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The 7-year effectiveness of school-based alcohol use prevention: An RCT of universal, selective and combined interventions.

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Why prevent?

- Worldwide, harmful use of alcohol results in:
 - **3 million deaths each year**
 - **5.1% of the global burden of disease** (*GBD, 2016*).
- Burden falls heavily on youth.
 - **BOD increases 10 fold** from adolescence to early adulthood (*Degenhardt et al, 2016*).
- Clear link between alcohol misuse and **mental and behavioural problems** (*Whiteford, 2013; Teesson, 2010*).

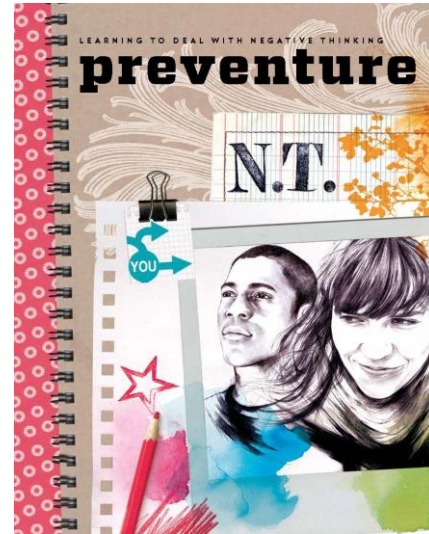


Good news...

Each year we **delay drinking** we reduce the odds of developing an alcohol use disorder by $\approx 10\%$

Aim

Can we improve prevention of alcohol misuse by adding an effective **selective** program to an effective **universal** program?



OurFutures 'alcohol & cannabis' course

- **Universal eHealth** prevention program
- **12 lessons** on alcohol & cannabis
- **Effective principles** of drug prevention
- Embedded within **school health curriculum**
- **Overcomes barriers** to implementation
 - **Internet-based** to increase fidelity
 - **Engaging** for students & teachers



Evidence base: *OurFutures* alcohol & cannabis course

- 3 RCTs & pilot in the UK
- Findings:
 - ✓ Increase alcohol & cannabis knowledge
 - ✓ Reduce average alcohol consumption
 - ✓ Reduce binge drinking
 - ✓ Reduce frequency of cannabis use
 - ✓ Reduce truancy

Newton, N. et al. (2020). *Psych Med.*

Newton, N., et al. (2010). *Addiction.*

Newton, N. et al. (2009). *Preventive Medicine.*

Champion, K. et al. (2016). *ANZJP.*

Teeson, M. et al, (2017). *Psych Med.*

Teeson, M. et al (2020). *Lancet Digital Health*



The Matilda Centre, University of Sydney



Prevention program (Conrod et al)

- Brief **personality-targeted** selective program
- Aims to **increase coping skills** in “high-risk” youth
- Targets **4 personality profiles** associated with alcohol misuse



Negative Thinking (NT)	low mood, negative beliefs about self, others & future
Anxiety Sensitivity (AS)	fear of anxiety-related physical sensations
Impulsivity (IMP)	rapid decision-making, poor response inhibition
Sensation Seeking (SS)	elevated need for stimulation, risk-taking

- **Screening** with Substance Use Risk Profile Scale ($\approx 40\%$)
- **Face-to-face** intervention based on MI and CBT

Evidence base - Prevention

- 8 RCTs worldwide
- Findings:
 - ✓ Reduce alcohol use
 - ✓ Reduce binge drinking
 - ✓ Reduced illicit drug use
 - ✓ Reduce mental health symptoms

Conrod. (2016). *Current Addiction Reports*.
Newton, N. et al. (2018). *JCPP*.
Newton, N. et al (2019). *ANZJP*.

Personality-Targeted Interventions for Substance Use and Misuse

Patricia J. Conrod¹

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Abstract

Purpose of Review Personality factors have been implicated in risk for substance use disorders through longitudinal and neurobiologic studies for over four decades. Only recently, however, have targeted interventions been developed to assist individuals with personality risk factors for substance use disorders manage their risk. This article reviews current practices in personality-targeted interventions and the eight randomised trials examining the efficacy of such approaches with respect to reducing and preventing substance use and misuse.

