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Aiken, Alexandra; Wadolowski, Monika; Bruno, Raimondo; Najman, Jakob; Kypri, Kypros; Slade, Tim; Hutchinson, Delyse; McBride, Nyanda; Mattick, Richard P.; "Cohort profile: The Australian Parental Supply of Alcohol Longitudinal Study (APSALS)". Published in International Journal of Epidemiology Vol. 46, Issue 2, number e6 (2017)

Available from: <http://dx.doi.org/10.1093/ije/dyv051>

This is a pre-copyedited, author-produced version of an article accepted for publication in International Journal of Epidemiology following peer review. The version of record Aiken, Alexandra; Wadolowski, Monika; Bruno, Raimondo; Najman, Jakob; Kypri, Kypros; Slade, Tim; Hutchinson, Delyse; McBride, Nyanda; Mattick, Richard P.; "Cohort profile: The Australian Parental Supply of Alcohol Longitudinal Study (APSALS)", International Journal of Epidemiology Vol. 46, Issue 2, number e6 (2017) is available online at: <http://dx.doi.org/10.1093/ije/dyv051>

Accessed from: <http://hdl.handle.net/1959.13/1332279>

Cohort profile:

The Australian Parental Supply of Alcohol Longitudinal Study (APSALS)

Summary

The Australian Parental Supply of Alcohol Longitudinal Study (APSALS) was established in 2010 to investigate the short- and long-term associations between exposure to early parental alcohol provision, early adolescent alcohol initiation, subsequent alcohol use, and alcohol-related harms, controlling for a wide range of parental, child, familial, peer, and contextual covariates. The cohort commenced with 1927 parent-child dyads comprised of Australian Grade 7 school students (mean age = 12.9 years, range = 10.8-15.7 years), and a parent/guardian. Baseline, one- and two-year follow-up data have been collected, with >90% retention, and a three-year follow-up is underway. The data collected include child, familial, parental, and peer factors addressing demographics, alcohol use and supply, parenting practices, other substance use, adolescent behaviours, and peer influences. The cohort is ideal for prospectively examining predictors of initiation and progression of alcohol use, which increases markedly through adolescence. Accessing to the dataset (email r.mattick@unsw.edu.au or a.aiken@unsw.edu.au) is dependent on some provisions, and IRB ethical approval.

Key Messages

- Results to date have highlighted the importance of distinguishing between sipping and drinking of full serves of alcohol in the measurement of adolescent alcohol use, as these represent distinct behaviours which occur in different environments.
- While rates of alcohol use are high amongst adolescents (baseline = 19.8%, one-year follow-up = 32.7%, and two-year follow-up = 39.8%), the majority of this consumption is sipping rather than consuming whole standard drinks.
- The rates of parental supply were high (baseline = 15.3%, one-year follow-up = 26.0%, and two-year follow-up = 34.6%), consistent with the view that parents are the main supplier of alcohol to their children.

Why was the cohort set up?

Harmful alcohol use is a leading cause of disease burden for young people in Australia and internationally (1). In 2010, 23% of 12 to 15-year-old Australians had consumed alcohol in the past year, increasing to 68% of 16 to 17-year-olds (2). Cross-sectional and prospective studies suggest that early age of initiation is associated with later drinking problems (3-5); yet other research has shown that these impacts are limited to adolescence (6) or that the relationship disappears once child, parent and contextual factors are taken into account (7).

The study focusses specifically on the role of parental supply of alcohol in the alcohol use trajectories of adolescents. Parents are one of the predominant sources of alcohol for adolescents (8-12). Many parents believe it is their responsibility to introduce their children to the consumption of alcohol (10, 13), and that doing so in supervised situations will reduce the likelihood of alcohol misuse (14). However, there is a critical lack of research examining the role of parents in trajectories of adolescent alcohol use, especially regarding parental

alcohol provision to children in early adolescence (8, 15). In examining the role of parental supply, control of covariates which have been shown to influence adolescent alcohol use is critical. The study aims to further investigate the context and predictors of alcohol use and alcohol-related harms amongst adolescents in Australia, and address the lack of clarity around the long-term impacts of early alcohol initiation (16).

Existing research has shown parental supply of alcohol increases the frequency of consumption by adolescents (17-21), however the findings concerning the quantity of consumption are mixed (22-25). Some studies find associations between parental supply and lower binge drinking (23, 26-28). Conversely, other studies have found that supply was associated with higher rates of binge drinking (19, 20, 29, 30). Existing studies are typically cross-sectional (9, 23, 29, 31), the few longitudinal studies have short follow-up periods, and do not examine the full range of contextual factors identified as protective and risk factors in adolescent alcohol use (8, 18, 20, 21, 30, 32-35). Parental and family factors (such as monitoring (32, 36), behaviour management (32, 37), parent-child relationships (36, 38), parental modelling of alcohol use (32, 36, 39), and parental/family alcohol problems (32, 40)), adolescent behaviours (7, 21), peer influences (7, 21) and demographic factors (41-44) have been shown to be associated with adolescent alcohol consumption; there are few, if any studies that have taken the full range of these into account in the context of parental supply (7, 18, 20, 21).

In light of the mixed evidence regarding the effects of parental supply and the need to develop a more comprehensive understanding of the determinants of adolescent alcohol use (45), the current cohort was established during 2010-2011 to investigate the long-term impacts of parental alcohol supply, and individual, family, peer and other contextual factors,

on early adolescent alcohol initiation and alcohol use trajectories. The research team hypothesised: that parental supply is associated with the progression (acceleration/deceleration) in adolescent drinking over time; that a number of important immediate and broader contextual factors mediate or moderate the relationship between parental supply and progression in adolescent drinking over time.

The planned analyses will model changes in drinking status (consumption of whole alcoholic beverages, heavy episodic drinking and alcohol-related harms), using regression and multi-level modelling approaches. Models will incorporate a broad range of moderating and mediating variables, both time variant (e.g., association with alcohol using peers) and time-invariant (e.g., sex). Initial sample size calculations indicated that a sample of 600 dyads would be adequate to detect medium effect size relationships. However, concerns regarding possible small cell sizes for less common outcomes resulted in a decision to increase the sample size approximately threefold above this initial target.

