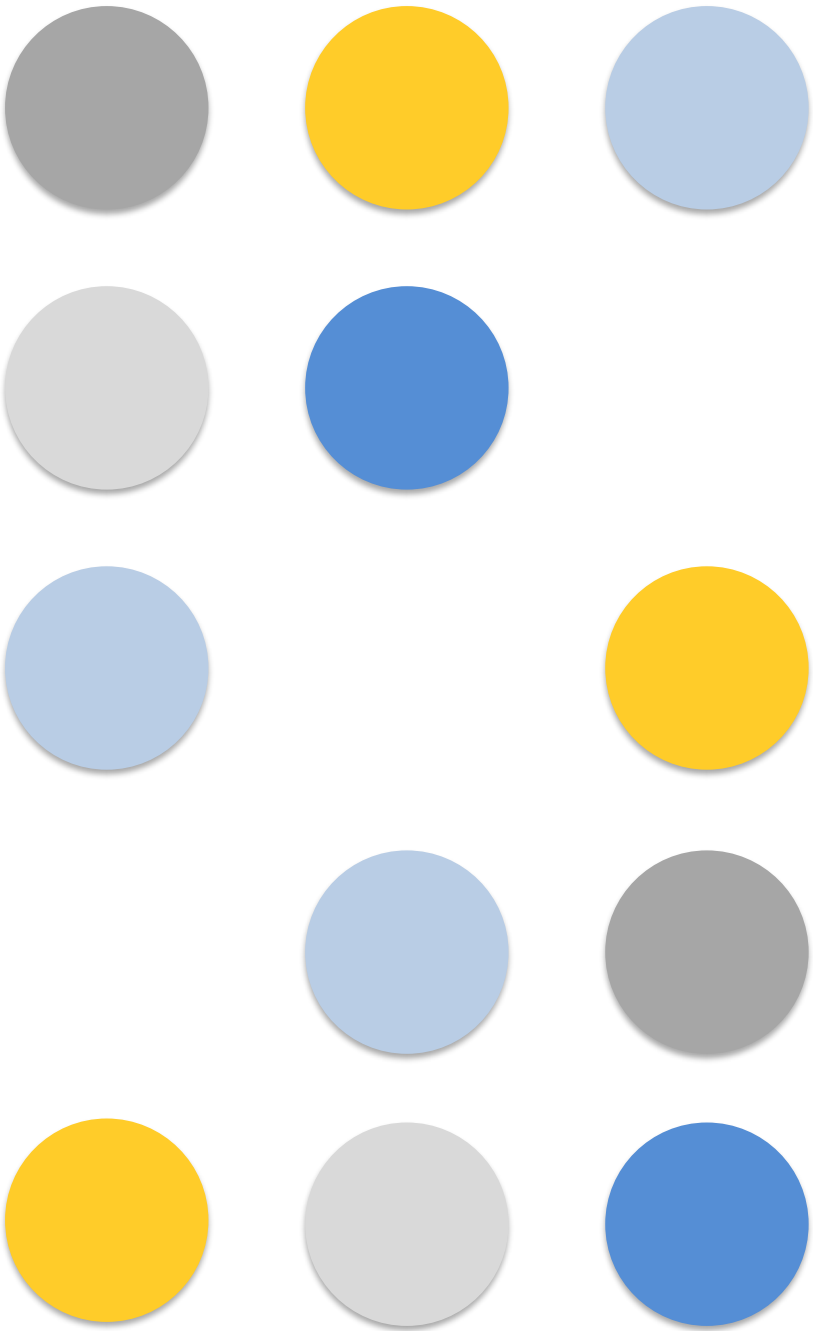


ASSAD 2017

STATISTICS AND TRENDS



**Trends in Substance Use
among Australian
Secondary School
Students 1996-2017**

May 2019, Centre for Behavioural Research in Cancer, Cancer Council Victoria

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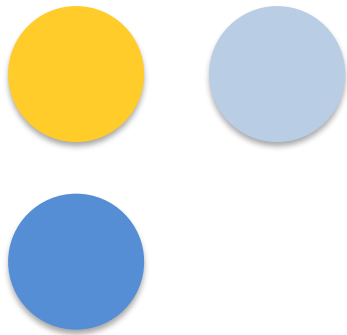
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ASSAD 2017

TRENDS IN SUBSTANCE USE 1996-2017

The triennial Australian Secondary Students' Alcohol and Drug Survey (ASSAD) is the largest national survey of adolescent substance use in Australia. This report presents information from ASSAD surveys between 1996 and 2017 on the use of tobacco, alcohol, and other licit and illicit substances among school students aged 12 to 17 in Australia. In measuring changes in substance use over time, this survey series provides a unique contribution to substance use research, policy, and prevention in this age group. This research tracks how changes in substance use relate to the characteristics and attitudes of the adolescents who use them, the social conditions of use, and the policy and legislative contexts of substance use. As a result, ASSAD findings have important implications for public policy. Our findings provide an evaluation of the effects of past substance use policies, and an indication of the current and future needs of adolescents in Australia. In this report, we analyse changes in substance use between 1996 and 2017¹ and examine these trends by sex, age, and socio-economic status.

In each survey year since 1984, 20,000-30,000 secondary students aged 12 to 17 have participated in the ASSAD survey. Teenagers who were not at school were not included in the school-based samples. Students answered questions about their current and lifetime use of tobacco, alcohol, analgesics, tranquilisers, and other substances, and their behaviour related to the use of these substances. Our measures include use in the lifetime, past year, past month, and past week (current use).

An overview of the survey's history and methodology is available in our report of national findings from ASSAD 2017², which detailed the prevalence of substance use and related behaviour among secondary students in Australia in 2017.

¹ The 2017 ASSAD survey was conducted during the academic school year of 2017. This was the twelfth survey in a series that began in 1984. The first six ASSAD surveys measured adolescents' use of only tobacco and alcohol. Since the seventh survey, ASSAD has also included questions about the use of over-the-counter drugs (for non-medicinal purposes), and other substances. Previous ASSAD surveys were conducted (tobacco and alcohol only) in 1984, 1987, 1990, and 1993, and (including other substances) in 1996, 1999, 2002, 2005, 2008, and 2011.

² Guerin, N. & White, V. (2018). *ASSAD 2017 Statistics & Trends: Australian Secondary Students' Use of Tobacco, Alcohol, Over-the-counter Drugs, and Illicit Substances*. Cancer Council Victoria.

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- state associations of independent schools

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- Cancer Council Victoria
- Department of Health and Human Services, Victorian Government
- Centre for Epidemiology and Evidence, NSW Ministry of Health
- Centre for Population Health, NSW Ministry of Health
- Mental Health & Drug and Alcohol Office, NSW Ministry of Health
- Cancer Institute, NSW
- Cancer Council New South Wales
- Cancer Council South Australia
- Drug and Alcohol Services South Australia, SA Health
- Tobacco Control Research and Evaluation, South Australian Health and Medical Research Institute (SAHMRI)
- Chronic Disease Prevention Tobacco Policy Team, Health Department of Western Australia
- Performance and Programs, Mental Health Commission, Government of Western Australia
- Cancer Council Queensland
- Queensland Health
- ACT Health, Epidemiology Section, Health Improvement Branch, Population Health Division
- Cancer Council Tasmania
- Communities, Sport and Recreation, Department of Premier and Cabinet, Tasmania
- Department of Education, Tasmania
- Public Health Services, Department of Health and Human Services, Tasmania
- Alcohol & Drug Services, Tasmanian Health Service
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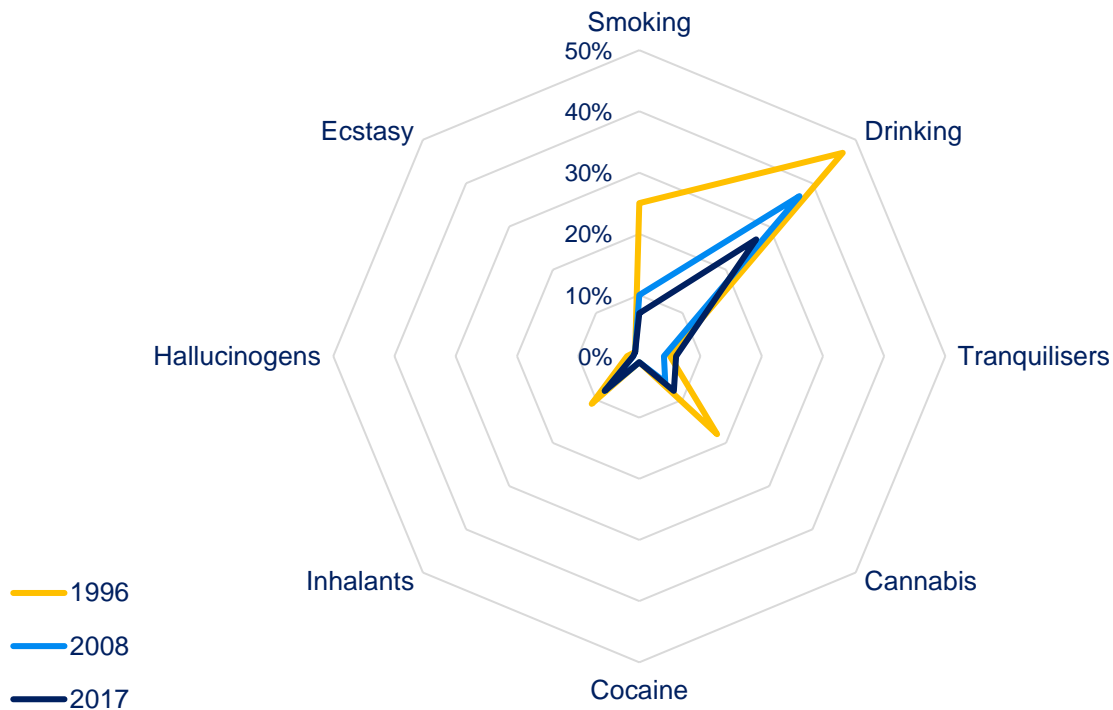
We also thank the research teams that administered the survey to students throughout Australia 1996-2017.

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Key findings and conclusions

Substance use is a risky behaviour that has significant and serious health consequences among adolescents in Australia³. After overall increases in the prevalence of substance use among secondary students during the 1990s, trends in substance use in ASSAD survey data collected between 2002 and 2017 show a substantial improvement in the prevalence of smoking, drinking (including drinking at risky levels), and cannabis use in this population. The use of other illicit substances was generally low overall. Similar trends have been observed in comparable developed nations, including the US⁵, UK⁶, Canada⁷, and New Zealand⁸.



Prevalence of past month substance use among Australian secondary students aged 12-17 between 1996 and 2017, ASSAD

³ World Health Organization. *Health for the World's Adolescents: A Second Chance in the Second Decade*. Geneva: The Organization; 2014.

⁴ Hall, W. D., Patton, G., Stockings, E., Weier, M., Lynskey, M., Morley, K. I., & Degenhardt, L. (2016). *Why young people's substance use matters for global health*. *The Lancet Psychiatry*, 3(3), 265-279.

⁵ Johnston, L. D., Mitch, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use 1975-2018: Overview, key findings on adolescent drug use*. Ann Arbor: Institute for Social Research, University of Michigan.

⁶ NHS Digital. (2018). *Statistics on Smoking*.

⁷ Blair, A., Siddiqi, A., & Frank, J. (2018). *Canadian report card on health equity across the life-course: Analysis of time trends and cross-national comparisons with the United Kingdom*. *SSM-population health*, 6, 158-168.

⁸ Clark, T., Fleming, T., Bullen, P. et al. (2013). *Health and well-being of secondary school students in New Zealand: Trends between 2001, 2007 and 2012*. *Journal of Paediatrics & Child Health* 2013; 49: 925-34.

⁹ Ball, J., Sim, D., & Edwards, R. (2018). *Why has adolescent smoking declined dramatically? Trend analysis using repeat cross-sectional data from New Zealand 2002-2015*. *BMJ open*, 8, e020320.

Causes and implications of changing trends in substance use

The timing of changes in substance use and their patterns across student ages and generations suggest that public health policies and legislation are likely to have played a key role in declining use, as has been found with adult populations^{10 11 12 13}. Social, political, and economic effects have been cumulative, and ongoing research is needed to identify the policy and legislative initiatives that are likely to be most effective to further reduce adolescent smoking, drinking, and illicit substance use in the future.

Declines in smoking

Smoking prevention and cessation measures have been extremely effective in reducing the prevalence of tobacco use among adolescents in Australia^{14 15}. However, the continued decline of smoking in this age group is threatened by the proliferation and uptake of novel products¹⁶ such as crushball cigarettes, smaller factory-made cigarette pack sizes, smaller roll-your-own tobacco pouch sizes, and e-cigarettes^{17 18}.

Further standardising pack and pouch size to effectively prohibit the sale of smaller, cheaper products, and prohibiting the sale of novel products that attract adolescents, could be expected to lower smoking uptake and reduce the likelihood of teenagers becoming more regular smokers, and continuing to smoke in adulthood¹⁹.

Declines in drinking

Alcohol consumption among secondary students in Australia has declined since the 2000s, most markedly among the younger age group (aged 12 to 15)²⁰. We explore suggested reasons for these trends in a later section of this report (*Trends in drinking among secondary students in Australia 1996-2017*).

Despite these declines, the continued substantial prevalence of drinking among older adolescents (49% in the past month in 2017) is of particular concern, given strong associations between uptake in adolescence (especially early adolescence) and later unhealthy drinking behaviour and attitudes^{21 22 23}.

- The net liberalisation of alcohol regulation over time, including extended opening hours and expanded locations of licensed

¹⁰ Wakefield, M.A., Durkin, S., Spittal, M.J., Siahpush, M., Scollo, M., Simpson, J.A., et al. (2008). Impact of tobacco control policies and mass media campaigns on monthly adult smoking prevalence. *American Journal of Public Health*, 98:1443-1450.

¹¹ Wakefield, M.A., Coomber, K., Durkin, S.J., Scollo, M., Bayly, M., Spittal, M.J., Simpson, J.A., Hill, D. (2014). Time series analysis of the impact of tobacco control policies on smoking prevalence among Australian adults, 2001–2011. *Bulletin of the World Health Organization*, 92, 413-422.

¹² Wilkinson, C., Livingston, M., & Room, R. (2016). Impacts of changes to trading hours of liquor licences on alcohol-related harm: a systematic review 2005–2015. *Public Health Research & Practice*, 26, e2641644.

¹³ Hobday, M., Chikritzhs, T., Liang, W., & Meuleners, L. (2015). The effect of alcohol outlets, sales and trading hours on alcohol-related injuries presenting at emergency departments in Perth, Australia, from 2002 to 2010. *Addiction*, 110(12), 1901-1909.

¹⁴ White, V.M., Durkin, S.J., Coomber, K, et al. (2015). What is the role of tobacco control advertising intensity and duration in reducing adolescent smoking prevalence? Findings from 16 years of tobacco control mass media advertising in Australia. *Tobacco Control*, 24:198–204.

¹⁵ White, V.M., Warne, C.D., Spittal, M.J., et al. (2011). What impact have tobacco control policies, cigarette price and tobacco control programme funding had on Australian adolescents' smoking?

Findings over a 15-year period. *Addiction*, 106:1493–502

¹⁶ Scollo, M., Bayly, M., White, S., Lindorff, K., & Wakefield, M. (2018). Tobacco product developments in the Australian market in the 4 years following plain packaging. *Tobacco control*, 27, 580-584.

¹⁷ White, V. & Williams, T. (2016). Australian secondary school students' use of tobacco, alcohol, and over-the-counter and illicit substances in 2014. Cancer Council Victoria, Melbourne, Australia.

¹⁸ Guerin & White, 2018

¹⁹ Pierce, J. P., White, V. M., & Emery, S. L. (2012). What public health strategies are needed to reduce smoking initiation? *Tobacco Control*, 21(2), 258-264.

²⁰ Pape, H., Rossow, I., & Brunborg, G. S. (2018). Adolescents drink less: How, who and why? A review of the recent research literature. *Drug and Alcohol Review*, 37, S98-S114.

²¹ Hagström, H., Hemmingsson, T., Discacciati, A., & Andreasson, A. (2018). Alcohol consumption in late adolescence is associated with an increased risk of severe liver disease later in life. *Journal of Hepatology*, 68, 505-510.

²² Waldron, J. S., Malone, S. M., McGue, M., & Iacono, W. G. (2018). A co-twin control study of the relationship between adolescent drinking and adult outcomes. *Journal of Studies on Alcohol and Drugs*, 79, 635-643.

²³ Newton-Howes, G., & Boden, J. M. (2016). Relation between age of first drinking and mental health and alcohol and drug disorders in adulthood: evidence from a 35-year cohort study. *Addiction*, 111, 637-644.

premises²⁴, generally increased retail availability, and widescale alcohol sponsorship of major sporting teams and events, have created a social environment that normalises alcohol use and maintains adolescent exposure^{25 26}.

