Inequalities in the Distribution of Childhood Adversity From Birth to 11 Years

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Abstract

Objective: Exposure to early adversity carries long term harmful consequences for children's health and development. This study aims to 1) estimate the prevalence of childhood adversity for Australian children from infancy to 10−11 years, and 2) document inequalities in the distribution of adversity according to socioeconomic position (SEP), Indigenous status, and ethnicity.

Methods: Adversity was assessed every 2 years from 0−1 to 10−11 years in the nationally representative birth cohort of the Longitudinal Study of Australian Children (N = 5107). Adversity included legal problems; family violence; household mental illness; household substance abuse; harsh parenting; parental separation/divorce; unsafe neighborhood; family member death; and bullying (from 4 to 5 years). Adversities were examined individually and summed for a measure of multiple adversity (2+ adverse experiences).

Results: By 10−11 years, 52.8% (95% confidence interval [CI] 51.0−54.7) of children had been exposed to 2 or more adversities. When combined with low SEP, children from ethnic minority and from Indigenous backgrounds had 4 to 8 times the odds of exposure to 2 or more adversities than children from higher SEP Anglo-Euro backgrounds, respectively (odds ratio [OR] 4.3, 95% CI 2.8−6.6 and OR 8.1, 95% CI 4.4−14.8). Ethnic minority and Indigenous children from higher SEP backgrounds had increased odds of exposure to multiple adversity than similarly advantaged Anglo-Euro children (OR 1.8, 95% CI 1.4−2.3 and OR 2.3, 95% CI 1.3−4.3, respectively).

Conclusions: Addressing early adversity is a significant opportunity to promote health over the life course, and reduce health inequalities experienced by marginalized groups of children.

Keywords: adverse childhood experiences; adversity; ethnicity; health equity; socioeconomic position

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What's New

We found that the combination of Indigenous or ethnic minority status with low socioeconomic position compounds risk for childhood adversity. Higher socioeconomic position did not confer equivalent benefits to children from these marginalized groups.

Exposure to childhood adversity, such as experiences of violence, parent imprisonment, household mental illness, or substance abuse, has harmful effects on mental and physical health throughout life.[1] The accumulation of multiple adversities over the childhood period can be particularly detrimental and has a stronger effect on health outcomes than any one adversity experienced in isolation.[2] Addressing childhood adversity is therefore a promising target for the protection of population health and prevention of adult disease.[1]

The unequal exposure to childhood adversity for children from low socioeconomic position (SEP),[3] ethnic minority and migrant,[4] and Indigenous[5] backgrounds has been documented in a range of countries and contexts. Families from low SEP, ethnic minority, and Indigenous backgrounds all face a range of sources of disadvantage, including structural barriers to accessing education, health services, and meaningful employment,[6] which shape their disproportionate exposure to adversity. These disparities in patterns of exposure to childhood adversity likely contribute to inequalities in health outcomes seen in childhood and throughout the life-course.[7,8]

Experiences of children and their families are also influenced by their intersecting identities across marginalized social groups and social positions. The theory of "double jeopardy" initially arose in the aging literature,[9] and suggests that the combination of discrimination experienced by Indigenous peoples and ethnic minorities with the added burden of socioeconomic disadvantage is likely

to compound the likelihood of adverse experiences, in turn leading to worse health outcomes. The "diminishing returns" concept further suggests that for stigmatized groups, resources such as higher income and education may yield fewer health benefits over time relative to those in more advantaged positions within society.[10]

While these theories have some empirical suport (eg,[10]), there have been little data in relation to childhood adversity, and even less outside the United States or among Indigenous children. In the Australian context, for example, where Indigenous peoples experience some of the most profound health inequities globally,[8] the distribution of adversity over childhood has yet to be described. Not to be confused or conflated with Indigenous peoples, children from ethnic minority and migrant backgrounds are a separate group also at increased risk of adversity[11] but for whom Australian data are currently lacking. This is despite Australia's migrant population growing quickly with over a quarter of the population overseas born, more than the United States or Canada.[12]

A clear understanding of the prevalence and distribution of childhood adversity across the intersections of socioeconomic position, Indigenous status and ethnicity is critical to develop and target effective and equitable approaches to addressing early life risk and reduce adult health inequities.[4,5] This study aims to estimate the prevalence of childhood adversity for Australian children, and inequalities in the distribution of adversities according to socioeconomic position, Indigenous status and ethnicity, and their intersections. We analyzed data from the Longitudinal Study of Australian Children (LSAC), which provides a key opportunity to build on the extant literature using prospectively collected biannual reports on exposure to adversity from infancy to 10−11 years for Australian children.

Method

Data Source

LSAC. LSAC is a prospective, population-based study of 2 cohorts of Australian children: 1) a birth ("B") cohort of 5107 infants; and, 2) a kindergarten ("K") cohort of 4983 4-year olds, which commenced in May 2004. The LSAC design and sampling methodology is documented elsewhere.[13] In short, a complex survey design was used to select a sample that was broadly representative of all Australian children except those living in remote areas.[13] Data were collected on children's development and family and community characteristics.

