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Growing Up in Australia:
The Longitudinal Study of Australian Children (LSAC)
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The Longitudinal Study of Australian Children

Factors associated with non-response in *Growing Up in Australia*: The Longitudinal Study of Australian Children

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Technical paper

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1.   Introduction

Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC) is the first nationally representative birth cohort study measuring all aspects of children's development and their environment. Detailed descriptions of the study design and procedures can be found in LSAC technical papers (Gray & Smart, 2009; Soloff, Lawrence, & Johnstone, 2005). The sample comprises two cohorts of sample families (children and their families): one cohort of children aged 0–1 (the birth or 'B' cohort) at Wave 1 and the other of children aged 4–5 (the kindergarten or 'K' cohort) at Wave 1. By following two cohorts, with overlapping age spans over the study duration, the study design is cross-sequential in nature.

The study is funded by the Australian Government Department of Social Services (DSS) and is conducted as a partnership between the DSS, the Australian Institute of Family Studies (AIFS) and the Australian Bureau of Statistics (ABS), with advice provided by a consortium of leading researchers from research institutions and universities throughout Australia.

The LSAC study population consists of 5,107 infants (born between March 2003 and February 2004) and 4,983 4–5-year-old children (born between March 1999 and February 2000) who were Australian citizens, permanent residents or applicants for permanent residence at the time of selection (Soloff, Lawrence, & Johnstone, 2005). Beginning in 2004, information on family, school and community circumstances, and children's physical, emotional and cognitive wellbeing has been collected every two years . Information is collected from various sources, including resident and non-resident parents, direct child assessment and self-report, and teachers and carers.[1]

Over time, the LSAC study population has been steadily decreasing either due to non-response at a specific wave or permanent attrition (refusal to participate in future waves). The rate of non-response can threaten the viability of continuing the study and risk the representativeness of the sample, limit the analyses that can be conducted and lead to biased population estimates. Therefore, it is essential for researchers to understand the extent of non-response and its effect on the sample.

This paper aims to guide researchers on LSAC non-response rates and participation patterns. Section 1 briefly describes response rates across the first seven waves. Section 2 provides an overview of the pathways that lead LSAC participants to a 'non-response' status. Using data from both the B and K cohorts, section 3 presents Wave 7 response/non-response rates, reasons for non-response. It also describes response/non-response status and characteristics. Section 4 describes overall (Wave 1 to 7) patterns of non-response, from both cross-sectional and longitudinal perspectives. Section 5 explores the extent to which factors relate to overall non-response in both cohorts, and therefore helps users to understand characteristics and factors associated with response and categories of non-response in the LSAC study.

2.   Response rates in LSAC

For this report, the response rate is calculated on the participation of the study child and/or Parent 1 (self-selected as the parent who knew the study child best; usually this is the child's biological mother). Based on their participation, two different methods were employed to calculate LSAC response rates:

1. using the **original sample** (total sample from Wave 1; Response rates calculated using the original sample may also be known as retention rate.)
2. using the **starting sample** at each wave for fieldwork purposes.

As this is a cohort study, new entries to the original sample are not allowed. In addition, there is only a very small number of 'exits' from the sample (death of the study child). In the first four waves, children's study participation was dependent on their parent's participation. From Wave 4 onwards, children could participate without their parents. While the numbers of children who participated without their parents were small in earlier waves, numbers are expected to grow with every new wave of data collection.

Just prior to Wave 6 a sample 'clean-up' was conducted so that long-term unusable records were removed from the starting sample. The following diagram summarises the process for obtaining the starting sample.

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1   For details on study participants, measures, instruments, etc. refer to the LSAC Data User Guide.

Figure 1:   Process for obtaining starting sample
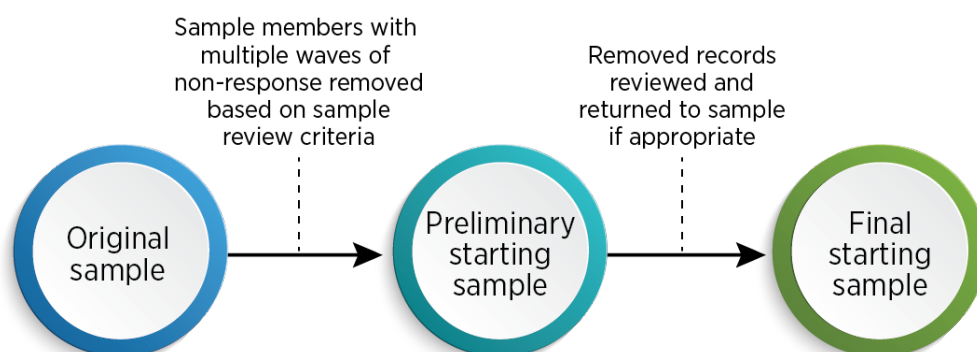
This process led to a number of sample members being removed from the starting sample who would have otherwise been contacted. From Wave 6 onward, the following sample review criteria were used so that the preliminary starting samples excluded families who have:

- missed four waves of data collection, due to non-contact or refusal
- missed three waves of data collection due to refusal
- missed three consecutive waves of data collection and asked to opt out of the study at least once
- informed the study that the study child is deceased

  or

- been removed from the sample as a result of previous sample reviews (for waves beyond Wave 6).

In order to identify the starting sample, the LSAC Management Group (LMG) conducts a review on the preliminary starting sample. The review consists of an evaluation of records flagged for removal from the sample in order to determine their suitability for inclusion in the starting sample. Each record is reviewed to assess patterns of non-response or refusal, taking into account any comments recorded by interviewers in past waves or in past contact with families. These comments provide insightful contextual information, which may result in the sample record being included in the starting sample. For example, the comment might indicate that the study child has refused to participate, but the parent is happy for the study child to be contacted in the future.

The sample clean-up and review conducted from Wave 6 onwards, may have had an impact on the number of refusals and non-contacts reported. Removal of long-term non-contacts and refusals from the starting sample prior to Wave 6 is likely to have resulted in an apparent drop in rates of refusals and non-contacts for Wave 6 and beyond, as these original sample members would have most likely refused or been uncontactable if included in the starting sample.

Table 1 reports the number of LSAC families who responded to each specific wave for both cohorts, using the 'original sample' and 'starting sample' as the bases for comparisons. In LSAC, response rates have declined gradually over the waves to 66% of the original sample and 78% of the starting sample at Wave 7 for the B cohort. Similarly, response rates have declined gradually over the waves to 62% of the original sample and 74% of the starting sample at Wave 7 for the K cohort.

Table 1: Sample size and response rate for each wave and cohort of LSAC

Main waves	B cohort			K cohort			Total		
	N	Resp. rate of original sample (%)	Resp. rate of starting sample (%)	N	Resp. rate of original sample (%)	Resp. rate of starting sample (%)	N	Resp. rate of original sample (%)	Resp. rate of starting sample (%)
Wave 1 original	5,107	100		4,983	100		10,090	100	
Wave 2 starting sample	5,047	98.8		4,913	98.6		9,960	98.7	
Wave 2 responding [a]	4,606	90.2	91.2	4,464	89.6	90.9	9,070	89.9	91.1
Wave 3 starting sample	4,971	97.3		4,829	96.9		9,800	97.1	
Wave 3 responding [a]	4,386	85.9	88.2	4,331	86.9	89.7	8,717	86.4	89.0
Wave 4 starting sample	4,929	96.5		4,774	95.8		9,703	96.2	
Wave 4 responding [a]	4,242	83.0	86.0	4,169	83.7	87.3	8,411	83.4	86.7
Wave 5 starting sample	4,884	96.6		4,735	95.0		9,619	95.3	
Wave 5 responding [a]	4,085	80.0	91.1	3,956	79.4	83.5	8,041	79.7	83.6
Wave 6 starting sample	4,483	87.8		4,395	88.2		8,878	88.0	
Wave 6 responding [a]	3,764	73.7	84.0	3,537	71.0	80.5	7,301	72.4	82.2
Wave 7 starting sample	4,318	84.6		4,176	83.8		8,494	84.2	
Wave 7 responding [a]	3,381	66.2	78.3	3,089	62.0	74.0	6,470	64.1	76.2

Note: [a] Those who had a home visit.

3.   Pathways of non-response in LSAC

There are many, varied pathways that lead LSAC participants to a 'non-response status', and can occur at different points in time during the two years between waves of data collection. This can be due to refusal or non-contact either between waves or during the fieldwork of a particular wave.

3.1   Pathways to non-response status

The pathways to non-response for families who are included in the starting sample are schematically summarised in Figure 2.

Figure 2:   Summary of pathways to participation and non-response
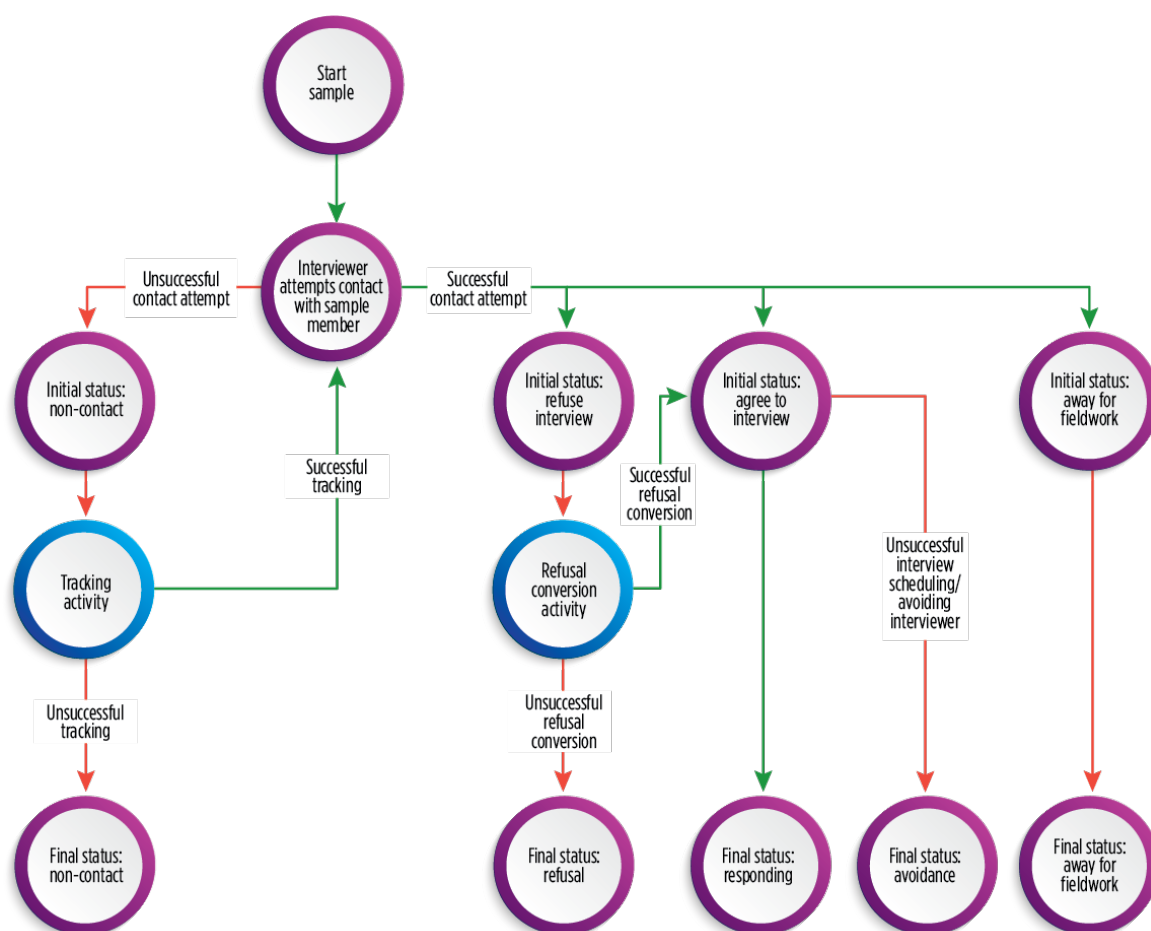
While this scheme describes pathways to non-response status during fieldwork, pathways to non-response in LSAC also begin prior to the commencement of fieldwork. Families can contact the study in between waves, via phone or email, to opt out of the study or an upcoming wave. Where appropriate, these families will be followed up for refusal conversion by ABS staff. If refusal conversion is unsuccessful or the refusals are considered 'hard' refusals, the family is classified as 'refusal' for the given wave. In addition, study families may be assigned as non-contactable between waves. This may be due to the study family not being contactable in a previous wave or may be in response to an unsuccessful mail attempt (e.g. mail was returned to sender) or an unsuccessful phone call. Between waves, tracking exercises may be triggered. These cases of refusal and non-contact are considered when determining the starting sample for each wave (as detailed in section 2).

For families included in the starting sample, contact attempts are made via phone. Pathways to non-response from this point onwards are dependent on whether or not the family is contactable. If the interviewer is unable to get in touch with the family, attempts are made to gain updated contact information through the use of alternative contacts and tracking. If calling alternative contacts and tracking procedures are unsuccessful, the family is given a 'non-contact' status.

Once contact is made, either directly or after tracking, pathways to non-response depend on whether the Parent 1 and/or study child agree to participate. For those who are not agreeable to participate, refusal conversion procedures may be followed. If, for both Parent 1 and the study child, refusal conversion is unsuccessful, or the family is classified as being inappropriate for refusal conversion, the family is classified as 'refusal'.

Another pathway to non-response depends on what follows initial contact with families who agree to be interviewed and either book an interview time or ask the interviewer to call them back to schedule the interview. If families are absent during scheduled interview times or are unable to be contacted in subsequent phone call attempts, they are classified as 'avoidance' for the given wave.

A final pathway relates to when contact is made with a family member or alternative contact and it is reported that the family will be overseas. If the family indicates that they will be returning to Australia at any point during the fieldwork period, the interviewer may try to schedule an interview at that time. If the family is unwilling to be interviewed upon their return or is not scheduled to return during the fieldwork period, the family is classified as 'away during fieldwork'.

To sum up, within LSAC, a non-response status is assigned to families who:

- refuse to participate in a given wave or in the study
- are unable to be contacted at the time of enumeration
- have contact with an interviewer at a given wave (e.g. make an appointment) and then avoid future contact (e.g. are not home at their appointment time, do not confirm their appointment time)

  or
- are not available during the fieldwork period.

Each of the above categories is considered as a sub-category of non-response status. They are categorised, in sequential order, as 'non-contact', 'refusal', 'avoidance', and 'away during enumeration'. Those classified as 'refusals' are further identified as a 'hard refusal' or 'soft refusal', as defined by whether or not they seem willing to be re-contactable in the future.

3.2 Non-contact

LSAC families are given a status of 'non-contact' when the study is unable to contact the family using the varied contact information that has been provided from family members in past waves. Contact details provided to the study include home and mail addresses, home, work and mobile phone numbers, and email addresses. Those classified as 'non-contact' have also been through multiple tracking exercises (such as calling alternative contacts, and searching Medicare files and the White Pages) and are still unable to be contacted.

The first indication that a study family may be assigned as a non-contact occurs when a between-wave mail out (e.g. Christmas mail out) or between-wave engagement phone call results in an unsuccessful contact attempt. In these cases, tracking processes are used to attempt to find updated contact information before fieldwork commences.

At the commencement of fieldwork, study families are sent a pre-interview package. This package generally contains information telling participants of the upcoming interview. The package can be returned to the ABS due to the study family no longer being at the address previously provided. In these cases, the interviewer will still attempt to make contact with the family, following the usual procedures for an initial phone call, as phone numbers previously provided might still be valid even if the previous address is not. Also, it is common for the returned package to be received after the interviewer has commenced their initial call attempts.

At the initial call to the family, the interviewer will try calling the home phone number and mobile numbers for Parent 1 and Parent 2 (Parent 1's partner or another adult in the home with a parental relationship to the study child; in the majority of cases this is the biological father). The interviewer may find that phone numbers are no longer valid, or that they are valid but are not answered. In the latter situation, interviewers are instructed to make multiple calls, at different times and days, to all phone numbers that the family had previously provided. If the interviewer is unable to contact the study family, the interviewer attempts to call the alternative contacts previously provided by the family. At each wave of the study, families are asked to provide contact information for two people who the study can contact if they are unable to contact the family directly. When contacted, alternative contacts are asked to either confirm the existing contact information or to provide updated contact information.

If the alternative contacts confirm the study family lives at the address provided, a postcard is sent to the family, informing them of the unsuccessful contact attempts and asking them to contact the study via a dedicated 1800 number. If the phone numbers have also been confirmed, interviewers will follow up with the family one week later by phone. If the alternative contacts provide a new phone number, a postcard is not sent and the interviewer attempts to call the family.

In the event that alternative contacts do not yield new contact information, interviewers may visit the family's dwelling in an attempt to make contact, although this step has not been followed in all waves. If no contact is made, the record for the study family is sent back to the ABS LSAC Team for tracking. The aim of tracking is to find updated contact information, through the following methods:

- reviewing Medicare files for new addresses
- searching for new addresses or phone numbers in the White Pages
- sending an email to the family.

Tracking results in new contact information approximately 10% of the time. For these cases, the new contact information is sent to an interviewer who then follows the standard procedures for contacting a study family. If contact is still unsuccessful, the study family is assigned a 'non-contact' status for the given wave and no further tracking or contact attempts are made. Similarly, if tracking is unsuccessful, the family is assigned a 'non-contact' status and further attempts at contact cease.

3.3 Refusals

LSAC participation is voluntary and study families are able to refuse participation at any time. There are several different mechanisms and points in time at which a family could refuse to participate. These include:

- between waves via the 1800 number or webform
- before the interviewer contacts the family, in response to receipt of a pre-interview package
- during the initial phone call with the interviewer
- after the interviewer has contacted the family (successfully or not), via a phone call to the interviewer or the 1800 number, text message, email or the webform
- during attempts at refusal conversion.

Study members can opt-out of upcoming waves of the study at the end of their previous wave interview by informing the interviewer of their withdrawal. Study members can also opt out of future participation in the study between waves of data collection through the 1800 phone number provided to participants on study documentation and LSAC-branded gifts or through the webform on the LSAC website.

Receipt of the pre-interview package can prompt sample members to contact the study via the webform or 1800 number and opt out of the upcoming wave or the study as a whole. After the pre-interview package is sent out, an interviewer contacts Parent 1 in order to arrange an interview time. At this point, Parent 1 may refuse on behalf of the family or a member of the family (i.e. Parent 1 can refuse on behalf of the study child).

Sample members who have refused through these mechanisms are assigned a status of a 'hard' refusal or a 'soft' refusal. Reasons for refusal given to the interviewer at the initial call are taken into account when deciding whether the refusal is assigned to a hard or soft category. Hard refusals are assigned to sample members who are adamant that they do not want to be involved in the study anymore and also do not want any future contact from the study (e.g. newsletters, annual mailout). Hard refusals have maintained this stance after the interviewer has attempted to gain agreement to contact them in future waves. Soft refusals are assigned to sample members who state that they do not want to participate in the upcoming wave but are agreeable to being approached for future waves.

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3.4   Refusal conversion

First refusal conversion attempts are made at the initial call by the interviewer. If only Parent 1 agrees to participate, the LSAC interviewer will ask to speak to the child and attempt to convert them. If the child still refuses, but the parent has agreed to be interviewed, child refusal conversion can also be attempted during the home visit. Similarly, if only a parent has refused, the interviewer will attempt refusal conversion during the child home visit.

Sample families who refuse may be followed up with a more intense refusal conversion strategy. Determination of refusal follow-up processes take into account whether the refusal is classified as hard or soft. The reasons for refusal that are recorded at the initial call are carefully considered when deciding whether refusal conversion should take place. Hard refusals are not followed up for refusal conversion, while past response status is considered when determining whether to attempt refusal conversion for soft refusals. If soft refusals were also classified as soft refusals in two consecutive previous waves, they are classified as a refusal for the wave and are not followed up for refusal conversion.