Trends in illicit substance use

While the prevalence of other illicit substance use remains low among secondary students, increased prevalence of reported use of cannabis and ecstasy might be concerning and should continue to be monitored. Considered in the context of small fluctuations in any illicit substance use, and declining alcohol use, these increases might indicate changes in the relative popularity or availability of these substances, rather than increased substance use *per se*.

Associations between drinking and other substance use

Importantly, broader trends suggest changes in different kinds of substance use might be related²⁷, with alcohol use playing a pivotal role. While the association between alcohol use and smoking among adolescents has weakened with the very strong decline in smoking, students continue to identify smoking as a common negative consequence of consuming alcohol²⁸. Exposure to alcohol is also likely to be a key factor in students' other drug use. Drinking can initiate a cascade effect of lowered self-control, exposure to other substances, and increased substance use experimentation²⁹.

If alcohol is instrumental in further substance

use, preventing or reducing alcohol would also be likely to reduce the prevalence of other substance use, including smoking. Longitudinal research is needed to establish causation in these observed associations between adolescents' use of different substances.

Policy implications

In light of its association with other substance use, alcohol consumption, particularly among younger adolescents, should remain a priority target for policy initiatives and regulation. Interventions to counter adolescent alcohol consumption are likely to influence other risky substance use³⁰.

- Tightening regulation of alcohol advertising is likely to be effective in reducing adolescent exposure to alcohol and its use by others, and to counter the normalization of alcohol use across a widening range of social settings and events³¹. Lower levels of alcohol advertising in the mass media since 2005 have coincided with observed declines in adolescent drinking and are likely to have contributed to this lower drinking prevalence³².
- Product price can have an immediate impact on substance use patterns and prevalence. As such, price represents a prime target for policy that might reduce adolescent alcohol consumption. For example, through higher and increasing excise on all alcohol products³³ and product regulation.

The success of mass media campaigns highlighting the health effects of smoking³⁴

²⁴ Azar, D., White, V., Coomber, K., Faulkner, A., Livingston, M., Chikritzhs, T., Room, R., Wakefield, M. (2016). [The association between alcohol outlet density and alcohol use among urban and regional Australian adolescents](#). *Addiction*, 111, 65–72.

²⁵ Sartori, A., Stoneham, M., & Edmunds, M. (2018). [Unhealthy sponsorship in sport: a case study of the AFL](#). *Australian and New Zealand Journal of Public Health*, 42, 474-479.

²⁶ Anderson, P., De Bruijn, A., Angus, K., Gordon, R., & Hastings, G. (2009). [Impact of alcohol advertising and media exposure on adolescent alcohol use: a systematic review of longitudinal studies](#). *Alcohol and Alcoholism*, 44, 229-243.

²⁷ Zuckermann, A. M., Williams, G., Battista, K., de Groh, M., Jiang, Y., & Leatherdale, S. T. (2019). [Trends of poly-substance use among Canadian youth](#). *Addictive Behaviors Reports*, 100189.

²⁸ Guerin & White, 2018

²⁹ Dodge, K. A., Malone, P. S., Lansford, J. E., Miller, S., Pettit, G. S., & Bates, J. E. (2009). [A dynamic cascade model of the development of](#)

[substance-use onset](#). *Monographs of the Society for Research in Child Development*, 74, vii-119.

³⁰ Lewycka, S., Clark, T., Peiris-John, R., Fenaughty, J., Bullen, P., Denny, S., & Fleming, T. (2018). [Downwards trends in adolescent risk-taking behaviours in New Zealand: Exploring driving forces for change](#). *Journal of Paediatrics and Child Health*, 54(6).

³¹ Anderson et al., 2009

³² White, V., Azar, D., Faulkner, A., Coomber, K., Durkin, S., Livingston, M., ... & Wakefield, M. (2017). [Adolescents' exposure to paid alcohol advertising on television and their alcohol use: exploring associations during a 13-year period](#). *Addiction*, 112, 1742-1751.

³³ Chaloupka, F. J., Powell, L. M., & Warner, K. E. (2019). [The use of excise taxes to reduce tobacco, alcohol, and sugary beverage consumption](#). *Annual Review of Public Health*, 40.

³⁴ Wakefield et al., 2008.

suggests that similar campaigns could effectively change drinking norms, especially if combined with more prominent and specific health warnings on alcoholic products to highlight the longer term health effects of drinking. These measures are potentially effective routes to inform Australians of specific serious harms and contribute to reducing drinking prevalence and minimising the harms of excessive alcohol consumption over the lifetime³⁵.

Concerted government action continues to be critical for:



³⁵Catalano, R.F., Fagan, A.A., Gavin, L.E. et al. (2012). Worldwide application of prevention science in adolescent health. *Lancet*, 379, 1653–64.

4 ASSAD 2017: Trends in substance use 1996-2017

Key concepts for interpreting population trends in substance use prevalence

We report long-term trends in lifetime, past year, past month, and past week prevalence of use for tobacco, alcohol, and licit and illicit substances for three age groups: 12-15, 16-17, and 12-17.

Three main kinds of effect are evident in trends of substance use among Australian secondary students between 1996 and 2017:

Age effects	Cohort effects	History effects
<ul style="list-style-type: none"> Age effects describe trends that can be seen over time for students at a specific age or in a specific age range, regardless of their cohort. For example, substance use is generally lower among younger than older students. Age and age group effects can be tracked over longer periods than cohort effects and indicate trends in substance use at a specific developmental stage. 	<ul style="list-style-type: none"> A cohort is the group of people born at around the same time and sharing common ages and experiences as they age. A cohort effect is a trend that follows a cohort as it ages. For example, if there was an increase in alcohol use in a cohort when its members were aged 12-14, this same effect is likely to be observed three years later when that cohort of students is aged 15-17. Cohort effects have a typical staggered pattern across trend lines. A cohort effect can be caused by cohort-specific attitudes to substance use, changing peer norms, legislative change (e.g., greater restriction in drug availability or conditions of supply), and changes in the substance itself (e.g., addictiveness). As ASSAD is triennial, cohort effects can be tracked only across the span of two consecutive surveys before a cohort moves out of the surveyed age range. 	<ul style="list-style-type: none"> History effects are associated with key events experienced in common among all individuals at a population level at a specific time that had broad societal impact. History effects show in patterns that are similar for all age groups in parallel, rather than in the more staggered pattern of a strong cohort effect. The effect of legislation that affects substance availability might be observed as a history effect in trendlines, evident for all population sub-groups. For example, from 1996 to 2017, tobacco control policy events included point of sale tobacco advertising bans, graphic health warnings on tobacco packaging, tax increases, and the implementation of tobacco plain packaging. These measures affected all age groups similarly.

Types of trends evident in alcohol and illicit drug use 1996-2017

Age effects are evident, with use generally increasing with age.	Cohort effects are evident earliest at the lower age in a specific survey year and then also seen when this cohort is at the older age in the following survey year.	History effects are evident (i.e., increases or declines for all age groups in the same period), but their causes are not always clearly understood.
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Types of trends evident in smoking 1996-2017

Age effects are evident, with use increasing with age.	Cohort effects can be observed for major upturns and downturns of prevalence. Cohort effects tend to be less marked for smoking than for other substances.	History effects are evident in parallel trend lines for age and sex groups. Declining trends clearly show the impact of government action to reduce smoking prevalence on students of all ages in Australia.
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Trends in smoking among Australian secondary students 1996-2017

Trends in smoking prevalence

In 2017, tobacco use across all surveyed ages (12-17) in all recency periods was at historic low levels, following a dramatic decline from the late 1990s. While the proportion of adolescents who had ever smoked was stable through the 1990s, more regular smoking peaked in the late 1990s following a resurgence during that decade.

Lifetime smoking declined from 1996 through to 2017 for both younger and older students. Trends largely show a pattern of history effects that are similar across all ages, but tobacco use was consistently higher among older than younger students. A cohort effect was evident between 2005 and 2008 when the decline in lifetime smoking began to plateau, before further declines after 2011.

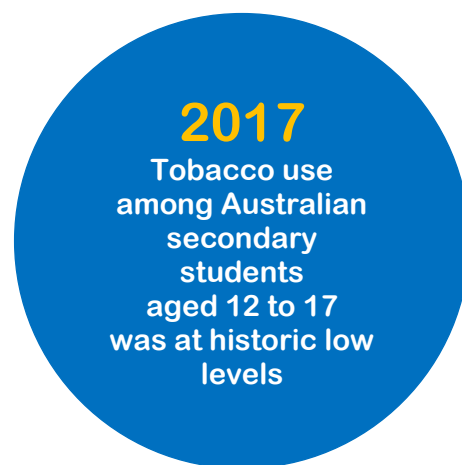
The prevalence of past month smoking in 2017 was 4% among students aged 12-15, and 14% among students aged 16-17. Across ages 12 to 17, smoking had declined significantly from 2011. While the average percentage decline in each survey year from 2011 to 2017 was smaller than that between 1999 and 2008, this reflects the lower numbers of adolescents smoking overall. The reduction in the proportion of students smoking has been relatively consistent.

The trend for past month smoking was similar for both younger (12-15) and older (16-17) students, but there were weak cohort effects in the timing of key points in the downturn in smoking prevalence. For example, the slowing of the decline in smoking during the late 2000s was seen from 2005 in the younger age group, and from 2008 in the older age group as this cohort aged. Following a plateau in prevalence between 2008 and 2011, further decline was evident. This coincided with the implementation of plain tobacco packaging, larger graphic health warnings on cigarette packs, increasing restriction of tobacco advertising (e.g., at the point of sale), and annual increases in tax on tobacco products.

Largely parallel trends were also seen in past year, past week, committed (smoked three or more days in the last week), and daily smoking for all age groups. The prevalence of having smoked more than 100 cigarettes in the lifetime was below 2% from 2011 in the younger age group. However, overall declines in smoking at this level were evident from 2005

in the younger age group (and 2008 as this cohort aged) as the number of smokers decreased. Similarly, trend lines for the older age group showed slower declines in the proportion of students who had smoked more than 100 cigarettes over the past decade, from a plateau between 2008 and 2011.

Daily smoking among older students declined from around 4% in 2008 and 2011 to 2% in 2017.



Trends in sources of cigarettes

Overall, the proportion of current smokers who bought cigarettes themselves has declined. Trends show cohort effects, with key declines evident earlier in students aged 12 to 15 than those aged 16 and 17.

Among younger students, fewer current smokers bought cigarettes from 1996 to 2002, following an earlier decade of decline. After a small increase was observed in 2005 (3%), this proportion again declined to 2017. The proportion of 12 to 15 year old current smokers (9%) who bought their last cigarette in 2017 was similar to 2011 or 2014.

In line with a cohort effect, a similar plateau was observed in the shrinking proportion of older current smokers who bought their own cigarettes. However, following further declines from 2008, the 2017 data showed a concerning increase in the proportion of older students who had bought their own cigarettes (24%), higher than in 2011 (22%) or 2014 (18%). The reasons for this recent upturn in self-bought cigarettes only among older students are not clear.

We also examined trends in the proportion of

current smokers who asked someone else to buy cigarettes for them and found no cohort effects in earlier survey years, but a marked history effect that was similar for all ages. Among younger students, the proportion increased between 1996 and 2002 from 5% to 21%, and among older students from 1% to 18%, reflecting greater restrictions on cigarette sales to minors. After 2005, a cohort effect was shown in the increasing proportion of students who asked others to buy cigarettes for them. The increasing trend continued to 2011 for younger students, and on to 2014 for older students. The proportion of older students getting someone else to buy cigarettes for them rose from 15% in 2005 to 23% in 2014. In 2017, however, the rate dropped to 13%. Corresponding to this drop, a higher proportion of students who were current smokers reported getting cigarettes from friends (2014: 47%; 2017: 53%) and other sources, as well as buying cigarettes themselves.

Summary of trends in smoking prevalence 1996-2017

Overall, trends in adolescent smoking from 1996 to 2017 follow a similar and largely parallel pattern across age groups, with key effects only weakly staggered by cohort. The prevalence of smoking increased through the 1990s for all age groups before rapidly declining from the late 1990s to the late 2000s. Since then, a continuing decline is apparent after a brief plateau. The generally parallel pattern is characteristic of history effects associated with events experienced similarly by people of all ages at that point of time. Here, trends in the prevalence of adolescent smoking reflect trends in adult smoking observed during the same period³⁶. Smoking at all ages was greatly reduced in response to

public health policy initiatives and legislation during this period³⁷.

Reasons for changes in prevalence over time

The observed increase in smoking during the 1990s coincided with decreased funding to tobacco control programs, along with reduced policy initiatives, and a drop in mass media anti-smoking campaign advertising³⁸. The period also saw lower cigarette pricing, and sustained levels of incidental exposure of adolescents to smoking in mass media entertainment. These social, political, and economic events affected all ages similarly.

Reduced smoking prevalence from the late 1990s in all age groups coincided with concerted multi-pronged anti-smoking action during the period³⁹. The marked downturn in smoking among secondary students from this time is likely to have resulted from concerted public health advocacy and subsequent legislative and policy change in response to concerns about the general upsurge in smoking during the 1990s^{40 41}. Similar trends were observed internationally in comparable settings such as the US⁴² and UK⁴³, where tobacco control policy and funding were also strengthened.

Specific developments that contributed to the decline in smoking among adolescents include increases in cigarette pricing (partly caused by increases in tobacco tax)⁴⁴, national and state-based antismoking advertising campaigns run by government and non-government organisations (e.g., Quit)^{45 46}, the implementation of graphic health warnings on tobacco packaging⁴⁷, strong restrictions on advertising in the mass media and at point of sale⁴⁸, increased focus on preventing the sale

³⁶ Australian Institute of Health and Welfare (2017). National Drug Strategy Household Survey 2016: detailed findings. *Drug Statistics series no. 31. Cat. no. PHE 214*. Canberra: AIHW.

³⁷ Greenhalgh, B., & Bayly, M. (2017). 1.0 Trends in the prevalence of smoking. *Tobacco in Australia: Facts & Issues, A Comprehensive online resource*. Cancer Council Victoria.

³⁸ Hill, D.H., White, V., & Scollo, M. (1998). Smoking Behaviours of Australian Adults in 1995: Trends and Concerns. *The Medical Journal of Australia*, 168, 209-13

³⁹ White et al 2011

⁴⁰ Wilkinson, A. L., Scollo, M., Durkin, S. J., Bayly, M., Spittal, M. J., Chaloupka, F. J., & Wakefield, M. A. (2018). Indexation of Tobacco Excise and Customs Duty and Smoking Prevalence Among Australian Adults, 2001–2010: A Serial Cross-

sectional Study. *Nicotine and Tobacco Research*, 21, 293-299.

⁴¹ Wood, L., Greenhalgh, EM., & Hanley-Jones, S. 5.0 Introduction. In Scollo, MM and Winstanley, MH [editors]. *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria; 2019.

⁴² Johnston et al., 2019

⁴³ NHS Digital, 2018.

⁴⁴ White et al., 2011.

⁴⁵ Wakefield et al., 2008.

⁴⁶ Wakefield et al., 2014.

⁴⁷ White, V.M., Williams, T., & Wakefield, M. (2015). Has the introduction of plain packaging and larger graphic health warnings changed adolescents' perceptions of cigarette packs and brands? *Tobacco Control*, 24, ii42-49.

⁴⁸ He, Y., Shang, C., Huang, J., Cheng, K. W., & Chaloupka, F. J. (2018). Global evidence on the ASSAD 2017: Trends in substance use 1996-2017 7

of tobacco to people under the age of 18, the introduction and extension of smoke-free legislation⁴⁹, and implementation of plain packaging laws and larger graphic health warnings on tobacco packs in late 2012^{50 51 52}.

The trends observed in ASSAD survey data suggest multi-faceted policy responses to increases in smoking among adolescents were effective. Societal changes associated with this policy climate such as changed social norms around parenting and socialising might also have contributed to declining trends. The impact of rapid technological change (e.g., smart phone use) on how adolescents socialised and used recreation time has also been suggested as a potential contributor to reduced smoking prevalence in this age group. However, strong evidence has been found for the effects of policies such as bans on smoking in public places, anti-smoking advertising, tighter regulation of sales to minors, and tax increases.

Smoking prevalence plateaued between 2008 and 2011, from which time the implementation of plain tobacco packaging in December 2012 is likely to have played an important role in the further reductions observed in smoking between 2011 and 2017. While the absolute decline in smoking prevalence overall has been smaller over the last decade, this is substantially due to the shrinking proportion of students who have smoked. When considered as a proportion of remaining smokers, the relative decline has been maintained consistently over this period. However, the most recent data indicate a slightly smaller decline from 2014 to 2017, and changes in prevalence since then should be monitored.

