



The Longitudinal Study of Australian Children **Annual statistical report 2013**

Australian Institute of Family Studies



Australian Government
Department of Social Services



Australian Government
Australian Institute of Family Studies



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Foreword

I am delighted to present the fourth volume in the Annual Statistical Report series for *Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC)*. This report, produced by the Australian Institute of Family Studies (AIFS), aims to provide valuable insights into family functioning and child development for researchers, policy makers, those who provide services, and members of the community at large.

This report covers a variety of aspects of the ways in which Australian children's experiences and environments affect their prospects and progress, from birth to 11 years old. The content of this work casts light on the following aspects of family functioning: fathers' involvement in the lives of their children after separation, care of children during school holidays and children's perceptions of parental employment. Children's health behaviour is addressed in chapters on children's eating habits and their dissatisfaction with body image and related consequences. The report also investigates several aspects of children's development, including academic engagement, social and emotional wellbeing, and temperament. How children spend their time and parental concerns about neighbourhood environment and safety are also discussed.

We hope that the results of this research will prove useful to interested readers of this volume. We further hope that the wealth of information provided here will encourage others to use the LSAC data, both now and in the future.

A handwritten signature in black ink, reading "Alan Hayes". The signature is fluid and cursive, with the first name "Alan" and the last name "Hayes" clearly distinguishable.

Alan Hayes
Director
Australian Institute of Family Studies

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We also gratefully acknowledge the enormous contribution of the families and teachers who participated in the study.

For more information about the study, see the LSAC website at: <www.aifs.gov.au/growingup>.

This report uses unit record data from *Growing Up in Australia: The Longitudinal Study of Australian Children*. The study is being undertaken in partnership with the Australian Institute of Family Studies, with advice being provided by a consortium of leading researchers at research institutions and universities throughout Australia. The Australian Bureau of Statistics (ABS) conducts the data collection.

The views expressed in this report are those of the individual authors and should not reflect those of the DSS, AIFS or ABS.

Introduction

Growing Up in Australia: The Longitudinal Study of Australian Children (LSAC) is Australia's first nationally representative longitudinal study of child development. The purpose of the study is to provide data that enable a comprehensive understanding of children's development within Australia's current social, economic and cultural environment (Department of Families, Housing, Community Services and Indigenous Affairs [FaHCSIA] LSAC Team, 2009). The longitudinal nature of the study enables researchers to examine the dynamics of change as children develop, and to go beyond the static pictures provided by cross-sectional statistics. The study thereby gives policy-makers and researchers access to quality data about children's development in the contemporary Australian environment.

The study was initiated and is funded by the Australian Government Department of Social Services (DSS; formerly FaHCSIA), and is conducted in partnership with the Australian Institute of Family Studies (AIFS) and the Australian Bureau of Statistics (ABS). A consortium of leading researchers and experts from universities and research agencies provide advice to the study.

This is the fourth volume in the LSAC Annual Statistical Report series, which uses data from the first four waves of the study. The purpose of these reports is to provide an overview of the data from the study and to address policy-relevant questions about aspects of Australian children's lives and development. The reports make use of the longitudinal nature of LSAC data to describe the dynamics of change as children develop, and how their families and lives change as they grow older.

The first section of this introductory chapter provides a brief overview of LSAC, the second describes the analytical approaches used throughout the main chapters of the report, and the third section introduces the subpopulation groups that are used for comparisons in some of the main chapters. The chapter ends with summary tables comprising a glossary of LSAC terms, statistical indicators, and the scales and measures used throughout the report.

1.1 About the study

Study design

The LSAC study has an accelerated cross-sequential design, with two cohorts of children:

- the B ("baby") cohort, who were aged 0–1 years at the beginning of the study (born between March 2003 and February 2004); and
- the K ("kindergarten") cohort, who were aged 4–5 years at the beginning of the study (born between March 1999 and February 2000).

The first wave of data collection took place in 2004, with subsequent main waves every two years. In 2005, 2007 and 2009 parents were also sent a between-waves mail survey. Table 1.1 (on page 2) summarises the ages and sample sizes for the two cohorts across the first four main waves of the study.

This design means that from the third wave of the study, the children's ages overlap; that is, children were aged 4–5 years in the first wave for the K cohort and in the third wave for the B cohort. In covering the first four waves of the study, this report includes data on children between the ages of 0 and 11 years.

Table 1.1: Age ranges and numbers of children, B and K cohorts, Waves 1–4

	Wave 1 (2004)	Wave 2 (2006)	Wave 3 (2008)	Wave 4 (2010)
B cohort	0–1 year	2–3 years	4–5 years	6–7 years
	5,107	4,606	4,386	4,242
K cohort	4–5 years	6–7 years	8–9 years	10–11 years
	4,983	4,464	4,331 ^a	4,169 ^a

Notes: This table presents the numbers of children who responded at each wave. ^a Different numbers of parents and children responded at Wave 3 (1 study child did not respond but the parent responded) and Wave 4 (5 parents refused a home interview but allowed their child to be interviewed) in the K cohort.

Respondents and collection methods

The use of multiple respondents in LSAC provides a rich picture of children's lives and development in various contexts. Across the first four waves of the study, data were collected from:

- parents of the study child:¹
 - Parent 1 (P1)—defined as the parent who knows the most about the child (not necessarily a biological parent);²
 - Parent 2 (P2), if there is one—defined as another person in the household with a parental relationship to the child, or the partner of Parent 1 (not necessarily a biological parent); and
 - a parent living elsewhere (PLE), if there is one—a parent who lives apart from Parent 1 but who has contact with the child;
- the study child;
- carers/teachers (depending on the child's age); and
- interviewers.

In the first four waves of the study, the primary respondent was the child's Parent 1. In the majority of cases, this was the child's biological mother, but in a small number of families this was someone else who knew the most about the child. Since Wave 2, the K cohort children have answered age-appropriate interview questions, and in Wave 4 they also answered a series of self-complete questions. The B cohort children answered a small set of interview questions in Wave 4 for the first time.

A variety of data collection methods are used in the study, including:

- conducting face-to-face interviews:
 - on paper; and
 - by computer-assisted interview (CAI);
- filling in self-complete questionnaires:
 - during interview (paper forms, computer-assisted self-interviews (CASI) and audio computer-assisted self-interviews (ACASI);
 - on leave-behind paper forms; and
 - on mailout paper forms;
- physically measuring the child, including height, weight, girth, body fat and blood pressure;
- directly assessing the child's vocabulary and cognition;
- completing time use diaries;
- conducting computer-assisted telephone interviews (CATI); and
- linking to administrative or outcome data (e.g., Medicare, NAPLAN).

The interviews and questionnaires include validated scales appropriate to the children's ages (see section 1.4 on page 10 for a list of the key scales used).

¹ The terms "Parent 1" and "Parent 2" are used for consistency and are not intended to suggest that one parent's relationship with their child is more important than the other parent's relationship.

² For separated families in which both parents provided care for the child, the interviewer in Wave 1 worked with the family to identify who the child's Parent 1 was for the purposes of data collection. Where possible, the same parent has been kept as P1 in subsequent waves.

Sampling and survey design

The sampling unit for LSAC is the study child. The sampling frame for the study was the Medicare Australia (formerly Health Insurance Commission) enrolments database, which is the most comprehensive database of Australia's population, particularly of young children. In 2004, approximately 18,800 children (aged 0–1 or 4–5 years) were sampled from this database, using a two-stage clustered design. In the first stage, 311 postcodes were randomly selected (very remote postcodes were excluded due to the high cost of collecting data from these areas). In the second stage, children were randomly selected within each postcode, with the two cohorts being sampled from the same postcodes. A process of stratification was used to ensure that the numbers of children selected were roughly proportionate to the total numbers of children within each state/territory, and within the capital city statistical districts and the rest of each state. The method of postcode selection took into account the number of children in the postcode; hence, all the potential participants in the study Australia-wide had an approximately equal chance of selection (about one in 25).³

Response rates

The 18,800 families selected were then invited to participate in the study. Of these, 54% of families agreed to take part in the study (57% of B cohort families and 50% of K cohort families). About 35% of families refused to participate (33% of B cohort families and 38% of K cohort families), and 11% of families could not be contacted (e.g., because the address was out-of-date, or only a post office box address was provided) (10% of B cohort families and 12% of K cohort families).

This resulted in a nationally representative sample of 5,107 0–1 year olds and 4,983 4–5 year olds who were Australian citizens or permanent residents. Table 1.2 presents the response rates for each of the four main waves.

Table 1.2: Response rates, main waves, B and K cohorts, Waves 1–4				
	Wave 1	Wave 2	Wave 3	Wave 4
B cohort				
Number of responses	5,107	4,606	4,386	4,242
Response rates of Wave 1	100.0%	90.2%	85.9%	83.0%
Response rates of available sample ^a	–	91.2%	88.2%	86.0%
K cohort				
Number of responses	4,983	4,464	4,332 ^b	4,164 ^b
Response rates of Wave 1	100.0%	89.6%	86.9%	83.6%
Response rates of available sample ^a	–	90.9%	89.7%	87.2%
Total				
Number of responses	10,090	9,070	8,718	8,406
Response rates of Wave 1	100.0%	89.9%	86.4%	83.3%
Response rates of available sample ^a	–	91.1%	89.0%	86.6%

Notes: Percentages based on weighted data. ^a The available sample excludes those families who opted out of the study between waves. ^b This table refers to the numbers of parents who responded at each wave. Different numbers of parents and children responded at Wave 3 (1 study child participated but the parent did not) and Wave 4 (5 parents refused a home interview but allowed their child to be interviewed) in the K cohort.

1.2 Analyses presented in this report

This report includes data from the first four main waves of the study, though given the breadth and depth of topics included in the study, chapters in this report do not necessarily use data from all four waves and/or both cohorts. Analyses for the two cohorts (B and K) are presented separately throughout the report.

Each chapter addresses a series of policy-relevant questions using descriptive statistical analyses. In answering these questions, chapters generally take one or both of the following approaches:

³ See Soloff, Lawrence, and Johnstone (2005) for more information about the study design.

- *comparisons between subpopulation groups* (summarised in section 1.3 on page 4) on the various aspects of children's environments and development; and
- examinations of *trends across waves* as children get older.

Weighting and survey analysis

Sample weights (for the study children) have been produced for the study dataset in order to reduce the effect of bias in sample selection and participant non-response (Daraganova & Siphthorp, 2011; Misson & Siphthorp, 2007; Siphthorp & Misson, 2009; Soloff et al., 2005; Soloff, Lawrence, Misson & Johnstone, 2006). When these weights are used in the analysis, greater weight is given to population groups that are under-represented in the sample, and less weight to groups that are over-represented in the sample. Weighting therefore ensures that the study sample more accurately represents the sampled population.

These sample weights have been used in analyses presented throughout this report. Cross-sectional or longitudinal weights have been used when examining data from more than one wave. Analyses have also been conducted using Stata® *svy* (survey) commands, which take into account the clusters and strata used in the study design when producing measures of the reliability of estimates.

Key points to be noted

Most household information has been collected from the child's Parent 1 and Parent 2. Parent 1 is defined as the child's primary caregiver, or the parent who knows the child best. The majority of Parent 1 respondents were mothers (i.e., at all waves, more than 95% of Parent 1 respondents have been women and the majority of Parent 2 respondents have been men).

Parent 1 for each study child was defined by the family at Wave 1. At subsequent waves, it has been preferable for Parent 1 to be the same person as for Wave 1. However, if Parent 1 no longer resides with the child or is temporarily away, Parent 2 of the previous wave becomes Parent 1. If both Parent 1 and Parent 2 do not reside with the child or are temporarily away, then a new Parent 1 (the best person to ask about the child's health, development and care) is assigned. Thus, Parent 1 and Parent 2 are sometimes not the same person in each wave, with different parents or guardians potentially occupying different roles at each wave.

Unless specifically noted, all references to the child's "household" or "family" are to those of Parent 1, and do not include any other household or family they may have with a parent living elsewhere. Similarly, unless specified in the chapter, any reference to "parents" is to Parent 1 and Parent 2, not to parents living elsewhere. In some chapters, data are reported for mothers and fathers rather than for Parent 1 and Parent 2.

Some chapters compare responses to particular questions across waves. In some cases, these questions were collected using different methods in different waves (e.g., by interview in one wave and by self-complete questionnaire in another).

1.3 Subpopulation groups

This section introduces the subpopulation groups that are used in some of the chapters in this report. Most of these subpopulation groups were introduced in detail in *The LSAC Annual Statistical Report 2010* (AIFS, 2011), and are summarised in Table 1.3 (child characteristics; on page 5), Table 1.4 (parent and family characteristics; on page 6), and Table 1.5 (school characteristics; on page 8). The percentages shown in these three tables are based on weighted data (as described in section 1.2 from page 3).

Child characteristics

The child characteristics at the first four waves are summarised in Table 1.3 (on page 5).

Table 1.3: Child characteristics, B and K cohorts, Waves 1–4

Subpopulation categories	B cohort				K cohort			
	Wave 1 (0–1 years) (%)	Wave 2 (2–3 years) (%)	Wave 3 (4–5 years) (%)	Wave 4 (6–7 years) (%)	Wave 1 (4–5 years) (%)	Wave 2 (6–7 years) (%)	Wave 3 (8–9 years) (%)	Wave 4 (10–11 years) (%)
Child gender ^a								
Boys	51.2	51.1	51.1	51.1	51.2	51.3	51.3	51.2
Girls	48.8	48.9	48.9	48.9	48.8	48.7	48.7	48.8
No. of observations	5,107	4,606	4,386	4,242	4,983	4,464	4,332	4,169
Main language spoken at home by child ^a								
English	87.2	87.9	87.0	86.8	86.0	85.2	86.1	85.9
Not English	12.8	12.1	13.0	13.2	14.0	14.8	13.9	14.1
No. of observations	5,104	4,603	4,384	4,239	4,983	4,464	4,331	4,164
Child has a disability or medical condition ^b								
Yes	–	5.9	8.6	5.4	–	11.1	7.7	6.2
No	–	94.1	91.4	94.6	–	88.9	92.3	93.8
No. of observations	–	4,606	4,386	4,242	–	4,464	4,331	4,164
Weight status ^c								
Underweight	–	5.3	6.5	5.4	5.2	5.1	5.5	5.8
Normal weight	–	71.3	69.7	73.8	74.2	75.2	69.5	65.6
Overweight or obese	–	23.4	23.8	20.8	20.6	19.7	25.0	28.6
No. of observations	–	4,522	4,324	4,181	4,934	4,423	4,289	4,013
Child Indigenous status ^a								
Indigenous	4.9	5.1	4.9	5.2	3.9	3.7	3.7	3.9
Non-Indigenous	95.1	94.9	95.1	94.8	96.1	96.3	96.3	96.1
No. of observations	5,107	4,606	4,386	4,242	4,981	4,462	4,329	4,162

Notes: Percentages based on weighted data. ^a Recorded at Wave 1. ^b Questions about whether the study child had a disability or medical condition were asked differently in Wave 1 so these data are not included here. ^c Weight status is based on body mass index. It was not calculated at Wave 1 for the B cohort.

Child gender

Parent 1 reported the child's gender at Wave 1.

Main language spoken at home by child

At Wave 1, Parent 1 respondents were asked whether each household member mainly spoke English or a language other than English at home. Languages were classified according to the Australian Standard Classification of Languages (ABS, 2005), and these were summarised into English or non-English languages.

Child has a disability or medical condition

At each of Waves 2 to 4, Parent 1 respondents were asked whether each household member had a medical condition or disability that had lasted six months or more, while being shown a prompt card with a list of conditions such as sight problems; hearing problems; blackouts, fits or loss of consciousness; difficulty learning or understanding things; and difficulty gripping things.

Weight status

At each wave (except Wave 1 for the B cohort), interviewers measured the children's weight and height, and these measurements were used to calculate children's body mass index (BMI). The children were then classified as overweight or obese (Cole, Bellizzi, Flegal, & Dietz, 2000), underweight (Cole, Flegal, Nicholls, & Jackson, 2007) or of normal weight. Children in the B cohort at Wave 1 were not measured because of the technical difficulties of measuring infants' height and weight.

Child Indigenous status

Parent 1 respondents were asked at Wave 1 whether the study child identified as being of Aboriginal and/or Torres Strait Islander background. These results were summarised into a measure of whether the child was Indigenous or non-Indigenous.

Parent and family characteristics

The parent and family characteristics at the first four waves are summarised in Table 1.4.

Table 1.4: Parent and family characteristics, B and K cohorts, Waves 1–4								
Subpopulation categories	B cohort				K cohort			
	Wave 1 (0–1 years) (%)	Wave 2 (2–3 years) (%)	Wave 3 (4–5 years) (%)	Wave 4 (6–7 years) (%)	Wave 1 (4–5 years) (%)	Wave 2 (6–7 years) (%)	Wave 3 (8–9 years) (%)	Wave 4 (10–11 years) (%)
Family type								
Two-parent family	89.5	87.0	86.0	84.7	85.6	83.9	84.0	82.4
Lone-mother family	10.5	13.0	14.0	15.3	14.4	16.1	16.0	17.6
No. of observations	5,104	4,593	4,375	4,221	4,946	4,426	4,288	4,113
Family socio-economic position								
Lowest 25%	28.6	31.2	31.5	33.1	28.6	30.3	31.5	31.4
Middle 50%	48.9	47.9	47.8	46.6	50.0	48.8	48.8	48.8
Highest 25%	22.5	20.9	20.7	20.3	21.4	20.9	19.7	19.8
No. of observations	5,092	4,602	4,382	4,237	4,965	4,458	4,327	3,982
Number of siblings in the household								
None	39.1	19.9	11.4	9.5	11.5	9.6	8.6	8.6
One	36.4	47.3	46.3	43.6	47.5	43.9	42.5	42.5
Two or more	24.5	32.8	42.3	46.9	41.0	46.5	48.9	48.9
No. of observations	5,107	4,606	4,386	4,242	4,983	4,464	4,331	4,164
Main language spoken at home by Parent 1								
English	83.1	83.7	83.1	82.8	82.5	81.6	82.7	82.6
Not English	16.9	16.3	16.9	17.2	17.5	18.4	17.3	17.4
No. of observations	5,107	4,606	4,386	4,238	4,983	4,464	4,328	4,146
Parent 1 education level								
University degree or higher	29.1	28.3	29.6	30.0	24.1	24.4	25.1	25.8
Less than university degree	70.9	71.7	70.4	70.0	75.9	75.6	74.9	74.2
No. of observations	5,107	4,606	4,386	4,242	4,983	4,464	4,331	4,164
Both parents' education level								
At least one parent has a university degree (or higher)	37.5	36.9	38.4	38.9	33.9	34.3	35.0	35.2
Neither parent has a university degree	62.5	63.1	61.6	61.1	66.1	65.7	65.0	64.8
No. of observations	5,104	4,604	4,385	4,240	4,979	4,463	4,329	4,163
Region of residence								
Metropolitan	66.5	62.6	64.9	63.6	63.7	65.9	62.9	62.4
Non-metropolitan	33.5	37.4	35.1	36.4	36.3	34.1	37.1	37.6
No. of observations	5,107	4,606	4,378	4,231	4,983	4,464	4,324	4,158

Notes: Percentages based on weighted data.

Family type

Two-parent families are defined as those in which the child lives with two parents in Parent 1's household. This includes children living with biological and/or non-biological parents, children living with same-sex couple parents, and children living in other two-parent family types (e.g., with their mother and their grandmother).

Lone-mother families are those in which the child lives with one female parent only (who is not necessarily the child's biological mother). Where the parents have separated and the child spends time with both parents, the family type is defined according to Parent 1's household, as identified by the study family.

There are very few lone-father families (less than 1% for each cohort), so these have been excluded from analyses comparing different family types.

Family socio-economic position

The measure of family socio-economic position (SEP), developed by Blakemore, Strazdins, and Gibbings (2009), uses information about combined annual family income, educational attainment of parents and parents' occupational status to summarise the social and economic resources available to families. The standardised SEP scores have been divided into quartiles and summarised into the lowest 25%, the middle 50% and the highest 25%.

Number of siblings in the household

At each wave, Parent 1 provides details about all household members, including the study child's siblings. Siblings include biological, adopted, foster, step- and half-siblings. Children may also have siblings who do not live in their household, but these siblings are not included here.

Main language spoken at home by Parent 1

The language spoken by Parent 1 is classified using the same approach described for the study children above.

Parents' education level

At each wave, Parent 1 respondents are asked about the highest qualification held by each of the parents. This information is used to categorise parents into those who have a university degree (or higher) and those who don't. Comparisons are made for Parent 1 respondents only, and for both parents together (families in which at least one parent have a university degree, versus families in which neither parent has a university degree).

Region of residence

Families' postcodes are used to link to ABS Census data, which identifies whether they live in a metropolitan area (capital city statistical divisions) or non-metropolitan area (the rest of the state outside the capital city statistical divisions).

School characteristics

Characteristics of children's schools are summarised in Table 1.5 (on page 8).

School size

For school-aged children (i.e., aged 6–7 years and older; B cohort Wave 4 and K cohort Waves 2–4), teachers were asked how many children currently attended the study child's school. Responses were categorised according to the school size distribution. Schools at the bottom quartile of the school size distribution were considered relatively small. Schools in the second and third quartiles of the school size distribution were defined as medium-size schools. Schools at the top quartile of the school size distribution were defined as relatively large schools. Overall, small schools had up to 250 children, medium schools had up to 620 children and large schools had 621 or more students.

School type

For school-aged children (i.e., aged 6–7 years and older; K cohort Waves 2–4 and B cohort Wave 4), Parent 1 respondents provided details about the type of school the child attended: government, Catholic or independent/private schools.

Table 1.5: School characteristics, K cohort, Wave 4

Subpopulation categories	B cohort				K cohort			
	Wave 1 (0–1 years)	Wave 2 (2–3 years)	Wave 3 (4–5 years)	Wave 4 (6–7 years)	Wave 1 (4–5 years)	Wave 2 (6–7 years)	Wave 3 (8–9 years)	Wave 4 (10–11 years)
School size ^a	Children per school: mean (SD)				Children per school: mean (SD)			
Small (up to 250)	–	–	–	158.5 (60.1)	–	131.4 (57.5)	147.6 (61.9)	163.3 (63.0)
Medium (251–620)	–	–	–	432.0 (114.6)	–	396.3 (113.6)	416.1 (109.6)	437.4 (111.4)
Large (621 or more)	–	–	–	1001.5 (355.1)	–	865.4 (341.7)	948.8 (601.4)	1078.4 (725.3)
No. of observations (schools)	–	–	–	3,298	–	2,961	3,369	3,230
School type ^a	% of schools				% of schools			
Government	–	–	–	67.9	–	68.8	68.3	66.8
Catholic	–	–	–	20.8	–	20.9	20.5	20.5
Independent/private	–	–	–	11.3	–	10.3	11.2	12.7
Total	–	–	–	100.0	–	100.0	100.0	100.0
No. of observations (schools)	–	–	–	4,225	–	4,447	4,307	4,139

Notes: Percentages based on weighted data. ^a Questions about children's school size and type were only asked for children of school age; that is, the B cohort in Wave 4 and the K cohort in Waves 2–4.

1.4 Summary tables

Glossary of LSAC terms

Term	Description
B cohort	The younger group (“baby” cohort) of study children, aged: ■ 0–1 years in Wave 1 (2004); ■ 2–3 years in Wave 2 (2006); ■ 4–5 years in Wave 3 (2008); and ■ 6–7 years in Wave 4 (2010).
K cohort	The older group (“kindergarten” cohort) of study children, aged: ■ 4–5 years in Wave 1 (2004); ■ 6–7 years in Wave 2 (2006); ■ 8–9 years in Wave 3 (2008); and ■ 10–11 years in Wave 4 (2010).
LSAC	<i>Growing Up in Australia</i> : The Longitudinal Study of Australian Children. A nationally representative longitudinal study of child development that commenced in 2004. Data are being collected from study children and their parents, carers and teachers, and through linkage with other national datasets.
Parent 1	The child’s Parent 1 (P1) is defined as the child’s primary caregiver, or the parent who knows the child best, as determined in Wave 1. In the majority of cases, this is the child’s biological mother, but is sometimes the father or another guardian.
Parent 2	The child’s Parent 2 (P2) lives in the same household as Parent 1 and is usually the partner of Parent 1. In most cases, this is the child’s biological father, but can be the mother, another partner of Parent 1, or another guardian.
Parent living elsewhere (PLE)/non-resident parent	The child’s parent who lives in a different household to Parent 1.
Study child (or child)	The sampling unit for LSAC is the study child, so “child” refers to the child selected for inclusion in the study. Data collected and reported relate to this child.
Wave	Periods of data collection: ■ Wave 1 in 2004 (B cohort were 0–1 years, K cohort were 4–5 years); ■ Wave 2 in 2006 (B cohort were 2–3 years, K cohort were 6–7 years); ■ Wave 3 in 2008 (B cohort were 4–5 years, K cohort were 8–9 years); and ■ Wave 4 in 2010 (B cohort were 6–7 years, K cohort were 10–11 years).

Statistical indicators in tables and graphs

Indicator	Notes
†	Relative standard error (RSE)
***	Significance level $p < .001$
**	Significance level $p < .01$
*	Significance level $p < .05$

Key scales used in the report

Scale	Range	Notes
Academic Rating Scales (ARS)	1–5	This scale was adapted for use in Australian schools (Rothman, 2009) and is a measure of school performance in mathematical ability (numeracy) and literacy. The overall measure of achievement was calculated using the Rasch rating score model. Higher scores represent greater proficiency.
Competence scale—Brief Infant Toddler Social Emotional Assessment (BITSEA)	13–33	Derived in LSAC for measuring competencies in the previous month for children 0–3 years old (see Smart, 2011; Briggs-Gowan, Carter, & Schwab-Stone, 1996). Higher scores represent greater competence.
Problems scale—Brief Infant Toddler Social Emotional Assessment (BITSEA)	20–54	Derived in LSAC for measuring certain social-emotional problems in the previous month for children 0–3 years old (see Smart, 2011; Briggs-Gowan et al., 1996). Higher scores represent more problems.
General Self-Concept	1–5	Part of the Self-Description Questionnaire (Marsh, 1990). A higher score indicates a more positive self-concept.
Matrix Reasoning Test	1–19	The Matrix Reasoning Test is part of the Wechsler Intelligence Scale for Children, 4th edition (WISC-IV), and measures non-verbal intelligence. A higher score represents a better outcome.
National Assessment Program—Literacy and Numeracy (NAPLAN)	0–1000	NAPLAN is designed to assess all Australian students in Years 3, 5, 7 and 9 in reading, writing, language conventions (spelling, grammar and punctuation) and numeracy, using a national test that has been conducted annually since 2008, on the same days each year. The NAPLAN assessment process is performed using a national common reporting format by the test administration authorities. The reporting scales are constructed so that given scale scores can be compared across school year levels and over time.
Peabody Picture Vocabulary Test (PPVT)	Age-specific	The PPVT measures receptive vocabulary (Dunn & Dunn, 1997). Scores are created via Rasch modelling. A higher score represents a better outcome.
Strengths and Difficulties Questionnaire (SDQ)	0–40 (for difficulties) 0–10 (for prosociality)	The SDQ assesses peer problems, conduct problems, hyperactivity, emotional problems and prosocial behaviours for children aged 3–17 years. Higher scores on the subscales for hyperactivity/inattention, emotional symptoms, peer relationship problems and conduct problems reflect more problematic behaviour. Lower scores on the prosocial behaviour subscale reflect more problematic behaviour.
School Readiness Score (“Who Am I”)	25–100	The School Readiness Score (de Lemos & Doig, 1999) is based on an interviewer-administered test of children’s ability to perform pre-literacy/pre-numeracy tasks such as reading, copying and writing letters, words, shapes and numbers. A higher score indicates a better outcome.

1.5 References

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Children's views of parents' jobs

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2.1 Introduction

The majority of Australian children are now growing up in families (lone or couple) where at least one of their caregivers holds a job. For example, according to estimates from the Australian Census in 2011, among couple families with children aged under 18 years, both parents were employed full-time in 21% of families, one parent was employed full-time and the other part-time in 34%, and in 28%, one parent was employed full-time and the other was either not employed or away from work. The majority of lone mothers with children aged under 18 years were also employed, with 31% in part-time work and 24% in full-time work in 2011 (Baxter, 2013). Lone fathers are much fewer in number than lone mothers, but are more likely to be employed, and more likely to be employed full-time (Australian Bureau of Statistics, 2010).

This chapter explores how children view three aspects of their parents' work: the hours the parents work, children's wishes for parents to work or not, and how much parents like their jobs. Children can show a surprising awareness of their parents' jobs and experience of working (Galinsky, 1999). Indeed, children's first understanding of work appears to be based on observations of how their parents work, and what parents say about work (Loughlin & Barling, 2001). For example, children as young as 7 or 8 years can fairly accurately report on parental job satisfaction, and parents' work attitudes and experiences shape children's expectations about working (e.g., adolescents whose parents have been laid off display more cynicism and alienation about their future careers). Thus parents' work experiences, and how children view them, could influence children's future work orientations and expectations.

Observation of what parents do is also important for later choices around career and raising children, and fundamental for future gender equity. Boys and girls may show similar achievement goals and expectations for jobs; however, past research shows that a gender divide becomes apparent when they consider parenthood (Stevens, Puchtell, Ryu, & Mortimer, 1992). For example, Pocock (2006), in focus groups with children (10–12 and 16–18 years old), found that work and family arrangements characterised by long full-time work hours by fathers and part-time work by mothers generated a gendered set of expectations among adolescents, with girls being more likely than boys to anticipate that responsibility for caregiving would complicate and influence their work patterns.

It is not known, however, whether the characteristics of the jobs parents hold (in terms of hours, status, conditions and family-friendliness) also shape children's views about work and working. Most Australian parents value their jobs and find them rewarding, and Australia has a comparatively high minimum wage, an established workplace regulatory system, and a recently instituted national

paid parental leave scheme.¹ However, Australia also has a clearly gendered division of work time, with many fathers working long full-time hours and the majority of mothers working part-time.

Very little research has been conducted on Australian children's perceptions of parents' jobs, partly because, with the exception of the Longitudinal Study of Australian Children (LSAC), few datasets contain information on mothers' *and* fathers' jobs that can be combined with how children view them.

This chapter therefore aims to examine the following questions:

- How do girls and boys view their parents' jobs, and are there any differences between girls' and boys' viewpoints?
- Are mothers' jobs evaluated differently compared to fathers' and to what extent do these differences vary by child's gender?
- Do children's views vary by the status, quality and conditions of their parents' jobs, including parents' work hours?

2.2 Data and measures

The data on children's views of their parents' jobs were collected at Wave 4 from the K cohort of LSAC, when children were aged 10–11 years old. During the audio computer-assisted self-interview (ACASI), children were asked first about their mother's job, and then about their father's job:

- *Does your mum (dad) have a job?*—response categories of “yes” or “no”.
- *How much do you think your mum (dad) likes her (his) work?*—response categories of “a lot”, “somewhat”, “very little” and “not at all”.
- *Do you wish your mum (dad) did not have to work?*—response categories of “yes, wish very much”, “yes, wish a little bit”, and “don't wish, not a problem”.
- *Do you think your mum (dad) works too much, too little, or about the right amount?*—response categories of “too much”, “about the right amount” and “too little”.

All children with a mother and/or father were asked these questions, whether or not those parents lived in another household (e.g., when parents had separated). For this research, we have focused only on children's reports about parents who live in the same household and so, for reporting on mothers' jobs, we have excluded responses of children who have a mother living in another household to that of the primary carer ($n = 60$) and, for reporting on fathers' jobs, we have excluded the responses of children who have a father living elsewhere ($n = 564$).² As a result, we are able to compare children with lone and couple mothers on their views of their mothers' jobs, but we are not able to do the same comparison of their views of fathers' jobs.

After these exclusions, 4,052 children in total answered the ACASI questions about their co-resident mothers' jobs (2,071 boys and 1,981 girls), and 3,803 answered questions about their co-resident fathers' jobs (1,945 boys and 1,858 girls). Of these, 1,585 boys and 1,535 girls reported that their mother had a job, and 1,555 boys and 1,493 girls reported that their father had a job (see Table 2.1 on page 15).

Children's responses about their mothers' and fathers' jobs are analysed in this chapter, and related to parents' reports of the characteristics and qualities of their jobs, and to other family characteristics. Some employed parents were away from work at the time of the study, and so their full range of job characteristics were not necessarily available.³ We have excluded these cases when undertaking analyses according to parents' work characteristics. Excluding cases with missing data on the variables of interest resulted in a final sample size for these analyses of approximately 2,650 for mothers and 2,700 for fathers.

¹ More recently, Dad and Partner Pay was introduced, providing options for fathers at the birth of a child (Rush, 2013).

² These responses were excluded because for step- or blended families, it was not possible to determine whether children were reporting on the father figure in their household, or on a father living elsewhere. Further, even in lone-mother families, if children were reporting on a parent who lives in another household, the other parent's employment characteristics were only available for a subset of respondents.

³ Also, some parents reported that they were employed, but children said they did not have a job ($n = 116$ for mothers, $n = 39$ for fathers), and other parents reported that they were not employed, but children said they had a job ($n = 158$ for mothers, $n = 45$ for fathers).

Table 2.1: Number of girls and boys responding to questions about co-resident parents' jobs

Parents' jobs	Girls (n)	Boys (n)	Total (n)
Mothers' jobs			
Mother has a job	1,535	1,585	3,120
Mother does not have a job	424	448	872
Total	1,959	2,033	3,992
Fathers' jobs			
Father has a job	1,493	1,555	3,048
Father does not have a job	88	103	191
Total	1,581	1,658	3,239

Throughout the analyses, differences between girls' and boys' reports of their mothers' and fathers' jobs are examined. In the final sample of children reporting on either mothers' or fathers' jobs, there was a fairly even distribution of boys' and girls' responses, consistent with the overall distribution shown in Table 2.1.

2.3 Overview of children's views of parents' jobs: Gender differences and overall trends

Table 2.2 shows girls' and boys' responses on each of the parental work questions. The majority of children thought that their parents liked their job a lot or somewhat, and responses overall were similar for reports on both mothers' and fathers' jobs. That is, nearly half (47%) the children thought their mother liked her job very much, 42% thought she somewhat liked her job, and just over one in ten (11%) thought she only liked her job a little or not at all. Similarly, when reporting on fathers' jobs, 45% of children thought that their father liked his job a lot, 40% thought he somewhat liked his job, and 14% thought he liked his job very little or not at all.

Table 2.2: Overview of girls' and boys' perceptions of their co-resident parents' jobs

Child perceptions	Reports of mothers' jobs			Reports of fathers' jobs		
	Girls (%)	Boys (%)	All children (%)	Girls (%)	Boys (%)	All children (%)
How much do you think your mum (dad) likes her (his) work?						
A lot	46.9	46.4	46.6	45.0	45.8	45.4
Somewhat	41.8	42.5	42.2	42.6	38.4	40.4
Very little	8.3	8.6	8.5	10.1	11.7	10.9
Not at all	3.0	2.5	2.8	2.3	4.2	3.2
Difference in girls' and boys' responses ^a			ns	***		
Do you wish your mum (dad) did not have to work?						
Yes, wish very much	16.2	23.4	19.8	17.9	25.5	21.8
Yes, wish a little bit	44.2	37.3	40.7	43.5	40.0	41.7
Don't wish, not a problem	39.6	39.3	39.5	38.6	34.5	36.5
Difference in girls' and boys' responses ^a			***	***		
Do you think your mum (dad) works too much, too little, or about the right amount?						
Too much	25.2	27.4	26.3	32.9	37.4	35.2
About the right amount	72.9	69.0	70.9	66.2	60.5	63.3
Too little	1.9	3.6	2.8	0.9	2.1	1.5
Difference in girls' and boys' responses ^a			*	***		
No. of observations	1,535	1,585	3,120	1,492	1,554	3,046

Notes: Percentages may not total exactly 100.0% due to rounding. ^a For each aspect of parents' work, chi-square tests were used to test for differences between boys and girls. Statistically significant differences are noted: * $p < .05$; ** $p < .01$; *** $p < .001$; ns = not significant.

When reporting on mothers' jobs, boys and girls gave similar responses. However, for reports on fathers' jobs there was more variability between boys and girls, with slightly fewer boys saying their father somewhat liked his job and a few more saying he liked his job very little or not at all, when compared to girls' reports.

About 1 in 5 children wished very much that their mother or that their father did not have to work, and around 2 in 5 children wished this a little. Boys were more likely than girls to say that they very much wished their mother or father did not work.

The majority of children considered that their parents worked about the right amount. A sizable minority (about 1 in 4 children) said that their mother worked too much, and more than one-third of children considered that their fathers worked too much. Very few children of employed parents thought that their mother or father worked too little. Boys were a little more likely than girls to say either their mother or their father worked too much.

These overall findings suggest that the children had a mix of views about their parents' jobs, many of them positive. There is no indication that mothers' work was any more of a problem than fathers' work. Mothers' and fathers' work was viewed similarly; indeed, both boys and girls were somewhat more likely to focus on their fathers' work as a problem (in terms of fathers overworking, wishing fathers didn't have to work and fathers' enjoyment of work).

Before moving on to examine these responses according to parents' job characteristics, we first consider whether children have different perceptions of their mothers' employment according to whether they are living in a lone-mother or two-parent family. Families headed by a lone parent tend to have fewer resources, which may make the pressures of work and family life more challenging, influencing children's views. Similar comparisons are not made for fathers' employment, as there were not sufficient numbers of children living in families headed by a lone father. Table 2.3 (on page 17) shows that boys and girls generally showed similar views on their mothers' jobs, no matter whether the mother was a lone or couple parent. Only one statistically significant difference was apparent, for boys' reports of whether their mother worked too much, the right amount or too little. In lone-mother families, boys were a little more likely than those with couple mothers to say that their mother worked too little, rather than the right amount. The differences were not particularly large, with the most common response in lone-parent and couple-parent families being that mothers worked the right amount.

2.4 Parents' job characteristics and children's views

The following subsections explore how selected job characteristics may be related to children's different views of their parents' jobs.

Parents' job characteristics

Previous research has highlighted that job characteristics are related to parents' reports of work-family spillover (whereby stresses and moods associated with work affect family life and vice versa) (Baxter, Gray, Alexander, Strazdins, & Bittman, 2006), so we consider whether there are similar relationships between parents' job characteristics and children's perceptions of parents' jobs. The characteristics examined are:

- usual work hours;
- occupation status; and
- job quality.

Usual work hours are presented in categories. Mothers' and fathers' work hours are not coded equivalently, but are coded to reflect the preponderance of mothers who work part-time (< 35 hours per week) and the preponderance of fathers who work full-time, especially long full-time hours (45–54 hours or 55 hours or more). Using these groupings, 13% of employed mothers worked less than 15 hours per week, 28% worked 15–24 hours, 24% worked 25–34 hours and 35% worked 35 hours or more (i.e., full-time). Most of the full-time employed mothers worked 35–44 hours (25%), with 7% working 45–54 hours and 4% working 55 hours or more. For fathers, 7% worked less than 35 hours per week, 44% worked 35–44 hours, 27% worked 45–54 hours and 22% worked 55 hours or more.