The cohort is led by the National Drug and Alcohol Research Centre at UNSW Australia, in collaboration with the Universities of Queensland, Newcastle, Tasmania and Curtin University. The study has been supported by the Australian Research Council (ARC) over 5 years (2010-2014), Australian Rotary Health (ARH) over 3 years (2011-2013) and the Foundation for Alcohol Research and Education (FARE) for 1 year (2011). The study is registered at ClinicalTrials.gov (identifier: NCT02280551), and reports are prepared according to the STROBE statement guidelines for cohort study findings (46).

Who is in the observational cohort?

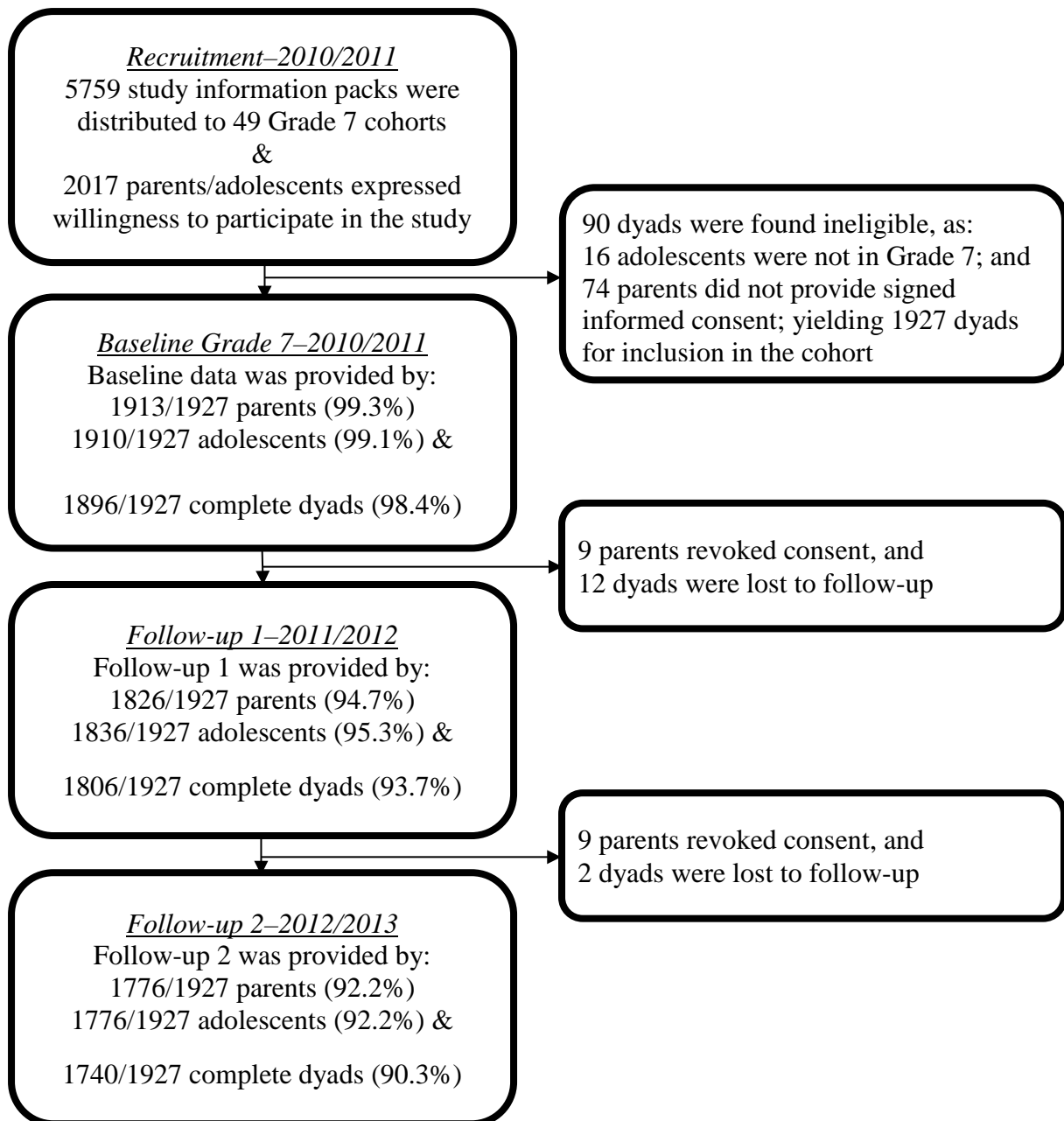
The cohort includes 1927 Australian adolescents born from 1996-1999 (mean age at baseline: 12.9 years), and a parent or guardian (typically the mother (in 86.3% of dyads; mean age at baseline: 43.9 years)). One hundred and seven Grade 7 cohorts were approached to assist in the recruitment: 49 (45.8%) agreed to participate (with 57% of government, 29% of catholic and 47% of independent schools approached, agreeing to participate). The participating Grade 7 cohorts were from government (39%), catholic (12%) and private independent (49%) schools in New South Wales (24%) (NSW), Western Australia (27%) (WA) and Tasmania (49%) (TAS). Schools elected to either: 1) distribute information packs by mail to parents directly; or 2) have members of the research team provide a brief presentation to students, distributing study information packs. The first option was selected by 65.3% of schools, with a return rate of 39.3% and the second option by 35.0% of schools, with a return rate of 22.1%. Return rates for individual schools ranged between 9.0% and 55.0%. Overall 5759 study information packs were distributed and 2017 parent-adolescent dyads (in 1977 families) expressed initial interest in the study (overall return rate of 35.0%). These rates are comparable to expectation in the context of the active informed consent (versus passive consent) method of school-based recruitment (47%).

