The Longitudinal Study of Australian Children

Prosocial behaviours and the impact on mental health

Supplementary materials

May 2023

MEASURES

Child mental health

Emotional symptoms

Mental health was measured in the LSAC B cohort study children at Waves 3 (age 4–5 years, 2008) to 8 (age 14–15 years, 2018) and K cohort study children at Waves 1 (age 4–5 years, 2004) to 7 (age 16–17 years, 2016) using parent responses to the emotional symptoms subscale of the Strengths and Difficulties Questionnaire (SDQ).[1] This subscale contains five items asking parents to rate their child when thinking about the last six months or this school year:

- Often complains of headaches, stomach-aches or sickness
- Many worries or often seems worried
- Often unhappy, depressed or tearful
- Nervous in new situations, easily loses confidence
- Many fears, easily scared.

Response options were 0 'not true', 1 'somewhat true' or 2 'certainly true'. Total scores ranged from 0 to 10, with higher scores indicating higher levels of emotional symptoms. Scores of 4 or higher on this scale were designated as indicative of possible clinical problems.[2]

Prosocial behaviours towards others

Prosocial behaviours were measured in the LSAC B cohort study children at Waves 3 (age 4–5 years, 2008) to 8 (age 14–15 years, 2018) and K cohort study children at Waves 1 (age 4–5 years, 2004) to 7 (age 16–17 years, 2016) using parent responses to the prosocial behaviour subscale of the Strengths and Difficulties Questionnaire (SDQ).[3] This subscale contains five items asking parents to rate their child when thinking about the last six months or this school year:

- Considerate of other people's feelings
- Shares readily with others
- Helpful if someone is feeling hurt, upset or ill
- Kind to younger children
- Often volunteers to help others (parents, teachers, other children).

1 Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *38*, 581–586. doi.org/10.1111/j.1469-7610.1997.tb01545.x

2 Australian Mental Health Outcomes and Classification Network (AMHOCN). (2005). *Strengths and Difficulties Questionnaire: Training manual*. Parramatta, NSW: AMHOCN

3 Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *38*, 581–586. doi.org/10.1111/j.1469-7610.1997.tb01545.x

Response options were 0 'not true', 1 'somewhat true' or 2 'certainly true'. Total scores ranged from 0 to 10, with higher scores indicating higher levels of prosocial behaviour. Scores of 5 or lower on this scale were designated as indicative of possible clinical problems.

Volunteering

Volunteering activities were measured in LSAC B cohort study children at age 12–13 years (Wave 7; 2016) by asking them to indicate whether or not, in the last 12 months, they did any unpaid work for any of the following types of organisations (yes or no):[4]

- Church or religious groups
- Community or welfare organisations (e.g. Clean Up Australia, The Smith Family)
- School and children's groups (e.g. canteen, teacher's aide, play group, child care)
- Sport and recreation (e.g. coaching, refereeing)
- Arts, heritage, cultural or music activities (e.g. museum)
- Youth, student service, mentoring, leadership or adventure (e.g. scouts)
- Environment (e.g. conservation)
- Animal welfare (e.g. RSPCA)
- Emergency services (e.g. firefighting, search and rescue)
- Health or health care (e.g. volunteering in a hospital or clinic)
- Teaching or training (e.g. TAFE, community college, adult education classes)
- Immigrant or refugee assistance
- International aid or development (e.g. Oxfam)
- Law, justice, political or human rights (e.g. Amnesty International)
- Business or professional associations or unions
- Ethnic and ethnic-Australian societies
- Other

A variable for any volunteering was generated from responses to the above, scored 0 ('no' to all of the above) or 1 ('yes' to any of the above).

In Waves 2–6, resident mothers and fathers were asked 'Do you participate in any ongoing community service activity?' ('yes' or 'no').

4 Adapted from Australian Bureau of Statistics. (2011). *General Social Survey: User guide, Australia, 2010. Paper questionnaire (Cat. no. 4159.0.55.002)*. Canberra: ABS. Retrieved from www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4159.0.55.0022010

CONTROL MEASURES

Age

A piecewise model was used to examine age (the time variable) in the growth models. Piecewise techniques explore the best places for knots and intercepts in the modelling of time. The optimal place for knots in the emotional symptoms model were at ages 8 and 15 years. A change in the intercept was also identified at age 8.[5]

Socio-economic position (SEP)

SEP of families was measured using a composite variable, SEP2, calculated from variables on parents' occupational prestige, income and education.[6] Scores were classified into low (lowest 25% of the distribution), middle (middle 50%) and high (top 25%).

Family cohesion

In Waves 2–8, a parent or guardian was asked 'Sometimes family members may have difficulty getting along with one another. They don't always agree and they may get angry. In general, how would you rate your family's ability to get along with one another? ('Family' refers to the people you live with)'. Response options were: 1 Excellent; 2 Very good; 3 Good; 4 Fair; 5 Poor.