Table 2.3: Overview of girls' and boys' perceptions of their co-resident mothers' jobs, by mothers' relationship status

Child perceptions of mothers' jobs	Girls			Boys		
	Couple mother (%)	Lone mother (%)	All girls (%)	Couple mother (%)	Lone mother (%)	All boys (%)
How much do you think your mum likes her work?						
A lot	46.5	48.7	46.9	46.9	43.3	46.4
Somewhat	42.5	38.6	41.8	42.7	41.4	42.5
Very little	8.6	7.1	8.3	7.8	12.8	8.6
Not at all	2.4	5.6	3.0	2.6	2.5	2.5
<i>Difference between couple and lone mothers^a</i>		ns			ns	
Do you wish your mum did not have to work?						
Yes, wish very much	15.6	18.8	16.2	22.4	28.4	23.4
Yes, wish a little bit	44.1	44.7	44.2	38.0	33.8	37.3
Don't wish, not a problem	40.3	36.5	39.6	39.6	37.7	39.3
<i>Difference between couple and lone mothers^a</i>		ns			ns	
Do you think your mum works too much, too little, or about the right amount?						
Too much	24.3	29.7	25.2	27.3	28.1	27.4
About the right amount	74.1	67.2	72.9	69.8	64.8	69.0
Too little	1.6	3.2	1.9	2.9	7.1	3.6
<i>Difference between couple and lone mothers^a</i>		ns			*	
No. of observations	1,303	232	1,535	1,368	217	1,585

Notes: Percentages may not total exactly 100.0% due to rounding. ^a For each aspect of parents' work, for boys' and girls' reports, chi-square tests were used to test for differences between couple and lone mothers. There was only one statistically significant difference, which is noted: * $p < .05$; ** $p < .01$; *** $p < .001$; ns = not significant.

Occupation status broadly classifies parents as higher status (manager, professional or associate professional), intermediate (intermediate/advanced production, clerical, sales or service) and lower status (elementary clerical sales and service, labourers and related workers). For mothers who were employed (and not away from work), 37% were in the higher status occupations, 35% in the intermediate occupations, and 12% in lower status occupations, with occupational details unavailable for 16%. For employed fathers, 46% were in higher status occupations, 35% in intermediate occupations, 7% in lower status occupations and 11% had missing occupational details. Note that this classification is, by design, very broad, covering a diversity of specific jobs. This broad classification does not allow identification of whether children's views are different when parents work in particular jobs.

The index of job quality is a count of how many positive work conditions are present in parents' jobs. The five conditions we use are: job security, flexible work hours, autonomy at work, reasonable workload, and access to paid leave. The classification of these working conditions is described in Table 2.4 (on page 18). Parents with three or fewer of these work conditions are grouped together and considered to have a poor quality job, and are compared to those with four or five of these conditions. Overall, 25% of mothers reported three or fewer positive work conditions, 36% scored four, 21% scored five (the optimal group), and information was missing for another 17%. For fathers, 18% scored three or fewer positive conditions, 27% scored four, 20% scored five, and information was missing for another 35%.⁴

⁴ Some of these items were sourced from the self-completion component of the study, for which non-response contributed to the extent of the missing data.

Table 2.4: Components of job quality index

Working condition	Source of information	Coding of indicator variable
Job security	This is based on the question: "How secure do you feel in your present job?"	1 = "very secure" or "secure" 0 = "not very secure" or "very insecure"
Flexible work hours	The question asked was: "If you sometimes need to change the time when you start or finish your workday, is it possible?"	1 = "yes, I am able to work flexible hours" or "yes, with approval in special situations" 0 = "no, not likely" or "no, definitely not"
Autonomy at work	Respondents were asked how strongly they agreed or disagreed with the statement: "I have a lot of freedom to decide how I do my own work"	1 = "agree" or "strongly agree" or "neither agree nor disagree" 0 = "disagree" or "strongly disagree"
Reasonable workload	Respondents were asked how strongly they agreed or disagreed with the statement: "I never have enough time to get everything done in my job"	1 = "strongly disagree", "disagree" or "neither agree nor disagree" 0 = "agree" or "strongly agree"
Access to paid leave	Respondents were asked if they received different forms of paid leave in their job	1 = has access to paid parental/maternity leave or paid personal leave 0 = does not have access to paid parental/maternity leave or paid personal leave

In the following subsections, these job characteristics are related to children's perceptions of their parents' jobs. These data are initially presented as figures by simply cross-tabulating the responses of boys and girls, reporting on mothers' and fathers' jobs. However, this does not allow us to ascertain which factors are the most important in differentiating children's responses, as, for example, parents who have better job quality, may also have higher status jobs. To see which characteristics are independently related to child perceptions of parents' jobs, additional analyses were undertaken in which the associations with these job characteristics were explored simultaneously. Separate analyses were undertaken on each of the three child reports on parent jobs, with responses for each re-categorised into two groups:

- for analyses of parents' liking their work, the comparison groups are "a lot" or "somewhat", versus "a little" or "not at all";
- for children's wishes that their mother or father did not work at all, the comparison groups are "wish very much", versus "wish a little" or "do not wish".
- for children's views on parents' working hours, the comparison groups are "works too much", versus "about the right amount" or "too little".

The analyses were done separately for children's reports of mothers' and fathers' jobs. They were initially done with boys and girls together, with the gender of the child included as a possible factor explaining different responses. Then, analyses were undertaken for girls' and boys' responses separately, to see if any associations between the characteristics examined emerged as being different for girls versus boys.

Mothers' current relationship status (whether lone or couple) was also included in these analyses of reports of mothers' jobs.

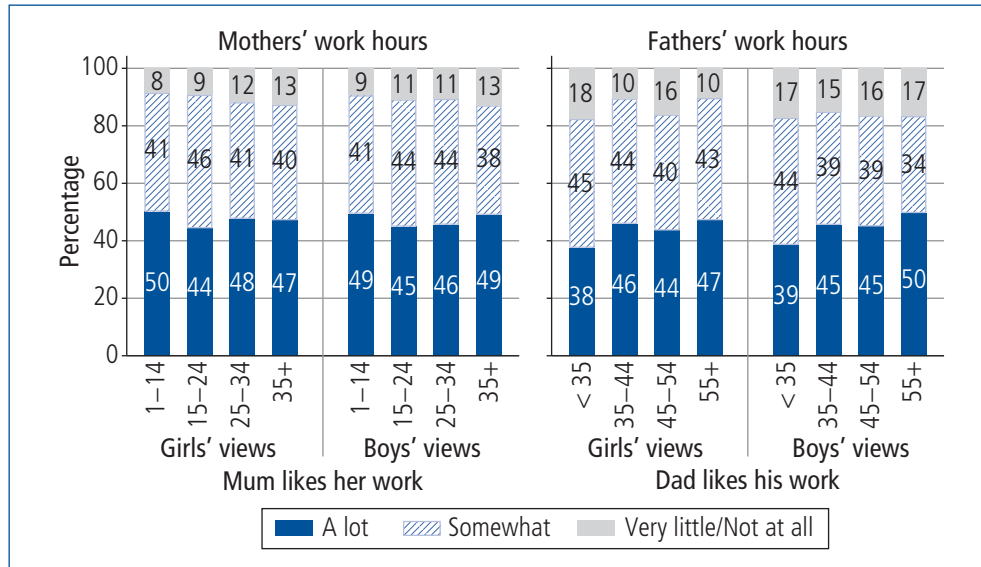
The results from these analyses are referred to in the text below, although the detailed findings have not been presented.

Children's views that parents like their job

This section explores how parents' job characteristics are related to children's views of whether parents like their job. Girls' and boys' views are examined separately, as are mothers' and fathers' jobs.

First, Figure 2.1 (on page 19) shows that children's views on whether their parents like their jobs are largely unrelated to their parents' usual work hours. Statistically significant differences were not apparent, comparing boys' and girls' views by work hours for mothers' jobs or fathers' jobs. This was true also, when the associations between work hours and child perceptions were explored, controlling for other characteristics.

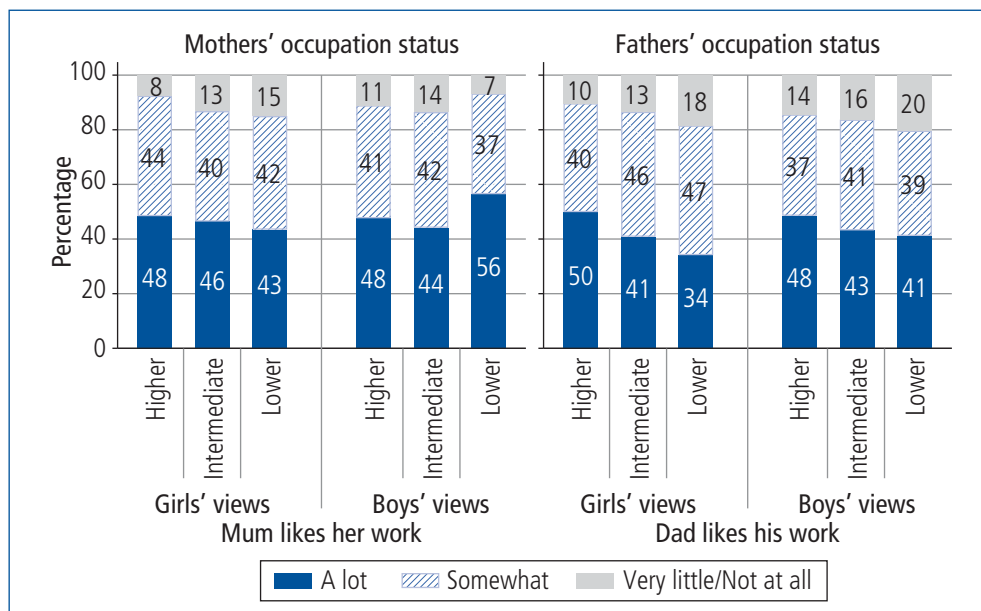
In these analyses, with other characteristics held constant, boys and girls did not differ in regard to their views of whether their mother likes her work. Boys were a little more likely than girls to think their father only liked his work a little or not at all.



Notes: Distributions of children's views by work hours were not statistically significant for girls' and boys' views of mothers' or fathers' work.

Figure 2.1: Girls' and boys' views of whether parents like work, by parents' work hours

Variation in children's views about whether their parents like their jobs according to parents' occupation status (Figure 2.2) was slight, although there were some statistically significant differences. Some different patterns emerged for boys and girls, and reports of mothers' and fathers' jobs.



Notes: Reporting on mothers' jobs, by occupation, $p < .05$ for boys and girls. Reporting on fathers' jobs, by occupation, $p < .01$ for boys and $p < .05$ for girls.

Figure 2.2: Girls' and boys' views of whether parents like work, by parents' occupation status

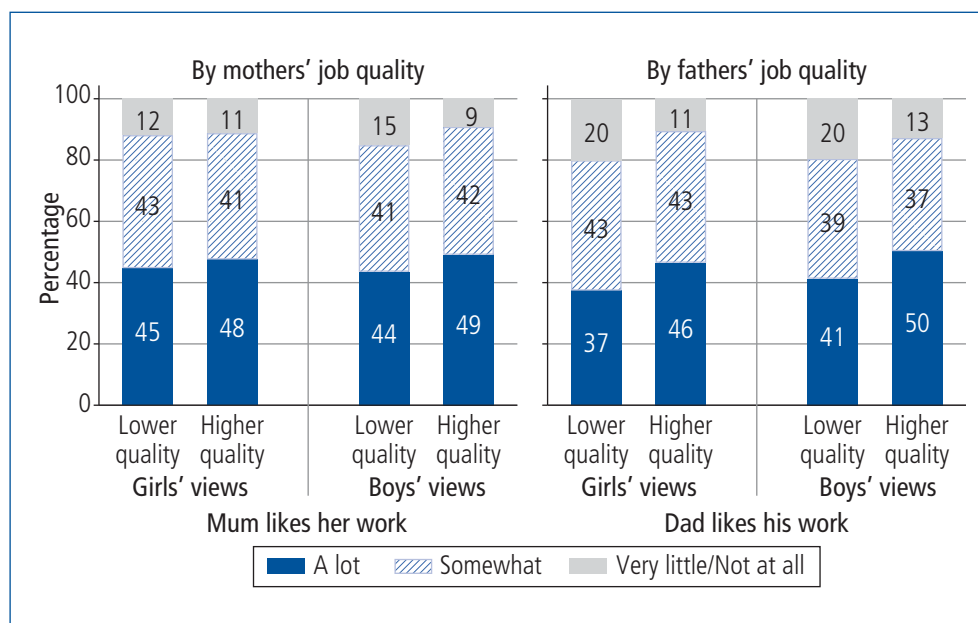
For reports of fathers' jobs, children more often perceived that their father liked his job when he worked in a higher status occupation. A higher percentage of children thought he did not like his job if his job was in the lower status group. This was true for girls and for boys, although in the

analyses in which other characteristics were controlled, the association between occupation and perceptions of fathers liking work was only statistically significant for girls.

For mothers there were different patterns for boys and girls. Girls' reports of mothers' jobs were consistent with those described for fathers (above), and this was also apparent when other characteristics were taken into account. For boys, though, as evident in Figure 2.2, a relatively high percentage reported that mothers who worked in the lower status jobs liked their job a lot. When other characteristics were taken into account, however, there was not a statistically significant association between mothers' occupation and boys' perceptions of whether their mother at least somewhat liked her job. One factor that may have contributed to differences for boys versus girls is that the types of occupations held by mothers in the lower status occupation group differed for boys compared to girls in this sample, with a higher percentage of girls having mothers in the lower status jobs (that is, labourers and related workers).

Children's views about whether their parents liked their job were also linked to the quality of their work, although the differences were only statistically significant for fathers' jobs. The association shown in Figure 2.3 was not statistically significant for girls' views of their mothers' jobs. Children were more likely to say their father did not like his work when he worked in a job rated here as being of poorest quality. Note that a majority of children considered that their parents liked their jobs a lot or somewhat, even when they worked in the poorest quality job. Adjusted analyses showed a similar pattern of findings.

In these more detailed analyses, we found that for boys only, lone mothers were viewed as being less likely to like their job than were couple mothers, although the difference was small.



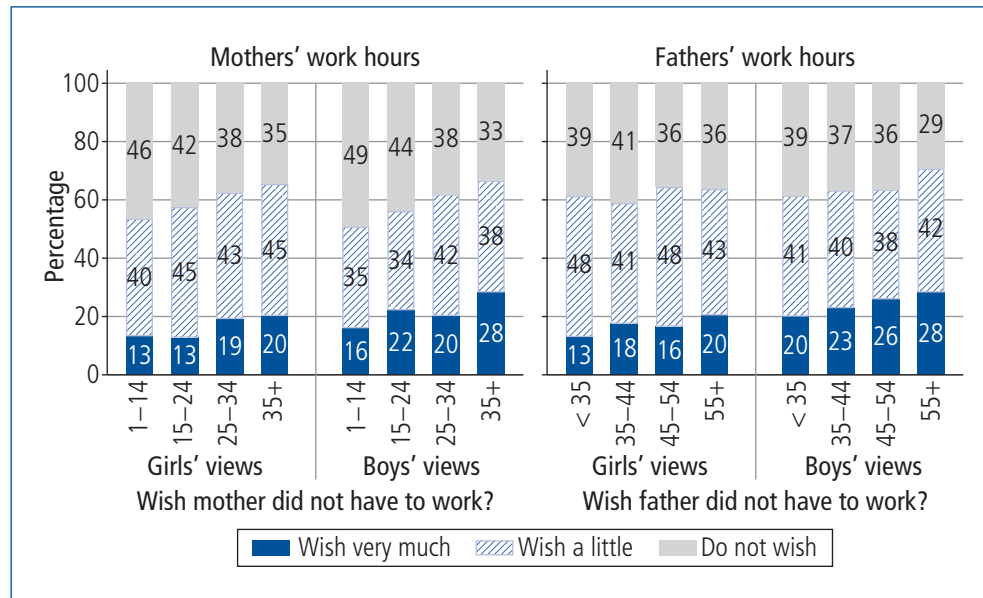
Notes: Lower quality = 3 or fewer positive working conditions; higher quality = 4 or 5 positive working conditions (see Table 2.4). Reporting on mothers' jobs, by job quality, $p < .05$ for boys, but non-significant for girls. Reporting on fathers' jobs, by job quality, $p < .01$ for boys and $p < .001$ for girls.

Figure 2.3: Girls' and boys' views of whether parents like work, by parents' job quality

Children's wishes that their parents did not have to work at all

The next question children answered, in respect of mothers and fathers, was whether they wished that their parent did not have to work. These responses may have been related to their parents' work hours or job characteristics, and we explore whether these characteristics influenced how children felt about their parents' employment. Figures 2.4 to 2.6 present the children's responses against their parents' working hours, occupation groups and job quality and, as above, we refer also to the findings of the more detailed analyses in which these characteristics were examined simultaneously.

We find a significant association between girls' and boys' wishing that their mother did not have to work and mothers' work hours. The more hours mothers worked, the more likely were children to wish that their mother did not have to work. Consistent with Figure 2.4, when other characteristics were taken into account, children were more likely to very much wish their mother did not have to work at all when she worked longer hours. This was true for girls' and boys' reports.



Notes: Reporting on mothers' jobs, by work hours, $p < .05$ for girls, $p < .01$ for boys. Reporting on fathers' jobs, by work hours, non-significant for boys and girls.

Figure 2.4: Girls' and boys' wish that parents did not have to work, by parents' work hours

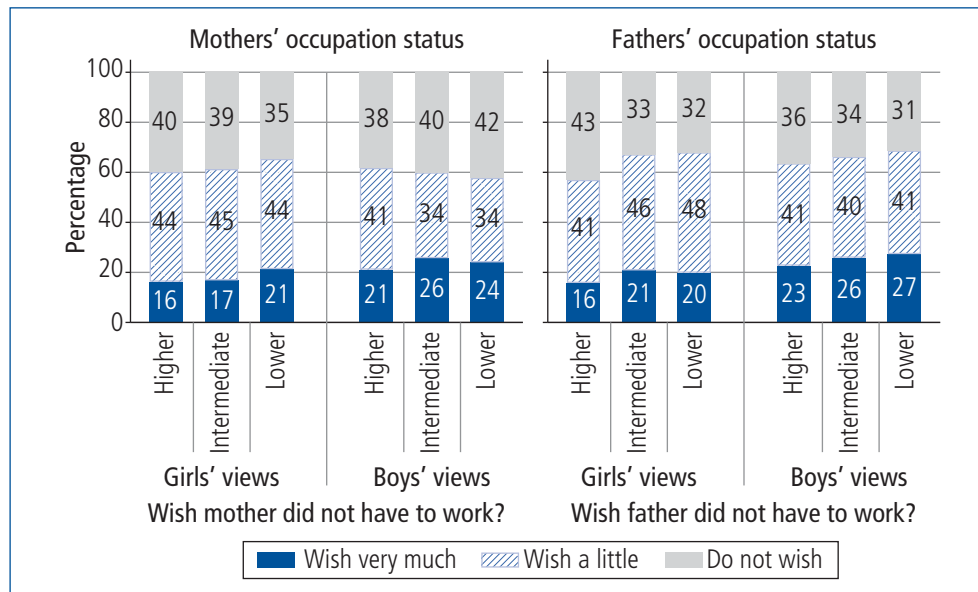
While this pattern is also evident for children's wishes that their fathers did not have to work, the associations were not statistically significant, and this was true also when other characteristics were taken into account.

In the detailed analyses of factors explaining the variation in children wishing their mothers and fathers did not have to work, with boys and girls together, the factor that differentiated wishes about parent's work the most was the gender of the child, with boys being more likely than girls to very much wish that their mother and their father did not have to work. This is consistent with Table 2.1 (on page 15).

Some occupational differences were observed (Figure 2.5 on page 22), with children being the least likely to say they wished their mother did not have to work if she worked in higher status occupations. This was not a particularly strong association, and was only statistically significant if boys' and girls' responses were pooled for both the adjusted and unadjusted analyses (not shown). It was not statistically significant when girls' and boys' responses were examined separately.

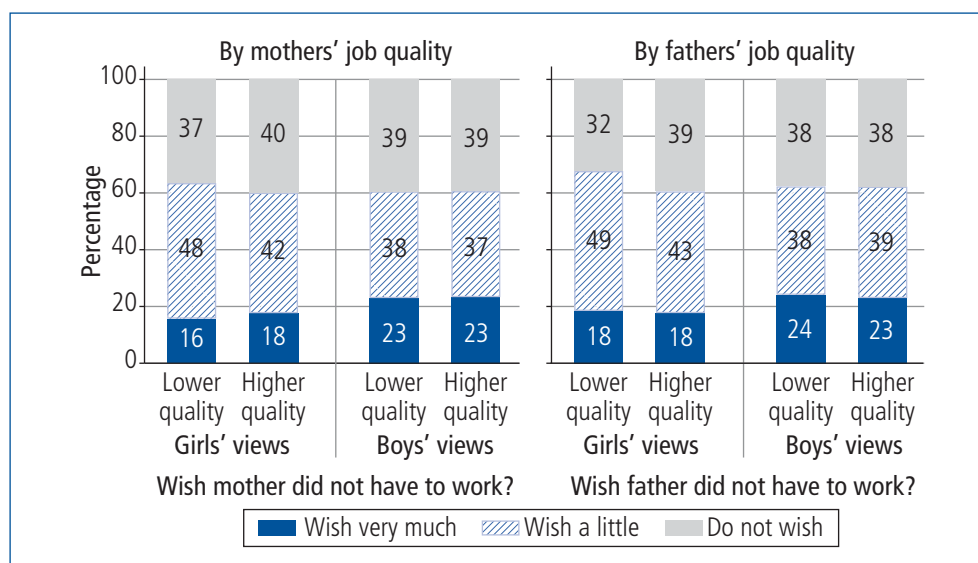
For fathers, some occupational differences were also observed, with children being less likely to say they wished their father did not have to work if he worked in higher status compared to lower status occupations. In the pooled sample of boys and girls, this was statistically significant when other characteristics were taken into account. For the separate analyses of boys and girls, this was only statistically significant for the analyses of girls' responses, but was not statistically significant in the adjusted analyses when other characteristics were taken into account.

Job quality did not have a significant relationship with children's wishes for either parent not to have to work (Figure 2.6 on page 22), and this finding was apparent in both unadjusted and adjusted analyses.



Notes: Reporting on mothers' jobs, by occupation status, non-significant for boys and girls. Reporting on fathers' jobs, by occupation status, $p < .05$ for girls, but non-significant for boys.

Figure 2.5: Girls' and boys' wish that parents did not have to work, by parents' occupation



Notes: Lower quality = 3 or fewer positive working conditions; higher quality = 4 or 5 positive working conditions (see Table 2.4). Distributions of children's views by job quality were not statistically significant, for mothers' and fathers' work, or girls' and boys' views.

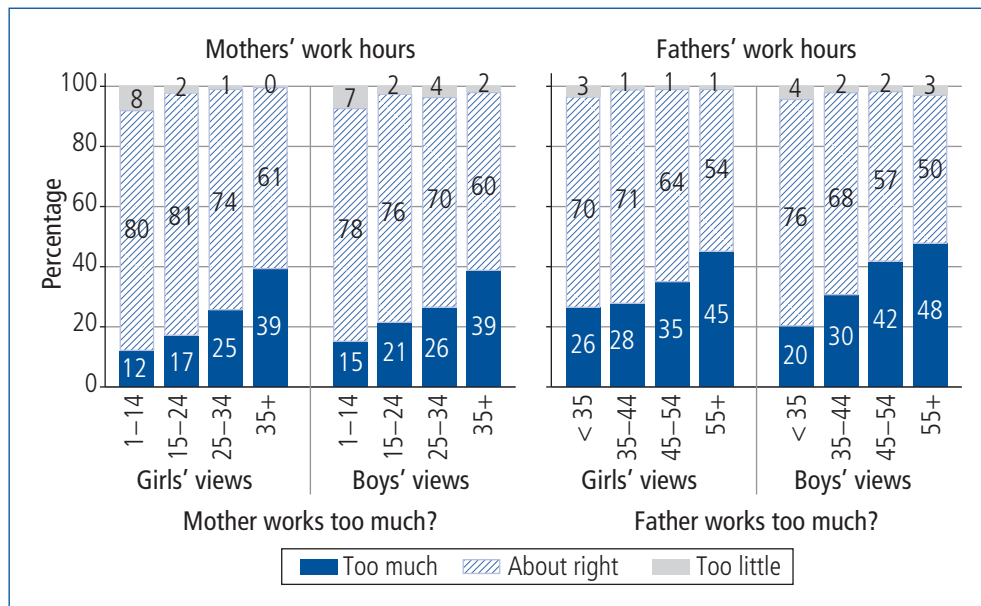
Figure 2.6: Girls' and boys' wish that parents did not have to work, by parents' job quality

Children's views that their parents work too much

Children were also asked whether they thought that their mother or father worked too much, and we found statistically significant associations between parents' usual work hours and what children thought. Figure 2.7 (on page 23) shows, in line with what would be expected, that longer work hours for either mothers or fathers were more often perceived by children as being "too much".

About four out of five girls and boys thought that mothers working short part-time hours (< 25) worked the right amount. This reduced to about two out of three boys and girls when mothers worked full-time hours. Conversely, the largest proportions of children who considered that their mother worked too much (39% for both boys and girls) were among those with mothers who worked full-time.

Associations between work hours and girls' and boys' views of their parents' work hours were also observed when other characteristics were taken into account.



Notes: Reporting on working too much, by working hours was statistically significant, $p < .001$, for boys' and girls' reports about mothers' and fathers' jobs.

Figure 2.7: Girls' and boys' views of parents' work hours, by parents' work hours

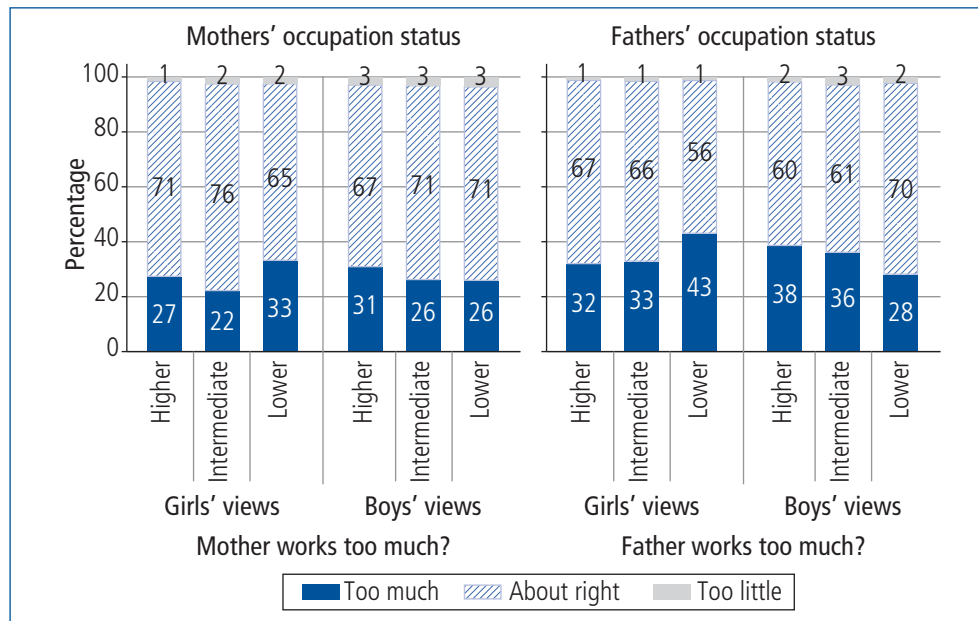
The relationship between parents' work hours and children's views of parental work time were similar for boys and girls. Where gender distinctions were evident, it was between mothers and fathers, with apparently different (lower) work hour "benchmarks" for views about mothers compared with fathers. The different hours groupings used here makes it difficult to compare views on mothers and fathers. If children's views are examined for all those with fathers who worked full-time hours (35 hours or more), 38% of boys and 34% of girls said he worked too much, and 60% of boys and 65% of girls said he worked about the right amount. These figures are comparable to the figures for mothers who worked full-time hours. However, it is important to note that fathers were much more likely than mothers to work full-time hours, and to work long full-time hours. The proportion of girls and boys who thought that their father worked too much increased when their fathers worked long hours (45–54 hours: for girls 35% said her father worked too much, for boys it was 42%) or very long hours (55 or more: 45% girls, 49% boys).

Children's views that their mother (or father) worked too much (or too little) did not consistently or significantly vary by mothers' (or fathers') occupational status (see Figure 2.8 on page 24).

When differences by occupation were analysed with other characteristics taken into account, there was only one statistically significant association, which related to girls' reports of mothers' work. When mothers worked in lower status occupations, girls were more likely to say that mothers worked too much, compared to girls whose mothers worked in higher status occupations.

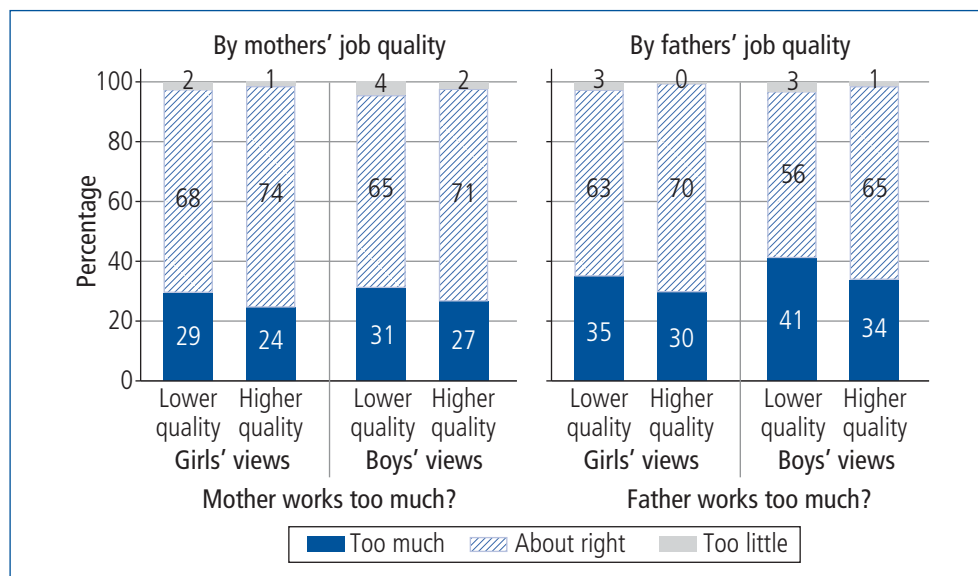
There was some evidence that children's perceptions of parent over- or under-work were linked to the quality of their parents' jobs (see Figure 2.9 on page 24). Both girls and boys were somewhat less likely to think that their mother and father worked too much when they held a higher quality job, although this was not statistically significant for boys' reports on mothers' jobs. The trends were less clear when other characteristics were controlled, with a statistically significant difference only for reports of mothers' jobs, in the pooled sample of boys and girls.

In the full analyses, in which parental job characteristics were taken into account, perceptions about mothers or fathers working too much were unrelated to child gender or whether the mother was a lone or couple parent.



Notes: Distributions of children's views by occupational status were not statistically significant, for mothers' and fathers' work, girls' and boys' views.

Figure 2.8: Girls' and boys' views of parents' work hours, by parents' occupation status



Notes: Lower quality = 3 or fewer positive working conditions; higher quality = 4 or 5 positive working conditions (see Table 2.4). Reporting on working too much, by job quality, was statistically significant for mothers ($p < .05$) for boys but not girls, and was statistically significant ($p < .05$) for boys' and girls' reports on fathers' jobs.

Figure 2.9: Girls' and boys' views of parents' work hours, by parents' job quality

2.5 Parents' work-to-family spillover and children's views about parents' jobs

In the above analyses, overall, it appears that children's views are linked to parents' working hours, occupation status and job quality, although in some instances, these associations can be inconsistent and weak.

Work-family spillover is generally understood to describe the interface between work and family life, with experiences of paid work possibly spilling over in positive or negative ways to family life, represented as work-to-family spillover. In this section, we examine whether parents' own

experiences (or perceptions) of work-to-family spillover are linked with children's perceptions of parents' jobs. Specifically, we want to know whether children have more negative perceptions about their parents' work when parents also have more negative (or less positive) views about the interface between work and family responsibilities.

Parent reports of positive spillover

First, positive spillover from work to family was measured using parents' responses, when asked about their agreement on the statement "My working has a positive effect on my child(ren)". These responses were related to children's views about parents' jobs, with Figure 2.10 showing reports on mothers' jobs and Figure 2.11 showing reports on fathers' jobs. (Parent responses of "strongly disagree" or "disagree" have been combined, as have parent responses of "agree" or "strongly agree".)

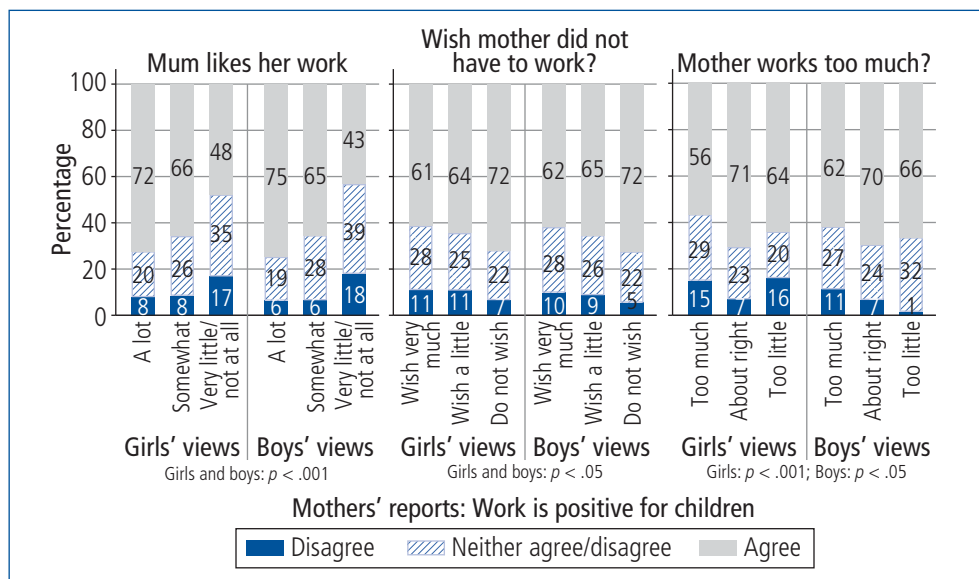


Figure 2.10: Mothers' reports of positive spillover from work to family, by girls' and boys' views of mothers' jobs

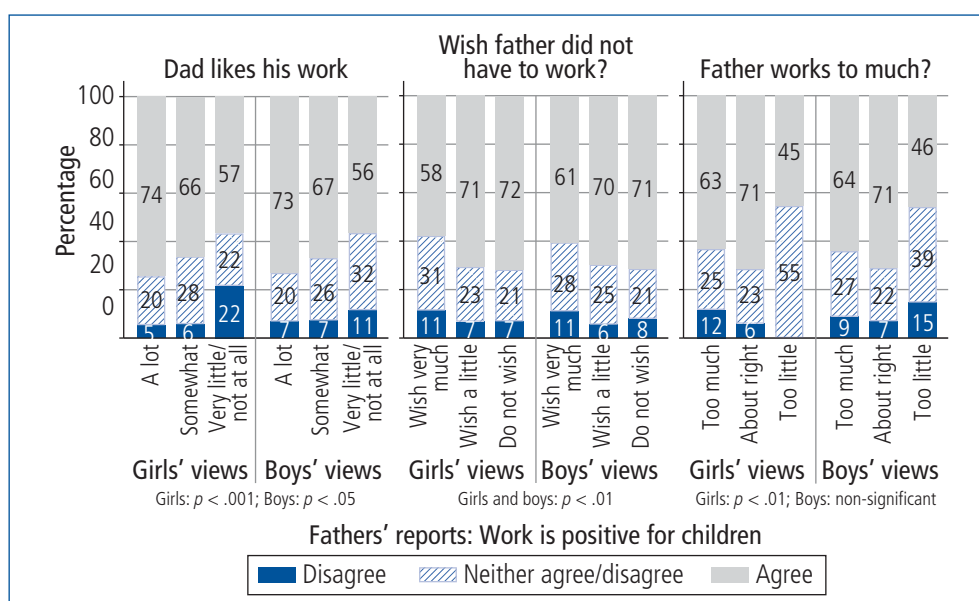


Figure 2.11: Fathers' reports of positive spillover from work to family, by girls' and boys' views of fathers' jobs

Overall, parents' and children's perceptions tended to align. That is, among children who viewed their mothers' or fathers' jobs more positively, parents were more likely to consider that their jobs were positive and benefiting their children. Again we found little evidence of gender divergence among children's views—similar trends were observed for boys and girls, and about mothers' and fathers' jobs. Some of the associations were, however, stronger for girls than for boys.

Among boys and girls who said that their mother liked their job a lot, for example, around three-quarters of parents considered that their job was positive for and benefited their children. However, for boys and girls who thought their mother did not like her job, fewer than half of the mothers considered their job was positive for their children.

For fathers also, when boys and girls said that their father liked their job a lot, around three-quarters of fathers considered that their job was positive for and benefited their children. In contrast, fewer than 60% of fathers thought their job was positive for or benefited their children when their children thought that their father did not like his job (or liked it very little).

The associations between children's wishes that mothers did not have to work and mothers' reports of work being positive for children were somewhat weaker than they were for child reports of mothers liking work. Nevertheless, it was less common for mothers to consider that their work was positive for children when children wished that their mother did not have to work.

For fathers, this association was also apparent, although the most marked differences were between children who wished very much that their father did not have to work, compared to those who wished this a little or not at all.

Associations between children's views of whether parents worked too many hours, and parents' reports of work being positive for children, were stronger for girls than for boys, although for both the associations were clearer for mothers. When children said their parents worked too much, parents were less likely to report positively about their work. For boys and girls reporting on either mothers or fathers, the more positive reports by parents were given for children who had said their parent worked the right amount (rather than working too many or too few hours).

Parent reports of negative spillover

To examine links with negative spillover from work to family, parents' rating of the extent their family time was less fun and more pressured due to work were cross-tabulated with children's views about parents' jobs (Figures 2.12 and 2.13 on page 27 for mothers and fathers, respectively).

As for the parent reports of positive spillover, children's views were generally consistent with parents' perceptions.

Associations between boys' and girls' reports of whether their mother liked her job, and mothers' reports of negative spillover were apparent, with a greater proportion of mothers reporting that her job interfered with family life when she was considered to like her job less. This was apparent also when comparing child reports on fathers' liking his work, and fathers' reports of negative spillover, though the association was not statistically significant for boys.

When girls and boys wished that their mother did not have to work, those mothers more often reported work-to-family interference. This trend, however, was not statistically significant for children's wishes about fathers not having to work.

Girls who considered that their mother worked too much were more likely to have mothers who considered that their work interfered with family time. This association was not apparent for boys.

For girls and boys who considered that their father worked the right number of hours (not too much or too little), fathers were less likely to have reported work-to-family interference.

2.6 Are children's responses about parents' jobs interrelated?

The earlier analyses explore each of the three views that children express about their parents' jobs, one at a time. However, children who had positive (or negative) views about one aspect of their parent's job tended to have similarly positive (or negative) views about other aspects.

