Serious games and gamification in Clinical Psychology

Extract (<10%)

Fleming, T., Sutcliffe, K., Lucassen, M., Pine, R., Donkin, L., 2022. 10.05. Serious Games and Gamification in Clinical Psychology. In: Asmundson, G.J.G. (Ed.), Comprehensive Clinical Psychology, 2nd edition, vol. 10. Elsevier, pp. 77–90. https://dx.doi.org/10.1016/B978-0-12-818697-8.00011-X.

Abstract

Computer games are hugely popular, engaging millions of people of all ages globally. Serious games and gamification can utilize games and strategies from gaming to offer psychological interventions in novel ways. This has the potential to increase the appeal of therapies, particularly among people who currently under-use them. Games and gamification can enhance engagement in digital and analogue therapies and, potentially, offer alternative processes and mechanisms of change. In this chapter we explore this developing field and both current and emerging opportunities for clinical psychology.

1.0 Introduction

Mental distress and disorders are disabling, common and costly. Although evidence-based treatments are available, many of those who would benefit from these treatments do not receive help. For instance, only one third of adolescents who meet the diagnostic criteria for a mental health diagnosis seek professional help. This is due to both external barriers, including cost, inconvenience or lack of available therapy, and internal barriers, such as ambivalence, help negation and hopelessness (Green et al., 2005, Wilson et al., 2017). Computer games are among the most popular forms of entertainment globally, with extraordinary reach across age groups and regions. Games make use of diverse mechanisms to encourage engagement, and sometimes learning or behaviour change. These features have been applied in diverse areas, from training pilots to teaching arithmetic. In this chapter we outline the potential of games and gamification to increase the impact of clinical psychology. There are four key areas of potential:

- Games may *extend the reach of treatments* to people who might otherwise under-use them. For example, gamified social skills training programs might appeal to children who are likely to avoid such interventions, or serious games for depression may reach teenagers who feel that counsellors would not understand their struggles.
- Games may help to *make treatments more engaging.* The reinforcing strategies used in game design, such as an unfolding narrative or a rapid sense of achievement, may help to retain the interest of individuals who might otherwise disengage from digital or perhaps face-to-face therapies.

- Games offer *mechanisms of change* that are not easily available in other modalities, providing opportunities for learning (e.g. via visual metaphor), safe rehearsal of skills (e.g. with an in-game avatar), as well as alternative therapeutic processes. For example, visuospatial games such as Tetris may be useful in reducing the impact of intrusive memories by engaging visual processing and memory processes (Badawi et al., 2020).
- Games can also be used to *support existing practice*. For instance, in play-orientated assessments to support rapport building or as a homework task to reinforce therapeutic objectives.

In these ways, serious games and gamification might increase the impact of both digital and face-to-face interventions in clinical psychology. Although evidence-based digital interventions can potentially reach large numbers of people and reduce the treatment gap, user engagement with many of these tools has been disappointing outside of trial settings (Fleming et al., 2018, Baumel et al., 2019). Many authors have explored the use of increased clinical support to improve engagement with digital tools, however this approach presents scalability challenges. Another potential opportunity lies with harnessing the popularity of gaming and applying gaming features and concepts to increase engagement, an approach that remains relatively underexplored to date (Fleming et al., 2016b).

While games and gaming will not appeal to all clients, they may be highly appealing to some, including some who are underserved or under-use existing practice models. A wide variety of treatment options are required to cater to individuals' needs and preferences (David et al., 2018). In this chapter, we explore the opportunities, challenges and evidence for clinical psychology in this dynamic area.

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4. Future research directions

Given the scale of unmet mental health need and the rapid development and diversification of gaming techonolgies, we should expect an explosion of research into games and gamification for mental health in coming decades. While digital tools including games have great promise, these have not delivered instant 'game changing' results. Many studies have transfered traditional therapeutic approaches online with a relatively unspecified or thin layer of narrative or game mechanics. This approach has not fully harnessed the potential of gaming to support mental health. Future research should facilitate a shift from potential to actual impact on a broad scale. There are multiple areas of promise for future research, as shown in Figure 1.

[insert Figure 1 about here]

4.1 Improving research rigour and methods

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4.2 Harnessing the potential of developing technology

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4.3 Addressing under-researched areas

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Developing the paradigm

To optimise the impact of games for mental health, significant conceptual developments are required. Gaming is a massive industry with large investments and rapid updates. Games for mental health are often built with much lower budgets than commercial games. To avoid an 'uncanny valley' effect, in which a program looks like a game but is not as satisfying as high-budget commercial games, requires thoughtful development. Game preferences, mental health needs and therapeutic processes are diverse. Monolythic approaches of a single game type for diverse users are unlikely to appeal to the sophisticated and segmented gaming market. Games are very different experiences from other forms of therapy. They can be accessible 24/7 and may be less threatening than face-to-face therapy for some. However, games seldom integrate the non-verbal behaviours and empathy processes considered important for therapeutic alliance (Sucala et al., 2012). It is unlikely that games will be able to offer the level of personalised attention possible in therapy, yet their scalability is compelling. Future research should directly compare gamified with non-gamified interventions and explore which strategies work for which persons in which ways.

Further, while games might increase appeal to some, others may not like games or the idea of mental health support via playful approaches. In a recent study, some adolescents considered games a promising way to reach teens who might not otherwise be interested in mental health interventions. In contrast, a substantial minority in the same demographic group reported that they would not seek mental health support unless they were 'very desperate' and required urgent help, in which case a game interface would be off-putting (Fleming et al., 2019a).