Recent trends

The smaller decline in adolescent smoking from 2014 to the latest survey round in 2017 may be concerning. While the period from 2011 included the implementation of plain packaging and other policy measures, since 2014 there has been a reduction in government-funded national and state-based mass-media anti-smoking campaigns⁵³, and a greater identified need for support for quitters⁵⁴. There has also been a proliferation of novel tobacco products and smaller pack sizes which are attractive and affordable for adolescents.^{55 56} These products designed to attract new smokers and retain existing smokers have gained substantial traction among adolescent smokers since their introduction following large tax increases since 2010, and with the advent of plain packaging^{57 58}.

Implications

The implementation of plain packaging legislation, tax increases, and other public health efforts have effectively reduced smoking initiation and regular smoking among both adults and adolescents⁵⁹ since 2011. If the negative impact of smoking on individual and public health is to be further limited, more work is needed to consolidate public awareness of the specific dangers of smoking, reinforce the personal relevance of these dangers, and counter the marketing strategies of the tobacco industry.

effect of point-of-sale display bans on smoking prevalence. *Tobacco Control*, 27(e2), e98-e104.

⁴⁹ Wakefield et al., 2014.

⁵⁰ Wilkinson et al., 2018.

⁵¹ Wood et al., 2019.

⁵² White, V., Guerin, N., Williams, T., & Wakefield, M. (2019). Long-term impact of plain packaging of cigarettes with larger graphic health warnings: findings from cross-sectional surveys of Australian adolescents between 2011 and 2017. *Tobacco Control*, in press.

⁵³ Cotter, T, & Durkin, S. 14.4 (2011). Examining the effectiveness of public education campaigns. In Scollo, MM and Winstanley, MH [editors]. *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria.

⁵⁴ Greenhalgh EM, Stillman S, & Ford C. (2016). 7.7 Factors that predict success or failure in quit attempts. In Scollo, MM and Winstanley, MH [editors]. *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria.

⁵⁵ Bayly, M., Scollo, M. M., & Wakefield, M. A. (2019). Who uses rollies? Trends in product offerings, price and use of roll-your-own tobacco in Australia. *Tobacco control*, 28, 317-324.

⁵⁶ Wood, L., Greenhalgh, EM., & Hanley-Jones, S. (2019). 5.0 Introduction. In Scollo, MM and Winstanley, MH [editors]. *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria.

⁵⁷ White & Williams, 2016.

⁵⁸ Guerin & White, 2018

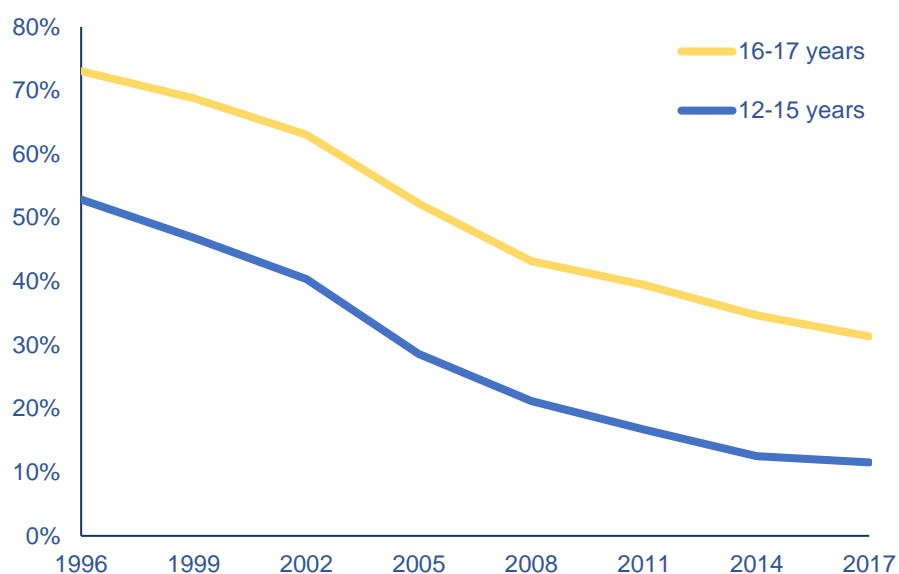
⁵⁹ Wood et al., 2019

Timeline of tobacco control in Australia⁶⁰

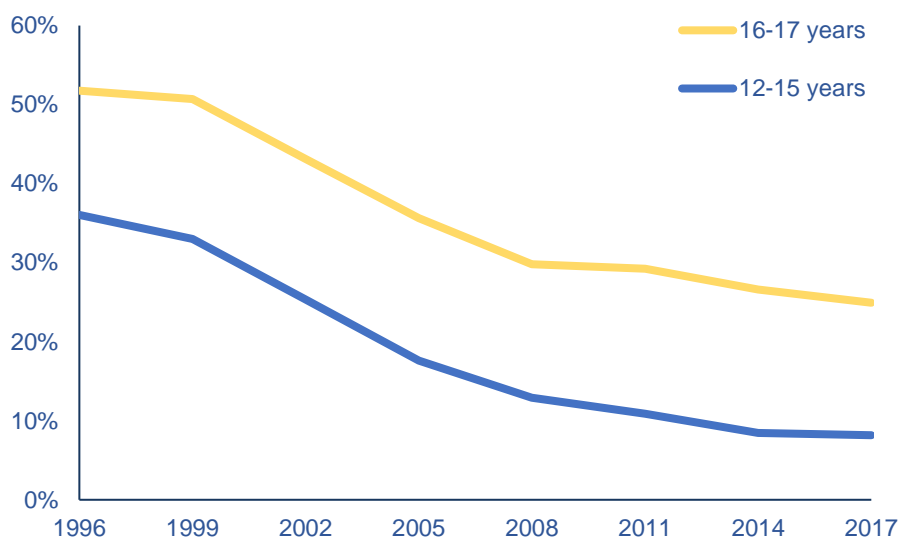
1973	Text health warning "Smoking is a health hazard" first mandated on all cigarette packs in Australia.
1976	Bans on all cigarette advertising on radio and television in Australia.
1983-1987	Introduction of TV-led Quit campaigns, starting in Western Australia.
1988	Introduction in all states of a rotating set of four of health warnings on the base of tobacco packaging.
1986-2006	Phased in bans on smoking in workplaces and public places.
1990	Bans on advertising of tobacco products in newspapers and magazines published in Australia.
1992	Increase in the tobacco excise.
1993	<i>Tobacco Advertising Prohibition Act 1992</i> prohibited broadcasting and publication of tobacco advertisements.
1994-2003	Bans on smoking in restaurants.
1995	Nationally consistent and enlarged text only health warnings required at the top of tobacco packaging.
1998-2006	Bans on point-of-sale tobacco advertising across Australia.
2006	Graphic health warnings required on packaging of most tobacco products.
2010	25% increase in the tobacco excise.
2011	First complete state or territory ban on point of sale tobacco product displays.
2012	Offence for any person to publish tobacco advertising on the internet or other electronic media.
2012	Introduction of tobacco plain packaging and updated and expanded graphic health warnings.
2012	Reduction in the duty free allowance from 250 cigarettes or 250 grams of cigars or tobacco products to 50 cigarettes or 50 grams of cigars or tobacco products.
2013	First 12.5% tobacco excise increase on 1 December.
2014	Change from bi-annual indexation based on the Consumer Price Index (CPI) to bi-annual indexation based on average weekly ordinary time earnings (AWOTE).
2014 -2020	Annual 12.5% tobacco excise increase on 1 September each year.
2017	Reduction in duty free tobacco allowance, 25 grams of duty free tobacco (cigarette, loose leaf etc.), plus one open packet; equivalent to approximately 25 cigarettes.
2017	Harmonisation of the taxation of roll your own tobacco and other products such as cigars, with manufactured cigarettes.

⁶⁰ Based on Australian Government Department of Health (2018). Tobacco control timeline. *Tobacco control key facts and figures*.

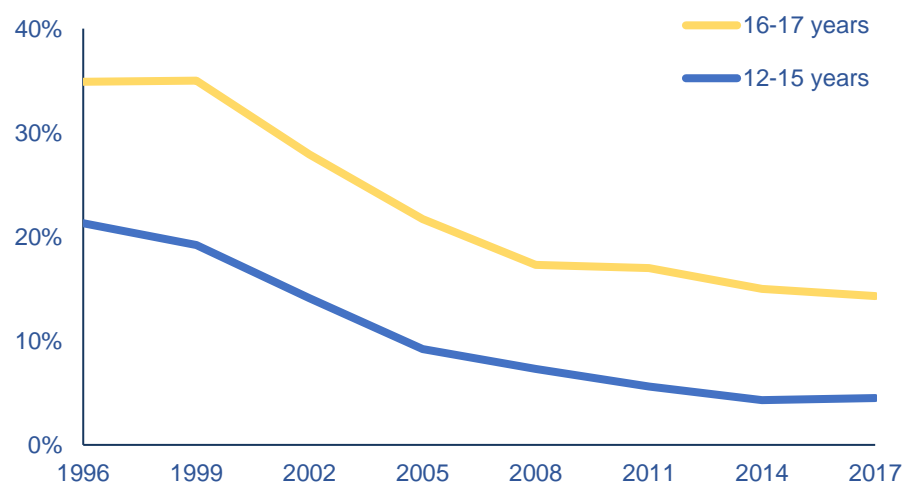
Ever smoked



Smoked in the past year

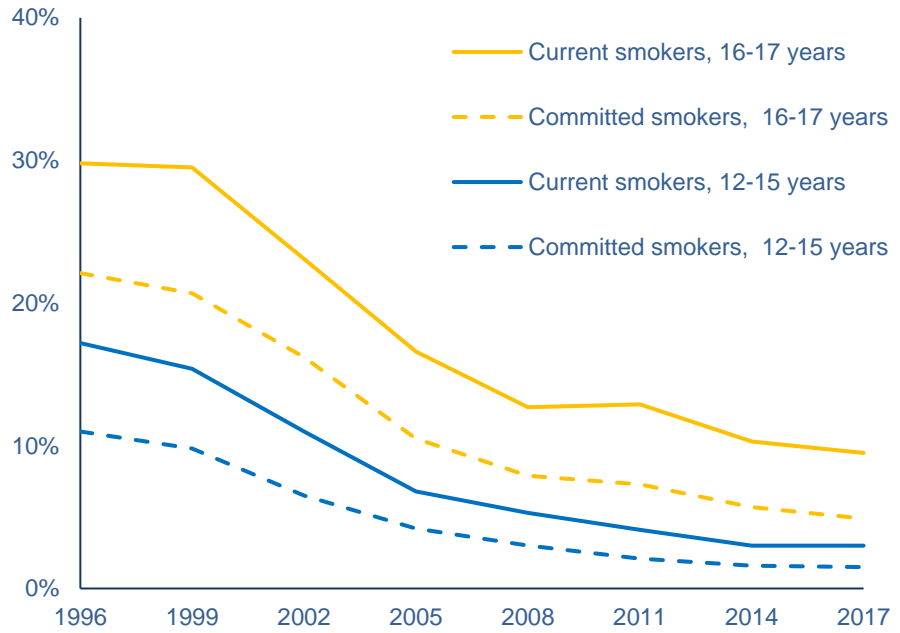


Smoked in the past month

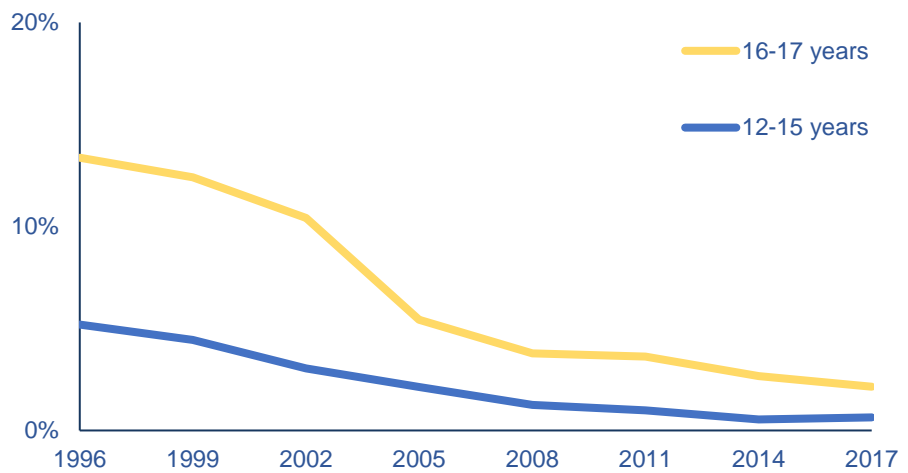


Percentage of Australian secondary school students who smoked, ASSAD 1996-2017

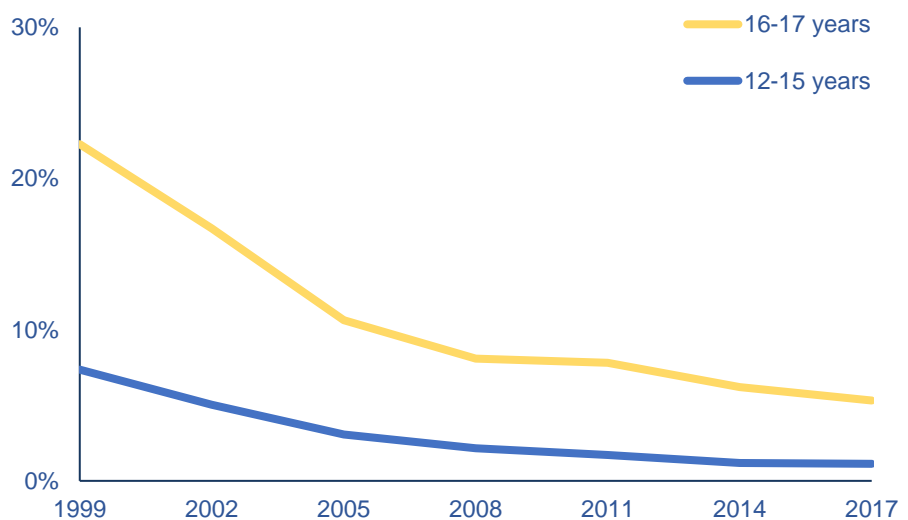
Current & committed smoking



Smoked daily

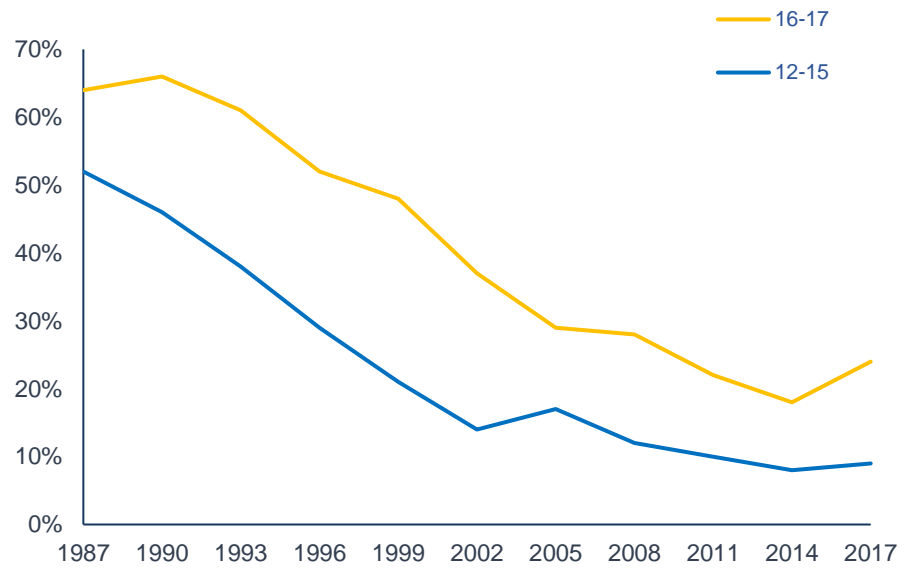


Smoked more than 100 cigarettes in lifetime

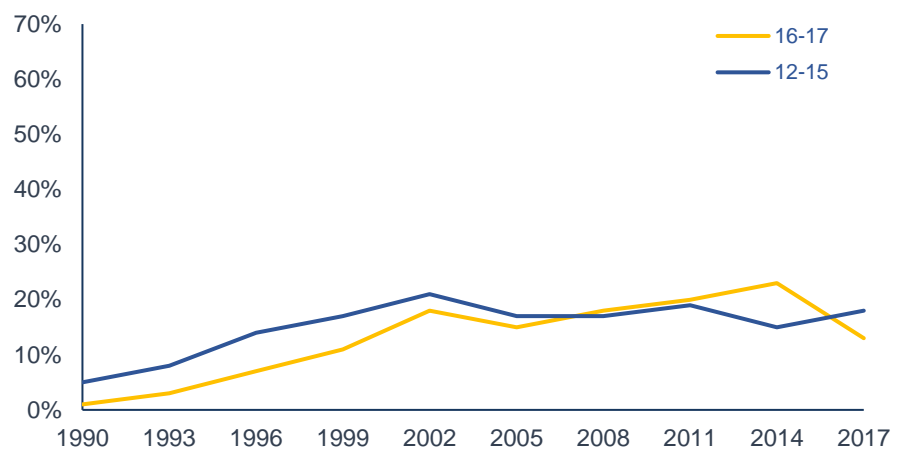


Percentage of Australian secondary school students who smoked, ASSAD 1996-2017

Bought cigarettes themselves



Someone else bought cigarettes for them



Current smokers who bought cigarettes, ASSAD 1996-2017

Trends in drinking among Australian secondary students 1996-2017

Trends in prevalence of alcohol use

Trends in the prevalence of adolescent alcohol consumption show age, cohort, and history effects. Similar to tobacco, drinking prevalence had declined in the late 1980s with some evidence of a cohort 'lag' effect of higher prevalence among older drinkers in 1987. However, drinking prevalence among secondary students increased from the early 1990s to the early 2000s. As in the US⁶¹ and UK⁶², this effect was generally also observed for smoking and several illicit substances in all age groups, suggesting a strong history effect of shared social and policy climates and experiences.

