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Introduction

Background: Alcohol and cannabis are the most commonly used licit and illicit drugs in most developing countries (AIHW, 2011). Use is particularly high amongst adolescents and the burden of disease, social costs, and disability associated with this use is considerable (Collins & Lapsley, 2008; Andrews et al., 2001). To reduce the occurrence and cost of such problems, preventative interventions need to be initiated early.

While prevention strategies exist, research has not consistently demonstrated that universal school-based drug prevention is effective in reducing substance use (Faggiano et al., 2008; Foxcroft & Tsertsvadze, 2012). The effectiveness of prevention is often compromised by obstacles associated with program implementation (Dusenbury et al., 2003), or by the adoption of an abstinence as opposed to a harm-minimisation approach to prevention (Spooner et al., 2002).

The *Climate Schools: Alcohol and Cannabis course* was developed to overcome these obstacles. The course is a novel interactive cartoon-based educational program that is:

- based on a social influence approach to prevention,
- based on a harm-minimisation framework,
- embedded within the school 'health' curriculum, and
- delivered over the internet, thereby guaranteeing high fidelity.



The course comprises the delivery of two sets of six 40 minute lessons delivered six months apart. Each lesson has two parts:

- 1)a 15-20 minute internet-based component completed individually where students follow a cartoon storyline of teenagers experiencing real life situations and problems with alcohol and cannabis, and
- 2)a pre-determined activity delivered by the teacher to reinforce the information learnt in the cartoons.

Results from a cluster randomised controlled trial (RCT) found the *Climate Schools: Alcohol and Cannabis course* to:

- ✓ Increase alcohol and cannabis knowledge immediately post, and at the six and twelve month follow-ups,
- ✓ Decrease frequency of cannabis use at the six month follow-up
- ✓ Decrease frequency of drinking to excess (binge drinking) at the twelve month follow-up, and
- ✓ Decrease average alcohol consumption at the six and twelve month follow-ups (Newton et al., 2009; 2010).

Aim

As the *Climate Schools* course aims to reduce substance use by increasing resistance to peer pressure and promoting positive choices, the aim of the current study was *to examine if the intervention can also reduce the underlying associated risk-factors in adolescents*. These include truancy, psychological distress, moral disengagement and peer pressure resistance.

Method

Design: A cluster RCT was used to assess the effectiveness of the *Climate Schools* course.



Participants: 764 Year 8 students (mean 13.1 years) from 10 Australian secondary schools were randomly allocated to receive the *Climate Schools* program (n=397, five schools), or their usual health classes (n=367, five schools) over the year. Active written parental/guardian consent was required.

Measures: Participants were assessed on their levels of substance use and knowledge (primary outcomes), as well as a range of secondary outcomes including:

Truancy: Truancy levels were determined by asking students to indicate how many days they had off school in the last year without their parent's permission.

Psychological distress (K6): The K6 is a six item screening scale of nonspecific psychological distress. Total scores range from 0 – 24 and a higher score represented higher distress.

Self-regulatory efficacy to resist Peer Pressure (PP): Perceived efficacy to resist peer pressure to use alcohol and drugs, and engage in other transgressive behaviours was measured by eight items. Total scores range from 0 – 48 and higher scores represented higher resistive self-regulatory efficacy.