Recent Findings Results indicate a moderate mean effect size for personality-targeted approaches across several different substance use outcomes and intervention settings and formats. **Conclusions** Personality-targeted interventions offer several advantages over traditional substance use interventions, particularly when attempting to prevent development of problems in high-risk individuals or when addressing concurrent mental health problems in brief interventions.

Substance Misuse in North America

Despite having made great strides in reducing adolescent binge-drinking rates, illicit substance use remains significantly above national targets for health promotion and disease prevention in the USA and Canada [1–3]. In 2014, marijuana use and nonmedical use of psychotherapeutics were the most common types of illicit drug use by North American adolescents and there is very little evidence that rates of cannabis use have changed over the past 10 years. More concerning is that rates of adolescent *substance use disorder* remain high and unchanged over this period [3]. These data suggest that there is a need to shift the focus of prevention efforts away from universal approaches to more targeted intervention strategies designed to help those most at risk of transitioning to substance use disorders.

Personality factors have been identified as robust risk factors for substance use disorders and have been shown to mediate the genetic predisposition to substance misuse and pre-



Current study aim & design

- Aim - examine **long term effects** of universal, selective & combined alcohol use prevention
- Four arm cluster RCT run over 7 years (13–20 years of age)
 1. **Control:** education as usual
 2. **OurFutures:** universal prevention
 3. **Preventure:** selective prevention
 4. **Combined:** universal + selective prevention

STUDY PROTOCOL

Open Access



Pathways to prevention: protocol for the CAP (Climate and Preventure) study to evaluate the long-term effectiveness of school-based universal, selective and combined alcohol misuse prevention into early adulthood

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Abstract

Background: Alcohol use and associated harms are among the leading causes of burden of disease among young people, highlighting the need for effective prevention. The Climate and Preventure (CAP) study was the first trial of a combined universal and selective school-based approach to preventing alcohol misuse among adolescents. Initial results indicate that universal, selective and combined prevention were all effective in delaying the uptake of alcohol use and binge drinking for up to 3 years following the interventions. However, little is known about the sustainability of prevention effects across the transition to early adulthood, a period of increased exposure to alcohol and other drug use. This paper describes the protocol for the CAP long-term follow-up study which will determine the effectiveness of universal, selective and combined alcohol misuse prevention up to 7 years post intervention, and across the transition from adolescence into early adulthood.

Methods: A cluster randomized controlled trial was conducted between 2012 and 2015 with 2190 students (mean age: 13.3 yrs) from 26 Australian high schools. Participants were randomized to receive one of four conditions; universal prevention for all students (*Climate*); selective prevention for high-risk students (*Preventure*); combined universal and selective prevention (*Climate and Preventure*; CAP); or health education as usual (*Control*). The positive effect of the interventions on alcohol use at 12-, 24- and 36-month post baseline have previously been reported. This study will follow up the CAP study cohort approximately 5- and 7-years post baseline. The primary outcome will be alcohol use and related harms. Secondary outcomes will be cannabis use, alcohol and other drug harms including violent behavior, and mental health symptomatology. Analyses will be conducted using multi-level, mixed effects models within an intention-to-treat framework.

