

Win Big Fast! An Evaluation of Mobile Applications Available in Australia for Problem Gambling

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Abstract

With the increase in availability of gambling applications (apps) for mobile phones, it has never been easier for individuals to access gaming systems. A proportion of these users will be affected by gambling disorder (GD). Traditional therapies for GD can be geographically and financially difficult to access. Mobile health apps can be useful for other addictions and provide another avenue of treatment for GD. Our objective in this study was to review the features, models of treatment, and aims of apps marketed to assist people in addressing their gambling. We searched the three largest app stores in Australia and performed a descriptive analysis based on the Mobile App Rating Scale of the apps purporting to be of assistance in managing GD or problem gambling. The number of apps available for addressing GD in Australia was vastly outnumbered by the number of apps for gambling or gaming. Apps that met the inclusion criteria most often aimed at total cessation of gambling, but did not use a recognizable therapeutic model. A majority of apps featured a single tool, most often a sober time tracker. Few of the apps were affiliated with existing services, and those that were tended to have a broader range of features and tools. Mobile apps present another way for individuals who are struggling with GD or problem gambling to access treatment. For apps to be effective, more attention needs to be paid to their design in order for them to be both useful and noticeable in the milieu of more invitingly designed apps that promote gambling.

Keywords: mHealth, applications, problem gambling, gambling disorder, treatment, online

Résumé

Étant donné le nombre grandissant d'applications de jeux de hasard pour téléphone mobile, il n'a jamais été aussi facile d'accéder à des systèmes de jeu. Un certain

nombre des utilisateurs de ces appareils développeront une dépendance au jeu (DJ). Les thérapies conventionnelles en matière de DJ peuvent être difficiles d'accès en raison de la distance géographique et de leur coût. Les applications mobiles dédiées à la santé, parfois pour traiter d'autres formes de dépendance, pourraient offrir des possibilités de traitement du jeu pathologique. Nous avons analysé les caractéristiques, les modèles de traitement et les objectifs des applications qui prétendent aider les individus à dominer leur DP. Nous avons fouillé les trois principales boutiques d'applications d'Australie à la recherche de tels produits, puis les avons soumis à une analyse descriptive fondée sur un *Mobile App Rating Scale* [échelle d'évaluation des applications mobiles]. Le nombre d'applications destinées au contrôle de la DJ est largement inférieur à celui des produits dédiés à la pratique des jeux de hasard et des jeux vidéo. Les applications retenues visent pour la plupart l'abandon définitif du jeu, sans reposer sur un modèle thérapeutique reconnaissable. La majorité comporte un seul et unique outil, soit un dispositif de minutage du temps passé sans jouer. Quelques-unes sont jumelées à des services existants; elles tendent à offrir un éventail plus grand de caractéristiques et d'outils. Les applications mobiles offrent aux personnes aux prises avec une dépendance au jeu une autre voie d'accès au traitement. Pour améliorer leur efficacité, toutefois, il faudra accorder une plus grande attention à leur conception et faire en sorte qu'elles se démarquent nettement des applications autrement plus attrayantes qui font la promotion du jeu.

Introduction

An estimated 3 billion people currently have access to a smartphone and 194 billion applications (apps) were downloaded in 2018 (Statistica, 2019). Fifty billion US dollars is spent gambling online each year worldwide (Gainsbury, 2014). Approximately 10% of smartphone users gamble on their device through online casinos, virtual gaming machines, or sports betting (Statistica, 2017). Since Australian app stores began to allow casino apps in 2011, the prevalence of mobile gambling has increased year after year (Gainsbury et al., 2015). Australians make up 5% of the total online gambling market, despite having a relatively small population (Gainsbury, 2012). The expansion of online gambling options in Australia has not been reflected in the way in which gambling is legislated or regulated.

