Online supplement:

*Covariate factors*

As described in the main paper, 21covariate factors were included in the analyses, on the basis that they were: a) used in a prior analysis of the age of first alcohol use in the CHDS cohort (1); or b) have been found to be related to substance use outcomes in other studies of the CHDS cohort (2-7).

These included:

*Measures of family socio-economic and demographic background*

* *Maternal age*. Assessed at the time of the survey child’s birth.
* *Family living standards (0-10 years).* At each year a global assessment of the material living standards of the family was obtained by means of an interviewer rating.
* *Maternal and paternal education.* Parental education level was assessed at the time of the survey child’s birth reflecting the highest level of educational achievement attained.
* *Family socioeconomic status (SES).* Family SES was assessed at the time of the survey child’s birth using the Elley-Irving (8) scale of socio-economic status for New Zealand.
* *Averaged family income (0–10 years).* At each year, estimates of the family’s gross annual income were obtained from parental report and were recoded into decile categories.
* *Maori ethnicity (at birth).* Maori ethnicity was assessed at the time of the cohort member’s birth.

*Individual, personality and behavioural factors*

* *Gender*. Recorded at birth.
* *Child conduct problems (7–9 years).* When sample members were aged 7–9 years, information on child behaviour problems was obtained from parental and teacher report using a behaviour questionnaire combining items from the Rutter et al. (9) and Conners (10) parental questionnaires. (α = .97).
* *Neuroticism (age 14).* This was assessed using a short form version of the Neuroticism scale of the Eysenck Personality Inventory (11) at age 14. (α = .80).
* *Novelty-seeking (age 16).* Novelty-seeking was assessed at age 16 using the novelty seeking items from the Tridimensional Personality Questionnaire (12), (α =.76).

*Family functioning, parental behaviour and abuse exposure measures*

* *Parental illicit drug use (0–11 years).* At age 11, parents were questioned regarding their history of illicit drug use. The cohort member was classified as having a parent history of illicit drug use if one of his/her parents was reported to have a history of illicit drug use.
* *Parental alcohol problems (0–15 years).* This was assessed at age 15 years via parental report. These reports were used to form a dichotomous measure of whether or not the young person’s parents reported experiencing problems with alcohol.
* *Parental criminality (0–15 years).* At age 15 years, parents were questioned as to whether any parent had a history of criminal offending. The cohort member was classified as having a parent history of criminality if one of his/her parents was reported to have a history of offending.
* *Parental alcohol consumption.* At age 11, parents were asked how many alcoholic drinks they would normally consume in a week and how many they had consumed in the past week. These measures were combined to form a measure of the parents’ typical weekly alcohol consumption.
* *Parental approval of adolescent drinking.* At age 15 years, cohort members were asked to describe their parent's views about adolescent alcohol consumption on a five-point scale ranging from strongly opposed to unconcerned.
* *Parental attitudes to alcohol use*. At age 15 years, cohort members were asked to rate their parents attitudes toward alcohol use in general on six three-point scales reflecting both their parent's use of alcohol and attitudes to alcohol use.
* *Changes of parents (to age 15 years*). At each assessment from birth to 15 years, information was gathered on changes in the cohort member’s family situation since the previous assessment. Using this information an overall measure of family instability was constructed up to age 15.
* *Parental attachment (age 15).* This was assessed using the parental attachment scale developed by Armsden and Greenberg (13) and administered when sample members were aged 15. The full parental attachment scale was used in this analysis and was found to have good reliability (α = 0.87).
* *Family adversity (to age 15).* Family adversity was assessed using a series of 39 measures pertaining to family social and economic disadvantage, parental adjustment, and indicators of impaired childbearing and parenting. These measures were combined to create a scale score representing overall exposure to adversity in the family environment (α = .90).
* *Exposure to harsh/abusive physical punishment (childhood physical abuse; 0–16 years).* At ages 18 and 21 sample members were asked to describe the extent to which their parents used physical punishment during childhood (14). This information was used to create a four-level scale reflecting the most severe form of physical punishment reported for either parent.
* *Childhood sexual abuse (0-16 years).* At ages 18 and 21 years sample members were questioned about their experience of sexual abuse during childhood (<16 years) (15). Questioning spanned an array of abusive experiences from episodes involving non-contact abuse (e.g. indecent exposure) to episodes involving attempted or completed intercourse. A four-level scale was devised reflecting the most extreme form of sexual abuse reported by the young person at either age. For the purposes of the present analyses, those cohort members who reported having been exposed to penetrative sexual abuse were classified using a dichotomous measure.
* *Parental intimate partner violence (0–16 years).* At age 18, sample members were questioned concerning their experience of parental intimate partner violence during their childhood (prior to age 17 years). The questioning was based on a series of eight items derived from the Conflict Tactics Scale (16).

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