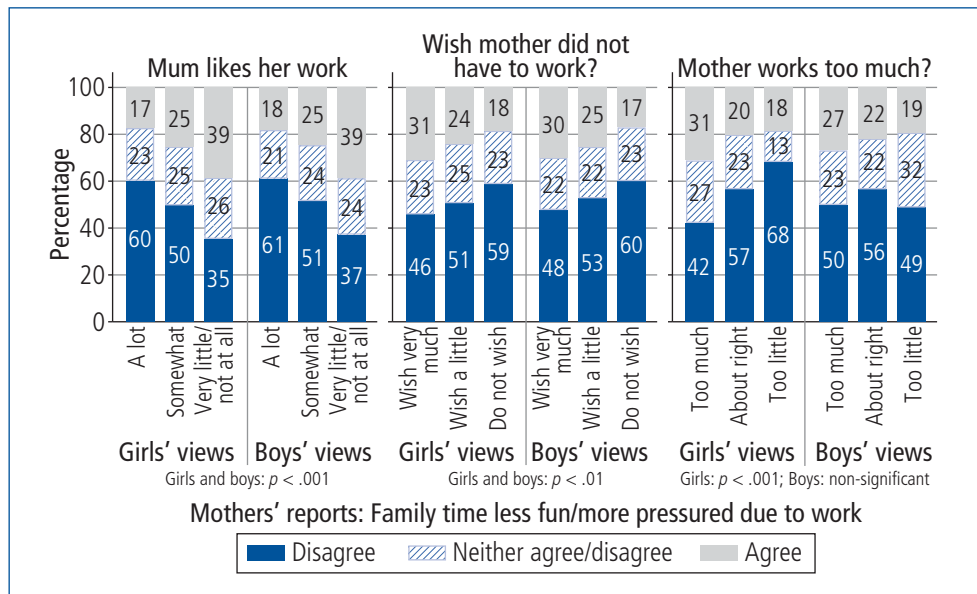


Figure 2.12: Mothers' reports of negative spillover from work to family, by girls' and boys' views of mothers' jobs

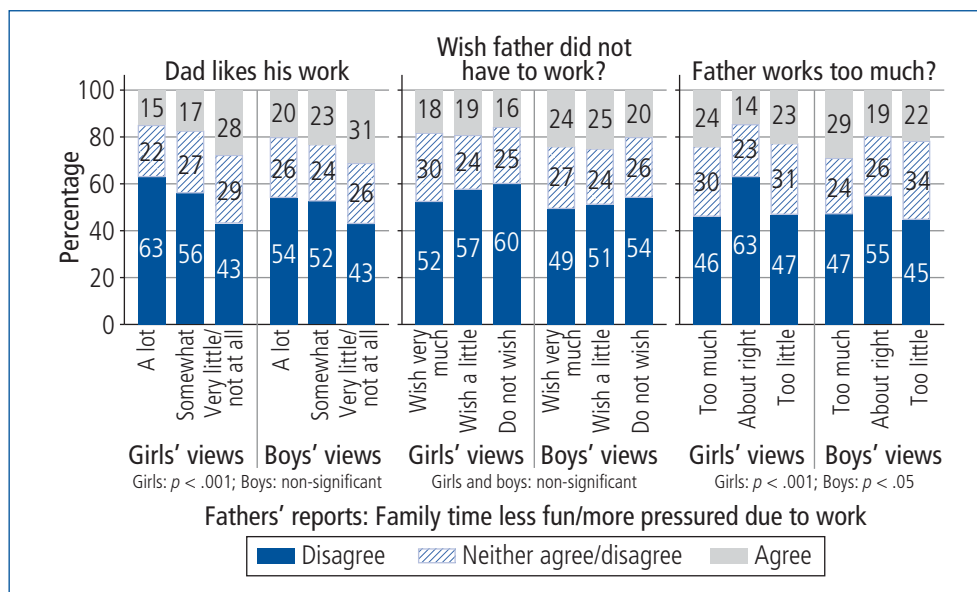
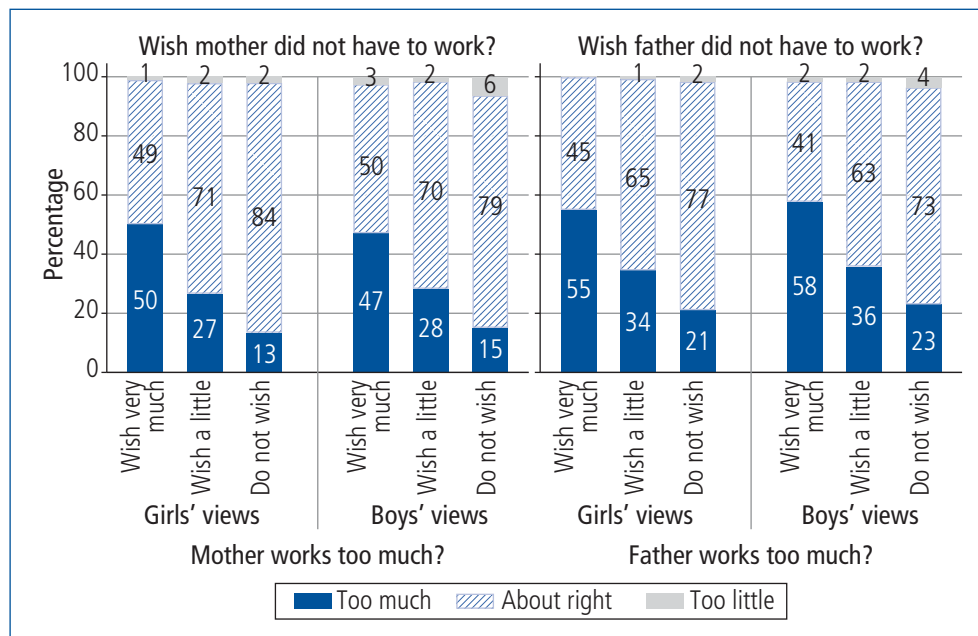


Figure 2.13: Fathers' reports of negative spillover from work to family, by girls' and boys' views of fathers' jobs

Figure 2.14 (on page 28) shows strong relationships between children's wish that their parents did not have to work and their views about parents' working too many hours for both boys and girls. Of those children who wished very much that their mother did not have to work, about one half also thought that she worked too much. In contrast, only about one in eight of the children who did not think that their mother working was a problem thought she worked too much. Very similar associations were also apparent for girls' and boys' perceptions of fathers' jobs.

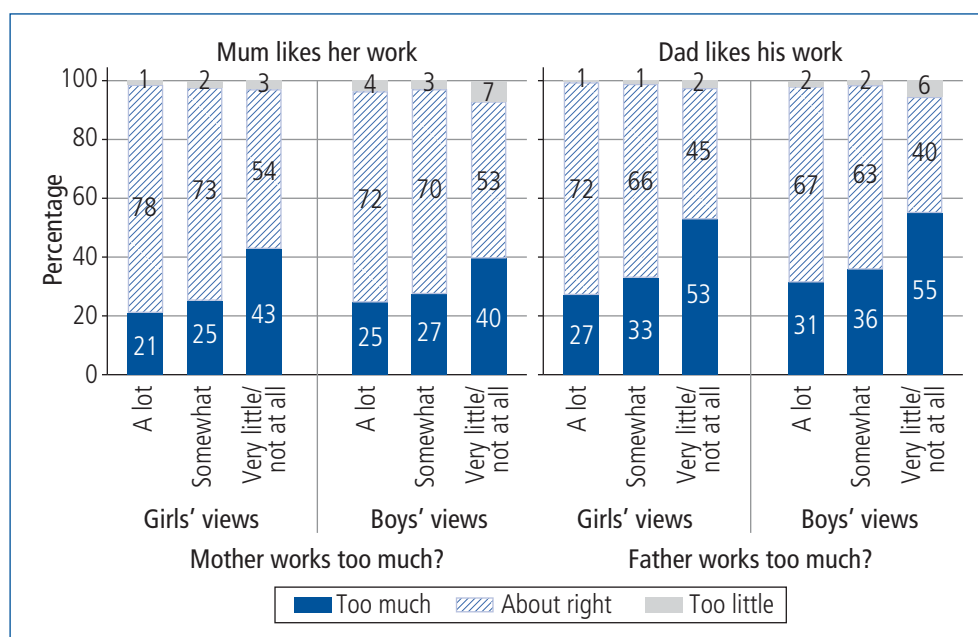
Children (both boys and girls) who thought that their mother or father liked their job a lot were much more likely to think that they worked about the right amount (Figure 2.15 on page 28). However, the perception that a parent worked too much was strongly linked to perceptions of the parent's lack of enjoyment of work. Although this pattern was similar for mothers' and for fathers' jobs, perceptions of overwork figured strikingly in views about lack of enjoyment for fathers' jobs. More than half of the boys and girls who thought that their father did not like his job at all, or only

liked it a little, also thought he worked too much. There was, however, some polarisation of views in this group of children, with some also thinking their parent worked too little. In other words, those children who thought that their mother or father did not like their job at all or only liked it a little, were the least likely to think that their mother or father worked the right amount. Relatively high percentages thought that their mother or father worked too little *or* too much, compared to children who thought their parents liked their job.



Notes: Differences in views of whether mothers/fathers worked too much, by whether mothers/fathers liked their job, were statistically significant for boys and girls (all $p < .001$).

Figure 2.14: Relationship between girls' and boys' wish for parents to not have to work, and their views of whether parents work too much



Notes: Differences in views of whether mothers/fathers worked too much, by whether mothers/fathers liked their job, were statistically significant for boys and girls (all $p < .001$).

Figure 2.15: Relationship between girls' and boys' perceptions of how much parents like their work and their views of whether parents work too much

Within dual-employed couple families, children tended to have similar views of their mothers' and fathers' jobs. Table 2.5 shows that 3 in 10 children in these families thought that both their mother and their father liked their job a lot. Another 5 in 10 children thought that both parents at least "somewhat" liked their job. Only 4% of children thought that both parents disliked their work.

Table 2.5: Overview of perceptions of mothers and fathers liking work, dual-employed couple families				
How much do you think your mum likes her work?	How much do you think your dad likes his work?			
	A lot	Somewhat	Very little or not at all	Total
A lot	30.1	12.4	3.8	46.4
Somewhat	13.1	23.6	6.0	42.7
Very little or not at all	2.2	4.2	4.4	10.9
Total	45.5	40.3	14.2	100.0

Notes: Percentages may not total exactly 100.0% due to rounding. Chi-square(4): $p < .001$.

Regarding wishing that their parents did not work (Table 2.6), we see no evidence that children in dual-employed families were seeking a more traditional model of parental employment. That is, there is no evidence that children wished that their mother did not have to work while reporting that their father working was not a problem. The most common patterns were for children to say that there was no problem or they did not wish parents didn't have to work (30% of children in dual-employed families), or to just wish a little bit that both mother and father did not have to work (30%). However, 15% of children in dual-employed families very much wished that both parents did not have to work.

Table 2.6: Overview of wishes that mothers and fathers did not work, dual-employed couple families				
Do you wish your mum did not have to work?	Do you wish your dad did not have to work?			
	Yes, wish very much	Yes, wish a little bit	Don't wish, not a problem	Total
Yes, wish very much	14.5	3.0	2.1	19.6
Yes, wish a little bit	4.7	29.5	6.6	40.7
Don't wish, not a problem	2.1	8.0	29.6	39.7
Total	21.3	40.5	38.3	100.0

Notes: Percentages may not total exactly 100.0% due to rounding. Chi-square(4): $p < .001$.

Half of the children in dual-employed families were also happy with the hours their mother and their father worked (Table 2.7). Probably reflecting the longer work hours of fathers, the next largest group are those children who considered that their father worked too much while thinking that their mother worked about the right amount (20% of children in dual-employed families). Another 14% of children considered that both their parents worked too much.

Table 2.7: Overview of perceptions of mothers' and fathers' work hours, dual-employed couple families				
Do you think your mum works too much, too little, or about the right amount?	Do you think your dad works too much, too little, or about the right amount?			
	Too much	About the right amount	Too little	Total
Too much	14.1	11.1	0.6	25.8
About the right amount	20.1	50.6	0.7	71.5
Too little	1.3	1.3	0.2	2.7
Total	35.5	63.0	1.5	100.0

Notes: Percentages may not total exactly 100.0% due to rounding. Chi-square(4): $p < .001$.

2.7 Summary and discussion

Changes in parental workforce participation over recent decades have redefined the contexts in which Australian children live. Although employment increases family income, it consumes parental time and effort: this chapter has explored children's views of parents' jobs, and the relevance of parents' job characteristics and work hours to children's views. The unique LSAC data also allowed us to directly compare children's views of mothers' and fathers' jobs, readdressing what has tended to be an overemphasis in research on maternal employment.

We found that children have a mix of views about parents' jobs, many of them positive. Nor do they focus on mothers' work as a problem. Both mothers' and fathers' work was viewed similarly; indeed, both boys and girls were somewhat more likely to focus on their fathers' work as a problem, especially if he worked long hours. A minority of children wished their parents didn't work at all, but most children thought their parents worked about the right amount of hours and most children thought that their parents liked their job. Furthermore, we found that boys and girls tended to show similar views about their parents' jobs, and there were just a few distinctions based on parent gender.

Children's viewpoints were linked to parents' work hours and the quality of their job, although not always consistently. For example, the proportion of girls and boys who thought that their father worked too much increased when fathers worked long or very long full-time hours. The largest proportion of boys and girls who considered that their mother worked too much had mothers who worked full-time.

We used a measure of job quality that assessed a number of supportive and family-friendly conditions (job security, flexible work hours, autonomy at work, reasonable workload, and access to paid leave). We found that when parents held jobs with many or most of these conditions, their children were more likely to say that their parents (especially their mothers) liked their job.

Finally, we found that parents and children tend to agree. Children tend to view their mothers' or fathers' jobs more positively when parents also considered that their jobs were positive and beneficial. Children also agreed with parents who said that their jobs interfered with family life and activities, and were more likely in these circumstances to say that their parents worked too much.

Our findings may help support policies to build positive views and expectations about working among children and young people, which will be essential for a strong future economy. The findings from this research suggest that supportive and positive work conditions, including reasonable work hours, may have a reach beyond that of helping parents to manage their work and family responsibilities. Children's perceptions of work may be shaped by their parents' access to such conditions, and their benefit may therefore reach across generations.

2.8 References

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Care for children in school holidays

3

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3.1 Introduction

For working parents, balancing the demands of work and family can be a challenge at any time of the year. However, for parents of school-aged children, during the school holidays there is the added challenge of finding ways for their children to be cared for, especially while children are not considered old enough to be without adult supervision. Some parents will take leave from work at these times, although most parents will have insufficient paid recreation leave to cover all school holidays. Parents who work in casual jobs, are self-employed, or have more flexible working conditions may be able to structure their employment to allow them to look after children in school holidays. However, such options will not be available to all families, and so some make use of different forms of care for children in school holidays. This research is designed to analyse the different school holiday care arrangements used for primary-school-aged children, especially as it relates to families with employed parents.

Australian research on school holiday care is limited, with the main exceptions being an analysis of 2001 data from the Household, Income and Labour Dynamics in Australia (HILDA) study by Qu (2003) and a more recent analysis of data from the 2010 HILDA survey by Kecmanovic and Wilkins (2013). These analyses were focused on the different forms of care used for school-aged children in school holidays while parents worked, which is asked directly from parents in HILDA. Qu estimated the percentage of school children aged up to 15 years in each of the forms of work-related school holiday care. Kecmanovic and Wilkins estimated the percentage of households with children up to 12 years who used each of the forms of care, of those who used some form of work-related care. While findings from these studies are not directly comparable to the analyses from the Longitudinal Study of Australian Children (LSAC) presented here, they nevertheless provide some useful insights.

Qu (2003) found that 12% of school-aged children up to 15 years attended formal school holiday programs while their parent(s) worked. Children in lone-parent families were twice as likely to use such programs when their parent worked than were children in two-parent families (19% vs 10% respectively attended a formal program). Qu's analyses indicated that small numbers of children used family day care for school-aged children in school holidays (4% were cared for in school holidays by family day care, another sitter or a nanny). Kecmanovic and Wilkins (2013), reported that 25% of families who used some work-related care for school-aged children had used formal programs, which included 21% of households with school-aged children who attended vacation care programs and 3% using family day care in school holidays. Given the different methodologies used for these two sets of analyses, they cannot be used to assess trends. However, the increased availability of formal services for the care of school-aged children more generally (Department of Education, Employment and Workplace Relations [DEEWR], 2013) may mean in more recent years that a higher percentage of school-aged children is using school holiday care.

Formal care options are sometimes referred to as "school holiday programs" or "vacation programs". Like outside-school-hours care, these formal programs may be operated by for-profit or not-for-profit providers, and may be situated on the grounds of a school or elsewhere. For example, some school holiday programs run out of art galleries, museums, zoos and sporting facilities. To be eligible for government funding, regulated programs such as these must follow certain guidelines and meet quality standards. See the DEEWR (2011) publication *My Time, Our Place* for more

information about care for school-aged children and the National Quality Framework for Early Childhood Education and Care.

Another option is that of having children cared for by “informal” carers. In Australian research, this category of child care usually includes care provided by grandparents, a parent who lives elsewhere, an older sibling or another family member, friend or neighbour. Qu (2003) reported that, relatives provided care for one in four school-aged children up to 15 years with parent(s) working in school holidays. Whether that relative was a grandparent, a parent residing in a different household to the “primary parent”, or someone else, was not specified, although this was reported on separately from sibling care. Children of lone mothers were more often cared for by a relative (37%) than were children in two-parent families (23%). Across all the families, around one in ten school-aged children were cared for by a sibling and 8% were cared for by a friend or neighbour.

Kecmanovic and Wilkins (2013) reported that for households using work-related care of school children in the school holidays, the most common forms of informal care were provided by a grandparent who lives elsewhere (35% of the households) and another relative who lives elsewhere (17%).

Given the far greater emphasis of sharing of parental care post-separation in recent years, it is timely to consider to what extent it remains appropriate to include “non-resident” parent care as a type of informal care. Other analyses of child care using LSAC (e.g., Harrison, 2011) do not include care provided by a parent who lives elsewhere as informal care, given that this is another form of parental care. In this chapter, as in Qu’s (2003) analyses, estimates have been derived with non-resident parent care being included as informal care, consistent with the standard classification used by the Australian Bureau of Statistics (ABS; e.g., see ABS, 2011). Unlike Qu, these estimates are then compared to estimates derived without the inclusion of care by a non-resident parent in order to highlight how estimates are affected by the inclusion of non-resident parent care. In further analyses of these data, non-resident parent care is examined along with care by resident mothers and fathers in school holidays.

It may also be the case that some children are at home unsupervised during the school holidays. Qu (2003) estimated that 17% of children aged up to 15 years old cared for themselves while parents worked in school holidays. Kecmanovic and Wilkins (2013) estimated that in 10% of households who used work-related care for up to 12-year-old school-aged children, the children had cared for themselves. In the LSAC data, we find that almost no parents reported that their children were caring for themselves in the school holidays (or indeed, at other times), and so this has not been included as a form of care in this study. These different results may be related to the different way in which information on children’s self-care was sought in LSAC compared to HILDA.¹

LSAC offers the opportunity to update and extend the existing Australian research on school holiday care, with a focus on children aged 6–7 years through to 10–11 years. The different types of care used in school holidays are explored in detail, across the ages of children. Age differences are expected, as children’s own preferences for different care types may change as they grow. Some care options may also be less accessible at particular ages, or be seen to be less appropriate for children at different ages.

This chapter also includes some analyses of how school holiday care arrangements vary across different families, especially concentrating on how parental employment is associated with different arrangements. To decide on which characteristics to explore here, we refer to analyses of child care participation more broadly, given that Australian research on child care—especially school holiday care—for school-aged children is very limited. The broader child care research shows that children most likely to be in some form of child care are those with working mothers, with children more likely to be in formal care when mothers work longer hours (Baxter, Gray, Alexander, Strazdins, & Bittman, 2007; Brandon & Hofferth, 2003; Connelly & Kimmel, 2003; Harrison et al., 2010). Previous

¹ In HILDA, parents are asked about whether they or their partner provide care, then whether care is provided by the child’s brother or sister. Then there is the option: “Child looks after self”. Other forms of care arrangements are then asked about. In LSAC, after being asked about the various formal and informal care providers, parents are asked about children caring for themselves. This was phrased as “No one, child cares for self”. Almost no parent responded positively to this option (none for 6–7 year olds, $n = 2$ for 8–9 year olds, $n = 11$ for 10–11 years). Also, child care questions in HILDA are collected by telephone, and in LSAC are collected in a face-to-face interview, so the social desirability of reporting that children were not without parental care may have affected respondents more in LSAC.

research on child care use for younger children suggests that other job characteristics are likely to explain some of the variation in who attends formal or informal child care (Baxter et al., 2007; Laughlin, 2010; VandenHeuvel, 1996) and so this may also be reflected in care arrangements in school holidays. Given that mothers spend more time than fathers on child care, even when both parents are working (Baxter & Smart, 2010; Craig, 2006), mothers' job characteristics are expected to be more strongly associated with child care decisions than are those of fathers. However, we have also included analyses of fathers' job characteristics in this chapter so that we can explore these relationships fully.

Other family and local area characteristics are also likely to matter. This is evident in other Australian analyses of outside-school-hours care (Cassells & Miranti, 2012; Hand & Baxter, 2013). In particular, the percentages of children using care in those analyses were higher in urban versus rural areas of Australia, and in lone-mother families compared to two-parent families.

To summarise, the key research questions that are explored in this chapter are:

- What forms of care are used by children in school holidays? To what extent are different formal and informal care arrangements used, and how do these arrangements vary by age of child?
- To what extent do different types of formal and informal care arrangements vary for lone- and two-parent families, with and without a parent who is not employed?
- In lone-mother families, how does the proportion of children in informal care change if non-resident father care is not treated as informal care? Is this the most appropriate classification of this type of care?
- How do formal and informal school holiday arrangements vary for children by their parents' employment arrangements and other family characteristics?
- To what extent do mothers, co-resident fathers and, when parents live apart, non-resident fathers, look after children in school holidays, and how do these arrangements vary according to parental employment characteristics?²

This work complements other research, using LSAC, on the outside-school-hours care arrangements of school-aged children (Hand & Baxter, 2013).

3.2 Data and method

This chapter uses data from the B cohort at Wave 4 of LSAC (4,161 children aged 6–7 years), and from the K cohort at Waves 3 and 4 (4,244 children aged 8–9 years and 4,021 aged 10–11 years respectively).³ Child care arrangements are only collected for the LSAC study child, not siblings of the child. Earlier waves of LSAC were not used, as school holiday care questions were only introduced in Wave 3.

In the interview, Parent 1 of the child (the mother in 97% of families) was asked to report on the study child's child care arrangements, with lists of possible providers of care shown in prompt cards. *Usual* use of child care before and after school, and at other times, was asked about first. Then, respondents were asked about care used in school holidays, with the question: "In the last 12 months, who has provided care for [child] during the school holidays? (This is about all holidays during the year, i.e., term breaks and the summer holidays.)".

The types of school holiday care have been classified here as formal care or informal care, as shown in Table 3.1 (on page 35), and in accordance with standard classifications of child care types into these broad categories (e.g., ABS, 2011). In this chapter, detailed child care types have been analysed as well as the overall groups of formal and informal care.

² This chapter does not examine families in which children were living with their father at the time of the study, with a mother living elsewhere. There were too few of such families to allow statistical analysis.

³ Families are only included if the child's mother (biological, step-, adoptive, foster) was Parent 1 or Parent 2. So this excludes lone-father families and families in which people other than parents are the main carers of the child, given the very small numbers of these families. Also, families are excluded if the mother had a female partner (since it was not possible to identify "father" data). In total, these exclusions resulted in 235 records being omitted, representing 175 families. Another 27 two-parent families with a female parent living elsewhere were excluded, to make the analyses of care by non-resident parents easier to interpret. A small number of families was excluded because of missing child care data ($N = 54$).

Analyses are also undertaken on the different forms of parental care of children in school holidays. When Parent 1 was asked about the care arrangements of the child, the first two options were: “I do” and “my spouse or partner who lives with me”.⁴ Information on whether the mother was Parent 1 or Parent 2 was used to reclassify this information as care provided by mothers and co-resident fathers.

Note the inclusion of care by a non-resident father in the category of informal care, as is the standard approach. In this context, “non-resident fathers” refers to the study child’s father who does not live with the mother. This form of care is, of course, very different in nature to that provided by other informal carers. We have therefore presented some analyses to demonstrate how the informal child care data would look if care by the non-resident parent was not considered to be a form of informal care. We have also undertaken separate analyses of non-resident father care as a form of parental care.⁵

Children’s school holiday arrangements are related to some parental and family characteristics, which are described as they are introduced in this chapter. These employment and family characteristics are as reported at the time of the survey (the Wave 3 survey for 8–9 year olds and the Wave 4 survey for data for 6–7 year olds and 10–11 year olds). This is somewhat inconsistent with the school holiday care information, which refers to arrangements used in the past 12 months. For this reason, we see some apparent inconsistencies in the data. For example, a small percentage of lone mothers reported that a co-resident spouse or partner provided care in the school holidays. This may reflect that these parents, while indicating at the time of data collection that they do not have a co-resident partner, have had one at some time in the past year.

3.3 Different types of school holiday care by age of child

To address the first of the research questions, Table 3.1 (on page 35) shows the percentage of children reported to be in each of the different forms of care in school holidays, by age.

Before discussing the formal and informal care arrangements, it is important to note the considerable use of parental care for children in school holidays. The majority of children (about 90%) were cared for at some time in the school holidays by their parents, most often by their mother. Four in ten children were cared for by their co-resident father in the school holidays. There was no apparent trend in these figures by age of child. Children who did not have a co-resident father at the time of the study were included in these calculations (only in the denominator) because the intention is to give an overview across all children of the proportions having different care arrangements. In section 3.8, care by a co-resident father is explored more fully for just those children with a co-resident father.

Just under half of all children aged 6–11 years had been in some formal or informal care or both in school holidays. Again, this figure did not vary much across the ages of children.

About one in eight children (14%) were in a formal program in school holidays. This percentage declined among children of older ages: 16% of 6–7 year olds; 15% of 8–9 year olds; and 10% of 10–11 year olds attended a formal program.

The most common of the formal care arrangements were holiday care programs, either at the child’s school or elsewhere. The percentage of children in each of the forms of formal care declined as they grew older, except for school holiday programs away from the school, which were most often used by children aged 8–9 years.

Informal care was more likely than formal care to be used for school holidays, with just over four in ten children (41%) having used some informal care. Unlike formal care, this percentage increased with the age of the children, from 38% for 6–7 year olds, to 41% for 8–9 year olds and 44% for 10–11 year olds.

⁴ In Wave 3 (for 8–9 year olds), this was collected as: “my partner who lives with me”. In Wave 4 (6–7 and 10–11 year olds), this was collected as: “my spouse or partner who lives with me”.

⁵ The child care information is as reported by Parent 1. It is possible that children who lived part of the time with their father may also have had different school holiday arrangements for those times they were with their father in school holidays. This is not captured here, unless reported on by Parent 1.

Table 3.1: Children in each type of school holiday care in the last 12 months, by age of child

Type of school holiday care	6–7 years (%)	8–9 years (%)	10–11 years (%)	All (%)
Parental care	93.8	91.8	93.0	92.8
Mother	92.0	89.4	90.6	90.6
Co-resident father	41.5	39.8	42.1	41.1
Some formal and/or informal care	46.1	48.0	47.7	47.3
Formal care	16.0	14.5	10.1	13.6
Holiday care program at child's school	6.9	6.1	4.2	5.8
Holiday care program at another location	6.9	7.5	5.3	6.6
Child care centre not at a school	1.4	0.7	0.5	0.9
Family day care	1.6	1.1	0.5	1.0
Informal care	38.2	41.1	43.8	41.0
Grandparent	29.3	28.9	28.5	28.9
<i>Maternal grandparent</i>	23.6	22.7	22.1	22.8
<i>Paternal grandparent</i>	12.9	12.7	12.6	12.8
Non-resident father ^a	5.2	6.7	8.5	6.8
Child's sister, brother or other relative aged 18 years and over	4.9	7.4	7.1	6.5
Friend, neighbour, nanny, babysitter or other person aged 18 years and over ^b	7.6	5.9	9.5	7.6
Other person under 18 years (including siblings) ^c	2.2	4.3	6.0	4.1
Other	0.3	0.7	0.4	0.4
No. of observations	4,161	4,244	4,021	12,426

Notes: ^a A non-resident father is the child's father who is not living with the mother. ^b There was slightly different wording in Wave 3 (for 8–9 year olds). The category at that wave was: "Other home-based care by person 18 years and over (e.g., nanny, babysitter, friend, neighbour)". ^c In Wave 4, this was collected separately for relatives and others aged under 18 years. Children can be in more than one form of care. All percentages are calculated over all children.

Source: LSAC Waves 3 (K cohort) and 4 (B and K cohorts)

Of the various informal care arrangements, the most common was care provided by a grandparent, more often the maternal rather than the paternal grandparent. There was very little change in the percentage using grandparent care as children grew older.

When parents of the child lived apart, the child's care arrangements may have been reported to include child care provided by the non-resident father (that is, the father who lived apart from the mother). Such care may have included ongoing care arrangements, or may have been special arrangements for school holidays. This child care is counted here as a form of informal care. Overall, 7% of all children were cared for by a non-resident father in school holidays. This percentage increased with age, from 5% of 6–7 year olds to 9% of 10–11 year olds. These data include all children, not just those with a non-resident father, so that the prevalence of care by non-resident fathers can be seen in the context of other forms of care. If calculated for just those children with a non-resident father, the overall figure was 32%, with percentages for each age group of 27%, 32% and 36% respectively.

A range of other informal arrangements are shown in Table 3.1, including care provided by other relatives, friends or neighbours. Only a very small proportion of children were cared for by someone aged under 18 years during the school holidays (4% of children across these ages).

3.4 Differences in school holiday care by employment status and family type

This section focuses on the second research question, to explore how school holiday care arrangements vary according to parental work status and family type. While children may

attend school holiday care even when they have a parent who is not working, it is likely that a higher proportion of children with working parents, than without, will use school holiday care arrangements. For these analyses, parents who were employed but on leave or away from work were counted as not working, since these parents were available to provide care to their children. This is why we refer to “working” parents rather than “employed” parents throughout this chapter. The classification of employed parents as being on leave ensures consistency between these analyses and the analyses of child care using LSAC by Hand and Baxter (2013).⁶

This research includes lone-mother families as well as two-parent families. Of these family types, children of working lone mothers might be the most likely to be in school holiday care, since these mothers are not able to share their school holiday child care needs with a resident spouse or partner. As discussed previously, lone mothers (and also some re-partnered parents) may report that their child is cared for by a non-resident father in the school holidays, which is included here in the category of informal care, although this is explored in more detail later in this section.

Here, school holiday care arrangements are examined through information on both family structure and parental work status. Families are classified according to whether they were a lone-mother family (that is, families in which children only had a resident mother), or two-parent family (which includes step-families). Then, each is classified to identify those families that had at least one parent not working, and therefore available to provide care for children in school holidays. This results in a classification of “two-parent: at least one parent not working”, “two-parent: both working”, “lone mother: not working”; and “lone mother: working”. The group “two-parent: both working” is sometimes referred to here as “dual-working”.

For these analyses, the data for 6–7 year olds, 8–9 year olds, and 10–11 year olds are pooled, to focus only on parental employment differences. Table 3.2 (on page 37) shows that in all families, the majority of children were in some parental care in school holidays, although the percentage in parental care was markedly lower for working lone mothers when compared to other groups. Families with two working parents also reported somewhat lower levels of parental care in school holidays when compared to two-parent families with a parent who was not in paid work. However, dual-working families had a higher proportion of children cared for by a co-resident father in school holidays, when compared to two-parent families with one parent not working.

The children who were most likely to have formal or informal school holiday care arrangements were those with a working lone mother (80% used some formal or informal care). This compares to 57% for two-parent families with both parents in paid work, 37% of non-working lone mothers and 25% for two-parent families with one parent not working.

One in four children (27%) with working lone mothers had used formal school holiday care, which is considerably higher than the 16% for dual-working families. Around 7% of children in lone-mother and two-parent families with a parent not in paid work had been in formal school holiday care.

More than two in three children (69%) of working lone mothers and one in two children (50%) with dual-working parents had been in informal care in school holidays. For these two groups of families, the percentage of children in some grandparent care was similar (38%), although in two-parent families the percentage cared for by a paternal grandparent was higher than for lone-mother families.

⁶ Of 3,768 observations of two-parent families with one parent not working, the mother was employed and on leave in 1,086 cases (29%). Of 608 observations of lone-mother families who were not working, 72 (12%) were on leave. As previously discussed, this information pertains to employment status at the time of the survey, and so is not necessarily indicative of employment participation for the period to which the school holiday data refer (the last 12 months). Some parents may, for example, take leave from (or withdraw from) employment in school holidays. Further examination of the data reveals that formal and informal school holiday child care use was more likely when mothers were on leave (in two-parent families 14% of children were in formal care and 37% informal care, and in lone-mother families 29% were in formal care and 66% informal care), rather than if they had no job (overall, in two-parent families 4% of children were in formal care and 16% informal care, and in lone-mother families 5% were in formal care and 31% informal care). However, the overall findings reported in this chapter are not altered if based on a classification in which mothers on leave were counted as being employed.

Table 3.2: Children in each type of school holiday care in the last 12 months, by family employment status

Type of school holiday care	Two-parent: one parent not working (%)	Lone mother: not working (%)	Two-parent: both working (%)	Lone mother: working (%)	All (%)
Parental care	97.9	98.2	90.5	84.1	92.9
Mother	95.6	98.2	87.7	84.1	90.7
Co-resident father	45.2	0.0	51.7	0.1	41.2
Some formal and/or informal care	25.3	37.4	56.6	80.1	47.3
Formal care	6.7	7.4	16.4	26.5	13.6
Holiday care program at child's school	2.6	2.6	7.2	11.1	5.7
Holiday care program at another location	3.6	2.5	8.2	11.6	6.6
Child care centre not at a school	0.2	0.9	1.0	2.4	0.9
Family day care	0.6	1.6	1.0	2.4	1.0
Informal care	21.2	33.9	49.5	68.8	41.0
Grandparent	15.5	15.3	37.7	37.7	28.9
<i>Maternal grandparent</i>	11.1	12.9	29.7	33.2	22.8
<i>Paternal grandparent</i>	7.5	3.9	18.0	9.6	12.8
Non-resident father ^a	2.0	21.4	2.6	34.7	6.8
Child's sister, brother or other relative aged 18 years and over	3.2	3.5	8.0	11.4	6.5
Friend, neighbour, nanny, babysitter or other person aged 18 years and over ^b	3.7	2.1	10.4	10.3	7.6
Other person under 18 years (including siblings) ^c	1.9	2.0	5.6	5.0	4.1
Other	0.2	0.1	0.6	0.5	0.4
No. of observations	3,777	608	6,956	1,069	12,410

Notes: ^a A non-resident father is the child's father who is not living with the mother. ^b There was slightly different wording in Wave 3 (for 8–9 year olds). The category at that wave was "Other home-based care by person 18 years and over (e.g., nanny, babysitter, friend, neighbour)". ^c In Wave 4, this was collected separately for relatives and others aged under 18 years. Children can be in more than one form of care. All percentages are calculated over all children. Data refer to children aged 6–7 years through to 10–11 years.

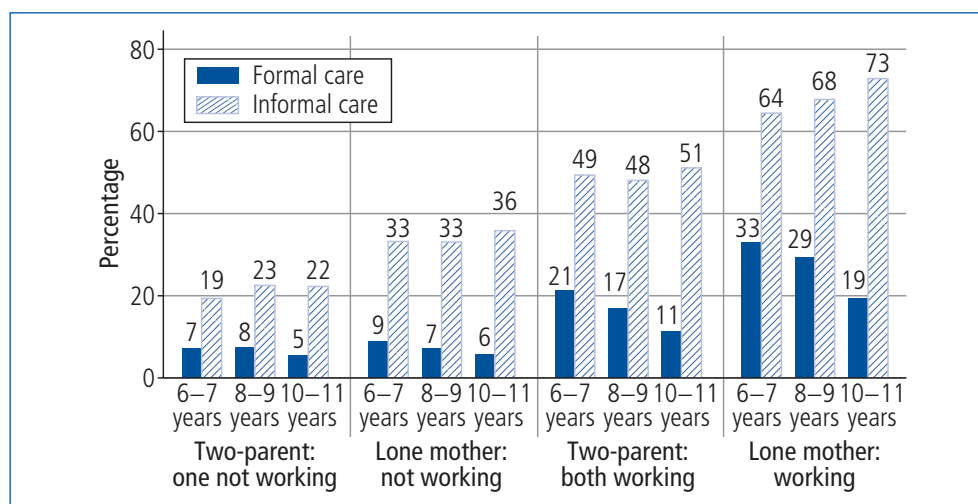
Source: LSAC Waves 3 (K cohort) and 4 (B and K cohorts)

There was a very large difference between working lone mothers and dual-working families relating to the percentage of children cared for by a parent living elsewhere. Of children with working lone mothers, the non-resident father had cared for one in three children (35%) in school holidays.

Even among children with a not-working lone mother, just over one in three had been in some informal care in school holidays. The most commonly reported provider of informal care in these families was the non-resident father (21%), followed by grandparents (15%).

One in five children (21%) in two-parent families with one parent not working had used informal school holiday care, with grandparent care being the most likely source (16% of children).

In Table 3.2 the children aged 6–7 years, 8–9 years and 10–11 years were combined to focus on parental employment differences. Figure 3.1 (on page 38) aggregates the formal and informal care information by age of child and family employment status, and shows that there is almost no difference by child's age for families in which there was one parent not working. In these families, the percentage of children in formal school holiday care declined slightly as they get older. For dual-working families or working lone-mother families, the decline across ages of children in the use of formal school holiday care is more apparent. In families with a working lone mother, the percentage in informal care increased with the age of the child.



Source: LSAC Waves 3 (K cohort) and 4 (B and K cohorts)

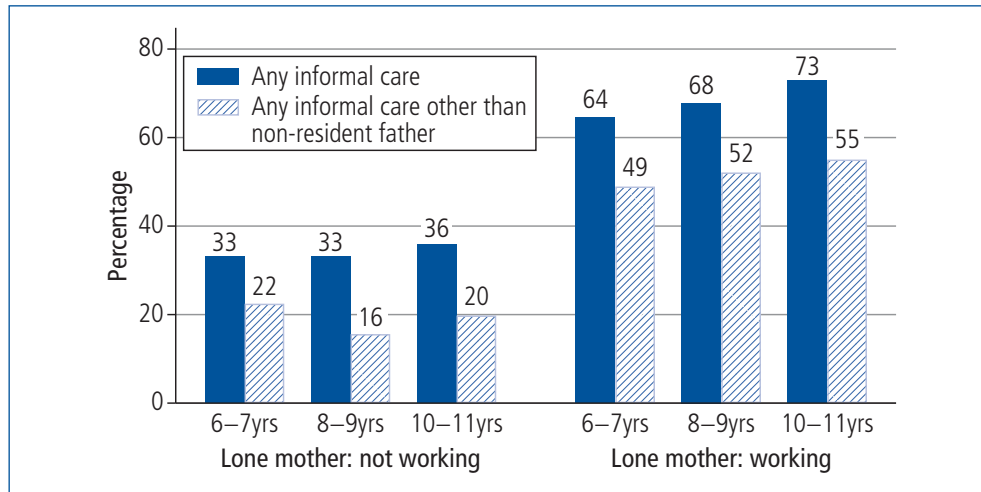
Figure 3.1: Formal and informal school holiday care in the previous 12 months, by age of child and family work status

3.5 Informal care and non-resident fathers

The third research question addressed in this chapter relates to the inclusion of care by a non-resident father as a form of informal care. We address this here, before examining the formal and informal school holiday care information by parental employment and family characteristics in more detail in later sections. Care by a non-resident father is, of course, markedly different to other forms of informal care, and is therefore not always classified as informal care. Inclusion of non-resident fathers in informal care has been the standard approach in large-scale collections of child care data by the ABS, however, and so here we explore the implications of this for the measurement of school holiday care. In particular, we are concerned that the inclusion of non-resident father care as a type of informal care might inflate the estimates for lone-mother families and make them less comparable to those calculated for two-parent families. This is illustrated here by calculating the proportion of children who are in some informal care *other than* non-resident father care.

If estimates are derived from the pooled data for 6–7, 8–9 and 10–11 year olds, we find that for two-parent families, the estimated percentage in informal care does not vary according to whether or not non-resident-father care is included as informal care. This is not surprising, as it would only make a difference in the small number of two-parent families in which the child has a father living elsewhere (fewer than 6% of two-parent families). However, the estimates are markedly different for lone-mother families. For families with a not-working lone mother, 34% of children are in informal care when non-resident father care is included, but this reduces to 19% when non-resident father care is not included. This percentage in informal school holiday care is comparable to the 20% of two-parent families with a not-working parent. For lone-mother families in which the mother is working, the percentage declines from 69% in informal school holiday care when non-resident father care is included, to 52% when it is not included. This latter figure is then not much higher than the percentage in informal school holiday care for children in dual-working families (48%).