Refusal conversion for study families involves the mailout of a tailored postcard that outlines the benefits of the study and asks the participant to reconsider their decision not to participate. Tailored postcards can be sent to parents or children. For parents, the postcard is followed with a phone call from an interviewer (usually not the one who made the initial call), who discusses the study with the participant and encourages them to be involved. Reasons are also taken into account during refusal conversion and can help interviewers to tailor their conversion approach. For example, if the reason for the refusal is that the family is too busy, the interviewer can indicate that they can be flexible with the interview time or see if there will be a later date within the fieldwork period when the family will not be as busy.

While refusal conversion is important in trying to maximise response rates, refusal conversion attempts are often unsuccessful, particularly as the parent or child has previously indicated that they do not want to participate.

3.5   Avoidance

A study family is assigned a status of 'avoidance' when a successful contact attempt is followed by subsequent unsuccessful contact attempts, whether in person or over the phone. It is assumed that these participants do not really want to participate and avoid the interviewer rather than refusing directly. Examples of avoidance include situations where a participant asks an interviewer to call them back to arrange their interview appointment and then does not answer subsequent call attempts, and situations where a participant cancels or misses an interview appointment and does not answer any subsequent call attempts. Where avoidance occurs, families are sent a tailored 'non-contact postcard' informing them that an interviewer has been trying to get in touch with them.

Families with an avoidance status are considered to be soft refusals, though it is important to note that in some cases there may be a genuine reason for the study family not to respond to contact attempts. For some of the analyses in this paper, those with avoidance status will be grouped with refusals.

3.6   Away overseas

LSAC interviews are not conducted with study families or individual participants who are overseas, and these families are assigned a status of 'away overseas'. If participants return to Australia during the fieldwork period, an interview will be organised.

4.   Wave 7 response/non-response status

It is important to examine participants' Wave 7 response and non-response status, in a cross-sectional view, as this is the most recent wave for which data are available. It allows adjusting for potential non-response bias prior to conducting analyses using Wave 7 data. In Technical Paper No. 20 (Usback et al., 2018), the authors investigated overall non-response for Wave 7 in the context of weighting. They also reported non-response by instruments and non-response by sub-populations. Adding to this literature, the cross-sectional overview below examines participants' response and non-response status (including non-response categories) for both cohorts.

4.1   Statistical analyses

Section 4.2 provides descriptive statistics of participants' response and non-response status (all non-response categories) at Wave 7. It also describes reasons for non-response categories. In section 4.3, the response/non-response status categories included are 'responding', 'non-contact', 'refusal' and 'avoidance'. Categories 'away', 'other' and 'death of a child' have been excluded from the analyses due to small numbers.

We conducted bivariate analyses including chi-square tests to investigate response/non-response status with study child characteristics, parental characteristics and household characteristics. Parental characteristics consisted of information from both the primary carer (Parent 1) and secondary carer (Parent 2) where information was available. Unless stated otherwise, characteristics from both parents were combined to create groups: common to both parents, common to only one parent and not common to both parents.

Table A1 (see Appendix) provides details on the characteristics considered. Based on previous technical papers and relevant non-response publications from other cohort studies, we use information on birth weight, gender, birth order, Aboriginal/Torres Strait Islander status and parental country of birth from the baseline wave (Wave 1) and all other changeable characteristics (i.e. characteristics that can change from wave to wave) from the latest wave in which they responded, Wave 6. The analysis was based on the available sample. Families who did not participate in Wave 6 were excluded from analyses for changeable characteristics.

Table A2 (see Appendix) presents LSAC participant and household characteristics by Wave 7 response/non-response status. The table includes the number of participants ('*n*') in each response category and provides the proportion of the population that have a particular characteristic or behaviour within each response/non-response status. Section 4.3 presents significant findings (significant at a two-sided *p*-value of <.05). Further analyses have not been considered due to small cell counts identified during bivariate analyses.

4.2   Wave 7 non-response and reasons

In Wave 7, the non-response rate was around 22% (*n* = 938) for the B cohort and 26% (*n* = 1,086) for the K cohort (Table 2). The majority of non-response was due either to refusal (41% for B cohort and 45% for K cohort) or non-contact (44% for the B cohort and 36% for the K cohort). Around 12% of non-response in both cohorts was due to avoidance.

Table 2:   Rates of response and non-response, B and K cohorts, Wave 7

Response rates	B cohort		K cohort		Total	
	N	%	*N*	%	*N*	%
Response	3,381	78.3	3,089	74.0	6,470	76.2
Non-response	938	21.7	1,086	26.0	2,024	23.8
Total Wave 7 starting sample	4,319	100.0	4,175	100.0	8,494	100.0
Non-response rates by non-response status						
Non-contact	413	44.0	390	35.9	803	39.7
Refusal	388	41.4	488	44.9	876	43.3
Avoidance	110	11.7	132	12.2	242	12.0
Away (in Australia or overseas)	13	1.4	21	1.9	34	1.7
Death of the study child	2	0.2	0	0.0	2	0.1
Other [a]	12	1.3	55	5.1	67	3.3
Total	**938**	**100**	**1086**	**100**	**2024**	**100**

Note: [a] Includes non-response due to Occupational Health and Safety (OH&S) and machine problems.

Reasons for refusals are presented in Figure 3. Of those who refused, the most common reason given was that Parent 1 or the study family did not want to participate (approximately 30% in both cohorts), followed by Parent 1 or the study child being too busy (29% for the B cohort and 21% for the K cohort). Other reasons for refusal were the study child not wanting to participate (15% for the B cohort and 18% for the K cohort) and either Parent 1 or the study child feeling that the study has gone for too long (10% for the B cohort and 13% for the K cohort). There were also several other reasons for refusal, each accounting for less than 11% of refusals. These included the family stating that they have previously left the study; death, illness or injury (not of the study child); a difficult family situation; inappropriate or intrusive questions or procedures (for Parent 1 or the study child); Parent 1 having privacy concerns; the family moving or having recently moved house; being deterred by their experience with the Child Health CheckPoint;[2] and Parent 1 having language difficulties.

Figure 3:   The reasons for refusal (%) at Wave 7 of LSAC for the B and K cohorts

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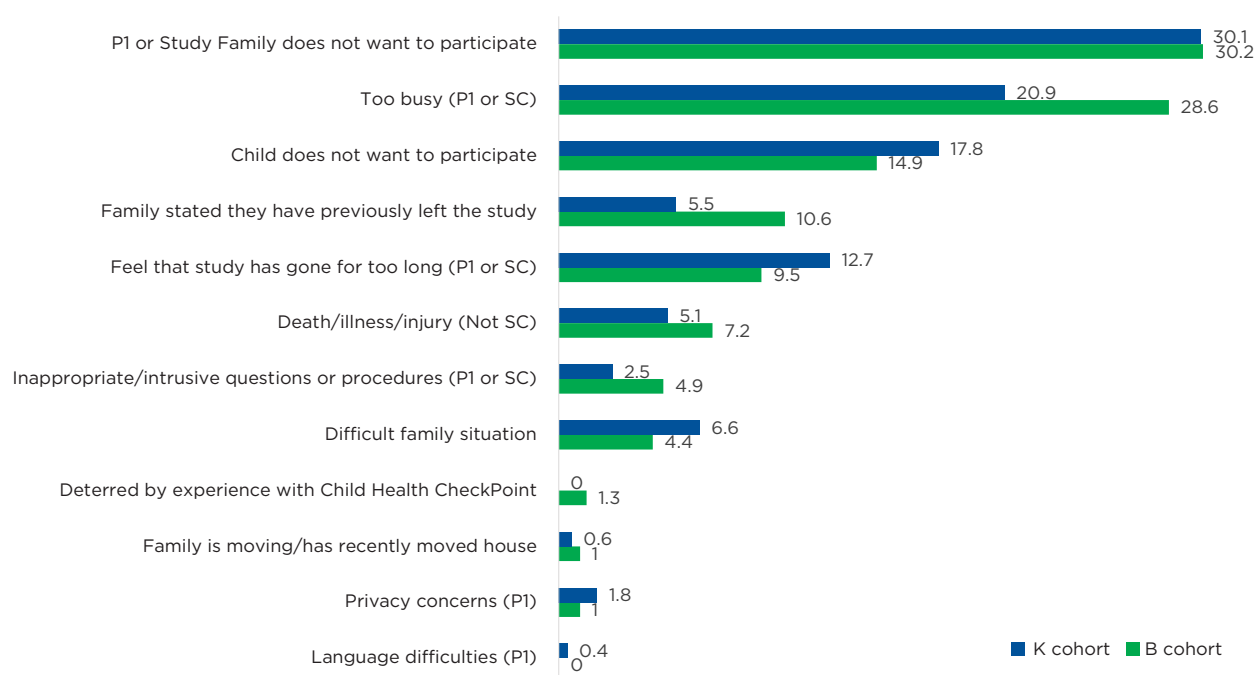
2   The Child Health CheckPoint is a special one-off data collection involving a series of physical assessments offered to the 11–12 year old children, nested within Waves 6 and 7 of the B cohort LSAC, that examined a suite of health outcomes in children.

4.3   Wave 7 response/non-response status and characteristics

Table A2 (see Appendix) presents LSAC study child characteristics, parental characteristics and household characteristics by Wave 7 response/non-response status. In both cohorts, significant characteristics differences between Wave 7 response/non-response status were in Aboriginal/Torres Strait Islander status, parental country of birth, parental main language spoken at home, parental time pressure, parental education, parental smoking status, parental alcohol consumption, parental consistency, parental argumentativeness, parental psychological distress, lone-parent household, household income, SEIFA Index of Advantage/Disadvantage, family's main income is government benefits, financial stress and housing tenure. In the B cohort, conduct problems and academic problems were also significantly different by Wave 7 response/non-response status. In the K cohort, the number of siblings in the household was also significantly different by Wave 7 response/non-response status.

Response/non-response status and study child characteristics

In both cohorts, the highest proportion of Aboriginal/Torres Strait Islander children were in non-contact status (12% and 7%, respectively) and avoidance status (7% and 6%, respectively). In the K cohort, the proportion of Aboriginal/Torres Strait Islander children with avoidance status (3%) was also higher than the participating status (2%) (see Figure 4).

Figure 4:   Response/non-response status and Aboriginal/Torres Strait Islander status
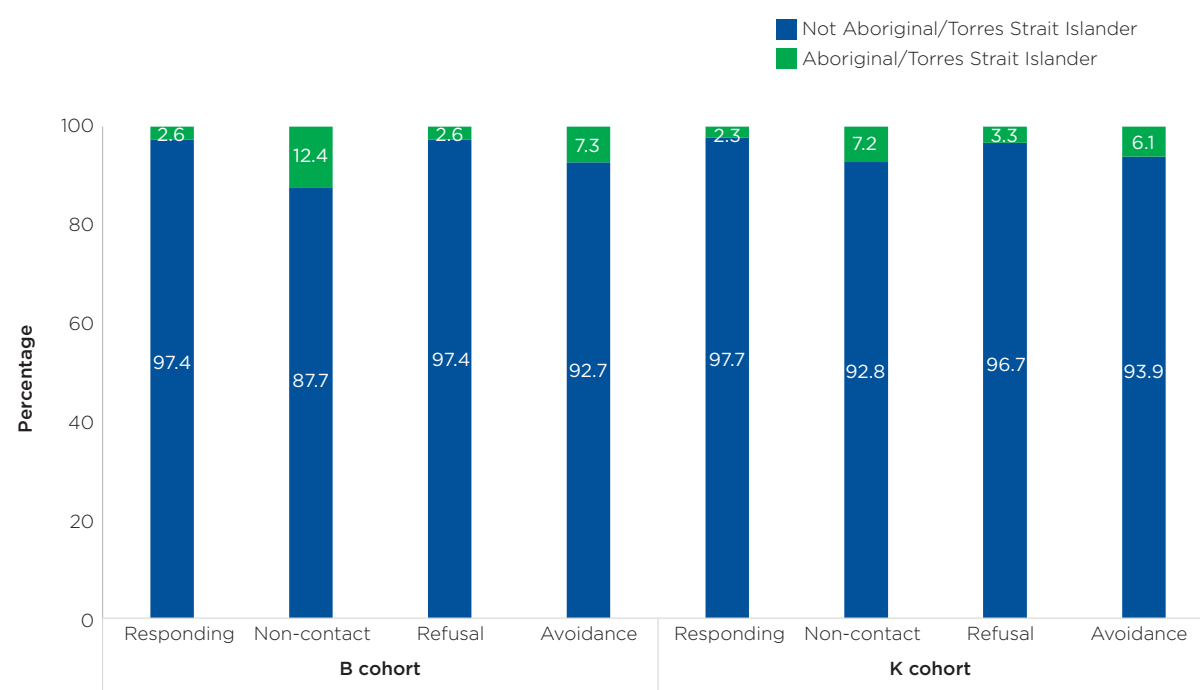
In the B cohort, approximately 7% of responding children, 14% of non-contactable children, 8% of children who refused and 14% of children who avoided had conduct problems in Wave 6. Approximately 15% of responding children, 22% of non-contactable children, 25% of children who refused and 28% of children who avoided had academic problems in Wave 6.

Response/non-response status and parental characteristics

In both cohorts, proportions of both parents born outside Australia/NZ were highest among those who refused (14.7% in B cohort and 15.4% in K cohort). In the B cohort, the proportion of both parents spoke a language other than English was highest in those who avoided (15%), while in the K cohort it was highest in those who refused (13%). In both cohorts, proportions of both parents reporting time pressure at Wave 6 were higher among those who refused (14% in B cohort and 23% in K cohort).

Around half of the responding children (51% from the B cohort and 48% from the K cohort) had at least one parent with a degree qualification. However, only 36% and 29% of non-contactable children from the B and K cohorts, respectively, had either parent with a bachelor degree or above. Only 29% of children who avoided participating in the study from both cohorts had either parent with a bachelor degree or above (see Figure 5).

Figure 5:   Response/non-response status and parental education

Year 12 or lower   Advanced diploma/Certificate/Other   Bachelor degree and above
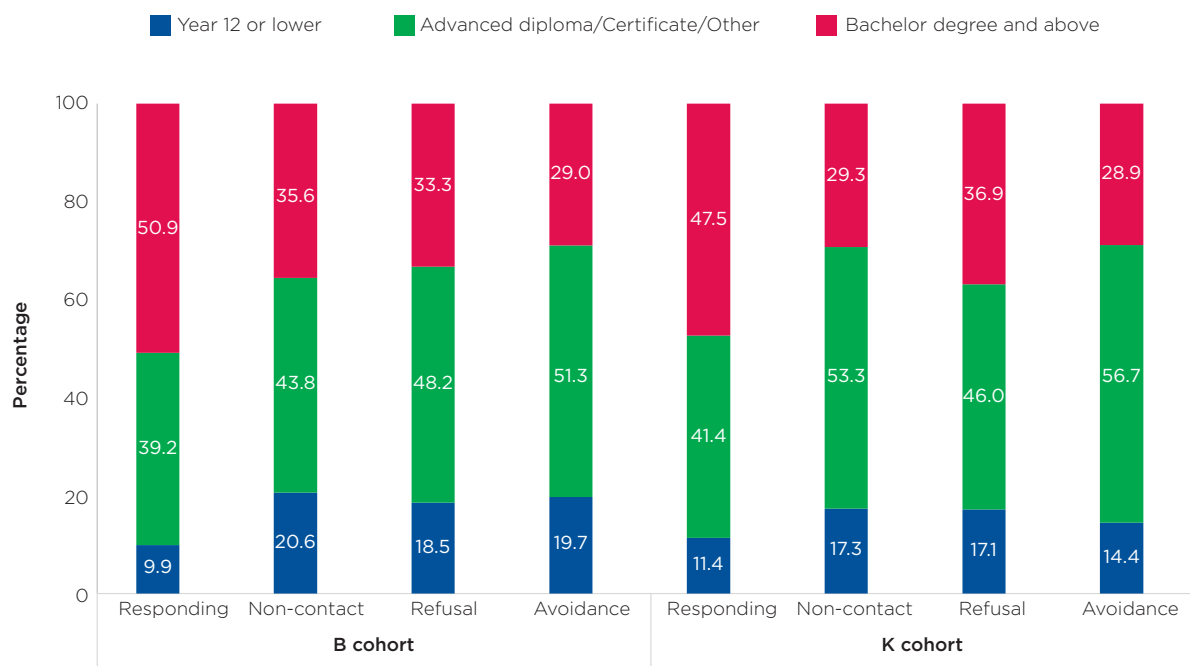
In both cohorts, the proportion of children with both parents, not smoking was higher among responding participants than all types of non-responding participants. In the B cohort, the proportions of children who had no parents smoking were 59% for responding participants, 40% for those who refused to take part in the study, 27% for non-contactable participants and 30% for those who avoided participating in the study. Similarly, in the K cohort, the proportions of children who had no parents smoking were 61% for responding participants, 33% for non-contactable participants, 46% for those who refused to take part in the study and 42% for those who avoided participating in the study (see Figure 6).

Figure 6:   Response/non-response status and parental smoking status

No parents smoke   One parent currently smokes   Both parents currently smoke
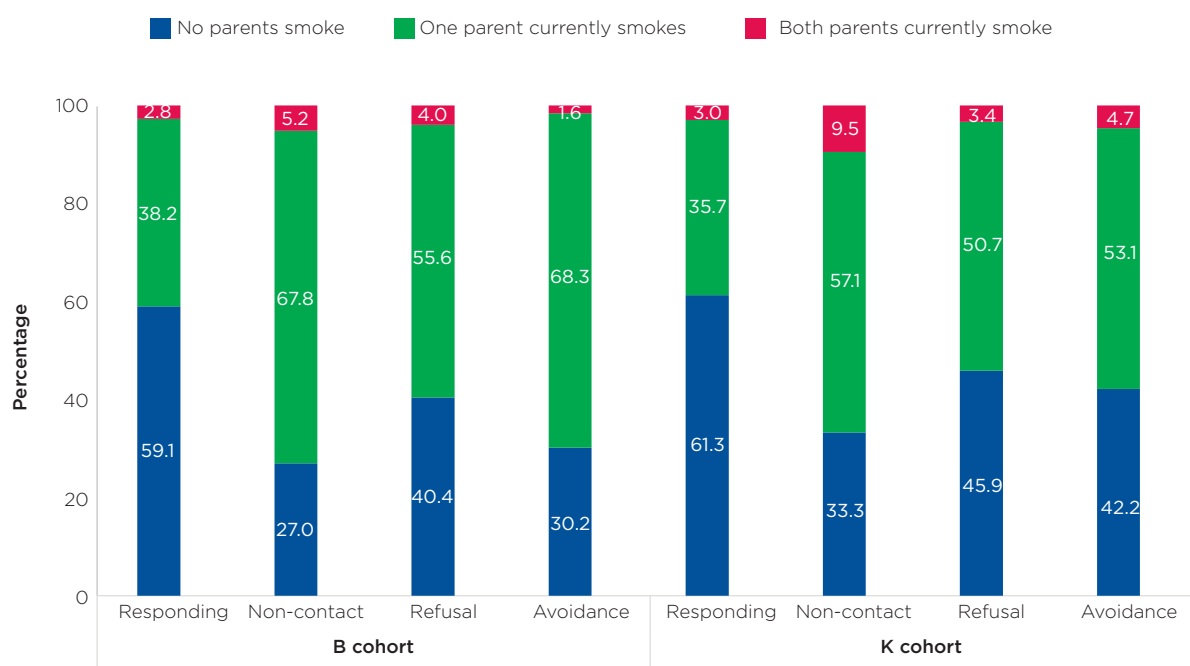
In the B cohort, of those who avoided participating in the study, 6% of children had both parents who consumed high levels of alcohol, and 50% had one parent who consumed high levels of alcohol. In the K cohort, 9% of children had both parents who consumed high levels of alcohol and 37% had one parent who consumed high levels of alcohol (see Figure 7).