After opting to receive information about the study, informed consent forms were sent to parents, and the Grade 7 students and parents were sent separate baseline and follow-up questionnaires to be completed independently of each other, either online or by mail (61.0% online at baseline). This separate independent reporting aimed to minimise reporting bias (especially by the children). Participants were eligible for inclusion if the adolescent was in Grade 7 at recruitment and if active parental signed informed consent was provided. Of 1977 families, there were 38 families with twins and one family with triplets. The parents of the

twins and triplets were asked to complete a separate survey about each child and each child completed their own survey, which resulted in an additional 40 dyads, taking the total number of dyads opting into the study to 2017. Of the 2017 dyads expressing willingness to opt into the study; 16 (0.8%) proved ineligible as the child was not in Grade 7 and 74 parents (3.7%) did not provide signed informed consent. These dyads were not included, resulting in a cohort of 1927 dyads (see Figure 1).

INSERT FIGURE 1 HERE

Figure 1. Time and study flow chart with participation rates from the APSALS cohort



No information about non-participants was gathered as researchers did not obtain contact details or information about the families until after recruitment, as required by the institutional review board. However, comparison with Australian population data from national data collections suggests the cohort was comparable with, though somewhat more advantaged than, the general population (see Table 1). Parents reported higher levels of education and employment compared with the general population, though the median weekly income was similar. Tasmania and Western Australia and independent and catholic schools

are overrepresented in the cohort. The predominance of students from non-government schools may have biased the cohort towards higher levels of advantage compared with the general population. Despite this, the similarity of the cohort to the Australian population on a range of demographic variables suggests such potential biases are not large.

INSERT TABLE 1 ABOUT HERE

Table 1: Baseline cohort demographics and comparison with Australian population data

Participating parent demographics	(n=1913 ^a)	Australian population data
Reporting parent is female	87.1% (95% CI: 85.52-88.53)	
Mean age (range)	43.9 (range: 22.8-70.1) (SD=5.4)	
Participating parent education		
School Certificate/Grade 10	12.3% (95% CI: 10.10-14.79)	In 2012, 67% of 25-64 year olds had a post-high school tertiary qualification, 35% with a non-degree qualification, 30% with a university degree (48).
High School Certificate/Grade 12	13.7% (95% CI: 11.43-16.34)	
Diploma, trade qualification	32.9% (95% CI: 29.68-36.37)	
University degree	40.5% (95% CI: 37.00-43.99)	
Participating parent employment status		
Employed (full- or part-time)	81.2% (95% CI: 79.37-82.87)	In 2010-11, 80% of males and 65% of females aged 20-74 were employed (49).
Unemployed	1.0% (95% CI: 0.07-1.62)	
Home duties	12.4% (95% CI: 10.99-13.94)	
Studying	2.3% (95% CI: 1.72-3.08)	
Retired or on a pension	1.6% (95% CI: 1.10-2.23)	
Unable to work	0.9% (95% CI: 0.06-1.49)	

Household income		
Up to \$34,999	8.6% (95% CI: 7.38-9.91)	In 2011, median weekly income of Australian households with children was \$2,310.00, which is equivalent to \$120,120 annually (50).
\$35,000-\$80,999	24.6% (95% CI: 22.70-26.57)	
\$81,000-180,999	48.8% (95% CI: 46.55-51.04)	
\$181,000 or more	18.1% (95% CI: 16.40-19.86)	
Participating parent country of origin		
Australia	73.8% (95% CI: 71.74-75.67)	In 2013, 72.3% of Australia’s population was born in Australia. People born in the United Kingdom and New Zealand made up the top two groups of overseas born residents (5.3% and 2.6%, respectively) (51).
United Kingdom	12.1% (95% CI: 10.75-13.67)	
New Zealand	3.3% (95% CI: 2.56-4.16)	
Africa	3.6% (95% CI: 2.88-4.57)	
Asia	3.4% (95% CI: 2.65-4.28)	
Europe	1.8% (95% CI: 1.26-2.46)	
Other	2.1% (95% CI: 1.52-2.82)	
Household composition, socioeconomic status, state of residence		
Two-parent household (including step-parent/blended families)	79.6% (95% CI: 77.70-81.31)	In 2010, 81% of families were two-parent families (52)
Mean number of children (SD)	2.6 (SD=1.1)	In 2011, the average number of children per family was 1.9 (53)
Mean <i>Index of Relative Socio-economic Advantage and Disadvantage</i> (IRSAD) Score (SD)	1023.5 (SD=80.3) Range = 807.3 -1213.9	IRSAD is standardized against a mean score of 1000, with a SD of 100 (54)
State of residence:		In 2013, 32.0% of the population lived in NSW, 2.2% in TAS, 10.9% in WA (55). Of 12-13 year olds in Australia, 32.0% reside in NSW, 10.9% in WA and 2.4% in TAS (56).
NSW	25.3% (95% CI: 23.42-27.30)	
TAS	42.2% (95% CI: 40.03-44.44)	
WA	32.2% (95% CI: 30.16-34.33)	
Other	0.26% (95% CI: 1.08-6.22)	
Child demographics	(n=1910 ^a)	

Child is female	44.9% (95% CI: 42.63-47.09)	In 2011, 48.7% of 12-13-year-olds were female; mean age was 12.5 years (56)
Mean age (range)	12.9 (10.8-15.7)	
School type:		In 2010, of school students,
Government	38.8% (95% CI: 26.43-52.75)	66% enrolled in government,
Catholic	12.2% (95% CI: 5.73-2.42)	20% in catholic, and
Independent	49.0% (95% CI: 35.58-62.53)	14% in independent schools (57)

Notes. a = while 1927 dyads are involved in the cohort, a number of either parents (n=14), or adolescents (n=17), did not return the baseline surveys.

How often have they been followed-up?

Follow-up of dyads occurs annually and to date, the baseline, 1-year, and 2-year follow-ups have been completed (Figure 1). Baseline questionnaire response rates were 99.3% for parents and 99.1% for adolescents; 1913 parents (mean (M) age=43.9 years, standard deviation (SD)=5.3) and 1910 adolescents (M age=12.9 years, SD=0.5) completed baseline surveys. This resulted in 1896 complete parent-child dyads and 31 dyads where only one member completed the baseline survey. The 31 dyads where only one member completed the baseline survey were included, resulting in a cohort of 1927 dyads. The parents or adolescents in these dyads who did not complete baseline were invited to complete follow-up surveys.