We noted previously (in Figure 3.1) an increase in the use of informal school holiday care, by age of children, for children in families of working lone mothers. Given the inclusion of non-resident father care, it is possible that this reflects some trend in children being more likely to be in non-resident father school holiday care as they grow older. Figure 3.2 (on page 39) shows that this increase in the percentage of children in informal school holiday care is apparent also in the percentage that is derived when non-resident father care is not included, and so is not fully explained by any trends in non-resident father school holiday care.



Source: LSAC Waves 3 (K cohort) and 4 (B and K cohorts)

Figure 3.2: Informal school holiday care in the previous 12 months for children in lone-mother families, with and without the inclusion of non-resident father care, by age and family work status

It is often reported that lone mothers are more likely than two-parent families to have children in child care, and this was apparent here for the percentage of children in formal school holiday care. This difference is likely to relate to there being a greater need for these formal services in lone-mother families, who have less flexibility than two-parent families in being able to share the care of children in school holidays between two resident parents.

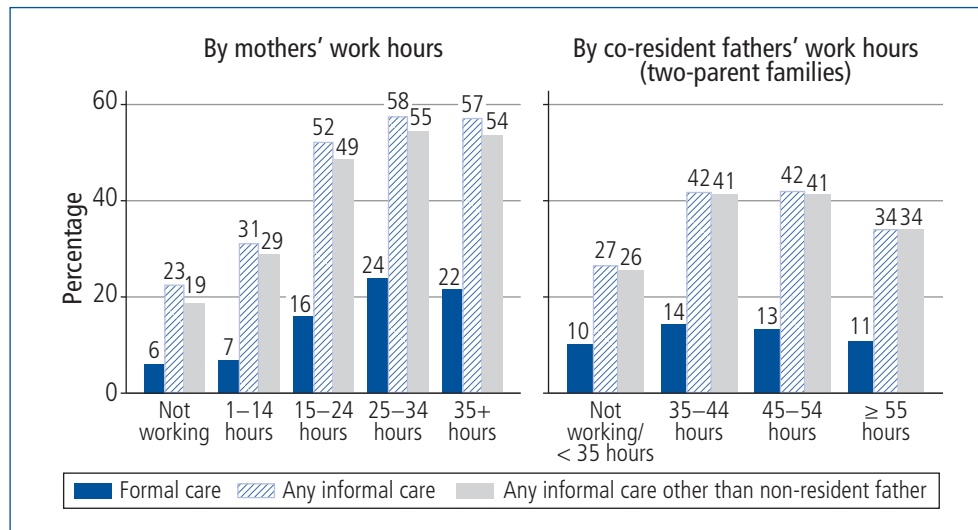
The extent to which differences in informal care use (e.g., as reported by Qu, 2003) reflect children in lone-mother families being in the care of a non-resident father in school holidays or at other times should be considered in the future for analyses of child care, especially informal child care. This is especially so given the increased emphasis on shared care of children in separated families, which may mean an increased proportion of children being reported as being cared for by a non-resident parent. As noted previously, whether or not this type of care should indeed be classified as child care, as opposed to a different form of parental care is worth considering in analyses of informal child care use. To what extent parents report non-resident parents—even those with shared care arrangements—to be providers of child care in this context, however, remains an open question.

3.6 Formal and informal school holiday care and parental employment

In this section, we turn to the fourth research question, to examine children's school holiday arrangements according to various parental employment characteristics. For these analyses, we examine formal care and informal care in school holidays, rather than specific types of care. Given the issues discussed above, the total informal care is shown (including care provided by a parent living elsewhere), as well as informal care not counting a parent living elsewhere.

First, for an overview, children's school holiday arrangements are presented in Figure 3.3 (on page 40) by mothers' and (co-resident) fathers' working hours, using the pooled data for children aged 6–7 years, 8–9 years and 10–11 years. In these analyses, usual work hours are presented in categories, with mothers classified as: not working (36% of mothers), working 1–14 hours per week (11%), 15–24 hours (19%), 25–34 hours (13%) or 35 hours or more (20%). The categories of hours used for fathers differ to those used for mothers, given that fathers usually work full-time, including significant numbers who work long full-time hours. Therefore the categories used for fathers are: not working or working less than 35 hours per week (17% of fathers), usually working 35–44 hours per week (37%), 45–54 hours per week (24%) and 55 hours or more per week (21%).

The proportion of children in some formal school holiday care and in informal school holiday care increased significantly with higher maternal work hours, although there was no difference in the percentage in school holiday care for children of mothers who worked 25–34 hours or 35 hours or more. The clearest finding by fathers' working hours was that children were least likely to be in some school holiday care (notably for informal care) when fathers were either not working or worked fewer than 35 hours per week. However, for increasing hours worked by full-time employed fathers, children were *less* likely to be in school holiday care.



Source: LSAC Waves 3 (K cohort) and 4 (B and K cohorts)

Figure 3.3: Formal and informal school holiday care in the previous 12 months, by parents' usual weekly work hours, children aged 6–11 years

3.7 Parental work hours and formal/informal school holiday care

The findings above—that children's school holiday care use increased with mothers' work hours but decreased with fathers' longer work hours—need to be explored together, as the finding for fathers in particular may be explained by other factors that changed with fathers' increasing work hours. For example, families with fathers who work 55 hours or more may have included a greater proportion of mothers who were not working. (In fact, they had a slightly higher proportion either not working, or working 1–14 hours per week, when compared to families with fathers who worked 45–54 hours.) Further, characteristics of employment other than work hours may have made a difference to whether or not children used school holiday care. If jobs were less formal, for example, parents may have been able to work from home or to shift their working time around their child care responsibilities in school holidays.

Our interest is in understanding which children use any formal and/or informal school holiday care, and also in which types of school holiday care children in families with different characteristics use; that is, whether formal or informal school holiday care is used. We are also interested in exploring whether different findings emerge if the classification of informal care is altered to exclude care by non-resident fathers.

These analyses extend the descriptive analyses above, to explore differences in children's use of school holiday care according to mothers' job characteristics, co-resident fathers' job characteristics (in two-parent families), age of child and a set of other employment and family characteristics that were expected to be related to different patterns of school holiday care.

The additional employment characteristics examined were job contract and work schedule. The classification of job contract identified parents as being self-employed (21% of working mothers; 31% of working fathers), permanent employees (62% of working mothers; 64% of working fathers), or casual employees (17% of working mothers; 3% of working fathers). Work schedule classified

parents as working a regular daytime schedule (79% of working mothers; 78% of working fathers), a regular evening or night schedule (5% of working mothers; 6% of working fathers), or an irregular or other schedule (16% of working mothers; 13% of working fathers).⁷

Other family characteristics included whether the mother was a lone or couple parent (15% lone), whether children had younger siblings (49% of children), or older siblings (58% of children); whether families had, in addition to parents, other adults living in the household (5% of families); and whether families lived in metropolitan areas (62% of families). Children aged 6–7, 8–9 and 10–11 years were included in these analyses, and differences in school holiday care arrangements by age of child were examined. The analyses only included families with a working mother.

The results described below are those that remained statistically significant when associations between the other characteristics and school holiday care were also taken into account.⁸ Below, findings related to mothers' job characteristics are described first, then fathers' job characteristics, and then other child and family characteristics.

The first characteristic examined is mothers' work hours. Children were significantly more likely to be in school holiday care when their mother worked longer hours, although there were no differences for those whose mothers work longer part-time hours (25–34 hours) compared to those who worked full-time hours (35 or more hours per week). This association between maternal work hours and school holiday care was apparent overall, as well as separately for formal care and informal care (with or without non-resident parent care being counted as informal care). This is consistent with Figure 3.3 (on page 40).

There were significant differences in the use of school holiday care according to mothers' job contract, after controlling for the other characteristics described above. The children least likely to have used school holiday care were those with self-employed mothers, as shown in Table 3.3. Children of mothers who were permanent employees were more likely than others, including those with mothers in casual employment, to have used school holiday care. These differences were statistically significant overall and also when considering which children were in either formal or informal care—whether or not non-resident parent care was counted as informal care. Overall, it seems that self-employment of mothers allows families to juggle work and care in school holidays such that the need for non-parental care can be reduced.

Table 3.3: Mothers' job contract and formal and informal school holiday care in the previous 12 months, children aged 6–11 years with working mother

Mothers' job contract	Any formal or informal care (%)	Any formal care (%)	Any informal care (%)	Any informal care (excl. non-resident parent) (%)
Permanent employee (ref.)	67.0	9.2	55.4	51.7
Casual employee	58.4 ***	6.5 *	46.7 ***	42.7 ***
Self-employed	47.1 ***	5.1 ***	36.7 ***	32.5 ***

Note: These are predicted percentages, calculated from logistic regression models in which other characteristics were set to the sample mean. Tests of statistical significance are based on multivariate results in which the coefficients were compared to the reference category (ref.). Additional testing compared casual employee mothers to self-employed mothers: there were statistically significant differences ($p < .001$) for all analyses except for formal care. *** $p < .001$, ** $p < .01$, * $p < .05$.

Mothers' work schedules were also associated with the likelihood of children using school holiday care. Children were most likely to have used school holiday care when mothers worked regular daytime schedules. This is apparent across the different forms of school holiday care, as shown in Table 3.4 (on page 42).

⁷ For 3% of working fathers, information on job contract and work schedule was not available. In the analyses, they are included, with an additional variable (results not shown) identifying these families.

⁸ Specifically, for each school holiday care measure, a logistic regression was estimated. Random effects logistic regression was used to take account of the two records from children in the K cohort (at age 8–9 and 10–11 years). Only statistically significant (at $p < .01$) findings are discussed. The predicted percentages were calculated with other variables set to the sample mean, and the random coefficient set to zero.

Table 3.4: Mothers' work schedule and formal and informal school holiday care in the previous 12 months, children aged 6–11 years with working mother

Work schedule	Any formal or informal care (%)	Any formal care (%)	Any informal care (%)	Any informal care (excl. non-resident parent) (%)
Regular daytime schedule (ref.)	63.3	9.8	51.5	47.7
Regular evening or night work	49.0 ***	2.3 ***	43.4 *	38.9 *
Irregular or other arrangements	55.2 ***	4.8 ***	46.3 *	42.4 *

Note: These are predicted percentages, calculated from logistic regression models in which other characteristics were set to the sample mean. Tests of statistical significance are based on multivariate results in which the coefficients were compared to the reference category (ref.). Additional testing compared mothers with regular evening or night work to those with irregular or other arrangements: differences were not statistically significant for any analyses, except for formal care ($p < .05$).
 *** $p < .001$, ** $p < .01$, * $p < .05$.

Non-parental care use in school holidays is also less likely when mothers work regular evening or night work, or if they have irregular hours or other arrangements. With regard to formal care for children with mothers who work outside of standard daytime hours, this may reflect that formal school holiday care options are usually only offered for daytime hours.⁹ Also, working non-standard hours might allow mothers to care for children during the daytime in school holidays. We return to this in the next section, when exploring parental care of children in school holidays.

Fathers' work characteristics were examined for two-parent families only. Paternal work characteristics had far weaker associations with children's patterns of school holiday care, compared to maternal work characteristics. Some of the findings that emerged were that children were somewhat less likely to have been in some school holiday care when fathers were *not* working full-time (that is, if they were either not working or working part-time hours). This is likely to reflect these fathers' availability to provide some of this school holiday care. However, this finding was not apparent in explaining which children were in formal school holiday care. Consistent with the trend shown in Figure 3.3 (on page 40), a smaller proportion of children used school holiday care when fathers worked 55 hours or more, although this was not apparent in explaining participation in formal programs. These results indicate that the trend observed in Figure 3.3 cannot be explained by mothers' employment characteristics, or other characteristics included in these analyses. We return to consider this further when looking at parental care of children, in the next section.

Comparisons of children's school holiday care use according to fathers' job contracts revealed that children were less likely to have been in some school holiday care when fathers were self-employed, rather than in permanent employment (Table 3.5 on page 43). This was apparent for all of the measures of school holiday care, being statistically significant after taking account of the range of other characteristics, including mothers' job characteristics and fathers' working hours. As was found for mothers, presumably this means that the flexibility of self-employment allows children's school holiday care to be more easily managed with parental care alone.

Statistically significant differences were not apparent when comparing fathers in casual employment to those in permanent employment.

Within two-parent families, after taking account of fathers' work hours and job contract, children's use of school holiday care did not vary according to co-resident fathers' work schedules (that is, whether they worked a regular day-time shift, regular evening/night shift, or irregular/other hours).

Consistent with earlier analyses, children in lone-mother families were more likely than other children to have been in some formal or informal care in school holidays. These differences disappeared with regard to informal school holiday care, however, once non-resident fathers' care was removed from the informal category, consistent with the findings described in section 3.5 (on page 38).

⁹ Some children may attend school holiday camps, which would provide solutions for parents working outside standard hours.

Table 3.5: Fathers' job contract and formal and informal school holiday care in the previous 12 months, children aged 6–11 years with working mother

Fathers' job contract	Any formal or informal care (%)	Any formal care (%)	Any informal care (%)	Any informal care (excl. non-resident parent) (%)
Permanent employee (ref.)	63.9	8.9	52.4	48.8
Casual employee	57.2	4.8	58.3	54.0
Self-employed	47.1 ***	6.8 *	46.5 *	42.4 *

Note: These are predicted percentages, calculated from logistic regression models in which other characteristics were set to the sample mean. Tests of statistical significance are based on multivariate results in which the coefficients were compared to the reference category (ref.). Additional testing compared casual employees to self-employed fathers: differences were not statistically significant in any of the analyses. *** $p < .001$, ** $p < .01$, * $p < .05$.

Before moving to the final section, it is worth noting some of the findings for the family and child characteristics that were included in these analyses. The older the child, the less likely they were to have been in some school holiday care, which reflects the association between age of child and formal school holiday care (as was apparent in Table 3.1 on page 35). When children had younger siblings, they were slightly less likely to have been in informal school holiday care (and in school holiday care overall). The finding was much stronger with regard to children having older siblings. Those with older siblings were less likely to have been in any school holiday care, and less likely to have been in either formal or informal care. In families with adults other than parents living in the household, children were less likely to have been in formal care. Also, if non-resident parent care was taken out of the informal care classification, these children were still more likely to have been in informal care. Finally, there was clear evidence that children living in metropolitan areas were more likely to have used formal school holiday programs than those living elsewhere.

3.8 Parental school holiday care and parental employment

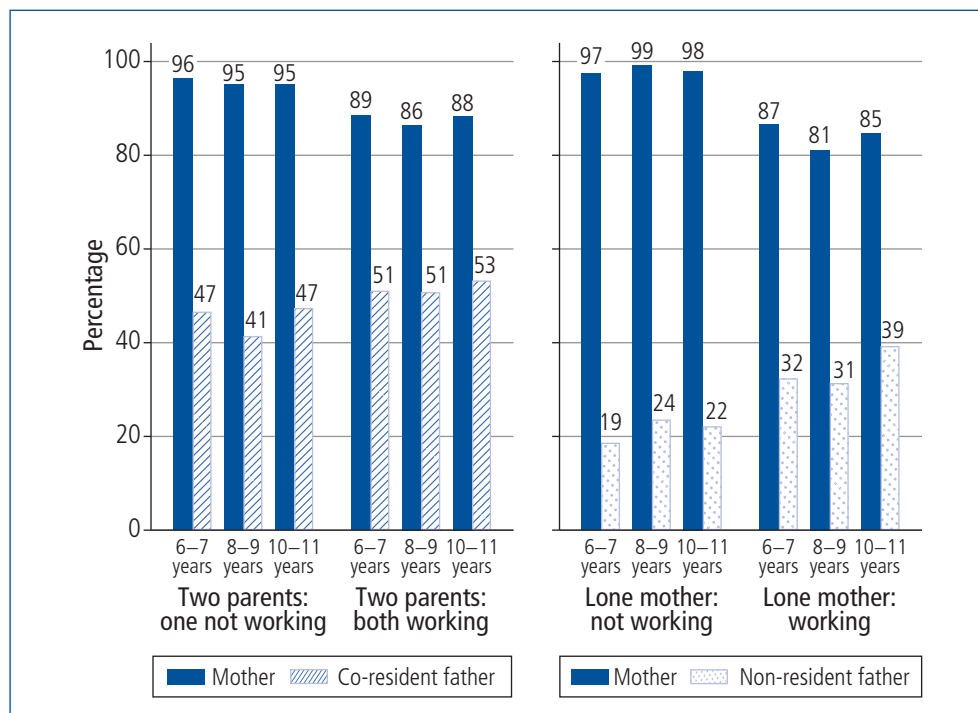
While the above sections have focused on which children attend formal and informal school holiday arrangements, many parents will themselves take care of children during the school holidays. This section looks at this, to answer the fifth research question, to see to what extent parents' employment characteristics were related to their reports of each parent providing care. We also include here analyses of the care provided by a non-resident father.

As reported in Table 3.1, more than 9 in 10 mothers provided some care to children in school holidays. Table 3.2 (on page 37) showed this was more likely when mothers were not working and, among families with working mothers, somewhat less likely in lone-mother families. As in previous analyses, mothers on leave from employment were classified as not working.

Figure 3.4 (on page 44) shows that there were no discernible trends in the likelihood of mothers caring for children in the school holidays according to the age of children. The likelihood of co-resident fathers providing school holiday care is shown in the graph on the left, which focuses on two-parent families. At all ages of children, fathers were less likely to provide school holiday care than mothers, and again there was no clear trend by age of child. The graph on the right focuses on lone-mother families, and shows the percentage of children who were cared for by a non-resident father in the school holidays. These percentages were higher, for all ages of children, when lone mothers were in work, rather than not working. There is some indication of there being a higher likelihood of receiving care by a non-resident father in the school holidays as children grow older, although the trend is not consistent.

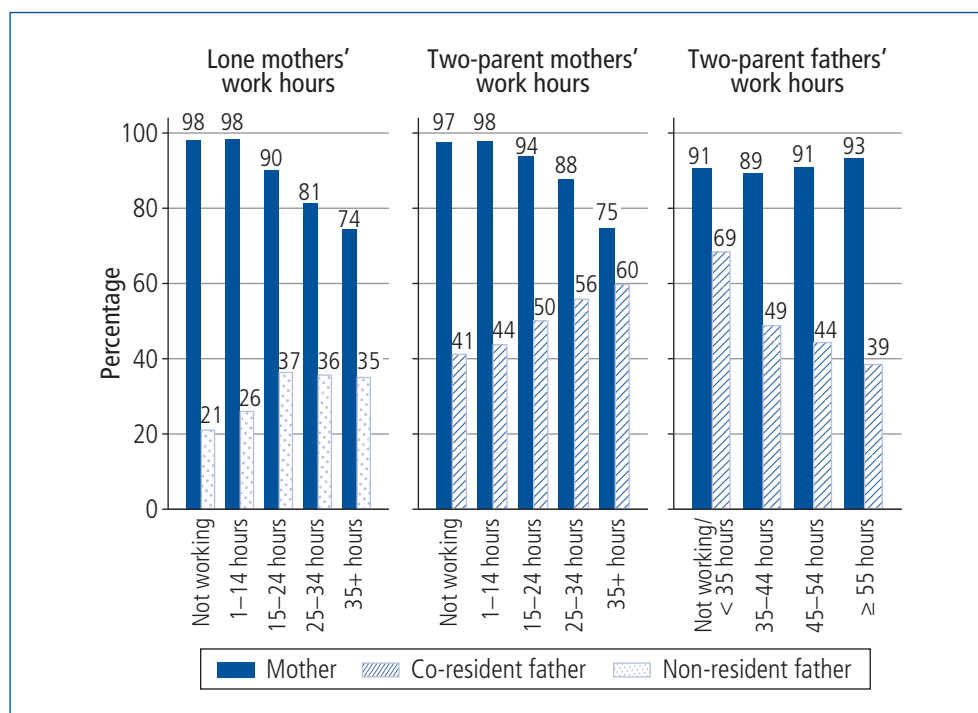
Looking at parental provision of school holiday care by mothers' and co-resident fathers' work hours, Figure 3.5 (on page 44) shows that the likelihood that the child was cared for by their lone or couple mother in the school holidays diminished as her work hours increased, although there was no discernible difference if comparing non-working mothers to those working 1–14 hours per week.

In two-parent families, co-resident fathers were more likely to have provided some school holiday care as maternal work hours increased. This increased from 41% of fathers providing school holiday care when mothers were not working, up to 60% of fathers when mothers worked 35 hours or more.



Source: LSAC Wave 3 (K cohort) and Wave 4 (B and K cohorts)

Figure 3.4: Parental school holiday care in the previous 12 months by family employment and family type, and age of child



Source: LSAC Waves 3 (K cohort) and Wave 4 (B and K cohorts)

Figure 3.5: Parental school holiday care in the previous 12 months, by parents' work hours, children aged 6-11 years

In lone-mother families, the percentage of children who were cared for by a non-resident father varied little by mothers' work hours if she worked 15 hours or more per week (35–37% of children), with lower percentages evident when mothers worked 1–14 hours per week (26%) or were not working (21%).

Looking at co-resident fathers' work hours and parental school holiday care, the clearest association is that as their work hours increased, they were less likely to provide some school holiday care. When co-resident fathers were not working or worked fewer than 35 hours per week, 69% of children were cared for by them during the school holidays. For fathers working 35–44 hours, 49% provided school holiday care. This dropped to 44% for fathers working 45–54 hours and 39% for fathers working 55 hours or more.

There was a slight increase in the percentage of mothers providing school holiday care as co-resident fathers' work hours increased from 35–44 hours (89%) through to 55 hours or more (93%).

To examine which children were more or less likely to have been cared for in school holidays by their mother, co-resident father or non-resident father, more detailed analyses were undertaken to simultaneously consider characteristics of mothers' and fathers' jobs, as well as child and family characteristics. Those characteristics examined are the same as those described in section 3.6 (on page 39).

As in section 3.6, these analyses were only undertaken on families in which the mother was working. To analyse which children were cared for by their co-resident father, only those children with a co-resident father were included. To analyse which children are cared for by their non-resident father, only those children with a non-resident father were included.

For these analyses, however, none of the maternal job characteristics were statistically significant in explaining which children were or were not cared for by their non-resident father. In fact, of all the characteristics included in these analyses, the only one that significantly predicted non-resident fathers providing school holiday care was the presence of other adult(s), such as grandparents or aunts or uncles in the household. When children lived in a family in which adults such as these were present, those children were less often cared for by their non-resident father. Note that these analyses do not include characteristics of the non-resident father, and no doubt this information, and information on the nature of the relationship between the mother and non-resident father, would be important to examine in exploring this relationship further.

For the remaining discussion of results, given the lack of statistically significant findings for the employment variables for non-resident fathers' provision of school holiday care, we focus only on the findings for provision of school holiday care by mothers and co-resident fathers. Findings for mothers' job characteristics are described first. The findings discussed, then, refer to associations that are apparent when other characteristics of families are taken into account.¹⁰

All lone and couple mothers were included in the analyses of which mothers provided school holiday care, but there were no statistically significant differences between these families in the likelihood of mothers providing school holiday care.

The associations between mothers' work hours and parental care in the school holidays are consistent with those shown in Figure 3.5 (on page 44). Mothers working longer hours were less likely to provide school holiday care themselves. Also, where mothers worked long hours, co-resident fathers were more likely to provide school holiday care.

Mothers were more likely to provide school holiday care themselves when they were self-employed, rather than working in a permanent job (Table 3.6 on page 46). Fathers, however, were less likely to provide school holiday care in these families, and also in families in which mothers were in casual employment. This suggests that self-employment by mothers allows them to structure their time flexibly in school holidays. The association with fathers' provision of school holiday care suggests that mothers are the predominant providers of child care when they are self-employed, even more so than in other families.

¹⁰ That is, these findings are based on logistic regressions, one for the likelihood of mothers providing care and the other of co-resident fathers providing care. Another estimated the likelihood of a non-resident father providing care. Random effects logistic regression was used to take account of the two records from children in the K cohort (at ages 8–9 and 10–11 years). Only statistically significant (at $p < .01$) findings are discussed. The predicted percentages were calculated with other variables set to the sample mean, and the random coefficient set to zero.

Table 3.6: Mothers' job contract and parental school holiday care in the previous 12 months, children aged 6–11 years with working mother

Mothers' job contract	Mother provides care (%)	Co-resident father provides care (%)
Permanent employee (ref.)	92.3	60.4
Self-employed	97.3 ***	50.1 ***
Casual employee	92.8	52.2 ***

Note: These are predicted percentages, calculated from logistic regression models in which other characteristics were set to the sample mean. Estimates for mothers include lone and couple mothers, while estimates for fathers are only for two-parent families. Tests of statistical significance are based on multivariate results in which the coefficients were compared to the reference category (ref.). Additional testing compared casual employees to self-employed mothers: differences were statistically significant ($p < .001$) for mothers' provision of school holiday care, but not statistically significant for fathers' provision of school holiday care. *** $p < .001$, ** $p < .01$, * $p < .05$.

Mothers' provision of school holiday care was related to her work schedule. In particular, if she worked regular evening or night schedules, rather than regular daytime schedules, she was most likely to provide school holiday care (Table 3.7). Also, mothers who worked irregular schedules (or other arrangements) were more likely than those with regular daytime jobs to provide school holiday care. Co-resident fathers' provision of school holiday care is also related to mothers' work schedule. Fathers were more likely to provide school holiday care when mothers worked regular evening or night work, rather than working regular daytime schedules. These results follow from the findings presented earlier in relation to mothers' work schedules and children's use of formal or informal school holiday care. School holiday care was less often used when mothers worked non-standard hours. These findings about parental care, then, suggest that this is related to mothers as well as fathers being more likely to provide care themselves in these families.

Table 3.7: Mothers' work schedule and parental school holiday care in the previous 12 months, children aged 6–11 years with working mother

Mothers' work schedule	Mother provides care (%)	Co-resident father provides care (%)
Regular daytime schedule (ref.)	92.7	55.6
Regular evening or night work	98.0 ***	65.3 **
Irregular or other arrangements	96.1 ***	60.2 *

Note: These are predicted percentages, calculated from logistic regression models in which other characteristics were set to the sample mean. Estimates for mothers include lone and couple mothers, while estimates for fathers are only for two-parent families. Tests of statistical significance are based on multivariate results in which the coefficients were compared to the reference category (ref.). Additional testing compared regular/evening workers to irregular/other workers: differences were statistically significant ($p < .05$) for mothers' provision of school holiday care, but not statistically significant for fathers' provision of school holiday care. *** $p < .001$, ** $p < .01$, * $p < .05$.

Turning now to fathers' job characteristics, fathers most likely to provide school holiday care were those who were not working or working fewer than 35 hours per week, consistent with Figure 3.5 (on page 44). We found previously that children were less likely to be in informal care in school holidays when fathers did not work full-time hours, and so this does seem to reflect that fathers are more likely to provide some of this school holiday care. Also consistent with Figure 3.5, the likelihood of fathers providing care, among those working full-time, was inversely related to the number of hours worked.

Fathers' work hours were also statistically associated with mothers' provision of school holiday care, and again this finding corresponds with Figure 3.5, with mothers being a little more likely to provide school holiday care if fathers worked 55 hours or more. This finding was apparent even after taking account of mothers' job characteristics, other characteristics of fathers' jobs, children and families, though as indicated in Figure 3.5, there was not a very large difference.

The likelihood of fathers or mothers providing school holiday care did not vary with fathers' job contract. Unlike for mothers, for fathers, being self-employed was not associated with being more likely to provide school holiday care, highlighting that self-employment for many mothers is likely to be a means of managing children's care arrangements, whereas for fathers this is not likely to be a key consideration in choosing to be self-employed.

As with mothers, fathers' work schedule was significantly related to parental provision of school holiday care. Fathers who worked regular daytime hours were the least likely to provide school holiday care when compared to those who either worked regular evening/night schedules or irregular/other schedules. As shown in Table 3.8, these differences are quite marked, when other characteristics are taken into account. Like mothers, working non-standard schedules may allow co-resident fathers to take on some of the school holiday care. These analyses also found that mothers cared for children in school holidays a little more often when fathers worked regular evening or night work, compared to working regular daytime schedules.

Table 3.8: Co-resident fathers' work schedule and parental school holiday care in the previous 12 months, children aged 6–11 years with working mothers

Co-resident fathers' work schedule	Mother provides care (%)	Co-resident father provides care (%)
Regular daytime schedule (ref.)	93.0	53.2
Regular evening or night work	95.8 *	79.7 ***
Irregular or other arrangements	94.3	71.1 ***

Note: These are predicted percentages, calculated from logistic regression models in which other characteristics were set to the sample mean. Includes two-parent families only. Tests of statistical significance are based on multivariate results in which the coefficients were compared to the reference category (ref.). Additional testing compared regular/evening worker fathers to irregular/other worker fathers: differences were not statistically significant for mothers' provision of school holiday care but were statistically significant ($p < .05$) for fathers' provision of school holiday care. *** $p < .001$, ** $p < .01$, * $p < .05$.

There were also differences in the likelihood that mothers or fathers provided school holiday care according to the range of child and family characteristics examined. The strongest associations were for there being another adult living in the household (93% of mothers and 57% of fathers if no other adult lived with the family, compared to 89% and 48% respectively when there was another adult living in the household), and for fathers, region of residence (53% of fathers in metropolitan areas, compared to 63% of fathers in other areas). Differences were not apparent by age of child, or by whether or not the child had an older sibling, and there was a slightly lower likelihood of fathers providing care when the child had younger siblings.¹¹

3.9 Summary and discussion

This chapter has provided a descriptive account of the school holiday arrangements of children aged 6–7 years through to 10–11 years, which covers most of the primary school ages. The reported information refers to school holiday arrangements used in the previous 12 months, and here we have explored the different forms of formal, informal and parental care used.

Children were more likely to have been in informal than formal care in the school holidays. Grandparent care was the most often reported informal school holiday care arrangement. The maternal grandparent was more often the provider of school holiday care than the paternal grandparent, which is consistent with patterns of grandparent-provided child care more broadly (Horsfall & Dempsey, 2011). Other providers of informal care were unrelated persons aged 18 years and over and other relatives (such as siblings) aged 18 years and over. Consistent with the ABS standard classification of child care arrangements, care by a non-resident parent was also considered to be informal care, although here some additional analyses were presented to recognise the different nature of this care. An important contribution of this chapter is the analysis of how non-resident parent care in the school holidays contributes to the estimates of informal care used by lone-mother families. The proportion of children in informal school holiday care, especially for working lone mothers, is notably higher because of the inclusion of non-resident parent care as a form of care. If this is taken out, and instead considered to be a different form of parental care, then the estimates for informal care use become much more similar for lone-mother and two-parent families.

¹¹ Percentages in this paragraph are predicted percentages based on the underlying analyses. See footnote 10.

Formal care programs are used by some children in school holidays, with the most common arrangements being for children to attend holiday programs at the child's school or at another location.

Although there were some differences in the use of different school holiday arrangements by age of children, there were more significant differences according to the employment status of parents. Not surprisingly, when there was a parent in the home who was not in paid work, school holiday care was less often used. This is the case for families with lone mothers and partnered mothers.

Of course, one approach parents have for school holidays, is to spend time with children themselves, by adjusting their work hours or schedules, or taking leave from work. A majority of children are cared for by parents in the school holidays. School holiday care by parents is more often provided by their mother than their father, whether resident or non-resident.

A key focus of this analysis was on how parental employment characteristics relate to different patterns of school holiday care. A valuable feature of this analysis is the inclusion of information about fathers' as well as mothers' jobs, to provide a fuller understanding of the family-level decision-making about children's use of care. Analyses were presented that showed how formal and informal school holiday arrangements varied with different parental employment arrangements. Also, similar analyses were presented showing how parental care varied with these same characteristics. The factors that were linked to a greater use of formal or informal school holiday care, tended to be linked with a lesser use of parental care. Although not surprising, it is useful to have these two different perspectives in order to better explain how families manage their school holiday care needs.

In all analyses, mothers' employment characteristics were more strongly predictive of school holiday care arrangements than those of fathers. We know from elsewhere that fathers are less likely than mothers to make use of working arrangements to care for children (Baxter, 2013). Mothers may in fact take up certain occupations or specific jobs so that they can fit them around their caring responsibilities, while fathers may be less likely to consider these criteria as central in making employment decisions. The finding that fathers' work characteristics are not as strongly related to school holiday arrangements as are mothers', fits with these other findings.

Formal and informal care was less often used for school holidays if mothers worked fewer hours, were self-employed and worked non-standard schedules. Also, mothers employed in these sorts of jobs tended to provide more care to children themselves in school holidays. Similar findings were apparent for fathers, although associations were weaker, and reflected the situation in a minority of families. That is, if fathers worked less than full-time hours (or were not employed) or worked non-standard hours, they provided more parental care (and children were less likely to be in informal school holiday care). Self-employment of mothers, though, was associated with a greater likelihood of mothers providing school holiday care, while self-employment of fathers was not associated with a greater likelihood of fathers providing school holiday care.

There was some evidence of cross-over effects, with fathers' working arrangements being associated with mothers' provision of parental care, and likewise mothers' working arrangements were associated with fathers' provision of parental care. In particular, when fathers worked the longest hours (55 hours or more), children were least likely to have been in non-parental care in school holidays, but they were more likely to have been cared for by their mother. This was so even after taking account of a range of characteristics, including mothers' job characteristics. One possible explanation is that mothers in these families may try to compensate for the diminished time that children spend with their father, by spending more time with them themselves, rather than using other formal or informal arrangements. Another possibility is that fathers work these longer hours when mothers are available to be more involved in the child care. The finding was similar when looking at mothers' working hours, in that fathers were more likely to have undertaken school holiday care when mothers worked full-time hours. However, in these families, children were also more likely to have been in some formal or informal school holiday care, and so the additional father care supplemented these arrangements rather than replacing them.

Our detailed analyses of whether children were cared for by non-resident fathers in school holidays did not yield any significant findings with respect to relationships with maternal employment characteristics. Unsurprisingly, care by non-resident fathers was more likely in lone-mother families, given that few children in two-parent families have a non-resident father. Exploring school holiday

(or other) care provided by non-resident fathers should ideally take account of the relationship history and quality between mother and non-resident father, as well as characteristics of the father, but this was beyond the scope of the analysis.

These LSAC data allowed us to study the school holiday arrangements of children in more detail than has been possible before, especially given the large sample size and very rich family and employment information that can be related to the information about child care. It is, however, worth noting the limitations of this research. One is that the school holiday data were captured only in respect of whether children had or had not used each of a list of arrangements in the previous 12 months. This did not allow any analyses of the relative importance, or frequency of use, of different arrangements. Nevertheless, the list of arrangements is comprehensive and, in particular, the inclusion of parental care in this list allowed for considerable insights to be gained. We were unable to include analyses of children caring for themselves in school holidays, which would have been a useful addition to these analyses. We were also limited somewhat by the fact that the employment data, and other characteristics, referred specifically to those captured at the time of the surveys, while the school holiday data referred to the previous year. However, this does not appear to have affected this work adversely, given the findings, as reported, seem consistent with what we would expect to find were the employment and school holiday data better aligned.

This research contributes to the under-studied area of school holiday care in Australia. The findings confirm the need to ensure formal programs are available to children, especially those with working parents. It also recognises the value that grandparents and other relatives contribute to families by providing care at those times that are difficult for working parents to manage. Where parents live apart, also, sharing of care can form part of the informal arrangements for school holiday care of children, although it might be argued that this parental care is of a different nature to other informal arrangements. Further, these findings also demonstrate how employment arrangements can make a difference to these care arrangements. Having access to, and facilitating the use of, flexible work arrangements might facilitate mothers as well as fathers to take time to care for children in school holidays.

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Time use and children's social and emotional wellbeing and temperament

4

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4.1 Introduction

The way in which children spend their time is often the window through which we appraise their wellbeing (Larson, 2001). There is recurring concern about children spending too much time watching TV, or spending too much time socialising with peers away from adults. Conversely, we support children's engagement in "good" activities like playing sports, reading or doing homework. Ripke, Huston, Eccles, and Templeton (2008) included children's time use as one of seven key domains of development in middle childhood (between 6 and 12 years of age). They stated, "children's constructive use of time and participation in positive activities are indicators of healthy positive development in middle childhood, particularly in the attainment and development of skills" (p. 143). Time use patterns of middle childhood can form the basis on ongoing healthy development into adolescence (Simkins, Fredricks, Davis-Kean, & Eccles, 2006), and leisure is particularly important (Ripke et al., 2008).

Links between children's time in structured or organised leisure activities and their social and emotional wellbeing have received particular attention from researchers. Children who engage in more organised activities have lower levels of behavioural difficulties and higher levels of prosocial behaviour (Morris & Kalil, 2006). A number of studies have shown that sport in particular is positively associated with social and emotional wellbeing (Fletcher, Nickerson, & Wright, 2003; Hofferth & Sandberg, 2001; Ripke, Huston, & Casey, 2006). Other studies, focusing on leisure patterns more generally, have found negative associations between children's social and emotional wellbeing and watching TV (Hofferth & Curtin, 2005), playing video games (for boys in particular; Hofferth, 2010), playing outdoors and generally hanging out (McHale, Crouter, & Tucker, 2001).

It is important to note that associations between children's activities and their social and emotional wellbeing are not always immediately intuitive or easily explained. For example, McHale et al. (2001) found that reading was negatively associated with aspects of children's social and emotional wellbeing. The authors suggested that this was because in middle childhood reading becomes a more solitary activity, and spending too much time reading may indicate difficulties around socialising with others, including peers, or may be a form of escapism from social pressures. Puzzlingly, Hofferth and Curtin (2005) found that children's engagement in chores was also negatively related to their social and emotional wellbeing. They argued that there was a need for further exploration of the nature of children's engagement in chores. These findings highlight that it is important to realise that the processes of children's development are complex and cannot solely be reduced to a question of spending time in particular activities (Larson, 2001).

In addition to children's activities, the social dimension of children's time use is important. Research on this aspect of time is more limited, though studies highlight links between child wellbeing and interactions with others, in particular parents (Lam, McHale, & Crouter, 2012) or links between poorer social and emotional outcomes and time spent with peers while unsupervised by adults (McHale et al., 2001).

Most previous research in this area has been located in the United States. It is therefore necessary to explore possible connections between children's time use and their social and emotional wellbeing in an Australian context at a time when policy is focused on, among other aspects of children's

¹ At the time of writing Killian Mullan was at the Australian Institute of Family Studies.

welfare, monitoring children's social and emotional wellbeing (Council of Australian Governments, 2009). Previous research on aspects of children's time use in Australia has focused on links to health outcomes (Brown, Broom, Nicholson, & Bittman, 2010) and to cognitive outcomes (Bittman, Rutherford, Brown, & Unsworth, 2011). However, there is less understanding about links between children's time use and their social and emotional wellbeing. Mullan and Maguire (2013) showed that, in correspondence with research elsewhere, Australian children's engagement in physical activity, in particular organised sport, was positively associated with their social and emotional wellbeing. This chapter seeks to build on this initial work.

The chapter focuses on children at ages 4–5 years and 10–11 years. These points in time coincide with children's participation in formal schooling, including the middle childhood years. During this time, children are learning to master skills that form the platform for further development through adolescence into adulthood. In tandem with this, they are developing a stronger sense of themselves, and the ways in which they spend their time can play a critical role in this (Ripke et al., 2008). Therefore, patterns of time use can point to problems and successes in this period of children's development and are potentially important sources of information about children's wellbeing (Ben-Arieh & Ofir, 2002).