Figure 7:   Response/non-response status and parental alcohol consumption
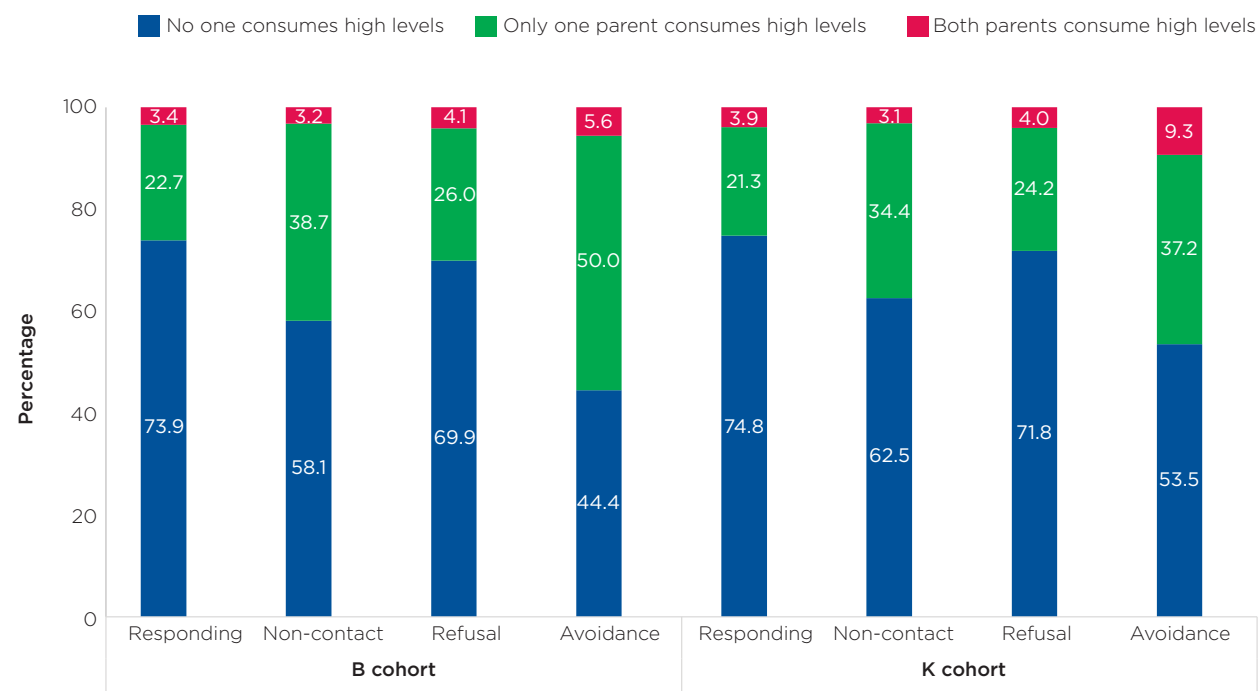
In the B cohort, the proportions of children with both parents having high parental consistency, low parental argumentativeness and low parental psychological distress across all types of non-responding participants were lower than the proportions of responding participants (responding 54%, non-contact 22%, refuse 43%, avoid 18% for both parents having high parental consistency; responding 66%, non-contact 36%, refuse 43%, avoid 18% for low parental argumentativeness; and responding 60%, non-contact 31%, refuse 48%, avoid 27% for low parental psychological distress). There were similar trends in the K cohort (responding 50%, non-contact 34%, refuse 33%, avoid 30% for both parents having high parental consistency; responding 66%, non-contact 36%, refuse 52%, avoid 33% for low parental argumentativeness; and responding 60%, non-contact 37%, refuse 44%, avoid 42% for low parental psychological distress).

Response/non-response status and household characteristics

In both cohorts, the proportions of children living in a lone-parent household were higher across all types of non-responding participants. In the B cohort, the proportions of children living in a lone-parent household were 14.2% for responding participants, 26% for non-contactable participants, 14.3% for those who refused to take part in the study, and 26% for those who avoided participating in the study. Similarly, the proportions in the K cohort were 17% for responding participants, 30% for non-contactable participants, 18% for those who refused to take part in the study and 26% for those who avoided participating in the study.

Among responding children in the K cohort, 13% had three or more siblings in the household at Wave 6, compared to almost 25% for non-contactable. In both cohorts, household income proportions varied across all types of non-responding participants. In the lowest quintile for both cohorts, the proportion of families in all types of non-response were higher than those responding. In the highest quintile for both cohorts, the proportion of families in all types of non-response were lower than those responding.

Of responding families, 24% from both cohorts were in the highest SEIFA quartile at Wave 6. However, among non-contactable families, 12% and 10% from the B and K cohorts, respectively, were in the highest SEIFA quartile at Wave 6. Among responding families in the K cohort, 7% had government benefits as their family's main income at Wave 6. However, among non-contactable families, 18% from the B cohort and 23% from the K cohort had government benefits as their family's main income at Wave 6.

In both cohorts, the proportion of families with two or more financial stress events was low for all responding and non-responding participants. In both cohorts, the proportion of families living in a rented state or territory housing authority across all types of non-responding participants was higher than the proportion of responding families (responding 1%, non-contact 6%, refuse 3%, avoid 4% for B cohort and responding 2%, non-contact 7%, refuse 3%, avoid 6% for K cohort).

5.   Overall patterns of non-response in LSAC

In a longitudinal study, those not responding at a particular wave may be first-time non-responders, may have not responded for consecutive waves or may have been 'on-again off-again' responders. When participants become non-responders, as outlined in section 3 above, participants with multiple waves of refusal or non-contact can be omitted from the starting sample for subsequent waves and will have no data collected from them in those waves.

Meanwhile, participants who avoided participating in the study are likely to be more engaged, participate in future waves, and to respond to targeted incentives and other response-related strategies, compared to those who refused to participate. Watson and Wooden (2011), using response data from the Household, Income and Labour Dynamics in Australia (HILDA) survey, German Socio-Economic Panel (SOEP) and British Household Panel Survey (BHPS), found that non-contacts and those giving reasons for non-response were more likely to re-engage in later study waves than direct refusers. These findings indicate that a better understanding of patterns of non-response, and the individual and family characteristics of non-responders in LSAC, is necessary to inform the evaluation, monitoring and management of strategies to increase participation in the study.

5.1   Cross-sectional view of non-response

Figure 8 presents the non-response rates over both cohorts in comparison to the total original sample from Wave 1. The non-response rates in the two cohorts were similar in earlier waves. However, in later waves, when the K cohort children entered the teenage years, the non-response rate was slightly higher than that of the B cohort.

Figure 8:   Non-response in LSAC waves and cohorts, using the 'original sample from' as the basis for comparisons
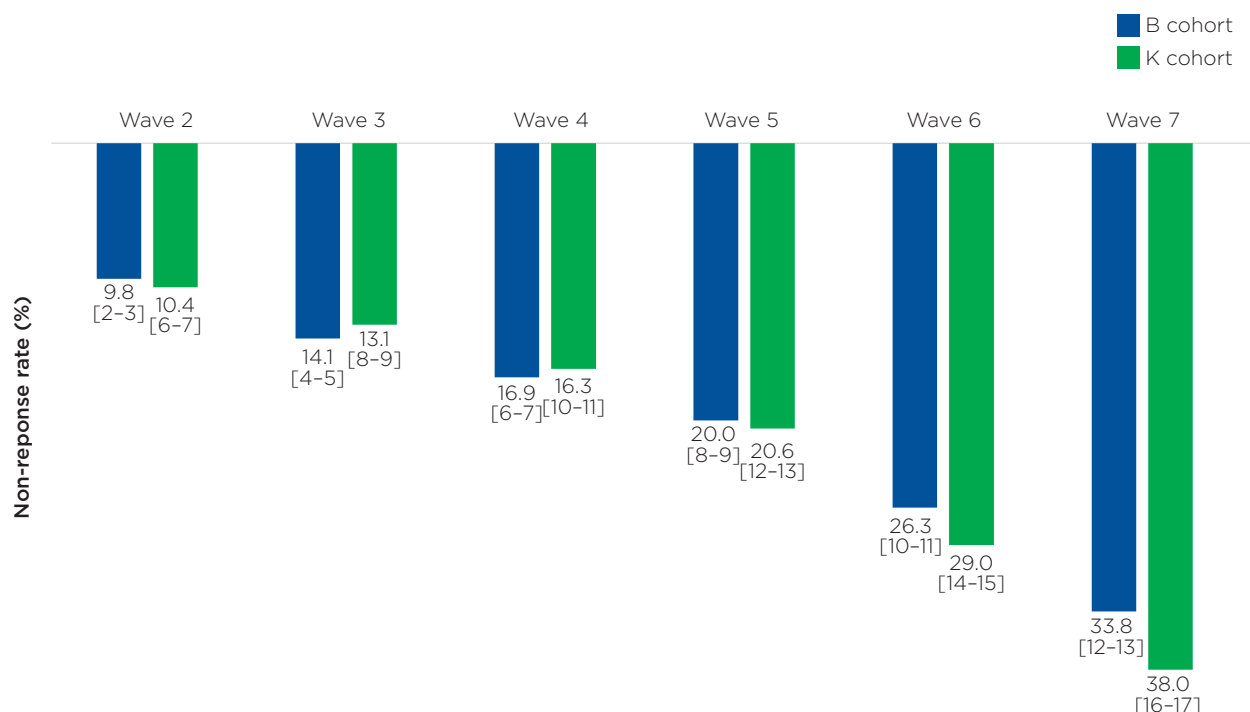
Note: Numbers in square brackets denote ages of children in each cohort.

Table 3 provides a more detailed summary of response and non-response categories. Overall, the percentage of study children in the non-response categories of non-contact and refusal have gradually increased over the waves. The proportion who were away during the entire enumeration period was highest (1.4%) in Wave 4 and lowest (0.4%) in Waves 6 and 7.

Table 3:   A cross-sectional overview of response and non-response of the LSAC cohorts

| Wave | Responding *n* (row %) | Non-contact *n* (row %) | Refusal *n* (row %) | Non-response | | | Total starting sample |
				Away entire enumeration period *n* (row %)	Death of study child *n* (row %)	Other [a] *n* (row %)	
Wave 2	9,070 (91.1)	540 (5.4)	284 (2.8)	61 (0.6)	5 (0.1)	N/A	9,960
Wave 3	8,717 (88.9)	552 (5.6)	437 (4.5)	93 (0.9)	1 (0.0)	N/A	9,800
Wave 4	8,411 (86.7)	522 (5.4)	637 (6.6)	133 (1.4)	0 (0.0)	N/A	9,703
Wave 5	8,041 (83.6)	715 (7.4)	774 (8.0)	88 (0.9)	1 (0.0)	N/A	9,619
Wave 6	7,301 (82.2)	556 (6.3)	940 (10.6)	39 (0.4)	3 (0.0)	39 (0.4)	8,878
Wave 7	6,470 (76.2)	803 (9.5)	1,118 (13.2)	34 (0.4)	2 (0.0)	67 (0.1)	8,494
B cohort							
Wave 2	4,606 (91.3)	269 (5.3)	137 (2.7)	30 (0.6)	5 (0.1)	N/A	5,047
Wave 3	4,386 (88.3)	302 (6.1)	225 (4.5)	55 (1.1)	1 (0.0)	N/A	4,969
Wave 4	4,242 (86.1)	284 (5.8)	327 (6.6)	76 (1.5)	0 (0.0)	N/A	4,929
Wave 5	4,085 (83.6)	383 (7.8)	372 (7.7)	44 (0.9)	0 (0.0)	N/A	4,884
Wave 6	3,764 (84.0)	305 (6.8)	377 (8.4)	18 (0.4)	2 (0.04)	17 (0.4)	4,483
Wave 7	3,381 (78.3)	413 (9.6)	498 (11.6)	13 (0.3)	2 (0.1)	12 (0.3)	4,319
K cohort							
Wave 2	4,464 (90.9)	271 (5.5)	147 (3.0)	31 (0.6)	0 (0.0)	N/A	4,913
Wave 3	4,331 (89.7)	250 (5.2)	212 (4.4)	38 (0.8)	0 (0.0)	N/A	4,831
Wave 4	4,169 (87.3)	238 (5.0)	310 (6.5)	57 (1.2)	0 (0.0)	N/A	4,774
Wave 5	3,956 (83.6)	332 (7.0)	402 (8.5)	44 (0.9)	1 (0.02)	N/A	4,735
Wave 6	3,537 (80.5)	251 (5.7)	563 (12.9)	21 (0.5)	1 (0.02)	22 (0.5)	4,395
Wave 7	3,089 (74.0)	390 (9.3)	620 (14.9)	21 (0.5)	0 (0.0)	55 (1.3)	4,175

Note: [a] Includes non-response due to OH&S and machine problems.

While it was valuable to compare the response rate between the B and K cohorts across waves, it was also important to consider response rates for the B cohort and K cohort at the same age. Figure 9 presents the non-response rates over both cohorts but for study children of the same age. These results indicate that non-response is higher for the B cohort than the K cohort at each age group.
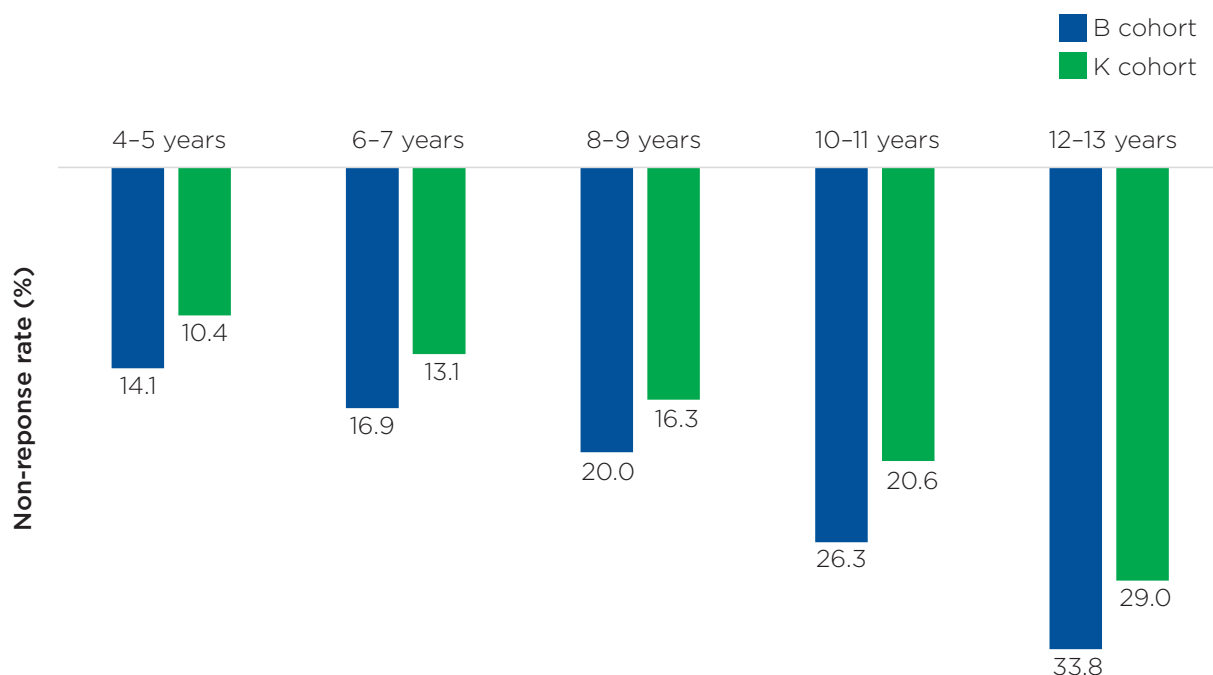
5.2 Longitudinal view of non-response patterns

While the cross-sectional view of response versus non-response provides valuable insight into cohort participation, it is also important to consider a longitudinal view of response versus non-response. The classification of non-response and patterns of non-response are important to consider as they are likely to reflect levels of engagement with the study and to minimise bias in the results of longitudinal studies.

The sample used in the following set of analyses includes all those who participated in Wave 1 minus those who became ineligible due to death of study child. This sample was grouped into the following categories based on their response status at the end of Wave 7:

1. responding to all waves
2. marginally attached and responding
3. non-contact
4. refusal.

Category 'responding to all waves' includes those who participated in all seven waves.

Category 'marginally attached and responding' includes those who responded to Wave 1 and Wave 7, but did not respond to at least one inbetween wave (up to five waves). In the B cohort, the majority (78%) missed just one wave, 19% missed two waves, 2% missed three waves, 1% missed four waves and none missed all five waves. Similarly, in the K cohort, the majority (76%) missed just one wave, 21% missed two waves, 1% missed three waves, 2% missed four waves and one participant missed all five waves.

Non-contact includes those with the status of 'non-contact' in the most recent wave to which they were invited (i.e. reason for attrition at the end of Wave 7). That is, if they were a non-contact in Waves 2, 3, 4 and 5, they would not have been invited to participate in Wave 7 (as per the criteria outlined in section 2) and would be assigned to the 'permanent non-contact' category in this study. They would also be assigned to this category if they had have been invited to participate in Wave 7 but were a non-contact in Wave 7. This category also includes those who were non-contact due to being away during the entire enumeration period and non-response due to other reasons.

Refusal includes those with the status of 'refusal' in the most recent wave to which they were invited (i.e. reason for attrition at the end of Wave 7). That is, if they were a refusal in Waves 2, 3, 4, 5, 6 or were assigned to the 'permanent refusal' category in this study. They would also be assigned to this category if they had have been invited to participate in Wave 7 but were a refusal in Wave 7. This category also includes status of 'avoidance'

when a successful contact attempt is followed by subsequent unsuccessful contact attempts, whether in person or over the phone (see section 3.6).

Deceased children were excluded from the sample used for the analyses and analyses were run separately for the B and K cohorts.

Figure 10 presents the LSAC response and non-response patterns for the B and K cohorts. Nearly 60% of B cohort and 56% of K cohort participants responded to all seven waves. In the B cohort, 6.9% of participants were marginally attached and responding, 17.5% non-contactable and 16.2% refused to participate. In the K cohort, 6.0% were marginally attached and responding, 18.2% non-contactable and 19.8% refused to participate.