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Primary outcomes

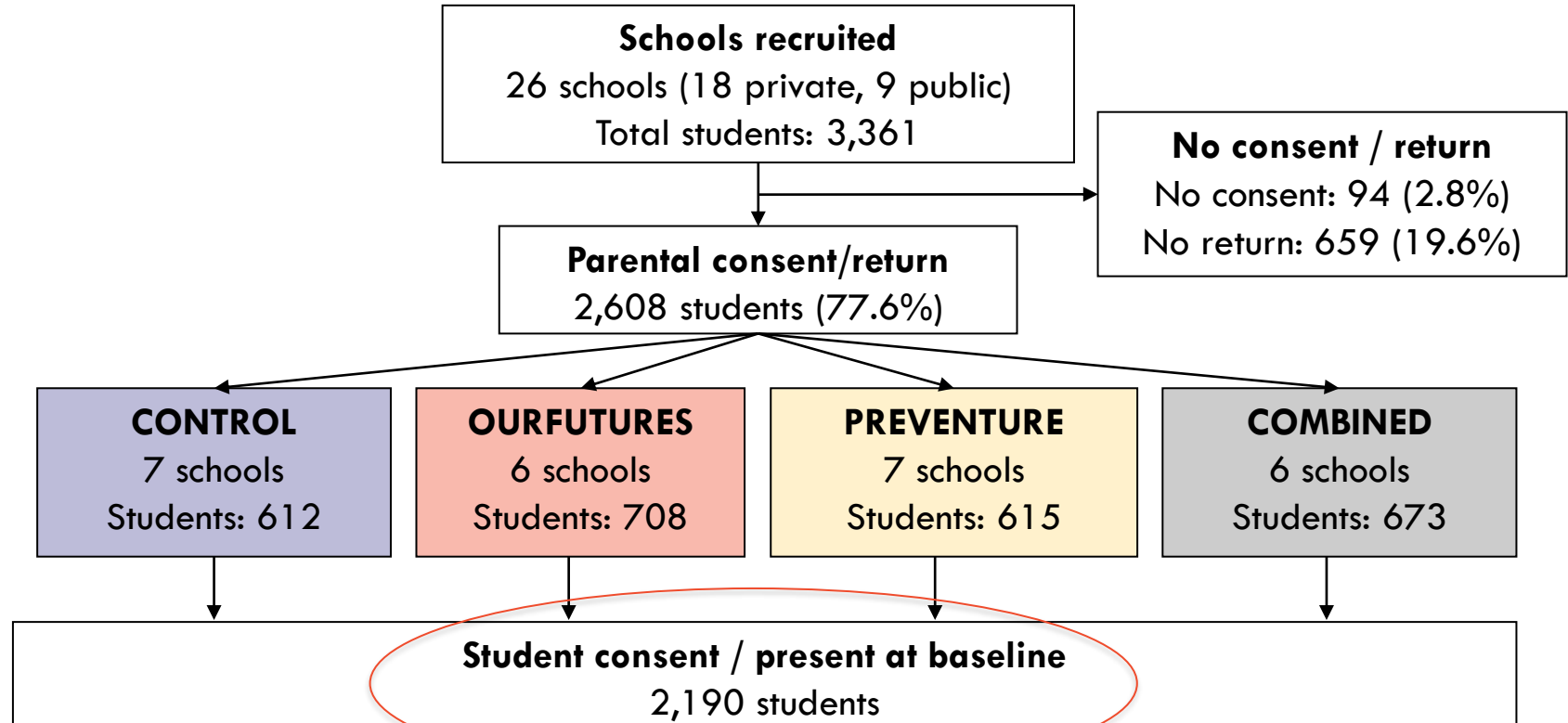
- Weekly alcohol consumption (Y/N)
- Monthly binge drinking (Y/N)
- Alcohol-related harms - RAPI (Y/N)
- Hazardous alcohol use - AUDIT-C (Y/N)



Statistical modelling

- **Primary analyses:** Intervention effects across the 7-years were analysed with latent growth models, adjusting for school-level clustering.
- **Secondary analyses:** Piece-wise latent growth models estimated intervention effects across two developmental periods: **middle adolescence** (mean ages 13-16), and across the **transition to adulthood** (mean ages 16-20).

Recruitment and consent



Assessment & intervention















	Baseline survey	OurFutures program	Prevention program	Post-test survey	1 year F/U survey	2 year F/U survey	3 year F/U survey	5 year F/U survey	7 year F/U survey
Timing	Feb-April 2012	Feb-Sept 2012	Feb-Sept 2012	July-Dec 2012	Feb-April 2013	Feb-April 2014	Feb-April 2015	2017	2019
Grade	Year 8	Year 8	Year 8	Year 8	Year 9	Year 10	Year 11	n/a	n/a
CONTROL	✓			✓	✓	✓	✓	✓	✓
OUR FUTURES	✓	✓		✓	✓	✓	✓	✓	✓
PREVENTURE	✓		✓	✓	✓	✓	✓	✓	✓
COMBINED	✓	✓	✓	✓	✓	✓	✓	✓	✓
RETENTION	-	-	-	76%	83%	79%	72%	52%	49%

Results – whole sample

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NEW RESEARCH

The 7-Year Effectiveness of School-Based Alcohol Use Prevention From Adolescence to Early Adulthood: A Randomized Controlled Trial of Universal, Selective, and Combined Interventions

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Patricia J. Conrod, PhD , Maree Teesson, PhD 

Drs. Newton and Stapinski contributed equally to this work.