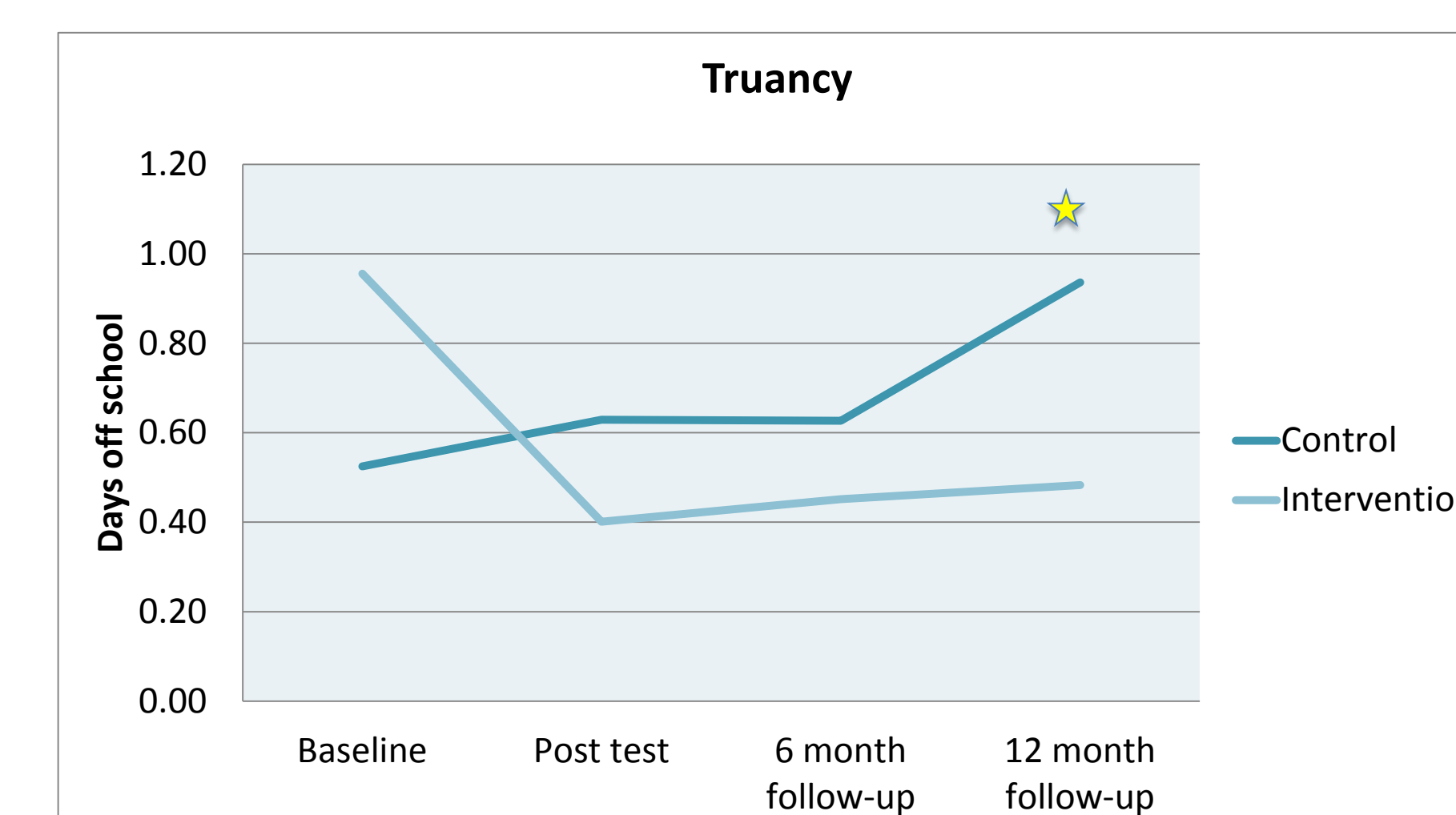
Moral Disengagement (MD): Moral disengagement was measured by 13 items assessing proneness to disengage from different forms of detrimental conduct adapted from Bandura's moral disengagement scale. Total scale scores range from 0 – 52 and higher scores represented higher moral disengagement.

Assessment and intervention times are presented below.