Figure 10:   Longitudinal view of LSAC non-response for the B and K cohorts
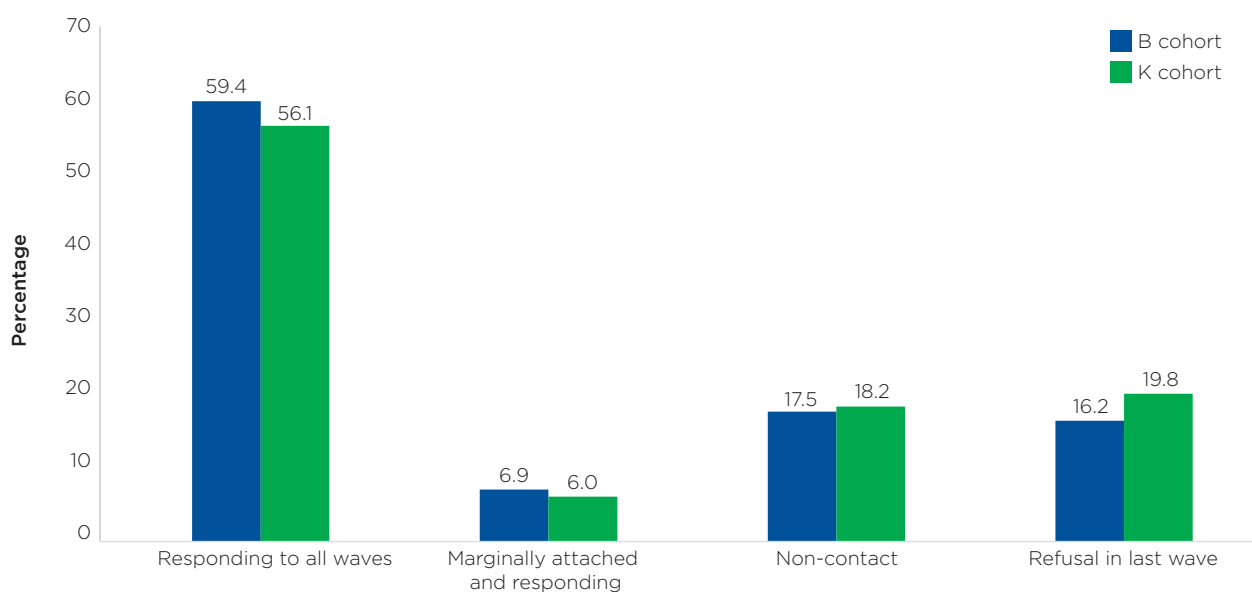
6. Factors associated with overall non-response

This section describes statistical analyses including the modelling approach used; distribution of key characteristics of participants, their households characteristics and if they were interviewed by the same interviewer in any previous wave; and the factors associated with patterns of non-response in reference to responding to all waves.

6.1 Statistical analyses

We use multinomial modelling to identify factors associated with patterns of non-response in reference to responding to all waves. The dependent or outcome variable, denoted by y_i, is defined as:

$$y_i = \begin{cases} 1 \text{ \textit{responding to all waves}} \\ 2 \text{ \textit{marginally attached and responding}} \\ 3 \text{ \textit{non-contact}} \\ 4 \text{ \textit{refusal}} \end{cases}$$

The outcome variable was modelled against factors such as the study child characteristics, their parental characteristics, household characteristics and if they were interviewed by the same interviewer in any previous wave. The category 'responding to all waves' was used as the reference category. Based on previous technical papers and relevant non-response publications from other cohort studies, the factors we used in the analyses are listed below and described in further detail in Table A3 (see Appendix).

- **Study child characteristics**: birth weight, gender, birth order, Aboriginal/Torres Strait Islander status, medical condition/disability, conduct problems, academic problems
- **Parental characteristics**: country of birth, language at home, education, time pressure, medical condition/ disability, smoking status, alcohol consumption, parental consistency, parental argumentativeness, psychological distress, stressful life events
- **Household characteristics**: lone-parent household, number of siblings in the household, household income, Socio-Economic Indexes for Areas (SEIFA) Index of Advantage/Disadvantage, family's main income is government benefits, financial stress, remote residence, housing tenure, household mobility
- **Being interviewed** by the same interviewer in any previous wave.

An advantage of longitudinal studies is that the survey variables from Wave 1 (or alternatively from any previous wave) provide detailed information about the characteristics of those who respond and those who do not in subsequent waves (Durrant, Maslovskaya, & Smith, 2017). Therefore, to construct comprehensive and the most up-to-date participant and household characteristics, survey responses from all waves were utilised. In other words, if information was not available from Wave 7 (or the most recent wave that the variable was collected), information from the latest possible wave was used. For example, if Wave 7 information was not available but Wave 6 information was available, Wave 6 information was used. If information from both Waves 6 and 7 was unavailable, Wave 5 information was used if available. This process was repeated until information was available from the latest possible wave for analysis. This approach allowed the use of the whole Wave 1 sample for both B and K cohorts. The derivation of all variables is the same for both the B and K cohorts, unless otherwise specified. Where appropriate, 'not reported' categories within factors were included to capture the full possible analytical sample for each cohort.

Preliminary multinomial logistic regression analyses firstly explored the association between each factor and the outcome variable. Steele and Durrant (2011) use multinomial models to examine simultaneously the predictors of non-contact and refusal. Steele and Durrant (2011) also discuss how several authors used multinomial models to examine simultaneously the predictors of non-contact and refusal (Pickery & Loosveldt, 2002; O'Muircheartaigh & Campanelli, 1999; Durrant & Steele, 2009). The selection of variables for inclusion in the final multinomial logistic model was guided by the preliminary logistic regression analyses, following Durrant and Steele (2009). Regression analyses were run separately for the B and K cohorts. Where appropriate, 'not reported' categories within factors were included to capture the full possible analytical sample (following Corry, Williams, Battaglia, McMaster, & Stander, 2017). Deceased children were excluded from the sample used for the analyses. These final results presented include the *p*-value of Wald chi-square statistic, adjusted odds ratios (OR) and 95% confidence intervals (CIs) of odds ratios. A two-sided *p*-value of <0.05 was considered statistically significant.

6.2   Characteristics of participants and their households

Table A3 (Appendix) summarises the study child, parental and household characteristics of LSAC participants and being interviewed for full B and K cohorts. In summary:

- In both cohorts, a small proportion of children were in the lower birth weight (5% in the B cohort and 6% in the K cohort), approximately equal proportions of males and females (approximately 51% males and 49% females), lower proportion of first-born children (41% in the B cohort and 42% in the K cohort), and a small proportion of children were of Aboriginal/Torres Strait Islander status (5% in the B cohort and 4% in the K cohort).

- Children with medical condition/disability expected to last 6 months or longer were 5% in B cohort and 8% in K cohort, while approximately 7%–15% had academic and/or conduct problems across both cohorts.

- The majority of children (nearly 65% from the B cohort and 58% from the K cohort) had both parents born in Australia or New Zealand and most children (79% and 76% from the B and K cohorts, respectively) had parents who both spoke English at home.

- Most parents in the study sample were highly educated, with 43% and 40% of B and K cohort children, respectively, having at least one parent with a bachelor degree or above.

- Forty-three per cent of children from both cohorts had at least one parent with an advanced diploma, certificate or other (non-degree) qualification as their highest qualification.

- Both parents of nearly a quarter of children reported high time pressure (24% in B cohort and 27% in K cohort). Both parents of under 3% of children had a medical condition/disability expected to last 6 months. Both parents of approximately 7% of children from both cohorts were current smokers and both parents of 4% of children from both cohorts consumed high levels of alcohol.

- The proportion of children with both parents reporting low consistency (4% in B cohort and 8% in K cohort) and high argumentativeness (2% in B and K cohorts) was small and approximately 81% of families from the B cohort and 80% from the K cohort reported no stressful events in the last 12 months.

- Under a quarter of families were lone-parent households (18% and 22% from the B and K cohorts, respectively) while most children (88% and 85% children from the B and K cohorts, respectively) had at least one sibling in the household.

- In both cohorts, nealry a quarter of families were in the lowest household income quintile, nearly half of families were in the middle SEIFA Index of Advantage/Disadvantage group and just over 10% of families' main source of income was government benefits.

- The majority of families did not report financial stress (approximately, 80% in both cohorts) and the vast majority of the families from both cohorts (96%) lived in moderate to highly accessible areas.

- Nearly 56% of families in both cohorts owned their home without a mortgage and around 75% of families in both cohorts did not move house in the previous two years.

- Around 80% of families from both cohorts had been interviewed by the same interviewer in a previous wave.

6.3   Factors associated with B cohort non-response

In preliminary multinomial logistic regression analyses for B cohort, the child characteristics associated with non-response were: low birth weight, Aboriginal/Torres Strait Islander status, conduct problems and academic problems (see Table A4, Appendix). All parental characteristics, all household characteristics (except for remote residence), along with being interviewed by the same interviewer in any previous wave were associated with non-response in the B cohort.

Significant factors identified in a mutually adjusted multinomial logistic regression model were: children's conduct problems; academic problems; parents' country of birth; parental education; parental medical condition/disability expected to last 6 months or longer; parental smoking status; parental consistency; parental argumentativeness; parental stressful life events; household mobility; and being interviewed by the same interviewer in any previous wave (see Table 4).

Below, we have provided the strongest association for each factor that was significantly associated with non-response status (in reference to responding to all waves):

- Compared with other children, those who had scores of at least 4 for conduct problems experienced 70% higher odds of non-contact (OR = 1.7, 95% CI 1.2 to 2.4)

- Compared with children who did not have academic problems, those for whom these data are missing were almost 20 times more likely to be a non-contact (OR = 19.1, 95% CI 12.1 to 30.2)

- Compared with children who had both parents born in Australia or New Zealand, children with both parents born outside of Australia or New Zealand had more than double the odds of being marginally attached and responding (OR = 1.9, 95% CI 1.1 to 3.0)

- Having either parent with a bachelor degree or above as their highest qualification, compared to having either parent with Year 12 or lower as their highest qualification, decreased the odds of refusal (OR = 0.4, 95% CI 0.3 to 0.5)

- Having one parent with a medical condition or disability, compared to having neither parent with a medical condition or disability, decreased the odds of being marginally attached and responding (OR = 0.6, 95% CI 0.4 to 0.9)

- Compared with non-smoking parents, parents who are current smokers experienced over twice the odds of refusal (OR = 2.2, 95% CI 1.2 to 4.3)

- Having both parents reporting low consistency, compared to having both parents reporting high consistency, almost doubled the odds of being marginally attached and responding (OR = 1.8, 95% CI 1.1 to 2.9)

- Not reporting, compared to having both parents reporting low argumentativeness, increased the odds of being a non-contact (OR = 3.7, 95% CI 1.8 to 7.6)

- Not reporting, compared to parents who experienced less than four stressful events, increased the odds of being a non-contact (OR = 12.5, 95% CI 4.4 to 35.1)

- Compared with children living in homes owned without a mortgage, children living in a rented state or territory housing authority (public housing) were four times as likely to be a non-contact (OR = 4.0, 95% CI 2.0 to 8.2)

- Compared with children who had not moved house in the previous two years, children who had moved house in the previous two years had 60% higher odds of being marginally attached and responding (OR = 1.6, 95% CI 1.2 to 2.1) or a non-contact (OR = 1.6, 95% CI 1.2 to 2.1).

- Being interviewed by the same interviewer in any previous wave, compared to not being interviewed by the same interviewer in any previous wave, decreased the odds of being a non-contact (OR = 0.3, 95% CI 0.2 to 0.4).

Table 4:   Results of the mutually adjusted multinomial logistic regression model of non-response in B cohort*

	Categories	Reference group	Pr>Chisq	Marginally attached and responding OR [95% CI]	Non-contact OR [95% CI]	Refusal OR [95% CI]
				(compared to responding to all waves)		
Birth weight	Low birth weight (<2500g)	Appropriate birth weight (2,500–4,000g)	0.1190	1.4 [0.9-2.2]	0.8 [0.5-1.2]	0.7 [0.5-1.2]
	High birth weight (>4000g)			1.0 [0.7-1.4]	0.7 [0.5-1.0]	1.0 [0.7-1.3]
Aboriginal/Torres Strait Islander status	Aboriginal/Torres Strait Islander	Not Aboriginal/Torres Strait Islander	0.0899	1.0 [0.6-1.9]	1.8 [1.1-2.9]	1.1 [0.6-1.8]
Conduct problems	Scores of at least 4	Scores of less than 4	**0.0110**	0.9 [0.6-1.5]	**1.7 [1.2-2.4]**	1.4 [1.0-1.9]
Academic problems	Having academic problems	Not having academic problems	**<.0001**	1.2 [0.9-1.6]	1.4 [1.0-1.8]	1.3 [1.0-1.7]
	Not reported			**4.1 [2.2-7.6]**	**19.1 [12.1-30.2]**	**13.3 [8.5-21.0]**
Parental country of birth	Only one parent born in Australia/NZ	Both parents born in Australia/NZ	**0.0192**	**1.5 [1.2-2.0]**	1.2 [0.9-1.6]	1.1 [0.8-1.4]
	Both parents born outside Australia/NZ			**1.9 [1.1-3.0]**	1.3 [0.8-2.0]	1.5 [1.0-2.3]
Parental main language spoken at home	Only one parent spoke a language other than English	Both parents spoke English	0.4177	1.4 [0.9-2.2]	1.3 [0.8-2.1]	1.1 [0.7-1.6]
	Both parents spoke a language other than English			1.2 [0.7-1.9]	1.6 [1.0-2.5]	1.2 [0.8-1.8]
Parental education	Advanced diploma/Certificate/Other	Year 12 or lower	**<.0001**	0.7 [0.5-1.0]	**0.5 [0.4-0.7]**	**0.7 [0.5-0.9]**
	Bachelor degree and above			0.7 [0.5-1.0]	**0.5 [0.4-0.7]**	**0.4 [0.3-0.5]**
Parental time pressure	Only one parent pressed for time	Both parents not pressed for time	0.5627	1.0 [0.7-1.3]	1.1 [0.9-1.5]	1.2 [0.9-1.5]
	Both parents pressed for time			1.2 [0.8-1.6]	1.1 [0.8-1.6]	1.1 [0.8-1.5]
	Parent(s) not reported			0.9 [0.4-1.8]	0.6 [0.3-1.2]	0.8 [0.4-1.5]
Parental medical condition/disability expected to last 6 months or longer	One parent with medical condition/disability	Both parents with no medical condition/disability	**0.0106**	**0.6 [0.4-0.9]**	0.9 [0.7-1.1]	0.8 [0.4-1.6]
	Both parents with medical condition/disability			0.5 [0.2-1.1]	0.5 [0.3-1.1]	1.8 [0.9-3.9]
	Parent(s) not reported			1.5 [0.7-3.3]	1.2 [0.5-2.6]	0.9 [0.6-1.2]
Parental smoking status	One parent currently smokes	No parents smoke	**0.0034**	1.2 [0.9-1.7]	1.2 [0.9-1.6]	**1.4 [1.1-1.8]**
	Both parents currently smoke			1.1 [0.7-1.7]	**2.1 [1.4-3.1]**	1.3 [0.9-1.9]
	Parent(s) not reported			1.8 [0.9-3.9]	1.8 [1.0-3.5]	**2.2 [1.2-4.3]**
Parental alcohol consumption	Only one parent consumes high levels	No one consumes high levels	0.6585	1.2 [0.9-1.7]	1.3 [0.9-1.7]	1.1 [0.9-1.4]
	Both parents consume high levels			1.3 [0.7-2.2]	1.2 [0.7-2.1]	1.0 [0.6-1.6]
	Parent(s) not reported			1.7 [0.9-3.3]	1.3 [0.7-2.3]	1.4 [0.8-2.4]
Parental consistency	One parent reported high consistency	Both parents reported high consistency	**0.0128**	1.2 [0.9-1.5]	**1.5 [1.2-1.9]**	1.3 [1.0-1.6]
	Both parents reported low consistency			**1.8 [1.1-2.9]**	0.9 [0.5-1.5]	1.1 [0.7-1.7]
	Parent(s) not reported			1.2 [0.7-2.1]	**1.8 [1.1-2.9]**	1.4 [0.8-2.2]

Variable	Category	Reference	p-value	OR [95% CI]	OR [95% CI]	OR [95% CI]
Parental argumentativeness	**One parent reported high argumentativeness**	Both parents reported low argumentativeness	<.0001	1.0 [0.7-1.4]	1.2 [0.9-1.6]	**1.3 [1.0-1.7]**
	Both parents reported high argumentativeness			1.6 [0.8-3.0]	0.9 [0.4-2.0]	0.9 [0.5-1.8]
	Ineligible to answer the argumentative scale			1.2 [0.8-1.8]	0.7 [0.4-1.0]	0.6 [0.4-1.0]
	Parent(s) not reported			**2.9 [1.3-6.4]**	**3.7 [1.8-7.6]**	**2.3 [1.1-4.7]**
Parental psychological distress	One parent with high level of psychological distress	Both parents with low level of psychological distress	0.6944	0.8 [0.6-1.1]	1.1 [0.8-1.4]	1.0 [0.8-1.3]
	Both parents with high level of psychological distress			1.1 [0.5-2.4]	0.7 [0.3-1.7]	0.8 [0.4-1.9]
	Parent(s) not reported			0.6 [0.2-1.3]	0.7 [0.4-1.4]	0.5 [0.3-1.2]
Parental stressful life events	4 or more stressful events	Less than 4 stressful events	**<.0001**	1.2 [0.9-1.6]	0.9 [0.7-1.2]	0.9 [0.7-1.2]
	Parent(s) not reported			4.1 [1.0-17.3]	**12.5 [4.4-35.1]**	**9.8 [3.6-26.7]**
Number of siblings in household	1 sibling	None	0.0511	1.3 [0.8-2.0]	1.0 [0.6-1.4]	1.1 [0.8-1.6]
	2 siblings			1.6 [1.0-2.5]	1.2 [0.8-1.8]	0.9 [0.6-1.3]
	3 or more siblings			1.8 [1.1-2.9]	1.2 [0.8-1.9]	0.9 [0.6-1.3]
Household income	2nd quintile	1st quintile (lowest quintile)	0.3910	0.8 [0.6-1.2]	0.7 [0.5-1.0]	0.9 [0.7-1.3]
	3rd quintile			0.8 [0.5-1.1]	0.8 [0.6-1.2]	0.7 [0.5-1.0]
	4th quintile			0.8 [0.5-1.2]	0.6 [0.4-0.9]	0.8 [0.6-1.1]
	5th quintile (highest quintile)			1.0 [0.6-1.6]	0.8 [0.5-1.2]	0.8 [0.6-1.2]
SEIFA Index of Advantage/Disadvantage	Middle 50%	Lowest 25%	0.1461	0.9 [0.7-1.1]	1.2 [0.9-1.6]	1.1 [0.9-1.4]
	Highest 25%			0.7 [0.5-1.1]	1.0 [0.7-1.4]	1.3 [1.0-1.8]
Family's main income is government benefits	Yes	No	0.1241	1.2 [0.7-1.8]	1.6 [1.1-2.4]	1.4 [0.9-2.1]
Financial stress	1 event	No stressful events	0.4146	0.9 [0.6-1.3]	1.2 [0.9-1.7]	1.1 [0.8-1.5]
	2 or more events			1.3 [0.9-2.1]	1.4 [0.9-2.1]	1.0 [0.6-1.5]
Housing tenure	Owner with a mortgage	Owner without a mortgage	**0.0005**	**1.7 [1.1-2.6]**	**2.1 [1.3-3.1]**	1.3 [1.0-1.8]
	Renter – private landlord			**2.4 [1.5-3.9]**	**2.6 [1.6-4.2]**	1.3 [0.9-2.0]
	Renter – state/territory housing authority			**2.8 [1.2-6.2]**	**4.0 [2.0-8.2]**	1.8 [0.9-3.6]
	Other landlord/other tenure type			**2.4 [1.3-4.5]**	**3.1 [1.7-5.6]**	1.2 [0.7-2.1]
Household mobility (whether study child has moved house in the previous 2 years)	Yes	No	**0.0001**	**1.6 [1.2-2.1]**	**1.6 [1.2-2.1]**	**1.5 [1.2-1.9]**
Being interviewed by the same interviewer in any previous wave	Yes	No	**<.0001**	**0.4 [0.3-0.6]**	**0.3 [0.2-0.4]**	**0.7 [0.5-0.9]**

Notes: Model Statistics. Pr(>Chisq) = <0.0001. Factors in bold are those that were considered statistically significant at a two-sided *p*-value of <0.05. *In sensitivity analyses, which excluded parental smoking status as a covariate, Aboriginal/Torres Strait Islander status was associated with non-response status ($p = 0.0456$).