The current paper draws on the B-cohort to capitalize on prospectively reported data collected about children's social environment and circumstances from infancy, including at ages 0−1 (Wave 1; n = 5107), 2−3 (Wave 2; n = 4606), 4−5 (Wave 3; n = 4386), 6−7 (Wave 4; n = 4242), 8−9 (Wave 5; n = 4085), and 10−11 years (Wave 6; n = 3764). Sample attrition of the 5107 children recruited into the B-cohort has been gradual over the 6 waves, with 73.7% of the original sample retained at Wave 6. The LSAC methodology was approved by the Australian Institute of Family Studies Human Research Ethics Review Board.

Measures

Adverse Experiences Over Childhood (0−11 Years)

We used prospectively collected data on adversity from 0 to 11 years, thereby avoiding the potential for recall bias inherent to retrospective designs.[14] We examined those adversities that 1) have been consistently measured in the childhood adversity literature,[15] and 2) had repeated assessments available across the childhood waves of the LSAC. Nine types of adverse experiences met these criteria (Table 1): parent legal problems; family violence; household mental illness; household substance abuse; harsh parenting; parental separation/divorce; neighborhood violence; family member death; and bullying victimization (available from Wave 3 at 4−5 years of age). Parent report was used for all indicators, and teacher report was also used to assess bullying. Some adversities were measured directly (eg, in relation to household mental illness, parents' self-report of psychological distress). Where direct indicators were not available, proxy measures were used. For example, high levels of harsh parenting behaviors were used as a proxy for child maltreatment; notably, Rodriguez [16] observed a correlation of r = 0.5 between harsh parenting and the Child Abuse Potential Inventory.

Multiple Adversity Over Childhood (0−11 Years)

As well as individual adversities, we also examined a cumulative score (ie, count of the number of adversities) across childhood from 0 to 11 years, given evidence that exposure to multiple adversities can have a stronger effect on health than individual events.[2] Various cut points have been used in the literature to capture a clustering of adverse experiences that is likely to take a cumulative toll on health, with "4 or more" the most common identified by a recent review.[15] We dichotomized the number of adversities that children were exposed to as "less than 2" versus "2 or more," which allowed for sufficient cell sizes when examining patterning across groups, as well as examining alternative cut points of "3 or more" and "4 or more" adversities in order to explore whether this choice of cut-point influenced study findings.

Family Socioeconomic Position (SEP) at 0−1 Years

A measure of family SEP at 0−1 years in the LSAC was previously developed based on information about both parents' education, occupation, and income.[17] This composite approach is used to locate families along a continuum of an underlying social structure defined by multiple sources of wealth, power and prestige; along with absolute levels of resources, relative position in the social hierarchy contributes to health inequities.[18] Occupation level was categorized according to the criteria developed by the Australian Bureau of Statistics.[19] A standardization approach was used to create a continuous score: values for each parent's education and occupation variables were

Table 1. Measures Used to Assess Adverse Experiences Across Childhood

Type of Adversity	Measure and Source	Item/Example Item	Coding
Parent legal problems	Item from the stressful life events scale adapted from Brugha and Cragg (1990),[38] reported by P1.	In the last year, have any of the following happened to you? You had problems with the police and a court appearance.	No=0; Yes=1.
Family violence	Item from an adapted version of the Quality of Co-parental Interaction Scale (Ahrons, 1981),[39] reported by P1 and P2.	How often do you have arguments with your partner that end up with people pushing, hitting, kicking or shoving?	'Never'=0, 'Rarely' to 'Always'=1. Lone parents coded as 0.
Household mental illness	The K-6 Depression Scale[40] reported by P1 and P2.	In the past 4 weeks about how often. . . Did you feel so sad that nothing could cheer you up?	Score over 13 (mental disorder very likely) categorized as high psychological distress.[41] Neither parent high distress=0; P1 and/or P2 high distress=1.
Household substance abuse	As for Parent legal problems.	In the last year, have any of the following happened to you? Someone in your household had an alcohol or drug problem	No=0; Yes=1.
Harsh parenting	Waves 1 to 2: Harsh parenting measured using adapted items from the Early Childhood Longitudinal Study of Children, Birth Cohort and the National Longitudinal Survey of Children and Youth 1998−1999. Waves 3 to 6: Items were adapted from the Ineffective/harsh Parenting scale developed for the National Longitudinal Study of Children and Youth (NLSCY). Reported by P1 and P2. Negatively worded items reflecting praise and warmth were excluded.	How often do you tell this child that he/she is bad or not as good as others?	Mean of items at each time point was derived for each parent, and the top 5% was coded as harsh parenting, to identify relatively higher levels of these behaviors. Neither parent reporting harsh parenting=0; P1 and/or P2 reporting high levels=1.
Parental separation/divorce	As for Parent legal problems.	In the last year, have any of the following happened to you? You had a separation due to relationship or marital difficulties	No=0; Yes=1.
Unsafe neighborhood	LSAC designed item informed by the WA Child Health Survey, AIFS Families, Social Capital and Citizenship survey and the NSW 'Communities 4 Kids' initiative / WA Child Health Survey, reported by P1.	How strongly do you agree or disagree with these statements about your neighborhood? This is a safe neighborhood.	'Strongly agree' or 'agree' = 0; 'disagree' or 'strongly disagree' = 1.
Family member death	As for Parent legal problems, item reflecting death of a parent, partner or child	In the last year, have any of the following happened to you? Your parent, partner or child died.	No=0; Yes=1.
Bullying victimization	Item from the Strengths and Difficulties Peer Problems subscale[42] available from 4 to 5 years of age (when children started school), reported by P1 and teacher.	For each statement, please indicate which response best describes the study child over the past 6 mo. Picked on or bullied by other children.	Neither parent nor teacher report bullying "Certainly true"=0; Parent and/or teacher reported bullying "Certainly true"=1.