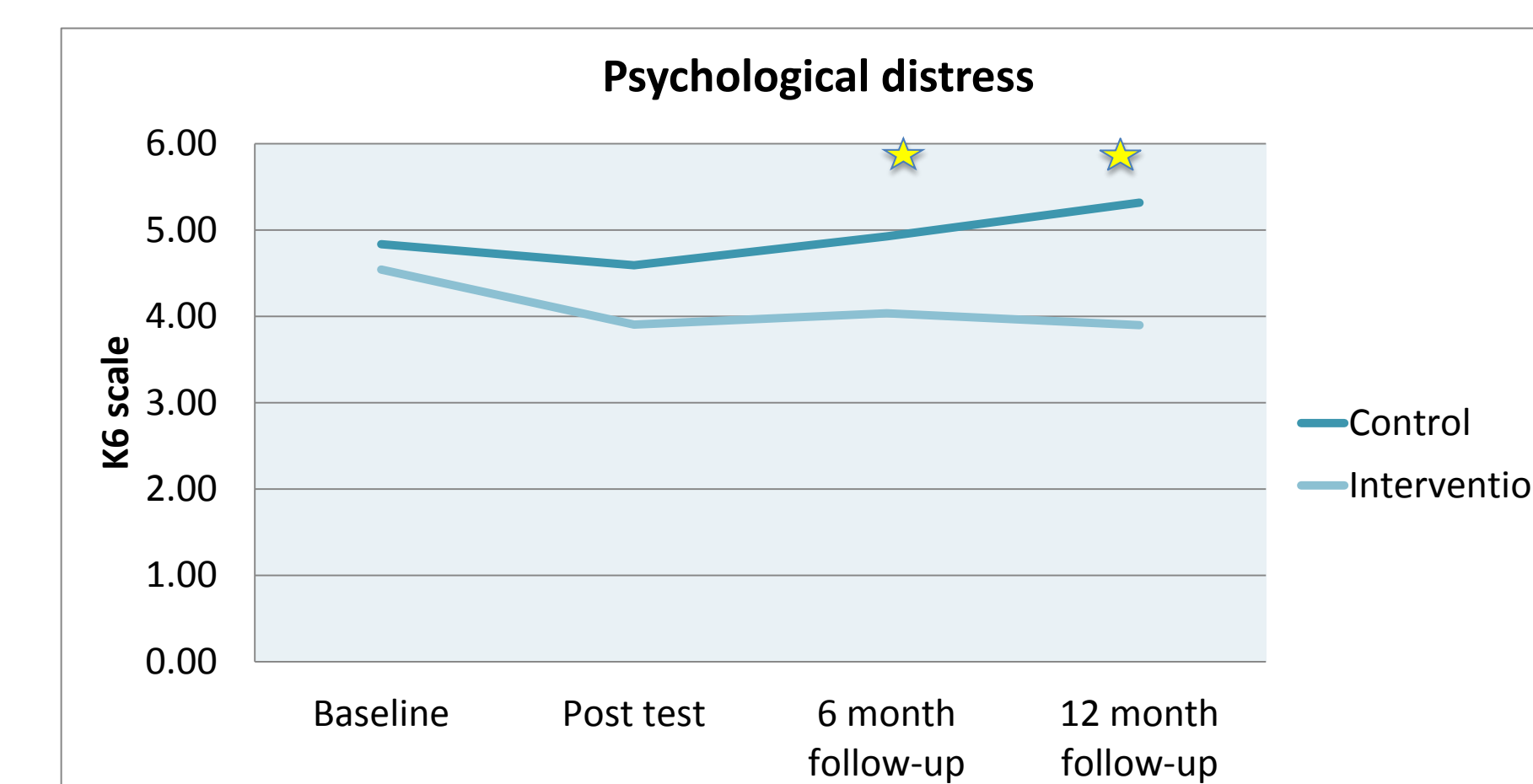
	Baseline survey	Climate Schools course	Post survey	6 month follow-up survey	12 month follow-up survey
Control	x		x	x	x
Intervention	x	x	x	x	x