The Interactive Gambling Act of 2001 (Australia) enables federal government oversight of online gambling, and each state and territory has separate state legislation. Although it is not illegal for Australians to gamble online, it is illegal for unlicensed operators to offer these services. Currently the approximately 30 licenced operators are obliged to follow the Responsible Gambling Code of Conduct; however, the several thousand unlicensed gambling services operating offshore have no such requirement (Gainsbury, 2014). In essence, this situation leaves this readily available, most accessible form of gambling the least regulated. Unlike brick-and-mortar gambling venues, there are no exclusion criteria, or health promotion or

gambling assistance services, required with online gaming apps, including for individuals with gambling disorder (GD) or problem gambling (Gainsbury, 2014).

GD is the only behavioural addiction included in the *Diagnostic and Statistical Manual of Mental Disorders* and is defined as “persistent and recurrent problematic gambling behaviour leading to clinically significant impairment or distress” (5th ed.; American Psychiatric Association, 2013). GD affects an estimated 0.12%–5.8% of the population every year (Abbott, 2017; Giroux et al., 2017). An even greater number of people are negatively affected by gambling without meeting the diagnostic criteria for GD (Abbott, 2017; Rodda et al., 2012). The World Health Organization has flagged a need for evidence-based, early interventions for problem gambling given the “substantial increase” in problem gambling fuelled by increasing access to online facilities (Abbott, 2017). Despite the psychological, economic, and social problems associated with GD, few seek formal treatment, with estimates ranging between 7% and 8% (Giroux et al., 2017; Slutske, 2006). Low treatment rates may be associated with denial, shame, or stigma common to seeking treatment for addictions in general. Individuals with GD face the additional barrier of a lack of accessible treatments, especially specialist behavioural addiction services (Giroux et al., 2017; Rodda et al., 2012).

Cognitive behavioural therapy (CBT) is the most common treatment used and recommended for GD (Menchon et al., 2018). CBT targets cognitive distortions prevalent in GD, such as perceived lack of control, harm avoidance, magical thinking, and novelty seeking, while also addressing patterns of behaviour around gambling (Menchon et al., 2018; Rodda et al., 2012). In practice, CBT for GD is plagued by high dropout rates, inter-therapist variability, lack of clinical guidelines, problems with accessibility, and costs of therapy (Chebli et al., 2016). A 2012 Cochrane review also highlighted the lack of follow-up after treatment, which prevented the authors from commenting on long-term outcomes following CBT (Cowlshaw et al., 2012).

Desensitization therapy, exposure therapy, alternative activity scheduling, problem solving training, financial planning, limit setting, social skills training, and relapse prevention training have also been reviewed as treatments for GD (Dowling et al., 2008; Menchon et al., 2018). When delivered as individual elements alone, these interventions lack evidence that they improve outcomes, but they may enhance CBT-based care (Chen et al., 2014). Other common treatment tools such as mindfulness have been shown to be tolerable and teachable to people with GD, though their effectiveness in relapse prevention or craving reduction is unconfirmed (Chen et al., 2014; Menchon et al., 2018).

Previous reviews of the influence of mobile phone apps on behavioural change, including for addictions, have found that apps are easily accessible and easy to use, but the effects on health behaviour are mixed (Giroux et al., 2017; Payne et al., 2015; Savic et al., 2013; Zhao et al., 2016). Mobile health apps provide an alternate route for accessing resources that might otherwise be inaccessible due to geographical

distance, service opening hours, or stigma (Savic et al., 2013). These apps were more likely to be effective if they provided real-time feedback, used a non-judgemental communication style, featured rewards and prompts, had individualized elements, and included the involvement of health professionals (Giroux et al., 2017; Payne et al., 2015; Savic et al., 2013; Zhao et al., 2016). Thus far there have been no reviews that have specifically studied mobile apps for GD or problem gambling.