Objective: Alcohol use is a leading cause of burden of disease among young people. Prevention strategies can be effective in the short-term; however little is known about their longer-term effectiveness. The aim of this study was to examine the sustainability of universal, selective, and combined alcohol use prevention across the critical transition period from adolescence into early adulthood.

Method: In 2012, a total of 2190 students (mean age, 13.3 years) from 26 Australian high schools participated in a cluster randomized controlled trial and were followed up for 3 years post baseline. Schools were randomly assigned to deliver the following: (1) universal Web-based prevention for all students (Climate Schools); (2) selective prevention for high-risk students (Preventure); (3) combined universal and selective prevention (Climate Schools and Preventure [CAP]); or (4) health education as usual (control). This study extends the follow-up period to 7-years post baseline. Primary outcomes were self-reported frequency of alcohol consumption and binge drinking, alcohol-related harms, and hazardous alcohol use, at the 7-year follow-up.

Results: At 7 years, follow-up, students in all 3 intervention groups had significantly lower frequency of alcohol consumption and binge drinking, alcohol-related harms, and hazardous alcohol use, compared to the control group.

Weekly alcohol use (full drink)

- Over 7-years, students in the **Preventure** group had significantly **lower odds of weekly alcohol use** (relative reduction in odds of 83%), compared to controls.
- Piecewise models indicated effects were largely driven by slowed growth trajectories during the **middle adolescent period**.

		95% CI	
Weekly alcohol use	OR	Low	High
OurFutures	0.13	0.01	1.22
Preventure *	0.17	0.06	0.50
Combined	0.64	0.13	3.05

No difference
between
OurFutures &
Combined groups

* Bold text indicates significant at the $p < 0.05$ level. Comparison condition in all cases is the control group.

Monthly binge drinking (5+ drinks)

- Over 7-years, students in the **OurFutures** group had significantly **lower odds** of **monthly binge drinking** (relative reduction in odds of 88%), compared to controls.
- Piecewise models indicated that effects were largely driven by slowed growth trajectories during the **middle adolescent period**.

		95% CI	
Monthly binge drinking	OR	Low	High
OurFutures *	0.12	0.02	0.96
Prevention	0.26	0.04	1.53
Combined	1.13	0.18	7.22

No difference
between
OurFutures &
Combined groups

* Bold text indicates significant at the $p < 0.05$ level. Comparison condition in all cases is the control group.

Alcohol-related harms (past 6 months)

- Over 7-years, students in **all intervention** groups had significantly **lower odds of alcohol-related harms** (relative reduction in odds of 75-87%), compared to controls.
- Piecewise models indicated effects were largely driven by slowed growth trajectories during the **middle adolescent period**.

		95% CI	
Alcohol-related harms	OR	Low	High
OurFutures *	0.25	0.11	0.55
Preventure *	0.13	0.05	0.31
Combined *	0.33	0.19	0.58

No difference
between
OurFutures &
Combined groups

* Bold text indicates significant at the $p < 0.05$ level. Comparison condition in all cases is the control group.

Hazardous alcohol use: AUDIT-C (Scores>3)

- Over 7-years, students in **OurFutures** and **Preventure** groups had significantly **lower odds of hazardous alcohol** (relative reduction in odds of 83-96%), use compared to controls.
- Piecewise models indicated that effects were largely driven by slowed growth trajectories during the **middle adolescent period**.