From the early 2000s drinking prevalence declined among secondary students in Australia, following steadily declining rates of daily and weekly drinking among Australian adults in the same period, including young adults⁶³. The rate of decline slowed after 2011. It is of some concern that past week drinking prevalence has not declined significantly among younger students since 2011. A significant decline between 2011 and 2017 was largely due to lower prevalence among older female students.

Prevalence rates for older students show evidence of a cohort effect, with the decline evident from 2005, rather than from 2002 as observed for younger students.

Trends in risky drinking

Trends in binge drinking (having five or more drinks on one occasion in the past week) show less variation than trends for lifetime drinking and other recency periods, but prevalence declined between 2002 and 2014 for younger students. However, risky drinking at this level was lower for older males and females in 2017 than in 2011, suggesting that while past week and past month drinking prevalence declined little from 2011, students who did drink alcohol were drinking less.

2017 lifetime, past year, and past week drinking were at historic low levels

Risky drinking declined from 2002 to 2017

Reasons for declines in the prevalence of adolescent drinking

Declining use of alcohol coincided with a period of diverse policy implementation aiming to reduce a range of adolescent substance use. In this period, harmful alcohol use became less acceptable among the broader Australian community⁶⁴. However, there is continued debate over the factors that have contributed specifically to reduced drinking prevalence in this age group, in both Australia

⁶¹ Johnston et al., 2019.

⁶² NHS Digital. (2019). *Statistics on Alcohol*, England 2019.

⁶³ Australian Institute of Health and Welfare. (2017). National Drug Strategy Household Survey 2016: detailed findings. *Drug Statistics series no. 31. Cat. no. PHE 214*. Canberra: AIHW.

⁶⁴ Azar, D., White, V., Bland, S., Livingston, M., Room, R., Chikritzhs, T., ... & Wakefield, M. (2013). 'Something's brewing': the changing trends in alcohol coverage in Australian newspapers 2000–2011. *Alcohol and Alcoholism*, 49, 336–342.

and comparable countries^{65 66}.

- In Australia, government-funded mass media campaigns included targeting of adolescent drinking⁶⁷, parental supply of alcohol⁶⁸, and parental modelling of drinking behaviours⁶⁹. Mass media campaigns targeting alcohol-related harm garner high awareness, and effectively reduce the prevalence of specific consequences of harmful alcohol use in target populations^{70 71}. More generally, mass media campaigns that focused on the consequences of drink driving were likely to have had a similar effect on adolescents as they were shown to have in changing adult attitudes and behaviour^{72 73}.
- Governments also regulated the secondary supply of alcohol. In this period, there was growing awareness of the short and longer term risks of alcohol use, including risky levels of adolescent and adult drinking according to NHMRC guidelines⁷⁴.
- As with smoking, it has been suggested that reduced alcohol use might be partially due to the impact of digital technologies including smart phone use on socialising and leisure activities.
- Some researchers have also identified characteristics such as greater maturity,

individuality, and responsibility among recent generations of young people, evident in less peer pressure to drink, and greater variation in the ways that adolescents socialise⁷⁵.

Reducing the prevalence of adolescent drinking

Drinking prevalence overall remains substantial, especially among older secondary students. Alcohol uptake in adolescence is related to increased later unhealthy drinking behaviour, attitudes, and health effects^{76 77 78}. Current prevalence levels call for further policy action to consolidate and strengthen recently observed declines in use.

While the period since the late 1990s has seen the implementation of selected positive policy measures and programs to reduce alcohol consumption among secondary students, these measures operate in an environment of overall liberalisation of alcohol regulation over time. There is evidence that these measures are ineffective when not combined with stronger policy measures⁷⁹.

⁶⁵ Törrönen, J., Roumeliotis, F., Samuelsson, E., Kraus, L., & Room, R. (2019). *Why are young people drinking less than earlier? Identifying and specifying social mechanisms with a pragmatist approach*. *International Journal of Drug Policy*, 64, 13-20.

⁶⁶ Oldham, M., Holmes, J., Whitaker, V., Fairbrother, H., & Curtis, P. (2018). *Youth drinking in decline. Report*. University of Sheffield, Sheffield.

⁶⁷ van Gemert, C., Dietze, P., Gold, J., Sacks-Davis, R., Stoové, M., Vally, H., & Hellard, M. (2011). *The Australian national binge drinking campaign: campaign recognition among young people at a music festival who report risky drinking*. *BMC Public Health*, 11, 482.

⁶⁸ Johnston, R. S., Stafford, J., Jongenelis, M. I., Shaw, T., Samsa, H., Costello, E., & Kirby, G. (2018). *Evaluation of a public education campaign to support parents to reduce adolescent alcohol use*. *Drug and Alcohol Review*, 37, 588-598.

⁶⁹ Drug, Alcohol and Prevention Services Division, Mental Health Commission, WA government (2019). *alcohol think again*.

⁷⁰ Young, B., Lewis, S., Katikireddi, S. V., Bauld, L., Stead, M., Angus, K., ... & Ashie, A. (2018). *Effectiveness of mass media campaigns to reduce alcohol consumption and harm: a systematic review*. *Alcohol and alcoholism*, 53, 302-316.

⁷¹ Elder, R. W., Shults, R. A., Sleet, D. A., Nichols, J. L., Thompson, R. S., Rajab, W., & Task Force on Community Preventive Services. (2004).

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Effectiveness of mass media campaigns for reducing drinking and driving and alcohol-involved crashes: a systematic review. *American Journal of Preventive Medicine*, 27, 57-65.

⁷² Pape et al. (2018).

⁷³ Wakefield, M. A., Loken, B., & Hornik, R. C. (2010). *Use of mass media campaigns to change health behaviour*. *The Lancet*, 376, 1261-1271.

⁷⁴ Australian Government National Health and Medical Research Council. (2009). *Australian guidelines to reduce health risks from drinking alcohol*. *National Health & Medical Research Council, ed*.

⁷⁵ Törrönen et al., 2019.

⁷⁶ Hagström, H., Hemmingsson, T., Discacciati, A., & Andreasson, A. (2018). *Alcohol consumption in late adolescence is associated with an increased risk of severe liver disease later in life*. *Journal of Hepatology*, 68(3), 505-510

⁷⁷ Waldron et al., 2018.

⁷⁸ Newton-Howes, G., & Boden, J. M. (2016). *Relation between age of first drinking and mental health and alcohol and drug disorders in adulthood: evidence from a 35-year cohort study*. *Addiction*, 111, 637-644.

⁷⁹ Midford, R., Lester, L., Williams, T., & White, V. (2018). *The relationship between Australian harm minimisation alcohol education and student uptake, consumption and harm*. *International Journal of Drug Policy*, 52, 25-31.

- Current social environments of alcohol use are facilitated by extended opening hours of licensed premises, and a proliferation of sites where alcohol is available from licensed premises and retailers⁸⁰.
- Alcohol sponsorship and advertising has a strong association with alcohol brand awareness, recognition, choice, and use⁸¹ ⁸², with retail advertising playing an increasing role in advertising alcohol⁸³. Adolescents are exposed to alcohol advertising in diverse media and locations, including television advertisements by retailers, and sponsorship of digital gaming and sports telecasts⁸⁴. Unless provided at adequate scale and duration, providing low reach and/or sporadic health messaging could only reasonably be expected to have limited effect to counter the pervasive effects of alcohol advertising on alcohol consumption⁸⁵. Exposure to alcohol advertising is likely to have a strong and ongoing effect on the initiation of alcohol use in adolescence, and continued alcohol consumption.
- Restrictions on alcohol advertising during children's television viewing time do not apply in major sports broadcasts, resulting in widescale alcohol sponsorship of major sporting teams and events that directly and substantially increases adolescents' exposure⁸⁶.

- Alcohol advertising is permitted in a range of other media and locations.
- Excise taxes on alcohol have not been broadly increased for prevention and minimisation of alcohol-related harms in Australia⁸⁷.

In combination, these activities normalise alcohol use and increase adolescent exposure.

Implications

- Alcohol price has been identified as a relatively immediate influence on substance use prevalence and a prime target for policy that might reduce adolescent alcohol consumption through higher and increasing excise⁸⁸ and product regulation.
- Tightening regulation of alcohol advertising would reduce adolescent exposure to alcohol and its use by others and remove a contributing factor to the normalisation of alcohol use in adolescents' social environments⁸⁹ ⁹⁰.
- Mass media campaigns and more prominent health warnings on alcoholic products highlighting the longer term health effects of drinking might work toward minimising the harms of excessive alcohol consumption over the lifetime⁹¹ ⁹². Importantly, industry-led alcohol harm minimisation advertising (e.g., DrinkWise⁹³) may include less effective messaging than government-led campaigns⁹⁴.

⁸⁰ Azar et al. 2016

⁸¹ Faulkner, A., Azar, D., & White, V. (2017). 'Unintended' audiences of alcohol advertising: exposure and drinking behaviors among Australian adolescents. *Journal of Substance Use*, 22, 108-112.

⁸² Brown, K. (2016). Association between alcohol sports sponsorship and consumption: a systematic review. *Alcohol and alcoholism*, 51, 747-755.

⁸³ White, V., Faulkner, A., Coomber, K., Azar, D., Room, R., Livingston, M., ... & Wakefield, M. (2015). How has alcohol advertising in traditional and online media in Australia changed? Trends in advertising expenditure 1997–2011. *Drug and alcohol review*, 34, 521-530.

⁸⁴ Nuss, T., Scully, M., Wakefield, M., & Dixon, H. (2019). Unhealthy sport sponsorship at the 2017 AFL Grand Final: a case study of its frequency, duration and nature. *Australian & New Zealand Journal of Public Health*. In press.

⁸⁵ Kelly, S. J., Ireland, M., Mangan, J., & Williamson, H. (2018). Can alcohol sponsorship be diluted by health messaging? *Sport in Society*, 21, 434-451.

⁸⁶ Sartori, et al. 2018.

⁸⁷ Vandenberg, B., Jiang, H., & Livingston, M. (2019). Effects of changes to the taxation of beer on alcohol consumption and government revenue in Australia. *International Journal of Drug Policy*, 70, 1-7.

⁸⁸ Chaloupka et al., 2019..

⁸⁹ Anderson et al., 2009

⁹⁰ White et al., 2017.

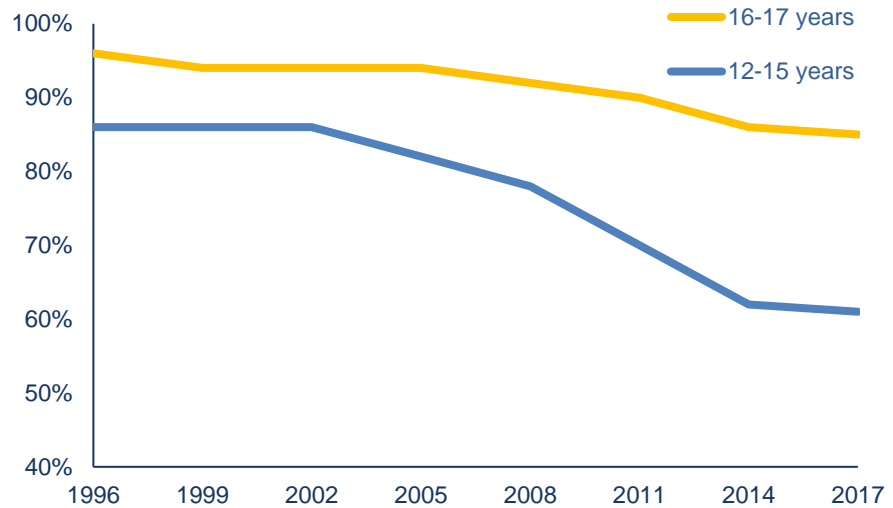
⁹¹ Catalano et al., 2012.

⁹² Dunstone, K., Brennan, E., Slater, M. D., Dixon, H. G., Durkin, S. J., Pettigrew, S., & Wakefield, M. A. (2017). Alcohol harm reduction advertisements: a content analysis of topic, objective, emotional tone, execution and target audience. *BMC Public Health*, 17, 312.

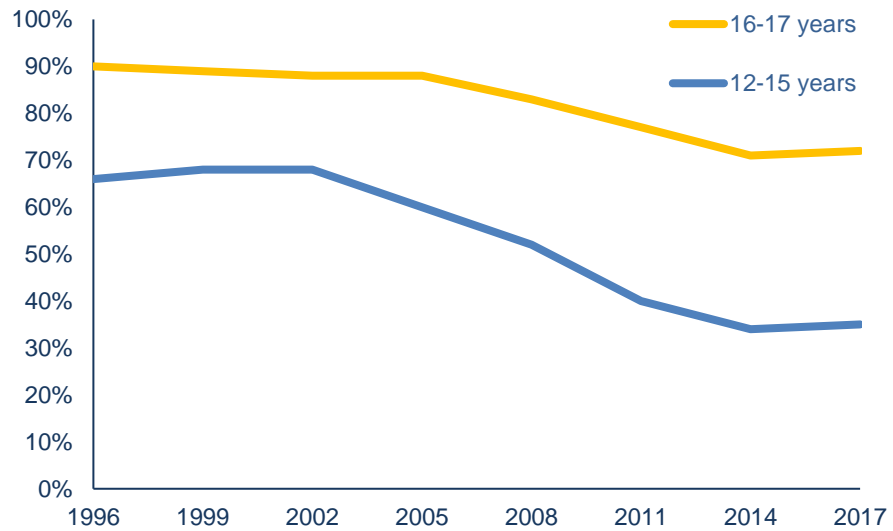
⁹³ DrinkWise (2019). *Get the Facts*.

⁹⁴ Wakefield, M. A., Brennan, E., Dunstone, K., Durkin, S. J., Dixon, H. G., Pettigrew, S., & Slater, M. D. (2018). Immediate effects on adult drinkers of exposure to alcohol harm reduction advertisements with and without drinking guideline messages: experimental study. *Addiction*, 113, 1019-1029.