What is attrition like?

Attrition has been low over the first three waves of data collection (Figure 1). Thirty-two dyads withdrew or were lost to follow-up by the end of the second follow-up (21 at follow-up 1, 11 at follow-up 2), such that 1895 dyads (98.3% of the original cohort of 1927) remained involved in the study at the beginning of third follow-up. Parents from dyads who withdrew or were lost to follow-up were less likely to have a university education (17.2% vs 36.6%;

$\chi^2(1, N=1905)=4.61, p=0.03$), less likely to be working (81.5% vs 63.3%; $\chi^2(1, N=1912)=6.35$; $p=0.01$), and more likely to be in the lowest income bracket (30.0% vs 8.2%; $\chi^2(3, N=1903)=21.45, p<0.001$).

Families that dropped out were more likely to be single-parent households (53.1% vs 19.8%; $\chi^2(1, N=1927)=21.47, p<0.0001$), and have lower socio-economic status as indicated by their a lower Socio-Economic Indexes for Areas (SEIFA) score (mean score 984.4 vs 1024.1; $t_{1925}=2.78, p=0.01$). There were no differences in country of birth, religiosity, family size, parent sex, parent alcohol use, child alcohol use, parental alcohol supply, or child sex.

What has been measured?

Measures included at each survey wave are shown in Table 2, with additional information available in Appendix 1; most are taken or modified from existing measures. A subsample of parents (65.8% of the cohort) also consented to researchers accessing their child's Grade 7 and Grade 9 National Assessment Program – Literacy and Numeracy (NAPLAN) results, a national standardised literacy and numeracy test for students conducted in schools.

INSERT TABLE 2 ABOUT HERE

Table 2. Parent and adolescent measures at each survey point

Parent measures	Baseline	Follow-Up 1	Follow-Up 2
<i>Parent and household demographics</i>			
Birthdate, sex, employment, income, SEIFA	✓	✓	✓
Education, family size, older siblings, country of birth	✓		
Religiosity (23)	✓	✓	✓
<i>Parent/family factors</i>			
<i>Parental alcohol use</i>			
Age of first alcohol use (58)	✓	✓	✓
Quantity/frequency (Q/F) (58)	✓	✓	✓
Heavy episodic alcohol use – Q/F (58)	✓	✓	✓
Consumption of alcohol in front of child	✓	✓	✓
Alcohol harm minimisation (58)			✓
Partner alcohol use – Q/F, heavy episodic alcohol use – Q/F (58)		✓	✓
Family alcohol problems	✓		
<i>Supply of alcohol to adolescents</i>			
Parental – quantity/frequency, context/supervision (59)	✓	✓	✓
Non-parental – Q/F (59)	✓	✓	✓
Home access to alcohol (20)	✓	✓	✓
<i>Parenting practices</i>			
Consequences for child if s/he drinks alcohol (23)	✓	✓	✓
Positive family relations and conflict (60)	✓	✓	✓
Parental enforcement/consistency of rules (61)	✓	✓	✓
Parental monitoring of activities (62)	✓	✓	✓
Supervision of child's activities (63)	✓	✓	✓
Parents' alcohol norms (64)		✓	✓
Alcohol communication (65)		✓	✓
<i>Parental substance use</i>			
Tobacco		✓	✓
Illicit substance(s)			✓
<i>Adolescent behaviours</i>			
Parent perception of child's externalising and internalising behaviours and social problems (66)			✓
Parent perception of child's intention to use alcohol (20)		✓	✓
<i>Peer influences</i>			
Parent perception of peer alcohol use (67)	✓	✓	✓
Adolescent measures	Baseline	Follow-up 1	Follow-up 2

<i>Adolescent demographics</i>			
Age, sex, household composition, school Grade	✓	✓	✓
Available discretionary money	✓	✓	✓
<i>Adolescent alcohol use</i>			
Age of first alcohol use (58)	✓	✓	✓
Source of first alcohol (58)	✓	✓	✓
Parental supply – Q/F, supervision (59)	✓	✓	✓
Alcohol use – Q/F (59)	✓	✓	✓
Heavy episodic alcohol use – Q/F (59)	✓	✓	✓
Source and quantity of alcohol supplied (59)	✓	✓	✓
Context of alcohol supply and consumption (59)	✓	✓	✓
Effects of alcohol (7)	✓	✓	✓
Alcohol-related harms (59)	✓	✓	✓
Motivations for alcohol use (68)		✓	✓
Symptoms of DSM-IV alcohol abuse (69)		✓	✓
Intentions to use alcohol (20)		✓	✓
Alcohol use norms (64)		✓	✓
<i>Parent/family factors</i>			
<i>Adolescent report of parenting practices</i>			
Consequences for drinking alcohol (23)	✓	✓	✓
Parental alcohol-specific rules (70)	✓	✓	✓
Parental responsiveness/demandingness (71)	✓		
Parental monitoring of activities (62)	✓	✓	✓
<i>Peer influences</i>			
Peer substance use (67)	✓	✓	✓
Peer disapproval of alcohol use (67)	✓	✓	✓
<i>Adolescent behaviours</i>			
Adolescent externalising and internalising behaviours and social problems (66)	✓	✓	✓
Illicit substances – frequency			✓
Tobacco – frequency	✓	✓	✓
Energy drinks – Q/F			✓
<i>NAPLAN scores (for consenting students)</i>	✓		✓

What has it found?

A comparison of alcohol use across time points for parents and adolescents is presented in Table 3. These data indicate that the cohort was recruited prior to initiation of alcohol consumption (of a whole beverage) for all but 5.8% of the adolescents, creating a large cohort in whom to examine predictors of initiation and progression of alcohol use.

