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Updated systematic review of Australian school-based prevention programmes for alcohol and other drugs: a review protocol

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ABSTRACT

Introduction Adolescent onset substance use is associated with neurodevelopmental, social and psychological harms. Thus, alcohol and other drug prevention programmes are essential to promote health and well-being during this period. Schools are uniquely positioned to deliver such prevention programmes. The last decade has seen a large expansion of school-based alcohol and drug prevention programmes in Australia, warranting an update of the comprehensive review conducted by Teesson *et al* in 2012. This proposed review aims to (1) identify school-based substance use prevention programmes that have been trialled in Australia since 2011, (2) evaluate their efficacy and (3) identify intervention components associated with effectiveness. This will assist schools in identifying and adopting effective evidence-based programmes and inform future programme development, evaluation and policy.

Methods and analysis Studies published from 2011 will be identified by searching the electronic databases PubMed, PsycINFO, Medline, Embase, ProQuest and Cochrane Library in addition to grey literature searches. Eligible studies will be controlled trials (including randomised controlled trials, cluster randomised controlled trials and quasi-experimental trials) of programmes measuring drug and alcohol related outcomes that are conducted in a school setting and have been trialled within Australia. Records will be independently screened for eligibility by two review authors, with disagreements being resolved by consensus or a third review author where necessary. Data extraction, risk of bias and study quality will also be completed independently by two review authors. A qualitative synthesis of all eligible studies will be presented. In addition, if there are sufficient data to combine studies, a random-effects meta-analysis will be conducted.

Ethics and dissemination This research is exempt from ethics approval as no primary data are collected, with work instead being carried out on published documents. The findings of this proposed review will be disseminated in a peer-reviewed journal and at conferences.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This review will provide an important update on the existing alcohol and other drug prevention programmes for adolescents in Australia, with the aim of enabling schools to adopt effective evidence-based prevention programmes and informing future programme development, evaluation and policy.
⇒ Screening, data extraction, risk of bias and quality assessments will be performed independently by two study authors with experience in systematic review methodologies.
⇒ The proposed review will be written in line with the Preferred Reporting Items for Systematic Review and Meta-Analysis statement and use validated measures to assess quality and risk of bias.
⇒ The heterogeneity of the interventions, the outcomes and the tools used to measure the outcomes may not allow for direct comparisons between studies or pooling of results.

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INTRODUCTION

Adolescence marks the onset and escalation of substance use. Although early adolescents (12–14 years) are driving global downward trends in substance use,[1–3] middle and late adolescents (15–19 years) continue to consume substances in risky quantities.[4 5] In Australia, first-time alcohol use tends to occur between 15 and 17 years.[6–8] Findings from the Australian National Drug Strategy Household Survey report the average age of alcohol initiation to be 16.2 years, with binge drinking being the most common form of alcohol consumption in this age group.[9] One quarter (26%) of 16–17 years engage in binge drinking (consuming five or more standard drinks per day[10]) in the past fortnight.[11] In line with alcohol use, the average age of first-time cigarette smoking is 16.6

years (median age is 17 years[12]), with 7% of 16–17 years reporting monthly cigarette use.[8 9] In Australia, the average age of first-time cannabis use is 18.9 years,[9] while those who use other illicit substances tend to first try them in their 20s.[9 13] Among 16–17 years, 16%, 5% and 2% report past monthly cannabis, ecstacy and cocaine use, respectively.[9 11] Onset of substance use during adolescence is linked to cumulative and pervasive harms spanning neurodevelopmental, social, and psychological domains,[14 15] and increases the chances of future dependence and co-occurring mental health disorders.[16] Adolescents are the foundation of future population health, and evidence-based prevention is essential to promote health during this period.

Schools are uniquely positioned to deliver prevention programmes to a large number of young people and implementation costs are generally low.[17] Australia's mandatory drug and alcohol health curricula grants all students access to universal prevention (delivered to all students regardless of their level of risk for substance use) throughout most of their schooling. However, currently many schools do not implement evidence-based prevention programmes.[18 19] Of those evidence-based programmes currently delivered, the strength and sustainability of effects vary substantially, and most programmes confer small to moderate effects, which tend to diminish in the senior years of school.[19] Commonly, effective programmes adopt some but not all evidence-based principles and the impact of implementation factors (eg, fidelity, engagement, dosage) are not adequately explored.[20] The changing trends in adolescent substance use and the evolving social and technological environment must be met with equivalent progress in prevention programme development, adaptation and implementation to ensure students have access to the most effective programmes before the transition into adulthood.

When evaluating alcohol and other drug prevention programmes for use in Australian schools, it is important to consider those that have been trialled in Australia as policies, regulations, behaviours and attitudes can differ between countries.[21–23] This is especially relevant for school-based prevention programmes because school systems and school drug policies differ between countries.[21 24] For example, Australia is unique in having drug and alcohol education forming a mandatory part of the school curriculum and Australian school drug policy setting processes are more likely to take a whole school community approach compared with other countries such as the USA.[25] Moreover, research suggests that patterns of adolescent substance use are changing in Australia and that young people begin using alcohol and other drugs at an older age compared with adolescents in other Western countries.[26–28] Age of substance use initiation will impact the time at which school-based prevention programmes are implemented and consequently the content within the programme to ensure it is age appropriate. As such, it is important to consider those that are appropriate for the Australian context.