This chapter describes associations between children's time use and their social and emotional wellbeing by using time use data collected as part of the Longitudinal Study of Australian Children (LSAC). It considers three broad dimensions of children's time use:

- major categories of time use that take up relatively large portions of children's days, such as sleep, time in school, and free time;
- specific free-time activities (most of which are leisure activities); and
- social time, which includes time spent with parents, with other adults, and unsupervised by adults.

In addition, this chapter will look at associations between children's time use and persistent and reactive temperaments. This has not been the subject of previous research, and the analysis therefore breaks new ground in this regard.

In addressing this topic, it is important to acknowledge that both children's time use and social emotional wellbeing are known to be associated with a number of common factors. Chief among these is gender. Boys tend to average more time in leisure activities and less time doing housework than girls (Bianchi & Robinson, 1997; Mauldin & Meeks, 1990), and gender differences become more pronounced as children grow older (Huston, Wright, Marquis, & Green, 1999). Compared to girls, boys have also been found to average more time playing video games and more time in sport (Hofferth, 2010), and spend less time reading (Mullan & Daraganova, 2012). With respect to social and emotional wellbeing, research shows that girls tend to have lower behavioural difficulties and display higher prosocial behaviours than boys (Mellor, 2012). In addition, studies show that girls tend to have lower reactive and higher persistent temperaments (McClowry, 1995; Sanson, Smart, Prior, Oberklaid, & Pedlow, 1994).

Socio-economic position (SEP) is another key factor associated with children's time use. For example, children from lower socio-economic backgrounds average more time watching television (Bittman & Siphthorp, 2012) and less time in organised sport (Mullan & Maguire, 2013) than children in relatively more advantaged families. Problems associated with children's social and emotional wellbeing tend to be more prevalent in relatively lower socio-economic groups (Meltzer, Gatwood, Goodman, & Ford, 2000), and previous research has highlighted links between temperament problems and low socio-economic position (Sanson et al., 1994).

Lastly, previous research suggests that region of residence (metropolitan/regional) may be an important factor associated with children's time use (Baxter, Gray, & Hayes, 2011). However, this has not been fully considered in previous research and this chapter therefore considers this factor in more detail.

The key research questions in this chapter are:

- To what extent is children's time use associated with their social and emotional wellbeing and temperament?
- Do factors such as gender, socio-economic status, or region of residence have a bearing on the relationship between social and emotional wellbeing and children's time use?

4.2 Data

The analysis used LSAC time use data from the K cohort at Waves 1 and 4. At Wave 1, the primary responding parent completed a time use diary on a weekday and a weekend day for the study child aged 4–5 years. In this diary they recorded the type of each activity (from a pre-coded list of 26 activities, including travel), who the child was with and the child's location, in 15-minute blocks of time throughout the day. At Wave 4, K cohort children aged 10–11 years completed the time use diary themselves for a single day (either a weekday or a weekend day). This diary was relatively unstructured in that children could record activities in their own words (recording the start and end time of each activity), which were then coded into a list of 99 distinct activities organised within nine broad activity groups. For example, the broad activity group “chores” has nine distinct activity codes corresponding to different types of chores (e.g., cooking, making bed, washing dishes). As with the Wave 1 diaries, children also provided information about who they were with and their location for each activity.

The children at Wave 4 could record their own school activities, but in earlier waves, while parents were not prevented from doing this, it was not done consistently. Therefore, to enhance the comparability of activities across waves, only activities reported outside of school were considered, and all activities at school were recorded as “time at school”.

As noted above, Wave 4 K cohort children completed a time use diary for a single day whereas parents completed time use diaries over two days for Wave 1 K cohort children. Therefore, when making comparisons between these two time points we need to ensure that the day the child completed the diary at Wave 4 is matched to the comparable day recorded by their parent at Wave 1. Thus, if a child 10–11 years completed a diary on a weekday it was matched to a weekday diary completed by their parent at Wave 1 (when the child was 4–5 years). Similarly, Wave 1 weekend diaries were matched with Wave 4 weekend diaries.

These data were then categorised according to the three broad dimensions of children's time use identified in the introduction. Details of the specific activities are provided in section 4.4 (on page 55).

Table 4.1 provides some descriptive information about the children included in the sample. There were a total of 2,586 children with diary data at 4–5 years and 10–11 years. There were many fewer diaries completed on a school/care day for children aged 4–5 years (37%) than for children 10–11 years (55%), reflecting the lower attendance rates at school/care for children 4–5 years. School/care and non-school/care days were analysed separately throughout, as were diaries from each wave.

Table 4.1: Characteristics of the sample, by age and diary day used			
	Non-school/care day (N)	School day (N)	Total (N)
Age 4–5 years	1,632	954	2,586
Boy	852	479	1,331
Girl	780	475	1,255
Metropolitan	957	639	1,596
Regional	675	315	990
Medium/high SEP	1,348	795	2,143
Low SEP (bottom quintile)	280	159	439
Age 10–11 years	1,169	1,417	2,586
Boy	602	729	1,331
Girl	567	688	1,255
Metropolitan	700	853	1,553
Regional	466	562	1,028
Medium/high SEP	861	1,113	1,974
Low SEP (bottom quintile)	273	265	538

Note: Data were not available for all respondents.

4.3 Measures of children's social and emotional wellbeing, and temperament

Social and emotional wellbeing relates broadly to children's thoughts and feelings about themselves, and their conduct and interactions with others (Hamilton & Redmond, 2010). The Strengths and Difficulties Questionnaire (SDQ) composite difficulty and prosocial scores (Goodman, 1997) were used in this analysis to focus on both positive and negative aspects of children's social and emotional wellbeing. The SDQ consists of 25 questions, which parents answer, organised around five major components of children's social and emotional wellbeing: hyperactivity, emotional symptoms, conduct problems, peer problems and prosocial behaviour. There are five questions (items) corresponding to each component. Responses to the 20 questions for the first four components are aggregated to form a single "difficulty" score, and responses to the five questions on prosocial behaviour are aggregated to form a single "prosocial" score.

In this analysis, children at the upper quintile of the distribution of scores (the top 20%) were distinguished from the lower quintiles. Children in the upper quintile of SDQ difficulty scores had relatively more difficult behaviours and those in the upper quintile of SDQ prosocial scores had relatively high prosocial behaviours.

In addition, and in a departure from previous research, this chapter also considers associations between children's time use and aspects of their temperament. Temperament relates to a style of behaviour that is relatively stable over time and across different contexts (McClowry, 1995), referring to "individual differences in emotional, motor, and attentional reactivity to stimulation, and in patterns of behavioural and attentional self-regulation" (Sanson, Hemphill, & Smart, 2004, p. 143). This chapter focuses on two aspects of children's temperament: negative reactivity (e.g., irritability and negative moods and reactions), which is referred to as "reactive" throughout this chapter, and persistence (which is a key component of self-regulation relating to control over one's attention). In LSAC, items from the Short Temperament Scale for Children (Sanson et al., 1994) were used to measure these aspects of temperament for children aged 4–5 years, and items from the School-Age Temperament Inventory (McClowry, 1995) were used to measure temperament for children aged 10–11 years. As with the SDQ measures, children at the upper quintile of the distribution of scores were distinguished from the lower quintiles, thus representing children with relatively high reactive temperament and those with relatively high persistent temperament.

A large body of research has identified links between temperament and social development as indicated by conduct problems or prosocial behaviour (see Sanson et al., 2004, for a review). Therefore, we might expect aspects of temperament and social and emotional wellbeing to be associated with children's time use in similar ways. However, the measures of social and emotional problems used here combine four subscales that each relate to a distinct set of behavioural and emotional issues.

Table 4.2 (on page 55) reports the proportions of children in the relatively high groups for the SDQ difficulty and prosocial measures, and for the reactive and persistent temperament measures. There was sufficient discrimination in the scores to allow for relatively good proportions of the top quintile, but there were a larger number of high prosocial scores at age 10–11 years, so the relatively high group was therefore substantially larger.

Table 4.3 (on page 55) provides a summary of the associations between children in the relatively high groups on each of these measures (compared with those who are not in these groups) and child gender, region of residence and family socio-economic position. The results were obtained using a set of chi-square test of independence.

Gender was the most consistently significant factor associated with children having relatively high scores on the measures of children's temperament and social and emotional wellbeing. Girls aged 4–5 years were less likely to be in the group with high difficulty scores and more likely to be in the group with high prosocial scores, which corresponds with findings elsewhere (Mellor, 2012). Furthermore, girls 4–5 years were less likely to be in the high reactive temperament group and more likely to be in the high persistent temperament group, which accords with previous findings (McClowry, 1995; Sanson et al., 1994). Similar results were found for children 10–11 years.

Table 4.2: Children with relatively high and low/medium scores on measures of social and emotional wellbeing, and temperament, by age					
			Low/medium scores (%)	High scores (%)	No. of observations (N)
Age 4–5 years	Social and emotional wellbeing (SDQ)	Difficult	79.1	20.9	2,493
		Prosocial	80.6	19.4	2,493
	Temperament	Reactive	79.7	20.3	2,447
		Persistent	76.2	23.8	2,447
Age 10–11 years	Social and emotional wellbeing (SDQ)	Difficult	78.2	21.8	2,348
		Prosocial	61.3	38.7	2,348
	Temperament	Reactive	77.2	22.8	2,348
		Persistent	81.2	18.8	2,348

Source: LSAC K cohort, Waves 1 & 4

Table 4.3: Summary of associations between children's relatively high scores for social and emotional wellbeing/temperament measures, and gender, location and socio-economic position, by age			
	Girl (compared with boy)	Regional (compared with metropolitan)	Low SEP (compared with high/medium SEP)
Age 4–5 years			
High SDQ difficulty score	–	ns	+
High SDQ prosocial score	+	ns	ns
High reactive score	–	ns	+
High persistent score	+	ns	–
Age 10–11 years			
High SDQ difficulty score	–	ns	+
High SDQ prosocial score	+	ns	ns
High reactive score	–	ns	ns
High persistent score	+	–	–

Notes: – = negative association ($p < .05$); + = positive association ($p < .05$); ns = no significant association.

Source: LSAC K cohort, Waves 1 & 4

With respect to location, there was only one significant association, where children aged 10–11 years in regional areas were less likely to be in the high persistent temperament group than children in metropolitan areas. There is no prior research here, and it is difficult to explain this; it could simply be a chance result.

Echoing previous research, children at both waves in low-SEP families were more likely to be in the relatively high difficult behaviour group than children in medium/high-SEP families (see Blanden, Katz, & Redmond, 2012; see also Meltzer et al., 2000, for similar findings in the UK). There was no significant association relating to membership of the relatively high prosocial behaviour group and socio-economic position. Low SEP was positively associated with a relatively high reactive temperament for children aged 4–5 years, but there was no significant association for children 10–11 years. Children (4–5 years and 10–11 years) in low-SEP families were less likely to have a relatively high persistent temperament than the other children (see also Sanson et al., 1994).

4.4 Results

The results are presented in three sections, covering the three broad dimensions of children's time use identified in the introduction: time spent in the major activity group; time spent in free-time activities; and time spent with parents and other adults, and unsupervised by adults.

Within each of the three sections, following a broad overview of the relevant time use category, there is a descriptive analysis comparing children's time use by gender, socio-economic position and location. Only statistically significant differences are reported. Following this, in each of the three sections, the chapter considers associations between children's time use and difficult and prosocial behaviour, and reactive and persistent temperaments. These analyses present comparisons both with and without adjusting for gender, socio-economic position and region of residence. Again, only significant differences from the unadjusted and/or adjusted analyses are reported.

Major activity groups: Sleep, personal care, school and free time

This section provides a descriptive overview of the broad contours of an LSAC child's day when entering or about to enter formal primary school (4–5 years) and again when beginning to prepare to enter high school (10–11 years). As noted above, this is an important developmental phase for children, including the period known as middle childhood. We begin by looking at the time children spent in a range of major activities. Table 4.4 reports the average hours children aged 4–5 and 10–11 years spent in a range of major daily activities on school days and non-school days. The major activities we consider in this section are sleep; personal care (washing, eating); time spent in school or formal child care; specified free-time activities, including leisure (time awake and not in school/non-parental care and not engaged in personal care or eating); travel; and time in other or unspecified activities. Together these activities sum to the total time in a single day.

Table 4.4: Average hours in major daily activities on school days and non-school days, children aged 4–5 and 10–11 years

	4–5 years		10–11 years	
	School/care day (hours)	Non-school/care day (hours)	School/care day (hours)	Non-school/care day (hours)
Sleep	11.1	11.3	10.1	10.5
Personal care	2.0	2.6	1.8	2.6
School/care	5.3	–	6.3	–
Free time/leisure	4.3	8.7	4.7	9.5
Travel	1.0	1.2	0.9	1.1
Other/unspecified	0.3	0.3	0.2	0.4
Total hours	24.0	24.0	24.0	24.0

Source: LSAC K cohort, Waves 1 & 4

At age 4–5 years, children spent an average of just over 11 hours sleeping on a school/care day, and slightly more time sleeping on non-school/care days (10 minutes). They spent 2 hours in personal care activities (washing, eating) on school/care days and just over half an hour more on non-school/care days. The difference here is likely related to time eating while in school/care, which, as noted above, was coded as time in school/care to enhance comparability across the two time points. Children aged 4–5 years spent just over 5 hours on average in school/care, and on school/care days they had just over 4 hours of free time. This increased substantially to just less than 9 hours on non-school/care days. Finally, children 4–5 years spent around one hour in travel.

At age 10–11 years, children spent around 10 hours sleeping on a school day, which increased by 0.4 hours (approximately 25 minutes) on a non-school day. Time in personal care on a school day was 1.8 hours, and 2.6 hours on a non-school day. When children 10–11 years were at school, they spent just over 6 hours there, and had an average of 4.7 hours of free time. On a non-school day, they had 9.5 hours of free time. Travel time was around one hour on both school days and non-school days.

Major activities and child gender, socio-economic position and region of residence

Table 4.5 (on page 57) shows significant bivariate differences between boys and girls in the average time spent in these major activity groups. Girls aged 4–5 years averaged more time sleeping and less free time on non-school/care days. The broad time use patterns of boys and girls 4–5 years were very similar on school days (not reported in Table 4.5). Girls 10–11 years spent significantly more time engaging in personal care than boys 10–11 years on both non-school and school days.

In addition, girls 10–11 years spent less free time than boys 10–11 on both non-school (30 minutes less) and school days (14 minutes less). These results echo previous research (e.g., Bianchi & Robinson, 1997; Mauldin & Meeks, 1990).

Table 4.5: Gender differences in major activity groups, by age and type of day

	Boy (minutes/day)	Girl (minutes/day)	Difference
4–5 years: Non-school/care day			
Sleep	671.6	679.8	8.2 *
Free time/leisure ^a	525.2	513.0	–12.2 *
10–11 years: Non-school day			
Personal care	145.8	163.4	17.6 ***
Free time/leisure ^a	582.1	551.7	–30.4 ***
10–11 years: School day			
Personal care	105.9	113.3	7.4 *
Free time/leisure ^a	286.1	272.1	–14.0 *

Notes: ^a Free time is specified activities while awake and not in school/non-parental care, personal care or eating. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Waves 1 & 4

Socio-economic position had little significant relationship with children's engagement in these major activity groups, with a single exception, reported in Table 4.6. When 10–11 years, children in households in the lowest quintile of the socio-economic position distribution averaged significantly less time in school. Given that time in school is administratively determined, this result may reflect differences in engagement in extracurricular activities happening in school.

Table 4.6: Socio-economic position differences in major activity groups, by age and type of day

	Medium/high SEP (minutes/day)	Low SEP (minutes/day)	Difference
10–11 years: School day			
School	382.0	367.0	–15.0 *

Notes: *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Wave 4

Broad patterns in time use were very similar for children living in metropolitan and regional areas, but descriptive analyses revealed some significant findings, reported in Table 4.7. Children aged 4–5 years in regional areas averaged less travel time on school days than children in metropolitan areas, but this pattern was reversed for children 10–11 years. Looking closer, there was a substantial decrease in travel time on school days between children 4–5 years and 10–11 years in metropolitan areas, while travel time was relatively similar between children 4–5 years and 10–11 years in regional areas. In addition, children 10–11 years in regional areas averaged less free time on non-school days (22 minutes). Children in regional areas also spent more time in sleep and personal care activities than those in metropolitan areas, but neither of these findings were significant.

Table 4.7: Region of residence differences in major activity groups, by age and type of day

	Metropolitan (minutes/day)	Regional (minutes/day)	Difference
4–5 years: School/care day—Travel	62.9	55.4	–7.5 *
10–11 years: Non-school day—Free time/leisure ^a	576.2	554.1	–22.1 *
10–11 years: School day—Travel	50.7	59.0	8.4 **

Notes: ^a Free time is specified activities while awake and not in school/non-parental care, personal care or eating. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Waves 1 & 4

Major activities and children's social and emotional wellbeing

At this broad level of analysis of children's activity patterns, there were few significant associations between major activities and different aspects of children's social and emotional wellbeing. Children's activities were not significantly associated with prosocial behaviour. However, there were some significant associations with SDQ difficulty scores, reported in Table 4.8.

Table 4.8: SDQ difficulty scores and major activity groups, by age and type of day

	Low/medium SDQ difficulty scores (minutes/ day)	High SDQ difficulty scores (minutes/day)	Difference	Adjusted Difference ^a
10–11 years: School day				
Personal care	111.6	101.5	–10.1 **	–8.4 *
Free time/leisure ^b	276.5	290.9	14.5 *	9.6

Notes: ^a Difference adjusted for child gender, family socio-economic position, and region of residence. ^b Free time is specified activities while awake and not in school/non-parental care, personal care or eating. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Wave 4

Children 10–11 years with relatively high SDQ difficulty scores averaged more free time (15 minutes; $p < .05$) and less personal care time (10 minutes; $p < .01$) on school days. These patterns were very similar to the patterns relating to gender, described above, and after controlling for gender the difference in free time was no longer significant, although the difference in personal care time remained significant (9 minutes; $p < .05$).

Major activities and children's temperament

As with social and emotional wellbeing, there were few significant associations between children's temperament and their time spent in major activities. There were no significant associations between children's time use measured at this broad level and persistent temperament, but there were some significant associations with reactive temperament (reported in Table 4.9). Children aged 4–5 years with relatively high reactive temperament spent less time in personal care (10 minutes; $p < .05$) and had more free time (17 minutes; $p < .05$) on a non-school/care day. There were no significant differences associated with reactive temperament and children's broad time use activities on school/care days when 4–5 years, nor on any day type when 10–11 years.

Table 4.9: Reactive temperament and major activity groups, by age and type of day

	Low/medium reactivity scores (minutes/day)	High reactivity scores (minutes/ day)	Difference	Adjusted Difference ^a
4–5 years: Non-school/care day				
Personal care	156.2	146.0	–10.2 *	–11.6
Free time/leisure ^b	515.2	532.6	17.4 *	12.6
Other/unspecified	17.2	21.5	4.2	4.7 *

Notes: ^a Difference adjusted for child gender, family socio-economic position, and region of residence. ^b Free time is specified activities while awake and not in school/non-parental care, personal care or eating. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Wave 1

Free-time activities

This second section of results focuses on free-time activities, which have been the focus of most previous research, and presents a descriptive overview of free-time activities on school days and non-school days for children aged 4–5 years and 10–11 years. Recall that free-time activities are all activities that are recorded when the child is awake and not in school/non-parental care and not engaged in personal care or eating. Table 4.10 reports the average minutes children spent in a range of free-time activities, and shows that these activities vary greatly both across different types of days (school/non-school) but also over time, from 4–5 years to 10–11 years. For children

4–5 years, watching television occupied the most time, followed by other leisure (art activities, puzzles and games, other play) and physical activity (excluding sport). Television also occupied the most time for children 10–11 years, followed by physical activity and then, on non-school days, time using a computer. In addition, children 10–11 years recorded time spent doing homework and chores, which were not coded in the diaries of children aged 4–5 years. It is clear that these activities comprised a substantial portion of 10–11 year old children's "free" time.

Table 4.10: Average time spent in free-time activities, by age and type of day

	4–5 years		10–11 years	
	School/care day (minutes/day)	Non-school/care day (minutes/day)	School/care day (minutes/day)	Non-school/care day (minutes/day)
Television	100.7	147.9	91.5	185.2
Computer use including games	7.8	12.3	27.0	79.7
Reading	21.2	31.5	15.5	20.0
Organised activities including sport	11.1	50.5	28.9	27.3
Other leisure (arts, puzzles, etc.)	50.4	106.3	13.3	41.8
Other non-home leisure/culture	19.8	65.1	7.1	42.1
Physical activity excluding sport	31.8	75.5	40.2	105.8
Doing nothing	1.5	3.4	4.5	9.9
Upset/being comforted	9.3	16.0	–	–
Informal lessons	4.6	11.4	–	–
Homework including computer use	–	–	24.3	8.7
Chores	–	–	27.1	46.8
Total	258.2	519.9	279.4	567.3

Source: LSAC K cohort, Waves 1 & 4

Free-time activities and child gender, socio-economic position and region of residence

In this section, we consider free-time activities in more detail and examine differences associated with child gender, and socio-economic position and region of residence. It was noted above that child gender was significantly associated with children's total free time, and further analysis of specific free-time activities reveal a number of gender differences. Significant results are reported in Table 4.11 (on page 60). On non-school/care days, girls aged 4–5 years spent less time than boys both watching television and using computers (outside school). In addition, on non-school/care days, girls 4–5 years spent more time reading and doing organised activities than boys. On school/care days, girls 4–5 years spent less time using a computer, and more time in informal lessons (which includes being taught chores or reading).

There were more differences associated with gender when children were 10–11 years old, and especially so for time use on non-school days. A significant gender difference emerged between boys and girls in their use of computers at age 10–11; on non-school days girls 10–11 years had 51 fewer minutes than boys, while on school days the difference was 20 fewer minutes. Much of this time was related to playing computer games, which highlights the gendered nature of this activity (Hofferth, 2010). Girls 10–11 years also spent more time reading than boys on both non-school and school days (see also Mullan & Daraganova, 2012). On non-school days only, girls 10–11 years spent 8 minutes less in organised activities (including organised sport) and 19 minutes less in other physical activity than boys, but they averaged 14 more minutes in other leisure and play activities (indoors) than boys. Finally, girls spent more time on homework on school days and more time on chores on both non-school and school days.

Although there were no significant differences in children's total free time associated with socio-economic position, there were a number of differences in specific free-time activities associated with this factor. Significant results are reported in Table 4.12 (on page 61). On non-school/care days, children aged 4–5 years in low-SEP families spent more time watching television (37 minutes;

$p < .001$) than children in other families (see also Bittman & Siphthorp, 2012). In addition, they spent less time in other leisure activities like playing games, puzzles and arts activities, and less time in physical activity than children in medium/high-SEP families. Lastly, children 4–5 years in low-SEP families spent more time upset or being comforted than other children. On school days, children 4–5 years in relatively low SEP families also spent more time watching television and less time reading and doing organised activities than other children.

Table 4.11: Gender differences in free-time activities, by age and type of day

	Boy (minutes/day)	Girl (minutes/day)	Difference
4–5 years: Non-school/care day			
Television	151.9	138.3	–13.6 *
Computer use including games	15.4	8.0	–7.4 ***
Reading	28.7	33.9	5.2 *
Organised activities including sport	43.6	59.4	15.8 *
4–5 years: School/care day			
Computer use including games	9.6	5.9	–3.7 *
Informal lessons	3.6	5.5	1.8 *
10–11 years: Non-school day			
Computer use including games	104.3	53.3	–51.0 ***
Reading	17.3	23.0	5.7 *
Organised activities including sport	31.2	23.1	–8.1 *
Other leisure (arts, puzzles, etc.)	34.9	49.2	14.3 ***
Physical activity excluding organised sport	115.2	95.8	–19.4 **
Chores	37.7	56.6	19.0 ***
10–11 years: School day			
Television	96.0	86.8	–9.2 *
Computer use including games	36.6	17.0	–19.6 ***
Reading	12.7	18.4	5.7 **
Homework including computer use	20.8	27.8	7.0 **
Chores	24.0	30.2	6.2 **

Notes: *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Waves 1 & 4

Socio-economic position was associated with a number of free-time activities for children 10–11 years. Children 10–11 years in low-SEP families watched significantly more television on school days (16 minutes) and non-school days (22 minutes) than other children. Also on school days, children in low-SEP families spent less time in organised activities, including organised sport, but more time in other physical activities than children in medium/high-SEP families. Finally, on non-school days, children 10–11 years in low-SEP families spent less time reading, and less time in leisure/cultural activities outside the home than children in medium/high-SEP families.

Analysis revealed that few free-time activities were significantly associated with region of residence (significant results are reported in Table 4.13 on page 61). On non-school/care days, children aged 4–5 years in regional areas spent more time in physical activity (11 minutes) than children in metropolitan areas. On school/care days, children 4–5 years in regional areas spent less time reading than children in metropolitan areas. On non-school days, children 10–11 years in regional areas spent less time watching television (18 minutes) than children in metropolitan areas, and less time doing homework. On school days, children 10–11 years in regional areas spent less time reading, and doing homework, including computer use, than children in metropolitan areas. Also on school days, children 10–11 years in regional areas spent more time doing chores.

Table 4.12: Socio-economic position differences and free-time activities, by age and type of day

	Medium/high SEP (minutes/day)	Low SEP (minutes/day)	Difference
4–5 years: Non-school/care day			
Television	139.8	176.8	36.9 ***
Other leisure (arts, puzzles, etc.)	111.1	90.2	–20.9 **
Physical activity excluding organised sport	78.1	62.9	–15.2 **
Doing nothing	2.8	5.5	2.7 *
Upset/being comforted	13.7	23.6	10.0 **
4–5 years: School/care day			
Television	95.3	120.3	24.9 **
Reading	22.8	15.3	–7.5 ***
Organised activities including sport	12.8	4.9	–7.9 **
10–11 years: Non-school day			
Television	176.9	198.8	21.9 *
Reading	23.5	12.2	–11.3 ***
Other non-home leisure/culture	45.0	34.8	–10.2 *
10–11 years: School day			
Television	85.9	101.4	15.5 **
Organised activities including sport	32.4	21.1	–11.3 **
Physical activity excluding organised sport	38.1	47.4	9.3 *

Notes: *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Waves 1 & 4

Table 4.13: Region differences and free-time activities, by age and type of day

	Metropolitan (minutes/day)	Regional (minutes/day)	Difference
4–5 years: Non-school/care day			
Physical activity excluding organised sport	71.1	82.2	11.1 *
4–5 years: School/care day			
Reading	23.3	16.7	–6.6 ***
10–11 years: Non-school day			
Television	192.3	174.4	–17.9 *
Homework including computer use	11.1	5.0	–6.1 **
10–11 years: School day			
Reading	17.0	12.8	–4.2 *
Homework including computer use	27.0	19.9	–7.0 **
Chores	24.7	30.9	6.2 **

Notes: *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Waves 1 & 4

Free-time activities and children's social and emotional wellbeing

Differences in engagement in a range of free-time activities between children with relatively high SDQ difficulty and prosocial scores and those with lower scores were examined with and without adjustments for child gender, family socio-economic position, and region of residence. Significant results are reported in Table 4.14 (SDQ difficulty scores) and Table 4.15 (SDQ prosocial scores; on page 63).

On non-school/care days, children aged 4–5 years with relatively high SDQ difficulty scores spent more time watching television (31 minutes), less time in arts, puzzles, etc. and more time upset or needing to be comforted than children who had relatively lower SDQ difficulty scores (see Table 4.14). In addition, they spent more time doing nothing, but this was not significant after adjusting for child gender, family socio-economic position, and region of residence. On school/care days, children 4–5 years with relatively high SDQ difficulty scores averaged more time watching television (25 minutes), and less time reading than children who had relatively lower SDQ difficulty scores. However, the latter result was not significant after controlling for child gender, family socio-economic position and region of residence.

Children aged 10–11 years with relatively high SDQ difficulty scores spent less time in organised activities, including sport, on non-school days, and more time using computers at home on school days than children who had relatively lower SDQ difficulty scores. The latter result was not statistically significant after controlling for child gender, family socio-economic position and region of residence.

Table 4.14: SDQ difficulty scores and free-time activities, by age and type of day

	Low/medium SDQ difficulty scores (minutes/day)	High SDQ difficulty scores (minutes/day)	Difference	Adjusted Difference ^a
4–5 years: Non-school/care day				
Television	138.9	169.7	30.7 ***	24.9 **
Other leisure (arts, puzzles, etc.)	112.4	93.2	–19.3 ***	–16.8 **
Doing nothing	2.9	4.6	1.7 *	1.5
Upset/being comforted	13.7	22.0	8.3 ***	7.0 **
4–5 years: School/care day				
Television	93.7	118.7	25.0 **	22.8 **
Reading	22.2	17.9	–4.4 *	–3.9
10–11 years: Non-school day				
Organised activities including sport	29.7	19.9	–9.7 *	–9.8 *
10–11 years: School day				
Computer use including games	25.0	35.3	10.3 *	7.5

Notes: ^a Difference adjusted for child gender, family socio-economic position, and region of residence. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Waves 1 & 4

Table 4.15 (on page 63) shows significant findings comparing children's free-time activities and SDQ prosocial scores. On school/care days, children aged 4–5 years with relatively high SDQ prosocial scores averaged less time using computers (outside school), and less time doing nothing, compared with children with relatively lower SDQ prosocial scores. On non-school days, children 10–11 years with relatively high SDQ prosocial scores spent less time in physical activity, and less time doing homework and more time doing chores. However, the result for physical activity was no longer significant after controlling for child gender, family socio-economic position and region of residence. Differences on school days for children 10–11 years (in computer use and chores) were not significant after controlling for other factors.

Free-time activities and children's temperament

Differences in engagement in a range of free-time activities between children with relatively high reactive and persistent temperaments and those with lower reactive and persistent temperaments were examined with and without adjusting for child gender, family socio-economic position and region of residence. Significant results are reported in Table 4.16 (reactivity; on page 63) and Table 4.17 (persistence; on page 64).

Table 4.15: SDQ prosocial scores and free-time activities: minutes per day, by age and type of day

	Low/ medium SDQ prosocial scores (minutes/day)	High SDQ prosocial scores (minutes/day)	Difference	Adjusted Difference ^a
4–5 years: School/care day				
Computer use including games	8.7	4.2	–4.6 ***	–4.1 **
Doing nothing	1.6	0.6	–1.0 **	–1.0 **
10–11 years: Non-school day				
Physical activity excluding organised sport	111.5	97.1	–14.4 *	–10.9
Homework including computer use	10.6	5.7	–4.9 **	–5.6 **
Chores	43.1	52.2	9.1 *	8.2 *
10–11 years: School day				
Computer use including games	29.3	23.7	–5.6 *	–1.6
Chores	25.0	30.2	5.3 *	4.5

Notes: ^a Difference adjusted for child gender, family socio-economic position and region of residence. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Waves 1 & 4

Table 4.16: Reactive temperament and free-time activities, by age and type of day

	Low/medium reactivity scores (minutes/day)	High reactivity scores (minutes/day)	Difference	Adjusted difference ^a
4–5 years: Non-school/care day				
Television	140.0	163.3	23.3 **	20.0 *
Reading	32.6	25.1	–7.5 **	–7.7 **
Doing nothing	2.5	5.9	3.4 **	3.4 **
Upset/being comforted	13.9	19.5	5.6 **	5.6 **
Informal lessons	12.5	9.0	–3.5 *	–3.6 **
4–5 years: School/care day				
Television	96.6	110.9	14.3 *	13.3
Computer use including games	6.3	13.2	6.9 **	6.6 **
10–11 years: School day				
Organised activities including sport	30.7	23.0	–7.6 *	–7.9 *
Physical activity excluding organised sport	38.4	46.6	8.2 *	7.8
Doing nothing	4.0	6.2	2.2 *	0.7

Notes: ^a Difference adjusted for child gender, family socio-economic position, and region. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort Waves 1 & 4

On non-school days, children aged 4–5 years with a high reactive temperament spent more time watching television and less time reading than children with a lower reactive temperament. In addition, children 4–5 years with a high reactive temperament spent more time doing nothing, more time being upset or needing comfort, and less time in informal lessons being taught things like reading and chores.

Children aged 4–5 years with a high reactive temperament spent more time watching TV on school/care days (14 minutes; $p < .05$) compared with children with a lower reactive temperament. However, this was not statistically significant after controlling for child gender, family socio-economic position and region of residence. Children 4–5 years with a high reactive temperament also spent more time using computers at home on school/care days.

Table 4.17: Persistent temperament and free-time activities, by age and type of day

	Low/medium persistence scores (minutes/day)	High persistence scores (minutes/day)	Difference	Adjusted difference ^a
4–5 years: Non-school/care day				
Television	149.7	129.1	–20.5 ***	–18.9 **
4–5 years: School/care day				
Television	103.1	87.8	–15.3 *	–12.8 *
10–11 years: Non-school day				
Television	188.6	167.6	–21.0	–27.7 **
Chores	43.6	58.4	14.9 *	11.8 *
10–11 years: School day				
Physical activity excluding organised sport	41.8	33.4	–8.4 *	–6.3
Homework including computer use	22.2	34.3	12.2 ***	9.4 **

Notes: ^a Difference adjusted for child gender, family socio-economic position, and region. *** $p < .001$; ** $p < .01$; * $p < .05$.
Source: LSAC K cohort Waves 1 & 4

A relatively high reactive temperament was not significantly associated with a range of children's free-time activities on non-school days when 10–11 years (not shown in Table 4.17). However, on school days, children 10–11 years with a relatively high reactive temperament spent less time in organised activities (8 minutes). In addition, children with a relatively high reactive temperament spent more time in physical activity (excluding organised sport), and more time doing nothing than children with a relatively lower reactive temperament. Neither of these results were significant after controlling for child gender, family socio-economic position, and region of residence.

Analysis of children's free-time activities and persistent temperament revealed a number of significant associations (significant results are shown in Table 4.17). Children aged 4–5 years with a relatively high persistent temperament spent less time watching TV on non-school/care days and school/care days compared to those with a relatively low persistent temperament. On non-school days, children 10–11 years with relatively high persistent temperament spent less time watching TV. This was marginally significant when not controlling for other factors ($p < .07$), but was more significant when controlling for child gender, family socio-economic position and region of residence. Compared with children 10–11 years with relatively low persistent temperament, children 10–11 years with relatively high persistent temperament spent more time doing chores on non-school days and more time doing homework on school days. In addition, children with relatively high persistent temperament spent less time in physical activity (excluding organised sport) than children with relatively low persistent temperament, but this was not statistically significant after controlling for child gender, family socio-economic position and region of residence.

Co-presence: Time with parents, other adults, and no adults

This third and final section of results focuses on the social aspect of children's time use or who children are with (co-presence). Table 4.18 (on page 65) reports the average time children aged 4–5 years and 10–11 years spent with parents, with other adults and unsupervised by adults on school and non-school days. Data are reported in hours rather than minutes in this section due to the very large amount of time in total spent with parents and in school (on school days). Not surprisingly, children 4–5 years spent a substantial period of their time awake with their parents. On school/care days they spent 7 hours with their parents, and 5.6 hours with other adults (most of which was while in school/care). On average, a very small fraction of children's time awake was spent unsupervised by an adult (around 10 minutes) when 4–5 years. On non-school days, the vast majority of time was spent with parents.

Table 4.18: Time spent with parents, with other adults, not with adults, or unspecified

	4–5 years		10–11 years	
	School/care day (hours/day)	Non-school/care day (hours/day)	School/care day (hours/day)	Non-school/care day (hours/day)
With parents	7.1	11.7	6.1	11.1
With other adults (no parents)	5.6	0.6	6.9	1.2
Not with adults	0.2	0.3	0.8	1.1

Source: LSAC K cohort, Waves 1 & 4

Patterns are very similar for children 10–11 years. Commensurate with spending more time in school, children 10–11 years spent more time with other adults on school days (7 hours) and less time with parents (6 hours). In addition, on a school day, children 10–11 years spent just under one hour unsupervised by adults (49 minutes). As with children aged 4–5 years, children 10–11 years spent the vast majority of non-school days with their parents (11 hours). In addition, they spent around one hour with other adults, and one hour unsupervised by any adults.

Co-presence and child gender, socio-economic position and region of residence

There was no significant difference between girls and boys aged 4–5 years and 10–11 years in the average time they spent with parents, with other adults, or unsupervised by adults. Region of residence had no significant association with this aspect of children's time use when 4–5 years, but children 10–11 years living in regional areas averaged significantly less time with other adults on school days (16 minutes; $p < .05$). Time in school did not differ significantly between metropolitan and regional areas, so this result may be associated with differences in the use of non-parental care, such as before- or after-school care, which tends to be lower in regional areas compared with metropolitan areas (Australian Bureau of Statistics, 2008). Finally, children 10–11 years in low-SEP families spent significantly less time with other adults on school days (20 minutes; $p < .01$) than children in medium/high-SEP families. As discussed earlier, children in low-SEP families spent less time in organised activities, and less time in school, which affected the time they spent with adults other than their parents.

Co-presence, children's social and emotional wellbeing, and temperament

There were few significant associations between the time children spent with parents, other adults or no adult supervision, and aspects of their social and emotional wellbeing and temperament. We focus on these significant findings in this section, beginning with SDQ difficulty scores reported in Table 4.19 (on page 66). Children aged 4–5 years with relatively high SDQ difficulty scores spent significantly more time with their parents (21 minutes) and less time not supervised by an adult (8 minutes) than those with medium/high SDQ difficulty scores on non-school/care days. This is consistent with the earlier finding that relatively high SDQ difficulty scores were associated with significantly more time spent being upset or being comforted by parents (see Table 4.14 on page 62). In the context of the entire time that children 4–5 years spent with their parents on non-school/care days, the difference is not huge, but it nonetheless points to potential links between social and emotional problems and aspects of children's time use.

Significant results relating to prosocial behaviour are reported in Table 4.20 (on page 66). On school days, children 10–11 years with relatively high SDQ prosocial scores spent significantly more time with other adults (13 minutes) than children with relatively lower SDQ prosocial scores. However, this was not statistically significant after controlling for child gender, family socio-economic position and region of residence.

Also on school days, children 10–11 years with a relatively high persistent temperament spent significantly less time with no adult supervision (13 minutes) than children with a relatively low persistent temperament (see Table 4.21 on page 66).

Table 4.19: Co-presence of adults and SDQ difficulty scores

	Low/medium SDQ difficulty scores (hours/day)	High SDQ difficulty scores (hours/day)	Difference	Adjusted difference ^a
4–5 years: Non-school/care day				
With parents	11.7	12.0	0.3 **	0.3 *
No adult supervision	0.4	0.2	–0.1 *	–0.1 *

Notes: ^a Difference adjusted for child gender, family socio-economic position, and location. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Wave 1

Table 4.20: Co-presence of adults and SDQ prosocial scores, by age and type of day

	Low/medium SDQ prosocial scores (hours/day)	High SDQ prosocial scores (hours/day)	Difference	Adjusted difference ^a
10–11 years: School day				
With other adults (no parents)	6.8	7.0	0.2 *	0.2

Notes: ^a Difference adjusted for child gender, family socio-economic position, and region of residence. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Wave 4

Table 4.21: Co-presence of adults and persistent temperament scores, by age and type of day

	Low/medium persistence scores (hours/day)	High persistence scores (hours/day)	Difference	Adjusted difference ^a
10–11 years: School day				
No adult supervision	0.8	0.7	–0.2 **	–0.2 *

Notes: ^a Difference adjusted for child gender, family socio-economic position, and region of residence. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Wave 4

4.5 Summary and discussion

The way in which children spend their time is often a window through which we assess their wellbeing (Ripke et al., 2008). Most obviously, the time children spend in education-related activities like homework and reading (not to mention school) tends to have a positive bearing on their outcomes in life. More negatively, excessive time spent watching TV or hanging about doing nothing is less likely to engender positive outcomes for children. It is important not to overstate these links as child development is a complex process, but previous research has consistently established significant connections between child time use and cognitive, health and social and emotional wellbeing outcomes.