Compared with reviews of internet-based therapies for other addictions (Giroux et al., 2017), few studies have examined the acceptability and effectiveness of internet-based interventions for GD. Van der Maas et al.'s 2019 review of interventions for problem gambling delivered via the internet found a large variation regarding which interventions were delivered, the length of treatment, and the degree of contact with a therapist one-on-one. Only 6 of the 27 included treatments were based on CBT principles, and many used a traditional model of one-on-one therapy and individual feedback delivered in remote form. The review described internet-based interventions as "effective," but highlighted the scarcity of research and the lack of comparison with face-to-face interventions (van der Maas et al., 2019).

This article provides a descriptive overview of mobile apps available to help people manage problem gambling and GD in Australia.

Method

The three largest app stores in Australia (Apple Appstore; Google Play, and Windows AppStore) were searched by using the terms "gambling + help," "gambling + addiction," "gambling + problem," "gambling + dependence," "gambling + disorder," "gambling + treatment," and "gambling + recovery." These terms were chosen to maximize the chance of capturing relevant apps. Any free app in English that reported to be helpful for reducing, ceasing, controlling, or otherwise addressing gambling was included. Apps available in multiple app stores were included in the results only once. Paid apps were excluded, as the majority of health app users indicated that they would not download apps that cost money (Krebs & Duncan, 2015).

Each app store was searched independently by two researchers (KR and AW). After each app was downloaded, the objective aspects of the Mobile App Rating Scale (MARS) were used to evaluate its engagement, functionality, aesthetics, and information quality (Stoyanov et al., 2015). The existing "star rating" given by downloaders for each included app was used in place of the subjective aspects of the MARS. Any disagreements on inclusion in the study or features of the app were decided by an arbiter (MC).

Results

Excluding duplications, a total of 820 apps were identified and screened, with 42 meeting the criteria for inclusion. The following apps were excluded: 354 gambling

apps, 83 betting guides, 129 games, 42 that targeted addictions other than gambling, 8 that were not in English, and 4 that had to be purchased to download. The remaining 158 excluded apps had no relevance to the search terms (Figure 1).

Only Google Play has the option to view how many times an app has been downloaded. The mean number of downloads was 122,000, with a range between 1,000 and half a million downloads. Of the apps with user ratings available, the mean rating was 4 out of 5, with a range of 1.5 out of 5 to 5 out of 5. Of the 42 apps included for review, 14% required a login, usually with an email or social media account, in order to access the content. Only 14% of the apps were affiliated with an established government or non-government organization that provided addiction services, with the remainder constructed by developers with no apparent affiliations.

Most apps (81%) focused on cessation of gambling, with smaller numbers focusing on controlling or reducing use (14%), diagnosis (2.5%), or raising awareness (2.5%). Only 24% of the apps included had a recognizable model of treatment, with 12-step programs being the most common (Figure 2).

