Programme Name: “Climate Schools: Alcohol and drug education courses”

Contact Details:
Nicola Newton, University of New South Wales, email: n.newton@unsw.edu.au
Natasha Nair, University of New South Wales, email: n.nair@unsw.edu.au

Programme description and objectives
Early exposure to drug and alcohol abuse has proved to have negative consequences on psychological and behavioural aspects of adolescents’ lives. Prevention is therefore essential and schools have a key role to play being one of the most suitable environments for implementing prevention programmes on a large scale. Although alcohol and drug abuse prevention programmes do exist and are currently implemented, they are often subject to limitations and lack of efficacy.

The Climate Schools interventions have been designed to overcome main limitations to implementation failure and to deliver effective prevention, tackling early initiation to drug and alcohol use among adolescents. The Climate Schools programmes are innovative health education courses, based on the effective social influence approach to drug prevention that a) uses a harm-minimisation approach to alcohol and drug misuse prevention, and b) addresses implementation failures through the use of the internet as a mode of programme delivery, which ensures a high fidelity of implementation (Newton et al. 2009, 2010; Vogl et al. 2009, 2014). Additionally, the Climate Schools programmes have been developed by researchers in collaboration with teachers, students, health and legal professionals to properly address all factors identified as potentially undermining efficacy of the intervention (Newton et al. 2009; Vogl et al. 2012).

Implemented across Years 8-10 (ages 13-16), the Climate Schools modules are designed to be embedded within the school health curriculum. The programme currently offers three modules: Alcohol Education, Alcohol & Cannabis Education, and Psychostimulant & Cannabis Education. Each module consists of a series of six 40-minutes lessons including two components: one internet based component and one or more interactive activities to be carried out at a classroom level (or set as homework). The first component includes a 15-20 minutes computer–based lesson, which students can navigate as they wish, and interact with a cartoon-based teenage drama. Each session is part of an ongoing story and teachers are encouraged to cover each of the six cartoon lessons to complete the full module. This is to guarantee the correct delivery and implementation of the programme. The second component allows teachers to choose one or more activities (20 minutes each) from the manual to reinforce the lesson material. These activities focus on social and life skills development and consists of students’ engagement in classroom activities such as role plays, classroom discussions, decision making and problem solving (Newton et al. 2009a b, 2010; Vogl et al. 2009, 2014).
Target population
The Climate Schools programmes are designed for high school students, typically in Years 8-10 (ages 13-16). As this is a universal prevention programme, it has been designed for all students and does not require pre-selection of students.

Expected Outcomes
To show that alcohol and drug prevention programmes, which are based on a harm-minimisation approach and delivered through the internet, can offer a user-friendly, curriculum-based and commercially-attractive teaching method. The ultimate aim of the Climate Schools courses is to increase teenagers’ knowledge on the adverse effects of early alcohol and drug use, and to reduce consumption and drug-related harms.

Study references:

Related Studies

Study Details
A number of studies have evaluated the effectiveness of the Climate Schools programmes. The evaluations are based on randomised controlled trials conducted at school level in various Australian secondary schools. Schools that took part in the trials were randomly assigned either to the intervention (Climate Schools) group or the control group.
Effectiveness of the Alcohol Education module has been assessed through two randomised controlled trials (Newton et al. 2009a; Vogl et al. 2009). The trials involved Year 8 students, aged 13 years, from 10 and 16 independent Australian schools respectively. The second module, Alcohol & Cannabis Education, has also been assessed through two randomised controlled trials (Newton 2010, 2009b; Champion et al. 2015) of Year 8 students in 10 and 14 different Australian schools respectively. The Psychostimulant & Cannabis Education module, focusing on cannabis, ecstasy and methamphetamine use, was evaluated through a randomised controlled trial conducted in Year 10 students aged 15-16, in 21 different Australian schools (Vogl et al. 2014).

To assess the effectiveness of the modules, students completed self-report questionnaires on: alcohol, cannabis and psychostimulant use, drug-related knowledge, drug-related expectancies and drug-related harms. Questionnaires were adapted from the School Health and Alcohol Harm Reduction Project (SHAHARP), and the Alcohol Expectancy Questionnaire Adolescent form (AEQ-A). Vogl et al. (2009, 2014) also asked teachers and students to complete an evaluation survey to assess the educational quality and acceptability of the modules. Assessments were conducted at baseline, immediate post intervention and 6 month follow up (Newton et al.2009a b) and also at 12 month follow up (Vogl et al. 2009; Newton et al. 2010). Vogl et al. (2014) conducted assessments at 5 and 10 months following completion of the intervention.

The last paper is a pilot study conducted by Newton et al. (2014) to assess the feasibility of the Climate school programme in the UK.