This chapter has sought to delve deeper into associations between children's time use and outcomes relating to children's social and emotional wellbeing. Research, highlighted in the introduction, has established a number of associations between children's time use and their social and emotional wellbeing, but little is understood about these possible connections in Australia. This is particularly timely as governments at all levels are committed to monitoring children's social and emotional wellbeing as part of a broader push to ensure that all children grow up in safe and supportive environments. In addition, this chapter extends previous research in considering associations between children's time use and aspects of their temperament. This final section contains a summary of results, highlights some of the limitations, and sketches out some avenues for possible future work.

Children's time use and gender, socio-economic position, and region of residence

Gender

Girls averaged less free time than boys, the nature of their free-time activities differed greatly, and gender differences were greater when children were 10–11 years compared with 4–5 years. They spent less time using computers (including video games) than boys at both age 4–5 years and 10–11 years. At both points in time, girls spent more time reading and doing organised activities. When 10–11 years, they spent more time than boys doing homework on school days and doing chores on both school and non-school days. The average time spent engaging in physical activity was very similar between boys and girls, with the exception of non-school days when children were 10–11 years. There were no gender differences in the time girls and boys spent with parents, with other adults or unsupervised by adults. There may have been gender differences in the time spent with mothers compared with fathers, but this was not considered in this chapter and future research could elaborate on this.

Socio-economic position

Children in low-SEP families spent significantly more time watching TV when aged 4–5 years and 10–11 years than families with a higher SEP, and this difference was apparent on school days and non-school days. When they were younger (4–5 years), children in low-SEP families spent less time in more creative play, such as arts, puzzles and the like (on non-school/care days), and less time reading (on school/care days). Children 4–5 years in low-SEP households were less active on non-school/care days than children in more advantaged families, but, at age 10–11 years, there was no difference on non-school days and a significant reversal of this association on school days. At both ages, children in low-SEP families averaged less time in organised activities on school days than children in medium/high-SEP families. In addition, children in low-SEP families averaged significantly less time in school at age 10–11 years. It is possible that this is related to the result for organised activities, which may have occurred at school, and further work could explore this.

The results for gender and socio-economic position largely echo results found elsewhere. It is notable that gender differences became more pronounced as children grew older (see also Huston et al., 1999), and that differences associated with socio-economic position were apparent from an early age and persisted thereafter. Given the wide disparity in educational outcomes associated with socio-economic status, these results highlight the importance of time as a resource that can help to foster successful outcomes for children early in their lives, and in supporting families in their efforts to achieve this.

Region of residence

This chapter also considered differences associated with location. Children aged 4–5 years in regional areas were more physically active on non-school days, and they read less on school/care days than children 4–5 years in metropolitan areas. Children 10–11 years in regional areas watched less TV on non-school days than their counterparts in metropolitan areas, though there was no longer a significant difference in physical activity associated with location. Children 10–11 years in regional areas spent less time doing homework than children in metropolitan areas on both non-school days and school days, and less time reading on school days. Lastly, children 10–11 years in regional areas spent more time in chores on school days than their counterparts in metropolitan areas. These results highlight some positive aspects of children's time use in regional areas, and show that there were clear differences in education-related activities such as homework and reading. These differences may help to explain the regional differences in children's cognitive outcomes reported by Edwards and Baxter (2013), which used data from the LSAC study.

Time use and children's social and emotional wellbeing, and temperament

Children 4–5 years on school/care days and non-school/care days

Children with relatively high SDQ difficulty scores spent more time watching television, and less time doing organised activities. This finding is noteworthy as relatively higher levels of difficult

behaviour and television viewing were found to be concentrated among children in low-SEP families. Conversely, children with relatively high SDQ prosocial scores watched less television and spent less time doing nothing, although time “doing nothing” was minimal. In addition, children with a relatively high persistent temperament spent less time watching television. Again, this is noteworthy as children in low-SEP families were less likely to exhibit relatively high levels of persistent temperament, combined with higher average time watching television. Lastly, children with a relatively high reactive temperament spent more time using computers. At this age, however, this was a relatively minor activity in children’s daily lives.

The findings for television viewing also held for non-school/care days; in addition, children with relatively high reactive temperament watched more television on non-school days. Children with relatively high SDQ difficulty scores spent less time in arts activities, puzzles and games, whereas children with relatively high reactive temperament spent less time reading, less time in informal lessons like learning to read or doing chores, and more time doing nothing. Children with relatively high SDQ difficulty scores and those with relatively high reactive temperament spent more time being upset and needing comfort. In addition, SDQ difficulty scores were positively associated with spending time with parents, and negatively associated with time spent without adult supervision.

Children 10–11 years on school days and non-school days

Children 10–11 years with a relatively high persistent temperament averaged less time viewing television and more time doing chores on non-school days. On school days this aspect of temperament was positively associated with doing homework and spending less time with no adult supervision. Children spent less time in organised activities on school days if they had relatively high difficult behaviour or a relatively high reactive temperament. Lastly, children with relatively high prosocial behaviour spent more time in homework and chores on school days.

Complexity of wellbeing and temperament findings

The findings outlined in the preceding paragraphs relating to social and emotional wellbeing are broadly similar to previous research (see Introduction). In particular, the association between social and emotional problems and children’s engagement in television viewing and organised activities (including sport) echoes previous findings. However, in this chapter, more positive aspects of children’s social and emotional wellbeing were also considered and these were not simply the reverse of the pattern for difficult behaviour. Positive associations between prosocial behaviour and time in homework and chores for older children were particularly noteworthy in this regard in that these activities were not significantly associated with more difficult behaviours.

The results for child temperament represent interesting new findings. Sometimes the results complement the findings for social and emotional wellbeing (television is a clear example of this), but in other cases, the results show only that temperament is associated with some activities (e.g., reading and informal lessons for children aged 4–5 years), but not others. Moreover, on non-school days for children 10–11 years, only persistent temperament was significantly associated with children’s time use.

The combination of positive and negative aspects of both social and emotional wellbeing and temperament yielded a rich descriptive picture of the associations between these indicators and children’s time use. For example, we have seen that on one hand, difficult behaviours were associated with the amount of television viewing, while on the other, persistence was associated with less television viewing. Also, these results highlight that associations are not fixed over time, or even across different day types. Computer use, for example, was associated with social and emotional wellbeing and temperament only on school days when children were 4–5 years old. Though this chapter skims the surface, it is clear that these relationships are complex.

Limitations and future work

This chapter has provided a descriptive overview of key connections between children’s time use and aspects of their social and emotional wellbeing and temperament. The data provide a rich source of information about children’s activities, but there is limited information about the extent of interactions between children and their parents. These interactions are important for children’s social and emotional wellbeing and so this is an important limitation of this chapter.

Unfortunately, however, the data provide no avenues to surmount this limitation. The number of factors that we considered in this chapter is limited, and there are certainly other socio-demographic factors that could be examined. Moreover, there is much scope for analysing potential mediating and moderating processes encompassing child and other characteristics, temperament, social and emotional wellbeing and time use. For example, future research could explore whether temperament mediates and/or moderates links between gender and time use and possibly yield crucial insights into the early development of gendered patterns of time use.

Another limitation, and point of departure for future work, relates to longitudinal analysis. This chapter presented data from children at two points in time, including the period of middle childhood. However, it was beyond the scope of this chapter to explicitly consider differences across time in children's time use and aspects of their social and emotional wellbeing and temperament. A potentially fruitful avenue for future research could consider links between changes in children's time use concurrently with changes in their social and emotional wellbeing and temperament, and begin to explore more causal explanations for the associations that have been uncovered in this chapter.

4.6 References

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Children's academic engagement and enjoyment in primary school

5

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5.1 Introduction

Academic engagement refers to a child's active involvement, commitment and attention to learning (Birch & Ladd, 1998; Fredricks, Blumenfeld, & Paris, 2004; Newmann, Wehlage, & Lamborn, 1992). It is an important aspect of children's development, and has been found to be strongly associated with children's learning outcomes (Skinner, Zimmer-Gembeck, & Connell, 1998). Academic engagement has also been shown to be closely associated with school completion (Connell, Spencer, & Aber, 1994) and with children's positive perceptions about their academic abilities (Skinner et al, 1998).

Academic engagement is a related, but distinct, concept to that of motivation. Motivation refers to the spontaneous learning behaviours of children—whether they spring from an internalised sense of the intrinsic value of learning or from the rewards associated with it (Usher & Kober, 2012). Engagement can be thought of as the product of a child's motivation to learn. Put simply, motivated children are engaged in their learning, and children who are engaged in their learning are more likely to have higher levels of achievement as a result (Banks, McQuater, & Hubbard, 1978; DeCharms, 1984; Dweck, 1986).

Children's attitudes to learning are another important determinant of their learning outcomes. Much of research in this area focuses on children's enjoyment of and achievement in specific domains of learning, such as maths and reading (Lipnevich, MacCann, Krumm, Burrus, & Roberts, 2011; Nicolaidou & Philippou, 2003; Petscher, 2010; Sanchez, Zimmerman, & Ye, 2004). These studies suggest that children perform at a higher level in those learning domains that they feel positive about—those learning domains that they enjoy.

Within the literature on attitudes to learning there are a number of papers that look at gender differences in attitudes to maths and reading (Cvencek, Meltzoff, & Greenwald, 2011; Denissen, Zarrett, & Eccles, 2007; Fredricks & Eccles, 2002; Mata, Monteiro & Peixoto, 2012; Petscher, 2010). Many of these studies have found that boys' and girls' attitudes to maths and reading follow gender stereotypes, with boys more likely to hold positive attitudes towards maths than girls and girls more likely to enjoy reading than boys (Eshun, 2004; Asante, 2012; Sanchez, Zimmerman, & Ye, 2004). Other studies found no gender differences in attitudes to maths and reading (Kogce, Yildiz, Aydin, & Altindag, 2009; Mohamed & Waheed, 2011; Nicolaidou & Philippou, 2003; Ma & Kishor, 1997; Georgiou, Stravrinides, & Kalavana, 2007). Interestingly, work by Herbert and Stipek (2005) suggests that these attitudes emerge prior to any observed differences in mathematics achievement between girls and boys.

Despite a vast literature that documents the gaps in achievement between children from high and low socio-economic backgrounds, there is little consensus as to what generates these gaps (Sacerdote, 2002). While much of this research has focused on the role of differential access to high quality schooling (Lim, Gemeci, & Karmel, 2013), other research considers how differences in parenting styles used to foster engagement contribute to these achievement gaps. This research points to the emphasis parents of lower socio-economic status tend to place on extrinsic motivation, the promise of reward or the fear of sanction, rather than fostering intrinsic motivation in their children's engagement in learning (Deci & Ryan, 1985; Dornbusch, Elworth & Ritter, 1988; Ginsberg & Bronstein, 1993; Grolnick & Ryan, 1989; Leung & Kwan, 1998).

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Differences in academic engagement across socio-economic groups may also contribute to the intergenerational transmission of education and labour market outcomes. While considerable research effort has been put into investigating the intergenerational transmission of educational attainment (Black, Devereux, & Salvanes, 2005; Chevalier 2004; Oreopoulos, Page, & Stevens, 2006) and occupation (Hellerstein & Morrill, 2011; Ermish & Francesconi, 2002; Carmichael, 2000), there is less research that considers the reasons behind this transmission (Black & Devereux, 2010; Bjorklund & Jantti, 2009). Of those studies that address the specific mechanisms through which educational outcomes are transferred from one generation to the next, some focus on the genetic transmission of ability (Bowles and Gintis, 2002). Other studies consider the role of parental preferences for education and aspirations for their children's education as well as the transfer of personality traits and other non-cognitive skills (Mayer, Duncan, & Kalil, 2004; Mood, Jonsson, & Bihagen, 2012; Osborne Groves, 2005; Blanden, Gregg, & Macmillan, 2007). While it is too early to use *Growing Up in Australia: The Longitudinal Study of Australian Children* (LSAC) to investigate the intergenerational transmission of educational attainment, the data are rich enough to explore the extent to which the specific parental characteristics of parental education and parental occupation are associated with academic engagement and attitudes to learning—attributes that have been found to be closely related to learning outcomes.

Although the evidence suggests that children's academic engagement and their attitudes to learning are central to their achievement, these aspects have largely been ignored in the public policy debate on how best to increase student achievement. In Australia, much of this discourse has focused on class size (Gagne & Lenard, 2012; Jensen, 2010), teacher quality (Jensen, 2010; Leigh, 2010), school-funding formulas (Gonski et al., 2011) and performance pay for teachers (Milburn, 2008). While these aspects of Australia's school systems undoubtedly have a role to play in enhancing student outcomes, they are more likely to be effective when students are engaged in their learning. To the extent that children from low socio-economic backgrounds may come to school with lower levels of engagement, understanding how parents and schools can help foster academic engagement is important—not only for the effectiveness of education policy but also for the equity of Australia's education system.

The gendered nature of children's attitudes is also an issue of some policy importance. To the extent that enjoyment and achievement in those school subjects that use children's abilities in maths and reading might influence their choice to study these at higher levels of secondary school, negative attitudes will also shape subsequent decisions regarding fields of study and occupations. These will, in turn, have a bearing on earnings and occupational status later in life (Reynolds, 1991). Insofar as these attitudes differ according to gender, these attitudes may, at least in part, explain some of the gender pay-gap (Machin & Puhani, 2004; Livanos & Pouliakas, 2009; Basit, 2009).

This chapter examines how Australian children's engagement in learning activities and their enjoyment of maths and reading evolve throughout primary school between the ages of 6–7 and 10–11, before examining whether engagement in learning and enjoyment of maths and reading vary with children's socio-economic backgrounds at age 10–11. This chapter also looks at the extent to which boys' and girls' enjoyment of maths and number work, and of reading and writing, may differ over the course of their primary school years. It concludes by assessing the implications of children's academic engagement and their enjoyment of maths and reading for their learning outcomes in Year 5.

The specific research questions posed in this chapter are:

- Does children's academic engagement change over the course of their primary school years?
- Does children's enjoyment of maths, and reading and writing, change over the course of their primary school years?
- Do boys and girls have different levels of engagement in learning, and enjoyment of maths and reading, over the course of their primary school years?
- Are children from lower socio-economic backgrounds (those whose parents have lower levels of education and those employed in lower skilled occupations) less engaged in learning than those from higher socio-economic backgrounds, at the age of 10–11 years?
- Is there an association between academic engagement and enjoyment of learning and academic achievement in numeracy and reading among children aged 10–11 years?

This chapter uses Waves 2 to 4 of the K cohort of LSAC data collected between 2006 and 2010. At the time of the fourth wave, K cohort children were aged 10–11 and were coming to the end of their primary school years—most were in Year 5. The fourth wave of LSAC is particularly relevant as this release includes data on national standardised tests of literacy and numeracy that the K cohort had undertaken when they were in Year 5.

The next section describes in detail the measures of engagement, enjoyment and academic achievement used throughout the chapter. Section 5.3 explores the evolution of children's academic engagement and enjoyment of learning over the course of primary school before examining differences in gender. Section 5.4 explores the association between parental socio-economic status and children's engagement. Section 5.5 assesses the strength of the association between engagement and enjoyment at the age of 10–11 on learning outcomes in Year 5 before section 5.6 concludes with some discussion.

5.2 Data and measurement

This section describes the measures of academic engagement and enjoyment used in this chapter. It also provides an overview of the National Assessment Program—Literacy and Numeracy (NAPLAN) results linked to LSAC. NAPLAN is one of a number of measures of learning achievement included in the LSAC study. Much of this chapter, specifically sections 5.4 and 5.5, focus on the 4,169 K cohort children who responded in the fourth wave of LSAC. The exception is the longitudinal analysis contained in section 5.3. This section uses the 3,940 children who responded in Waves 2, 3 and 4 and describes in greater detail the specific sample sizes used in the analysis that will follow.

Approaches to Learning scale

The Approaches to Learning scale is one of the five subscales of the Social Skills Rating System designed by Gresham and Elliott (1990). Although the Social Skills Rating System was designed to collect data from both parents and teachers, in LSAC, the Approaches to Learning scale is administered only to the study child's teacher where Parent 1 has provided consent for the child's school to be contacted. The Approaches to Learning scale includes six items that rate a child's attentiveness, task persistence, eagerness to learn, learning independence, flexibility, and organisation—factors that reflect children's behavioural engagement within the classroom.

The items included in the Approaches to Learning scale are reported on a four-point scale: never = 1, sometimes = 2, often = 3 and very often = 4. Teachers are also able to indicate that the child has had “No opportunity” to exhibit each of the behaviours associated with an item (coded as –1). Very few teachers indicated that their students had not had an opportunity to display a particular behaviour and these students are not included in the analysis of this scale that follows.² The measure used in this chapter is the average of all items where teachers provided a response of never, sometimes, often or very often for all items. In the absence of any generally accepted way of grouping the Approaches to Learning scores, any comparison of children with different levels of engagement will be conducted by comparing children in the bottom, middle and top third (tercile) of Approaches to Learning scores for K cohort children who responded in the fourth wave of LSAC. Children with scores in the top tercile of the Approaches to Learning scale are those with higher levels of academic engagement relative to those in the bottom and middle terciles.

At Wave 4 over 99% of responding parents whose children were in school provided consent ($n = 4,025$) with just 21 parents refusing.³ The teacher response rate for Wave 4 was quite high at 83% ($n = 3,352$). After excluding children whose teachers provided “no opportunity” responses, this leaves 3,315 valid Approaches to Learning scale scores at Wave 4.

Enjoyment of reading, writing and mathematics

Commencing in the second wave, LSAC children were asked the question: “Do you like maths and number work at school?” In the third and fourth waves, when most K cohort children were in Years 3 and 5, children were also asked, “Do you like reading and writing activities at school?”

² The frequency of these –1 codes for each item range from 6 to 17 teacher reports.

³ When interviewed for Wave 4, 118 children were not in school.

Children could respond to these questions by selecting “yes”, “sometimes” or “no”. In the second wave children were asked, “Do you like reading?” and “Do you like writing?” separately. Taken together these items reflect children’s overall enjoyment of two separate domains of learning measured at three different time periods during children’s primary school years. Of the 3,940 children who participated in Waves 2, 3 and 4 of LSAC, at Wave 2, 3,887 provided a valid response to the question regarding enjoyment of reading and 3,888 to the questions regarding writing and mathematics. At Waves 3 and 4, 3,885 and 3,841 answered both of the attitudinal questions.

Socio-economic status: Parental education and occupation

The classification of educational attainment used in this chapter includes those with a bachelor’s degree and those with a higher postgraduate qualification in the highest category of parental education, “bachelor”. These qualifications are followed by those with a vocational qualification at the level of diploma or advanced diploma, labelled “diploma”. Parents with a certificate level qualification are placed in the category “certificate”, thereby differentiating these parents from those with higher diploma level vocational qualifications. Those who have not attained a post-school qualification are grouped into those who have a Year 12 qualification, “Year 12”, and those who had not completed Year 12, “Year 11 or lower”. In classifying parental education, it is the higher of the child’s resident parents’ education that is used. Where a child is primarily resident with only one parent, it is that parent’s level of education that is taken as the child’s level of parental education.

Table 5.1 shows the levels of parental educational attainment at Wave 4.

Table 5.1: Parental educational attainment at Wave 4		
	%	<i>n</i>
Bachelor	34.8	1,761
Diploma	10.9	468
Certificate	37.6	1,393
Year 12	5.1	211
Year 11 or lower	8.2	228
Not stated	3.4	108
Total	100.0	4,169

Notes: Percentages may not total exactly 100.0% due to rounding. The column labelled % refers to weighted percentages while the column labelled *n* refers to the (unweighted) sample sizes for each cell.

Source: LSAC K cohort, Wave 4

This chapter includes the measure of children’s socio-economic status based on parent’s occupation proposed by Jones (2003) in his work on measuring the socio-economic status of Australian school students.⁴ In interpreting this measure of socio-economic status, it helps to have a sense of what occupations are present within each group. Some examples of occupations within each group are listed below:

- *Group 1: Senior managers and qualified professionals*—Commissioned military officers, chemists, legislators and government-appointed officials, secondary school teachers, economists, specialist medical practitioners and accountants.
- *Group 2: Other business managers and associate professionals*—Senior non-commissioned defence force officers, sales and marketing managers, police officers, livestock farmers, real estate associate professionals and travel attendants.

⁴ This measure classifies occupations into groups that are similar to those used by the Australian Curriculum Assessment and Reporting Authority (ACARA). The children’s schools collect information about the occupation of both parents at the time of their enrolment, and parents are given some guidance on how to select their occupational grouping. The NAPLAN data included with LSAC, described later, do not contain the ACARA measure of socio-economic status. LSAC does however include information on parents’ current occupation using the Australian Bureau of Statistics’ second edition of the Australian Standard Classification of Occupations (ASCO) for those parents living with the child at each wave. It should be noted that the category “Not in paid work” refers to the children of parents for whom neither was in paid work at the time of the fourth wave rather than when the child was enrolled in the school that they were attending at that wave.

- *Group 3: Tradespeople; clerks; and skilled office, sales and service staff*—Hairdressers, bricklayers, children's care workers, motor mechanics and plumbers.
- *Group 4: Machine operators, hospitality staff, assistants and labourers*—Forklift drivers, waiters, sales assistants, receptionists, fast-food cooks and bus and tram drivers.

The percentage of parents in each of the occupational groups at Wave 4 is presented in Table 5.2.

	%	<i>n</i>
Group 1: Senior managers and qualified professionals	27.5	1,388
Group 2: Other business managers and associate professionals	23.2	1,023
Group 3: Tradespeople; clerks; and skilled office, sales and service staff	19.7	760
Group 4: Machine operators, hospitality staff, assistants and labourers	16.2	553
Not in paid work	10.0	286
Not stated	3.4	159
Total	100.0	4,169

Notes: Percentages may not total exactly 100.0% due to rounding. The column labelled % refers to weighted percentages while the column labelled *n* refers to the (unweighted) sample sizes for each cell. The five children for whom parental occupation is labelled "not present" are those children who participated in the fourth wave of LSAC whose parents chose not to provide an interview.

Source: LSAC K cohort, Wave 4

National Assessment Program—Literacy and Numeracy

The National Assessment Program—Literacy and Numeracy (NAPLAN) is one aspect of the Australian Government's National Assessment Program managed by the Australian Curriculum Assessment and Reporting Authority (ACARA). NAPLAN is an annual test administered to all Australian students in Years 3, 5, 7 and 9 in reading, writing, language conventions (spelling, grammar and punctuation) and numeracy.⁵ The state and territory governments administer the tests in accordance with nationally agreed protocols. The reporting scales for the tests are constructed so that a given score can be compared across school year-levels and over time.

Rather than presenting the average NAPLAN scores for different groups of K cohort children, this chapter presents average scores in addition to the average percentile ranking within the K cohort.⁶ A percentile is the value of a scale, below which, a certain percentage of children have scored. The advantage of a comparison of the percentile rankings of two children is that it conveys more meaningful information about their relative performance than would their scores alone. By way of example, a comparison of a child who attains a NAPLAN score that places them at the 90th percentile of their year level with a child who attains a NAPLAN score that places them at the 66th percentile, is more intuitive than a comparison of a child who attains a score of 600 with one who attains a score of 534. When comparing percentiles we immediately learn that the former are in the top 10% of their year level and the latter in the top third. A 66-point differential in NAPLAN scores is more meaningful if we understand that this is associated with a move from the top third of the class to the top 10% and that an increase of this magnitude represents an increase in achievement over 23% of their peers.

Table 5.3 (on page 76) presents the NAPLAN scores associated with selected percentiles within the K cohort for the Year 5 NAPLAN numeracy and reading scores.

⁵ It should be kept in mind that these are the NAPLAN scores of children included in the fourth wave of LSAC, which took place in 2010, and that not all of these children will have sat the NAPLAN test in 2010. LSAC is representative of the birth cohort of children born between March 1999 and February 2000 as distinct from a school entry cohort. While a significant majority of the K cohort would have taken the Year 5 NAPLAN tests in 2010, those who repeated a grade prior to Year 5, or whose entry to school was delayed until the year after they were first eligible, would not have taken the Year 5 test until 2011. Similarly some of the older K cohort children will have entered school in 2004 and, provided they had not repeated a grade, will have sat the Year 5 tests in 2009. For more details on the NAPLAN data contained in LSAC see the Technical Report prepared by Daraganova, Edwards, and Sipthorp (2013).

⁶ More specifically, the average percentiles presented in this chapter refer to the relative position of the children in the estimation sampled within all of those for whom NAPLAN data are available.

Table 5.3: Relationship between NAPLAN bands and the percentile ranking of the K cohort children's Year 5 NAPLAN scores

	Numeracy		Reading	
	Score	<i>n</i>	Score	<i>n</i>
Percentile				
5th	386.0	205	372.4	221
10th	409.7	191	402.9	179
25th	451.0	605	454.0	594
33rd	466.8	339	467.0	317
50th	495.4	628	500.5	651
66th	531.0	654	538.4	724
75th	551.0	328	553.1	270
90th	600.4	616	600.4	601
95th	625.0	159	628.9	165
99th	687.1	156	695.0	156
Top percentile	≥ 702.2	36	≥ 702.0	38
No score but consent obtained		310		311
No consent		204		204
Total		4,431		4,431

Notes: The columns labelled *n* refer to the sample sizes for each cell and are not weighted frequencies. There are 552 children from the original K cohort for whom there are no NAPLAN data. The percentiles presented in this table reflect the relative position of children among the 3,917 K cohort children for whom a valid NAPLAN score was obtained regardless of whether these children participated in Wave 4 of LSAC.

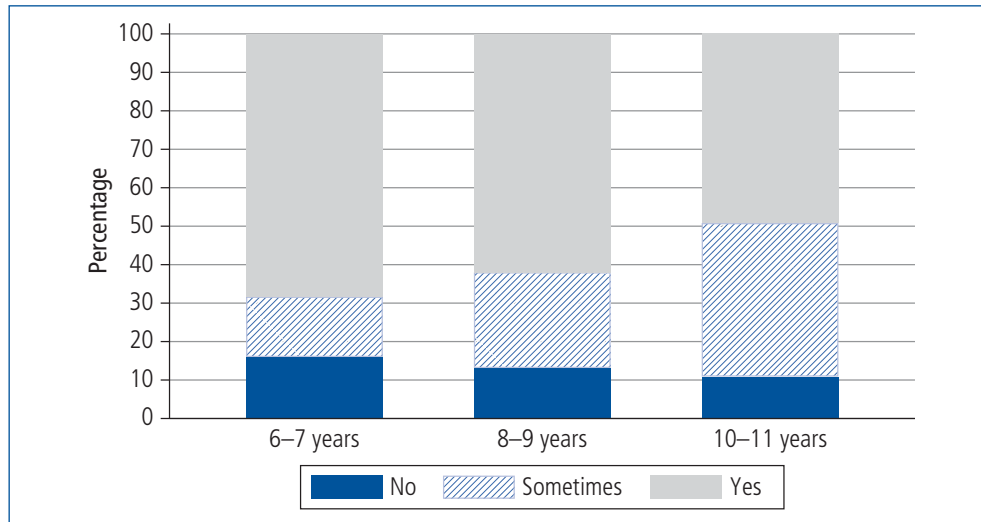
Source: LSAC K cohort, Wave 4

5.3 Academic engagement and enjoyment through primary school

This section provides an overview of the overall trend in children's enjoyment of maths and reading over the course of their primary school years. This section focuses on those children who responded in Waves 2, 3 and 4—commonly referred to as the “balanced panel”. A test for differences in proportions was undertaken, testing whether the proportion of “yes” within each of the age groups was equal to those in the other two age groups. The same test was then conducted for the proportion of children who responded “no”. Each of the *p* values for these hypothesis tests were less than .05. For the remainder of this chapter only those differences that are statistically significant at a 5% level of confidence will be reported.

The trend in academic engagement, as measured by children's average Approaches to Learning scores was first explored, and was found to change very little over time. Children's Approaches to Learning scores remain steady at an average of 3.2 to 3.3 among children in each age group.

As illustrated in Figure 5.1 (on page 77) the same is not true of enjoyment of the two learning domains considered in this chapter. Sixty-eight per cent of children stated that they enjoyed maths and number work when aged 6–7. By the age of 8–9 this had fallen 6 percentage points to 62%, before falling a further 13 percentage points to just under half at the age 10–11 (49%). There was also a modest decline in the percentage of children indicating that they did not enjoy maths and number work over the course of primary school. This fell from 16% of children aged 6–7 to 13% of children aged 8–9 and finally to 11% of children aged 10–11. The differences in the proportion of children responding “yes” and “no” were statistically significant at each age, as compared to the others, at a 5% level of significance.

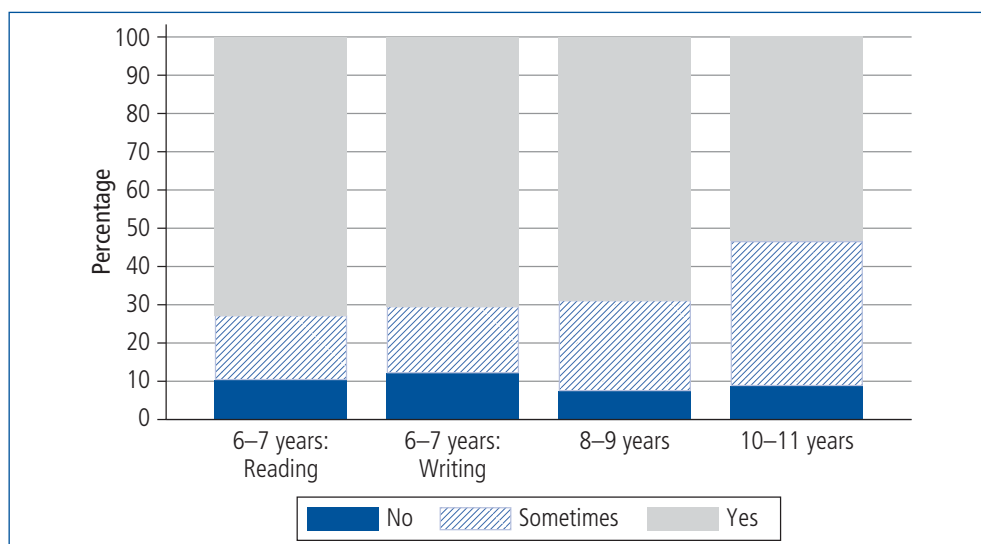


Note: $n = 3,782$

Source: LSAC K cohort, Waves 2 to 4

Figure 5.1: Enjoyment of maths and number work at ages 6-7, 8-9 and 10-11 years

The results for reading and writing contained in Figure 5.2 show a similar decline in enjoyment in this learning domain throughout primary school. Children's enjoyment of reading and writing is quite similar at the age of 6-7 years. Seventy-three per cent indicated that they enjoyed reading and 70% indicated they enjoyed writing. These percentages are also quite similar to the 69% observed at age 8-9 for reading *and* writing. There was a marked decline in children's enjoyment of reading and writing (those who indicated "yes") between the ages of 8-9 and 10-11 of 16 percentage points (to 53%). As in Figure 5.1, there was a modest decline in the percentage of children indicating that they did not enjoy reading and writing. At the age of 6-7, 10% of children stated that they did not enjoy reading and 12% that they did not enjoy writing. The percentage of children who indicated they did not enjoy reading and writing at the ages of 8-9 and 10-11 was lower at 7% and 9% respectively. As with enjoyment of maths and number work the differences in the proportion of children who responded "yes" were statistically significant in each age group.



Note: $n = 3,782$

Source: LSAC K cohort, Waves 2 to 4

Figure 5.2: Enjoyment of reading and writing activities at ages 6-7, 8-9 and 10-11

Figures 5.1 and 5.2 indicate an overall decline in children's enjoyment of these learning domains between the ages of 6-7 and 10-11. This largely reflects an increase in the number of children stating that they sometimes enjoyed these types of learning, and a decline in the number indicating that they

enjoyed these, rather than an increase in the number of children stating that they did not like these learning domains. These figures could more accurately be described as showing a possible decline in enjoyment rather than evidence of children's increasing dislike of maths and reading.

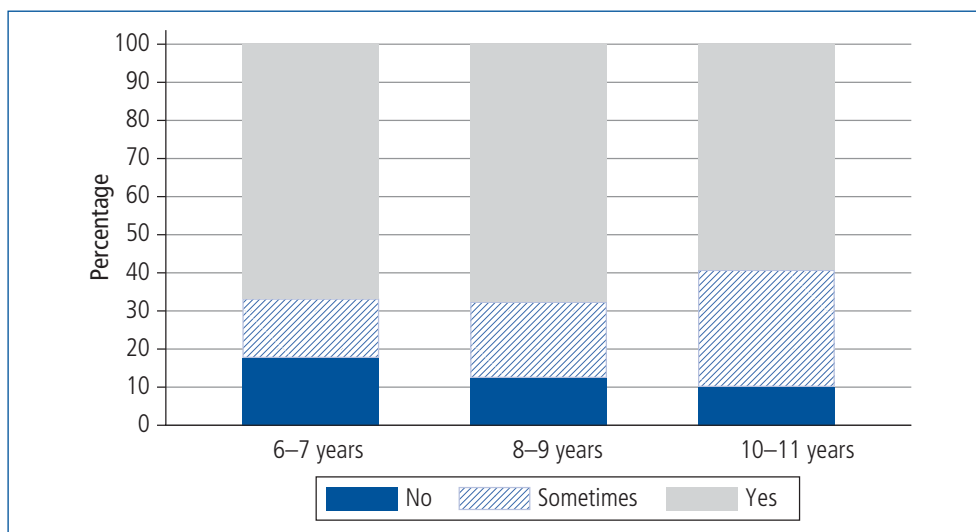
Looking deeper: Boys and girls engagement in reading, writing and mathematics

This sub-section examines whether there are differences in academic engagement and enjoyment of maths and number work, and reading and writing, between boys and girls at any point in primary school. A *t*-test of difference in sample means was conducted between boys and girls for each age group. All *p* values were less than 0.05. Girl's scores are higher, on average, at 3.4 to 3.5 compared to 3 to 3.1 for boys.

There is no change in the average Approaches to Learning scores over the course of primary school for either boys or girls, as was the case when scores for all children were compared over these years. There are, however, statistically significant differences between girls and boys within each age group—albeit differences small in magnitude.

Figure 5.3 presents a similar trend in boys' enjoyment of maths and number work as that shown in Figure 5.1 with boys' and girls' responses. The most striking feature of Figure 5.4 (on page 79) is the marked decline in the percentage of girls stating that they like maths and number work between the ages of 8–9 and 10–11. At 6–7 years girls were more likely to indicate that they enjoyed maths and number work compared to boys, with 70% of girls stating that they liked maths compared to 67% of boys. This began to change at the age 8–9, where the percentage of girls indicating that they like maths fell 14 percentage points to 56% while boys' responses remained steady at 68%. This decline in girls' enjoyment of maths continued at age 10–11 with a further 17 percentage point decline in girls indicating that they like maths to just 39%. The percentage of boys indicating that they enjoy maths also fell at the age of 10–11 by 9% to 59—half of that observed for girls.

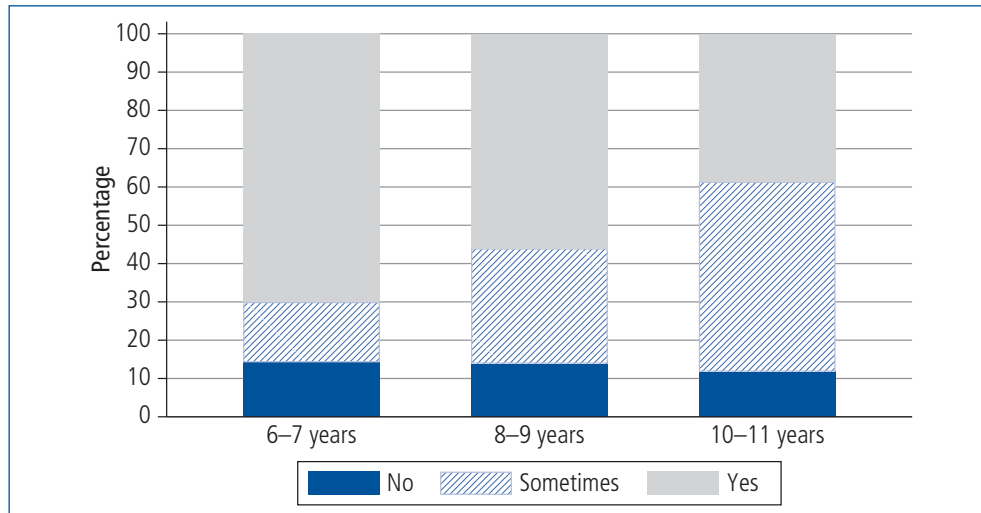
The percentage of boys and girls who indicated they did not like maths and “number work” also declined over this period but by a much smaller amount, and more so for boys than for girls. The percentage of boys indicating that they do not like maths fell significantly from 18% at age 6–7 to 12% at age 8–9; for girls there was little change from the 14% at age 6–7. The percentage of boys indicating that they did not like maths declined only slightly to 10% at age 10–11, similar to the relatively modest decline for girls from 14% to 12%. The difference in the proportion of boys and girls responding “yes” was statistically significant among children aged 6–7. The difference in the proportion of boys and girls responding “sometimes” was statistically significant among children aged 8–9 and 10–11.



Notes: $n = 1,940$

Source: LSAC K cohort, Wave 4

Figure 5.3: Boys' enjoyment of maths and number work at ages 6–7, 8–9 and 10–11

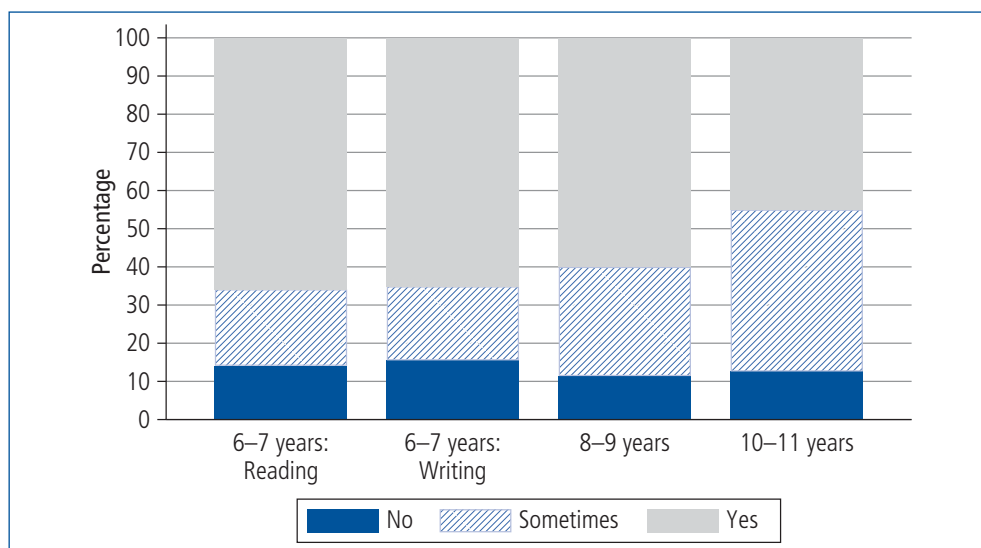


Notes: $n = 1,842$
Source: LSAC K cohort, Wave 4

Figure 5.4: Girls' enjoyment of maths and number work at ages 6-7, 8-9 and 10-11

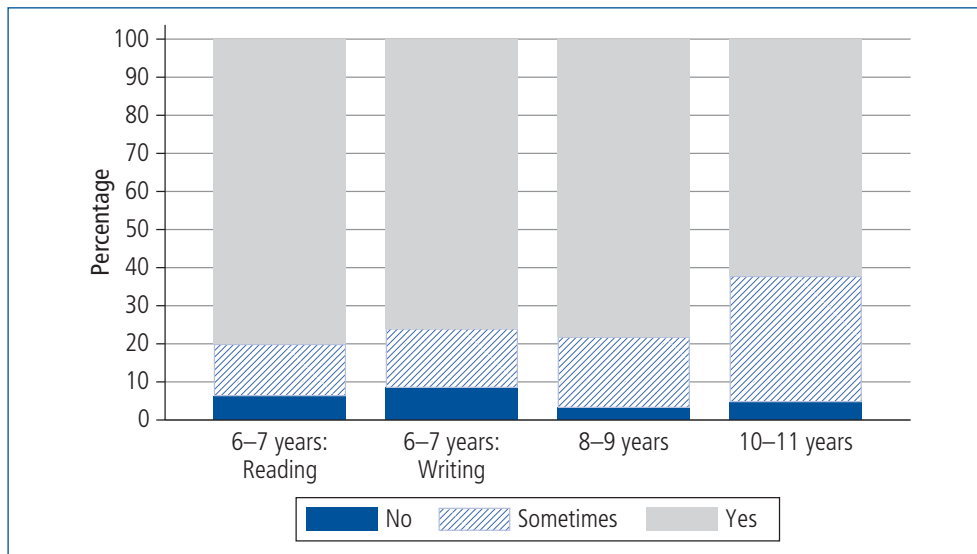
Figures 5.5 and 5.6 (on page 80) compare trends in boy's and girl's enjoyment of reading and writing activities, showing a similarly gendered pattern of responses to that observed in Figures 5.3 and 5.4. At age 6-7 girls already indicated greater enjoyment of reading than boys with 80% of girls indicating that they like reading compared to two-thirds of boys. The same was true for writing with 76% of girls indicating that they liked writing compared to 65% of boys. More than twice as many boys indicated that they did not like reading compared to girls (14% compared to 6%), similar to the responses for writing (16% of boys compared to 8% of girls).

