

## Online supplement

### Covariate factors

#### Family socioeconomic status

The socioeconomic status of the participant's family was measured at birth using the Elley–Irving scale of socioeconomic status,<sup>28</sup> which classifies socioeconomic status on a six-level scale according to paternal occupation. For simplicity, this scale was condensed to a three-level scale where 1 was professional/managerial, 2 was clerical/technical/skilled and 3 was semi-skilled/unskilled/unemployed.

#### Maternal age

Maternal age was the age of a participant's mother at the time of the participant's birth, in years. The mean age was 25.8 (s.d. = 4.9).

#### Maternal educational achievement

The highest level of educational achievement of a participant's mother at the time of the participant's birth was recorded on a three-point scale where 1 was 'no qualifications', 2 was 'high school qualifications', and 3 was 'tertiary qualifications'.

#### Exposure to childhood adversity

Exposure to childhood adversity was calculated using a count measure of 39 different measures of family disadvantage during the period 0–15 years, including measures of disadvantaged parental background, poor prenatal health practices and perinatal outcomes, and disadvantageous child-rearing practices.<sup>29</sup>

#### Family living standards

A measure of family living standards was obtained from interviewer ratings given at each interview from birth to age 10. This scale ranged from 1 (very good) to 5 (very poor).<sup>30</sup> Ratings from birth to age 10 were averaged to provide an overall measure of family living standards over the period from birth to age 10.

#### Parental changes

At annual intervals until participants were aged 15, data were collected on parental changes resulting from parental separation/divorce, death, remarriage or marital reconciliation.<sup>31</sup> This information was used to construct a variable representing the total number of changes of a parent a participant experienced from birth to age 15.

#### Childhood physical punishment

At ages 18 and 21 participants were questioned about the extent to which their parents had used physical punishment during the participant's childhood (before age 16). This information was used to construct a four-level scale representing the most extreme form of physical punishment reported at either age 18 or age 21: parents never used physical punishment; parents rarely used physical punishment; at least one parent used physical punishment regularly; at least one parent used physical punishment too often or severely or treated the participant in a harsh or abusive manner.<sup>32</sup>

#### Childhood sexual abuse

At ages 18 and 21, participants were questioned about their exposure to sexual abuse during childhood (before age 16). This information was used to construct a four-level scale representing

the most extreme form of sexual abuse reported by the participant at either age 18 or age 21: no abuse; non-contact abuse only; contact abuse not involving attempted or completed intercourse; attempted/completed oral, anal or vaginal intercourse.<sup>33</sup>

#### IQ

At ages 8 and 9, participants were assessed with the Wechsler Intelligence Scale for Children – Revised (WISC–R).<sup>20</sup> The measure used in the present analysis is based on the average of the total IQ scores at ages 8 and 9. IQ scores were calculated using the methods described in the test manual and had reliability (calculated using the split-half method) of 0.95.

#### Age left secondary school

Information from the 13, 14, 15, 16, 18 and 21 year interviews was used to determine the age, in years, at which participants left secondary school.

#### Test of Scholastic Abilities

At age 13 participants completed the Test of Scholastic Abilities (TOSCA),<sup>21</sup> which measures the extent to which students possess the verbal and numerical reasoning abilities required for success at high school. The test was scored according to the instructions in the test manual and had reliability of  $\alpha = 0.95$ .

#### Teacher-rated academic performance

At ages 11, 12 and 13, participants' school teachers were asked to rate the participant's performance in reading, handwriting, written expression, spelling and mathematics using a five-point scale ranging from very good to very poor. Ratings were averaged across years and curriculum areas to provide a global measure of academic performance. This measure had a reliability of  $\alpha = 0.96$ .

#### Gender

A participant's gender was determined by the gender reported at the birth interview.

#### Mother-rated conduct problems

When participants were aged 16, their mothers were asked a series of questions about participants' behaviour based on items from the Revised Behaviour Problems Checklist.<sup>34</sup> Responses to these questions were summed to provide an overall measure of conduct problems at age 16. This scale had a reliability of  $\alpha = 0.86$ .