6.4 Factors associated with K cohort non-response

In preliminary multinomial logistic regression analyses for K cohort, the child characteristics associated with non-response were: birth weight, birth order, conduct problems and academic problems (see Table A5, Appendix). Similar to the B cohort, all parental characteristics, all household characteristics (except for remote residence), along with being interviewed by the same interviewer in any previous wave were associated with non-response in the K cohort.

Significant factors identified in a mutually adjusted multinomial logistic regression model were: children's birth weight; birth order; conduct problems; academic problems; parental education; parental medical condition/disability expected to last 6 months or longer; parental smoking status; parental consistency, parental argumentativeness; parental stressful life events; number of siblings in the household; housing tenure; household mobility and being interviewed by the same interviewer in any previous wave (see Table 5).

Below, we have provided the strongest association for each factor that was significantly associated with non-response status (in reference to responding to all waves):

- Compared with children of a birth weight of between 2,500 and 4,000 grams, children of high birth weight (>4000 grams) experienced 60% lower odds of non-contact (odds ratio (OR) = 0.6, 95% confidence interval (CI) 0.4 to 0.9)
- Compared with first-born children, second or subsequent children experienced 30% higher odds of refusal (OR = 1.3, 95% CI 1.1 to 1.5)
- Compared with children who had scores of less than 4 for conduct problems, children who had scores of at least 4 for conduct problems experienced 60% higher odds of non-contact (OR = 1.6, 95% CI 1.1 to 2.3)
- Compared with children who did not have academic problems, those who were included in the not reported group were over three times more likely to be non-contact (OR = 3.3, 95% CI 2.4 to 4.6)
- Having either parent with a bachelor degree or above as their highest qualification, compared to having either parent with Year 12 or lower as their highest qualification, decreased the odds of refusal (OR = 0.5, 95% CI 0.4 to 0.8)
- Having both parents with a medical condition or disability, compared to having neither parent with a medical condition or disability, increased the odds of refusal (OR = 3.2, 95% CI 1.6 to 6.3)
- Not reporting, compared to having neither parent smoking, increased the odds of being marginally attached and responding (OR = 3.2, 95% CI 1.6 to 6.3)
- Not reporting, compared to having both parents reporting high consistency, halved the odds of non-contact or refusal (OR = 0.5, 95% CI 0.3 to 0.9)
- Not reporting, compared to having both parents reporting low argumentativeness, almost tripled the odds of non-contact or refusal (OR = 2.8, 95% CI 1.5 to 5.3 and OR = 2.8, 95% CI 1.6 to 5.1, respectively)
- Not reporting, compared to parents who experienced less than four stressful events, increased the odds of non-contact (OR = 10.26, 95% CI 4.9 to 21.1)
- Compared with children who had no siblings in the household, children who had three or more siblings in the household experienced almost three times the odds of non-contact (OR = 2.8, 95% CI 1.9 to 4.1)
- Compared with households where the main income was not government benefits, households where the main income was government benefits experienced half the odds of contact (OR = 0.5, 95% CI 0.3 to 0.7)
- Compared with children living in homes owned without a mortgage, children living in a rented state or territory housing authority experienced four times the odds of being marginally attached and responding (OR = 4.0, 95% CI 2.0 to 8.0)
- Compared with children who had not moved house in the previous 2 years, children who had moved house in the last 2 years experienced around twice the odds of non-contact (OR = 1.8, 95% CI 1.4 to 2.3)
- Being interviewed by the same interviewer in any previous wave, compared to not being interviewed by the same interviewer in any previous wave, decreased the odds of non-contact (OR = 0.2, 95% CI 0.2 to 0.3)

Table 5:   Results of the mutually adjusted multinomial logistic regression model of non-response in K cohort*

	Categories	Reference group	Pr>Chisq	Marginally attached and responding OR [95% CI]	Non-contact OR [95% CI]	Refusal OR [95% CI]
				(compared to responding to all waves)		
Birth weight	Low birth weight (<2,500g)	Appropriate birth weight (2,500–4,000g)	**0.0276**	0.9 [0.5-1.5]	1.2 [0.8-1.8]	1.1 [0.8-1.6]
	High birth weight (>4,000g)			0.7 [0.5-1.1]	**0.6 [0.4-0.9]**	1.1 [0.9-1.4]
Birth order	Second or subsequent child	First born child	**0.0332**	1.2 [0.9-1.5]	1.2 [0.9-1.4]	**1.3 [1.1-1.5]**
Aboriginal/Torres Strait Islander status	Aboriginal/Torres Strait Islander	Not Aboriginal/Torres Strait Islander	0.7202	1.1 [0.6-2.2]	1.3 [0.8-2.2]	1.3 [0.8-2.1]
Conduct problems	Scores of at least 4	Scores of less than 4	**0.0269**	0.9 [0.5-1.4]	**1.6 [1.1-2.3]**	1.3 [0.9-1.8]
Academic problems	Having academic problems	Not having academic problems	**<.0001**	1.4 [1.0-2.0]	1.2 [0.9-1.6]	**1.4 [1.1-1.8]**
	Not reported			**2.6 [1.7-4.0]**	**3.3 [2.4-4.6]**	**3.0 [2.3-4.1]**
Parental country of birth	Only one parent born in Australia/NZ	Both parents born in Australia/NZ	0.3145	1.3 [0.9-1.7]	1.2 [0.9-1.5]	0.9 [0.7-1.1]
	Both parents born outside Australia/NZ			1.2 [0.7-2.0]	1.3 [0.8-1.9]	1.2 [0.9-1.7]
Parental main language spoken at home	Only one parent spoke a language other than English	Both parents spoke English	0.4983	0.8 [0.5-1.5]	1.0 [0.7-1.6]	1.1 [0.7-1.5]
	Both parents spoke a language other than English			1.5 [0.9-2.4]	1.2 [0.8-1.8]	1.3 [1.0-1.9]
Parental education	Advanced diploma/Certificate/Other	Year 12 or lower	**0.0001**	0.9 [0.6-1.3]	1.0 [0.7-1.3]	0.9 [0.7-1.1]
	Bachelor degree and above			0.7 [0.5-1.0]	**0.6 [0.5-0.9]**	**0.6 [0.5-0.8]**
Parental time pressure	Only one parent pressed for time	Both parents not pressed for time	0.686	1.1 [0.8-1.6]	1.0 [0.8-1.3]	1.1 [0.9-1.4]
	Both parents pressed for time			1.0 [0.6-1.4]	0.9 [0.7-1.2]	1.2 [1.0-1.6]
	Parent(s) not reported			1.4 [0.7-2.7]	1.3 [0.8-2.3]	1.2 [0.7-2.0]
Parental medical condition/ disability expected to last 6 months or longer	One parent with medical condition/disability	Both parents with no medical condition/ disability	**0.0089**	**0.6 [0.4-0.8]**	0.8 [0.6-1.0]	0.7 [0.3-1.5]
	Both parents with medical condition/disability			**0.4 [0.2-0.8]**	0.6 [0.3-1.1]	**3.2 [1.6-6.3]**
	Parent(s) not reported			0.9 [0.5-1.7]	1.2 [0.7-2.2]	0.8 [0.6-1.2]
Parental smoking status	One parent currently smokes	No parents smoke	**<.0001**	**1.6 [1.1-2.2]**	**1.7 [1.2-2.2]**	**1.4 [1.1-1.7]**
	Both parents currently smoke			1.3 [0.8-2.3]	**2.2 [1.5-3.2]**	**1.9 [1.4-2.7]**
	Parent(s) not reported			**3.2 [1.6-6.3]**	**2.7 [1.6-4.7]**	**2.6 [1.5-4.3]**
Parental alcohol consumption	Only one parent consumes high levels	No one consumes high levels	0.3505	1.0 [0.7-1.4]	1.2 [0.9-1.6]	1.1 [0.9-1.4]
	Both parents consume high levels			1.2 [0.6-2.2]	1.3 [0.8-2.1]	1.3 [0.9-1.9]
	Parent(s) not reported			0.9 [0.5-1.6]	1.4 [0.8-2.3]	1.7 [1.1-2.7]
Parental consistency	One parent reported high consistency	Both parents reported high consistency	**0.0322**	1.0 [0.8-1.4]	0.8 [0.6-1.1]	0.9 [0.8-1.1]
	Both parents reported low consistency			1.0 [0.6-1.5]	0.8 [0.6-1.2]	**0.6 [0.4-0.8]**
	Parent(s) not reported			0.9 [0.4-1.9]	**0.5 [0.3-0.9]**	**0.5 [0.3-0.9]**

Factor	Category	p-value			
Parental argumentativeness	One parent reported high argumentativeness	0.0002	0.8 [0.5-1.2]	0.9 [0.7-1.2]	1.0 [0.8-1.3]
	Both parents reported high argumentativeness		0.6 [0.2-1.7]	0.8 [0.4-1.7]	1.2 [0.7-2.0]
	Ineligible to answer the argumentative scale		1.0 [0.7-1.5]	0.7 [0.5-1.0]	0.7 [0.5-1.0]
	Parent(s) not reported		1.1 [0.4-2.6]	**2.8 [1.5-5.3]**	**2.8 [1.6-5.1]**
	Both parents reported low argumentativeness				
Parental psychological distress	One parent with high level of psychological distress	0.2407	1.3 [0.9-1.9]	1.2 [0.9-1.6]	0.8 [0.7-1.1]
	Both parents with high level of psychological distress		1.1 [0.5-2.5]	1.3 [0.7-2.6]	0.6 [0.3-1.2]
	Parent(s) not reported		1.1 [0.5-2.5]	1.2 [0.6-2.2]	0.8 [0.5-1.5]
	Both parents with low level of psychological distress				
Parental stressful life events	4 or more stressful events	**<.0001**	1.3 [1.0-1.8]	0.9 [0.7-1.1]	0.8 [0.6-1.0]
	Less than 4 stressful events		1.1 [0.2-5.3]	**10.2 [4.9-21.1]**	**8.6 [4.3-17.0]**
Number of siblings in household	1 sibling	**<.0001**	1.1 [0.8-1.7]	**1.6 [1.1-2.2]**	**1.4 [1.1-1.9]**
	2 siblings		1.2 [0.8-1.9]	**1.9 [1.3-2.7]**	**1.5 [1.1-2.0]**
	3 or more siblings		1.4 [0.9-2.3]	**2.8 [1.9-4.1]**	1.1 [0.8-1.6]
	None				
Household income	2nd quintile	0.2902	0.8 [0.6-1.3]	0.7 [0.5-1.0]	0.9 [0.7-1.2]
	3rd quintile		0.9 [0.6-1.4]	0.9 [0.6-1.2]	0.9 [0.7-1.2]
	4th quintile		0.7 [0.4-1.1]	0.8 [0.5-1.2]	1.1 [0.8-1.5]
	5th quintile (highest quintile)		1.3 [0.8-2.1]	0.8 [0.6-1.3]	0.9 [0.7-1.3]
	1st quintile (lowest quintile)				
SEIFA Index of Advantage/ Disadvantage	Middle 50%	0.9145	1.1 [0.8-1.5]	1.0 [0.8-1.3]	1.1 [0.9-1.3]
	Highest 25%		1.1 [0.7-1.6]	0.9 [0.6-1.2]	1.1 [0.8-1.4]
	Lowest 25%				
Family's main income is government benefits	Yes	**0.0028**	1.0 [0.6-1.6]	**0.5 [0.3-0.7]**	0.7 [0.5-1.1]
	No				
Financial stress	1 event	0.1607	1.0 [0.7-1.5]	1.3 [1.0-1.8]	1.3 [1.0-1.7]
	2 or more events		1.2 [0.7-1.9]	1.3 [0.9-1.9]	1.5 [1.1-2.1]
	No stressful events				
Housing tenure	Owner with a mortgage	**<.0001**	1.0 [0.7-1.5]	**1.7 [1.2-2.4]**	**1.5 [1.2-1.9]**
	Renter – private landlord		1.6 [1.0-2.6]	**2.5 [1.7-3.7]**	1.3 [0.9-1.8]
	Renter – state/territory housing authority		**4.0 [2.0-8.0]**	**3.9 [2.1-7.1]**	**2.4 [1.4-4.2]**
	Other landlord/other tenure type		1.1 [0.5-2.2]	1.6 [0.9-2.9]	1.1 [0.7-1.8]
	Owner without a mortgage				
Household mobility (whether study child has moved house in the previous 2 years)	Yes	**<.0001**	**1.5 [1.1-2.1]**	**1.8 [1.4-2.3]**	**1.3 [1.0-1.6]**
	No				
Being interviewed by the same interviewer in any previous wave	Yes	<.0001	**0.4 [0.3-0.6]**	**0.2 [0.2-0.3]**	**0.4 [0.3-0.5]**
	No				

Notes: Model statistics, Pr(>Chisq) = <0.0001. Factors in bold are those that were considered statistically significant at a two-sided *p*-value of <0.05. *In sensitivity analyses, which excluded parental smoking status as a covariate, results showed parental alcohol consumption was associated with non-response status (*p* = 0.0409). However, parental consistency was no longer significant (*p* = 0.0683).

7.   Conclusion

In this report, we investigated response rates in *Growing Up in Australia*: The Longitudinal Study of Australian Children, described patterns of non-response, and examined which factors were associated with response and non-response. Overall, in the most recent wave of LSAC, Wave 7, the response rate was 64% of the original sample from Wave 1 and 76% of the starting sample. Response rates were four percentage points higher for the B cohort (66% of the original sample and 78% of the starting sample) compared to the K cohort (62% of the original sample and 74% of the starting sample). We detailed pathways for response, non-contact, refusal, avoidance and being away during the fieldwork period.

Preliminary multinomial logistic regression analyses and a mutually adjusted multinomial logistic regression model for B and K cohorts were used to investigate relationships between a wide variety of characteristics of the study child, parental and household, and being interviewed, and categories of non-response. The cross-sequential design of LSAC allowed us to study factors associated with non-response in two cohorts of children, born four years apart. In preliminary analyses, child's birth weight, birth order (only in K cohort), Aboriginal/Torres Strait Islander status, conduct problems, academic problems, all parental characteristics, all household characteristics (except for remote residence), along with being interviewed by the same interviewer in any previous wave were associated with non-response in B and K cohorts.

Figure 11 presents the key summary results from mutually adjusted multinomial logistic regression models for B and K cohorts.

Figure 11:   Overall LSAC non-response over the waves
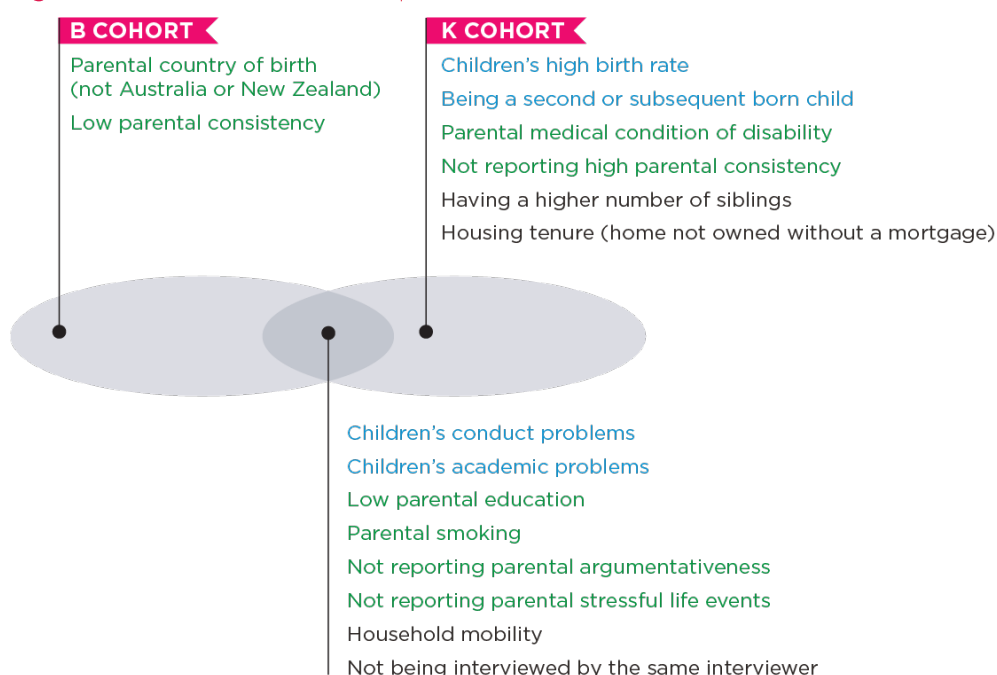
In mutually adjusted multinomial logistic regression models for B and K cohorts, children's conduct problems, children's academic problems, low parental education, parental smoking, not reporting parental argumentativeness, not reporting parental stressful life events, household mobility and not being interviewed by the same interviewer in any previous wave were associated with non-response in both cohorts. In the B cohort, parental country of birth (not Australia or New Zealand) and low parental consistency were additionally associated with non-response. Children's high birth weight, being a second or subsequent born child, parental medical condition or disability expected to last 6 months or longer, not reporting high parental consistency, having a higher number of siblings in the household and housing tenure (being in a home that was not owned without a mortgage) were additionally associated with non-response in the K cohort (see Figure 11).

Our results are consistent with many of the findings from previous research. In a study of six major UK Government household surveys, completed by adults, Durrant and Steele (2009) also observed that parental education (highest qualification) and household mobility were associated with refusal. Similar to our study, Corry et al. (2017) found that education was associated with participation in the Millennium Cohort Family Study of US

service members and their spouses. Moreover, in the Australian 'Environments for Healthy Living' population-based birth cohort, maternal education, smoking during pregnancy and household mobility were associated with contactable non-response (Ng, Scott, & Scuffham, 2016). The effect of smoking on non-response might be attributed to the fact that people with poor health habits are less likely to respond to a longitudinal birth cohort study. However, Ng et al. (2016) also observed that language spoken at home, psychological distress and conflict score were associated with non-response.

Overall, our findings can help inform participant engagement. Potentially, engagement strategies can be targeted to different sub-populations of non-responding participants. For example, participant incentives could be adjusted according to recent response patterns, with higher incentives for those not responding to the last wave or with intermittent patterns of response. Participant communications could also be tailored according to past patterns of response. Rather than having a standard set of letters, brochures, newsletters, phone call scripts and other forms of communication with participants, wording could be adapted so that those with patterns of continued participation are thanked for their dedication, and previous wave non-responders are reminded of the importance of the study and the value of their participation to encourage involvement in future waves. Data collection modes and lengths could also be tailored to response, with shorter interviews or more flexible data collection options for those with patterns of previous non-response.

Future research should examine factors associated with response and categories of non-response in later waves of the study, including Wave 8. It would be important to observe whether these factors remain the same in future waves to allow accurate generation of survey weights for future waves of the study. There might be differences in factors associated with non-response as children get older. Specifically, it might be less about household characteristics and more about the individual, especially if there is no request for a parent to be present for the interview. Further, as the study children move into young adulthood, retaining participants is likely to become more of a challenge. Therefore, improving engagement with the study and minimising sample attrition are high priorities for LSAC.