These figures indicate a continuation of this trend at the age of 8-9. Just under 80% of girls indicated that they enjoyed reading and writing activities (78%), almost 20 percentage points higher than the 60% of boys. This gap between boys and girls narrowed slightly at the age of 10-11 where just 45% of boys indicated that they enjoyed reading and writing compared to 62% of girls. Though this was still a considerable gap of 17 percentage points. In contrast, the percentage of boys and girls indicating that they do not like reading and writing was relatively stable over this period at 11-13% of boys and 3-5% of girls. All of the differences in the proportion of responses between boys and girls were statistically different for each age group.



Notes: $n = 1,940$
Source: LSAC K cohort, Wave 4

Figure 5.5: Boys' enjoyment of reading and writing activities at ages 6-7, 8-9 and 10-11



Notes: $n = 1,842$

Source: LSAC K cohort, Wave 4

Figure 5.6: Girls' enjoyment of reading and writing activities at ages 6-7, 8-9 and 10-11

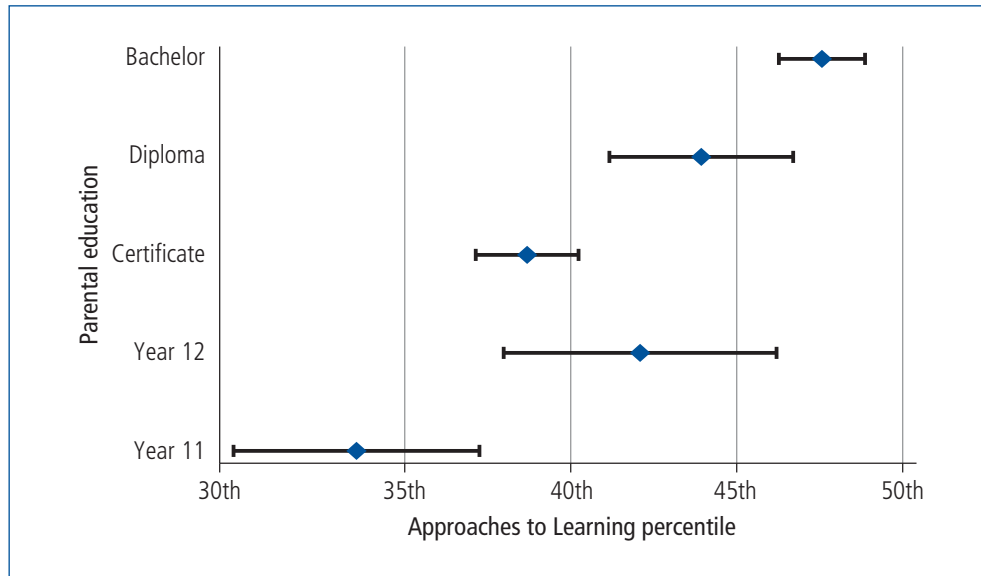
To summarise, children's enjoyment of both maths and number work and reading and writing appears to become both highly gendered and stereotypical over the course of primary school with more boys indicating that they liked maths and number work relative to girls, and more girls indicating that they liked reading and writing. For maths and number work, these divergent attitudes did not emerge until the age of 8-9 but the contrast is quite stark at this age (12%) and the gap continued to widen to 20% by the age of 10-11. While boys' and girls' enjoyment of reading and writing activities experienced similar declines between the ages of 8-9 and 10-11, boys showed considerably less enjoyment of reading and writing at age 8-9. The difference in boys and girls indicating they enjoyed reading and writing was 18 percentage points at the age of 8-9, narrowing only slightly to 17 percentage points by the age of 10-11.

5.4 Socio-economic status and engagement

This section explores the association between academic engagement and enjoyment of learning, and two measures of children's socio-economic status: parental education and parental occupation. This section uses Wave 4 of LSAC when the K cohort were aged 10-11. Wave 4 was chosen for this analysis because data were collected from K cohort parents and teachers around the time that the K cohort undertook their Year 5 NAPLAN tests.

Parental education

Figure 5.7 (on page 81) presents for each level of parental education estimates of the average percentile of teachers' assessments of the children using the Approaches to Learning scale. The figure also shows the "I" bars associated with each estimate, these depict the 95% confidence intervals associated with the average percentile. Average percentiles with confidence intervals that do not overlap indicate statistically significant differences. Overall the figure indicates a substantial, and statistically significant, difference in the ranking of children in their Approaches to Learning across parental education. Children whose parent(s) had obtained less than a Year 12 qualification (Year 11 or less) were, on average, ranked in the bottom third of the K cohort (the 34th percentile) on this measure of engagement. Children whose parent(s) had obtained a university qualification of at least a bachelor's degree were ranked, on average, in the top 52% (48th percentile). This difference is of a considerable magnitude: 13 percentiles. Put another way: Approximately 13% of K cohort children stand between the average Approaches to Learning scores of children whose parent(s) have not completed Year 12 and those whose parent(s) have completed a university qualification, on average.



Notes: Each diamond represents an estimate of the mean percentile of the outcome measure. The “I” bars overlaying each estimate of the mean represent 95% confidence intervals. The reason that each of the average percentiles lie below the median is that there is a good deal of “item preference” in the way that teachers responded to the Approaches to Learning scale (at each wave). At Wave 4, 30% of teachers rated their children at the highest value of the scale indicating that their students displayed the behaviour associated with each of the items “very often”. These children are, by definition, in the top 30% of Approaches to Learning scale placing them at the 70th percentile of the scale, which is the maximum percentile for any child in the sample. The result of this is that average percentiles for each category are lower than they might otherwise be were the scale better able to differentiate relative academic engagement among those children with the highest levels of academic engagement.

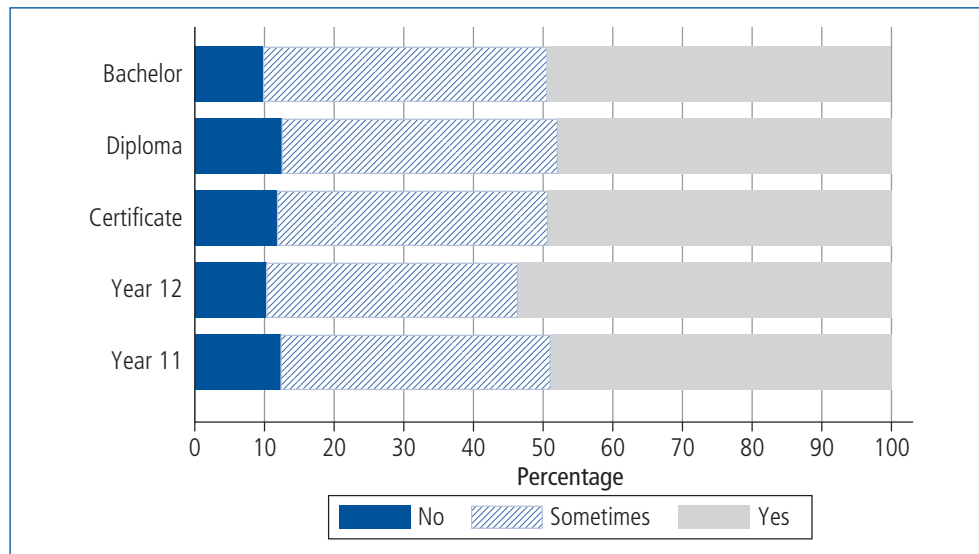
Source: LSAC K cohort, Wave 4

Figure 5.7: Percentiles of Approaches to Learning at age 10–11 by parental education

The average percentile ranking of Approaches to Learning scores for the children of parents who had not completed Year 12 was lower than that of children who had at least one parent who had completed a Diploma-level qualification (44th percentile)—differences that were statistically significant at a 5% level. Interestingly, children with at least one parent with a lower-level vocational certificate were, on average, ranked in the top 61% (39th percentile) of the K cohort Approaches to Learning scores—lower than the children of a parent(s) who had completed Year 12 (42nd percentile). This difference is not, however, statistically significant.

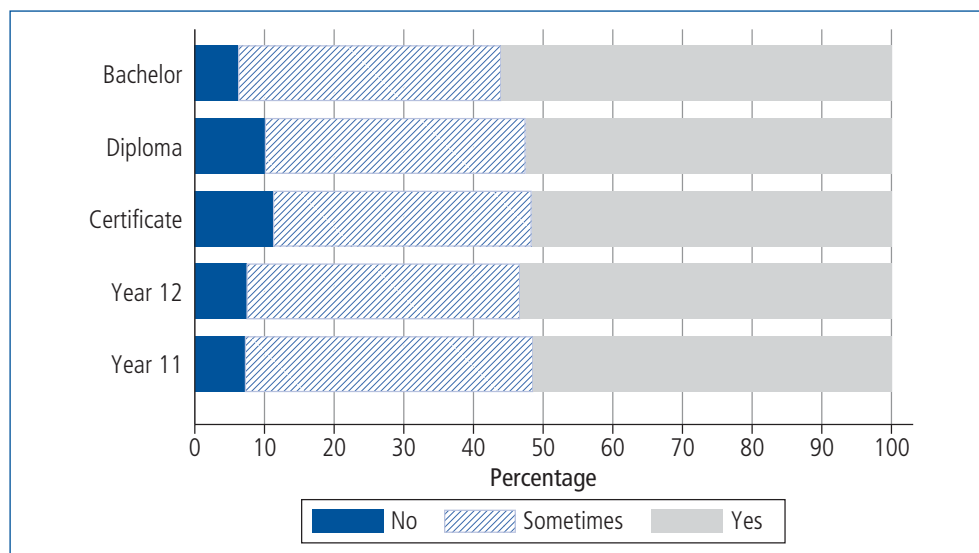
Figure 5.8 (on page 82) presents children's enjoyment of maths and number work by parental education. No statistically significant differences were found in children's responses with respect to parental education. Figure 5.9 (on page 82) seems to suggest the same for the enjoyment of reading and writing—there is, however, one exception. Children with at least one parent who held a university qualification were more likely to indicate that they enjoyed reading and writing (56%) compared to other children. However, the difference was not great. The differences in the proportion of children indicating that they liked reading and writing were in the order of a few percentage points.

This subsection presents evidence that, at the age of 10–11, the children of more highly educated parents (diploma-level vocational qualifications and university qualifications) are more engaged in their learning when compared to those of parents who have not attained a Year 12 qualification. With the exception of the most highly educated parents, there is little to indicate much variation in the extent to which children like reading and writing, and no statistically significant variation in their liking of maths and number work across parental education. This would suggest that, at least in the age groups considered here, that the lower levels of achievement observed among lower socio-economic status children (see for instance ACARA, 2012) may reflect other factors such as different learning behaviours rather than negative attitudes towards maths and reading.



Source: LSAC K cohort, Wave 4

Figure 5.8: Enjoyment of maths and number work at age 10–11 by parental education



Source: LSAC K cohort, Wave 4

Figure 5.9: Enjoyment of reading and writing at age 10–11 by parental education

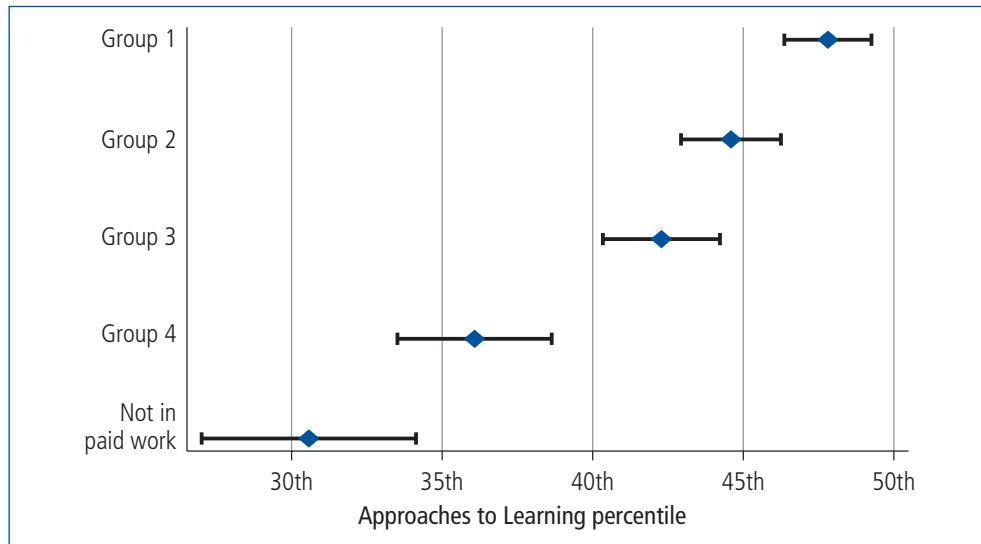
Parental occupation

Figure 5.10 (on page 83) presents the average percentile of children's Approaches to Learning scale for each of the occupational groups described in section 5.2. The figure indicates a positive association between parental occupation and children's Approaches to Learning scores. Children in families where neither parent was in paid employment at Wave 4, and those whose parent(s) were employed in a Group 4 occupation,⁷ had lower Approaches to Learning scores compared to those with at least one parent employed in a higher occupational group, with differences that are statistically significant. The children of parent(s) who were not in paid employment at Wave 4 were, on average, ranked at the 31st percentile of Approaches to Learning scores. Those of parent(s) in

⁷ For those children who reside with two parents this will include those where both parents are employed in Group 4 occupations in addition to those where one parent was not in paid employment but the other was employed in a Group 4 occupation.

the lowest occupational group (Group 4) had slightly higher Approaches to Learning scores at the 36th percentile, on average.

The overall magnitude of the association between parental occupation and Approaches to Learning is substantial. Children with at least one parent employed in a Group 1 occupation were, on average, ranked 12 percentiles higher than those with at least one parent employed in a Group 4 occupation. When compared to children in families without a parent in paid employment those with at least one parent in a Group 1 occupation were ranked 17 percentiles higher, on average.



Notes: Each diamond represents an estimate of the mean percentile of the outcome measure. The “I” bars overlaying each estimate of the mean represent 95% confidence intervals. The reason that each of the average percentiles lie below the median is that there is a good deal of “item preference” in the way that teachers responded to the Approaches to Learning scale (at each wave). At Wave 4, 30% of teachers rated their children at the highest value of the scale, indicating that their students displayed the behaviour associated with each of the items “very often”. These children are, by definition, in the top 30% of Approaches to Learning scale, placing them at the 70th percentile of the scale, which is the maximum percentile for any child in the sample. The result of this is that average percentiles for each category are lower than they might otherwise be were the scale better able to differentiate relative academic engagement among those children with the highest levels of academic engagement. The occupational groups used are: Group 1: Senior managers and qualified professionals. Group 2: Other business managers and associate professionals. Group 3: Tradespeople, clerks, and skilled office, sales and service staff. Group 4: Machine operators, hospitality staff, assistants and labourers.

Source: LSAC K cohort, Wave 4

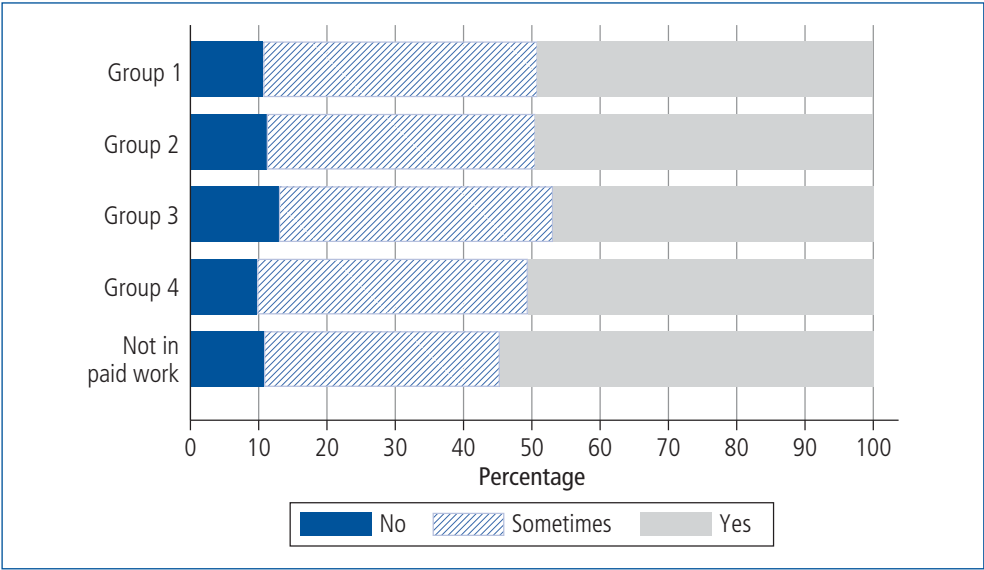
Figure 5.10: Percentiles of Approaches to Learning at age 10–11 by parental occupation

Figure 5.11 (on page 84) presents children's enjoyment of maths and number work by parental occupation. As with parental education no statistically significant differences were found in children's responses. Figure 5.12 (on page 84), on the other hand, suggests that children with at least one parent in the highest skilled occupation group (Group 1) were more likely to indicate that they enjoyed reading and writing (56%) compared to other children. This difference is not, however, statistically significant.

In summary, the results of this section suggest that children from higher socio-economic backgrounds have considerably higher levels of engagement compared to those from low socio-economic backgrounds at the age of 10–11. Specifically:

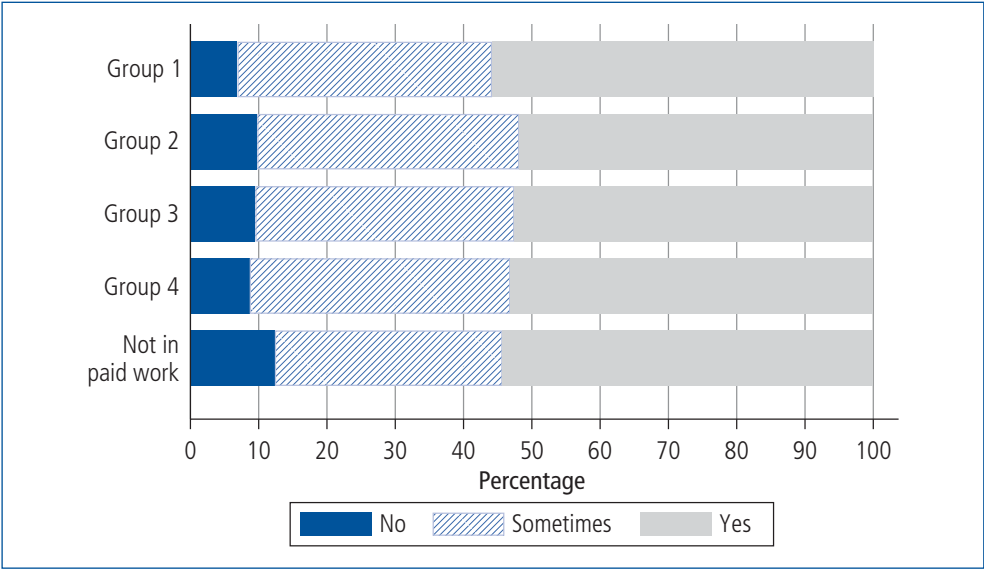
- Children who reside with at least one parent who has a university-level qualification have Approaches to Learning scores that are, on average, 13 percentiles higher than those who reside with parent(s) whose level of education is less than Year 12.
- Children who reside with at least one parent who is employed in a highly skilled occupation (Group 1) have Approaches to Learning scores that are, on average, 12 percentiles higher than those who reside with parent(s) employed in a low-skilled occupation (Group 4).

- Children who reside with at least one parent who is employed in a highly skilled occupation (Group 1) have Approaches to Learning scores that are, on average, 17 percentiles higher than those who do not reside with a parent in paid employment.



Notes: The occupational groups used are: Group 1: Senior managers and qualified professionals. Group 2: Other business managers and associate professionals. Group 3: Tradespeople, clerks, and skilled office, sales and service staff. Group 4: Machine operators, hospitality staff, assistants and labourers.
Source: LSAC K cohort, Wave 4

Figure 5.11: Enjoyment of maths and number work at age 10–11 by parental occupation



Notes: The occupational groups used are: Group 1: Senior managers and qualified professionals. Group 2: Other business managers and associate professionals. Group 3: Tradespeople, clerks, and skilled office, sales and service staff. Group 4: Machine operators, hospitality staff, assistants and labourers.
Source: LSAC K cohort, Wave 4

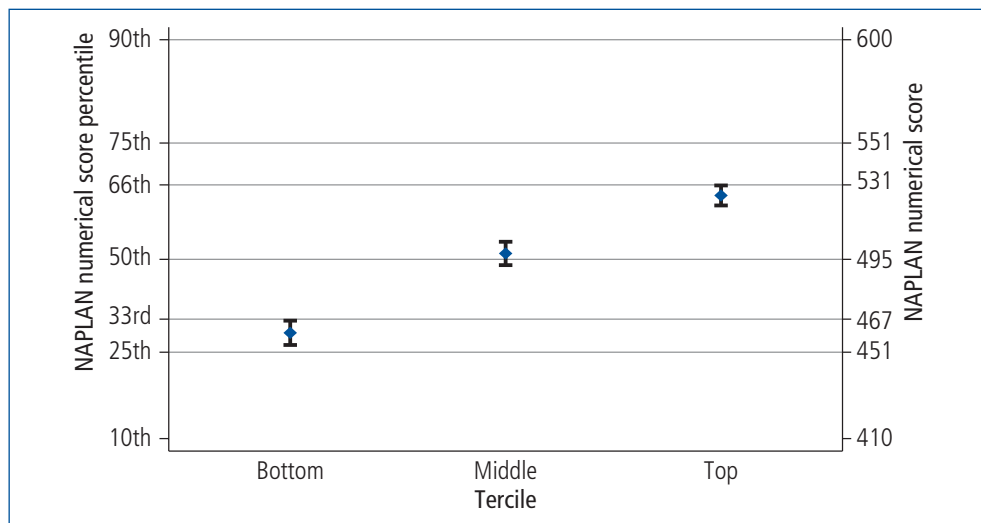
Figure 5.12: Enjoyment of reading and writing at age 10–11 by parental occupation

These are associations at a specific point in time and are silent on the question as to why these differences arise. Interestingly, there is no evidence of any substantive difference in children’s enjoyment of maths or reading across socio-economic groups.

5.5 Academic engagement and enjoyment: To what extent might they matter for achievement?

The previous sections have shown differences in the level of engagement between boys and girls, and between children from different socio-economic backgrounds. Enjoyment of maths and reading was also found to be highly gendered, with boys more likely to indicate that they like maths and number work and girls more likely to report liking reading and writing activities. This section addresses the final research question posed in this chapter: Are these differences in engagement and enjoyment at the age of 10–11 associated with achievement, as measured by the NAPLAN numeracy and reading scores in Year 5.

Figure 5.13 indicates a strong association between academic engagement, as measured by children's Approaches to Learning scales, and children's achievement in numeracy at Year 5. Children in the bottom tercile (i.e., the bottom 33%) of Approaches to Learning scores had an average NAPLAN numeracy score of 460, placing them in the bottom 34% of K cohort children (34th percentile). Children in the second tercile (i.e., those between the bottom 33% and 66%) of Approaches to Learning scores had an average NAPLAN numeracy score of 498, placing them just above the median at the 42nd percentile. Finally, those children with the highest Approaches to Learning scores, those in the top tercile, had an average score of 526, placing them in the top 32% of K cohort NAPLAN numeracy scores (68th percentile).



Notes: Each diamond represents an estimate of the mean percentile of the outcome measure. The "I" bars overlaying each estimate of the mean represent 95% confidence intervals.

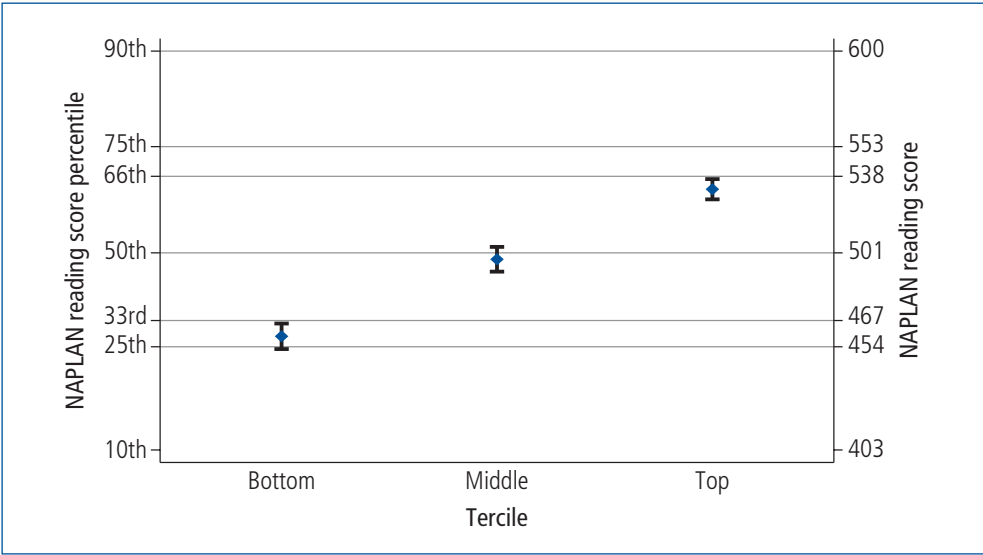
Source: LSAC K cohort, Wave 4

Figure 5.13: Average Year 5 NAPLAN numeracy scores for each tercile of the Approach to Learning scale for children aged 10–11 years

Figure 5.14 (on page 86) presents the same information for the K cohort's Year 5 reading scores. This figure shows a similarly large difference in achievement across the distribution of Approaches to Learning. Children with Approaches to Learning scores in the bottom tercile have, on average, NAPLAN reading scores in the bottom 32% of K cohort scores. Those with Approaches to Learning scores in the top tercile have NAPLAN reading scores in the top 33% (67th percentile), a difference of 35 percentiles.

Figure 5.15 (on page 86) presents the average NAPLAN numeracy scores for each level of enjoyment of maths and number work. As would be expected, enjoyment of maths and number work is also closely associated with NAPLAN numeracy scores. Children who indicated that they did not like maths and number work had average NAPLAN numeracy scores in the bottom 36% of K cohort NAPLAN numeracy scores, while those who sometimes enjoyed this learning domain scored at the median. Children who indicated that they enjoyed maths and number work had the highest average NAPLAN numeracy scores—scoring in the top 43% on average.

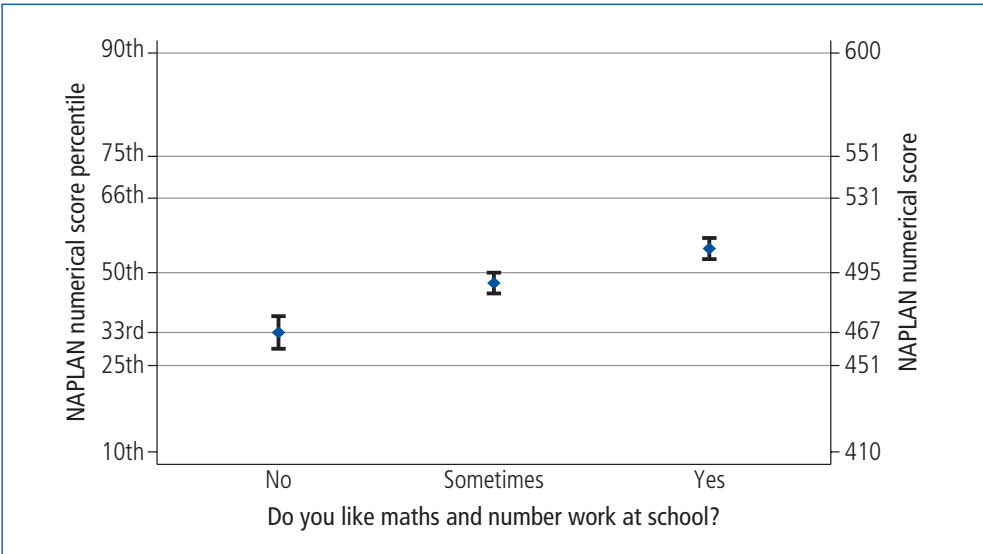
Figure 5.16 (on page 87) illustrates the association between enjoyment of reading and writing and NAPLAN reading scores, showing a similarly strong association between enjoyment and achievement as that observed above. Children who indicated that they did not like reading and writing had average NAPLAN reading scores in the bottom 31% of K cohort NAPLAN reading scores. Those who sometimes enjoyed reading and writing had average scores at the 44th percentile. Not surprisingly children who indicated that they enjoyed reading and writing had the highest average NAPLAN reading score, scoring in the top 44% on average.



Notes: Each diamond represents an estimate of the mean percentile of the outcome measure. The “I” bars overlaying each estimate of the mean represent 95% confidence intervals.

Source: LSAC K cohort, Wave 4

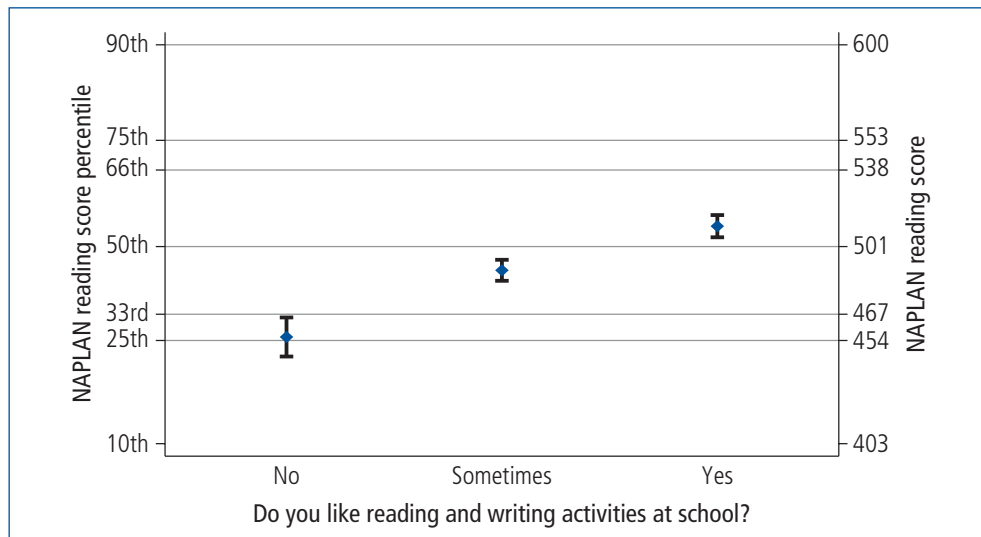
Figure 5.14: Average Year 5 NAPLAN reading scores for each tercile of the Approach to Learning scale for children aged 10–11 years



Notes: Each diamond represents an estimate of the mean percentile of the outcome measure. The “I” bars overlaying each estimate of the mean represent 95% confidence intervals.

Source: LSAC K cohort, Wave 4

Figure 5.15: Average Year 5 NAPLAN numeracy scores by enjoyment of maths and number work for children aged 10–11 years



Notes: Each diamond represents an estimate of the mean percentile of the outcome measure. The "I" bars overlaying each estimate of the mean represent 95% confidence intervals.

Source: LSAC K cohort, Wave 4

Figure 5.16: Average Year 5 NAPLAN reading scores by enjoyment of reading and writing activities for children aged 10–11 years

To summarise, a strong—and entirely intuitive—association has been found between engagement and enjoyment and achieved learning outcomes measured in Year 5.

- Children who had Approaches to Learning scores in the top third had NAPLAN numeracy scores that were 34 percentiles higher than those in the bottom third and NAPLAN reading scores that were 35 percentiles higher, on average.
- Children who indicated that they liked maths and number work had NAPLAN numeracy scores that were 21 percentiles higher than those who indicated that they did not like maths and number work.
- Children who indicated that they liked reading and writing had NAPLAN reading scores that were 26 percentiles higher than those who indicated that they did not like maths and number work.

Again, it should be kept in mind that these are associations at a specific point in time and are silent on the question as to why these differences arise. These observed differences in achievement could be the results of any number of factors associated with both engagement and enjoyment, and achievement. The LSAC data offer significant opportunities to explore these associations in more depth in the future.

5.6 Summary and discussion

This chapter has examined how Australian children's enjoyment of learning activities and their academic engagement evolve throughout primary school. In addition, it has explored how academic engagement varies across two measures of parents' socio-economic status (parental education and parents' occupation) when children are aged 10–11 years. This chapter has also uncovered how differences in boys' and girls' enjoyment of maths and number work, and their enjoyment of reading and writing, develop over the course of their primary school years.

While the results of section 5.3 indicate a decline in children's reports of their enjoyment of both maths and number work and reading and writing towards the end of primary school, this is largely the result of an increasing number of children indicating that they enjoy these activities "sometimes" as opposed to not enjoying them at all. The percentage of children who reported that they sometimes liked maths and number work more than doubled between the ages of 6–7 and 10–11 (16 to 40%). Between the ages of 8–9 and 10–11 the percentage of children who sometimes enjoyed reading and writing increased by 14 percentage points. In light of the small and comparatively

stable percentage of children indicating that they did not like maths and number work (11–16%) and/or reading and writing (7–12%) this should be thought of as an overall decline in enjoyment rather than evidence of a sharp increase in children's dislike of these activities towards the end of primary school.

Gaining a better understanding of how academic engagement evolves over the course of children's schooling is important for a number of reasons. Firstly the results of section 5.5 present evidence of a strong association between children's engagement and their learning outcomes. Children in the top third of the Approaches to Learning scale were observed to have NAPLAN numeracy scores that were 34 percentiles higher than those in the bottom third. The association between Approaches to Learning and NAPLAN reading scores was found to be of a similar magnitude. While these are not evidence of a causal relationship, they do suggest that children who are engaged in their education are likely to have greater levels of learning achievement, or at least considerably higher NAPLAN scores.

Enjoyment of learning was also found to be strongly associated with achievement. Children who indicated that they liked maths and reading had average NAPLAN reading and numeracy scores in the top 43%. Those who indicated that they did not like maths and reading had average NAPLAN scores in the bottom 36% and 31% for numeracy and reading respectively.

The associations presented in this chapter may reflect other influences on children's academic achievement that are associated with, but otherwise incidental to, their academic engagement and enjoyment of maths and reading. For instance, children from more advantaged backgrounds may attend schools with greater resources and higher quality teaching staff and be surrounded by peers with higher levels of academic engagement. All of these may have their own independent effect on children's academic engagement over and above that of socio-economic background.

The variation in engagement across socio-economic groups points to the ways in which the learning of specific groups of students might be enhanced through interventions to increase their level of engagement. In light of the results presented in section 5.4, the children of parents who did not complete Year 12 had lower levels of engagement, as measured by their Approaches to Learning scores, compared to those with university-level qualifications. Children who did not have at least one parent who had completed Year 12 had Approaches to Learning scores 13 percentiles lower than those of parents who had completed (at least) a bachelor's degree. This measure of engagement was also strongly associated with parental occupation. The children of parent(s) who were not in paid employment had considerably lower Approaches to Learning scores compared to those with parents employed in the most highly skilled occupations. These children had average Approaches to Learning scores that were 17 percentiles lower than those who had at least one parent employed in an occupation in the highest occupational group. Interestingly, there did not appear to be the same variation in enjoyment of either maths or reading among children of different socio-economic backgrounds. This suggests that socio-economic background is associated with different learning behaviours in the classroom rather than a different level of enjoyment of learning.

Finally, the highly gendered patterns of enjoyment of maths and number work, and in reading and writing, observed in section 5.3 are likely to be reflected in these children's subject choices later in their schooling. If the lower levels of engagement in maths and number work among girls in the later years of primary school continue throughout secondary school, this is likely to result in similarly lower participation rates in intermediate and advanced mathematics subjects in their final years of schooling.⁸ In the absence of female students in the mathematical preliminaries that are often prerequisites for entry into Science, Technology, Engineering and Mathematics (STEM) fields of higher education, women will continue to be greatly under represented in these fields.⁹ These seemingly innocuous differences in enjoyment of mathematics as a learning domain could have more substantive consequences on labour market earnings later in life (Machin & Puhani, 2004; Livanos & Pouliakas, 2009).

⁸ Recent work by Women NSW indicates that the share of High School Certificate course completions made up by STEM courses completed by girls was just 31% in NSW in 2012, which is considerably lower than the 45% of completions for boys (Women NSW, 2013).

⁹ According to the most recently available data from the Department of Industry, Innovation, Science, Research and Tertiary Education (DIISRTE), women are well represented in tertiary enrolments in the Natural and Physical Sciences at 51%. They are however greatly under-represented in Information Technology, 19%, and Engineering and Related Technologies, 16% (DIISRTE, 2013).

5.7 References

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Eating behaviour

Socio-economic determinants and parental influence

6

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6.1 Introduction

Low intake of fruit and vegetables, along with a high intake of energy-dense, nutrient-poor food (such as fast food and processed snack foods), is a major public health concern in Australia and internationally. According to the World Health Organization (WHO, 2011), low intake of fruit and vegetables is among the top 10 factors contributing to global mortality. Research suggests that low consumption of fruit and vegetables increases the risk of cancers and cardiovascular disease, while excessive energy intake, which can occur through overeating and/or eating foods high in fat, sugar and salt and low in micronutrients, is a key mechanism for weight gain and developing type 2 diabetes (Begg, Vos, Barker, Stanley, & Lopez, 2008; National Health and Medical Research Council [NHMRC], 2013; Rangan, Randall, Hector, Gill and Webb, 2008).

Among children, healthy eating provides nutrients and dietary fibre and is crucially important for optimal growth and development. Research suggests that poor diet among children might affect specific areas of their physical development, motor skills and cognitive functioning (Bryan et al., 2004; McGartland et al., 2004; Nicklas, Bao, Webber, & Berenson, 1993; Richardson & Montgomery, 2005; Richardson & Puri, 2002).