Parental Efficacy scale

In Waves 1–8, a parent or guardian was asked 'Overall, as a parent, do you feel that you are …?' Response options were: 1 Not very good at being a parent; 2 A person who has some trouble being a parent; 3 An average parent; 4 A better than average parent; 5 A very good parent.[7]

Temperament

In Waves 1–8, a parent or guardian was asked a general temperament measure. It asks the following: 'Overall, compared to other children of the same age, do you think this child is …?' Response options were: 1 Easier than average; 2 About average; 3 More difficult than average.

Parent feeling rushed

In Waves 1–8, a parent or guardian was asked 'How often do you feel rushed or pressed for time?' Response options were: 1 Always; 2 Often; 3 Sometimes; 4 Rarely; 5 Never.[8]

Parental depression

In Waves 1–7, the primary caregiver's mental health was assessed using the Kessler-6 scale of psychological distress.[9] This scale contains six items about feelings and emotions in the past four weeks, including how often respondents felt nervous, hopeless, and restless or fidgety. Response options ranged from 1 'all of the time' to 5 'none of the time'. Total scores of reverse-coded items ranged from 6–30, with higher scores indicating higher levels of distress. This was used as a binary variable, where parents' were categorised as 'probable serious mental illness' (scores 19–30) and 'no probable serious mental illness' (scores of 6–18).

5 Mitchell, M. (2012). *Interpreting and visualising regression models using Stata*. College Station, TX: Stata Press.

6 See Baker, K., Sipthorp, M., & Edwards, B. (2017). *A longitudinal measure of socio-economic position in LSAC*. Retrieved from growingupinaustralia.gov.au/sites/default/files/tp18.pdf

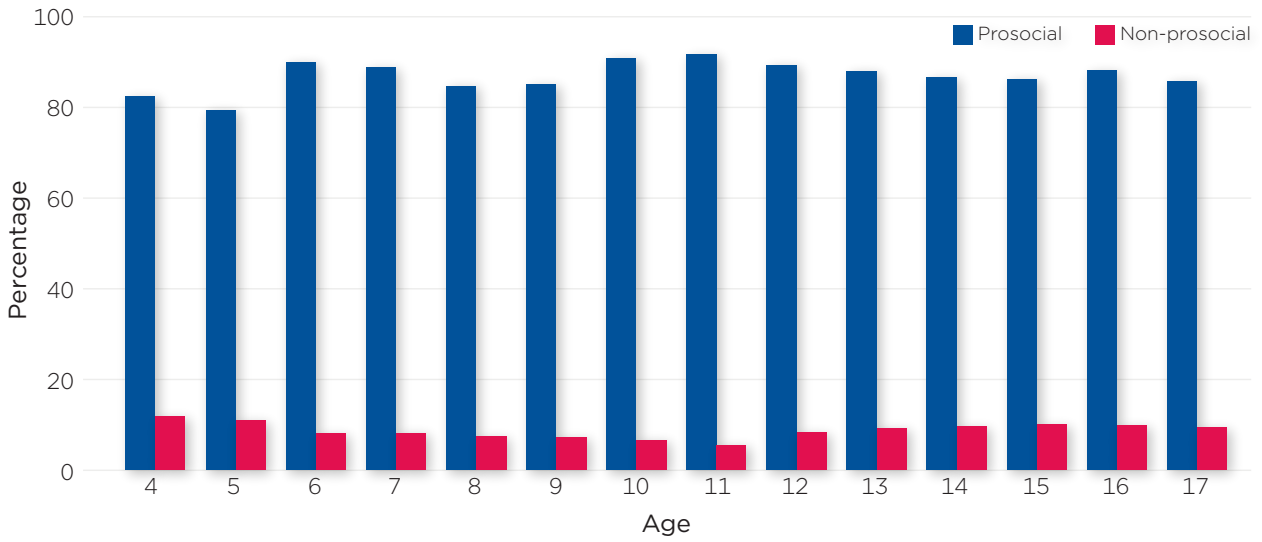
7 Global parenting self-efficacy scale. U. S. Department of Education. (2001). *Early Childhood Longitudinal Study*, Birth Cohort. Washington, D. C.: National Centre for Education Statistics.

8 Adapted from the Household, Income and Labour Dynamics Australia (HILDA), Wave 1 questionnaire (2001).

9 Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S.-L. et al. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, *32*(6), 959–976. doi.org/10.1017/s0033291702006074

FULL RESULTS

Figure S1: Proportion of children above and below the clinical cut-point of the SDQ prosocial subscale, by age



Notes: Prosocial behaviour is indicated by a score of 6 or higher on the SDQ prosocial subscale (possible range 0–10).