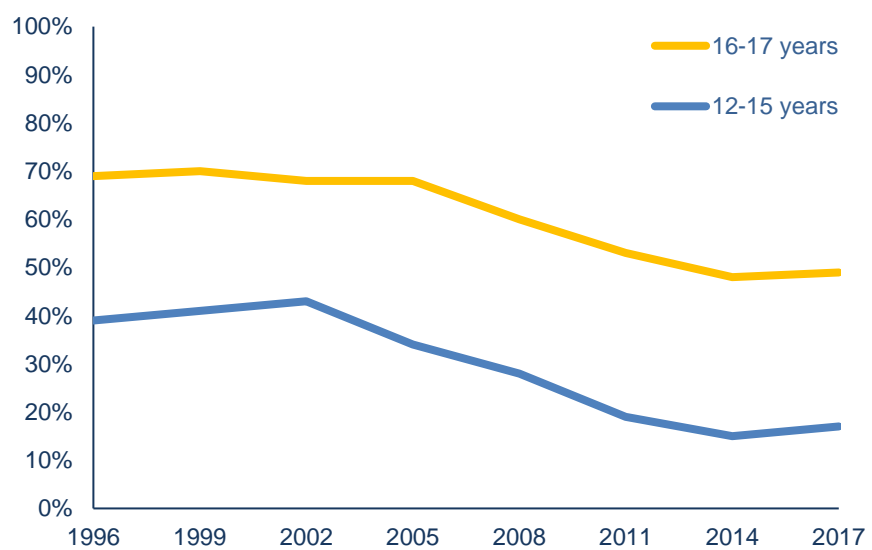
Ever drank alcohol



Drank alcohol in the past year

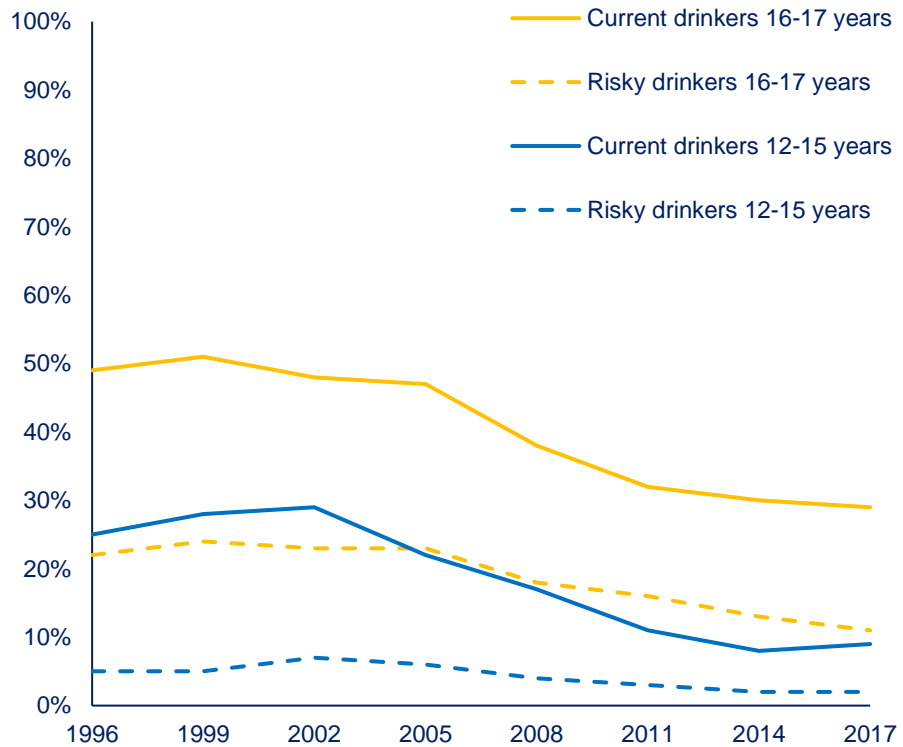


Drank alcohol in the past month



Percentage of Australian secondary school students who drank alcohol, ASSAD 1996-2017

Current & risky drinking



Percentage of Australian secondary students who were current and risky drinkers, ASSAD 1996-2017⁹⁵

⁹⁵ † Students who drank alcohol at least once in the past week were defined as current drinkers. The 2009 NHMRC Australian drinking guidelines recommend no alcohol consumption as the safest option for people under 18. Therefore, drinking prevalence reflects the proportion of students who did not adhere to this guideline.

Those that drank five or more drinks on one occasion were putting themselves at risk of short-term harm according to the 2009 NHMRC drinking guidelines for adults.

Trends in over-the-counter drug use by Australian secondary students 1996-2017

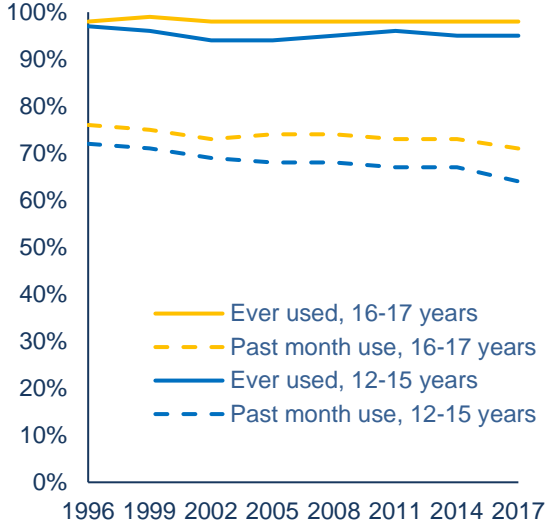
Trends in the prevalence of analgesic use

Use of painkillers or analgesics (e.g., Disprin, Panadol, or Nurofen) has been consistently common among secondary students over the past thirty years. In 2017, over 95% of students had ever used an analgesic, and around two-thirds of students had used them in the past month.

Use increases with age and is generally higher among female than male students for lifetime, past year, past month, and past week. Prevalence of lifetime analgesic use in 2017 was similar across this period, while past month use was slightly lower in more recent survey years. This might correspond with increased use of other substances for pain relief.

Trends in reasons for analgesic use

Students' reasons for use have been relatively stable over time, with analgesics most commonly used to ease headache. Other common reasons for use included easing cold or 'flu symptoms, menstrual pain (females), or dental pain.



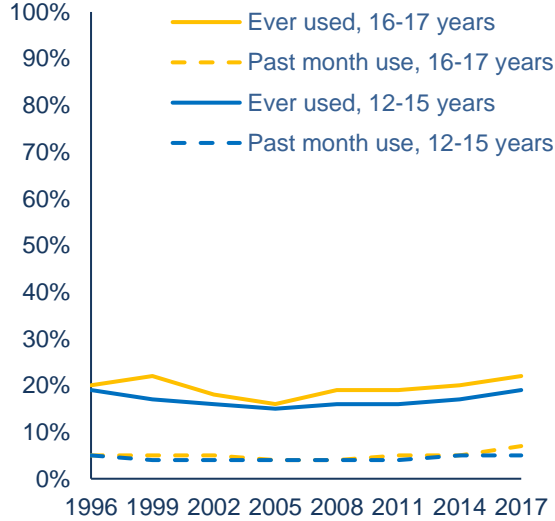
Percentage of Australian secondary school students who used analgesics, ASSAD 1996-2017

Trends in the prevalence of tranquiliser use

Overall, lifetime tranquiliser use has increased slightly since 2005, while past month and past week use has been relatively stable. Past month and past week use increased slightly from 2011.

Trends in sources of tranquilisers

Parents were the most common source of tranquilisers for students who had used them for non-medicinal reasons in the past year. Reported use of prescribed tranquilisers for non-medicinal reasons might include incorrectly reported use for medical reasons.



Percentage of Australian secondary school students who used tranquilisers, ASSAD 1996-2017

Trends in illicit substance use among Australian secondary students 1996-2017

Trends in any illicit drug use

Any illicit drug use is a measure of the percentage of secondary students who used at least one type of illicit drug in their lifetime. Because cannabis is the illicit substance most commonly used by secondary students, with much higher prevalence than use of other illicit substances, we examine any illicit drug use both with and without any illicit cannabis use.

As with tobacco and alcohol, use of illicit drugs increased in prevalence during the 1990s, before declining unevenly to 2014. Staggered pattern of changes in the trend lines for younger compared with older students indicate cohort effects.

Trends from 1996 to 2017 generally indicate that use of any illicit drug is currently substantially lower than in past decades. When considered with the exclusion of cannabis use, the use of any illicit drug continues a trend of very low prevalence overall⁹⁶. Use generally declined from the late 1990s, but past year and past month use increased slightly in the most recent survey period, with this increase evident mainly among older male students. For younger students, prevalence was similar to that reported in 2011 and 2014. Trends should be monitored in future surveys.

Importantly, use of many illicit substances is very low, and has remained low over a substantial period. However, increases in the prevalence of use of specific substances, such as opiates and cannabis, call for continued attention.

In 2017, students were asked different questions than in previous surveys about their use of amphetamines and opiates, with the use of dexamphetamine and methamphetamines measured separately, and the use of heroin and other opiates measured separately (whereas in previous survey years, a single question had measured amphetamine use overall, and a single question had measured opiate use overall). This difference might have affected the measure of use any illicit drug, so we did not include these

substances when considering trends to 2017. Specifically, students may have recorded use in both categories of a substance when only a single substance had been used, falsely elevating prevalence estimates. The Australian Institute of Health and Welfare⁹⁷ reports that use of methamphetamine has been declining among Australians aged 14 and over since 2001, while non-prescribed use of opioids has increased. While use has remained low among secondary students, continued monitoring of trends will remain important.

Overall, upturns and downturns in prevalence of any illicit drug use tend to begin in younger students, with cohort effects evident in the corresponding trend among older students. This pattern suggests that younger students are particularly vulnerable to the broader social factors driving changes and fashions in substance use. Adolescents at this age do not have set pre-existing attitudes to substance use, nor have they developed habitual patterns of use⁹⁸, and so changes in societal substance use patterns are reflected in uptake patterns in this group. These patterns of use are then maintained in the cohort's behaviour as they age and become evident in the following survey year in the older age range.

Illicit substance use

Cannabis was the most common illicit substance used in the past year or past month between 1996 and 2017 and use increased with age. Inhalants, ecstasy, and hallucinogens were the next most commonly used illicit substances. For ecstasy and hallucinogens, use is also greater at older ages. However, inhalant use follows a unique pattern of lower reported use with older age. Experiences with opiates, cocaine, and performance enhancing drugs were rare at all ages. Use of illicit substances in the past month was very low at all ages in 2017.

⁹⁶ Australian Institute of Health and Welfare (2019). Australia's health 2018. *Australia's health series no. 17*.

⁹⁷ AIHW, 2019.

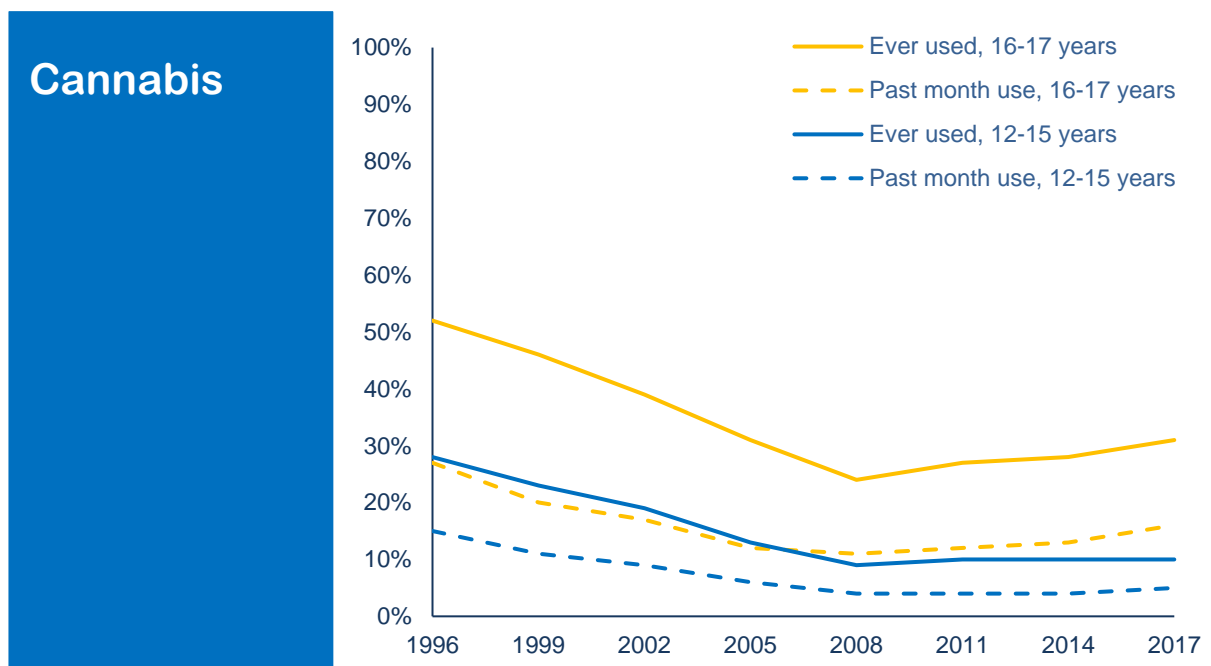
⁹⁸ For key events, policy, and legislative changes in Australian illicit drug policy see, Hughes, Caitlin. (2016). *The Australian (illicit) drug policy timeline: 1985-2016*, Drug Policy Modelling Program. Last updated 15 December 2016.

Reasons for overall decline in the prevalence of illicit substance use 1996-2017

Similar patterns of declining use are evident for illicit drugs as for smoking and alcohol. These patterns suggest multi-faceted policy responses to increasing substance use among adolescents in the 1990s, and related changes in social norms, parenting and socialising, had a substantial effect.

Cannabis

Cannabis has long been the most commonly used illicit substance among secondary students. Use is more prevalent and more frequent in the older age group than among younger students, and typically higher among male than female students. Overall, the prevalence of cannabis use has declined since 1996 but there has been a slight resurgence in use among older students since 2008. Lifetime prevalence was slightly higher in 2017 than in 2011, and past month use was higher than in 2014. Over all ages, use in the past week in 2017 (5%) was slightly higher than in 2011 (4%). Potential reasons for slightly increasing prevalence include more liberal social norms of cannabis use and acceptance, including the introduction of laws in other countries allowing the medical use of marijuana and deregulation of substances containing cannabinoids⁹⁹.



Percentage of Australian secondary school students who used cannabis, ASSAD 1996-2017

⁹⁹ Wen, H., Hockenberry, J. M., & Cummings, J. R. (2015). The effect of medical marijuana laws on adolescent and adult use of marijuana, alcohol, and 20 ASSAD 2017: Trends in substance use 1996-2017

other substances. *Journal of Health Economics*, 42, 64-80.

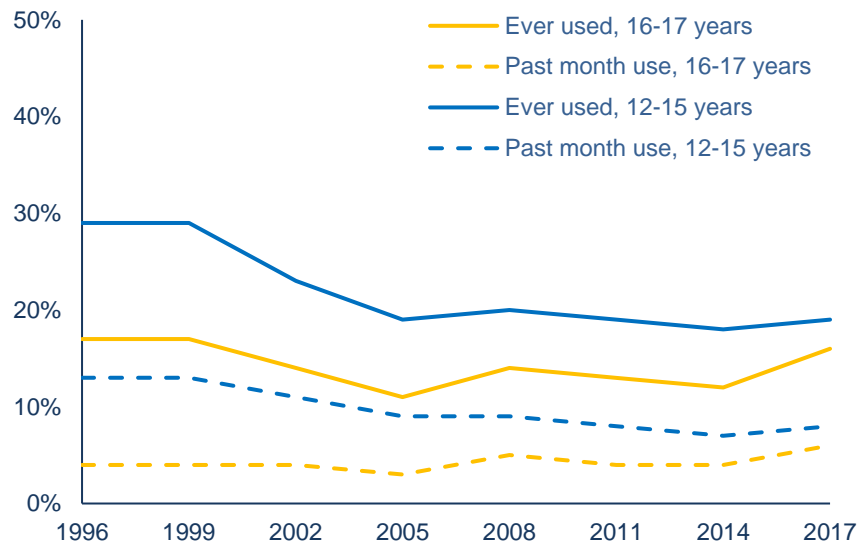
Inhalants

Unlike other illicit substances used by students, inhalant use tends to be reported at a higher rate among younger than older students. Prevalence among older students has not differed markedly between survey years since 1996. Among younger students, prevalence generally declined over this period, with lifetime experience declining to 2005, before plateauing to 2017. Past month experience was lower in 2017 than in 1996.

Cocaine

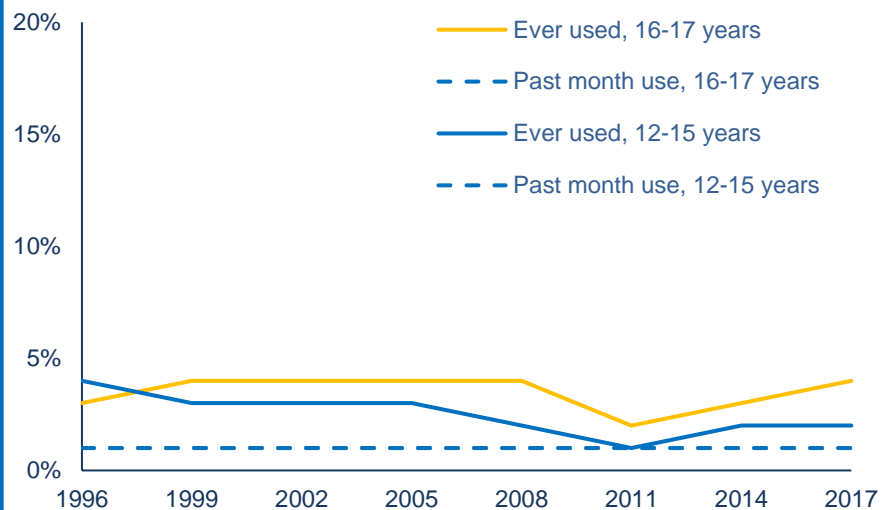
Most secondary school students had never tried cocaine in any survey year. Only 1% of students had used cocaine in the past month in any survey year. Among past year users, a large proportion had used it only once or twice in each survey year. Overall, prevalence was very low in all years. Lifetime cocaine use in 2017 among older students was slightly higher than in 2011, and past month use was also very slightly higher. Among younger students, prevalence did not differ meaningfully from that found in earlier survey years.