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Appendix

Table A1:   Details on LSAC participants and household characteristics

Characteristics	Measure and additional information
Study child characteristics	
Birth weight	The weight of the study child (grams) from birth was classified into three categories: low birth weight '<2,500 grams', appropriate birth weight '2,500–4,000 grams' and high birth weight '>4,000 grams'. This information was obtained from Wave 1.
Gender	Wave 1 survey data were utilised.
Birth order	Birth order for children was derived based on their number of older siblings from the baseline wave (Wave 1). Birth order was classified into either 'first born child' or 'second or subsequent child'.
Aboriginal/Torres Strait Islander status	Information on whether or not the study child was of Aboriginal/Torres Strait Islander status was obtained from the first wave.
Medical condition/ disability expected to last 6 months or longer	Whether the study child had a medical condition or disability (including mental illness) that is expected to last 6 months or longer was classified into 'yes' and 'no'.
Conduct problems	Using the Strengths and Difficulties Questionnaire (SDQ) conduct problems subscale (Goodman, 2001), information on the child's externalising behaviours (e.g. often fights with other children or bullies them), as reported by the parent, was obtained. A three-point scale, with options of 'not true', 'somewhat true' and 'certainly true' was used for each behaviour. The total score was a mean of 5 items, rescaled with a range of 0 to 10. Children were considered to have higher symptoms of conduct problems if they had scores of at least 4. Conduct problems were classified into 'scores less than 4' and 'scores of at least 4'.
Academic problems	Using the rating of overall school achievement from the Teacher Academic Rating Scale as used in the Early Childhood Longitudinal Study, Kindergarten cohort of 1998–99 (ECLS-K), information on the child's overall academic skills was used. Children's overall academic skills were compared to other children in the equivalent grade level and rated by their teacher. Children were classified into two categories, 'those having academic problems' and 'those not having problems'. Children were considered to have academic problems if they were rated as 'below average' or 'far below average' and not having academic problems if they were rated as 'far above average', 'above average' or 'average' by their teacher. Information on this measure was only available from the B cohort.
Parental characteristics[a]	
Parental country of birth	Using the Standard Australian Classification of Countries (SACC) codes (Australian Bureau of Statistics [ABS], 2017b), country of birth information from Wave 1 was categorised into 'Born in Australia and New Zealand' (SACC codes 1101 and 1201) and 'Born outside Australia/New Zealand' (all other SACC codes). ABS statistics commonly use Australian born/non-Australian born parents. Much research also considers parents born in Australia/New Zealand and outside of Australia/New Zealand (e.g. TP no. 17) (Homel & Edwards, 2016). Our rationale is based on geographic location and access to similar government services.
Parental main language spoken at home	Using the Australian Standard Classification of Languages (ASCL) codes (ABS, 2017a), information on the main language spoken at home (English or another language) was obtained from Wave 6.
Parental education	At all waves, parents reported the highest level of school that they completed and their highest post-secondary qualification. This information was combined to create the highest parental qualification for either parent: 'bachelor degree and above', 'advanced diploma/certificate/other' and 'Year 12 or lower'.
Parental pressure for time	Using response to 'How often do you feel rushed or pressed for time?', options (Always; Often; Sometimes; Rarely; Never) were classified into 'pressed for time' using options often/always; and 'not pressed for time' using options sometimes/rarely/never.
Parental medical condition/disability expected to last 6 months or longer	For Waves 5 to 7, there were two versions of the variable, which included and excluded mental illness. We used the version that included mental illness in Wave 6.
Parental smoking status	We used information on whether the parent currently smokes.

Characteristics	Measure and additional information
Parental alcohol consumption	We used information on regular short-term risky drinking (i.e. whether the parent has 5+ drinks in a sitting (women) or 7+ drinks in a sitting (men), 2 to 3 times per month or more often) to categorise alcohol consumption into low and high levels.
Parental consistency	Using the NLSCY (Statistics Canada, 2000), information on how often the parent engages in a range of behaviours demonstrating consistent parental discipline within the parent (e.g. when child is given an instruction, how often do you make sure that he/she does it?) was obtained from the primary caregiver and other parent. A five-point scale, with options of 'never/almost never', 'less than half the time', 'about half the time', 'more than half the time' and 'all the time' was used for each behaviour. The mean of all five behaviours was calculated to derive an overall score. We classified parental consistency into 'scores less than 3.5', which indicated low consistent/inconsistent discipline, and 'scores of at least 3.5' (O'Connor, Romaniuk, Gray, & Daraganova, 2018).
Parental argumentativeness	Using the argumentative relationship scale (Ahrons, 1981), information on any disagreements between the primary caregiver and their partner was obtained. Examples of the five items included: 'How often do you and your partner disagree about basic child-rearing issues?' and 'How often do you and your partner argue?' If either parent answered 'often' or 'always' to any of these items, this measure was coded as 1, otherwise, it was coded as 0. For single-parent households, this measure was set to 0. We then considered parental argumentativeness for both parents by classifying it into four categories: 'ineligible to answer the argumentative scale,' 'both parents reported low argumentativeness,' 'one parent reported high argumentativeness' and 'both parents reported high argumentativeness.'
Parental psychological distress	Using the Kessler K6 Screening Scale (Kessler et al., 2003), information on how often the parent experienced feeling a range of psychological stress-related symptoms (e.g. feeling nervous, hopeless, restless or fidgety) in the last four weeks was obtained from the primary caregiver. A five-point scale, with options of 'all the time,' 'most of the time,' 'some of the time,' 'a little of the time,' and 'none of the time', was used for each of the six items. The items were all summed to generate an overall score. Psychological distress was classified into two categories, 'those scoring at least 14' (who were considered to have psychological distress) and 'those scoring under 14'.
Parental stressful life events	Using an adaptation of the Stressful Life Events scale from the Path Through Life Study (Centre for Mental Health Research, 2005), information on whether any of 17 stressful events (e.g. a serious illness, injury or assault, death of a parent, partner or child) happened to the parent in the previous year was obtained from the primary caregiver. The total number of stressful life events was classified into 'less than 4 stressful events' and '4 or more stressful events'. The question was asked of Parent 1 but relates to both parents.
Household characteristics	
Lone parent household	Response options were classified into 'lone parent' and 'coupled'.
Number of siblings in household	Response options were grouped into 'none', '1 sibling', '2 siblings' and '3 or more siblings'.
Household income	Household income was classified into quintiles of equivalised household income. Firstly, an equivalising factor for household income was calculated. This factor was a sum of 1 for the first adult in the household, 0.5 for each subsequent adult and 0.3 for each child under 15 in the household. Household income was the sum of weekly income (imputed) for Parents 1 and 2, if available, or otherwise the weekly income (imputed) for Parent 1. Household income was divided by the equivalising factor and then classified into quintiles.
SEIFA Index of Advantage/Disadvantage	The Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) is an area-level socio-economic measure, which includes measures of relative advantage and relative disadvantage (ABS, 2008). The index includes 21 different measures, including internet connection, education, occupation, and low or high income (ABS, 2008). SEIFA Index of Advantage/ Disadvantage was classified into 'lowest 25%', 'middle 50%' and 'highest 25%'.
Family's main income is government benefits	If available, information on the main source of income from both parents was used. Otherwise, this information was obtained only from the primary caregiver. This variable was classified into two categories: whether the main source of income for Parent 1 (and Parent 2, if available) is government benefits or not.
Financial stress	Information on financial stress or financial hardship in the last 12 months was used. This information was measured by the financial hardship scale and included 6 items, e.g. the parent has not been able to pay gas, electricity or telephone bills on time due to a shortage of money. Response options were grouped into 'no stressful events', '1 event' and '2 or more events'.

Characteristics	Measure and additional information
Remote residence	Specifically, this variable referred to whether the household is located in an area classified as remote or very remote in terms of road distance from the local service centre. Response options were grouped into 'remote or very remote areas' and 'moderate to highly accessible areas'.
Housing tenure	Response options were classified into 'owner without a mortgage,' 'owner with a mortgage,' 'renter – private landlord,' 'renter – state/territory housing authority' and 'other landlord/other tenure type'.
Household mobility	Household mobility was classified into categories of 'yes' and 'no' for whether the study child has moved house in the previous 2 years since the last interview.

Notes: [a]Parental characteristics consisted of information from both the primary carer (Parent 1) and secondary carer (Parent 2) where information was available. Unless stated otherwise, characteristics from both parents were combined to create groups: common to both parents, common to only one parent and not common to both parents.

Table A2: LSAC participants and household characteristics by Wave 7 response/non-response status

Characteristics	Categories	B cohort				K cohort			
		Responding n (Col %)	Non-contact n (Col %)	Refusal n (Col %)	Avoidance n (Col %)	Responding n (Col %)	Non-contact n (Col %)	Refusal n (Col %)	Avoidance n (Col %)
Study child characteristics									
Birth weight	Low birth weight (<2,500g)	177 (5.3)	28 (6.9)	21 (5.5)	4 (3.6)	180 (5.9)	35 (9.4)	27 (5.6)	12 (9.1)
	Appropriate birth weight (2,500–4,000g)	2,733 (81.2)	336 (83.0)	311 (80.8)	86 (78.2)	2,486 (81.3)	305 (81.8)	380 (79.2)	103 (78.0)
	High birth weight (>4,000g)	457 (13.6)	41 (10.1)	53 (13.8)	20 (18.2)	393 (12.9)	33 (8.9)	73 (15.2)	17 (12.9)
Gender	Male	1,734 (51.3)	199 (48.2)	211 (54.4)	59 (53.6)	1576 (51.0)	212 (54.4)	258 (52.9)	56 (42.4)
	Female	1,647 (48.7)	214 (51.8)	177 (45.6)	51 (46.4)	1513 (49.0)	178 (45.6)	230 (47.1)	76 (57.6)
Birth order	First born child	1,412 (41.8)	161 (39.0)	163 (42.0)	38 (34.6)	1345 (43.5)	148 (38.0)	189 (38.7)	56 (42.4)
	Second or subsequent child	1,969 (58.2)	252 (61.0)	225 (58.0)	72 (65.5)	1744 (56.5)	242 (62.1)	299 (61.3)	76 (57.6)
Aboriginal/Torres Strait Islander status	Not Aboriginal/Torres Strait Islander	3,294 (97.4)	362 (87.7)	378 (97.4)	102 (92.7)	3017 (97.7)	362 (92.8)	472 (96.7)	124 (93.9)
	Aboriginal/Torres Strait Islander	87 (2.6)	51 (12.4)	10 (2.6)	8 (7.3)	70 (2.3)	28 (7.2)	16 (3.3)	8 (6.1)
Medical condition/disability expected to last 6 months or longer	No medical condition/disability	3,073 (95.1)	141 (95.3)	206 (93.2)	68 (94.4)	2795 (94.9)	127 (92.7)	228 (96.6)	85 (98.8)
	Medical condition/disability present	159 (4.9)	7 (4.7)	15 (6.8)	4 (5.6)	151 (5.1)	10 (7.3)	8 (3.4)	1 (1.2)
Conduct problems	Scores of less than 4	2,982 (93.1)	125 (85.6)	201 (91.8)	64 (86.5)	2712 (94.1)	117 (90.7)	216 (95.2)	79 (92.9)
	Scores of at least 4	220 (6.9)	21 (14.4)	18 (8.2)	10 (13.5)	170 (5.9)	12 (9.3)	11 (4.9)	6 (7.1)
Academic problems	Not having academic problems	2,275 (84.9)	93 (78.2)	141 (75.0)	38 (71.7)				
	Having academic problems	404 (15.1)	26 (21.9)	47 (25.0)	15 (28.3)				
Parental characteristics									
Parental country of birth	Both parents born in Australia/NZ	2,345 (69.4)	233 (56.4)	243 (62.6)	66 (60.0)	1901 (61.6)	205 (52.6)	286 (58.6)	84 (63.6)
	Only one parent born in Australia/NZ	735 (21.7)	129 (31.2)	88 (22.7)	30 (27.3)	813 (26.3)	127 (32.6)	127 (26.0)	34 (25.8)
	Both parents born outside Australia/NZ	301 (8.9)	51 (12.4)	57 (14.7)	14 (12.7)	374 (12.1)	58 (14.9)	75 (15.4)	14 (10.6)
Parental main language spoken at home	Both parents spoke English	2,419 (75.1)	92 (59.0)	168 (70.3)	45 (60.0)	2099 (71.9)	87 (60.0)	173 (66.8)	54 (60.0)
	Only one parent spoke a language other than English	566 (17.6)	44 (28.2)	41 (17.2)	19 (25.3)	562 (19.3)	46 (31.7)	53 (20.5)	28 (31.1)
	Both parents spoke a language other than English	236 (7.3)	20 (12.8)	30 (12.6)	11 (14.7)	259 (8.9)	12 (8.3)	33 (12.7)	8 (8.9)

Category	Subcategory								
Parental education	Year 12 or lower	323 (9.9)	33 (20.6)	45 (18.5)	15 (19.7)	338 (11.4)	26 (17.3)	45 (17.1)	13 (14.4)
	Advanced diploma/Certificate/Other	1,274 (39.2)	70 (43.8)	117 (48.2)	39 (51.3)	1218 (41.1)	80 (53.3)	121 (46.0)	51 (56.7)
	Bachelor degree and above	1,656 (50.9)	57 (35.6)	81 (33.3)	22 (29.0)	1407 (47.5)	44 (29.3)	97 (36.9)	26 (28.9)
Parental time pressure	Both parents not pressed for time	573 (20.9)	11 (11.3)	43 (26.5)	7 (13.0)	493 (20.1)	11 (12.1)	28 (16.0)	9 (14.1)
	Only one parent pressed for time	1,558 (56.7)	73 (75.3)	96 (59.3)	41 (75.9)	1,349 (55.0)	66 (72.5)	107 (61.1)	45 (70.3)
	Both parents pressed for time	617 (22.5)	13 (13.4)	23 (14.2)	6 (11.1)	613 (25.0)	14 (15.4)	40 (22.9)	10 (15.6)
Parental medical condition/disability expected to last 6 months or longer	Both parents with no medical condition/disability	2,291 (80.3)	94 (77.7)	154 (79.8)	41 (69.5)	1,943 (75.9)	81 (77.1)	156 (75.4)	57 (83.8)
	One parent with medical condition/disability	499 (17.5)	25 (20.7)	35 (18.1)	15 (25.4)	544 (21.3)	23 (21.9)	47 (22.7)	10 (14.7)
	Both parents with medical condition/disability	64 (2.2)	2 (1.7)	4 (2.1)	3 (5.1)	72 (2.8)	1 (1.0)	4 (1.9)	1 (1.5)
Parental smoking status	No parents smoke	1,757 (59.1)	31 (27.0)	80 (40.4)	19 (30.2)	1,649 (61.3)	35 (33.3)	94 (45.9)	27 (42.2)
	One parent currently smokes	1,135 (38.2)	78 (67.8)	110 (55.6)	43 (68.3)	962 (35.7)	60 (57.1)	104 (50.7)	34 (53.1)
	Both parents currently smoke	82 (2.8)	6 (5.2)	8 (4.0)	1 (1.6)	81 (3.0)	10 (9.5)	7 (3.4)	3 (4.7)
Parental alcohol consumption	No one consumes high levels	1,654 (73.9)	36 (58.1)	86 (69.9)	16 (44.4)	1,528 (74.8)	40 (62.5)	89 (71.8)	23 (53.5)
	Only one parent consumes high levels	509 (22.7)	24 (38.7)	32 (26.0)	18 (50.0)	436 (21.3)	22 (34.4)	30 (24.2)	16 (37.2)
	Both parents consume high levels	76 (3.4)	2 (3.2)	5 (4.1)	2 (5.6)	80 (3.9)	2 (3.1)	5 (4.0)	4 (9.3)
Parental consistency	Both parents reported high consistency	1,620 (53.8)	28 (22.4)	83 (42.8)	12 (18.5)	1,345 (49.9)	36 (34.3)	68 (33.3)	22 (30.1)
	One parent reported high consistency	1,307 (43.4)	92 (73.6)	106 (54.6)	48 (73.9)	1,224 (45.4)	65 (61.9)	128 (62.8)	49 (67.1)
	Both parents reported low consistency	84 (2.8)	5 (4.0)	5 (2.6)	5 (7.7)	126 (4.7)	4 (3.8)	8 (3.9)	2 (2.7)
Parental argumentativeness	Both parents reported low argumentativeness	1,746 (65.5)	36 (36.4)	83 (51.9)	17 (32.7)	1,746 (65.5)	36 (36.4)	83 (51.9)	17 (32.7)
	One parent reported high argumentativeness	394 (14.8)	22 (22.2)	39 (24.4)	15 (28.9)	394 (14.8)	22 (22.2)	39 (24.4)	15 (28.9)
	Both parents reported high argumentativeness	62 (2.3)	0 (0.0)	3 (1.9)	0 (0.0)	62 (2.3)	0 (0.0)	3 (1.9)	0 (0.0)
	Ineligible to answer the argumentative scale	463 (17.4)	41 (41.4)	35 (21.9)	20 (38.5)	463 (17.4)	41 (41.4)	35 (21.9)	20 (38.5)
Parental psychological distress	Both parents with low level of psychological distress	1,807 (59.3)	39 (30.7)	97 (48.3)	18 (27.3)	1,634 (59.8)	41 (36.6)	93 (44.3)	30 (41.7)
	One parent with high level of psychological distress	1,218 (39.9)	88 (69.3)	103 (51.2)	48 (72.7)	1,067 (39.1)	70 (62.5)	116 (55.2)	42 (58.3)
	Both parents with high level of psychological distress	25 (0.8)	0 (0.0)	1 (0.5)	0 (0.0)	30 (1.1)	1 (0.9)	1 (0.5)	0 (0.0)
Parental stressful life events	Less than 4 stressful events	1,755 (67.8)	85 (68.0)	123 (73.2)	37 (68.5)	1,598 (70.1)	58 (59.2)	127 (72.6)	39 (62.9)
	4 or more stressful events	833 (32.2)	40 (32.0)	45 (26.8)	17 (31.5)	681 (29.9)	40 (40.8)	48 (27.4)	23 (37.1)