Source: LSAC B and K cohorts, Waves 1–8, unweighted

Table S1: Piecewise Growth model predicting child emotional symptoms over eight waves; B and K cohorts

	β	*P*	95 CI	
Age 4–8	0.14	<0.001	0.11	0.16
Age 9–15	0.05	<0.001	0.04	0.06
Age 15–17	0.14	<0.001	0.10	0.17
Intercept age 8	−0.18	<0.001	−0.25	−0.10
Prosocial > 5	0.19	<0.001	0.12	0.25
Female	0.37	<0.001	0.31	0.43
Temperament	0.38	<0.001	0.34	0.41
Parental efficacy	−0.44	<0.001	−0.47	−0.41
Parental depression	0.55	<0.001	0.44	0.66
Parent feeling rushed	−0.12	<0.001	−0.14	−0.10
Family cohesion	0.09	<0.001	0.07	0.11
Socio-economic position	−0.09	<0.001	−0.12	−0.06
Constant	1.86	<0.001	1.63	2.09

Notes: Age 4–8: ages between 4 and 8 years; Age 9–15: ages between 9 and 15 years; Age 15–17: ages between 15 and 17 years. Intercept age 8: represents change in trajectory at age 8; prosocial > 5 indicates whether child score on SDQ prosocial scale was >5, indicating child has a prosocial orientation; clustering variable individual ID.

Source: LSAC B and K cohorts, Waves 1–8, *n* = 8,173; observations = 35,930

Table S2: Logistic regression predicting clinical level of emotional symptoms at age 14–15 years; B cohort

	aOR	*P*	95 CI	
Volunteered age 12–13 years	0.72	0.001	0.59	0.88
Female	2.27	<0.001	1.85	2.77
Temperament	1.94	<0.001	1.63	2.31
Parental efficacy	0.64	<0.001	0.55	0.76
Parental depression	2.21	0.002	1.32	3.69
Parent not feeling rushed	0.77	<0.001	0.68	0.87
Constant	0.65	0.334	0.27	1.56

Notes: Predictor variables measured at Wave 7, outcome variable (clinical level of emotional symptoms) measured at Wave 8. aOR = adjusted Odds Ratio (adjusted for all other factors in table). SEP and family cohesion were not significant predictors and not included in the final model.

Source: LSAC B cohort, Waves 7 and 8, unweighted. *n* = 2,892

KEY REFERENCES

Biglan, A. (2015). *The nuture effect: How the science of human behavior can improve our lives and our world*. Oakland, CA: New Harbinger Publications.

Catalano, R. F., & Hawkins, J. D. (1996). The social development model: A theory of antisocial behavior In J. D. Hawkins (Ed.), *Delinquency and crime: Current theories* (pp. 149–197). Cambridge: Cambridge University Press.

Collins, S. (2015). *The Core of Care Ethics*. New York, NY: Palgrave Macmillan.

Curzer, H. J. (2007). Aristotle: Founder of the ethics of care. *The Journal of Value Inquiry*, *41*(41), 221–243.

Eisenberg, N., & Mussen, P. H. (1989). *The roots of prosocial behavior in children*. Cambridge: Cambridge University Press.

Fagan, A., Hawkins, J. D., Catalano, R. F., & Farrington, D. P. (2019). *Communities that care: Building community engagement and capacity to prevent youth behavior problems*. New York: Oxford University Press.

Gasser, C., & Evans-Whipp, T. (2019). Here to help: How young people contribute to their community. In *Growing Up in Australia, the Longitudinal Study of Australian Children: Annual statistical report 2018* (pp. 121–132). Melbourne: Australian Institute of Family Studies.

Hallam, W. T., Olsson, C. A., Bowes, G., & Toumbourou, J. W. (2006). Being true to oneself: The role of authenticity in promoting youth mental health. *Journal of Youth Studies*, *25*(1), 28–32.

Mitchell, M. (2012) *Interpreting and visualising regression models using Stata*. Stata Press: Texas.

Thomson, J. A. K. (Ed.) (2004). *Aristotle: The Nicomachean ethics*. New York, NY: Penguin.

Nelson, S. K., Layous, K., Cole, S. W., & Lyubomirsky, S. (2016). Do unto others or treat yourself? The effects of prosocial and self-focused behavior on psychological flourishing. *Emotion*, *16*(6), 850–861. doi:10.1037/emo0000178

Rowland, B. C., Mohebbi, M., Kelly, A. B., Benstead, M. L., Herde, J. A., Clancy, E. M. et al. (2022). Correction to: School influences on adolescent depression: A 6-year longitudinal study amongst Catholic, government and independent schools, in Victoria, Australia. *Journal of Religion and Health*. doi:10.1007/s10943-022-01551-3

Trzeciak, S., & Mazzarelli, A. (2019). *Compassionomics: The revolutionary scientific evidence that caring makes a difference*. Pensacola, FL: Struder.