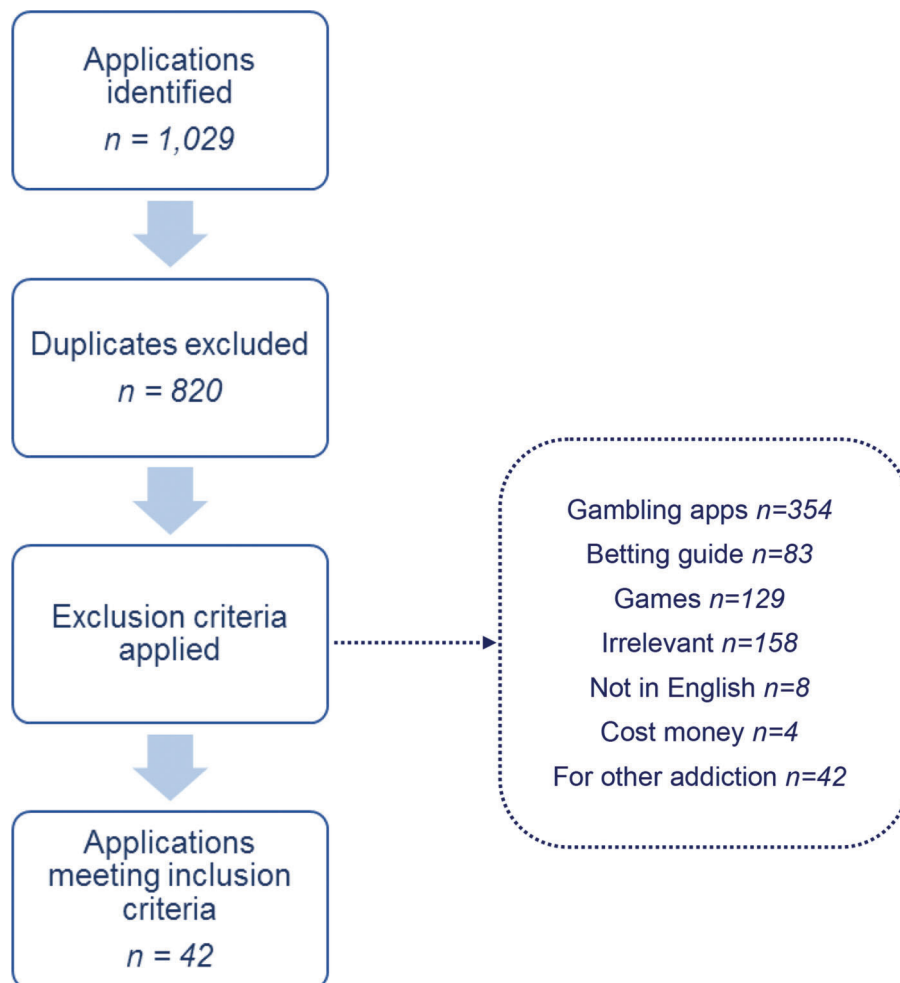


Figure 1. Flow diagram for selection of study participants.

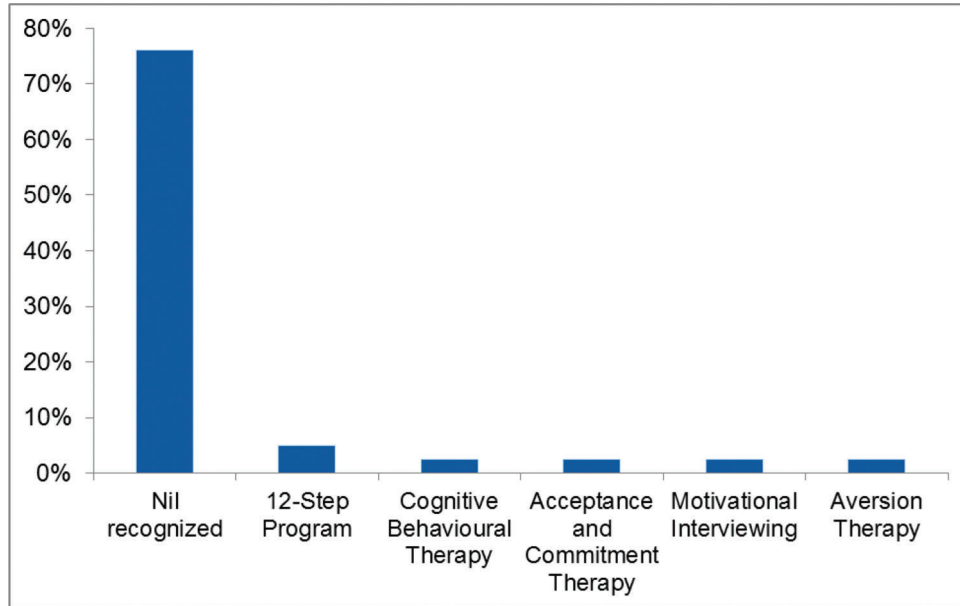


Figure 2. Model of therapeutic treatment used within applications.