Inhalants



Percentage of Australian secondary school students who used inhalants, ASSAD 1996-2017

Cocaine



Percentage of Australian secondary school students who used cocaine, ASSAD 1996-2017

Hallucinogens

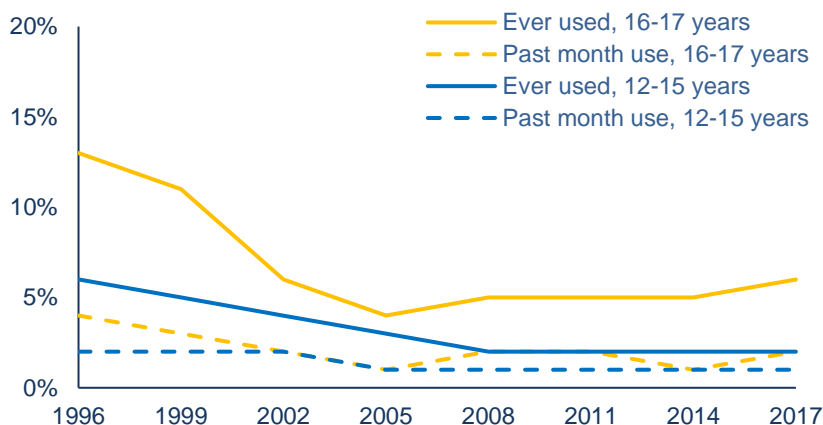
Student use of hallucinogens such as LSD was extremely low in all survey years, with a substantial drop in lifetime experience evident between 1996 and 2002, consistent with lower popularity and availability of hallucinogens for recreational substance use as the use of other substances such as ecstasy became more prevalent among adults.

Use was generally higher at older ages, but only 1% of all students reported use in the past month in each survey period. In the older age group, male students were more likely to have tried hallucinogens than female students.

Ecstasy

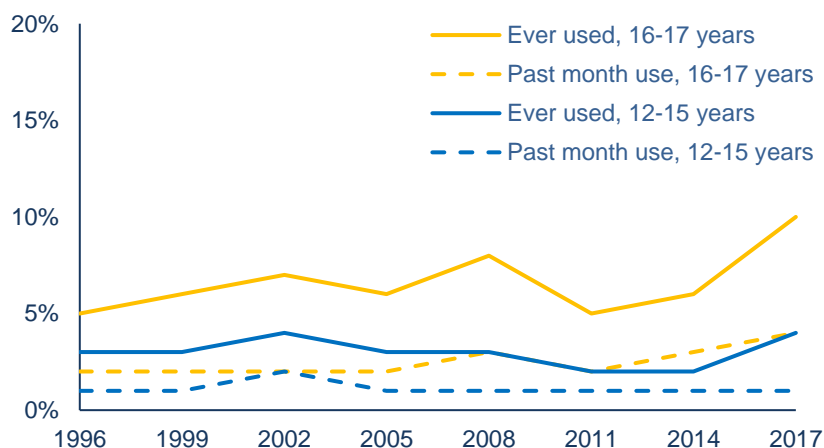
Most secondary school students in every survey year had never used ecstasy. Lifetime use increased with age. Male students were more likely than female students to have used ecstasy in each recency period across the survey series. The prevalence of lifetime ecstasy use has fluctuated within a narrow range since 1996, and in 2017 was slightly higher than in 2011 and 2014. However, past month prevalence was higher in 2017 than 2014 only among older male students. This increased use may reflect the onset of a change in the drug of choice among young people. However, in younger students, prevalence remained very low.

Hallucinogens



Percentage of Australian secondary school students who used hallucinogens, ASSAD 1996-2017

Ecstasy



Percentage of Australian secondary school students who used ecstasy, ASSAD 1996-2017

Amphetamines 1996-2014

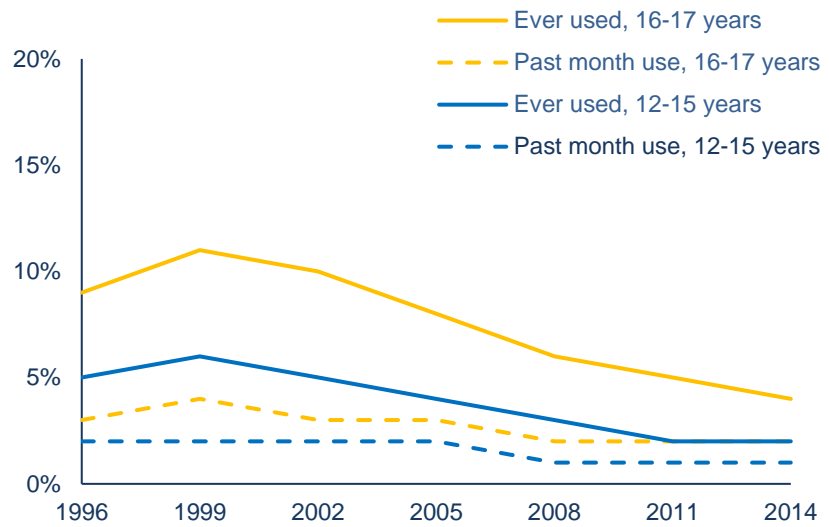
Amphetamine use among adolescents other than for medical reasons has been low in all ASSAD survey years to 2014. Use decreased in the Australian adult population from the 2000s, and generally declining prevalence was observed in ASSAD data for adolescent use over this period.

Trends between 2002 and 2017 showed declining use across all ages, with lifetime prevalence around 2% and past month use around 1% in 2014.

Opiates 1996-2014

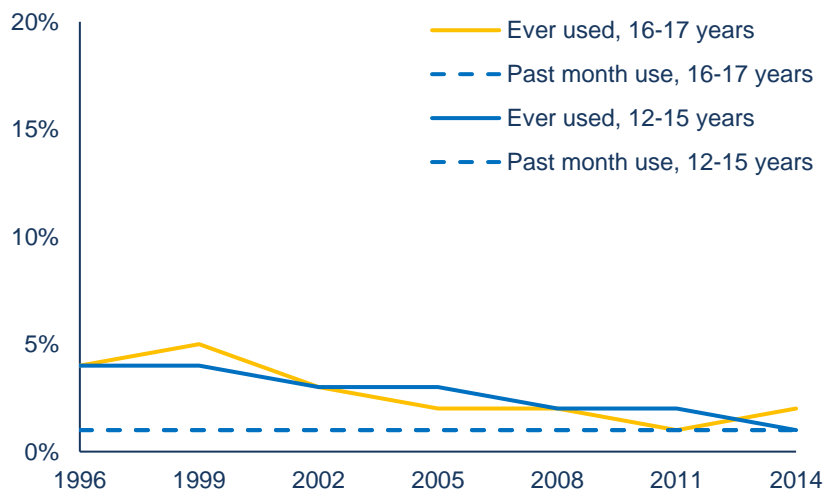
Student use of heroin or other opiates (e.g., morphine, oxycodone, codeine) other than for medical reasons has been extremely low in all ASSAD survey years 1996-2014. Past year prevalence was generally around 1%.

Amphetamine



Percentage of Australian secondary school students who used amphetamines, ASSAD 1996-2017

Opiates



Percentage of Australian secondary school students who used opiates, ASSAD 1996-2017

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Table 1 Prevalence of tobacco use among secondary students aged 12-15 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Recency	Sex								
Lifetime	Male	54*	47*^	41*^	29*^	22*^	18*^	12^	12^
	Female	51*	47*^	40*^	28*^	20*^	16*^	13^	11^
	Total	53*	47*^	40*^	29*^	21*^	17*^	13^	12^
Past year	Male	36*	31*^	24*^	17*^	12^	11^	8^	8^
	Female	36*	35*	27*^	18*^	14*^	11*^	9^	8^
	Total	36*	33*^	25*^	18*^	13*^	11*^	8*^	8^
Past month	Male	21*	18*^	13*^	9*^	7*^	6^	4^	5
	Female	22*	20*	16*^	10*^	8*^	6^	5^	4
	Total	21*	19*^	14*^	9*^	7*^	6^	4^	4^
Current	Male	16*	15*	10*^	7*^	5^	4^	3^	4^
	Female	18*	16*^	12*^	7*^	6*^	4*^	3^	3^
	Total	17*	15*^	11*^	7*^	5*^	4*^	3^	3^
Committed	Male	11*	9*	6*^	4*^	3*^	2^	2^	2^
	Female	11*	9*	6*^	4*^	3*^	2^	2^	2^
	Total	11*	10*	6*^	4*^	3*^	2*^	2^	2^
Daily	Male	5*	5*	3*^	2*^	1^	1^	1^	1^
	Female	5*	4*	3*^	2*^	1*^	1^	<1^	1^
	Total	5*	4*	3*^	2*^	1*^	1^	1^	1^
> 100 cigs	Male	-	8*	5*#	4*#	2#	2#	1#	1#
	Female	-	7*	5*#	3*#	2*#	2#	1#	1#
	Total	-	7*	5*#	3*#	2*#	2*#	1#	1#

* Significantly different than 2017, p<.01; ^ Significantly different than 1996, p<.01; # Significantly different than 1999, p<.01

Table 2 Prevalence of tobacco use among secondary students aged 16-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Recency	Sex								
Lifetime	Male	73*	68*	61*^	51*^	42*^	40*^	33^	31^
	Female	73*	70*	65*^	53*^	44*^	39*^	37*^	32^
	Total	73*	69*^	63*^	52*^	43*^	39*^	35^	31^
Past year	Male	49*	48*	41*^	34*^	29^	30^	24^	25^
	Female	54*	53*	45*^	37*^	31*^	29^	29^	25^
	Total	52*	51*^	43*^	36*^	30*^	29*^	27^	25^
Past month	Male	32*	34*	26*^	21*^	17^	18^	15^	15
	Female	37*	36*	30*^	23*^	17^	16^	14^	14
	Total	35*	35*	28*^	22*^	17^	17^	15^	14^
Current	Male	27*	30*^	21*^	16*^	13^	13^	12^	10^
	Female	32*	29*	25*^	17*^	13*^	12*^	9^	9^
	Total	30*	29*	23*^	17*^	13*^	13*^	10^	9^
Committed	Male	21*	21*	14*^	10*^	8^	7^	7^	6^
	Female	24*	20*	18*^	11*^	8*^	7*^	4^	4^
	Total	22*	21*	16*^	11*^	8*^	7*^	6*^	5*^
Daily	Male	13*	13*	9*^	5*^	4^	4^	3^	2^
	Female	14*	11*	12*	6*^	4*^	3*^	2^	2^
	Total	13*	12*	10*^	5*^	4*^	4^	3^	2^
>100 cigs	Male	-	23*	15*#	11*#	9#	9#	8#	7#
	Female	-	22*	18*#	10*#	7*#	7*#	5#	4#
	Total	-	22*	17*#	11*#	8*#	8*#	6#	5#

* Significantly different than 2017, p<.01; ^ Significantly different than 1996, p<.01; # Significantly different than 1999, p<.01

Table 3 Prevalence of tobacco use among secondary students aged 12-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Recency	Sex								
Lifetime	Male	59*	52*^	46*^	35*^	27*^	24*^	18^	18^
	Female	57*	53*^	47*^	35*^	27*^	23*^	20*^	17^
	Total	58*	53*^	47*^	35*^	27*^	23*^	19^	18^
Past year	Male	39*	36*^	28*^	21*^	17*^	16*^	13^	13^
	Female	41*	40*	32*^	24*^	19*^	16*^	15^	13^
	Total	40*	38*^	30*^	23*^	18*^	16*^	14^	13^
Past month	Male	24*	22*	16*^	12*^	10*^	9^	7^	8^
	Female	26*	24*	19*^	13*^	11*^	9*^	8^	7^
	Total	25*	23*	18*^	13*^	10*^	9*^	7^	7^
Current	Male	19*	19*	13*^	9*^	7*^	7*^	5^	5^
	Female	22*	20*^	16*^	10*^	8*^	6*^	5^	4^
	Total	20*	19*	14*^	9*^	7*^	7*^	5^	5^
Committed	Male	13*	12*	8*^	6*^	4*^	4^	3^	3^
	Female	15*	13*	10*^	6*^	5*^	4*^	2^	2*^
	Total	14*	13*	9*^	6*^	4*^	4*^	3^	3^
Daily	Male	7*	7*	5*^	3*^	2*^	2^	1^	1^
	Female	7*	6*^	5*^	3*^	2*^	2^	1	1
	Total	7*	7*	5*^	3*^	2*^	2*^	1^	1^
> 100 cigs	Male	-	12*	8*#	5*#	4#	4#	3#	3#
	Female	-	11*	8*#	5*#	4*#	3#	2#	2#
	Total	-	11*	8*#	5*#	4*#	3*#	3#	2#

* Significantly different than 2017, p<.01; ^ Significantly different than 1996, p<.01; # Significantly different than 1999, p<.01

Table 4 Prevalence of alcohol use among secondary students aged 12-15 & 16-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Aged 12-15									
Recency	Sex								
Lifetime	Male	88*	88*	88*	83*^	79*^	70*^	62^	61^
	Female	85*	85*	85*	81*	78*^	65*^	60^	55^
	Total	86*	86*	86*	82*^	78*^	68*^	61^	58^
Past year	Male	69*	71*	70*	61*^	53*^	42^	35^	36^
	Female	63*	66*	65*	58*^	51*^	38*^	33^	33^
	Total	66*	68*	68*	60*^	52*^	40*^	34^	35^
Past month	Male	41*	45*	46*	36*^	29*^	21^	16^	18^
	Female	36*	38*	39*	33*	27*^	18^	15^	16^
	Total	39*	41*	43*	34*^	28*^	19^	15^	17^
Current	Male	27*	30*	31*	23*^	17*^	12^	9^	10^
	Female	23*	25*	26*	20*^	16*^	10^	8^	8^
	Total	25*	28*	29*	22*^	17*^	11^	8^	9^
Risky	Male	6*	6*	8*	6*	4^	3^	2^	2^
	Female	4*	4*	5*	5*	3*	2^	1^	2^
	Total	5*	5*	7*^	6*	4*^	3^	2^	2^
Aged 16-17									
Recency	Sex								
Lifetime	Male	96*	95*	94*^	95*	91*^	88*^	84^	81^
	Female	96*	94*	94*	94*	92*^	90*^	86^	85^
	Total	96*	94*	94*^	95*^	92*^	89*^	85^	83^
Past year	Male	90*	89*	88*	88*	82*^	76*^	70^	70^
	Female	89*	89*	88*	87*	83*^	79^	72^	74^
	Total	90*	89*	88*	88*	83*^	77*^	71^	72^
Past month	Male	70*	70*	70*	70*	62*^	52^	47^	48^
	Female	68*	70*	66*	66*	59*^	53^	48^	49^
	Total	69*	70*	68*	68*	60*^	53^	48^	49^
Current	Male	52*	53*	51*	50*	41*^	34^	30^	31^
	Female	46*	50*	45*	45*	35*^	31^	29^	27^
	Total	49*	51*	48*	47*	38*^	32^	30^	29^
Risky	Male	27*	29*	27*	28*	21*^	18^	15^	13^
	Female	17*	20*	18*	19*	15*	13*	10^	8^
	Total	22*	24*	23*	23*	18*^	16*^	13^	11^

* Significantly different than 2017, p<.01; ^ Significantly different than 1996, p<.01

Table 5 Prevalence of alcohol use among secondary students aged 12-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Recency	Sex								
Lifetime	Male	90*	90*	89*	86*^	82*^	75*^	68^	67^
	Female	88*	87*	87*	85*	82*^	73*^	68^	64^
	Total	89*	89*	88*	86*^	82*^	74*^	68^	66^
Past year	Male	74*	76*	75*	68*^	61*^	51*^	45*^	46^
	Female	70*	72*	72*	66*^	60*^	50*^	45*^	46^
	Total	72*	74*	73*	67*^	60*^	51*^	45^	46^
Past month	Male	49*	51*	52*	45*^	38*^	30^	25^	27^
	Female	45*	47*	47*	42*	36*^	29^	25^	26^
	Total	47*	49*	50*	43*^	37*^	29^	25^	27^
Current	Male	33*	36*	37*	30*^	24*^	18^	15^	16^
	Female	29*	32*	31*	27*	22*^	16^	14^	14^
	Total	31*	34*	34*	29*^	23*^	17^	15^	15^
Risky	Male	11*	12*	13*	12*	9*^	7^	6^	6^
	Female	7*	9*	9*	9*	7*	5^	4^	4^
	Total	9*	10*	11*	10*	8*^	6*^	5^	5^

* Significantly different than 2017, $p < .01$; ^ Significantly different than 1996, $p < .01$