P1 = Parent 1, defined as the parent who knew the child best; in almost all cases (98.3%) this was the child's biological mother; P2 = Parent 2.

standardized to have a mean of zero and a standard deviation of one (ie, converted to a z-score). A mean score was created by averaging the standardized scores, which was then restandardized to have a mean of zero and a standard deviation of one. For interpretability, this continuous score was categorized into tertiles, and subsequently dichotomized as "low SEP" (most disadvantaged third) and "higher SEP" (middle and highest third) due to small cell sizes when also considering Indigenous status and ethnicity.

Indigenous Status and Ethnicity

We created proxy ethnicity categories that identify marginalized groups based on both parents' country of birth, language spoken at home, and Indigenous status, which were reported at Wave 1 (0−1 years). Three mutually exclusive categories were generated: Anglo-European (White); Indigenous (Aboriginal and/or Torres Strait Islander); and ethnic minority (representing non-White and not Indigenous, following the approach of Statistics Canada[20] which has been used previously in Australia[21]). Self-reported race/ethnicity is not routinely collected in Australia. Although not synonymous with race or ethnicity, in Australia, "country of birth" and "language spoken at home" categories are widely used as proxies for self-reported ethnicity or race.[21]

Intersection of Indigenous Status and Ethnicity With Low Socioeconomic Position

To explore the intersection of Indigenous status and ethnicity with socioeconomic position, we created a composite variable derived from the data described above. This composite variable included 6 categories reflecting the various combinations of Indigenous status and ethnicity (Anglo-Euro, ethnic minority, Indigenous) and socioeconomic position (low, higher).

Covariates

The child's age in months at recruitment and sex (male, female) were parent reported at 0−1 years.

Analytic approach

First, the proportion of children exposed to each type of adversity was examined at each time point and across the full childhood period. The proportion of children exposed to multiple adversities (2+ adverse experiences) was also examined, both within each time point and across the full childhood period. This was estimated for the full cohort, and according to SEP, Indigenous status and ethnicity, and their intersections.

Logistic regression was then used to estimate associations between socioeconomic position and ethnicity and exposure to childhood adversity. The previously described composite variable with 6 categories reflecting the various combinations of Indigenous status and ethnicity (Anglo-Euro, ethnic minority, Indigenous) and socioeconomic position (low, medium-high) was used to predict adversity exposure. Children from Anglo-Euro/higher socioeconomic backgrounds were the reference group to which others were compared. All estimates were adjusted for sex and age at recruitment. Alternative thresholds to indicate multiple adversity (3+ and 4+ adversities) were examined in sensitivity analyses.

Missing data in the study variables ranged from 0% (eg, sociodemographic variables collected in Wave 1) to 33% (unsafe neighborhood at Wave 2), with an average of 20.9% missing across the adversity data (Supplementary Table 1). The proportion of children with any missing data was higher for Indigenous (83%) and ethnic minority (70.9%) children than for Anglo-Euro (51.8%) children, and was higher for children from families with low SEP (70.7%) compared to those with higher SEP (48.4%).

Multiple imputation (MI) by chained equations[22] was used to handle missing values arising from both item nonresponse within waves and attrition over time. Seventy imputed data sets were created with values imputed using predictive mean matching.[23] The imputation model for each variable was specified using all other variables to predict missing values (ie, each type of adversity within and across time, SEP, ethnicity, sex, and age at recruitment), and results were combined using Rubin's rules. Survey weights have been developed in LSAC as an alternative approach to accounting for attrition over time [13]; sensitivity analyses using these weights produced slightly lower estimates of the prevalence of adversity than MI (average of 4% lower across adversity types), likely because item nonresponse within waves is not addressed by this method.

All analyses account for the sample design whereby clustering occurred via post codes.[13] Analyses were conducted using Stata/SE V.15.1 for Windows (copyright StataCorp LLC, College Station, Texas).

Results

Sample Characteristics

There was an even distribution of males and females in the study sample (51.1% male), and the mean age was 8.8 months at recruitment (Table 2). The majority of the sample were Anglo-European (81.5%); 14% of children were ethnic minorities; and a smaller proportion of children came from Indigenous backgrounds (4.5%). For ethnic minority families, the most common regions of parent birth were South-East and North-East Asia (36.7% mothers, 37.9% fathers), and Subcontinent and Central Asia (15.4% mothers, 15.7% fathers).

