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Universal Internet-based prevention for alcohol and cannabis use reduces truancy, psychological distress and moral disengagement: A cluster randomised controlled trial

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ABSTRACT

Aims. A universal Internet-based preventive intervention has been shown to reduce alcohol and cannabis use. The aim of this study was to examine if this program could also reduce risk-factors associated with substance use in adolescents.

Method. A cluster randomised controlled trial was conducted in Sydney, Australia in 2007–2008 to assess the effectiveness of the Internet-based *Climate Schools: Alcohol and Cannabis* course. The evidence-based course, aimed at reducing alcohol and cannabis use, consists of two sets of six lessons delivered approximately six months apart.

A total of 764 students (mean 13.1 years) from 10 secondary schools were randomly allocated to receive the preventive intervention ($n = 397$, five schools), or their usual health classes ($n = 367$, five schools) over the year. Participants were assessed at baseline, immediately post, and six and twelve months following the intervention on their levels of truancy, psychological distress and moral disengagement.

Results. Compared to the control group, students in the intervention group showed significant reductions in truancy, psychological distress and moral disengagement up to twelve months following completion of the intervention.

Conclusions. These intervention effects indicate that Internet-based preventive interventions designed to prevent alcohol and cannabis use can concurrently reduce risk-factors associated with substance use in adolescents.

Clinical trials registration. Australian Clinical Trials Registry ACTRN: 012607000312448.

Introduction

The use of alcohol and cannabis by young people is a serious public health concern and is associated with considerable burden of disease, social costs and disability (Andrews et al., 2001; Begg et al., 2007; Collins and Lapsley, 2008; Toumbourou et al., 2007). In Australia, it is illegal for people under 18 years of age to buy, drink or possess alcohol in a licensed premises and it is illegal for anyone to use, possess, grow or sell cannabis (Australian Drug Foundation, 2011). Despite these laws, three quarters of young people aged between 12 and 17 years have tried alcohol, and 15% have tried cannabis (White and Bariola, 2012). These figures are concerning given that using alcohol and cannabis from an early age is associated with the development of substance use disorders (Behrendt et al., 2009; Grant et al., 2006; Patton et al., 2007) as well as comorbid mental health problems (Teesson et al., 2005).

To reduce the occurrence and cost of such problems, prevention is essential and needs to be initiated early before harmful patterns of drug use are established and begin to cause disability (Botvin, 2000; Spooner and Hall, 2002; WHO, 2004). Numerous universal school-based programs have been developed to prevent and reduce the use of alcohol and drugs among young people (Cuijpers, 2002; Faggiano et al., 2005; Tobler et al., 2000); however, most have only shown limited effects (Babor et al., 2003; Ennett et al., 1994; Gorman, 1996; White and Pitts, 1998), and some have even reported detrimental outcomes (Werch et al., 2005). The most common factors which interfere with effectiveness are; the focus on abstinence-based outcomes (Beck, 1998; Munro and Midford, 2001), and implementation failure (Bosworth, 2003; Botvin, 2004; Ennett et al., 2003).

One program, which has proven to overcome these obstacles, is the universal Internet-based *Climate Schools: Alcohol and Cannabis course*. The *Climate Schools* program is based on the effective harm-minimisation approach to prevention (McBride et al., 2006; Vogl et al., 2009a) and uses cartoon storylines to engage and maintain student interest and involvement over time (Schinke et al., 2004). The program is facilitated by the Internet, which guarantees complete and consistent delivery whilst ensuring high implementation fidelity. It is designed to fit within the school health curriculum and be implemented in Year 8

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(13–14 years of age) before significant exposure to alcohol and other drug use occurs (White and Bariola, 2012). The *Climate Schools* program consists of twelve 40-minute lessons. The first six lessons focus specifically on alcohol and are delivered approximately six months prior to six lessons focusing predominantly on cannabis. The first part of each lesson is completed individually over the Internet where students are engaged through cartoon storylines that impart information about the short- and long-term effects of alcohol and cannabis, normative alcohol and cannabis use, drug refusal skills, and first aid skills. The second part of each lesson is a group or class activity delivered by the teacher to reinforce the information in the cartoons and allow interactive communication between students. Teachers are provided with a manual containing the activities, implementation guidelines, links to the education syllabus and summaries for each lesson. No additional training is required.

The effectiveness of the *Climate Schools: Alcohol and Cannabis course* has been established using a cluster RCT in 10 schools in Sydney, Australia (Newton et al., 2009, 2010). This trial demonstrated that compared to the control group (who received their usual drug education over the year), students in the intervention group showed significant improvements in alcohol and cannabis knowledge at the end of the course and at six and twelve months following the intervention. In terms of behaviour change, the intervention group showed a reduction in frequency of cannabis use at the six-month follow-up, a reduction in average weekly alcohol consumption at the six and twelve month follow-ups, and a reduction in the frequency of drinking to excess twelve months following the intervention. In addition, program evaluation showed that students and teachers rated the program as an acceptable and enjoyable means of delivering drug education in schools (Newton et al., 2009, 2010). Although the intervention was primarily designed to prevent alcohol and cannabis use, it is also important to examine if the program can concurrently reduce associated risk factors.