#### Neuroticism

At age 14, participants completed a short-form version of the neuroticism scale of the Eysenck Personality Inventory.<sup>35</sup> This measure had a reliability of  $\alpha = 0.80$ .

#### Deviant peer affiliations

At age 15, participants were questioned about the extent to which their friends were involved in deviant behaviours including substance use, criminal offending and other behaviours.<sup>36</sup> These items were summed to provide an overall measure of deviant peer affiliations.

## Additional references

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**Table DS1** Associations between psychiatric disorder during young adulthood and a series of covariate factors

Covariates	Number of psychiatric disorders, age 18–25				$\chi^2$	P
	0 (n = 488)	1 (n = 223)	2–3 (n = 214)	4+ (n = 53)		
Family background, %						
Semi-skilled/unskilled socioeconomic level	22.3	25.6	22.9	39.6	8.23	0.04
Mother younger than 20 at participant's birth	5.9	9.0	13.1	11.3	10.51	0.02
Mother lacked formal educational qualifications	47.5	52.0	47.2	56.6	2.73	0.43
Highest decile of exposure to childhood adversity (0–15 years)	5.9	9.8	11.9	15.7	10.87	0.02
Lowest quartile of family living standards	17.4	25.7	26.3	32.1	13.13	0.004
Two or more parental changes by age 15	20.5	30.0	31.3	43.4	20.88	<0.001
Exposed to regular or severe physical punishment in childhood (0–16 years)	13.9	13.9	24.3	41.5	34.00	<0.001
Exposed to contact sexual abuse in childhood (0–16 years)	4.5	12.6	21.0	37.7	77.05	<0.001
Academic ability, %						
WISC-R total IQ less than 84 (8–9 years)	7.7	11.4	6.6	4.8	3.73	0.29
Left school before age 16	1.7	5.5	4.9	10.0	13.93	0.003
TOSCA score less than 14	8.8	11.1	5.8	5.3	3.25	0.35
Lowest decile of teacher-rated academic performance	12.5	12.4	12.7	10.0	0.29	0.96
Individual characteristics, %						
Female	46.1	52.9	28.4	67.9	15.68	0.002
Highest decile of mother-rated conduct problems	5.7	9.8	11.3	25.0	23.04	<0.001
Highest decile of neuroticism	5.3	5.9	13.6	25.0	31.62	<0.001
Highest decile of deviant peer affiliations	4.0	11.3	11.7	21.3	26.86	<0.001

WISC-R, Wechsler Intelligence Scale for Children – Revised; TOSCA, Test of Scholastic Ability.

**Table DS2** Covariate-adjusted associations between individual psychiatric disorders and life outcomes at age 30

	Depression		Anxiety disorders		Substance dependence	
	B (s.e)	P	B (s.e)	P	B (s.e)	P
Workforce participation						
Working in paid employment	–0.58 (0.13)	<0.001	–0.25 (0.15)	0.16	–0.72 (0.16)	<0.001
Working in full-time employment	–0.38 (0.14)	0.008	–0.36 (0.14)	0.02	–0.44 (0.16)	0.006
Hours worked per week	–2.61 (0.99)	0.009	–2.47 (1.17)	0.04	–4.31 (1.32)	0.002
Income and living standards						
Welfare dependence	0.67 (0.20)	<0.001	0.68 (0.22)	0.002	0.72 (0.25)	0.005
Total net weekly personal income, \$NZ	–64.72 (36.28)	0.08	–68.59 (43.25)	0.11	–81.79 (41.45)	0.09
Owning a home	–0.30 (0.11)	0.003	–0.13 (0.13)	0.30	–0.31 (0.14)	0.03
Economic living standards index	–1.13 (0.27)	<0.001	–1.34 (0.28)	<0.001	–0.85 (0.35)	0.02
Educational achievement						
Attained university degree	–0.19 (0.17)	0.26	–0.16 (0.22)	0.45	–0.63 (0.29)	0.03
Attained any tertiary qualification	–0.15 (0.14)	0.28	–0.17 (0.16)	0.27	–0.16 (0.17)	0.33
Overall highest educational achievement	–0.07 (0.09)	0.43	0.13 (0.11)	0.22	–0.03 (0.13)	0.79