INSERT TABLE 3 ABOUT HERE

Table 3. Parent and adolescent report of alcohol use and parental supply of alcohol

<i>Parent alcohol use (parent report)</i>		Baseline n=1913		Follow-up 1 n=1826		Follow-up 2 n=1776	
		n	%	n	%	n	%
Used alcohol in past 12 months	None	132	6.9%	149	8.2%	147	8.3%
	Sip	67	3.5%	79	4.3%	97	5.5%
	Full serve	1714	89.6%	1598	87.5%	1532	86.3%
Frequency of use in past 12 months ^a	Never	201	10.5%	235	12.9%	242	13.6%
	< than monthly	261	13.6%	227	12.4%	230	13.0%
	Monthly	473	24.7%	459	25.1%	443	25.0%
	Weekly	929	48.6%	868	47.5%	816	46.0%
	Daily	49	2.6%	37	2.0%	45	2.5%
<i>Parental supply of alcohol to adolescent (parent report)</i>							
Supplied alcohol to child in past 12 months	None	1384	72.4%	1358	74.4%	1179	67.0%
	Sip	520	27.2%	437	23.9%	523	29.5%
	Full serve	9	0.5%	31	1.7%	74	4.2%
<i>Adolescent alcohol use (adolescent report)</i>		Baseline 12.9 years n=1910		Follow-up 1 13.9 years n=1836		Follow-up 2 14.8 years n=1776	
		n	%	n	%	n	%
Used alcohol in past 12 months	None	1531	80.2%	1235	67.2%	1070	60.3%
	Sip	268	14.0%	454	24.7%	437	24.6%
	Full serve	111	5.8%	147	8.0%	269	15.2%
Frequency of use in past 12 months ^b	Never	1531	80.2%	1241	67.6%	1096	61.7%
	< than monthly	279	14.6%	442	24.1%	506	28.5%
	Monthly	80	4.2%	121	6.6%	152	8.6%
	Weekly	20	1.1%	32	1.8%	20	1.1%
	Daily	0	0.0%	0	0.0%	2	0.1%
<i>Parental supply of alcohol (adolescent report)</i>							
Parent supplied alcohol to child in past 12 months	None	1618	84.7%	1358	74.0%	1290	65.4%
	Sip	264	13.8%	406	22.1%	359	20.0%
	Full serve	28	1.5%	72	3.9%	127	14.6%

Notes: a = some parents reporting only sipping alcohol, did not provide frequency data and are coded as “Never” in the Frequency data; b = there was also minor inconsistency between whether a child reportedly “Used alcohol” and their reported frequency at Follow-up 1 and 2.

Rates of parental drinking are similar those in the 2010 National Drug Strategy Household Survey (NDSHS), which is considered representative of the Australian population (2). At Follow-up 2 consumption of at least a full serve of alcohol, and frequency of consumption

were similar between the current study and the NDSHS, although only 2.5% of parents reporting daily use versus 7.7% in the NDSHS, with 46.0% versus 41.7% weekly use, 38.0% versus 33.0% less than weekly use and 13.6% versus 17.6% never using or only sipping in the past 12 months (2).

The rate of consumption for 12 to 15-year-olds in the 2010 NDSHS was somewhat higher than for the adolescents in the current study, with 22.8% reporting consuming a full serve of alcohol in the past year compared with 15.2% at Follow-up 2 in the current study (mean age=14.8 years). The 2010 NDSHS showed a decrease in the proportions of adolescents consuming alcohol since 2007, so it is possible that this decline has continued since 2010 (2, 72). Frequency of consumption was similar between adolescents in the current study and 12 to 17-year-olds in the 2010 NDSHS, with 0.1% versus 0.1% consuming daily, 1.1% versus 5.1% weekly, 37.1% versus 33.2% less than weekly and 61.7% versus 61.6% never in the past 12 months, for the most recent wave of the current study and NDSHS respectively (2). These comparisons suggest that the cohort population is broadly similar to the general Australian population in terms of alcohol consumption.

A number of publications based on baseline and first follow up data have been prepared. The first of these studies identified a possible cause of the wide variation in reports of adolescent alcohol use; suggesting that failing to distinguish between sipping and drinking of full serves of alcoholic beverages (which has frequently occurred in previous research e.g. (73, 74)) has substantial impacts on apparent rates of adolescent alcohol involvement (75). Much existing research is likely to be overestimating the extent of alcohol use by adolescents by not recognising that much of this use is limited to sipping. A second study examining predictors of sipping and drinking (full serves) of alcohol is currently being prepared, and is

investigating whether grouping ‘sippers’ and ‘drinkers’ together may have significant effects on the results of epidemiological studies. In addition to these, a range of publications are currently underway, investigating topics including the impacts of parental supply of alcohol on adolescent alcohol use, changes in patterns of youth alcohol use over time, influences on parental supply and adolescent alcohol use and outcomes of early alcohol initiation.

Publications and presentations will be listed on the study website as they become available:

<http://ndarc.med.unsw.edu.au/project/can-parents-teach-their-children-drink-alcohol-responsibly-or-one-drop-drop-too-many>.

What are the main strengths and weaknesses?

The longitudinal design and the early age of recruitment are strengths, with measurement beginning at, or before, the initiation of alcohol use, allowing investigation of the temporal order of initiation to alcohol use, development of risky drinking patterns and alcohol use disorders, accounting for covariates. Importantly, this cohort also distinguishes between sipping (having a sip or taste) and drinking (consumption of whole beverages), which to date, has been overlooked by many other studies (73, 76-78). A further strength is the separate reporting by parent and child. Specifically, to maintain separate independent reporting by the parent and adolescent, paper surveys were mailed separately to each individual adolescent and to each parent (with separate reply paid envelopes), and online surveys were emailed separately (except where separate email addresses for the parent and adolescent were unavailable, in which case separate email links for the adolescent and parent were provided to ensure separate reporting). This approach also allows exploration of relationships between father/mother and son/daughter dyad reporting and drinking.

Differential attrition is a threat to the validity of inferences from longitudinal studies. While there was evidence that those who dropped out or did not complete follow-up were different in a number of predictable ways from those who completed follow-up assessments, the overall retention of the sample was high. This can be attributed to rigorous follow-up procedures, supported by funding from competitive grants. The cohort is diverse demographically and in terms of alcohol use among parents and children. The large sample size will facilitate complex analyses regarding the developmental trajectories of alcohol use in relation to a range of parental, child and contextual factors. Utilisation of both parent- and child-report also differentiates this data from other longitudinal cohorts (7, 79-82).