Prevalence of Childhood Adversity

By the end of childhood (10−11 years), the most common adversities to which children had been exposed were harsh parenting (25.7%, 95% confidence interval [CI] 24.1−27.3), family member death (24.7%, 95% CI 23.4−26.0), and family violence (24.3%, 95% CI 22.8−25.7), while substance abuse was least common (13.1%, 95% CI 12.0−14.3; Table 3). By the end of childhood, 1 in 2 children had been exposed to 2 or more adversities (52.8%, 95% CI 51.0−54.7); 1 in 3 had been exposed to

Table 2. Sociodemographic Characteristics of the Longitudinal Study of Australian Children (LSAC) B Cohort at 0–1 Years (Observed Data)

Variable	N (%) or M (SD)
Child characteristics	
Sex	
Male	2608 (51.1%)
Female	2499 (48.9%)
Age at recruitment (months)	8.78 (2.57)
Socioeconomic position (SEP)	
Composite socioeconomic position	
Higher	3394 (66.5%)
Low	1713 (33.5%)
Mothers education	
Bachelor degree	1359 (26.6%)
Technical diploma/trade apprenticeship	2070 (40.6%)
High school or below	1671 (32.8%)
Mothers occupation	
Employed	2536 (49.8%)
Not in paid work	2557 (50.2%)
Fathers education	
Bachelor degree	1065 (23.2%)
Technical diploma/trade apprenticeship	2300 (50.2%)
High school or below	1220 (26.6%)
Fathers occupation	
Employed	4317 (93.3%)
Not in paid work	311 (6.7%)
Usual gross weekly income (AU$)	
Mothers income	335.14 (383.22)
Fathers income	985.34 (725.30)
Indigenous status and ethnicity	
Indigenous status and ethnicity	
Anglo-Euro	4160 (81.5%)
Ethnic minority	717 (14.0%)
Indigenous	230 (4.5%)
Regions of birth and language for ethnic minority families	
Mothers' country/region of birth	
Australia	51 (7.5%)
Other Anglo/English speaking country	28 (4.1%)
European country	17 (2.5%)
Western Asia (Middle East)	97 (14.2%)
South-East and North-East Asia	250 (36.7%)
Subcontinent and Central Asia	105 (15.4%)
Central/south America	18 (2.6%)
Africa	66 (9.7%)
Oceania	49 (7.2%)
Fathers' country/region of birth	
Australia	40 (5.7%)
Other Anglo / English speaking country	29 (4.2%)
European country	21 (3.0%)
Western Asia (Middle East)	97 (13.9%)
South-East and North-East Asia	264 (37.9%)
Subcontinent and Central Asia	109 (15.7%)
Central/south America	20 (2.9%)
Africa	73 (10.5%)
Oceania	43 (6.2%)
Mothers' main language/region of language spoken	
Northern European	5 (0.7%)
Southern European	31 (4.6%)
Eastern European	4 (0.6%)
Southwest and Central Asian	122 (18.3%)
Southern Asian	59 (8.8%)
Southeast Asian	124 (18.6%)
Eastern Asian	72 (10.8%)
Other	28 (4.2%)
English	223 (33.4%)
Fathers' main language/region of language spoken	
Northern European	0 (0%)
Southern European	15 (2.4%)
Eastern European	3 (0.5%)
Southwest and Central Asian	126 (20.3%)
Southern Asian	53 (8.5%)
Southeast Asian	79 (12.7%)
Eastern Asian	67 (10.8%)
Other	32 (5.2%)
English	245 (39.5%)
SEP by Indigenous status and ethnicity	
Anglo-Euro higher SEP	2879 (56.4%)
Minority higher SEP	458 (9%)
Indigenous higher SEP	57 (1.12%)
Anglo-Euro low SEP	1281 (25.1%)
Minority low SEP	259 (5.1%)
Indigenous low SEP	173 (3.4%)

3 of more adversities (37.5%, 95% CI 36.6–39.4); and 1 in 4 had been exposed to 4 or more adversities (26.7%, 95% CI 24.9–28.5).

Distribution of Childhood Adversity Across SEP, Indigenous Status and Ethnicity

The proportion of children exposed to each type of adversity over the childhood period was higher for children from families with low SEP as compared to families with higher SEP (Fig. 1, Supplementary Table 2). For example, 30.6% (95% CI 27.6–33.5) of children in families with low SEP were exposed to an unsafe neighborhood, compared to 14.9% (95% CI 13.2–16.5) of children in families with higher SEP. Further analysis showed a gradient effect, whereby for each step of increasingly higher SEP, a lower proportion of children were exposed to adversity (Supplementary Table 3).

Across the full childhood period, the prevalence of each adversity was also higher for children from Indigenous backgrounds as compared to Anglo-Euro or ethnic minority children (Fig. 1, Supplementary Table 2). For example, 44.2% (95% CI 34.9–53.5) of Indigenous children experienced parent legal problems, compared to 12.5% (95% CI 11.2–13.8) of Anglo-Euro children and 13.5% (95% CI 9.8–17.3) of ethnic minority children.