Teesson *et al*[29] conducted a comprehensive systematic review of existing Australian school-based prevention programmes and identified a small number that were found to be effective. Since then, there has been a large expansion of available programmes in Australia, warranting an update of this review. Moreover, Teesson *et al*'s[29] review focused on universal prevention (delivered to the entire year group regardless of risk for alcohol and drug use) and could be expanded to include the growing number of selective prevention programmes (delivered to students at risk of substance use) demonstrating successful prevention effects in schools.[30] Similarly, although digital school-based prevention programmes were captured in Champion *et al*'s 2013 review,[31] this requires an update in the Australian environment. Other reviews and meta-analyses conducted more recently, do not focus on the unique Australian context,[20] tend to include studies from 2013 or earlier,[20] exclusively focus on alcohol[32–34] or drug use outcomes[35] or include universal programmes only.[19 36 37] To our knowledge, there has been no systematic synthesis of school-based alcohol and drug prevention programmes, conducted in Australia in the past decade.

To address these gaps in the literature, to enable schools to adopt effective evidence-based prevention programmes and to inform future programme development, evaluation and policy, a systematic review of all universal and selective alcohol and other drug prevention programmes trialled in Australian schools since 2011 will be conducted. Specifically, the main objectives of the planned review are to:

1. Determine the existence of school-based alcohol and other drug prevention programmes that have been trialled in Australia.
2. Evaluate the efficacy of the school-based programmes for alcohol and other drug prevention that have been trialled in Australia.
3. Identify the components of Australian school-based prevention programmes associated with effectiveness, including both programme content and implementation factors.

METHODS AND ANALYSIS

This protocol was written in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocol (PRISMA-P) guidelines[38] (see online supplemental file 1). In addition, the planned systematic review has been registered with the International Prospective Register of Systematic Reviews (PROSPERO; registration number: CRD42021272959) and will be written in accordance with the PRISMA statement.[39]

Eligibility criteria

Eligible studies will be prevention programmes that include knowledge or use of alcohol and/or drugs as an outcome variable, regardless of the extent to which the programme explicitly addresses substance use. Both universal and selective prevention approaches will be

included in this planned review. Studies must be controlled trials, including randomised controlled trials, cluster randomised controlled trials, or quasi-experimental trials. The prevention programme must also be conducted in a school setting, however, school-based interventions that incorporate additional components (eg, family components) will also be included in the review. Finally, the intervention programme must either be developed in Australia, or be an overseas programme that has been trialled in Australia, to be eligible for inclusion.

Search strategy

A search will be conducted using the following databases: PubMed, PsycINFO, Medline, Embase, ProQuest and Cochrane Library. The search terms will be based on those of Teesson *et al*[29] and will include terms relating to school or student, alcohol and other drug use, prevention or intervention, and Australia. An example search strategy for Medline can be found in online supplemental file 2. To provide an update on the 2012 systematic review by Teesson *et al*,[29] the search will be limited to research published in English from July 2011 onwards. Grey literature (eg, dissertations/theses, conference papers) will also be included in this review, and a grey literature search will be conducted to identify any additional relevant studies. This will involve searching clinical trial registries and health related websites, such as those listed in the Grey Matters Tool.[40]

All results identified using this search strategy will be imported into the Covidence[41] online software program for deduplication and screening. The reference lists of eligible studies will be reviewed, using forward (examining the studies cited in the eligible study) and backward (examining the studies that cite the eligible study) searching methods and recent related systematic reviews will also be consulted to identify any additional relevant studies. Also, the authors of eligible studies will be contacted and invited to provide any additional published or unpublished outcome data to be included in the review.

Screening and data extraction

Two review authors will independently screen all titles and abstracts identified using the above search strategy against the eligibility criteria. Next, the full texts of potentially eligible studies identified from the title and abstract screening will be independently assessed for eligibility by two review authors. Any disagreement between reviewers regarding the eligibility of studies, both at the title and abstract and full-text screening stage, will be resolved by consensus, or by discussion with a third review author when needed.

Data will be extracted independently by two review authors using a standardised prepiloted form. Extracted data will include publication details (eg, study author, year of publication); study characteristics (eg, study design); participant characteristics (eg, sample size, age, gender, ethnicity, geographical location, socioeconomic status, attrition rates, details of the comparison/control group); intervention characteristics (eg, prevention approach that is, universal or selective, drug(s) targeted, content and theoretical basis); implementation characteristics (eg, frequency of delivery, delivery method); and outcomes of interest (eg, how they were measured, result estimates). Where outcome data are presented in figures, and not also within the text of eligible studies, we will use the WebPlotDigitizer software[42] to extract the data. In addition, where required, the corresponding author of included studies will be contacted by email to obtain any required information or data not included in the published paper. Any discrepancies between the data extracted by the two review authors will be resolved by consensus, with a third reviewer being consulted where necessary.