Weaknesses include the low initial response rate of 34.3%. This is typical for school-based recruitment using active opt-in procedures in Australia, which are standard in Australia (47). However, aspects of self-selection may interact with variables of interest, thereby biasing estimates of association (83). Another issue is representativeness. Independent and Catholic school students were over-represented. Participants were also only recruited from three Australian states (NSW, TAS, WA) and those from TAS and WA are overrepresented in terms of the distribution of the Australian population (55). Participants were mostly from metropolitan or large regional centres, so the cohort is not representative of rural/remote populations. No information was collected about those who chose not to participate, as researchers had no contact with families until enrolment into the study.

Can I get hold of the data? Where can I find out more?

The cohort is managed by the National Drug and Alcohol Research Centre at UNSW Australia (see <http://ndarc.med.unsw.edu.au/project/can-parents-teach-their-children-drink-alcohol-responsibly-or-one-drop-drop-too-many>). Those interested in accessing data or

collaborating with the team should contact Richard P. Mattick (r.mattick@unsw.edu.au) or Alexandra Aiken (a.aiken@unsw.edu.au). The APSALS welcomes interest and offers of collaboration from colleagues, dependent on some provisions, and institutional review board (IRB) ethical approval. Generally, approval of a proposal depends upon the topic of interest, the degree of data access being sought, the availability of an agreed data analysis plan. If a topic is currently the subject of research/analysis, then a request for data access may be declined or else be subject to constraints. A memorandum of understanding will be developed to stipulate the conditions under which access is made available.

References

1. Begg S, Vos T, Barker B, Stevenson C, Stanley L, Lopez A. The burden of disease and injury in Australia 2003. Canberra: Australian Institute of Health & Welfare; 2007.
2. Australian Institute of Health & Welfare. 2010 National Drug Strategy Household Survey report. Canberra: Australian Institute of Health & Welfare; 2011.
3. Hingson R, Heeren T, Winter M. Age at drinking onset and alcohol dependence: Age at onset, duration and severity. *Arch Pediatr Adolesc Med* 2006;**160**:739-46.
4. Behrendt S, Wittchen H-U, Höfler M, Lieb R, Beesdo K. Transitions from first substance use to substance use disorders in adolescence: Is early onset associated with a rapid escalation? *Drug Alcohol Depend* 2009;**99**:68-78.
5. DeWit DJ, Adlaf EM, Offord DR, Ogborne AC. Age at first alcohol use: A risk factor for the development of alcohol disorders. *Am J Psychiatry* 2000 May;**157**:745-50.
6. Warner LA, White HR, Johnson V. Alcohol initiation experiences and family history of alcoholism as predictors of problem-drinking trajectories. *J Stud Alcohol Drugs* 2007;**68**:56-65.
7. Warner LA, White HR. Longitudinal effects of age at onset and first drinking situations on problem drinking. *Subst Use Misuse* 2003;**38**:1983-16.
8. Deans C, Vogl L, Dillon P, Teesson M, Hutchinson DM, Mason. Secondary supply of alcohol to minors by parents and adults acting in loco parentis: A literature review. Australian Government Department of Health and Ageing; 2008.
9. Gilligan C, Kypri K, Johnson N, Lynagh M, Love S. Parental supply of alcohol and adolescent risky drinking. *Drug Alcohol Rev* 2012;**31**:754-62.
10. Jackson C, Ennett ST, Dickinson DM, Bowling J. Letting children sip: Understanding why parents allow alcohol use by elementary school-aged children. *Arch Pediatr Adolesc Med* 2012;**166**:1053-57.
11. Henderson H, Nass L, Payne C, Phelps A, Ryley A. Smoking, drinking and drug use among young people in England in 2012. London: NHS Information Centre for Health & Social Care; 2013.
12. van der Vorst H, Engels R, Burk W. Do parents and best friends influence the normative increase in adolescents' alcohol use at home and outside the home? *J Stud Alcohol Drugs* 2010; **71**:105-14.
13. Taylor J, Carroll T. Youth alcohol consumption: Experiences and expectations. In: Williams PS, editor. Alcohol, young persons and violence, Research and Public Policy Series No 35. Canberra: Australian Institute of Criminology; 2001.
14. Ward BM, Snow PC. Factors affecting parental supply of alcohol to underage adolescents. *Drug Alcohol Rev* 2011;**30**:338-43.
15. Kypri K, Dean J, Stojanovski E. Parent attitudes on the supply of alcohol to minors. *Drug Alcohol Rev* 2007;**26**:41-7.
16. Maimaris W, McCambridge J. Age of first drinking and adult alcohol problems: systematic review of prospective cohort studies. *J Epidemiol Community Health* 2014;**68**:268-74.
17. Fisher SL, Bucholz KK, W. R, Fox L, Kuperman S, Kramer J, et al. Teenagers are right-- parents do not know much: An analysis of adolescent-parent agreement on reports of adolescent substance use, abuse, and dependence. *Alcohol Clin Exp Res* 2006;**30**:1699-10.
18. Jackson C, Henriksen L, Dickinson DM. Alcohol-specific socialization, parenting behaviors and alcohol use by children. *J Stud Alcohol Drugs* 1999;**60**:362-67.
19. Lundborg P. Young people and alcohol: an econometric analysis. *Addiction* 2002;**97**:1573-82.