		95% CI	
Hazardous alcohol use	OR	Low	High
OurFutures *	0.04	0.01	0.27
Preventure *	0.17	0.03	0.93
Combined	0.79	0.12	5.31

No difference
between
OurFutures &
Combined groups

* Bold text indicates significant at the $p < 0.05$ level. Comparison condition in all cases is the control group.

Results: High-risk sample



Original Investigation | Substance Use and Addiction

Effect of Selective Personality-Targeted Alcohol Use Prevention on 7-Year Alcohol-Related Outcomes Among High-risk Adolescents A Secondary Analysis of a Cluster Randomized Clinical Trial

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Abstract

IMPORTANCE Alcohol consumption is one of the leading preventable causes of burden of disease worldwide. Selective prevention of alcohol use can be effective in delaying the uptake and reducing harmful use of alcohol during the school years; however, little is known about the durability of these effects across the significant transition from early adolescence into late adolescence and early adulthood.

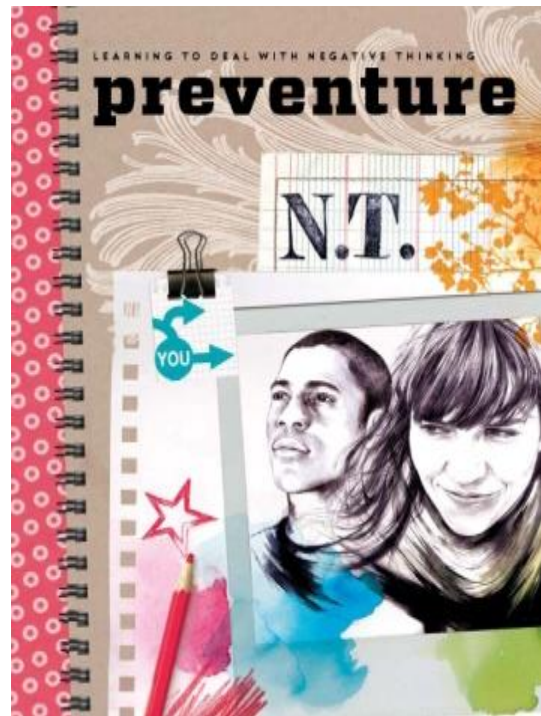
OBJECTIVE To examine the sustained effects of a selective personality-targeted alcohol use prevention program on alcohol outcomes among adolescents who report high levels of 1 of 4 personality traits associated with substance use.

DESIGN, SETTING, AND PARTICIPANTS A cluster randomized clinical trial was conducted to assess the effectiveness of the selective personality-targeted PreVenture program on reducing the growth

Key Points

Question What is the long-term effect of selective personality-targeted intervention on alcohol outcomes over 7 years among adolescents?

Findings In this secondary analysis of a cluster randomized clinical trial including 438 participants, the school-based PreVenture intervention was effective in reducing the odds of alcohol-related harms and the mean frequency with which alcohol-related harms were experienced, from early adolescence



High-risk sample

- Over 7-years, “high-risk” students in the **Prevention group** reported significantly **less alcohol-related harms and frequency of harms** compared to controls.

Prevention x time		95% CI		
	OR	Low	High	p
Monthly binge drinking	1.00	0.93	1.15	0.94
Alcohol-related harms *	0.30	0.06	0.77	0.01
Hazardous alcohol use (AUDIT-C)	0.92	0.80	1.05	0.24
	b	Low	High	p
Freq. alcohol-related harms *	-0.16	-0.23	-0.09	<0.01

* Bold text indicates significant at the $p < 0.05$ level. Multiple imputation applied.

Conclusions

- **Universal, selective & combined** prevention can be effective in reducing alcohol related harms and risky alcohol use over 7-years.
- **No added benefit** of delivering combined interventions.
- **Growth trajectories during mid adolescence** were a key mechanism to driving the longer-term intervention effects.
- What next?
 - ✓ **Time to upscale effective programs**



Thank you



To find out more:
Ourfutures.education

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Declaration: NN & MT are two of the developers of the *OurFutures/Climate Schools* programs and directors of *Climate Schools Pty Ltd*, a social enterprise established in 2015 to distribute the programs.