Outcomes

The primary outcomes of interest for the planned review relate to alcohol and other drug use and will include (1) alcohol-related and/or other drug-related knowledge, (2) use of alcohol and/or other drugs and (3) frequency of alcohol and/or other drug use at baseline and posttest and/or follow-up. Trials will be considered effective if statistically significant differences are reported between the intervention and the comparison groups (including active control groups) on any of these outcomes over time. Secondary outcomes of the prevention programmes will also be examined, where present, in this proposed review. These may include alcohol and other drug-related outcomes (eg, attitudes towards alcohol and other drugs, intentions to use, refusal skills, normative perceptions, risk perceptions), behavioural outcomes (eg, self-control, motivation, aggression, assertiveness), school-based outcomes (eg, academic achievement, class climate) and other psychological outcomes (eg, self-esteem, self-awareness) including mental health outcomes (eg, symptoms of anxiety, depression).

Risk of bias and quality assessment

The risk of bias of included studies in the planned review will be assessed using the revised Cochrane risk of bias tool for randomised trials (RoB 2.0).[43] This tool assesses potential bias across the following five domains: the randomisation process; deviations from the intended intervention; missing outcome data; measurement of the outcome; and the selection of the reported results. Scores will be summed across the five domains to produce an overall risk of bias score for each study. Two review authors will independently assess the risk of bias of the included studies, with any discrepancies between the two raters being resolved by discussion, with a third review author being consulted where required. In addition, the planned review will use the Grading Recommendations, Assessment, Development and Evaluation framework to assess the quality of included studies.[44]

Analysis

In the planned review, we will conduct a qualitative synthesis on the following study aspects: study design

(eg, randomised controlled trial/quasi-experimental trial); prevention approach (ie, universal or selective); details of the intervention including theoretical basis, substance(s) and/or behaviour(s) targeted by the programme, content, delivery method, frequency of intervention, the duration and the extent to which the intervention is still being implemented in schools; sample characteristics (eg, age and gender); and both primary and secondary intervention outcomes. Regarding the intervention outcomes, categorical outcomes will be reported as odds ratios (ORs), while continuous outcomes will be reported using Cohen's d, which is calculated by subtracting the mean intervention score from the mean control score and dividing the result by the preintervention pooled standard deviation.[45] Where possible, ORs and Cohen's ds will be extracted from the paper, otherwise, they will be calculated by the review team, using available data from the relevant studies/data provided by study authors. Moreover, the data from eight trials previously identified by Teesson *et al*[29] will be included in the qualitative analysis to provide an overview of all school-based alcohol and other drug prevention programmes currently available or trialled in Australia.

Given prevention programmes typically comprise complex interventions with many components that are unlikely to be similar across studies, it may not be appropriate to conduct a quantitative synthesis. However, in the event that there are sufficient data to combine studies, we will conduct a meta-analysis to estimate the overall effect and consistency of intervention effects across studies, including those identified by Teesson *et al*[29] and those identified in the current review. Specifically, we will use a random effects analysis, which is based on the inverse variance approach, as this can account for variance across included studies. Heterogeneity will be tested using the I^2 statistic, with values ranging from 0% to 100%. Publication bias will also be assessed by examining funnel plots. Where possible, we will also explore the extent to which the participant and intervention characteristics moderate the effect of the programmes by conducting meta-regressions for metric variables (eg, age) or subgroup analyses for categorical variables (eg, gender), although we acknowledge that this may not be possible as controlled trials often do not have enough statistical power to present results that are stratified by participant characteristics such as age and gender. Sensitivity analyses may also be used to restrict analyses to studies with, for example, a low risk of bias or specific age groups.

Patient and public involvement

There was no patient or public involvement in the conception of this systematic review protocol.

Ethics and dissemination

A systematic review is a secondary analysis of the available literature and, as such, ethical approval is not required. Once completed, the findings from this proposed review will be submitted to a peer-reviewed journal and be disseminated at relevant conferences.

DISCUSSION

Given the concerning trends of alcohol and other drug use in adolescents,[9–11] along with the resulting serious and pervasive negative outcomes associated with substance use,[14–16] it is critical that Australian youth are receiving evidence-based and effective prevention programmes. A systematic review is an appropriate approach for synthesising the school-based prevention programmes currently available or trialled in Australia, thereby making the evidence more accessible to schools and policy makers.

Many of the existing reviews of school-based prevention programmes for alcohol and other drug use do not focus on the Australian context,[31] limit their scope to either alcohol or drug use outcomes,[32–35] focus on universal prevention approaches only[19 36 37] or require an update[29 31] given the expansion of prevention programmes over the last decade. Thus, this review will address the existing gaps in the literature and serve to identify which programmes are effective at preventing alcohol and other drug use among school-based youth in Australia, in addition to informing policy and the development of future prevention programmes.

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