Table 6 Prevalence of analgesic use among secondary students aged 12-15 & 16-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Aged 12-15									
Recency	Sex								
Lifetime	Male	97*	95*^	93^	92^	93^	95^	93^	93^
	Female	98*	97	95^	96^	97^	97^	97^	96^
	Total	97*	96*^	94^	94^	95^	96^	95^	95^
Past year	Male	94*	92*^	89^	89^	89^	90^	89^	88^
	Female	94*	92	89^	89^	89^	90^	89	88^
	Total	95*	93*^	91^	91^	91^	93^	92^	91^
Past month	Male	67*	66*	63*^	62*^	63*^	61^	60^	56^
	Female	77*	76*	74^	74^	74^	74^	74	72^
	Total	72*	71*	69*^	68*^	68*^	67*^	67^	64^
Past week	Male	36*	37*	36*	35	35	32^	33^	31^
	Female	45*	46*	43	44	45	42^	45	42^
	Total	41*	41*	39	39	40	37	39	36^
Aged 16-17									
Recency	Sex								
Lifetime	Male	98*	96^	96^	96^	94^	96^	94^	95^
	Female	99*	99	98^	98^	98^	98^	98^	98^
	Total	98*	98	97^	97^	97^	97^	96^	97^
Past year	Male	94	92	92	91^	92^	92	90^	91
	Female	98*	97	96^	97^	97	97	96^	96^
	Total	96*	95	94^	94^	94^	95^	93^	94^
Past month	Male	67*	67	63	65	64	63	64	62^
	Female	84	84	82	82	83	83	82	80
	Total	76*	75*	73	74	74	73	73	71^
Past week	Male	35	37	34	34	34	34	35	35
	Female	51	50	53	51	52	53	53	54
	Total	43	44	44	43	43	44	44	44

* Significantly different than 2017, p<.01; ^ Significantly different than 1996, p<.01

Table 7 Prevalence of analgesic use among secondary students aged 12-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Recency	Sex								
Lifetime	Male	97*	95*^	94^	93^	94^	95^	93^	94^
	Female	98*	98^	96^	96^	97^	97^	97^	97^
	Total	98*	97*^	95^	95^	95^	96^	95^	95^
Past year	Male	94*	92*^	90^	90^	90^	91^	89^	89^
	Female	97*	96	94^	94^	95^	95^	95^	95^
	Total	95*	94*^	92^	92^	92^	93^	92^	91^
Past month	Male	67*	66*	63*^	63*^	63*^	62*^	61^	58^
	Female	79*	78*	76^	76^	77^	77^	77^	75^
	Total	73*	72*	70*^	70*^	70*^	69*^	69^	66^
Past week	Male	36*	37*	35	34	34	33^	34	32^
	Female	47	47	46	46	47	45	47	45
	Total	41*	42*	41	40	41	39	41	39^

* Significantly different than 2017, $p < .01$; ^ Significantly different than 1996, $p < .01$

Table 8 Prevalence of tranquiliser use among secondary students aged 12-15 & 16-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Aged 12-15									
Recency	Sex								
Lifetime	Male	19	18	16	14*^	15*^	16	16^	20
	Female	19	16^	15*^	15*^	17	16^	19	18
	Total	19	17^	16*^	15*^	16*^	16^	17	19
Past year	Male	11	10	8*^	9*^	8*^	10	10	12
	Female	12	9^	9*^	9*^	10^	11	12	11
	Total	12	10*^	9*^	9*^	9*^	10	11	12
Past month	Male	5	4	4	4	4	4	4	5
	Female	5	4	4*	4*	4	4	5	5
	Total	5	4*	4*^	4	4*	4	5	5
Past week	Male	3	2	2	2	3	2	2	3
	Female	2	2*	2	2	2	2	3	3
	Total	3	2*	2*	2*	2	2*	3	3
Aged 16-17									
Recency	Sex								
Lifetime	Male	19	21	17*	16*	18	19	20	22
	Female	21	24	19	17*^	20	19	21	21
	Total	20	22	18*	16*^	19	19	20	22
Past year	Male	12*	11*	10*	9*^	10*	12	13	16
	Female	15	16	13	11*^	12	14	15	15
	Total	13	14	12*	10*^	11*	13	14	16
Past month	Male	5*	5	4*	3*	4*	5	5	8^
	Female	5	5	5	4	4	5	6	6
	Total	5*	5	5*	4*	4*	5	5	7^
Past week	Male	3*	3	3	2*	3	3*	3	5^
	Female	2	2	3	2	2	3	3	3
	Total	3*	2*	3	2*	2*	3	3	4^

* Significantly different than 2017, $p < .01$; ^ Significantly different than 1996, $p < .01$

Table 9 Prevalence of tranquiliser use among secondary students aged 12-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Recency	Sex								
Lifetime	Male	19	19	16*	15*^	16*^	17*	17*	20
	Female	20	18	16*^	15*^	18^	17^	20	19
	Total	19	18	16*^	15*^	17*^	17*^	18	20
Past year	Male	11	10*	9*^	9*^	9*^	11	11*	13
	Female	13	11	10*^	9*^	11*^	12	13	13
	Total	12	11	9	9	10	11	12	13
Past month	Male	5	4*	4*	4*	4*	4*	5	6
	Female	5	4*	4	4*^	4*	4	5	5
	Total	5	4*	4*	4*	4*	4*	5	6
Past week	Male	3	2*	3*	2*	3*	2*	3	4
	Female	2	2*	2	2*	2*	2	3	3
	Total	3*	2*	2*	2*	2*	2*	3	3^

* Significantly different than 2017, $p < .01$; ^ Significantly different than 1996, $p < .01$

Table 10 Prevalence of cannabis use among secondary students aged 12-15 & 16-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Aged 12-15									
Recency	Sex								
Lifetime	Male	32*	26*^	22*^	15^	10^	10^	11^	11^
	Female	25*	20*^	17*^	11^	9^	9^	9^	9^
	Total	28*	23*^	19*^	13^	9^	10^	10^	10^
Past year	Male	28*	21*^	18*^	11^	8^	9^	9^	10^
	Female	22*	18*^	14*^	9^	7^	7^	8^	9^
	Total	25*	20*^	16*^	10^	8^	8^	8^	9^
Past month	Male	18*	13*^	10*^	7^	5^	5^	5^	5^
	Female	13*	10*^	8*^	4^	4^	4^	4^	4^
	Total	15*	11*^	9*^	6^	4^	4^	4^	5^
Past week	Male	11*	8*^	7*^	4^	3^	3^	3^	4^
	Female	7*	5*^	4*^	3^	2^	2^	2^	2^
	Total	9*	7*^	5*^	4^	3^	2^	3^	3^
Aged 16-17									
Recency	Sex								
Lifetime	Male	55*	50*	42*^	33^	27^	30^	31^	34^
	Female	50*	43*^	36*^	29^	22*^	24^	26^	29^
	Total	52*	46*^	39*^	31^	24*^	27^	28^	31^
Past year	Male	49*	41*^	35^	27^	23*^	26^	27^	31^
	Female	44*	35*^	30*^	23^	19*^	21^	23^	27^
	Total	47*	38*^	33^	25^	21^	23^	25^	29^
Past month	Male	31*	23^	20^	14^	13^	15^	16^	18^
	Female	24*	17^	15^	9*^	9*^	10^	10*^	14^
	Total	27*	20^	17^	12*^	11*^	12^	13*^	16^
Past week	Male	21*	15^	12^	8^	8^	9^	9^	11^
	Female	13*	9^	8^	4*^	4*^	5^	5^	6^
	Total	17*	12^	10^	6*^	6*^	7^	7^	9^

* Significantly different than 2017, p<.01; ^ Significantly different than 1996, p<.01

Table 11 Prevalence of cannabis use among secondary students aged 12-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Recency	Sex								
Lifetime	Male	38*	32*^	27*^	19^	14^	16^	17^	18^
	Female	32*	27*^	23*^	16^	13^	13^	14^	16^
	Total	35*	29*^	25*^	18^	14^	15^	16^	17^
Past year	Male	33*	27*^	23*^	16^	12*^	14^	14^	16^
	Female	28*	23*^	19*^	13^	11*^	12*^	13^	14^
	Total	31*	25*^	21*^	14^	11*^	13*^	14^	15^
Past month	Male	21*	15*^	13*^	9^	7^	8^	8^	9^
	Female	16*	12*^	10*^	6^	5*^	6^	6^	7^
	Total	18*	14*^	11*^	7^	6^	7^	7^	8^
Past week	Male	14*	10*	8*	5^	5^	4^	5^	6^
	Female	9	6	5	3	2	3	3	4
	Total	11*	8*^	7*^	4^	4*^	4*^	4^	5^

* Significantly different than 2017, $p < .01$; ^ Significantly different than 1996, $p < .01$

Table 12 Prevalence of cocaine use among secondary students aged 12-15, 16-17, & 12-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Aged 12-15									
Recency	Sex								
Lifetime	Male	5*	4*	4 [^]	3 [^]	2 [^]	2 [^]	2 [^]	2 [^]
	Female	3*	3*	2*	2*	2 [^]	1 [^]	1 [^]	1 [^]
	Total	4*	3 [^]	3 [^]	3 [^]	2 [^]	1 [^]	2 [^]	2 [^]
Past year	Male	3*	3*	3*	3*	2 [^]	1 [^]	1 [^]	1 [^]
	Female	2*	2*	2*	1*	1	1 [^]	1 [^]	1 [^]
	Total	3*	2*	2*	2*	2 [^]	1 [^]	1 [^]	1 [^]
Past month	Male	2	2	2	2	1 [^]	1 [^]	1 [^]	1
	Female	1*	1*	1*	1*	1*	<1 [^]	1	<1 [^]
	Total	1*	1*	1*	1*	1 [^]	1 [^]	1 [^]	1 [^]
Aged 16-17									
Recency	Sex								
Lifetime	Male	4	5	4	4	5	3*	4	5
	Female	2	3	3	3	3	2	2	4
	Total	3	4	4	4	4	2 [^]	3	4
Past year	Male	3	3	3	3	4	2*	3	4
	Female	2	2	2	2	2	1	1	2
	Total	2	3	2	3	3	2*	2	3
Past month	Male	1	2	1	2	2	2	1	2
	Female	<1	<1	1	1	1	<1	<1	1
	Total	1*	1	1	1	1	1	1	1 [^]
Aged 12-17									
Recency	Sex								
Lifetime	Male	5*	4*	4 [^]	3 [^]	3 [^]	2 [^]	2 [^]	3 [^]
	Female	3	3	3	2	2	1 [^]	1 [^]	2
	Total	4*	4*	3	3 [^]	2 [^]	2 [^]	2 [^]	2 [^]
Past year	Male	3	3	3	3	2 [^]	1 [^]	2 [^]	2
	Female	2	2*	2	2	2	1 [^]	1 [^]	1
	Total	2*	3*	2	2	2 [^]	1 [^]	1 [^]	2 [^]
Past month	Male	2	2	2	2	1	1 [^]	1 [^]	2
	Female	1*	1*	1*	1	1*	<1 [^]	1	<1
	Total	1	1	1	1	1	1 [^]	1 [^]	1

* Significantly different than 2017, p<.01; ^ Significantly different than 1996, p<.01

Table 13 Prevalence of inhalant use among secondary students aged 12-15, 16-17, & 12-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Aged 12-15									
Recency	Sex								
Lifetime	Male	29*	28*	23*^	19^	19^	17^	16^	18^
	Female	30*	30*	24*^	19^	21^	21^	19^	20^
	Total	29*	29*	23*^	19^	20^	19^	18^	19^
Past year	Male	22*	21*	16*^	15^	14^	13^	11^	13^
	Female	23*	24*	18^	15^	16^	16^	15^	15^
	Total	23*	22*	17*^	15^	15^	14^	13^	14^
Past month	Male	13*	13*	11*^	9^	9^	7^	6*^	8^
	Female	13*	14*	11*	9^	10^	10^	8^	9^
	Total	13*	13*	11*^	9^	9^	8^	7^	8^
Aged 16-17									
Recency	Sex								
Lifetime	Male	18	18	13^	12*^	15^	14^	12^	17
	Female	16	16	15	11*^	14	12^	11^	15
	Total	17	17	14^	11*^	14^	13*^	12*^	16
Past year	Male	11	11	8*^	7*^	10	9	8*^	12
	Female	9	10	9	8*	9	8*	7*	10
	Total	10	10	8*	8*^	10	8*	8*^	11
Past month	Male	5	5	4	4*	5	4	4	6
	Female	3*	4*	5^	3*	4*	4*	4	6^
	Total	4*	4*	4*	3*	5*	4*	4*	6^
Aged 12-17									
Recency	Sex								
Lifetime	Male	26*	26*	20^	17^	18^	16^	15*^	18^
	Female	26*	26*	21*^	17^	19^	18^	17^	18^
	Total	26*	26*	21*^	17^	19^	17^	16^	18^
Past year	Male	19*	19*	14^	13^	13^	11^	10*^	13^
	Female	19*	20*	16^	13^	14^	14^	12^	14^
	Total	19*	19*	15^	13^	13^	13^	11*^	13^
Past month	Male	11*	11*^	9*^	8^	8^	6^	5*^	7^
	Female	10*	11*	10	7^	8^	8^	7^	8^
	Total	11*	11*	9*	7^	8^	7^	6*^	8^

* Significantly different than 2017, p<.01; ^ Significantly different than 1996, p<.01

Table 14 Prevalence of hallucinogen use among secondary students aged 12-15, 16-17, & 12-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Aged 12-15									
Recency	Sex								
Lifetime	Male	7*	5 [^]	4 [^]	4 [^]	3 [^]	2 [^]	2 [^]	3 [^]
	Female	5*	5*	3 [^]	2 [^]	2 [^]	2 [^]	1 [^]	2 [^]
	Total	6*	5 [^]	4 [^]	3 [^]	2 [^]	2 [^]	2 [^]	2 [^]
Past year	Male	6*	4 [^]	3 [^]	3 [^]	2 [^]	2 [^]	2 [^]	2 [^]
	Female	4*	3*	2 [^]	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]
	Total	5*	4 [^]	3 [^]	2 [^]	2 [^]	1 [^]	1 [^]	2 [^]
Past month	Male	3*	2 [^]	2 [^]	2 [^]	1 [^]	1 [^]	1 [^]	1 [^]
	Female	2*	1 [^]	1 [^]	1 [^]	1 [^]	<1 [^]	1 [^]	<1 [^]
	Total	2*	2 [^]	2 [^]	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]
Aged 16-17									
Recency	Sex								
Lifetime	Male	14*	13*	7 [^]	6 [^]	6 [^]	6 [^]	7 [^]	8 [^]
	Female	13*	9*	6 [^]	3 [^]	4 [^]	5 [^]	3 [^]	4 [^]
	Total	13*	11 [^]	6 [^]	4 [^]	5 [^]	5 [^]	5 [^]	6 [^]
Past year	Male	12*	10*	5 [^]	4 [^]	5 [^]	5 [^]	6 [^]	7 [^]
	Female	10*	7 [^]	4 [^]	2 [^]	3 [^]	4 [^]	3 [^]	3 [^]
	Total	11*	8 [^]	4 [^]	3 [^]	4 [^]	4 [^]	4 [^]	5 [^]
Past month	Male	5	4	2 [^]	2 [^]	3 [^]	2 [^]	2 [^]	3
	Female	3*	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]
	Total	4*	3 [^]	2 [^]	1 [^]	2 [^]	2 [^]	1 [^]	2 [^]
Aged 12-17									
Recency	Sex								
Lifetime	Male	9*	7 [^]	5 [^]	4 [^]	4 [^]	4 [^]	3 [^]	5 [^]
	Female	7*	6 [^]	4 [^]	2 [^]	2 [^]	3 [^]	2 [^]	2 [^]
	Total	8*	7 [^]	4 [^]	3 [^]	3 [^]	3 [^]	3 [^]	4 [^]
Past year	Male	7*	5 [^]	4 [^]	3 [^]	3 [^]	3 [^]	3 [^]	4 [^]
	Female	5*	4*	3 [^]	2 [^]	2 [^]	2 [^]	2 [^]	2 [^]
	Total	6*	5 [^]	3 [^]	3 [^]	2 [^]	2 [^]	2 [^]	3 [^]
Past month	Male	4*	2 [^]	2 [^]	2 [^]	2 [^]	1 [^]	1 [^]	2 [^]
	Female	2*	[^]	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]
	Total	2*	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]	1 [^]

* Significantly different than 2017, p<.01; [^] Significantly different than 1996, p<.01

Table 15 Prevalence of ecstasy use among secondary students aged 12-15, 16-17, & 12-17 in Australia, ASSAD 1996-2017