<table>
<thead>
<tr>
<th>Title of study</th>
<th>Location</th>
<th>Year</th>
<th>Sample size at baseline</th>
<th>Number of schools</th>
<th>Average age</th>
<th>Percentage of males</th>
<th>Treatment and control groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vogl et al (2014)</td>
<td>Sydney, Australia</td>
<td>2008-2009</td>
<td>1734</td>
<td>21</td>
<td>15.44</td>
<td>66.2%</td>
<td>Cluster randomised controlled trials with external control groups</td>
</tr>
<tr>
<td>Newton et al. (2014)</td>
<td>Southeast London, UK</td>
<td>2010-2011</td>
<td>222</td>
<td>2</td>
<td>13.86</td>
<td>57%</td>
<td>No control and intervention groups were identified</td>
</tr>
</tbody>
</table>

**Newton et al. 2010, 2009a, b**

**Study design:** Cluster Randomised Controlled Trial

**Study sample:** Total of N=764 year 8 students (12-14 years old) from 10 different independent Australian schools were randomly assigned to the internet-based prevention programme - intervention group - (n=397 over 5 schools) or to their usual alcohol and drug prevention classes - control group- (n=367 over 5 schools) and completed surveys at the baseline.

**Outcome measures:** Self-reported questionnaires were completed by all students to assess their alcohol and/or cannabis related knowledge, consumption, positive expectances, pattern of use and harm associated outcomes. Questionnaires were completed at baseline, immediately post intervention, 6 month and 12 month follow ups. In Newton et al. (2009 b, 2010): 48% of the intervention group and 69% of the control group repeated the survey at immediate post intervention, 86% of the intervention group and 78% of the control group repeated the survey at 6
months follow-up, and 83% of the control group completed the survey at 12 months follow-up. In Newton et al. (2009a) 62% of the intervention group and 77% of the control group completed the survey at immediate post intervention, 64% of the intervention and 60% of the control group completed the survey at 6 months follow-up.

**Empirical methodology:** Schools were randomly assigned to the two groups. Baseline equivalence and attrition were conducted to examine differences between groups and to account for missing data. Analysis of variances was used to compare means and distributions from the two samples. To determine the effects of the intervention, multilevel or single regression analysis were conducted. Hierarchical modelling or single level analyses were used to account for the interrelation between groups for multi-level analysis. One level analysis, ANOVA analysis of variances, was carried out when variances between groups was less than 10%.

**Vogl et al (2009)**

**Study design:** Cluster Randomised control Trial

**Study Sample:** A total sample of N=1434 students from 16 different schools took part in the trial and completed the survey at baseline. 59% were male and the average age was 13 years old. There were 8 schools assigned to the *Climate Schools* intervention group (n=611, 45% male), and 8 schools assigned to a control group where normal alcohol prevention courses were taught (n=855, 69% male).

**Outcome measures:** Self-reported questionnaires were completed by students from both groups. Surveys were completed at baseline, immediately after the intervention, 6 months and 12 months following completion of the intervention. At immediate post-intervention 79% of the intervention group and 75% of the control group repeated the survey; at 6 months follow-up 73% of the intervention group and 69% of the control group repeated the survey; at 12 months follow up 73% of the intervention group and 68% of the control group completed the survey. Evaluation questionnaires were also completed by students and teachers to assess the acceptability, likeability and quality of the intervention.

**Methodology:** Schools were allocated randomly by an independent researcher using a simple randomisation procedure. Attrition analysis and analyses of variances were used to examine differences at the baseline. To assess effectiveness of the intervention, Hierarchical Linear Modelling (HLM) and Hierarchical Generalised Linear modelling (HGLM) were used at a multi-level. For one-level analysis, when variances between schools accounted for less than 10%, analysis of covariance (ANCOVA) was carried out. Male and female data were analysed separately to evaluate the differences in the programme’s effectiveness.

**Vogl at al. (2014)**

**Study design:** Randomised controlled trial

**Study sample:** 1734 Year 10 students (aged 15-16 years old) from 21 Australian independent and Catholic schools took part in the trial. The average age was 15.44 and 66.2% of them were male. 10 schools (n=906) were allocated to the intervention group that received 6 lessons of the *Climate Schools* course. The remaining 11 schools (n=828) were assigned to the control group where usual drug prevention classes were delivered.

**Outcome measures:** Effectiveness of the Psycho-stimulant & Cannabis Education course was measured through self-reported questionnaires completed by students at baseline, immediately...
post intervention, 5 month and 10 month follow up. 69% of the intervention group and 70% of the control group repeated the survey at immediate post-intervention, 68% of the intervention group and 54% of the control group repeated the survey at 5 month follow-up, and 63% of the intervention group and 49% the control group completed the survey at 10 month follow-up. Questionnaires on programme evaluation and implementation were also completed by students and teachers in the intervention group to assess quality and delivery of the intervention.