Of the 42 apps included, 69% had only one feature, the majority being a sober or abstinence time tracker followed by prompts or reminders and then motivational quotes, prayers, or mantras. Key features in the studied apps are represented in Figure 3. The most common behavioural intervention was engaging in an alternate activity and cue or trigger avoidance. Harm minimization tended to focus on setting limits on time or money spent gambling.

Figure 4 highlights the presence or absence of elements in apps that have been found to be helpful for other behavioural addiction and substance use disorders. Among the 50% of apps that had them, the individualized elements ranged from reflecting on individual goals, harms, and values to selecting specific sites to block or choosing a motivational picture or quote.

The overall quality of apps evaluated with the MARS for aesthetics, ease of use, and functionality varied considerably, with those not affiliated with an established service being less likely to have high-quality graphics, consistent and appealing visual content, and intuitive menus and navigation. Some language included in-app was quite uninviting, such as “click here when you fail.”

Discussion

Using mobile apps for daily tasks is common for many people, and having a therapeutic tool readily at hand can be a useful and efficient resource. What must be considered is the unique challenges that come with having this tool on a personal device. The number of apps related to assisting people with problem gambling is

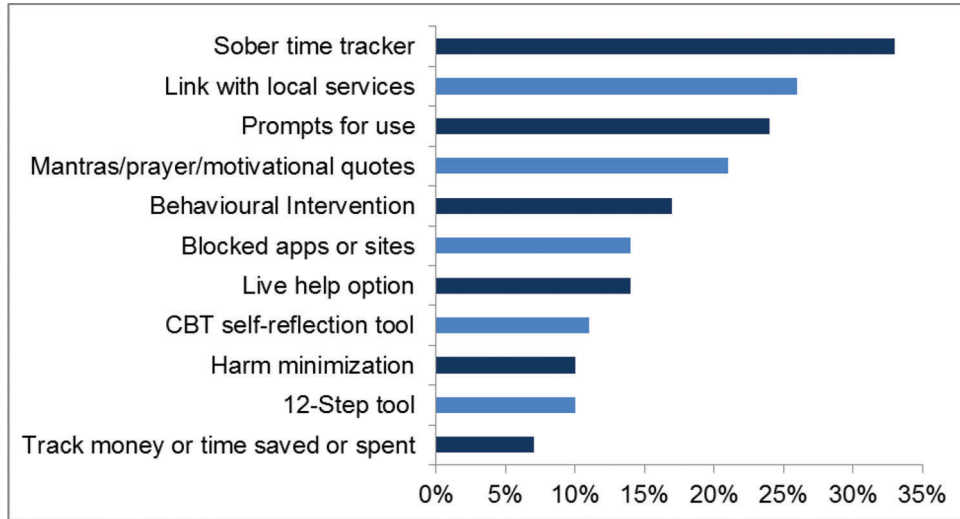


Figure 3. Features and tools present in apps. *Note.* CBT = cognitive behavioural therapy.



Figure 4. Presence and absence of key features in apps.

vastly dwarfed by the large number of visually appealing and functionally easy-to-use apps devoted to promoting and enabling gambling.

The evident mix of promoted gambling apps and treatment and support apps on app store search engines is a significant hurdle to accessing help for the problem gambler. GD treatment app developers need to pay careful attention to the searchability of apps if they wish to reach their target audience. Similar to the attention required for search engine algorithms, advertising of gambling sites, internet regulations, and moderating of sites need careful and constant attention so that diversion away from treatment sites to gambling sites does not exacerbate difficulties for problem

gamblers. The extent to which players are diverted to play, rather than to seek treatment, when searching for treatment online has not been studied. Health professionals having specific apps to suggest may be one way to avoid this unintended consequence.

A majority of apps identified in this study were not specifically designed for problem gambling. This made much of the generic advice around withdrawal periods less applicable and some behavioural management advice such as “avoid cues” uniquely challenging for people using a mobile app to address gambling sources that can be accessed on the same device. Some apps were poorly labelled or deceitfully named regarding gambling therapy, and were in fact betting aids rather than treatment or support apps.