Within ethnic minority and Indigenous groups there were large differences depending on socioeconomic position (Fig. 1, Supplementary Table 2). For example, the proportion of ethnic minority children exposed to multiple (2+) adversities was 63.9% (95% CI 58.7–69.1). However, there was an almost 20 percentage point difference depending on whether ethnic minority children were from families with low SEP or higher SEP (low SEP: 76.0%, 95% CI 66.8–85.1; higher SEP: 57.1%, 95% CI 50.5–63.7).

Associations Between SEP and Indigenous Status/Ethnicity and Exposure to Adversity

Logistic regression analyses were used to examine the association between intersecting categories of SEP and Indigenous status/ethnicity with adverse experiences,

Table 3. Proportion of Children Exposed to Adverse Experiences From 0–1 to 10–11 Years of Age (N = 5107)

	0–1 Y			2–3 Y			4–5 Y			6–7 Y			8–9 Y			10–11 Y			Any Time Point		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI	
Types of adversity																					
Parent legal problems	1.94	1.46	2.41	1.82	1.34	2.29	2.65	2.08	3.22	3.70	3.08	4.32	4.27	3.57	4.97	3.63	2.94	4.31	14.03	12.72	15.34
Family violence	10.04	9.11	10.97	6.83	6.09	7.57	6.96	6.14	7.78	6.44	5.67	7.21	6.44	5.65	7.23	5.25	4.53	5.98	24.28	22.83	25.73
Household mental illness	4.32	3.65	5.00	3.25	2.71	3.80	4.76	4.01	5.52	3.77	3.10	4.45	3.37	2.76	3.98	3.85	3.23	4.47	15.38	14.13	16.64
Household substance abuse	4.77	4.07	5.48	3.35	2.74	3.97	2.10	1.59	2.61	3.16	2.60	3.72	3.89	3.24	4.55	2.78	2.18	3.38	13.14	11.94	14.33
Harsh parenting	7.62	6.80	8.44	9.06	8.06	10.07	5.65	4.83	6.48	5.19	4.39	5.99	4.75	4.03	5.48	3.91	3.23	4.58	25.71	24.13	27.29
Parental separation	4.35	3.70	5.00	2.09	1.63	2.56	1.98	1.55	2.42	5.73	4.95	6.51	5.76	4.97	6.55	5.25	4.40	6.11	20.75	19.34	22.15
Unsafe neighborhood	8.61	7.48	9.73	6.73	5.73	7.73	5.76	4.97	6.56	4.91	4.17	5.65	3.28	2.66	3.90	4.41	3.69	5.13	20.13	18.38	21.88
Family member death	2.62	2.11	3.13	4.30	3.57	5.04	4.20	3.56	4.84	5.13	4.44	5.82	6.39	5.58	7.20	5.70	4.90	6.50	24.68	23.37	25.98
Bullying victimization*							2.46	1.96	2.96	5.08	4.39	5.77	8.52	7.58	9.46	9.35	8.33	10.38	20.79	19.38	22.20

*Not assessed prior to 4–5 years of age (school entry).

adjusted for sex and age at recruitment (Fig. 2, Supplementary Table 4). Anglo-Euro, ethnic minority and Indigenous children from families with low SEP had higher odds of experiencing almost all types of adversity when compared to Anglo-Euro children with higher SEP. When combined with low SEP, the odds of exposure to 2 or more adversities were elevated 4 to 8 times for children from ethnic minority and Indigenous backgrounds (odds ratio [OR] 4.3, 95% CI 2.8–6.6 and OR 8.1, 95% CI 4.4–14.8, respectively). Ethnic minority and Indigenous children from higher SEP backgrounds had increased odds of exposure to multiple adversity than similarly advantaged Anglo-Euro children (OR 1.8, 95% CI 1.4–2.3 and OR 2.3, 95% CI 1.3–4.3, respectively). This pattern was consistent when using alternative thresholds of 3+ or 4+ to indicate multiple adversity in sensitivity analyses (Table 4).

Discussion

This study highlights the high prevalence of childhood adversities among Australian children; our findings show that by age 10–11 years, 1 in 2 Australian children had been exposed to 2 or more adversities known to be associated with worse health and developmental outcomes.[1] We further found evidence of stark inequities in the experiences of early life adversity across social groups: children from low socioeconomic and ethnic minority and Indigenous backgrounds were disproportionately affected. The combination of ethnic minority or Indigenous status with low SEP compounded the likelihood of exposure to adversity, while higher SEP did not confer the same protection to children from ethnic minority or Indigenous backgrounds as for those from Anglo-Euro backgrounds. These results are of significant concern given the potential of adverse childhood experiences to contribute to and exacerbate the very substantial health inequalities observed for these groups of children over the life-course.[7,8]

Overall, the proportion of children exposed to adversity was high, consistent with findings from the United States[24] and adult retrospective reports in Australia.[25] For those adversities that had comparable estimates available, levels of exposure were similar to those reported in the US cross-sectional National Survey of Children's Health.[24] For example, 21% and 20% of children were exposed to parent separation, and 13% and 11% to substance/alcohol problems here and in US data, respectively. While exposure to adversity was high overall, the burden of exposure was unequally distributed. A higher proportion of children from families with low SEP were exposed to all types of adversity and to multiple adversity (2+ adversities), as compared to their more advantaged peers. Similar to US data,[3] a gradient effect was seen, whereby for each step of increasing SEP, a lower proportion of children was exposed. The socioeconomic resources of a family directly impacts the likelihood of being exposed to risks and adversities, such as the capacity to afford adequate housing in safer neighborhoods.[17]