20. Komro KA, Maldonado-Molina MM, Tobler AL, Bonds JR, Muller KE. Effects of home access and availability of alcohol on young adolescents' alcohol use. *Addiction* 2007;**102**:1597-08.
21. Kaynak O, Winters KC, Cacciola J, Kirby K, Arria AM. Providing alcohol for underage youth: What messages should we be sending parents? *J Stud Alcohol Drugs* 2014;**75**:590-05.
22. White V, Hayman J. Australian secondary school students' use of alcohol in 2005. Melbourne: The Cancer Council Victoria; 2006.
23. Foley KL, Altman D, Durant RH, Wolfson M. Adults' approval and adolescents' alcohol use. *J Adolesc Health* 2004;**35**:345.e17-26.
24. van der Vorst H, Engels RCME, Meeus W, Dekovic M. The impact of alcohol-specific rules, parental norms about early drinking and parental alcohol use on adolescents' drinking behavior. *J Child Psychol Psyc* 2006;**47**:1299-06.
25. Yu J. The association between parental alcohol-related behaviors and children's drinking. *Drug Alcohol Depend* 2003;**69**:253-62.
26. King E, Taylor J, Carroll T. Alcohol consumption patterns among Australian 15-17 year olds from 2000 to 2004. Research Marketing Group; 2005.
27. Wagenaar AC, Toomey TL, Murray DM, Short BJ, Wolfson M, Jones-Webb R. Sources of alcohol for underage drinkers. *J Stud Alcohol Drugs* 1996;**57**:325-33.
28. Cagney P, Palmer S. The sale and supply of alcohol to under 18 year olds in New Zealand: A systematic overview of international and New Zealand literature. The Alcohol Advisory Council of New Zealand; 2007.
29. Lundborg P. Parents' willingness to provide alcohol and adolescents' alcohol use – Evidence from Swedish data. *Vulnerable Children and Youth Studies* 2007;**2**:60-70.
30. McMorris BJ, Catalano RF, Kim MJ, Toumbourou JW, Hemphill SA. Influence of family factors and supervised alcohol use on adolescent alcohol use and harms: similarities between youth in different alcohol policy contexts. *J Stud Alcohol Drugs* 2011;**72**:418-28.
31. Jackson C. Initial and experimental stages of tobacco and alcohol use during late childhood: Relation to peer, parent, and personal risk factors. *Addict Behav* 1997;**22**:685-98.
32. Hayes L, Smart D, Toumbourou J, Sanson A. Parenting influences on adolescent alcohol use. Melbourne: Department of Health and Ageing, Institute of Family Studies; 2004.
33. Shortt AL, Shortt AL, Hutchinson DM, Shortt AL, Hutchinson DM, Chapman R, et al. Family, school, peer and individual influences on early adolescent alcohol use: first-year impact of the Resilient Families programme. *Drug Alcohol Rev* 2007;**26**:625-34.
34. Danielsson A-K, Romelsjo A, Tengstrom A. Heavy episodic drinking in early adolescence: gender-specific risk and protective factors. *Subst Use Misuse* 2011;**46**:633-43.
35. Hawkins JD, RF C, JY M. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychol Bull* 1992;**112**:64-105.
36. Ryan SM, Jorm AF, Lubman DI. Parenting factors associated with reduced adolescent alcohol use: a systematic review of longitudinal studies. *Aust N Z J Psychiatry* 2010;**44**:774-83.
37. Jackson C. Perceived legitimacy of parental authority and tobacco and alcohol use during early adolescence. *J Adolesc Health* 2002;**31**:425-32.

38. Kelly AB, Toumbourou J, O'Flaherty M, Patton GC, Homel R, Connor JP, et al. Family relationship quality and early alcohol use: Evidence for gender-specific risk processes. *J Stud Alcohol Drugs* 2011;**72**:399-07.
39. Gilligan G, Toumbourou J, McElduff P, Kypri K. Factors associated with parental rules for adolescent alcohol use. *Subst Use Misuse* 2014;**49**:145-53.
40. Capone C, Wood MD. Density of familial alcoholism and its effects on alcohol use and problems in college students. *Alcohol Clin Exp Res* 2008;**32**:1451-58.
41. Alati R, Maloney E, Hutchinson DM, Najman JM, Mattick RP, Bor W, et al. Do maternal parenting practices predict problematic patterns of adolescent alcohol consumption? *Addiction* 2010;**105**:872-80.
42. Donovan JE, Molina BSG. Childhood risk factors for early-onset drinking. *J Stud Alcohol Drugs* 2011;**72**:741-51.
43. Fisher LB, Miles I, Austin S, Camargo CA, Colditz Jr GA. Predictors of initiation of alcohol use among US adolescents: Findings from a prospective cohort study. *Arch Pediatr Adolesc Med* 2007;**161**:959-66.
44. Swendsen J, Burstein M, Case B, Conway KP, Dierker L, He J, et al. Use and abuse of alcohol and illicit drugs in US adolescents: Results of the National Comorbidity Survey–Adolescent Supplement. *Arch Gen Psychiatry* 2012;**69**:390-98.
45. Gilligan C, Kypri K, Lubman D. Changing parental behaviour to reduce risky drinking among adolescents: current evidence and future directions. *Alcohol Alcohol* 2012;**47**:349-54.
46. von Elm E, Altman D, Egger M, Pocock S, Gøtzsche P, Vandenbroucke J, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: Guidelines for reporting observational studies. *Lancet* 2007;**370**:1453-57.
47. Wolfenden L, Kypri K, Freund M, Hodder R. Obtaining active parental consent for school-based research: A guide for researchers. *Aust N Z J Public Health* 2009;**33**:270-75.
48. Australian Bureau of Statistics. Education and work, Australia: additional data cubes, May 2012. ABS cat. no. 6227.0.55.003. Canberra: Australian Bureau of Statistics; 2012.
49. Australian Bureau of Statistics. 4125.0 - Gender Indicators, Australia. Canberra: Australian Bureau of Statistics; 2012
50. Australian Bureau of Statistics. 2011 Census QuickStats - Families Canberra: Australian Bureau of Statistics; 2013. Available from: http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/0?opendocument&navpos=220.
51. Australian Bureau of Statistics. 3412.0 - Migration. Canberra: Australian Bureau of Statistics; 2013.
52. Australian Bureau of Statistics. 4442.0 - Family Characteristics Australia June 2009-10. Canberra: Australian Bureau of Statistics; 2011.
53. Australian Bureau of Statistics. 2011 Census QuickStats Canberra: Australian Bureau of Statistics,; 2013.
54. Pink B. Socio-Economic Indexes for Areas (SEIFA) - Technical paper, 2006. Canberra: Australian Bureau of Statistics; 2008.
55. Australian Bureau of Statistics. 3101.0 - Australian Demographic Statistics. Canberra: Australian Bureau of Statistics; 2013.
56. Australian Bureau of Statistics. Australian demographic statistics, June quarter 2012: Australian demographic statistics tables. Australian Bureau of Statistics; 2012.
57. Australian Bureau of Statistics. 4221.0 - Schools, Australia. Canberra: Australian Bureau of Statistics; 2011.