Household characteristics

Lone parent household	Lone parent	24 (26.4)	46 (17.5)	45 (30.0)	494 (16.7)	20 (26.3)	35 (14.3)	41 (25.6)	463 (14.2)
	Coupled	67 (73.6)	217 (82.5)	105 (70.0)	2,472 (83.3)	56 (73.7)	209 (85.7)	119 (74.4)	2,792 (85.8)
Number of siblings in household	None	13 (14.3)	43 (16.4)	12 (8.0)	344 (11.6)	12 (15.8)	20 (8.2)	12 (7.5)	272 (8.4)
	1 sibling	29 (31.9)	118 (44.9)	59 (39.3)	1,383 (46.6)	27 (35.5)	110 (45.1)	66 (41.3)	1,452 (44.6)
	2 siblings	35 (38.5)	79 (30.0)	42 (28.0)	850 (28.7)	19 (25.0)	77 (31.6)	56 (35.0)	1,036 (31.8)
	3 or more siblings	14 (15.4)	23 (8.8)	37 (24.7)	389 (13.1)	18 (23.7)	37 (15.2)	26 (16.3)	495 (15.2)
Household income	1st quintile (lowest quintile)	20 (22.0)	74 (28.1)	62 (41.3)	534 (18.0)	19 (25.0)	73 (30.2)	62 (38.8)	592 (18.2)
	2nd quintile	25 (27.5)	55 (20.9)	32 (21.3)	577 (19.5)	21 (27.6)	53 (21.9)	25 (15.6)	653 (20.1)
	3rd quintile	15 (16.5)	42 (16.0)	21 (14.0)	618 (20.9)	12 (15.8)	42 (17.4)	32 (20.0)	657 (20.2)
	4th quintile	21 (23.1)	52 (19.8)	23 (15.3)	602 (20.3)	11 (14.5)	41 (16.9)	23 (14.4)	684 (21.0)
	5th quintile (highest quintile)	10 (11.0)	40 (15.2)	12 (8.0)	632 (21.3)	13 (17.1)	33 (13.6)	18 (11.3)	668 (20.5)
SEIFA Index of Advantage/ Disadvantage	Lowest 25%	33 (35.9)	84 (31.7)	61 (39.9)	755 (25.4)	23 (29.9)	82 (33.3)	56 (35.0)	793 (24.4)
	Middle 50%	41 (44.6)	129 (48.7)	77 (50.3)	1496 (50.4)	35 (45.5)	110 (44.7)	85 (53.1)	1,672 (51.3)
	Highest 25%	18 (19.6)	52 (19.6)	15 (9.8)	717 (24.2)	19 (24.7)	54 (22.0)	19 (11.9)	792 (24.3)
Family's main income is government benefits	No	74 (88.1)	203 (90.6)	102 (77.3)	2,612 (93.4)	60 (85.7)	181 (87.4)	111 (81.6)	2,820 (92.7)
	Yes	10 (11.9)	21 (9.4)	30 (22.7)	184 (6.6)	10 (14.3)	26 (12.6)	25 (18.4)	223 (7.3)
Financial stress	No stressful events	62 (72.9)	188 (81.7)	101 (74.8)	2,436 (84.5)	53 (76.8)	190 (88.0)	114 (78.1)	2,660 (83.9)
	1 event	11 (12.9)	28 (12.2)	22 (16.3)	279 (9.7)	14 (20.3)	19 (8.8)	19 (13.0)	322 (10.2)
	2 or more events	12 (14.1)	14 (6.1)	12 (8.9)	169 (5.9)	2 (2.9)	7 (3.2)	13 (8.9)	189 (6.0)
Remote residence	Moderate to highly accessible area	89 (96.7)	260 (98.5)	146 (96.7)	2,830 (96.5)	72 (93.5)	237 (96.7)	151 (95.6)	3,108 (96.5)
	Remote or very remote area	3 (3.3)	4 (1.5)	5 (3.3)	104 (3.5)	5 (6.5)	8 (3.3)	7 (4.4)	113 (3.5)
Housing tenure	Owner without a mortgage	14 (16.3)	38 (16.2)	17 (12.4)	561 (19.1)	10 (14.1)	29 (13.2)	10 (6.8)	507 (15.7)
	Owner with a mortgage	47 (54.7)	154 (65.5)	74 (54.0)	1,808 (61.4)	38 (53.5)	132 (60.0)	86 (58.1)	2,013 (62.3)
	Renter – private landlord	15 (17.4)	31 (13.2)	31 (22.6)	402 (13.7)	18 (25.4)	43 (19.6)	36 (24.3)	546 (16.9)
	Renter – state/territory housing authority	5 (5.8)	6 (2.6)	9 (6.6)	61 (2.1)	3 (4.2)	7 (3.2)	9 (6.1)	46 (1.4)
	Other landlord/other tenure type	5 (5.8)	6 (2.6)	6 (4.4)	112 (3.8)	2 (2.8)	9 (4.1)	7 (4.7)	118 (3.7)
Household mobility (whether study child has moved house in the previous 2 years)	No	66 (76.7)	204 (86.8)	105 (76.6)	2,481 (84.3)	53 (74.7)	178 (80.9)	118 (79.7)	2,546 (78.8)
	Yes	20 (23.3)	31 (13.2)	32 (23.4)	463 (15.7)	18 (25.4)	42 (19.1)	30 (20.3)	684 (21.2)

Table A3: Characteristics of LSAC participants and being interviewed, over all waves

Characteristics	Measure and additional information	Categories	B cohort n (col %)[a] N = 5,107	K cohort n (col %)[a] N = 4,983
Study child characteristics				
Birth weight	The weight of the study child (grams) from birth was classified into three categories: low birth weight '<2,500 grams', appropriate birth weight '2,500–4,000 grams' and high birth weight '>4,000 grams'. This information was obtained from Wave 1.	Low birth weight (<2,500g)	272 (5.3)	317 (6.4)
		Appropriate birth weight (2,500–4,000g)	4,159 (81.4)	3,967 (79.6)
		High birth weight (>4,000g)	641 (12.6)	613 (12.3)
		Not reported	35 (0.7)	86 (1.7)
Gender	Wave 1 survey data was utilised.	Male	2,608 (51.1)	2,536 (50.9)
		Female	2,499 (48.9)	2,447 (49.1)
Birth order	Birth order for children was derived based on their number of older siblings from the baseline wave (Wave 1). Birth order was classified into either 'first born child' or 'second or subsequent child'.	First born child	2,114 (41.4)	2,099 (42.1)
		Second or subsequent child	2,993 (58.6)	2,884 (57.9)
Aboriginal/Torres Strait Islander status	Information on whether or not the study child was of Aboriginal/Torres Strait Islander status was obtained from the first wave.	Not Aboriginal/Torres Strait Islander	4,877 (95.5)	4,794 (96.2)
		Aboriginal/Torres Strait Islander	230 (4.5)	187 (3.8)
		Not reported	0 (0.0)	2 (0.04)
Medical condition/disability expected to last 6 months or longer	For Waves 5 to 7, there were two versions of the variable, which included and excluded mental illness. We used the version that included mental illness. Whether the study child had a medical condition or disability that is expected to last 6 months or longer was classified into 'yes' and 'no'. Information on this variable was available from Waves 1 to 7.	No medical condition/disability	4,838 (94.7)	4,607 (92.5)
		Medical condition/disability present	269 (5.3)	376 (7.6)
Conduct problems	Using the Strengths and Difficulties Questionnaire (SDQ) conduct problems subscale (Goodman, 2001), information on the child's externalising behaviours (e.g. often fights with other children or bullies them), as reported by the parent, was obtained. A three-point scale, with options of 'not true', 'somewhat true' and 'certainly true' was used for each behaviour. The total score was a mean of 5 items, rescaled with a range of 0 to 10. Children were considered to have higher symptoms of conduct problems if they had scores of at least 4. Conduct problems were classified into 'scores less than 4' and 'scores of at least 4'. Information on this measure was available from Waves 3 to 7 of the B cohort and Waves 1 to 7 of the K cohort.	Scores of less than 4	4,137 (81.0)	4,499 (90.3)
		Scores of at least 4	357 (7.0)	480 (9.6)
		Not reported	613 (12.0)	4 (0.1)
Academic problems	Using the rating of overall school achievement from the Teacher Academic Rating Scale as used in the Early Childhood Longitudinal Study, Kindergarten cohort of 1998–99 (ECLS-K), information on the child's overall academic skills was used. Children's overall academic skills were compared to other children in the equivalent grade level and rated by their teacher. Children were classified into two categories, 'those having academic problems' and 'those not having problems'. Children were considered to have academic problems if they were rated as 'below average' or 'far below average' and not having academic problems if they were rated as 'far above average', 'above average' or 'average' by their teacher. Information on this measure was available from Waves 3 and 4 of the K cohort, and Waves 4 to 6 of the B cohort. For missing teacher information, we created a separate category, 'not reported'.	Not having academic problems	3,436 (67.3)	3,471 (69.7)
		Having academic problems	798 (15.6)	685 (13.8)
		Not reported [c]	873 (17.1)	827 (16.6)

Parental characteristics[b]

Characteristic	Description	Category		
Parental country of birth	Using the Standard Australian Classification of Countries (SACC) codes (ABS, 2017b), country of birth information from Wave 1 was categorised into 'Born in Australia and New Zealand' (SACC codes 1101 and 1201) and 'Born outside Australia/New Zealand' (all other SACC codes). ABS statistics commonly use Australian born/non-Australian born parents. Much research also considers parents born in Australia/New Zealand and outside of Australia/New Zealand (e.g. TP no. 17) (Homel & Edwards, 2016). Our rationale is based on geographic location and access to similar government services.	Both parents born in Australia/NZ	3,295 (64.5)	2,865 (57.5)
		Only one parent born in Australia/NZ	1,239 (24.3)	1,395 (28.0)
		Both parents born outside Australia/NZ	573 (11.2)	722 (14.5)
		Not reported	0 (0.0)	1 (0.0)
Parental main language spoken at home	Using the Australian Standard Classification of Languages (ASCL) codes (ABS, 2017a), information on the main language spoken at home (English or another language) was obtained from Wave 7. Information on this variable was available from Waves 1 to 7.	Both parents spoke English	4,048 (79.3)	3,777 (75.8)
		Only one parent spoke a language other than English	476 (9.3)	552 (11.1)
		Both parents spoke a language other than English	543 (10.6)	588 (11.8)
		Not reported	40 (0.8)	66 (1.3)
Parental education	At all waves, parents reported the highest level of school that they completed and their highest post-secondary qualification. This information was combined to create the highest parental qualification for either parent: 'bachelor degree and above', 'advanced diploma/certificate/other' and 'Year 12 or lower'. Information on this variable was available from Waves 1 to 7.	Year 12 or lower	723 (14.2)	819 (16.4)
		Advanced diploma/Certificate/Other	2,195 (43.0)	2,167 (43.5)
		Bachelor degree and above	2,186 (42.8)	1,993 (40.0)
		Not reported	3 (0.1)	4 (0.1)
Parental time pressure	Using response to 'How often do you feel rushed or pressed for time?', options (Always; Often; Sometimes; Rarely; Never) were classified into 'pressed for time' using options often/always and 'not pressed for time' using options sometimes/rarely/never. Information on this variable was available from Waves 1 to 7.	Both parents not pressed for time	1,273 (24.9)	956 (19.2)
		Only one parent pressed for time	2,124 (41.6)	2,129 (42.7)
		Both parents pressed for time	1,210 (23.7)	1,351 (27.1)
		Parent(s) not reported [c]	500 (9.8)	547 (11.0)
Parental medical condition/disability expected to last 6 months or longer	If available, Wave 7 information on whether a medical condition or disability that is expected to last 6 months or longer was used. For Waves 5 to 7, there were two versions of the variable, which included and excluded mental illness. We used the version that included mental illness. Information on this variable was available from Waves 1 to 7.	Both parents with no medical condition/disability	3,931 (77.0)	3,649 (73.2)
		One parent with medical condition/disability	844 (16.5)	901 (18.1)
		Both parents with medical condition/disability	128 (2.5)	136 (2.7)
		Parent(s) not reported [c]	204 (4.0)	297 (6.0)
Parental smoking status	We used information on whether the parent currently smokes. Information on smoking status was available from Waves 1 to 7 of the B cohort and Waves 1 to 6 of the K cohort.	No parents smoke	3,202 (62.7)	3,005 (60.3)
		One parent currently smokes	1,086 (21.3)	1,138 (22.8)
		Both parents currently smoke	377 (7.4)	338 (6.8)
		Parent(s) not reported [c]	442 (8.6)	502 (10.1)
Parental alcohol consumption	We used information on regular short-term risky drinking (i.e. whether the parent has 5+ drinks in a sitting (women) or 7+ drinks in a sitting (men), 2 to 3 times per month or more often) to categorise alcohol consumption into low and high levels.	No one consumes high levels	3,208 (62.8)	3,051 (61.2)
		Only one parent consumes high levels	979 (19.2)	891 (17.9)
		Both parents consume high levels	215 (4.2)	216 (4.3)
		Parent(s) not reported [c]	705 (13.8)	825 (16.6)

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Variable	Description	Category		
Parental consistency	Using the NLSCY (Statistics Canada, 2000), information on how often the parent engages in a range of behaviours demonstrating consistent parental discipline within the parent (e.g. when child is given an instruction, how often do you make sure that he/she does it?) was obtained from the primary caregiver and other parent. A five-point scale, with options of 'never/almost never', 'less than half the time,' 'about half the time,' 'more than half the time' and 'all the time' was used for each behaviour. The mean of all five behaviours was calculated to derive an overall score. We classified parental consistency into 'scores less than 3.5', which indicated low consistent/inconsistent discipline, and 'scores of at least 3.5' (O'Connor et al., 2018). Information on this variable was available from Waves 3 to 7 of the B cohort and Waves 1 to 7 of the K cohort.	Both parents reported high consistency	2,555 (50.0)	2,468 (49.5)
		One parent reported high consistency	1,512 (29.6)	1,816 (36.4)
		Both parents reported low consistency	209 (4.1)	409 (8.2)
		Parent(s) not reported [c]	831 (16.3)	290 (5.8)
Parental argumentativeness	Using the argumentative relationship scale (Ahrons, 1981), information on any disagreements between the primary caregiver and their partner was obtained. Examples of the five items included: 'How often do you and your partner disagree about basic child-rearing issues?' and 'How often do you and your partner argue?'. If either parent answered 'often' or 'always' to any of these items, this measure was coded as 1, otherwise, it was coded as 0. For single parent households, this measure was set to 0. We then considered parental argumentativeness for both parents by classifying it into four categories: 'ineligible to answer the argumentative scale,' 'both parents reported low argumentativeness,' 'one parent reported high argumentativeness' and 'both parents reported high argumentativeness.' Information on this variable was available from Waves 1 to 7.	Both parents reported low argumentativeness	3,005 (58.8)	2,748 (55.2)
		One parent reported high argumentativeness	731 (14.3)	709 (14.2)
		Both parents reported high argumentativeness	108 (2.1)	114 (2.3)
		Ineligible to answer the argumentative scale	925 (18.1)	1,069 (21.5)
		Parent(s) not reported [c]	338 (6.6)	343 (6.9)
Parental psychological distress	Using the Kessler K6 Screening Scale (Kessler et al., 2003), information on how often the parent experienced feeling a range of psychological stress-related symptoms (e.g. feeling nervous, hopeless, restless or fidgety) in the last four weeks was obtained from the primary caregiver. A five-point scale, with options of 'all the time,' 'most of the time,' 'some of the time,' 'a little of the time,' and 'none of the time', was used for each of the six items. The items were all summed to generate an overall score. Psychological distress was classified into two categories, 'those scoring at least 14' (who were considered to have psychological distress) and 'those scoring under 14'. Information on this variable was available from Waves 1 to 7.	Both parents with low level of psychological distress	3,537 (69.3)	3,194 (64.1)
		One parent with high level of psychological distress	1,171 (22.9)	1,330 (26.7)
		Both parents with high level of psychological distress	79 (1.6)	106 (2.1)
		Parent(s) not reported [c]	320 (6.3)	353 (7.1)
Stressful life events	Using an adaptation of the Stressful Life Events scale from the Path Through Life Study (Centre for Mental Health Research, 2005), information on whether any of 17 stressful events (e.g. a serious illness, injury or assault, death of a parent, partner or child) happened to the parent in the previous year was obtained from the primary caregiver. The total number of stressful life events was classified into 'less than 4 stressful events' and '4 or more stressful events'. The question was asked of Parent 1 but relates to both parents. Information on this variable was available from Waves 1 to 6.	Less than 4 stressful events	3,394 (66.5)	3,210 (64.4)
		4 or more stressful events	1,327 (26.0)	1,398 (28.1)
		Not reported [c]	386 (7.6)	375 (7.5)

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Household characteristics

Characteristic	Description	Response		
Lone-parent household	Response options were classified into 'lone parent' and 'coupled'.	Lone parent	925 (18.1)	1,069 (21.5)
		Coupled	4,182 (81.9)	3,914 (78.6)
Number of siblings in household	Response options were grouped into 'none', '1 sibling', '2 siblings' and '3 or more siblings'.	None	616 (12.1)	753 (15.1)
		1 sibling	2,176 (42.6)	2,177 (43.7)
		2 siblings	1,536 (30.1)	1,349 (27.1)
		3 or more siblings	779 (15.3)	704 (14.1)
Household income	Household income was classified into quintiles of equivalised household income. Firstly, an equivalising factor for household income was calculated. This factor was a sum of 1 for the first adult in the household, 0.5 for each subsequent adult and 0.3 for each child under 15 in the household. Household income was the sum of weekly income (imputed) for Parents 1 and 2, if available, or otherwise the weekly income (imputed) for Parent 1. Household income was divided by the equivalising factor and then classified into quintiles. Information on household income was available from Waves 1 to 7.	1st quintile (lowest quintile)	1,314 (25.7)	1,270 (25.5)
		2nd quintile	1,033 (20.2)	1,024 (20.6)
		3rd quintile	959 (18.8)	934 (18.7)
		4th quintile	903 (17.7)	913 (18.3)
		5th quintile (highest quintile)	895 (17.5)	842 (16.9)
		Not reported	3 (0.06)	0 (0.0)
SEIFA Index of Advantage/ Disadvantage	The Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) is an area-level socio-economic measure, which includes measures of relative advantage and relative disadvantage (ABS, 2008). The index includes 21 different measures, including internet connection, education, occupation, and low or high income (ABS, 2008). SEIFA Index of Advantage/Disadvantage was classified into 'lowest 25%', 'middle 50%' and 'highest 25%'. Information on SEIFA Index of Advantage/Disadvantage was available from Waves 1 to 7.	Lowest 25%	1,528 (29.9)	1,542 (31.0)
		Middle 50%	2,475 (48.5)	2,354 (47.2)
		Highest 25%	1,104 (21.6)	1,087 (21.8)
Family's main income is government benefits	If available, information on the main source of income from both parents was used. Otherwise, this information was obtained only from the primary caregiver. This variable was classified into two categories: whether the main source of income for Parent 1 (and Parent 2, if available) is government benefits or not. Information on the main source of income was available from Waves 1 to 7.	No	4,465 (87.4)	4,375 (87.8)
		Yes	601 (11.8)	579 (11.6)
		Not reported	41 (0.8)	29 (0.6)
Financial stress	Information on financial stress or financial hardship in the last 12 months was used. This information was measured by the financial hardship scale and included 6 items, e.g. the parent has not been able to pay gas, electricity or telephone bills on time due to a shortage of money. Response options were grouped into 'no stressful events', '1 event' and '2 or more events'.	No stressful events	4,146 (81.2)	3,962 (79.5)
		1 event	576 (11.3)	584 (11.7)
		2 or more events	381 (7.5)	429 (8.6)
		Not reported	4 (0.1)	8 (0.2)
Remote residence	Specifically, this variable referred to whether the household is located in an area classified as remote or very remote in terms of road distance from the local service centre. Response options were grouped into 'remote or very remote areas' and 'moderate to highly accessible areas'.	Moderate to highly accessible area	4,888 (95.7)	4,785 (96.0)
		Remote or very remote area	199 (3.9)	173 (3.5)
		Not reported	20 (0.4)	25 (0.5)

Housing tenure	Response options were classified into 'owner without a mortgage,' 'owner with a mortgage,' 'renter – private landlord,' 'renter – state/territory housing authority' and 'other landlord/other tenure type'. Information on this variable was available for Waves 1 to 7.	Owner without a mortgage	703 (13.8)	843 (16.9)
		Owner with a mortgage	2,881 (56.4)	2,792 (56.0)
		Renter – private landlord	1,086 (21.3)	896 (18.0)
		Renter – state/territory housing authority	156 (3.1)	204 (4.1)
		Other landlord/other tenure type	278 (5.4)	244 (4.9)
		Not reported	3 (0.1)	4 (0.1)
Household mobility	Household mobility was classified into categories of 'yes' and 'no' for whether the study child has moved house in the previous 2 years since the last interview. Information on this variable was available from Waves 2 to 7 of the B cohort and Waves 2 to 6 of the K cohort.	No	3,764 (73.7)	3,751 (75.3)
		Yes	1,024 (20.1)	902 (18.1)
		Not reported	319 (6.3)	330 (6.6)
Being interviewed				
Being interviewed by the same interviewer in any previous wave	Being interviewed was classified into categories of 'yes' for participants who were interviewed by the same interviewer (as denoted by the reference number) in any previous wave (e.g. Wave 6 and Wave 7 or Wave 5 and Wave 6), or 'no' for participants were not.	No	777 (15.2)	775 (15.6)
		Yes	4,130 (80.9)	4,010 (80.5)
		Not reported	200 (3.9)	198 (4.0)

Notes: [a] Unweighted frequencies and percentages are presented. [b] Parental characteristics consisted of information from both the primary carer (Parent 1) and secondary carer (Parent 2) where information was available. Unless stated otherwise, characteristics from both parents were combined to create groups: common to both parents, common to only one parent and not common to both parents. For example, for parental consistency, we classified the variable into 'both parents reported high consistency', 'one parent reported high consistency' and 'both parents reported low consistency'. [c] Included as a separate category in regression analyses.

