



## Climate schools plus: An online, combined student and parent, universal drug prevention program

Louise K. Thornton<sup>a,\*</sup>, Cath Chapman<sup>a</sup>, Dana Leidl<sup>a,b</sup>, Chloe Conroy<sup>a</sup>, Maree Teesson<sup>a</sup>, Tim Slade<sup>a</sup>, Ina Koning<sup>c</sup>, Katrina Champion<sup>a,d</sup>, Lexine Stapinski<sup>a</sup>, Nicola Newton<sup>a</sup>

<sup>a</sup> *NHMRC Centre of Research Excellence in Substance Use and Mental Health, National Drug and Alcohol Research Centre, UNSW, Sydney, Australia*

<sup>b</sup> *School of Psychology, UNSW, Sydney, Australia*

<sup>c</sup> *Faculty of Social and Behavioural Sciences, Universiteit Utrecht, The Netherlands*

<sup>d</sup> *Department of Preventive Medicine, Feinberg School of Medicine, Northwestern University, Chicago, IL 60614, United States*

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### ABSTRACT

Early initiation of substance use significantly increases one's risk of developing substance use dependence and mental disorders later in life. To interrupt this trajectory, effective prevention during the adolescent period is critical. Parents play a key role in preventing substance use and related harms among adolescents and parenting interventions have been identified as critical components of effective prevention programs. Despite this, there is currently no substance use prevention program targeting both students and parents that adopts online delivery to overcome barriers to implementation and sustainability. The Climate Schools Plus (CSP) program was developed to meet this need. CSP is an online substance use prevention program for students and parents, based on the effective Climate Schools prevention program for students. This paper describes the development of the parent component of CSP including a literature review and results of a large scoping survey of parents of Australian high school students ( $n = 242$ ). This paper also includes results of beta-testing of the developed program with relevant experts ( $n = 10$ ), and parents of Australian high school students ( $n = 15$ ). The CSP parent component consists of 1) a webinar which introduces shared rule ranking, 2) online modules and 3) summaries of student lessons. The parent program targets evidence-based modifiable factors associated with a delay in the onset of adolescent substance use and/or lower levels of adolescent substance use in the future; namely, rule-setting, monitoring, and modelling. To date, this is the first combined parent-student substance use prevention program to adopt an online delivery method.

## 1. Introduction

Substance use among adolescents is a pressing public health issue (Newton et al., 2017; Degenhardt et al., 2016) and an important concern for parents. In Australia, Western Europe and North America 60 to 95% of 15–19 year olds report using alcohol in the past year (WHO, 2016). Substance use in adolescence has been shown to be associated with increased risk for a range of negative outcomes including short- and long-term alcohol-related harms (WHO, 2014), physical harms such as road traffic accidents and other accidental injuries (Hall et al., 2016), the development of substance use disorders (Hall et al., 2016), and comorbid mental health disorders (Teesson et al., 2009). To interrupt this trajectory, and reduce these harms, effective substance use prevention during adolescence is critical (Newton et al., 2017).

Parents are key agents of adolescent socialisation, especially in the initiation and development of substance use (Ryan et al., 2010), and

parenting interventions have been identified as critical components of effective substance use prevention programs in adolescence (Newton et al., 2017; Özdemir and Koutakis, 2016). Despite this, there are currently no integrated models internationally, which adopt an online approach to overcome barriers to implementation and sustainability (Newton et al., 2017). This paper describes the development of an integrated online program that combines a successful student-based universal program (Newton et al., 2009; 2010; Champion et al., 2016a; Newton et al., 2014; Vogl et al., 2009; 2014; Teesson et al., 2017), with a newly-developed parenting component.

Universal approaches to substance use and harms prevention among adolescents have generally focused on adolescents themselves and have been found to be effective at preventing alcohol and other substance use among this population (Newton et al., 2017; Foxcroft and Tsertsvadze, 2011). The most effective programs have been found to adopt a harm-minimization framework, they are underpinned by a comprehensive

\* Corresponding author at: NDARC, UNSW Australia, NSW 2052, Australia.  
E-mail address: [L.Thornton@unsw.edu.au](mailto:L.Thornton@unsw.edu.au) (L.K. Thornton).

social influence approach and they are able to be implemented with high fidelity (Newton et al., 2017; Faggiano et al., 2014; Lee et al., 2016). The innovative *Climate Schools* model for alcohol and other drug prevention is one such approach (Newton et al., 2011). The universal *Climate Schools* programs are delivered within the school setting to all students, regardless of level of risk, and are based on a social influence approach to prevention (Newton et al., 2011; Botvin and Griffin, 2007). The courses use cartoon storylines to engage and maintain student interest and are facilitated by the internet, ensuring high implementation fidelity. They are designed to be implemented during high school, before significant exposure to alcohol and other drug use occurs. To date, over 14,000 students from 157 schools have participated in research trials of *Climate Schools* courses across Australia and the United Kingdom (Newton et al., 2009; 2010; Champion et al., 2016a; Newton et al., 2014; Vogl et al., 2009; 2014; Teesson et al., 2017). These trials found that, compared to control students who received their usual health and drug education at school, students who received the *Climate Schools* courses show significant improvements in alcohol- and cannabis-related knowledge, a reduction in average weekly alcohol consumption, a reduction in the frequency of binge drinking and a reduction in the frequency of cannabis use up to three years following the interventions. Despite these positive results, like most universal programs, the effect sizes found in these trials are modest (Foxcroft and Tsertsvadze, 2011; Faggiano et al., 2014; Champion et al., 2013; Hennessy and Tanner-Smith, 2015). It has been suggested that one means of achieving greater effect is to target parents alongside their adolescent children to prevent substance use (Newton et al., 2017; Kumpfer et al., 2003; Smit et al., 2008).