58. Australian Institute of Health & Welfare. 2007 National Drug Strategy Household Survey: Detailed Findings. Canberra: Australian Institute of Health & Welfare; 2008.
59. McBride N, Farrington F, Meuleners L, Midford R. The School Health & Alcohol Harm Reduction Project: Details of intervention development & research procedures. Perth: National Drug Research Institute; 2006.
60. Ary DV, Duncan TE, Duncan SC, Hops H. Adolescent problem behavior: The influence of parents and peers. *Behav Res Ther* 1999;**37**:217-30.
61. Stice E, Barrera Jr M, Chassin L. Prospective differential prediction of adolescent alcohol use and problem use: Examining the mechanisms of effect. *J Abnorm Psychol* 1998;**107**:616-28.
62. Small SA, Kerns D. Parental monitoring, family structure and adolescent substance use. *J Marriage Fam* 1991;**55**:941-52.
63. Patterson GR, Stouthamer-Loeber M. The correlation of family management practices and delinquency. *Child Dev* 1984;**55**:1299-07.
64. Brody GH, Flor DL, Hollett-Wright N, McCoy JK, Donovan J. Parent-child relationships, child temperament profiles and children's alcohol use norms. *J Stud Alcohol Drugs* 1999;**Supp 13**:45-51.
65. Ennett ST, Bauman KE, Foshee VA, Pemberton M, Hicks KA. Parent-child communication about adolescent tobacco and alcohol use: What do parents say and does it affect youth behavior? *J Marriage Fam* 2001;**63**:48-62.
66. Achenbach TM. Manual for the youth self-report and 1991 profile. Burlington: University of Vermont; 1991.
67. Johnston LD, O'Malley PM, Bachman JG, Schulenberg JE. Monitoring the Future national survey results on drug use, 1975-2009: Volume I, secondary school students. Bethesda, MD: National Institute on Drug Abuse; 2010.
68. Cooper ML. Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychol Assess* 1994;**6**:117-28.
69. Shaffer D, Fisher P, Lucas CP, Dulcan MK, Schwab-Stone ME. NIMH Diagnostic Interview Schedule for Children Version IV (NIMH DISC-IV): Description, differences From previous versions, and reliability of some common diagnoses. *J Am Acad Child Adolesc Psychiatry* 2000;**39**:28-38.
70. van der Vorst H, Engels R, Meeus W, Dekovic M, Van Leeuwe J. The role of alcohol-specific socialization in adolescents' drinking behaviour. *Addiction* 2005;**100**:1464-76.
71. Jackson C, Henrikson L, Foshee VA. The Authoritative Parenting Index: Predicting health risk behaviors among children and adolescents. *Health Educ Behav* 1998;**25**:319-37.
72. Livingston M, Matthews S, Barratt M, Lloyd B, Room R. Diverging trends in alcohol consumption and alcohol related harm in Victoria. *Aust N Z J Public Health* 2010;**34**:368-73.
73. White V, Bariola E. Australian secondary school students' use of tobacco, alcohol, and over-the-counter and illicit substances in 2011. Melbourne, Victoria: Cancer Council Victoria; 2012.
74. Hibell B, Guttormsson U, Ahlstrom S, Balakireva O, Bjarnason T, Kokkevi A, et al. The 2011 ESPAD report: Substance use among students in 36 European countries. Stockholm: The Swedish Council for Information on Alcohol & Other Drugs (CAN); 2012.
75. Wadolowski M, Bruno R, Aiken A, Stone C, Najman JM, Kypri K, et al. Sipping, drinking, and early adolescent alcohol consumption: A cautionary note. *Alcohol Clin Exp Res* 2015;**39**:350-54.

76. Wadolowski M, Bucello C, Aiken A, Mattick RP, Slade T, Najman JM, et al. Young and not so drunk: Adolescent alcohol consumption rates are not what we think they are. The 14th International Congress of the International Federation of Psychiatric Epidemiology; Leipzig, Germany. 2013.
77. Bachman JG, Johnston LD, O'Malley PM. Monitoring the Future: Questionnaire responses from the nation's high school seniors 2010. Ann Arbor: Institute for Social Research, University of Michigan; 2011.
78. LeBaron P, Dean E. 2012 national survey on drug use and health - CAI specifications for programming, English version. Rockville, MD: Substance Abuse & Mental Health Services Administration - Office of Applied Studies; 2011.
79. Pedersen W, Skrandal A. Alcohol consumption debut: predictors and consequences. *J Stud Alcohol Drugs* 1998;**59**:32-42.
80. Guttmannova K, Bailey JA, Hill KG, Lee JO, Hawkins J, Woods M, et al. Sensitive periods for adolescent alcohol use initiation: Predicting the lifetime occurrence and chronicity of alcohol problems in adulthood. *J Stud Alcohol Drugs* 2011 Mar;**72**:221-31.
81. Guttmannova K, Hill KG, Bailey JA, Lee JO, Hartigan LA, Hawkins J, et al. Examining explanatory mechanisms of the effects of early alcohol use on young adult alcohol dependence. *J Stud Alcohol Drugs* 2012 May;**73**:379-90.
82. Rossow I, Kuntsche E. Early onset of drinking and risk of heavy drinking in young adulthood-a 13-year prospective study. *Alcohol Clin Exp Res* 2013;**37**:E297-04.
83. Rothman K, Greenland S. Modern Epidemiology (2nd). Philadelphia: Lippincott-Raven Publishers; 1998.