



## Computer-based programmes for the prevention and management of illicit recreational drug use: A systematic review



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### HIGHLIGHTS

- A systematic review of computer-based programmes for recreational drug use.
- Universal programmes reduced use in the mid-term only (<12 months).
- Those targeting drug users were mainly effective post intervention and mid-term.
- Computer-based programmes have potential in addressing recreational drug use.
- More long term research is needed to better understand the duration of effects.

### ARTICLE INFO

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Computer-based  
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### ABSTRACT

The last few decades have seen increasing use of computer-based programmes to address illicit recreational drug use but knowledge about their effectiveness is limited. We conducted a systematic review to examine evidence on these programmes. Eight electronic databases were searched to identify primary research studies evaluating computer-based programmes to prevent or reduce use of illicit recreational drugs. From an initial 3413 extracted studies, 10 were identified for inclusion, covering a range of intervention types, target groups and settings. Universal drug prevention programmes were effective in reducing the frequency of recreational drug use in the mid-term (<12 months), but not immediately post intervention. Programmes targeting recreational drug users showed more inconsistent results but were generally effective in reducing use of drugs both immediately and in the mid-term. Computer-based programmes have the potential for use in addressing recreational drug use when targeted both universally and at illicit drug users, at least in the mid-term. However, longer term evaluations are needed to better understand the duration of effects. Given the benefits that computer-based programmes can have over traditional delivery methods, research is needed to better understand the value of human contact in health interventions and help inform whether, and how much, professional contact should be involved in computer-based programmes.

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## 1. Introduction

The use of illicit drugs for recreational purposes is a significant public health concern, particularly among younger age groups. Within Europe, past year prevalence of cannabis use among those aged 16–34 years ranges from 0.9% (Romania) to 21.6% (Czech Republic), whilst past year cocaine use ranges from 0.1% (Romania) to 7.7% (UK), and ecstasy use from 0.2% (Romania and Sweden) to 5.3% (UK) (EMCDDA, 2011). Similar levels are reported elsewhere. For instance, in 2010, the rate of current illicit drug use among US youths aged 18–25 years was 21.5% (US Department of Health & Human Services, 2011), while in Canada, past year illicit drug use among the same age group was 26.3% (Health Canada, 2010). Use of drugs among young people is particularly concerning since initiation of drug use early in life (e.g. before age 18) can be a risk factor for problematic use in adulthood (Chen, Sorr, & Anthony, 2009). The health, social and economic costs that illicit drug use imposes on individuals, communities and wider societies can be substantial and have been well-documented (e.g. Anderson & Mueller, 2008; Andlin-Sobocki, 2004; Cartwright, 2008; Coughlin & Mavor, 2006; Godfrey, Eaton, McDougall, & Culyer, 2002; Hall & Degenhardt, 2009; Kaushik, Kapila, & Praharaj, 2011; Kuhns & Clodfelter, 2009; Large, Sharma, Compton, Slade, & Nielsens, 2011; Macleod et al., 2004; Mørland et al., 2011; Rogers et al., 2009). Consequently, preventing and reducing drug use among both adolescent and adult populations is a priority in many countries.

Internationally, a range of interventions have been implemented to help individuals address illicit recreational drug use. These have included: education and awareness-raising campaigns (Pan & Bai, 2009; Wakefield, Loken, & Hornik, 2010; Werb et al., 2011); skill-building programmes (Botvin & Griffin, 2005; Coggans, Cheyne, & McKellar, 2003; Faggiano et al., 2005); psychosocial programmes such as motivational

interviewing, counselling or behavioural therapy (Denis, Lavie, Fatseas, & Auriacombe, 2006; Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010; Magill & Ray, 2009; Smedslund et al., 2011) and programmes challenging social norms and attitudes towards drug use (Perkins, 2003; Zhao et al., 2006). Programmes have traditionally been delivered via health or other professionals (e.g. teachers/youth workers), often in group-based settings. However, over the last few decades there has been increasing use of computer-based programmes (either internet-based or stand alone programmes) designed for self-completion.

The use of a computer to deliver drug prevention/reduction programmes may present a number of challenges. For example, potential users may not have access to a home computer, particularly in more deprived geographical areas (Hughes, Bellis, & Tocque, 2002). Additionally, internet content may be restricted by firewalls that ban specific drug terms. However, they can also hold a number of important advantages over more traditional delivery methods. Since they do not require a professional to deliver the programme, computer-based interventions are less restrictive in their availability, overcoming physical, socio-economical and geographical constraints whilst potentially engaging large numbers of individuals. Even when combined with some degree of direct contact, the capacity of professionals is increased by considerably reducing the time they must dedicate to individual users (Titov, 2007). This has two important implications: a potential reduction in overall implementation costs, and increased feasibility for their use in busy settings where professional time is often limited (e.g. health services). In some cases, programmes are available “around the clock”, allowing individuals to access materials where and when they choose (Bock, Graham, Whiteley, & Stoddard, 2008). In addition, computer-based delivery allows individuals to engage programmes at their own pace and as often as desired (Spek et al., 2007). This flexibility may help increase initiation with an intervention and reduce

1. (MH "Substance-Related Disorders+")
2. AB/TI (substance N2 abuse\*) or (substance N2 use\*) or (substance N2 misuse) or (substance N2 dependen\*) or (substance N2 disorder\*) or (substance N2 addict\*) or (substance N2 volatile) or (substance N2 poly)
3. AB/TI (Drug N2 abuse\*) or (drug N2 use\*) or (drug N2 misuse) or (drug N2 dependen\*) or (drug N2 disorder\*) or (drug N2 addict\*) or (drug N2 volatile) or (drug N2 poly)
4. cannabis or hashish or marijuana
5. N-Methyl-3,4-methylenedioxyamphetamine or ecstasy or MDMA
6. crack cocaine or cocaine
7. GHB or gamma-Hydroxybutyric acid or gammahydroxybutyrate or gamma hydroxybutyrate or gamma hydroxyl butyrate or sodium oxybate
8. Or/1-7
9. AB/TI (screening N2 tool\*) or (screening N2 instrument\*) or (screening N2 test) or (identify\* N2 tool\*) or (identify\* N2 instrument\*) or (identify\* N2 test)
10. AB/TI (brief N2 advice) or (brief N2 intervention\*) or (brief N2 interview\*)
11. AB/TI (motivational N2 advice) or (motivational N2 intervention\*) or (motivational N2 interview\*)
12. AB/TI (referral N2 guide\*) or (referral N2 guidance) or (referral N2 tool\*) or (referral N2 protocol\*) or (referral N2 instrument) or (referral N2 pathway)
13. AB/TI (referral N2 treatment)
14. AB/TI (self-help or self-edu\* or edu\* or guid\* or program\* or module\*)
15. AB/TI (goal AND setting)
16. Or/9-15
17. 8 and 16
18. AB/TI (online or internet or web or world wide web or electronic or web site or web page or technology or computer\*)
19. 17 and 18

Fig. 1. Sample search strategy (Medline).

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