Key features that have been effective in face-to-face or internet-based treatment, such as CBT, individualized elements, and feedback, are to date largely lacking in these apps. Few apps use a recognizable model of treatment and none use novel treatments such as virtual reality for exposure-based therapy. The lack of evidence-based apps not only leaves people struggling with GD or problem gambling without an easily accessible therapy tool, but may also send the message that there are no evidence-based treatments available.

Despite these apparent shortcomings, hundreds of thousands of people have downloaded these apps and most had a reasonably high user rating, showing that consumers are interested in app-based assistance and happy even with single-function apps. GD app developers could look to apps designed for other addictions for design and content elements have been shown to be helpful and that could be incorporated.

The lack of individualized elements in apps reflects their role as just a single tool in the arsenal of treatment. Even with live chat options, an app will never entirely replace the need to engage with other people, whether an individual therapist, a group, or a community, as part of treatment for problem gambling or GD. To obtain a full complement of features, one would need to download several apps, whereas a therapist may be able to offer more services and interventions in one place. More research is required into interactive, universally accessible apps and their development for problem gamblers.

This study excluded apps that cost money because of the evidence that people who access health apps are not likely to pay for them (Krebs & Duncan, 2015). It may have been that these excluded apps were able to provide a more aesthetically pleasing experience and evidence-based features. In this study, only the three largest app stores in Australia were searched. Although only two apps had affiliations with Australian-specific organizations, there may be additional apps for problem gambling available that have not been evaluated here. Despite the use of a MARS-based evaluation model, a subjective rating bias was minimized by using two reviewers for the included study apps. However, users of the apps may not consider these aspects as important as

the study reviewers did, or have a differing opinion from them, which could be reflected in the high reported user rating scores for many of the apps.

Conclusion

The ubiquitous nature of smartphone use can be a double-edged sword for people living with GD and problem gambling. These devices offer both another tool with which to gamble and a potentially novel way to access information, treatment, and support. Mobile apps allow services to update as new technology and evidence becomes available, creating an opportunity for these services to reach more individuals who use these technologies than ever before. Professionals who work in addiction settings should have an understanding of the options available, including mobile health apps, and should ideally provide recommendations based on the features that are useful for individual patients and on the pitfalls and challenges of these readily accessible treatment platforms. Overall, the number of treatment apps available is low and their quality variable. Governments and services have an opportunity to fill this void. The thoughtful development and regulation of mobile apps that specifically target GD and are associated with reputable service providers with evidence-based interventions can provide a link to treatment services that might not otherwise be available or accessible.

References

- Abbott, M. (2017). *The epidemiology and impact of gambling disorder and other gambling related harm*. World Health Organization Forum on Alcohol, Drugs and Addictive Behaviours. <https://doi.org/10.1016/j.puhe.2020.04.001>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Chebli J, Blaszczynski A, Gainsbury S (2016). Internet-based interventions for addictive behaviours: a systematic review. *Journal of Gambling Behaviour*. <http://dx.doi.org/10.1007/s10899-016-9599-5>
- Chen, P., Jindani, F., Perry, J., & Turner, N. L. (2014). Mindfulness and problem gambling treatment. *Asian Journal of Gambling Issues and Public Health*. 4 2, <https://doi.org/10.1186/2195-3007-4-2>
- Cowlshaw, S., Merkouris, S., Dowling, N., Anderson, C., Jackson, A., & Thomas, S. (2012). Psychological therapies for pathological and problem gambling. *Cochrane Database of Systematic Reviews*. 11. <https://doi.org/10.1002/14651858.CD008937.pub2>
- Dowling, N., Jackson, A. C., & Shane, A. (2008). Behavioural interventions in the treatment of pathological gambling: A review of activity scheduling and