Table A4: Preliminary multinomial logistic regression analyses of non-response in B cohort

	Reference group	Categories	Pr>Chisq	Marginally attached and responding OR [95% CI]	Non-contact OR [95% CI]	Refusal OR [95% CI]
				(compared to responding to all waves)		
Birth weight	Appropriate birth weight (2,500-4,000g)	Low birth weight (<2,500g)	**0.0147**	1.8 [1.2-2.7]	1.2 [0.8-1.8]	0.9 [0.6-1.4]
		High birth weight (>4,000g)		1.0 [0.7-1.3]	0.6 [0.5-0.9]	0.9 [0.7-1.2]
Gender	Male	Female	0.1034	1.1 [0.9-1.4]	1.2 [1.0-1.4]	0.9 [0.8-1.1]
Birth order	First born child	Second or subsequent child	0.5867	0.9 [0.7-1.2]	1.1 [0.9-1.4]	1.0 [0.9-1.2]
Aboriginal/Torres Strait Islander status	Not Aboriginal/Torres Strait Islander	Aboriginal/Torres Strait Islander	**<.0001**	2.0 [1.2-3.6]	4.6 [3.2-6.7]	1.7 [1.1-2.8]
Medical condition/disability expected to last 6 months or longer	No medical condition/disability	Medical condition/disability present	0.2617	1.4 [0.9-2.2]	1.0 [0.6-1.5]	1.4 [0.9-2.0]
Conduct problems	Scores of less than 4	Scores of at least 4	**<.0001**	1.4 [1.0-2.2]	3.1 [2.3-4.1]	1.9 [1.4-2.5]
Academic problems	Not having academic problems	Having academic problems	**<.0001**	1.7 [1.3-2.2]	2.4 [1.9-3.1]	1.9 [1.5-2.3]
		Not reported		6.0 [3.3-10.9]	38.0 [25.0-57.7]	19.7 [12.8-30.3]
Parental country of birth	Both parents born in Australia/NZ	Only one parent born in Australia/NZ	**<.0001**	1.8 [1.4-2.4]	1.9 [1.5-2.3]	1.3 [1.1-1.7]
		Both parents born outside Australia/NZ		2.2 [1.6-3.1]	1.9 [1.4-2.5]	1.8 [1.4-2.4]
Parental main language spoken at home	Both parents spoke English	Only one parent spoke a language other than English	**<.0001**	2.0 [1.3-2.8]	2.8 [2.1-3.7]	1.5 [1.1-2.1]
		Both parents spoke a language other than English		1.9 [1.4-2.7]	2.2 [1.6-2.9]	1.8 [1.3-2.3]
Parental education	Year 12 or lower	Advanced diploma/Certificate/Other	**<.0001**	0.6 [0.4-0.9]	0.4 [0.3-0.6]	0.6 [0.5-0.8]
		Bachelor degree and above		0.4 [0.3-0.6]	0.2 [0.2-0.3]	0.3 [0.2-0.4]
Parental time pressure	Both parents not pressed for time	Only one parent pressed for time	**<.0001**	1.1 [0.8-1.4]	1.2 [1.0-1.6]	1.1 [0.9-1.4]
		Both parents pressed for time		1.0 [0.7-1.4]	0.9 [0.7-1.1]	0.9 [0.7-1.2]
		Parent(s) not reported		3.4 [2.0-5.6]	4.9 [3.2-7.5]	3.4 [2.2-5.2]
Parental medical condition/disability expected to last 6 months or longer	Both parents with no medical condition/disability	One parent with medical condition/disability	**<.0001**	1.0 [0.7-1.4]	0.7 [0.5-0.9]	0.9 [0.7-1.1]
		Both parents with medical condition/disability		1.0 [0.5-2.1]	0.8 [0.4-1.6]	0.7 [0.3-1.3]
		Parent(s) not reported		1.9 [0.9-3.9]	5.4 [3.4-8.4]	2.4 [1.4-4.1]
Parental smoking status	No parents smoke	One parent currently smokes	**<.0001**	2.0 [1.5-2.6]	2.6 [2.1-3.3]	2.1 [1.7-2.6]
		Both parents currently smoke		1.8 [1.1-2.7]	4.0 [2.9-5.4]	1.8 [1.3-2.5]
		Parent(s) not reported		6.5 [3.8-11.2]	13.7 [8.9-21.1]	6.0 [3.8-9.7]

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Variable	Category	Reference	p			
Parental alcohol consumption		No one consumes high levels	<.0001			
	Only one parent consumes high levels			1.4 [1.1-1.9]	1.8 [1.4-2.2]	1.4 [1.1-1.7]
	Both parents consume high levels			1.3 [0.8-2.3]	1.5 [0.9-2.3]	1.1 [0.7-1.8]
	Parent(s) not reported			4.3 [3.0-6.2]	6.7 [5.0-9.0]	3.8 [2.8-5.2]
Parental consistency		Both parents reported high consistency	<.0001			
	One parent reported high consistency			1.8 [1.4-2.3]	3.0 [2.4-3.7]	2.0 [1.6-2.4]
	Both parents reported low consistency			2.3 [1.5-3.6]	1.4 [0.8-2.3]	1.5 [1.0-2.3]
	Parent(s) not reported			3.4 [2.1-5.5]	7.7 [5.4-11.1]	3.4 [2.3-5.1]
Parental argumentativeness		Both parents reported low argumentativeness	<.0001			
	One parent reported high argumentativeness			1.2 [0.8-1.6]	1.5 [1.2-2.0]	1.6 [1.3-2.1]
	Both parents reported high argumentativeness			2.3 [1.2-4.2]	1.3 [0.7-2.6]	1.2 [0.6-2.3]
	Ineligible to answer the argumentative scale			2.2 [1.7-2.9]	2.4 [1.9-3.0]	1.4 [1.1-1.8]
	Parent(s) not reported			1.2 [0.8-1.6]	1.5 [1.2-2.0]	1.6 [1.3-2.1]
Parental psychological distress		Both parents with low level of psychological distress	<.0001			
	One parent with high level of psychological distress			1.6 [1.2-2.1]	2.4 [2.0-3.0]	1.7 [1.4-2.1]
	Both parents with high level of psychological distress			2.0 [1.0-4.2]	1.6 [0.8-3.3]	1.1 [0.5-2.3]
	Parent(s) not reported			4.2 [2.3-7.8]	7.2 [4.5-11.8]	2.9 [1.6-5.2]
Parental stressful life events		Less than 4 stressful events	<.0001			
	4 or more stressful events			1.5 [1.2-1.9]	1.2 [1.0-1.5]	1.1 [0.9-1.3]
	Parent(s) not reported			5.0 [1.2-20.0]	22.6 [9.0-56.3]	16.6 [6.5-42.0]
Lone-parent household		Coupled	<.0001			
	Lone parent			2.0 [1.5-2.5]	2.0 [1.6-2.5]	1.2 [0.9-1.5]
Number of siblings in household		None	<.0001			
	1 sibling			0.9 [0.6-1.3]	0.6 [0.4-0.8]	0.9 [0.6-1.2]
	2 siblings			1.0 [0.7-1.6]	0.8 [0.6-1.2]	0.8 [0.6-1.1]
	3 or more siblings			1.5 [1.0-2.4]	1.3 [0.9-1.9]	1.0 [0.7-1.4]
Household income		1st quintile (lowest quintile)	<.0001			
	2nd quintile			0.6 [0.4-0.8]	0.4 [0.3-0.5]	0.8 [0.6-1.0]
	3rd quintile			0.4 [0.3-0.6]	0.4 [0.3-0.5]	0.5 [0.4-0.7]
	4th quintile			0.4 [0.3-0.5]	0.2 [0.2-0.3]	0.5 [0.4-0.7]
	5th quintile (highest quintile)			0.4 [0.3-0.6]	0.3 [0.2-0.4]	0.5 [0.4-0.6]
SEIFA Index of Advantage/ Disadvantage		Lowest 25%	<.0001			
	Middle 50%			0.7 [0.6-1.0]	0.8 [0.6-0.9]	0.9 [0.7-1.1]
	Highest 25%			0.6 [0.4-0.8]	0.5 [0.4-0.7]	0.8 [0.6-1.0]
Family's main income is government benefits		No	<.0001			
	Yes			3.2 [2.3-4.4]	5.2 [4.0-6.7]	2.4 [1.8-3.3]

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Factor	Category	Reference	p-value			
Financial stress	1 event	No stressful events	**<.0001**	1.4 [1.0-2.0]	2.3 [1.8-3.0]	1.6 [1.2-2.1]
	2 or more events			2.7 [1.8-4.0]	3.4 [2.5-4.7]	1.5 [1.0-2.2]
Remote residence	Remote or very remote area	Moderate to highly accessible area	0.0773	1.1 [0.6-1.9]	1.6 [1.1-2.5]	0.8 [0.5-1.3]
Housing tenure	Owner with a mortgage	Owner without a mortgage	**<.0001**	1.7 [1.2-2.6]	2.1 [1.4-3.1]	1.4 [1.1-1.9]
	Renter-private landlord			4.0 [2.6-6.1]	5.7 [3.8-8.6]	2.2 [1.6-3.0]
	Renter-state/territory housing authority			8.2 [4.0-16.8]	22.5 [12.6-40.2]	4.8 [2.6-8.9]
	Other landlord/other tenure type			4.4 [2.4-7.9]	7.7 [4.6-12.8]	1.9 [1.1-3.2]
Household mobility (whether study child has moved house in the previous 2 years)	Yes	No	**<.0001**	2.3 [1.8-3.0]	2.6 [2.1-3.2]	1.8 [1.4-2.2]
Being interviewed by the same interviewer in any previous wave	Yes	No	**<.0001**	0.3 [0.3-0.5]	0.2 [0.2-0.3]	0.5 [0.4-0.7]

Note: Factors in bold are those that were considered statistically significant at a two-sided *p*-value of <0.05.

Table A5: Preliminary multinomial logistic regression analyses of non-response in K cohort

Categories	Reference group	Pr>Chisq	Marginally attached and responding OR [95% CI]	Non-contact OR [95% CI]	Refusal OR [95% CI]
			(compared to responding to all waves)		
Birth weight					
Low birth weight (<2,500g)	Appropriate birth weight (2,500–4,000g)	**0.0014**	1.0 [0.6-1.7]	1.5 [1.1-2.1]	1.2 [0.9-1.6]
High birth weight (>4,000g)			0.7 [0.5-1.1]	0.6 [0.5-0.9]	1.1 [0.9-1.4]
Gender					
Female	Male	0.8767	0.9 [0.7-1.2]	1.0 [0.9-1.2]	1.0 [0.8-1.1]
Birth order					
Second or subsequent child	First born child	**0.0149**	1.2 [0.9-1.5]	1.2 [1.0-1.5]	1.2 [1.1-1.5]
Aboriginal/Torres Strait Islander status					
Aboriginal/Torres Strait Islander	Not Aboriginal/Torres Strait Islander	**<.0001**	2.2 [1.2-4.1]	4.0 [2.7-6.0]	2.0 [1.3-3.1]
Medical condition/disability expected to last 6 months or longer					
Medical condition/disability present	No medical condition/disability	0.5828	0.7 [0.4-1.3]	0.9 [0.6-1.3]	0.8 [0.6-1.2]
Conduct problems					
Scores of at least 4	Scores of less than 4	**<.0001**	1.2 [0.8-2.0]	2.4 [1.8-3.2]	1.4 [1.1-1.9]
Academic problems					
Having academic problems	Not having academic problems	**<.0001**	1.8 [1.3-2.5]	2.0 [1.5-2.5]	1.7 [1.4-2.1]
Not reported			3.6 [2.4-5.5]	8.4 [6.4-10.9]	4.8 [3.7-6.3]
Parental country of birth					
Only one parent born in Australia/NZ	Both parents born in Australia/NZ	**<.0001**	1.6 [1.2-2.0]	1.7 [1.4-2.1]	1.1 [0.9-1.4]
Both parents born outside Australia/NZ			1.5 [1.1-2.2]	1.9 [1.5-2.4]	1.6 [1.2-2.0]
Parental main language spoken at home					
Only one parent spoke a language other than English	Both parents spoke English	**<.0001**	1.6 [1.1-2.4]	2.2 [1.7-2.9]	1.5 [1.2-2.0]
Both parents spoke a language other than English			1.7 [1.2-2.5]	2.0 [1.5-2.5]	1.7 [1.4-2.2]
Parental education					
Advanced diploma/Certificate/Other	Year 12 or lower	**<.0001**	0.7 [0.5-1.0]	0.7 [0.5-0.8]	0.8 [0.6-1.0]
Bachelor degree and above			0.5 [0.3-0.7]	0.3 [0.2-0.3]	0.5 [0.4-0.6]
Parental time pressure					
Only one parent pressed for time	Both parents not pressed for time	**<.0001**	1.2 [0.9-1.6]	1.1 [0.9-1.3]	1.1 [0.9-1.3]
Both parents pressed for time			0.9 [0.6-1.3]	0.8 [0.6-1.0]	1.0 [0.8-1.2]
Parent(s) not reported			3.5 [2.1-5.8]	7.3 [5.2-10.2]	3.9 [2.8-5.5]
Parental medical condition/disability expected to last 6 months or longer					
One parent with medical condition/disability	Both parents with no medical condition/disability	**<.0001**	1.1 [0.8-1.5]	0.9 [0.7-1.1]	0.8 [0.7-1.0]
Both parents with medical condition/disability			0.9 [0.4-2.1]	0.8 [0.4-1.4]	0.6 [0.4-1.1]
Parent(s) not reported			2.0 [1.2-3.5]	3.1 [2.2-4.5]	1.9 [1.3-2.8]
Parental smoking status					
One parent currently smokes	No parents smoke	**<.0001**	2.1 [1.6-2.8]	3.1 [2.5-3.9]	1.8 [1.5-2.2]
Both parents currently smoke			1.9 [1.1-3.1]	4.1 [3.0-5.6]	2.3 [1.7-3.1]
Parent(s) not reported			5.9 [3.7-9.5]	13.6 [9.7-19.1]	5.6 [4.0-7.9]

Variable	Category	Reference	p			
Parental alcohol consumption	Only one parent consumes high levels	No one consumes high levels	<.0001	1.3 [0.9-1.8]	1.8 [1.4-2.2]	1.3 [1.0-1.6]
	Both parents consume high levels			1.2 [0.7-2.3]	1.7 [1.1-2.5]	1.4 [1.0-2.0]
	Parent(s) not reported			2.7 [1.9-4.0]	6.2 [4.9-7.9]	3.4 [2.7-4.4]
Parental consistency	One parent reported high consistency	Both parents reported high consistency	<.0001	1.4 [1.1-1.9]	1.8 [1.5-2.2]	1.4 [1.2-1.7]
	Both parents reported low consistency			1.3 [0.8-2.0]	1.4 [1.0-1.9]	0.7 [0.5-1.0]
	Parent(s) not reported			3.4 [1.9-6.0]	5.8 [3.9-8.5]	2.5 [1.7-3.8]
Parental argumentativeness	One parent reported high argumentativeness	Both parents reported low argumentativeness	<.0001	1.0 [0.7-1.5]	1.2 [0.9-1.5]	1.2 [0.9-1.4]
	Both parents reported high argumentativeness			0.9 [0.4-2.3]	1.4 [0.8-2.5]	1.2 [0.7-2.0]
	Ineligible to answer the argumentative scale			2.1 [1.6-2.9]	2.5 [2.0-3.1]	1.2 [1.0-1.5]
	Parent(s) not reported			3.2 [1.5-6.7]	14.0 [9.1-21.5]	7.9 [5.2-12.1]
Parental psychological distress	One parent with high level of psychological distress	Both parents with low level of psychological distress	<.0001	2.0 [1.6-2.6]	2.8 [2.3-3.4]	1.5 [1.2-1.8]
	Both parents with high level of psychological distress			1.5 [0.7-3.3]	2.1 [1.2-3.5]	0.7 [0.4-1.3]
	Parent(s) not reported			3.2 [1.7-6.1]	6.9 [4.6-10.3]	3.0 [1.9-4.6]
Parental stressful life events	4 or more stressful events	Less than 4 stressful events	<.0001	1.4 [1.1-1.8]	1.1 [0.9-1.3]	0.8 [0.7-0.9]
	Parent(s) not reported			1.8 [0.4-8.3]	26.4 [14.1-49.4]	16.5 [8.8-30.9]
Lone-parent household	Lone parent	Coupled	<.0001	2.1 [1.6-2.7]	2.0 [1.7-2.5]	1.1 [0.9-1.3]
Number of siblings in household	1 sibling	None	<.0001	0.9 [0.6-1.3]	1.2 [0.9-1.6]	1.4 [1.1-1.8]
	2 siblings			1.0 [0.7-1.5]	1.6 [1.2-2.2]	1.5 [1.2-2.0]
	3 or more siblings			1.5 [0.9-2.2]	3.7 [2.7-5.1]	1.5 [1.1-2.0]
Household income	2nd quintile	1st quintile (lowest quintile)	<.0001	0.6 [0.4-0.9]	0.5 [0.4-0.6]	0.8 [0.6-1.0]
	3rd quintile			0.5 [0.3-0.7]	0.3 [0.3-0.4]	0.7 [0.6-0.9]
	4th quintile			0.3 [0.2-0.5]	0.3 [0.2-0.4]	0.8 [0.6-1.0]
	5th quintile (highest quintile)			0.5 [0.4-0.8]	0.2 [0.2-0.3]	0.6 [0.5-0.7]
SEIFA Index of Advantage/Disadvantage	Middle 50%	Lowest 25%	<.0001	1.0 [0.7-1.3]	0.8 [0.7-1.0]	1.0 [0.8-1.2]
	Highest 25%			1.0 [0.7-1.3]	0.8 [0.7-1.0]	1.0 [0.8-1.2]
Family's main income is government benefits	Yes	No	<.0001	2.7 [1.9-4.0]	5.4 [4.2-6.9]	1.9 [1.4-2.5]
Financial stress	1 event	No stressful events	<.0001	1.9 [1.3-2.7]	3.0 [2.5-3.8]	1.7 [1.4-2.2]
	2 or more events			2.3 [1.6-3.5]	3.8 [3.0-4.9]	2.2 [1.7-2.8]
Remote residence	Remote or very remote area	Moderate to highly accessible area	0.3148	1.6 [0.9-2.8]	0.9 [0.6-1.5]	0.9 [0.6-1.4]

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		p-value			
Housing tenure	Owner with a mortgage	**<.0001**			
	Owner without a mortgage		1.1 [0.8-1.6]	2.0 [1.4-2.7]	1.7 [1.3-2.1]
	Renter – private landlord		2.9 [1.9-4.4]	6.4 [4.6-9.0]	2.0 [1.5-2.6]
	Renter – state/territory housing authority		8.5 [4.6-15.5]	18.5 [11.3-30.3]	5.5 [3.4-8.9]
	Other landlord/other tenure type		1.8 [0.9-3.4]	3.9 [2.4-6.4]	1.6 [1.0-2.5]
Household mobility (whether study child has moved house in the previous 2 years)	Yes	**<.0001**	2.1 [1.6-2.8]	2.7 [2.2-3.3]	1.4 [1.1-1.7]
	No				
Being interviewed by the same interviewer in any previous wave	Yes	**<.0001**	0.4 [0.3-0.5]	0.1 [0.1-0.2]	0.3 [0.2-0.4]
	No				

Note: Factors in bold are those that were considered statistically significant at a two-sided *p*-value of <0.05.