
Stay on Track SA	South Australia Dept. for Communities and Social Inclusion	English	Free	No	No ratings	Betting tracker Finance/budget tracker Advice Link to Gambling Helpline	

Eleven of the fourteen apps were only available in English, one in English and Dutch, one in German and French, and one in German only, highlighting the need for the adaptation and translation of these publicly available apps to languages other than English. Nine were entirely free to use, three had optional in-app purchases, and two required payment to use (i.e., the blocking software apps). Half required registration, which typically involves providing personal details, but may also involve screening measures. Of the six apps that had a rating on the app store, the average ranged from 2.2 to 5.0 out of 5 stars, but most had very few ratings so these ratings should be interpreted with caution (e.g., the one with a 5.0 came from just one user).

While most of these apps focus on addressing the financial harms experienced by individuals with gambling problems (e.g., self-monitoring of gambling expenditure, blocking software), some also address common emotional/psychological harms (e.g., Gambless: Addiction Recovery). There are also several apps available outside of the gambling area that may benefit to individuals with gambling problems depending on the type of harms experienced. For example, gamblers experiencing emotional/psychological harms like depression or anxiety may benefit from apps that specifically address these symptoms (e.g., Moodfit or MoodKit), or more general apps that provide support in the use of specific techniques (e.g., the Calm app for meditation). Overall, when considering recommending an app to a client, it is important to consider the client's individual treatment needs (e.g., additional support with managing finances or additional support managing mood states) and recommend apps that include functions that can assist with those needs.

Conclusion

Despite face-to-face interventions being the most efficacious treatments for gambling problems, rates of such help-seeking are low. Advances in technology have enabled the development of new modes of delivery that can address common barriers to help-seeking including shame, service access inequities, and time constraints. Specifically, mHealth interventions are an emerging mode of treatment delivery that can offer brief, cost-effective, simple, immediate and round-the-clock access to treatment. Moreover, mHealth interventions can be used for various purposes including immediate access to treatment while awaiting access to professional services, for homework completion while accessing professional services, as well as for aftercare purposes (e.g., relapse prevention). A growing number of mHealth interventions for gambling problems have been developed, but because this is a new area of research, most have yet to be evaluated. However, the few that have been evaluated have shown promising findings relating to their acceptability, feasibility and preliminary effectiveness, suggesting that this mode of treatment delivery is worthy of further investigation and potential implementation in real-world settings. While this is an emerging area of research with new apps currently being developed and evaluated, most of these evidence-based apps take time before they are available for public use. As such, clinicians may consider recommending currently available apps to clients (in conjunction with other treatment), depending on their individual needs (e.g., support with managing finances or mood states) and the functions available in each app that could address these needs.

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