Our findings demonstrate that Indigenous and ethnic minority children also experience a greater burden of exposure to childhood adversities than their Anglo-Euro

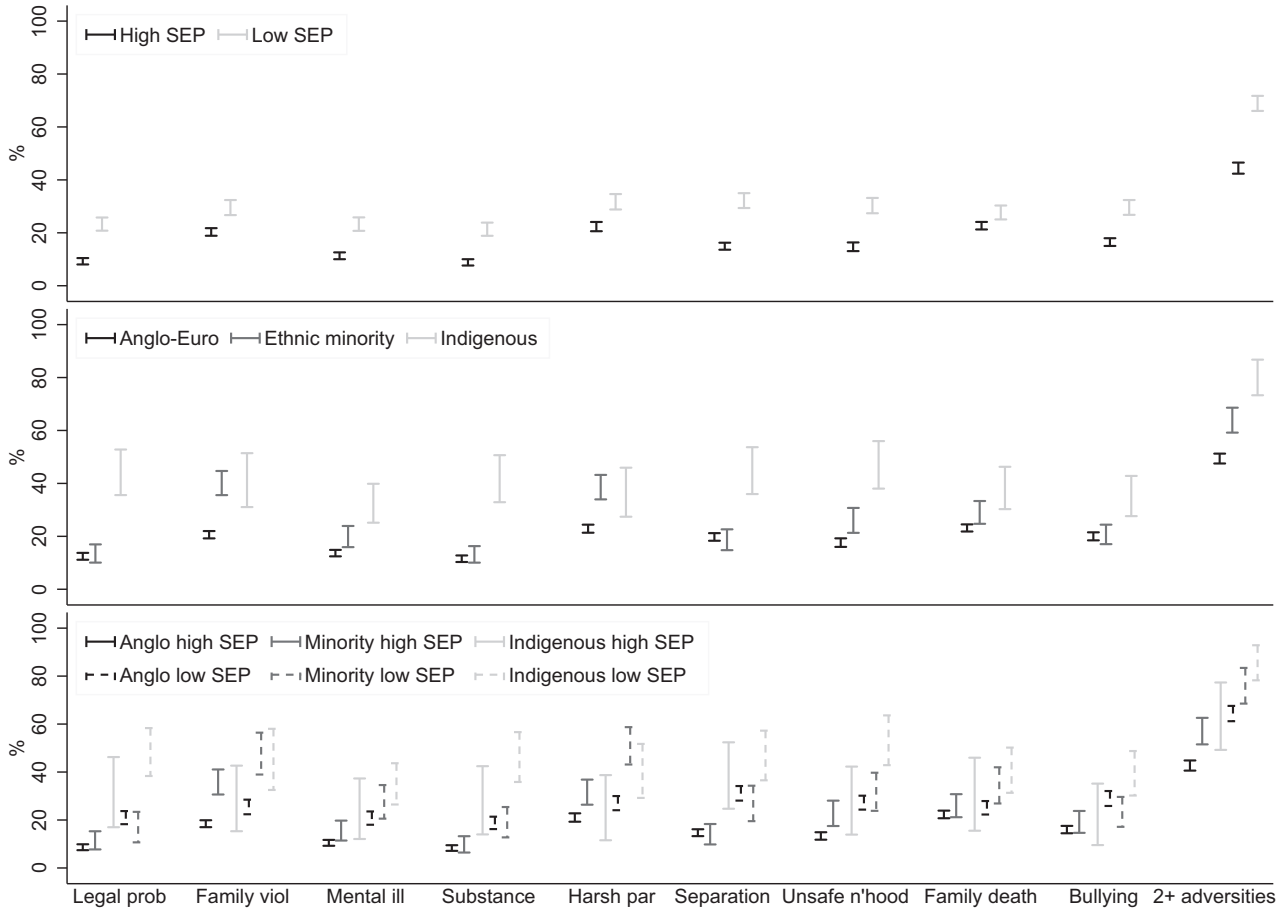

Figure 1. *Proportion of children exposed to adversity according to socioeconomic position, Indigenous status and ethnicity, and SEP by ethnicity/Indigenous status (N = 5107). 95% Confidence Intervals are shown.*

peers, aligning with international evidence among other ethnic minority populations.[26] Indigenous Australians bear the long term repercussions of colonization, including forced separation from families, removal from traditional lands, and disruption of language and culture.[6] The experiences of Indigenous Australian families continue to be shaped by pervasive structural and institutionalized racism and social disadvantage, including persistent barriers to accessing vital resources and opportunities, as well as a high burden of interpersonal racial discrimination.[6] While Indigenous people have shown much resilience against this, this population is over-represented in poor health and social indicators such as the 13 times higher rate of imprisonment for Indigenous people, and the 11 and 10 year gap in life expectancy for men and women, respectively.[27] Nonindigenous ethnic minority families can also experience racism and marginalization within the systems and institutions of society, while potentially navigating challenges associated with migration.[28]