**Empirical methodology:** Randomisation was conducted at school level using an online randomiser tool. Attrition and differential attrition analysis were carried out to evaluate groups’ equivalence. Intra-cluster correlation coefficients were also calculated to assess variability between schools. Such measures were implemented to assure internal validity of the results. To assess effectiveness of the intervention multilevel and single level analysis were conducted, where appropriate. Gender was taken into account in all analyses and results from male and female groups were reported.

**Newton et al. (2012)**

**Study design:** Pilot study to examine feasibility of the Climate Schools programme in the UK.

**Study Sample:** 222 students and teachers of two secondary schools in Southeast London evaluated the programme. Average age among students was 13.86 years old and 63% were males.

**Methodology and outcome measures:** Teachers were asked to implement the Climate Schools programme over the school year. Teachers and students were asked to complete questionnaires after the intervention to evaluate the programme.

**Results and Impact**

The above studies aim to statistically compare any changes between groups in substance use and knowledge before and after intervention. Overall, the evaluation studies suggest that positive effects of the Climate Schools programme have been shown for the intervention groups in increasing alcohol, cannabis and psycho-stimulant related knowledge, decreasing alcohol and cannabis use, and intentions to use ecstasy at least during the short period. Impact of the Climate Schools programme varies according to the module implemented and the period of time in which evaluations take place. Results for each module are detailed below.

**Alcohol related outcomes (Newton et al. 2009a b, 2010; Vogl et al. 2014)**

- Students in the Climate Schools intervention group were found to have significant improvements in alcohol-related knowledge at 6 and 12 month follow up (Newton et al. 2009; 2010). Vogl et al (2009, 2014), though confirming such findings, showed that the difference between intervention and control groups decreased over time.

- Average weekly alcohol consumption was found to have significantly different trends between Climate Schools and control groups, with control groups showing higher trends at 12 months follow up of the intervention (Newton et al. 2010). Vogl et al. (2014) show that when gender is taken into account, significant difference in average weekly consumption is still evident for girls but not present among boys.

- Frequency of drinking to excess also differed significantly between control and intervention groups at 12 month follow up, with control groups drinking more frequently than intervention groups (Newton et al. 2009, 2010). Frequency of drinking also significantly increased within female control groups compared to intervention groups at 6 month and 12 month follow up. Again no significant difference is found between male groups (Vogl et al. 2014).
• No significant difference between groups was found over alcohol related expectancies nor over alcohol related harms. Only Vogl et al. (2009) showed that there was a significant difference on alcohol related harms between female groups at post intervention with female control groups showing higher positive expectances associated to alcohol (Vogl 2009).

Cannabis and psycho-stimulant related outcomes (Newton 2010; Vogl et al. 2014)
• With regards to cannabis and psycho-stimulant related knowledge, students within the intervention groups were found to have significantly higher post-test scores compared to the control groups. The intervention had positive effects on cannabis and drug related knowledge, although this effect decreased with time (Newton 2010, Vogl et al. 2014).

• Attitude towards cannabis and psycho-stimulant use was lower among intervention groups after delivery of the programme. Attitude towards psycho-stimulant use was also significantly lower within intervention groups. However these differences diminished over time.

• Significant difference in cannabis consumption between intervention and control groups was also found at 6 month follow up with control groups showing higher levels of consumption (Newton et al. 2010). The intervention also had a positive impact on females who showed decreased frequency of cannabis consumption (Vogl et al. 2014). The difference between groups was no longer significantly different at 12 month follow up. It is important to note that the Climate Schools programmes delivered among Year 10 students did not delay initiation of cannabis use. This would suggest that intervention programmes have to be implemented at an earlier age.

• The Climate Schools programme was found to significantly reduce psycho-stimulant consumption, in particular ecstasy. However, no reduction of methamphetamine use was reported. Intention to use ecstasy and methamphetamine in the future also decreased within intervention groups. But again these differences did not last over longer periods.

• No significant difference was found at any point between control and intervention groups in harm associated to cannabis and psycho-stimulant use.

Evaluation of the course (Vogl. 2009, 2014; Newton et al. 2014)
• Both teachers and students reported positive feedback about the course. The majority of students enjoyed using an internet-based cartoon story method and also expressed interest in learning more about health-related topics this way. Vogl et al. (2009) indicates that females reported significantly more positive feedback. The majority of teachers said that the programme was easy and accessible to implement and that they would like to use it in the future. Only a small percentage of teachers reported difficulties in accessing internet resources. Newton et al. (2014) reported positive feedback and also showed that the programme was feasible and acceptable by teachers and students in the UK.