- desensitization. *International Journal of Behavioural Consultation and Therapy*. 4, 172–188. doi:10.1037/h0100841.
- Gainsbury, S. (2012). *Internet gambling: Current research findings and implications*. Springer.
- Gainsbury, S. (2014). *Interactive gambling*. Australian Gambling Resource Centre.
- Gainsbury, S., King, D. L., Abarbanel, B., Delfabbro, P., & Hing, N. (2015). *Convergence of gambling and gaming in digital media*. Centre for Gambling Education and Research.
- Giroux, I., Goulet, A., Mercier, J., Jacques, C., & Bouchard, S. (2017). Online and mobile intervention for problem gambling, alcohol and drugs: A systematic review. *Frontiers in Psychology*, 8, 954. <https://doi.org/10.3389/fpsyg.2017.00954>
- Interactive Gambling Act of 2001. (2001). (Cth) (Australia).
- Krebs, P., & Duncan, D. T. (2015). Health app use among US mobile phone owners: A national survey. *JMIR mHealth and uHealth*. 3(4), Article e101. <https://doi.org/10.2196/mhealth.4924>
- Menchon, J. M., Mestre-Bach, G., Steward, T., Fernandez-Aranda, F., & Jimenez-Murica, S. (2018). An overview of gambling disorder: From treatment approaches to risk factors. *FI000 Research*. 7, 434. <https://doi.org/10.12688/f1000research.12784.1>
- Payne, H. E., Lister, C., West, J. H., & Bernhardt, J. M. (2015). Behavioral functionality of mobile apps in health interventions: A systematic review of the literature. *JMIR mHealth and uHealth*. 3(1), Article e20. <https://doi.org/10.2196/mhealth.3335>
- Rodda, S., Lubman, D. I., & Lagtage, K. (2012). Problem gambling: Aetiology, identification and management. *Australian Family Physician*. 41(9), 725–729.
- Savic, M., Best, M., Rodda, A., & Lubman, D. I. (2013). Exploring focus and experiences of smartphone applications for addictions recovery. *Journal of Addictive Diseases*. 32(3), 310–319. <https://doi.org/10.1080/10550887.2013.824331>
- Slutske, W. (2006). Natural recovery and treatment-seeking in pathological gambling: Results of two U.S national surveys. *American Journal of Psychiatry*. 163(2), 297–302. <https://doi.org/10.1176/appi.ajp.163.2.297>
- Statistica. (2017). *Most popular mobile internet activities according to internet users worldwide as of 2nd half 2017, by device*. <https://www.statista.com/statistics/249761/most-popular-activities-carried-out-on-mobile-internet-devices/>

Statistica. (2019). *Number of mobile app downloads worldwide from 2016 to 2018*. <https://www.statista.com/statistics/271644/worldwide-free-and-paid-mobile-app-store-downloads/>Stoyanov, S. R., Hides, L., Kavanagh, D. J., Zelenko, O., Tjondronegoro, D., &

Mani, M. (2015). Mobile App Rating Scale: A new tool for assessing the quality of health mobile apps. *JMIR Mhealth & Uhealth* 3(1), Article e27. <https://doi.org/10.2196/mhealth.3422>

van der Maas, M., Shi, J., Elton-Marshall, T., Hodgins, D. C., Sanchez, S., Lobo, D. S., Hagopian, S., & Turner, N. E. (2019). Internet-based interventions for problem gambling: Scoping review. *JMIR Mental Health*. 6(1), Article e65. <https://doi.org/10.2196/mental.9419>

Zhao, J., Freeman, B., & Li, M. (2016). Can mobile phone apps influence people's health behaviour change? An evidence review. *Journal of Medical Internet Research*. 18(11), Article e287. <https://doi.org/10.2196/jmir.5692>

Submitted January 20, 2020; accepted August 5, 2020. This article was peer reviewed. All URLs were available at the time of submission.

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Competing interests: None declared (all authors).

Ethics approval: Not required.