The numerous risk and protective factors associated with adolescent substance use have been well documented (Brook et al., 2003; Donovan, 2004; Frisher et al., 2007). Generally, they can be grouped into three main categories: genetic factors (predispositions to drug use); environmental/contextual factors (broad societal and cultural factors) and; individual factors (characteristics within individuals and their interpersonal environments e.g. personality, attitudes and beliefs). Of these, individual factors appear to be the easiest to modify with preventive interventions (Brook et al., 2003). Three individual risk factors that have shown to be independently and consistently associated with adolescent alcohol and cannabis use are truancy, psychological distress and moral disengagement.

A clear association between truancy (i.e. skipping school without a valid reason) and substance use in adolescents has been established (Chou et al., 2006; Vucina and Becirevic, 2007). Recent research has demonstrated truancy to be a robust predictor of the onset of substance use over and above many other risk factors including school performance and commitment to school (Henry and Huizinga, 2007; Henry et al., 2009). In addition, truancy has been linked with the escalation of substance use during adolescence (Henry and Thornberry, 2010). High psychological distress has also been well documented as a consequence of excessive alcohol and cannabis use in older adolescents and adults (Burns et al., 2005; Clark et al., 2006; Dorard et al., 2008; Hansell and White, 1991; Macleod et al., 2004). More recently, research has identified high psychological distress as a risk factor which predicts alcohol use (Cable and Sacker, 2007), coinciding with the idea that people drink alcohol as a way of coping and alleviating negative affect and psychological distress (Holahan et al., 2003). Moral disengagement is the tendency to disengage from moral self-control and responsibility that ordinarily governs behaviour (Bandura et al., 2001; Pelton et al., 2004). Disengaged cognitive distortions can function to validate unfavourable conduct as worthy, diffuse and displace responsibility, and direct blame away from the self and towards the nature of circumstances (Bandura et al., 2001). Moral disengagement has been associated with a range of adolescent deviant behaviour including delinquency (Bandura et al., 2001; Pelton et al., 2004; Shulman et al., 2011), heavy drug use (Passini, 2012) and alcohol consumption in adolescents (Barnes et al., 1999; Newton et al., 2012a).

The aim of this study was to examine the extent to which a novel Internet-based *Climate Schools: Alcohol and Cannabis course* which has been found to reduce alcohol and cannabis use (Newton et al., 2009, 2010) can also reduce associated risk factors, namely truancy, psychological distress and moral disengagement. It is expected that students who receive the intervention will have reduced rates of truancy, psychological distress and moral disengagement compared to students who do not receive the intervention.

Method

Design

A cluster RCT was implemented and convenience sampling was used to select the schools. Invitation letters outlining the aims of the study were sent to the Heads of 33 Independent high schools (i.e. private schools not under the ownership of the government or Catholic Church system) across the larger Sydney metropolitan area in Australia. Ten of these schools agreed to participate, with the rest declining due to prior research commitments ($n = 3$) or limited time in their academic schedule ($n = 20$). This response rate is comparable to that observed for other recent school-based RCTs conducted among Sydney secondary schools (Champion et al., 2013; Newton et al., 2012b).

The ten schools who agreed to participate were randomly assigned using an online randomisation system (www.randomizer.org) to either; the control condition (usual health classes including drug and alcohol education), or to the intervention condition (the *Climate Schools: Alcohol and Cannabis course*). Self-report data was obtained on four separate occasions; at baseline, immediately after the full intervention, and at six and twelve months following the intervention. Students from the control schools completed the same pattern of assessments as the intervention schools as shown in Table 1. All aspects of this trial were approved by the University of New South Wales Human Ethics Committee and the trial is registered with the Australian Clinical Trials Registry (ACTRN: 012607000312448).

Participants

Information and consent forms were sent home to parents/guardians of all Year 8 students (approximately 13–14 year olds) from the 10 participating schools. Only those students who received active written parental/guardian consent, and gave written consent themselves were eligible to participate. Students were made fully aware that they could withdraw from the study at any point.

Seven hundred and sixty four participants completed the baseline assessments; mean age was 13.08 years (SD = 0.58) and 60% were male. Five schools (n of students = 397) were randomly allocated to the intervention condition, and five schools (n of students = 367) were randomly allocated to the control condition.

Intervention

The *Climate Schools: Alcohol and Cannabis course* comprised the delivery of two sets of six 40 minute lessons aimed at decreasing alcohol misuse and cannabis use. The *Climate Schools: Alcohol module* was delivered immediately after the baseline assessment, and the *Climate Schools: Alcohol and Cannabis module* (including booster sessions for previous alcohol material) was delivered six months later in the same school year. Each lesson included a 15–20 minute internet-based component completed individually where students followed a cartoon storyline of teenagers experiencing real life situations and problems with alcohol and cannabis. The second part of each lesson was a predetermined activity delivered by the teacher to reinforce the information learnt in the cartoons. Teachers in the intervention group were provided with a program manual but no additional training. More information about the content of the lessons can be found in previous publications (Newton et al., 2009, 2010). Access to the computer lessons and course material can be found here: www.climateschools.com.au.