Findings further reinforce the importance of children's multiple, intersecting identities across SEP and Indigenous status and ethnicity. Indigenous children from low SEP backgrounds face the double jeopardy of racism and discrimination together with fewer socioeconomic resources, resulting in the highest levels of exposure to most types of adversity and to multiple adversity. These findings reinforce the ongoing legacy of colonization and historical and contemporary racism in shaping the lives and experiences of Indigenous peoples. Even ethnic minority and Indigenous children from higher SEP backgrounds had higher odds of exposure to multiple adversities than similarly advantaged Anglo-Euro children. In US data,[4] high income also did not protect US-born minority children from adversity to the same degree as for US-born White children. These diminished returns suggest that socioeconomic resources are not associated with the same benefits for ethnic minority and Indigenous families as for Anglo-Euro families in terms of exposure to childhood adversity.

LIMITATIONS AND FUTURE DIRECTIONS

Limitations should be considered in the interpretation of these findings. There has been attrition in the LSAC and this has been higher for ethnic minority and Indigenous children. We used multiple imputation to reduce (but cannot eliminate) potential bias.[22] The sample of Indigenous children included in LSAC is limited in size and Indigenous children living in remote areas are likely to be under represented.

While the breadth of data available within LSAC enabled exploration of a range of adverse experiences over time, we were limited by the measures available. Not all types of adversity were captured (eg, racial

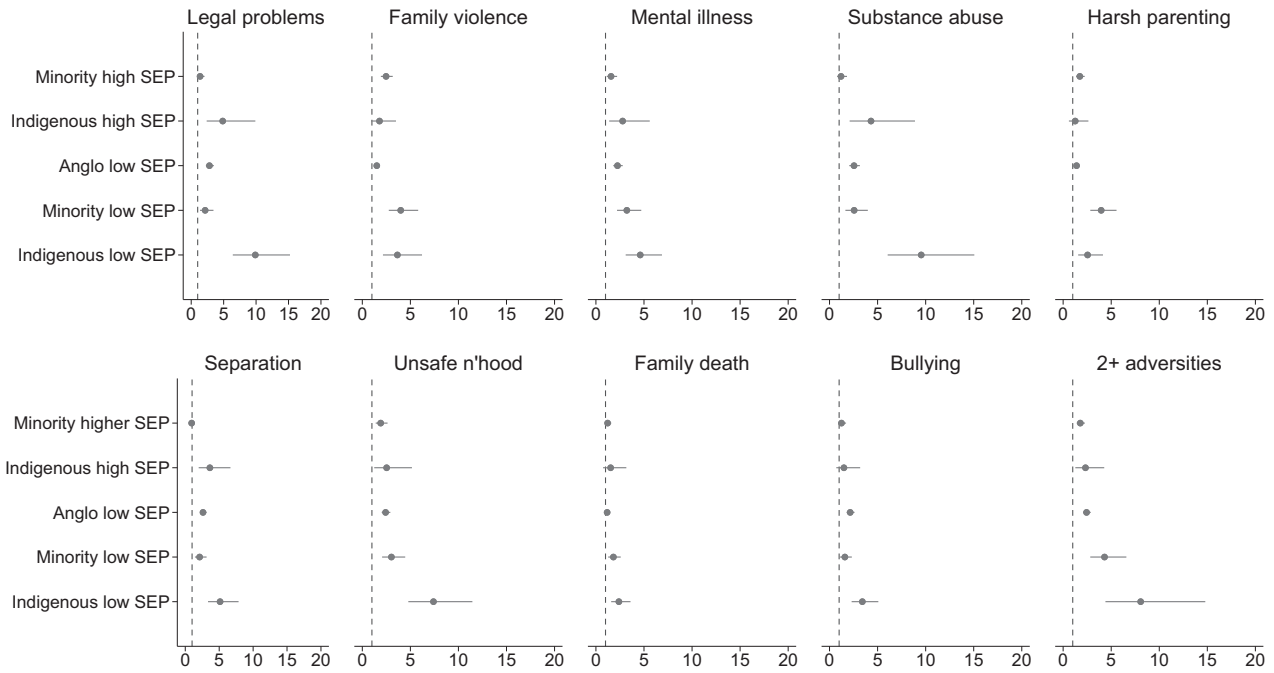

Figure 2. *Logistic regression analyses estimating odds of exposure to adversity according to the intersection of socioeconomic position and Indigenous status and ethnicity. Estimates show odds ratios with 95% Confidence Intervals (N = 5107). Anglo-Euro children from higher SEP backgrounds are the reference group to which other groups of children are compared. All estimates are adjusted for child's sex and age at recruitment.*

discrimination). Of those that were, a proxy indicator was sometimes used (eg, harsh parenting behaviors in the absence of direct indicators of child maltreatment). The meaning of these parenting behaviors can be culture-specific.[29] Reporting on questions about parenting and other adversities can also be influenced by feelings of guilt, shame and embarrassment, and the desire to portray oneself in a positive light.[30] Indicators of adversity sometimes did not include the full interval between waves (with, for example, responses made in reference to the past 12 months), meaning that some adverse experiences could have been missed. Conceptual clarity about the purpose of measuring adversity is critical in defining an appropriate measurement framework[15]; the dichotomized count of adversities used herein is appropriate for the current research questions, but may be less informative for understanding issues such as dose-response, onset, chronicity, or mechanisms of influence.