To address the need for an effective, evidence based, substance use prevention program involving both adolescents and their parents, we sought to develop an online parent component to accompany the existing online *Climate Schools: Alcohol and Climate Schools: Alcohol & Cannabis* courses for students. The combined parent-student intervention, known as the *Climate Schools Plus* program, is the first combined student- and parent-based substance use prevention program to be developed in an Australian context and the first combined student and parent substance use prevention program to be delivered entirely online. The development and evaluation of the student *Climate Schools: Alcohol and Climate Schools: Alcohol & Cannabis* courses has been described elsewhere (Newton et al., 2009; 2010; Champion et al., 2016a; Newton et al., 2014; Teesson et al., 2017; Newton et al., 2011). This paper describes the development of the parent component.

## 2. Development

The development of the *Climate Schools Plus* parent component was iterative and collaborative. The parent component is based on the Dutch Prevention of Alcohol Use in Students (PAS) program developed by one of the authors (IK), as well as a review of relevant evidence, consultation with parents (end-users) and an expert advisory group (eight academics and clinicians with expertise in school-based substance use prevention, substance use behaviour change and parenting interventions from the NHMRC Centre of Research Excellence in Mental Health and Substance Use, The National Drug and Alcohol Research Centre, UNSW, The National Drug Research Institute, Curtin University, Western Australia, Utrecht University, The Netherlands, the School of Medicine and Public Health, and the University of Newcastle, and a lay parent representative) and feedback from beta-testing of materials and program components. These stages are described in detail below and are presented in Fig. 1. All aspects of this research were approved by the University of New South Wales Human Research Ethics Committee (HC16887).

## 3. Literature review

A review of the literature reporting the effectiveness of existing,

combined student-and-parent prevention programs was conducted in 2016 to inform the development of the *Climate Schools Plus* parent component (Newton et al., 2017). The main features considered in this review were 1) the content of the program, 2) timing of intervention delivery and 3) the mode of delivery.

### 3.1. Content of the program

A systematic review of the literature was undertaken to identify programs that adopted a combined student- and parent-based approach to prevent and/or reduce substance use among adolescents (Newton et al., 2017). We identified 22 papers describing 10 different programs, nine of which were found to significantly delay or reduce adolescent alcohol and/or other drug use in at least one trial. Eight programs were reported to be efficacious in reducing alcohol consumption, while three reported significant reductions in cannabis use among adolescents. The majority of programs aimed to equip parents with generic parenting skills, such as parental monitoring and communication, while others included specific substance use parenting strategies, such as rule-setting. The effects of these programs were observed up to 72 months following intervention delivery; suggesting these types of combined programs can have long-lasting effects.

One of the successful combined programs identified in this review, with particularly good effect sizes, was the Dutch Prevention of Alcohol Use in Students (PAS) program (Koning et al., 2009). PAS is a brief, universal prevention program based on the theory of planned behaviour and social cognitive theory, which combines both student- and parent-based components. The PAS parenting intervention specifically targets parental rules about adolescent alcohol use, as lack of rule-setting by parents has been identified as one of the best and most easily modifiable predictors of early adolescent substance use (van der Vorst et al., 2006; McKay, 2015). In this program, parents of high school students in one-year group attend a face-to-face presentation at the beginning of the school year where they receive information about alcohol use among adolescents and the important role of parental attitudes and behaviour. Thereafter, parents are encouraged as a group, to agree upon a set of strict rules regarding alcohol use. They are provided with an information leaflet and a copy of the agreed upon rules, two weeks after the parents' meeting. Six months after the parent component of the program is delivered, students complete an online program in class that consists of four lessons, followed by a hardcopy booster lesson one year later, which aims to increase alcohol refusal skills. Compared to students in the control condition, students who received the PAS program reported a delay in the onset of alcohol use, weekly alcohol use, and heavy weekly alcohol use; as well as less alcohol consumption and heavy weekend alcohol consumption up to 50-months post baseline (Koning et al., 2009, 2015, 2013, 2011).

Yap et al. (2017), reviewed the literature examining modifiable parenting factors associated with adolescent alcohol initiation, later use and misuse of alcohol. Based on a comprehensive review and meta-analysis, they identified a number of key modifiable parenting factors associated with adolescent alcohol use. These factors included three risk factors (parental supply of alcohol, favourable attitudes towards alcohol and parental alcohol use) and four protective factors (parental monitoring, parent-child relationship quality, parental support and parental involvement) for which there was sound evidence of a relationship to adolescents' initiation of alcohol use and levels of later alcohol use and misuse. Parental supply of alcohol emerged as the top risk factor for adolescent alcohol use. Specifically, they found that adolescents whose parents supplied alcohol, or allowed them to drink at home, were more likely to start drinking or have alcohol related problems earlier, drink more frequently, drink at higher quantities and have more alcohol-related problems later in life. Parental monitoring emerged as the strongest protective factor in their review, indicating that by being more aware of adolescents' activities, whereabouts and friendship networks, parents can help protect their children from later

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