		1996	1999	2002	2005	2008	2011	2014	2017
		%	%	%	%	%	%	%	%
Aged 12-15									
Recency	Sex								
Lifetime	Male	4	4	4	4	3 [*] ^	2 [*] ^	2 [*] ^	5
	Female	2 [*]	3	3 [^]	2	2	1 [*] ^	1 [*] ^	3 [^]
	Total	3 [*]	3	4 [^]	3	3 [*]	2 [*] ^	2 [*] ^	4 [^]
Past year	Male	3	3	3	3	2 [*]	1 [*] ^	1 [*] ^	4
	Female	2 [*]	2	2	2	2	1 [*] ^	1 [*]	3 [^]
	Total	2 [*]	2	3	3	2 [*]	1 [*] ^	1 [*] ^	3 [^]
Past month	Male	2	2	2	2	2	1 [*]	1 [*]	2
	Female	1	1	1	1	1	<1 [*]	1	1
	Total	1	1	2	1	1	1 [*] ^	1 [*] ^	1
Aged 16-17									
Recency	Sex								
Lifetime	Male	6 [*]	7 [*]	7 [*]	7 [*]	9 [*] ^	5 [*]	8 [*] ^	13 [^]
	Female	4 [*]	5 [*]	7 [^]	5 [*]	7 [^]	4 [*]	4 [*]	8 [^]
	Total	5 [*]	6 [*]	7 [*] ^	6 [*]	8 [^]	5 [*]	6 [*]	10 [^]
Past year	Male	5 [*]	6 [*]	5 [*]	6 [*]	8 [^]	4 [*]	7 [^]	10 [^]
	Female	3 [*]	4 [*]	5 [^]	4 [*]	6 [^]	3 [*]	4 [*]	7 [^]
	Total	4 [*]	5 [*]	5 [*] ^	5 [*]	7 [^]	4 [*]	5 [*] ^	8 [^]
Past month	Male	2 [*]	3	3 [*]	3 [*]	4	2 [*]	4	5
	Female	1 [*]	2 [*]	2	2 [*]	3	1 [*]	2	3
	Total	2 [*]	2 [*] ^	2 [*] ^	2 [*]	3 [^]	2 [*]	3 [^]	4 [^]
Aged 12-17									
Recency	Sex								
Lifetime	Male	4 [*]	5 [*]	5 [*]	4 [*]	4 [*]	3 [*] ^	4 [*]	7 [^]
	Female	3 [*]	3 [*]	4 [^]	3 [*]	4 [^]	2 [*]	2 [*]	5 [^]
	Total	3 [*]	3 [^]	3	3	2 [*]	2 [*] ^	3 [*] ^	6 [^]
Past year	Male	3 [*]	4 [*]	4 [*]	4 [*]	4 [*]	2 [*] ^	3 [*]	6 [^]
	Female	2 [*]	3 [*] ^	3 [^]	3 [*]	3 [^]	2 [*]	2 [*]	4 [^]
	Total	2 [*]	2	2	2	2 [*]	1 [*] ^	1 [*] ^	5 [^]
Past month	Male	2 [*]	2	2	2	2	1 [*] ^	2 [*]	3
	Female	1 [*]	1 [^]	1 [^]	1 [^]	1 [^]	1 [*]	1	2 [^]
	Total	1	1	1	1	1	<1 [*] ^	1 [*] ^	2

* Significantly different than 2017, p<.01; ^ Significantly different than 1996, p<.01

Table 16 Prevalence of amphetamine use among secondary students aged 12-15, 16-17, & 12-17 in Australia, ASSAD 1996-2014

		1996	1999	2002	2005	2008	2011	2014
		%	%	%	%	%	%	%
Aged 12-15								
Recency	Sex							
Lifetime	Male	6*	6*	6*	5*	3*^	2^	2^
	Female	4*	5*	5*	4*	3*^	2^	2^
	Total	5*	6*	5*	4*	3*^	2^	2^
Past month	Male	3*	3*	3*	3*	1^	1^	1^
	Female	1	2*^	2*^	2*^	1	1	1
	Total	2*	2*	2*	2*	1^	1^	1^
Aged 16-17								
Recency	Sex							
Lifetime	Male	10*	12*^	10*	8*^	7^	5^	5^
	Female	8*	10*^	11*^	7*	6*^	4*^	2^
	Total	9*	11*^	10*	8*	6*^	5^	4^
Past month	Male	4	5	3	3^	3^	2^	3^
	Female	2*	3*	3*	2*	2*	1^	1^
	Total	3*	4*	3*	3*	2^	2^	2^
Aged 12-17								
Recency	Sex							
Lifetime	Male	7*	8*	7*	6*^	4*^	3^	3^
	Female	5*	7*^	6*	5*	4*	3^	2^
	Total	6*	7*	7*	5*^	4*^	3^	2^
Past month	Male	3*	3*	3*	3*	2^	1^	1^
	Female	2*	2*	2*	2*	1*^	1^	1^
	Total	2*	3*	3*	2*	2*	1^	1^

* Significantly different than 2014, $p < .01$; ^ Significantly different than 1996, $p < .01$

Table 17 Prevalence of heroin and other opiate use among secondary students aged 12-15, 16-17, & 12-17 in Australia, ASSAD 1996-2014

		1996	1999	2002	2005	2008	2011	2014
		%	%	%	%	%	%	%
Aged 12-15								
Recency	Sex							
Lifetime	Male	4*	4*	3*	3*	2^	2^	1^
	Female	3*	4*	2*	2*	2*	2	1^
	Total	4*	4*	3*	3*	2^	2^	1^
Past month	Male	2	2	2	2	1	1	1
	Female	1	1	1	1	1	<1	<1
	Total	1	1	1	1	1	1	1
Aged 16-17								
Recency	Sex							
Lifetime	Male	5*	6*	3^	3^	3^	2*^	3^
	Female	3*	4*	3*	2	2	1^	1^
	Total	4*	5*	3^	2^	2^	1^	2^
Past month	Male	2	2	1	1	1	1	1
	Female	0	1	1	<1	1	<1	<1
	Total	1	1	1	1	1	1	1
Aged 12-17								
Recency	Sex							
Lifetime	Male	4*	4*	3^	3^	2^	2^	2^
	Female	3*	4*^	3*	2*^	2*^	2^	1^
	Total	4*	4*	3*^	2^	2^	2^	2^
Past month	Male	2	2	2	2	1	1	1
	Female	1	1	1	1	1	<1	<1
	Total	1*	1*	1*	1*	1^	1^	1^

* Significantly different than 2014, p<.01; ^ Significantly different than 1996, p<.01

Summary of methods

Sample size and final data set

During each ASSAD survey period around 20,000-30,000 students from years 7 to 12 were surveyed from schools across Australia (Table 18). Data collected during each survey were cleaned following an identical procedure, as reported elsewhere¹⁰⁰. We excluded data from students who were not aged between 12 and 17 or who did not indicate their sex.

Measures of substance use

We asked students how many times they had used each substance within specified time periods. For all substances, the recency of use categories overlap and are not mutually exclusive. For example, a student who reported having used a substance in the past week was also included in the estimates of use for all other time periods (i.e., past month, past year, and lifetime use).

Tobacco

We use the terms 'smoker' and 'tobacco use' to refer to cigarette use. The prevalence of tobacco use is reported within recency periods by sex and age group.

Alcohol

Prevalence of alcohol use within recency periods is reported by sex and age group.

The 2009 NHMRC alcohol use guidelines advise abstinence as the safest option for people under 18¹⁰¹. Ever consuming alcohol indicates not adhering to this guideline. The guidelines also state that adults who consume five or more alcoholic drinks on any day are putting themselves at risk. We used this guideline for adults to estimate a risky level of alcohol consumption for teenagers and report the percentage of students who drank at this level that could result in short-term harm.

Other substance use

The prevalence of other illicit substance use is reported within recency periods by sex and age group.

Data analysis

Population weights

Analyses for students aged 12 to 17 were run with weighted data. Population weights align the sample with the distribution of 12 to 17 year old students in secondary schools nationwide. Weights address any possible bias in estimates of the prevalence of substance use, that might result from disproportionate sampling of any state or territory, education sector, age, or sex. Enrolment details collected by the Australian Bureau of Statistics (ABS) in the survey year of students by sex, age group, and education sector, were used to calculate weights¹⁰².

Alpha levels

As the sample is large, we interpreted and reported associations that were statistically significant at an alpha level of .01 ($p < .01$, or the 99% confidence interval did not include 0) as meaningful effects.

Confidence intervals

Prevalence estimates for the 2017 sample are provided for information. When the confidence interval is wide, we are less certain that the point estimate accurately reflects the population prevalence. For percentages or proportions, sampling error is indicated by the 95% confidence interval calculated for the number of students in the analysed group (e.g., 17 year old females) and the percentage reported (e.g., 20%). For smaller sample sizes and when the estimate is close to 50%, the confidence interval will be wide and should be interpreted with greater caution than when sample size is larger and estimates are more extreme. Interpretation of results should be made with reference to the confidence interval associated with the sample size for each age and sex group (Table 19).

Limitations

ASSAD data across survey years provides a series of cross-sectional 'slices' of patterns of population prevalence of substance use among secondary students in Australia. These patterns demonstrate associations over time between substance use and key social,

¹⁰⁰ Guerin & White, 2018

¹⁰¹ Australian Government National Health and Medical Research Council. (2009).

¹⁰² Australian Bureau of Statistics. (2017). 4221.0 - Schools, Australia, 2017. NSSC Table 42b Number

of Full-time and Part-time Students by Affiliation, Sex, Grade, Age and Indigenous Status, States and Territories, 2006-2017.

political, and developmental factors that have an impact on adolescents' lives. However, as these data are not longitudinal and do not track the development of individual students over time, it is more difficult to make definite conclusions about the causes of changes in the prevalence of substance use in this age group.

In addition, the self-report measures used in ASSAD surveys can reflect the social desirability of the reported behaviour or attitudes, and trends might reflect changes in social acceptance over time. However, the

survey methodology aims to minimise these effects and students participate anonymously and confidentially, with surveys administered by research staff, not teachers or other school staff.

Overall, ASSAD findings have been supported by other population surveys and studies of substance use among adolescents¹⁰³ as well as administrative data including the wider Australian population¹⁰⁴.

Substance definitions

The following substance categories, descriptions, and examples were used in the questionnaires.

Alcohol	Ordinary beer, low alcohol beer, wine, wine cooler, champagne or sparkling wine, alcoholic cider, alcoholic energy drinks, premixed spirits, spirits, liqueurs, sherry or port.
Amphetamines	Amphetamines or speed, uppers, goey, crystal meth, dex, dexies, dexamphetamine, ox blood, methamphetamine or ice, other than for medical reasons.
Analgesics	Painkillers/analgesics such as 'Disprin', 'Panadol' or 'Nurofen'.
Cannabis	Marijuana, grass, hash, cannabis, dope, weed, mull, yardi, ganga, pot, a bong, or a joint.
Cocaine	Cocaine.
Ecstasy	Ecstasy or XTC, E, MDMA, eccy, X, bickies.
Hallucinogens	LSD, acid, trips, magic mushrooms, datura, angel's trumpet.
Inhalants	Deliberately sniffed (inhaled) from spray cans or sniffed things like glue, paint, petrol or thinners in order to get high or for the way it makes you feel.
Opiates	Heroin, smack, horse, skag, hammer, H, or other opiates (narcotics) such as methadone, morphine, oxycodone or pethidine other than for medical reasons.
Tobacco	Cigarettes.
Tranquilisers	Sleeping tablets, tranquilisers, sedatives or benzodiazepines, such as valium, mogadon, diazepam, temazepam (mazzies, vallies, moggies, jellies), serepax (serries) or rohypnol (rohies, barbs), for non-medical reasons.

¹⁰³ Australian Institute of Health and Welfare, (2017). Australian Institute of Health and Welfare (2017). *National Drug Strategy Household Survey 2016*
¹⁰⁴ Mackie, R. S., Tscharke, B. J., O'Brien, J. W., Choi, P. M., Gartner, C. E., Thomas, K. V., &

Mueller, J. F. (2019). Trends in nicotine consumption between 2010 and 2017 in an Australian city using the wastewater-based epidemiology approach. *Environment international*, 125, 184-190.

Categories of students	Tobacco use	Alcohol use	Other substances
Never used	Never smoked Did not have even a puff of a cigarette	Never drank alcohol. Did not have even a sip of an alcoholic drink in their lifetime	Never used the substance
Ever used	Ever smoked Had smoked at least a few puffs of a cigarette in their lifetime	Ever drank alcohol. Had consumed at least a few sips of an alcoholic drink in lifetime	Had used the substance in their lifetime
More than 100 cigarettes	Had smoked more than 100 cigarettes in their lifetime		
Past-year	Past year smokers had smoked in the past 12 months	Past year drinkers had consumed an alcoholic drink in the past 12 months	Had used the substance in the past year
Past-month	Past month smokers had smoked in the past four weeks	Past month drinkers had consumed an alcoholic drink in the past four weeks	Had used the substance in the four weeks before the survey date
Current, or past week	Current smokers had smoked on at least one of the seven days before the survey date (past week)	Current drinkers had consumed an alcoholic drink on at least one of the seven days before the survey (past week)	Had used the substance in the seven days before the survey date
Committed smokers	Committed smokers had smoked on at least three days of the past week		
Daily smokers	Daily smokers had smoked on every day of the week before the survey date		
Single occasion risky drinkers		Had consumed five or more alcoholic drinks on any day in the past week (at risk of short-term harm, according to the 2009 NHMRC drinking guidelines for adults)	
Regular use			Had used the substance 10 or more times in the past year

Table 18 Number of secondary school students aged 12 to 17 surveyed by sex and age, 1996-2017

Survey year	Sex	Age in years						Total
		12	13	14	15	16	17	
1996	Male	1,905	2,769	2,764	2,772	2,514	1,845	14,569
	Female	2,069	2,858	2,940	2,925	2,631	1,858	15,281
	Total	3,974	5,627	5,704	5,697	5,145	3,703	29,850
1999	Male	1,708	2,459	2,351	2,266	2,263	1,497	12,544
	Female	1,785	2,515	2,572	2,360	2,260	1,450	12,942
	Total	3,493	4,974	4,923	4,626	4,523	2,947	25,486
2002	Male	1,401	2,317	2,390	2,375	1,819	1,344	11,646
	Female	1,471	2,287	2,248	2,197	1,995	1,573	11,771
	Total	2,872	4,604	4,638	4,572	3,814	2,917	23,417
2005	Male	1,230	2,031	1,917	1,848	1,829	1,307	10,162
	Female	1,357	2,175	2,106	2,010	2,384	1,611	11,643
	Total	2,587	4,206	4,023	3,858	4,213	2,918	21,805
2008	Male	1,141	2,153	2,216	2,241	2,318	1,422	11,491
	Female	1,352	2,394	2,408	2,321	2,647	1,795	12,917
	Total	2,493	4,547	4,624	4,562	4,965	3,217	24,408
2011	Male	887	2,157	2,418	2,130	2,345	1,804	11,741
	Female	1,131	2,331	2,485	2,231	2,832	2,103	13,113
	Total	2,018	4,488	4,903	4,361	5,177	3,907	24,854
2014	Male	956	2,181	2,354	2,142	1,930	1,431	10,994
	Female	1,082	2,384	2,345	2,133	2,342	1,727	12,013
	Total	2,038	4,565	4,699	4,275	4,272	3,158	23,007
2017	Male	832	1,818	1,590	1,610	1,774	1,267	8,891
	Female	1,030	1,871	1,745	1,729	2,238	1,611	10,224
	Total	1,862	3,689	3,335	3,339	4,012	2,878	19,115

Confidence intervals

Table 19 95% confidence intervals* for prevalence estimates for ASSAD 2017 sample sizes sex and age

Sex	Age in years	n	Prevalence (%)				
			90	80	70	60	50
Male							
	12	832	±2.04	±2.72	±3.11	±3.33	±3.40
	13	1,818	±1.38	±1.84	±2.11	±2.25	±2.30
	14	1,590	±1.47	±1.97	±2.25	±2.41	±2.46
	15	1,610	±1.47	±1.95	±2.24	±2.39	±2.44
	16	1,774	±1.40	±1.86	±2.13	±2.28	±2.33
	17	1,267	±1.65	±2.20	±2.52	±2.70	±2.75
	12-17	8,891	±0.62	±0.83	±0.95	±1.02	±1.04
Female							
	12	1,030	±1.83	±2.44	±2.80	±2.99	±3.05
	13	1,871	±1.36	±1.81	±2.08	±2.22	±2.27
	14	1,745	±1.41	±1.88	±2.15	±2.30	±2.35
	15	1,729	±1.41	±1.89	±2.16	±2.31	±2.36
	16	2,238	±1.24	±1.66	±1.90	±2.03	±2.07
	17	1,611	±1.46	±1.95	±2.24	±2.39	±2.44
	12-17	10,224	±0.58	±0.78	±0.89	±0.95	±0.97

* 95% Confidence intervals = ±Margin of Error (MOE) = $\pm 1.96 \sqrt{\frac{\rho(1-\rho)}{n}}$.