Further, ethnicity categories were developed using proxy indicators (country of birth, language), rather than self-reported race or ethnicity, apart from Indigenous status which was reported separately. It is possible that this resulted in some ethnic minority children being misclassified (for example, second or third generation immigrants who speak English at home). The "ethnic minority" category represents a highly heterogeneous group; investigations in larger scale data with appropriate self-reported ethnicity measures as well as sufficient numbers of subgroups to allow more granular analysis would be valuable in future. The child's nativity and generational status

Table 4. Logistic Regression Analyses Estimating Odds of Exposure to Multiple Adversity According to the Intersection of Socioeconomic Position and Ethnicity and Indigenous Status (Estimates Corresponding to Fig. 2, With Additional Sensitivity Analyses Using Alternative Cut Points to Indicate Multiple Adversity)

	Multiple Adversity								
	2+ Adverse Experiences			3+ Adverse Experiences			4+ Adverse Experiences		
	OR	95% CI		OR	95% CI		OR	95% CI	
SEP by Ethnicity and Indigenous status									
Anglo high SEP	Ref			Ref			Ref		
Minority high SEP	1.78	1.41	2.26	1.82	1.42	2.33	2.11	1.61	2.76
Indigenous high SEP	2.33	1.27	4.27	1.96	1.05	3.65	3.15	1.65	6.01
Anglo low SEP	2.44	2.07	2.87	2.64	2.24	3.11	2.91	2.44	3.48
Minority low SEP	4.31	2.82	6.58	3.70	2.59	5.28	5.03	3.51	7.22
Indigenous low SEP	8.07	4.40	14.79	7.56	4.53	12.64	8.26	5.34	12.77

All estimates are adjusted for child's sex and age at recruitment (N = 5107).

(eg first or second generation immigrants) is an additional important factor in understanding ethnicity and social gradients[31] but could not be examined here due to the sampling design where recruitment occurred in infancy. We examined one aspect of disadvantage, relative SEP across the study population. To further understand the influence of socioeconomic resources it would also be of interest to explore whether results are similar when considering relative SEP within (rather than across) Indigenous and ethnic minority groups, the effects of the constituent components of SEP (eg, parent education), and when considering aspects of disadvantage beyond SEP (eg, geographic disadvantage).

Finally, the current study was descriptive in nature. An important area for future research will be disentangling the causal mechanisms by which adversity translates to health outcomes for marginalized groups, via both biological as well as social mechanisms.[32] In addressing these questions, it will be possible to further capitalize on the availability of longitudinal data such as these with repeated assessments of adversity exposure over time.

IMPLICATIONS

Childhood adversity can be addressed through complementary strategies including prevention of and early intervention on the occurrence of childhood adversity, and helping to change health risk behaviours and address disease among those whose health problems are contributed to by the long term consequences of childhood adversity.[33] Critically however, our findings reinforce that these efforts require a strong focus on the social and structural conditions that contribute to the risk of exposure to adversity for marginalized groups. Attention to childhood adversity without addressing social and structural conditions is likely to produce fewer gains and may reinforce stigma and marginalization of those experiencing high levels of adversity.

In addition to addressing childhood adversity, racism itself should be targeted as a fundamental contributor to the patterning of adversity observed in the current study.[31] Promising approaches for addressing racism and discrimination at the interpersonal level include antiracism training for service providers focused on building empathy, self-reflexivity and practical personal skills.[34,35] Beyond direct service delivery, medical practitioners, including pediatricians, can also have an important role to play in advocating for structural and institutional changes both inside and outside the health system, such as in housing, employment, and education sectors.[36] Promising strategies include, for example, educational initiatives to raise awareness about racism and discrimination and counter stereotypes of marginalized groups; purposefully recruiting pediatricians and other staff from Indigenous and ethnic minority backgrounds to increase the representation of minority staff; and addressing institutional racism and discrimination via policy audits and organizational change processes tied to leadership performance and financial consequences.[34,37]

CONCLUSIONS

Longitudinal, prospective data from infancy to 11 years shows that the prevalence of multiple adversities among children in Australia is high, impacting 1 in 2 children. Some groups of children, including those from socioeconomically disadvantaged, ethnic minority and Indigenous backgrounds, experience a greater, unequal burden of exposure to these adversities. The combination of ethnic minority or Indigenous status with low SEP appeared to compound the likelihood of exposure to adversity, while higher SEP did not appear to confer the same protection to children from ethnic minority or Indigenous backgrounds. Addressing early adversity is a significant opportunity to promote health over the life course, and reduce health inequalities experienced by marginalized groups of children.

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SUPPLEMENTARY DATA

Supplementary data related to this article can be found online at https://doi.org/10.1016/j.acap.2019.12.004.

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