Impact grade: 2

Overall quality of evaluation evidence
The first set of studies consist of cluster randomised controlled trials with randomisation carried out at school level. High levels of statistical analysis were performed and accounted of attrition intra-cluster correlations and multilevel analyses. Overall these are good level quality studies, able to show the causal relationship of the Climate Schools courses on increased alcohol, cannabis and
psychostimulant related knowledge and reduced consumption among students allocated to the sample, even though less positive impact is showed in the long-run at later follow up assessments. The main weakness, as noted by Vogl et al. (2009, 2014), is that despite randomisation, groups at baseline showed considerable differences in composition and exposure to risk, with control groups and male groups revealing more risky trends (Newton 2010; Vogl et al.2014). This is a problem perhaps mainly due to the small size of the trials that cannot mitigate chance imbalances. The studies reinforce the already existing body of evidence in support of the harm-minimisation approach for drug and alcohol prevention. With regards to the cost effectiveness of the programme, these studies have proved the internet-based course to be a reliable and easy-to-implement tool. Teachers do not require any specific training. Instead they are given a manual to follow for delivering classroom activities.

Level of evidence grade: 6

Appendix: details of impact grades and quality of evidence grades are set out below

<table>
<thead>
<tr>
<th>Impact grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (none)</td>
<td>No relationship between the youth service and the outcome in question.</td>
</tr>
<tr>
<td>1 (low)</td>
<td>Provision of the youth service may be positively related to one but not all outcomes or just for sub-groups of the target population.</td>
</tr>
<tr>
<td>2 (medium)</td>
<td>The youth service has moderate impact on all outcomes and sub-groups or high impact on some outcomes and sub-groups.</td>
</tr>
<tr>
<td>3 (high)</td>
<td>The youth service has high impact on all outcomes and sub-groups.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Score</th>
<th>Type of study</th>
<th>More Description</th>
<th>Example of a study</th>
<th>How to improve the quality of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Basic</td>
<td>Studies that describe the intervention and collect data on activity associated with it.</td>
<td>A study that describes the intervention and states how much it cost or how many hours of services young people received.</td>
<td>Collect some “before and after” data on the outcome of interest for those receiving the intervention. If it is too late for that, collect outcome “after” data for the group receiving the services and try to compare these outcomes with comparable youth using other sources of data.</td>
</tr>
<tr>
<td>1</td>
<td>Descriptive, anecdotal, expert opinion</td>
<td>Studies that ask respondents or experts about whether the intervention works.</td>
<td>A study that uses focus groups or expert opinion or indeed surveys those who received the intervention after they received it.</td>
<td>Collect some “before and after” data on the outcome of interest for those receiving the services. If it is too late for that, collect outcome “after” data for the group receiving the services and try to compare these outcomes with comparable youth using other sources of data.</td>
</tr>
<tr>
<td>2</td>
<td>Study where a statistical relationship (correlation) between</td>
<td>The correlation is observed at a single point in time,</td>
<td>A study that conducts a survey only after the services have been delivered and</td>
<td>This evidence does not allow for the fact that prior to the intervention youths who received the service may have been different from those who did not. Collect</td>
</tr>
<tr>
<td>Study Type</td>
<td>Description</td>
<td>Example</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Study which accounts for when the services were delivered by surveying before and after</td>
<td>This approach compares outcomes before and after an intervention.</td>
<td>A study that conducts a survey before and after the program.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Study where there is both a before and after evaluation strategy and a clear comparison between groups who do and do not receive the youth services</td>
<td>These studies use comparison groups, also known as control groups.</td>
<td>A study that matches two locations where both individuals and areas are comparable and surveys them before and after the program, e.g., pilot studies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Study where youth services are provided on the basis of individuals being randomly assigned to either the treatment or the control group</td>
<td>Study with a before and after evaluation strategy, statistically generated control groups, and statistical modelling of outcomes.</td>
<td>A study that uses a statistical method, such as propensity score matching, to ensure that the group receiving the youth services is similar to the comparison group, and a statistical model of outcomes, e.g., difference in difference.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Study where youth services are provided on the basis of individuals being randomly assigned to either the treatment or the control group</td>
<td>A study which conducts a Randomised Controlled Trial.</td>
<td>The gold standard. The gold standard. It is challenging to run a RCT, with cost, ethical, and practical issues arising. Even with a RCT you have to think about how generalisable it is to other situations. If the RCT was only males, it cannot tell you about how well the youth service would do for females, for example.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>