Results

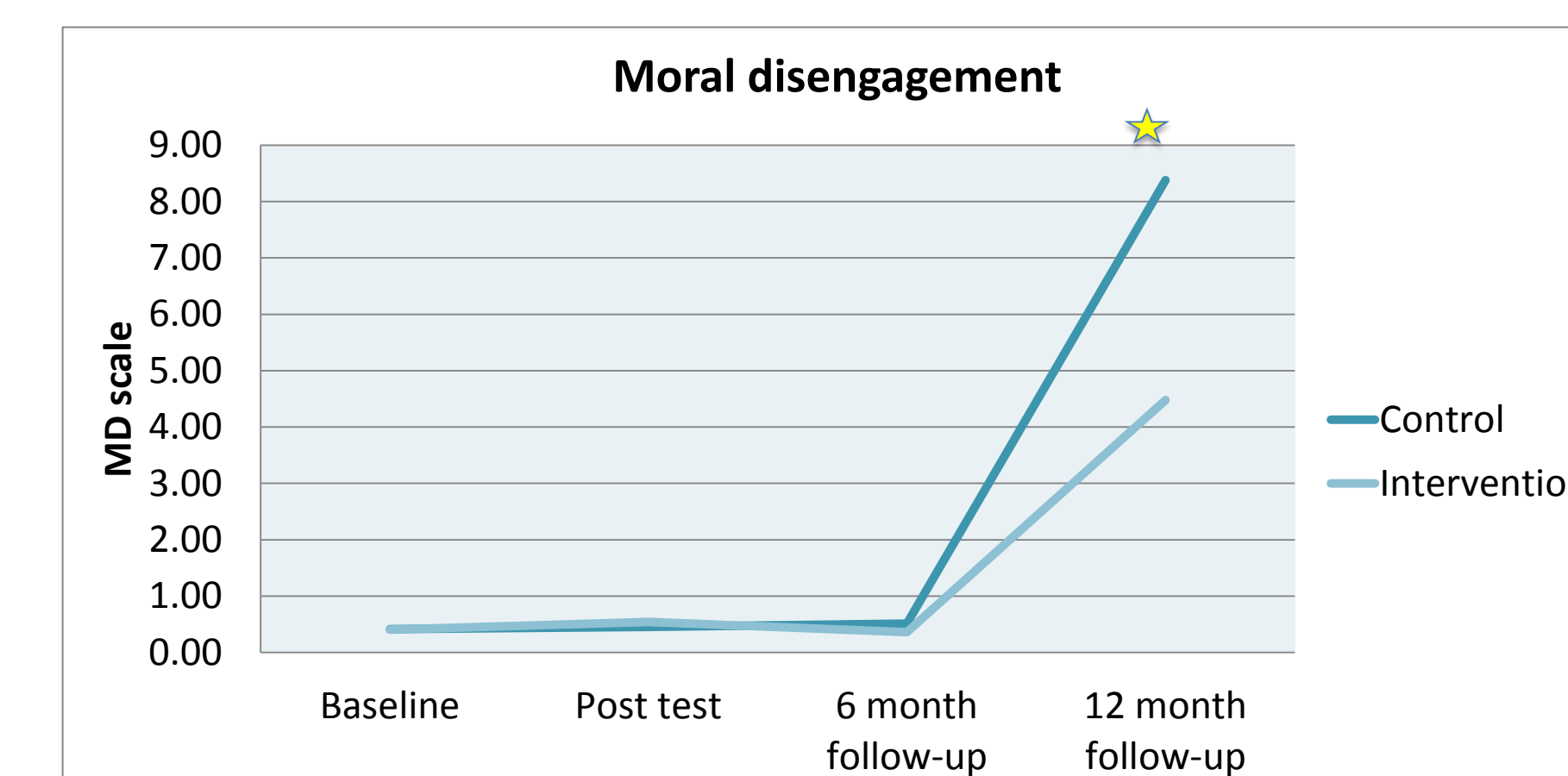
Statistical analyses: Intra-cluster correlations (ICCs) were assessed on outcome variables. Five percent, 3%, 3% and 1% in the variance of truancy, MD, PP and K6 respectively, was explained by school. As ICCs were < 10%, no adjustments for clustering were made and single-level analyses were used to examine intervention effects (Lee, 2000). ANCOVAs assessed differences between the groups from baseline to each follow-up occasion on each outcome variable. Corresponding baseline scores were entered as covariates.



Truancy: Immediately post intervention there was no significant difference between groups ($F(1,340) = 2.18, p=0.14$), nor was there a difference six-months post intervention ($F(1,398) = 1.08, p=0.30$). By the twelve month follow-up there was a significant difference ($F(1,373) = 5.47, p<0.02$) with students in the Control group having significantly higher levels of truancy than those in the *Climate* group.