Taken together, these points highlight the need for clarity of purpose or function in serious games and gamification. We have proposed a high-level framework articulating three key opportunities for games in supporting mental health (Figure 2). First, games have the potential to *increase appeal*, extending the reach of effective therapeutic tools to those who may not otherwise engage in therapy due to limited resources or particular preferences. Second, games have the potential to *support engagement* through application of powerful strategies from gaming. Finally, games have the potential to provide *access to new or existing mechanisms of change*.

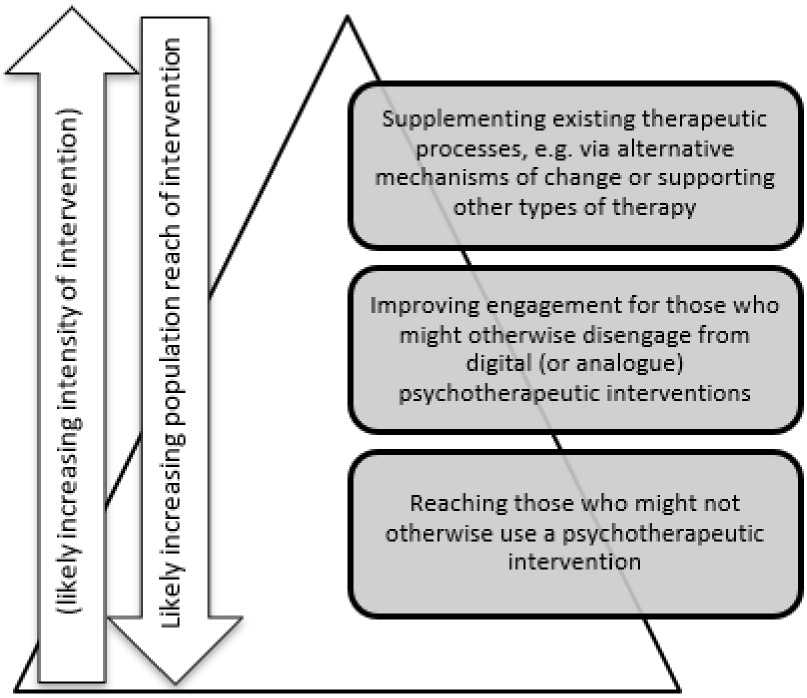
(likely increasing intensity of intervention)
Likely increasing population reach of intervention
Supplementing existing therapeutic processes, e.g. via alternative mechanisms of change or supporting other types of therapy
Improving engagement for those who might otherwise disengage from digital (or analogue) psychotherapeutic interventions
Reaching those who might not otherwise use a psychotherapeutic intervention

Figure 2: Visualising the potential of gaming: increasing population reach, supporting engagement and supplementing other therapeutic processes.

These areas of opportunity have quite different purposes. Increasing appeal could potentially have the largest population impact, given that the majority of those with mental health issues do not access evidence-based supports. Improving engagement also has broad potential, given that many clients drop out of therapies, especially online self-help therapies, very early. Supporting therapeutic change has important potential that requires further consideration.

Finally, in future research we must acknowledge that one size does not fit all, even where clients have similar demographic characteristics and mental health heeds. Building on Fleming et al. [88], we propose that different people in different contexts at different times may prefer: in-person interventions, digital non-gamified mental health tools, games and gamification, or no interventions at all. A thoughtfully developed mental health ecosystem can include appealing options for each of these potential clients and articulate opportunities for games to be part of clinical and non-clinical ecosystems to support mental health gains across populations.

5.0 Conclusion

Computer games are among the most popular forms of entertainment in the world. Diverse and rapidly changing games are played across age groups for leisure, excitement, calming down, socialising and more. Computer games can offer immersive, non-threatening and self-directed ways to discover and process ideas, rehearse skills, try out new approaches and receive immediate feedback. Serious computer games have been used widely in teaching and behaviour change from letter recognition among pre-schoolers to simulations of complex technical skills. Gamification refers to the integration of gaming elements such as competition and rewards into activities not usually considered games in themselves, such as the use of points in customer loyalty cards and leader boards in fitness apps. Both serious games and gamification, as well as the use of commercial video games, have been shown to have impact or promise for mental health.

A range of games have been shown to be effective or promising for mental and emotional health. There is robust evidence for purpose built serious games incorporating CBT, biofeedback or other therapeutic modalities for the treatment and prevention of depression and anxiety. For psychotic disorders including schizophrenia, a number of small exploratory studies demonstrate promise. There is some evidence for the effectiveness of both commercial and bespoke games for supporting cognitive gains and emotional skills. For clinicians, games offer exciting options to work with people in novel ways: there is evidence to support inclusion of games or gamification in face-to-face therapy.

However there are significant challenges in the research. Much of this literature is at an early stage and many trials are small and not independent of intervention developers. Replication and unpacking of processes and opportunities involved remains important. There are multiple publicly available products that have not been clinically tested, and the development and implementation of standards, guidelines and recommendations is critical for this rapidly changing field. There are many areas of potiential for future research, including improving the quality of evidence, exploiting opportunities afforded by new technologies, increased codesign and user-centred design and improved conceptual clarity.

Gaming has the potential to increase the reach of evidence-based therapies to those who may not otherwise access them or may under-use them. Given that the majority of people with mental health problems do not seek any professional help, this is an important potential. Computer games and gamification offer unique processes that can be utilised for learning, behaviour change and engagement. Given high drop out rates from therapy and digital interventions, this is also an important potential. Games and gamification offer a vehicle for existing therapeutic processes and for new mechanisms of change in ways that continue to develop. In sum, serious games and gamification have value and significant potential as part of broader systems of clinical and non-clinical options to improve mental health and wellbeing in communities and groups globally.

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