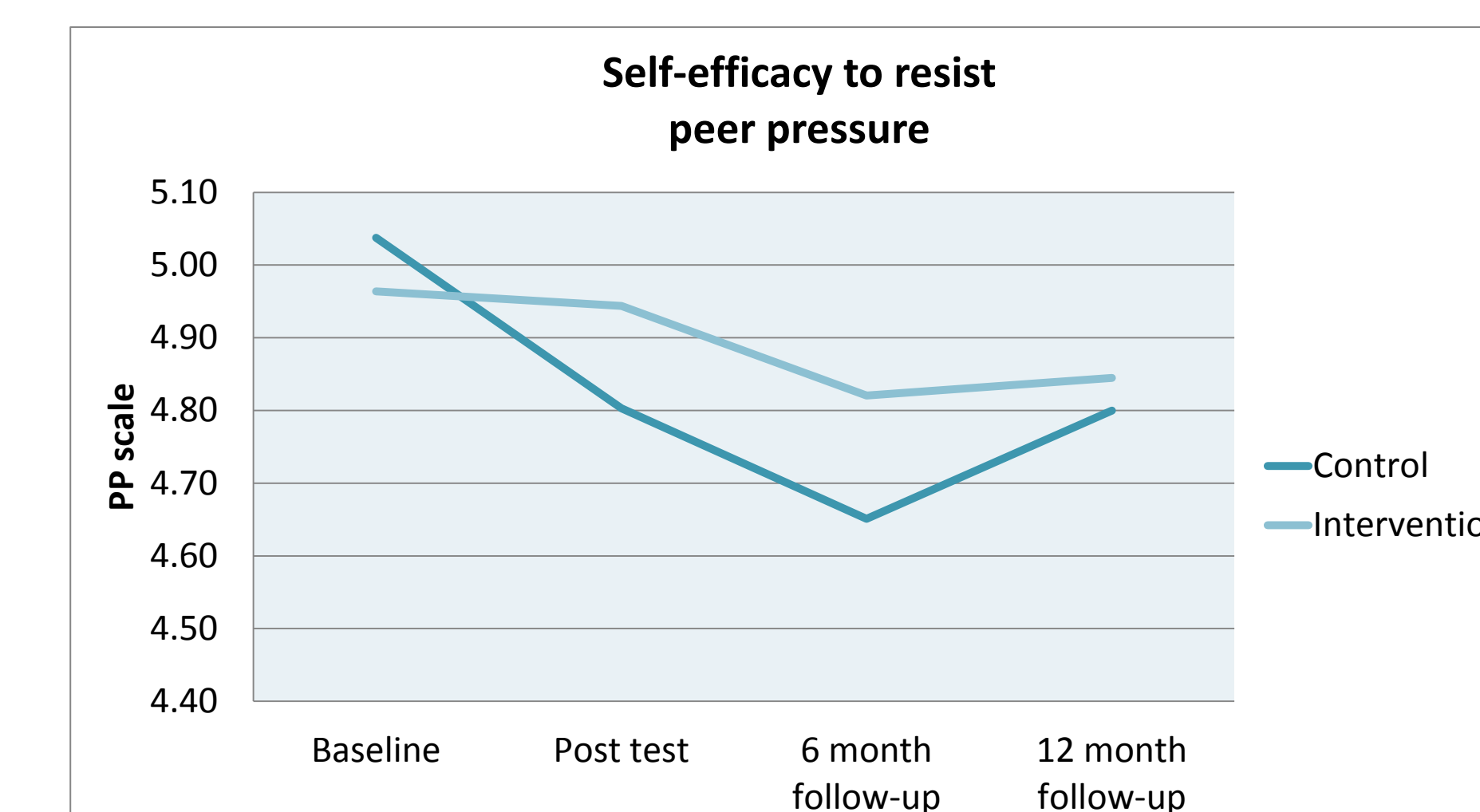


K6: Immediately post intervention there was no significant difference between the groups ($F(1,335) = 3.11, p=0.08$). At six-months post intervention, there was a significant difference between groups ($F(1,397) = 4.48, p<0.05$), with the Control group having higher K6 scores than the *Climate* group. This continued at the 12 month follow-up ($F(1,374) = 5.55, p<0.02$).



MD: Immediately post intervention there was no significant difference between groups ($F(1,254) = 0.013, p=0.91$), nor was there a difference at six-months post intervention ($F(1,340) = 1.47, p=0.23$). By the twelve month follow-up there was a significant difference ($F(1,313) = 5.59, p<0.02$) with students in the Control group having significantly higher MD than those in the *Climate* group.

Results



PP: Immediately post intervention there was no significant difference between the *Climate* and the Control groups ($F(1,263) = 0.01, p=0.92$), nor was there a difference between groups six-months post intervention ($F(1,344) = 0.89, p=0.35$) or twelve months post intervention ($F(1,324) = 0.09, p=0.76$).

Discussion

Compared to the control group, students in the intervention group showed *significant* reductions in truancy, as well as reduced psychological distress and moral disengagement up to twelve months following completion of the intervention. No differences were found between groups on levels of self-efficacy to resist peer pressure possibly due to the measure not being specific to substance use, but rather a general measure of peer pressure resistance to engage in transgressive behaviours.

Future research is needed to understand the underlying mechanisms and processes of change which result from the intervention.

Conclusion: These results indicate that an internet-based preventive intervention designed to prevent alcohol and cannabis use can concurrently reduce other associated risk-factors in adolescents.

Acknowledgements and contact

The *Climate Schools: Alcohol and Cannabis course* was funded by the Australian Government Department of Health and Ageing and the Alcohol Education and Rehabilitation Foundation. *Climate Schools* is operated on a not-for-profit basis. Thanks to Dr Laura Vogl, Prof Gavin Andrews and the schools involved in the research.

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