There is also strong evidence that children's intake of fruit, vegetables and energy-dense foods tracks into adolescence, and those food preferences tend to be maintained in adulthood (Craigie, Lake, Kelly, Adamson, & Mathers, 2011; Magarey, Daniels, Boulton, & Cockington, 2003). Therefore, promoting a high intake of fruit and vegetables and low intake of energy-dense foods as part of a healthy diet is critically important and should take place as early as possible in a child's life.

Despite the recognised importance of healthy eating among children, recent surveys have revealed that only a few children consume the recommended daily intake of fruit, vegetables and energy-dense foods. Moreover, as children get older they consume even less fruit and vegetables and more soft drinks, sweets and/or high-fat snacks (Bell, Kremer, Magarey, & Swinburn, 2005; Rangan, & Hector, 2010). According to the 2007–08 Australian Bureau of Statistics (ABS) National Health Survey, 98% of children aged 5–7 years and 99% aged 8–11 years met their recommended daily intake of one serve of fruit, but this proportion decreased to 23% of children aged 12–15 years and even further to 18% of children aged 16–17 years, for whom three serves of fruit is considered adequate (ABS, 2009). A smaller proportion of children were meeting the guidelines for vegetable intake. Around six in ten children aged 5–7 years (57%) met the recommended daily intake of two serves of vegetables, whereas only three in ten children aged 8–11 years (33%) met the recommended intake of three serves. The proportion of older children meeting their recommended intake of vegetables (four serves or more) decreased to 15% in children aged 12–15 years and 16% in children aged 16–17 years.

In Australia, energy-dense food and drink (which includes snack foods as well as items such as soft drinks, margarine and salad dressing) contributes 41% of all daily energy intake in children (Rangan

et al., 2008). Among Australian children aged 5–12 years, over 90% had high-energy snack foods in their lunchboxes (Rangan, Schindeler, Hector, Gill, & Webb, 2009; Sanigorski, Bell, & Swinburn, 2007). Energy-dense foods are estimated to contribute more than 40% of the total fat, saturated fat and sugar in children's diets, and only around 20% of micronutrients, further highlighting the poor nutritional quality of snack foods (Rangan et al., 2008, 2009). Reducing the intake of snack foods is likely to result in decreased energy intake and reduced obesity rates.

In order to effectively promote healthy eating among children and adolescents, further insight into the key determinants of their eating habits is needed. There is cross-sectional evidence that the eating behaviours of children are socio-economically patterned, with those of lower socio-economic position (SEP) having less healthy dietary patterns (Cameron et al., 2012; van Stralen et al., 2012).

The amount of fruit and vegetables eaten by children has also been closely linked to parents' intake of fruit and vegetables and the overall healthiness of their lifestyle (Cislak, Safron, Pratt, Gaspar, & Luszczynska, 2012; Pearson, Biddle, & Gorely, 2009). Additionally, children whose parents were exercising, not smoking and not binge drinking reported higher levels of fruit and vegetable consumption (Lien, Jacobs, & Klepp, 2002). Parental influences are further evidenced by studies that have demonstrated that family feeding practices have a bearing on children's fruit and vegetable intake (Bere, & Klepp, 2002; Hanson, Neumark-Sztainer, Eisenberg, Story, & Wall, 2005; Longbottom, Wrieden, & Pine, 2002). For example, children who were breastfed at 6 months old and had their meals with parents had a higher intake of fruit and vegetables (Neumark-Sztainer, Wall, Perry, & Story, 2003). It has also been found that on average girls consume more fruit and vegetables than boys (CSIRO Preventative Health National Research Flagship, & the University of South Australia, 2008), while boys consume more energy-dense food than girls (Rangan & Hector, 2010).

The majority of research exploring the determinants discussed so far has been based on cross-sectional surveys. But to assist tailoring future dietary interventions it is important to establish the longitudinal patterns of eating habits as well as determine the long-term role of socio-economic influences and family context on children's diet (Bambra, Hillier, Moore, & Summerbell, 2012). Using the information in children's food diaries collected in *Growing Up in Australia: The Longitudinal Study of Australian Children* (LSAC), this chapter provides insight into the eating habits of children as they grow up, and also explores factors that might be associated with the persistence of low intake of fruit and vegetables and high intake of energy-dense foods. In particular, this chapter addresses the following questions:

- How many children are eating according to the healthy eating guidelines?
- How do family demographic background, feeding practices and mother's lifestyle influence the persistence of low intake of fruit and vegetables and high intake of energy-dense foods?
- Are eating behaviour patterns, measured by fruit, vegetable and energy-dense food intake, associated with family socio-economic position?

6.2 Sample and measures

This section provides a brief discussion of the data and definitions employed in the chapter.

Sample

This chapter uses LSAC data from the B cohort at Waves 2 to 4 (children 2–3 to 6–7 years) and from the K cohort at Waves 1 to 4 (children 4–5 to 10–11 years). Wave 1 data for the B cohort (0–1 years) were not used, as children were too young for the food diary that the parents (and older children) completed at later waves. Given that the focus of the chapter is on changes in eating habits as children grow up, only children who participated at all waves (Waves 2–4 for B cohort and Waves 1–4 for K cohort) were included in the sample. There were 3,997 B cohort and 3,940 K cohort children who participated at all waves of interest.

Measures of eating behaviour

In LSAC, the eating habits of the study children were measured by the intake of fruit, vegetables and energy-dense foods, using 24-hour dietary recall.¹ For children aged 2–9 years, parents were asked to report on how often their children had eaten fruit, vegetables and energy-dense foods within the last 24 hours. Children aged 10–11 years reported themselves on how often they had eaten each type of food within the last 24 hours. Different response options were used to measure food intake across waves. At Waves 1 and 2, responses on fruit, vegetable and energy-dense food intake were recorded in three categories: 0 = not at all, 1 = once, and 2 = twice or more; while at Waves 3–4 responses were recorded in four categories: 0 = not at all, 1 = once, 2 = twice, and 3 = three times or more.

LSAC participants were only asked how often they ate a particular food, not how many serves were consumed each time they ate. For the purposes of this analysis, the number of *times* the study child ate a specific food is equated with the number of *serves* consumed. However, it must be noted that the study child may have actually eaten more or less than one serve of the food on each occasion. This is a limitation of the analysis.

The cut-off points used to categorise the recommended age-specific daily servings of fruit, vegetables and energy-dense foods were based on guidelines proposed by the NHMRC (2005; see Table 6.1).² For the purpose of the analyses presented, children were considered to meet the guidelines if:

- their intake of fruit and vegetables was at or above the recommended amount per day; and
- their intake of energy-dense foods was at or below the maximum recommended amount per day.

Table 6.1: Recommended daily serves of fruit, vegetables and energy-dense foods, by age

Age of child	Serves of fruit (minimum)	Serves of vegetables (minimum)	Serves of energy-dense foods (maximum)
2–3 years	1	2	1–2
4–5 years	1	2	1–2
6–7 years	1	2	1–2
8–9 years	1–2	3	1–2
10–11 years	2	3	1–2

Source: NHMRC, 2005

Measure of fruit intake

Fruit intake was derived from a single question:³ “In the last 24 hours how often did the child eat fresh fruit?” The three-category responses for Waves 1–2 and four-category responses for Waves 3–4 on these questions were combined and categorised into a three-category response option (0 = not at all, 1 = once and 2 = twice or more).

Information on fruit intake included information on fresh fruit only. Information on mixed dishes containing fruit and dried or preserved fruit was not collected. Fruit juice was not considered as part of fruit intake as high intake of fruit juice contributes to a high intake of sugar that might lead to poor dental health (Joint WHO/FAO Expert Consultation, 2003).

Children were considered to have eaten enough fruit if they were eating daily at least one serve of fruit at 2–7 years and at least two serves at 8–11 years (see Table 6.1).

¹ The consumption of dairy products, water and fruit juices was also measured in LSAC; however, these eating habits were not explored in this chapter.

² New guidelines were released in 2013; however, for the current analyses, the guidelines that were relevant at the time of data collection were used.

³ A question regarding food intake varied slightly across waves: “In the last 24 hours has child had the following foods and drinks once, more than once, or not at all: Fresh fruit” (Wave 1, K cohort), “In the last 24 hours how often did the child eat fresh fruit?” (Wave 2), “In the last 24 hours how often did child have fresh fruit?” (Waves 3 and 4) or “Thinking about yesterday, how often did you have fresh fruit?” (asked of the child).

Measure of vegetable intake

Vegetable intake was derived from the combination of two questions: (a) “In the last 24 hours how often did the child eat fresh vegetables?” and (b) “In the last 24 hours how often did the child eat cooked vegetables?” The three-category responses for Waves 1–2 and four-category responses for Waves 3–4 on these questions were combined and categorised into four response categories: 0 = not at all, 1 = once, 2 = twice and 3 = three or more.

Information on vegetable intake did not include fried potatoes, hot chips and similar potato products, as these foods were not considered to be part of a healthy vegetable intake. Information on vegetable juice intake was not collected.

Children were considered to have eaten enough vegetables if they were eating at least two serves of vegetables per day when aged 2–7 years and at least three serves when aged 8–11 years (see Table 6.1).

Measure of energy-dense food intake

Energy-dense food intake information was divided into three categories: (a) non-sweet energy-dense foods, (b) sweet energy-dense foods, and (c) soft drinks. Non-sweet energy-dense foods include meat pies, hamburgers, hot dogs, sausages or sausage rolls, hot chips or French fries, potato crisps, or savoury snacks such as Twisties®. Sweet energy-dense food includes biscuits, doughnuts, cakes, pies or chocolate. Soft drinks include any non-diet soft drink or cordial. For the three types of energy-dense foods the three-category response option was used across all waves for both cohorts (0 = not at all, 1 = once and 2 = twice or more).

Children were considered to be within the recommended guidelines for energy-dense foods if their combined intake of non-sweet energy-dense foods, sweet energy-dense foods and soft drinks was two serves per day or less (see Table 6.1).

Measures of socio-demographic and family factors

As outlined in the introduction, there are a range of factors that may be associated with unhealthy diets. These include socio-demographic characteristics, family financial situation, family feeding practices and the healthiness of mother's lifestyle. The explanatory variables were derived from LSAC Wave 4 data unless stated otherwise and are presented in Table 6.2 (on page 95).

6.3 Fruit and vegetable intake

The section examines patterns of fruit and vegetable intake as children grow up, and reports the proportion of children who consumed adequate amounts of fruit and vegetables across waves. Changes in intake are analysed according to the amount of fruit and vegetables eaten per day and the proportions of children eating enough fruit and vegetables. Factors associated with low fruit and vegetable intake across all waves are also examined. While interpreting the results, it should be kept in mind that children aged 10–11 years provided dietary information themselves, whereas parents provided dietary information for children aged 2–9 years.

Amount of fruit and vegetables consumed by children at different ages

Fruit

Figure 6.1 (on page 96) presents the amount of fruit and vegetables consumed by children at different ages.

First, for B cohort children, regardless of age, around 10% did not have any fruit per day. For those aged 2–3 years, 23% had one serve of fruit and 66% were eating two or more serves per day. At 4–5 years, 17% were eating one serve of fruit per day and 75% were eating at least two serves. Twenty-two per cent of those aged 6–7 years were eating one serve of fruit per day and 68% were eating at least two serves.

As K cohort children were growing up, the proportion of children not eating any fruit remained about the same (12–13%), while the proportion of children who were eating two or more serves

Table 6.2: Variables for demographic and family characteristics

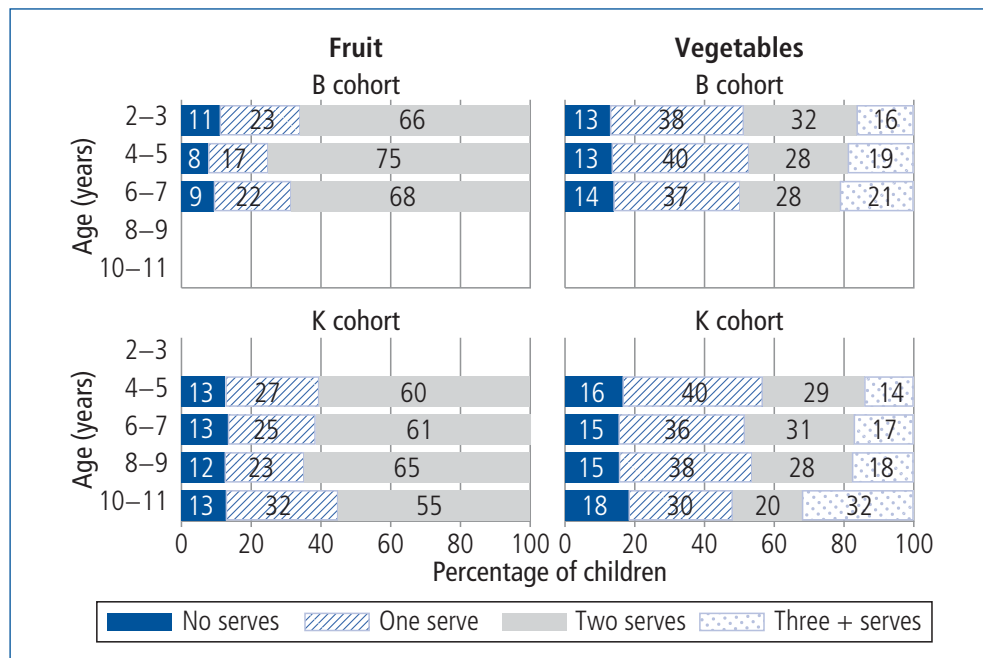
		% of "1" responses	
Variable	Question & response	B cohort	K cohort
Socio-demographic characteristics			
Parental education	Whether mother or father had a university degree or higher 1 = no university degree or higher 0 = university degree or higher	47	43
Family type	Number of parents living with the study child in the same household at the time of the study 1 = one parent 0 = two parents	12	14
Mother's working status	Mother's current labour force status 1 = not working (maternity leave, unemployed and looking for work, or not in labour force) 0 = working (full-time or part-time)	31	23
Regional status	Current place of residence 1 = metropolitan 0 = rural	61	60
Family financial situation			
Household income	Household income 1 = low income (the bottom 25% of the income distribution) 0 = average/high income (the top 75% of the income distribution)	17	19
Family financial stress	How family was getting along financially 1 = in financial stress (just getting along, poor or very poor) 0 = not in financial stress (prosperous/very comfortable/ reasonably comfortable)	23	23
Family feeding practices			
Family meals	How often mother and child had evening meals together 1 = daily 0 = a few times a week/a few times a month/rarely/not at all	83	81
Breastfeeding	Was the child breastfed at 6 months old? 1 = yes 0 = no	58	59
Healthiness of mother's lifestyle ^a			
Physical activity	How many times the mother was exercising per week 1 = 3+ times per week 0 = < 3 times per week	55	57
Smoking	How often the mother was smoking 1 = at least once per day 0 = not at all or occasionally	17	17
Binge drinking	How often the mother was drinking 1 = 5+ drinks in a sitting, two or more times per month 0 = < 5 drinks in a sitting	12	13
Fruit intake	How many serves of fruit the mother was eating 1 = 2+ serves per day 0 = < 2 serves per day	48	49
Vegetable intake	How many serves of vegetables the mother was eating 1 = 5+ serves per day 0 = < 5 serves per day	8	8

Note: ^a Due to a high level of missing data on fathers' reports only mothers' reports were used.

decreased at 10–11 years. At 4–7 years, one in four children were eating one serve of fruit per day and three in five children were eating at least two serves. At 8–9 years, children were on average eating similar amounts of fruit as when they were 6–7 years. At 10–11 years, more children reported having only one serve of fruit daily and fewer children reported having two or more serves, compared to when they were younger. The proportion of children eating two or more serves of fruit decreased (from 65% at 8–9 years to 55% at 10–11 years), while the proportion eating one

serve of fruit increased (from 23% at 8–9 years to 32% at 10–11 years). It should be kept in mind that at 10–11 years, children were reporting on their own fruit intake. Therefore, it is difficult to determine whether the differences in the amount of fruit consumed are due to true age differences or rather are a reflection of the accuracy of different respondents (child cf. parent report).

Overall, the proportions of children aged 4–7 years eating fruit was slightly greater among B cohort than K cohort of children.



Notes: Percentage may not total exactly 100% due to rounding.

Figure 6.1: Fruit and vegetable intake, by cohort and age

Vegetables

The proportions of B cohort children eating vegetables was similar across all ages. Around 87% of these children were eating at least one serve of vegetables per day at any age. At 2–3 years, 38% of B cohort children had one serve of vegetables, 32% had two and 16% of children had three or more. At 4–7 years the amounts of vegetables consumed were similar to those at 2–3 years. On average, across the ages 4–5 and 6–7, four out of ten children were eating one serve of vegetables (40% at 4–5 years and 37% at 6–7 years), three out of ten children were eating two servings (28% at 4–7 years) and two out of ten children were eating three or more servings per day (19% at 4–5 years and 21% at 6–7 years).

Among K cohort children aged 4–5 years, 16% of children were not eating any vegetables, 40% were eating one serve, 29% were eating two serves and 14% were eating three or more serves per day. As children grew older, the same number of children were not eating any vegetables (15%), and a slightly greater proportion of them were eating two or more serves. At 6–9 years, around four in ten children were eating one serve of vegetables, three in ten children were eating two serves, and two in ten were eating three or more serves per day. Noticeable differences in vegetable intake emerged when children were 10–11 years old. At 10–11 years, children were eating more vegetables compared to when they were younger. While the proportions of children who were eating at least one serve of vegetables remained similar (84% at 4–5 years to 82% at 10–11 years), the proportions of children who were eating three or more serves of vegetables increased from 14% at 4–5 years to 32% at 10–11 years. Yet it is important to keep in mind that for children aged 2–9 years dietary information was provided by the parents, and for children aged 10–11 years dietary information was provided by the children themselves. Therefore, it is possible that parents were under-reporting or that children were over-reporting the amount of fruit and vegetables children were eating.

There were no apparent differences in the proportions of children eating vegetables among same-aged children of B and K cohorts.

Proportion of children eating enough fruit and vegetables

The vast majority of children were eating some fruit and vegetables, but not all of them were eating the recommended amounts. Table 6.3 presents the proportion of children aged 2–11 years who were eating the recommended amounts of fruit and vegetables.

Age of child		B cohort			K cohort		
		Fruit	Vegetables	Both	Fruit	Vegetables	Both
2–3 years	%	89.2	48.6	45.9	NA	NA	NA
	Total (N)	3,988	3,980	3,975	NA	NA	NA
4–5 years	%	92.5	47.4	45.8	87.9	42.9	40.2
	Total (N)	3,993	3,991	3,989	3,923	3,903	3,891
6–7 years	%	90.8	49.8	47.6	86.9	48.4	45.3
	Total (N)	3,984	3,985	3,981	3,925	3,929	3,916
8–9 years	%	NA	NA	NA	65.2	17.8	17.1
	Total (N)	NA	NA	NA	3,926	3,927	3,919
10–11 years	%	NA	NA	NA	55.0	32.1	23.7
	Total (N)	NA	NA	NA	3,881	3,880	3,880

Note: Total number of observations varies due to item non-response.

On average, nine in ten children aged 2–7 years were eating the recommended amount of fruit (at least one serve of fruit per day). As children grew older, the proportions who were eating enough fruit decreased substantially. At 8–9 and 10–11 years, only 65% and 55% respectively were eating according to the healthy eating guidelines (at least two serves of fruit per day). While these lower proportions of children meeting the guidelines may be partly due to the increase in the recommended fruit intake (from one serve at 2–7 years to two serves from 8–11 years), the proportion reduces further among 10–11 year olds (55%), indicating that consumption decreases with age.

Across all ages, children were less likely to eat enough vegetables than to eat enough fruit. Fewer than half of the children aged 2–7 years were eating the recommended number of vegetable servings per day (B cohort: 49% at 2–3 years, 47% at 4–5 years, 50% at 6–7 years; K cohort: 43% at 4–5 years, 48% at 6–7 years). For 8–9 and 10–11 year olds, this proportion dropped substantially to only 18% and 32% respectively. While the proportion of children meeting the healthy eating guidelines for vegetables was lowest at 8–9 years, it is worth noting that this coincides with the period when recommendations increase from 2 serves to 3 serves per day. However, this finding should not be dismissed on this basis, as the increase in recommended serves is in line with the amount of vegetables required for the child's optimal growth and development.

For both fruit and vegetables combined, overall 40–48% of children aged 2–7 years were meeting the recommendations (B cohort: 46% at 2–5 years and 48% at 6–7 years; K cohort: 40% at 4–5 years and 45% at 6–7 years). As they grew older, fewer children were eating enough fruit and vegetables (only 17% and 24% of children aged 8–9 and 10–11 years respectively).

It is important to highlight that in the LSAC sample, the proportions of children who were eating any fruit and vegetables and the amount of fruit and vegetables that was eaten by children did not change substantially with age (as seen in Figure 6.1). However, given that the amount of fruit and vegetables recommended for children's optimal growth and development increases as children grow up, the proportion of K cohort children who were eating enough fruit and vegetables decreased with age.

Consumption of recommended amounts of fruit and vegetables across multiple waves

Table 6.4 shows the proportions of children who were meeting the recommendations for fruit and vegetable intake across multiple waves.

Table 6.4: Children eating the recommended intake of fruit and vegetables across multiple waves, 6–7 year olds (B cohort) and 10–11 year olds (K cohort)		
Number of waves	6–7 years (B cohort) (%)	10–11 years (K cohort) (%)
4	NA	2.9
3	20.3	12.8
2	25.1	22.7
1	28.2	31.6
0	26.4	30.0
No. of observations	3,958	3,816

Among B cohort children, 20% were eating the recommended amount of fruit and vegetables at all three waves, 25% were eating enough at any two waves and 28% were following the guidelines at one wave only. Twenty-six per cent of the children did not eat enough fruit and vegetables at any of the three waves.

Among K cohort children, only 3% ate the recommended amount of fruit and vegetables across all four waves, 13% ate enough across any three waves, 23% across any two waves and 32% in any one wave. Thirty per cent of K cohort children did not eat according to the recommended healthy eating guidelines at any of the four waves. The proportion of children eating enough fruit and vegetables across all waves was lower among K cohort than B cohort children (3% vs 20% respectively). This discrepancy is likely to be due to the age differences and the number of waves used in the analysis (given that the B cohort is younger, and compliance with recommended fruit/vegetable intake in the K cohort showed a decrease with age).

By the age of 6–7 years, 26% of B cohort children were consistently not eating fruit and vegetables within the recommended guidelines, and by the age of 10–11 years, 30% of K cohort children consistently did not meet the guidelines. These children have an increased risk of adverse health conditions resulting from their dietary behaviours. Identification of factors that are associated with these eating patterns may help in the development of interventions to counter such behaviours in the future.

Factors associated with low intake of fruit and vegetables across all waves

The analysis presented below examines factors that might be associated with persistent low intake of fruit and vegetables (26% of B cohort and 30% of K cohort children). At Wave 4, B cohort children aged 6–7 and K cohort children aged 10–11 years were considered to have persistent low intake of fruit and vegetables if they ate less than the recommended amounts across all waves (Waves 2–4 for B cohort and Waves 1–4 for K cohort) (see Table 6.5 on page 99). All factors are examined independently; however, significant differences are also discussed after adjusting for all factors collectively.⁴

In the B cohort, gender differences were evident. Boys were more likely than girls to eat low amounts of fruit and vegetables across all waves (29% vs 24% respectively, $p < .001$). In the K cohort, there were no significant differences between boys and girls.

⁴ Given that the K cohort measure was derived using both parent and child responses, and children's ages varied from 2 to 7 years for the B cohort and from 4 to 11 years for the K cohort, comparisons between cohorts were not possible.

Table 6.5: Children eating low amounts of fruit and vegetables across all waves by socio-demographic and family characteristics, 6–7 and 10–11 year olds

Socio-demographic and family characteristics	6–7 years (B cohort)		10–11 years (K cohort)	
	%	<i>p</i>	%	<i>p</i>
Study child gender				
Male	28.9	***	31.3	
Female	23.9		28.5	ns
Family socio-demographic characteristics				
Parental education				
No university degree or higher	31.2	***	33.6	***
University degree or higher	19.3		23.7	
Family type				
Two-parent family	25.2	***	29.5	ns
Single-parent family	33.4		32.2	
Mother's working status				
Non-working	27.4	ns	29.0	ns
Working	25.8		30.3	
Region of residence				
Rural	30.0	**	31.7	ns
Metropolitan	24.5		29.0	
Family financial situation				
Household income				
Average/high income	25.4	***	29.5	ns
Low income	32.8		32.0	
Family financial stress				
No	25.2	**	29.4	ns
Yes	30.1		31.8	
Family feeding practices				
Daily evening meals with mother				
No	31.7	**	32.2	ns
Yes	25.4		29.5	
Breastfeeding at 6 months				
No	31.8	***	36.8	***
Yes	22.1		34.2	
Healthiness of mother's lifestyle				
Physical activity (3+ times per week)				
No	27.5	ns	31.3	ns
Yes	25.7		28.6	
Smoking (at least once a day)				
No	26.2	***	28.9	*
Yes	35.3		33.8	
Binge drinking (5+ drinks, 2+ times per month)				
No	26.2	***	29.9	ns
Yes	35.3		32.6	
Fruit intake (2+ serves per day)				
No	33.9	***	36.4	***
Yes	19.9		23.6	
Vegetable intake (5+ serves per day)				
No	27.2	***	30.7	***
Yes	17.4		19.7	
No. of observations	3,958		3,816	

Notes: *** $p < .001$; ** $p < .01$; * $p < .05$; ns = not statistically significant.

A number of socio-demographic factors were found to be important correlates of low fruit and vegetable intake. In the B cohort, 31% of children of parents with no university degree were eating less than the recommended amounts of fruit and vegetables across all waves, compared to 19% of children of parents with a university degree ($p < .001$). The same relationship was observed for the K cohort (34% vs 24% respectively, $p < .001$). Whether children lived in a single-parent family or in a rural area were significantly and positively associated with reporting low fruit and vegetable intake across all waves, but only for B cohort children. Thirty-three per cent of children from single-parent families and 30% of children from rural areas ate less than the recommended amounts of fruit and vegetables across all three waves, compared to 25% of children from two-parent families and 25% of metropolitan children. Mother's working status was not associated with low fruit and vegetable intake in either cohort.

Family financial situation was associated with low fruit and vegetable intake across all waves in the B cohort only. A higher proportion of children from families with low household income reported inadequate fruit and vegetable intake across all waves compared to children from average/high income families (33% vs 25% respectively; $p < .001$). Also, children whose families experienced financial stress were more likely to report inadequate fruit and vegetable intake across all waves compared to children whose families were not in financial stress (30% vs 25% respectively; $p < .01$).

Whether children were eating evening meals with their mother daily was significantly associated with the prevalence of low fruit and vegetable intake across waves in the B cohort. About 32% of children who did not have daily evening meal with their mother were not meeting fruit and vegetables guidelines at any age, compared to 25% of children who had daily mother-child evening meals ($p < .01$). Breastfeeding at 6 months was also associated with low fruit and vegetable intake across all waves. In the B cohort, 22% of children who were breastfed at 6 months did not eat enough fruit and vegetables at any wave, compared to 32% of children who were not breastfed ($p < .001$). In the K cohort, these proportions were 34% and 37% respectively ($p < .001$).

Mothers' unhealthy lifestyle was a significant risk factor for children's low fruit and vegetable intake across all waves. Mothers' fruit and vegetable intake was significantly associated with children's fruit and vegetable intake. Children were less likely to consume a low amount of fruit and vegetables if their mother was eating the recommended amounts. This association was evident across all waves. Among families with a mother who was eating the recommended amount of fruit and vegetables, only 20% of B cohort and 24% of K cohort children were not eating enough fruit, and 17% and 20% of B and K cohort children respectively were not eating enough vegetables. In comparison, among families with a mother who was not eating the recommended amount of fruit and vegetables, 34% of B cohort and 36% of K cohort children were not eating enough fruit and 27% and 31% of B and K cohort children respectively were not eating enough vegetables. Mother's smoking behaviour was also associated with children's eating habits across all waves. In families with a mother who smoked, 35% of B cohort and 34% of K cohort children were not eating enough fruit and vegetables across all waves compared to 26% and 29% of B and K cohort children with a non-smoking mother. The proportion of children who did not eat according to the guidelines was larger for B cohort children only among families with a binge-drinking mother (35%) compared to those with a non-binge-drinking mother (26%). Mothers' physical activity was not associated with children's fruit and vegetable intake across waves in children of either cohort.

In the analysis above, the relationships between socio-demographic and family characteristics on fruit and vegetable intake were examined independently of each other. However, it is important to understand whether these relationships held after controlling for all the factors examined. Table 6.6 (on page 101) reports only the relationships that remained significant after adjusting for all of the examined factors. It can be seen that B cohort children who were boys, had parents without an university degree, were from low-income families, who were not breastfed at 6 months, or had a mother who failed to meet the recommended intake of fruit and vegetables were likely to experience low fruit and vegetable intake across all waves. In the K cohort, the same relationships were observed, but there were no differences between boys and girls and between children from families with different household incomes.

Table 6.6: Association between low fruit and vegetable intake across all waves and different factors, adjusting for other characteristics, 2–7 and 4–11 year olds

Socio-demographic and family characteristics	2–7 years (B cohort)	4–11 years (K cohort)
Study child female	–	ns
Parents with no university degree	+	+
Low household income	+	ns
Breastfeeding at 6 months	–	–
Mother with recommended fruit intake	–	–
Mother with recommended vegetable intake	–	–

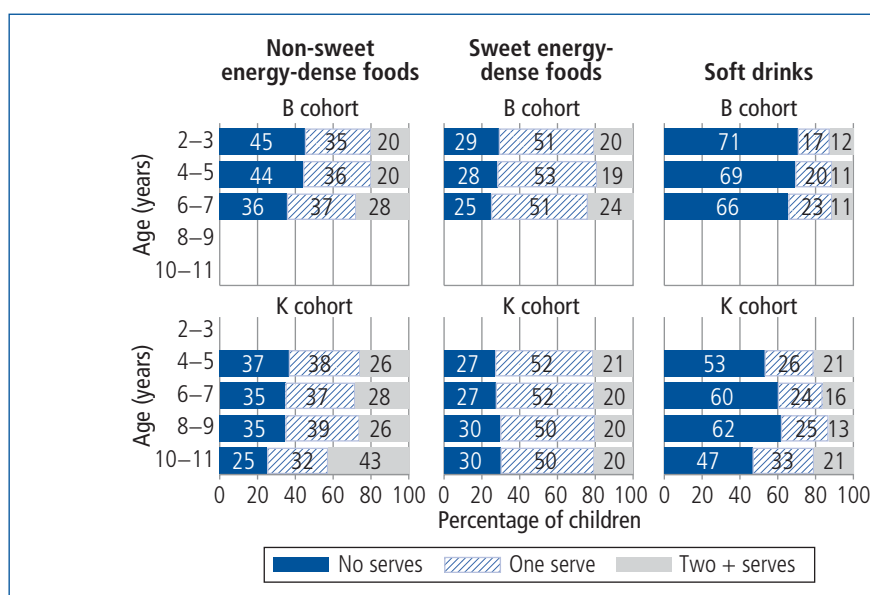
Note: + = positive significant relationship; – = negative significant relationship, ns = no significant relationship.

6.4 Energy-dense food intake

This section examines the differences in energy-dense food and soft drink intake as children grow up, and the prevalence of high energy-dense food intake across waves. Changes are analysed according to the proportions of children eating sweet and non-sweet energy-dense foods and drinking soft drinks, as well as the amounts of these foods eaten per day. The section also explores the persistence of high energy-dense food intake and factors associated with such intake across all waves. Note that in this section the focus is on children eating at or below the recommended maximum amounts of any energy-dense foods (i.e., no more than two serves per day).

Amount of energy-dense foods and soft drinks consumed at different ages

Figure 6.2 describes the consumption of different types of energy-dense foods by children aged 2–11 years.

**Figure 6.2: Consumption of sweet and non-sweet energy-dense foods and soft drinks, by cohort and age**

Sweet energy-dense foods

The most common type of energy-dense food consumed by children of different ages was sweet energy-dense foods, such as biscuits, chocolate, lollies, etc. Within the B cohort of children aged 2–5 years, three in ten children did not eat any sweet energy-dense foods, one in two children ate

one serve per day and one in five children ate two or more serves. At 6–7 years, only a quarter of the children did not eat any sweet energy-dense foods, the proportion who ate one serve per day remained the same (51%), and the proportion who ate two or more serves increased to 24%.

Within the K cohort, 27–30% of children aged 4–11 years did not eat any sweet energy-dense foods, 50–52% ate one serve per day and 20–21% ate two or more serves.

Overall, there were no apparent differences in the amount of sweet energy-dense foods consumed by children across age groups or the cohorts.

Non-sweet energy-dense foods

A different trend was observed for the consumption of non-sweet energy-dense foods (such as meat pies, hamburgers, hot dogs, sausages or sausage rolls, hot chips or French fries). The proportion of children eating at least one serve of non-sweet energy-dense foods increased with age, from 55% at 2–3 years to 65% at 6–7 years for the B cohort, and from 63% at 4–5 years to 75% at 10–11 years for the K cohort.

Over half of the children in the B cohort aged 2–5 years were eating non-sweet energy-dense foods each day, with 20% consuming two or more serves. At 6–7 years, while the proportion of the B cohort children eating one serve did not change (37%), there were fewer children who were not eating any (36%) and more children eating two or more serves per day (28%).

Among the K cohort children aged 4–9 years, 35–37% were not eating any non-sweet energy-dense foods, 37–39% were eating only one serve and 26–28% were eating two or more serves per day. The greatest increase in the consumption of non-sweet energy-dense foods was observed when children were 10–11 years old. At this age only 25% of the children were not eating any non-sweet energy-dense foods, while 75% were eating at least one serve per day. Out of those who were consuming non-sweet energy-dense foods, 72% were eating at least two serves per day (43% out of all children) and 28% were eating one serve (32% out of all children).

Soft drinks

Between the ages of 2 and 7 years, 66–71% of B cohort children reported not drinking any soft drinks, 17–23% were drinking one serve per day and 11–12% at least two. A slightly different trend in the consumption of soft drinks was observed among the K cohort children. At 4–5 years, one in two children were not drinking any soft drinks, one in four were drinking one serve per day and one in five were drinking at least two serves per day. At 6–9 years, more children were not drinking any soft drinks (60% at 6–7 years and 62% at 8–9 years) and fewer children were drinking two or more serves (16% at 6–7 years and 13% at 8–9 years). However, at 10–11 years more than half of children were drinking soft drinks (53%): 33% had one serve a day and 21% had two or more serves. Caution should be taken in interpreting the differences between the younger and older children given that children self-reported their dietary intake from the age of 10 years onwards.

Consumption of energy-dense foods at or below the recommended guidelines

Consumption by age of child

According to the NHMRC (2005) guidelines, children from the age of 2 years should on average consume no more than two serves of energy-dense foods per day. Table 6.7 (on page 103) presents the proportions of children in each age group who were eating two serves or fewer of any energy-dense foods (including soft drinks) per day. Between the ages of 2 and 9 years, parents reported that more than half of the children from both cohorts met these guidelines.

Low intake of energy-dense foods was reported for fewer children in the K cohort. At 4–5 years, 53% of children were consuming no more than two serves per day, which increased to 58% for children aged 8–9 years and then dropped to 45% for 10–11 year old children.

Table 6.7: Children eating at or below the recommended amount of energy-dense foods, by cohort and age

Age of child	B cohort		K cohort	
	%	Total (N)	%	Total (N)
2–3 years	66.9	3,980	NA	NA
4–5 years	66.5	3,984	53.3	3,903
6–7 years	57.1	3,985	56.0	3,932
8–9 years	NA	NA	58.4	3,923
10–11 years	NA	NA	45.2	3,877

Note: Total numbers of observations vary due to missing responses.

Consumption across multiple waves

Table 6.8 presents the proportion of children who were eating at or below the recommended amount of energy-dense foods across multiple waves. Out of all B cohort children, 36% were eating no more than two serves of energy-dense foods at all three waves, 30% at any two waves and 22% at any one wave. Different proportions were observed for the K cohort, among whom only 16% were eating no more than two serves of energy-dense foods across all four waves, 25% across any three waves, 27% across any two waves and 22% at only one wave. As for fruit and vegetable intake, the proportion of children eating the recommended amount of energy-dense foods across all waves was substantially lower in the K cohort than the B cohort (16% compared to 36% respectively). The difference is likely to be due to the age of the children and the number of waves used in the analysis rather than other factors.

Table 6.8: Children eating at or below the recommended intake of energy-dense foods across multiple waves, 6–7 year olds (B cohort) and 10–11 year olds (K cohort)

Number of waves	6–7 years (B cohort) (%)	10–11 years (K cohort) (%)
4	NA	16.0
3	36.4	24.8
2	29.9	26.6
1	21.5	21.5
0	12.2	11.2
No. of observations	3,953	3,789

Note: Total numbers of observations vary due to item non-response.

By the age of 6–7 years, 12% of B cohort children exceeded the guidelines for energy-dense food intake over the three waves (i.e., were eating more than two serves per day), and by the age of 10–11 years, 11% of K cohort children exceeded the guidelines over four waves. As high consumption of energy-dense food is a key mechanism of weight gain, these children are likely to be at the greatest risk of obesity. Therefore, to develop targeted interventions it is important to identify the factors associated with these unhealthy eating behaviours.

Factors associated with persistent high intake of energy-dense foods

The analysis presented below examines factors that might be associated with persistent high intake of energy-dense foods for children aged 6–7 and 10–11 years at Wave 4 (12% of the B cohort and 11% of the K cohort respectively). These children were considered to have persistent high intake if they were eating above the recommended amount over all three and four waves respectively. Results of the analysis are presented in Table 6.9 (on page 104). As emphasised in the previous section, due to the different ages and different respondents in the B and K cohorts, the results are not compared across waves.

Table 6.9: Children eating high amounts of energy-dense foods across all waves by socio-demographic and family characteristics, 6–7 and 10–11 year olds

Socio-demographic and family characteristics	6–7 years (B cohort)		10–11 years (K cohort)	
	%	<i>p</i>	%	<i>p</i>
Study child gender				
Male	12.8	ns	12.3	*
Female	11.5		9.7	
Family socio-demographic characteristics				
Parental education				
No university degree or higher	16.3	***	13.8	***
University degree or higher	6.0		6.2	
Family type				
Two-parent family	11.4	*	10.5	*
Single-parent family	16.7		13.8	
Mother’s working status				
Non-working	16.3	***	12.9	ns
Working	9.8		10.4	
Region of residence				
Rural	15.3	***	11.8	ns
Metropolitan	10.4		10.6	
Family financial situation				
Household income				
Average/high income	9.7	***	10.6	ns
Low income	19.3		12.7	
Family financial stress				
No	10.1	***	10.2	*
Yes	17.9		13.6	
Family feeding practices				
Daily evening meals with mother				
No	12.6	ns	13.9	*
Yes	12.1		10.3	
Breastfeeding at 6 months				
No	16.7	***	13.8	***
Yes	8.8		8.9	
Healthiness of mother’s lifestyle				
Physical activity (3+ times per week)				
No	12.5	ns	13.2	***
Yes	11.6		9.1	
Smoking (at least once a day)				
No	10.1	***	9.6	***
Yes	19.2		16.2	
Binge drinking (5+ drinks, 2+ times per month)				
No	11.2	ns	9.6	***
Yes	13.2		18.6	
Fruit intake (2+ serves per day)				
No	13.8	**	13.1	***
Yes	10.2		8.8	
Vegetable intake (5+ serves per day)				
No	12.2	ns	11.3	**
Yes	8.1		6.0	
No. of observations	3,953		3,789	

Note: *** $p < .001$; ** $p < .01$; * $p < .05$; ns = not statistically significant.

There were no significant differences between the boys and girls in the B cohort (13% boys and 12% girls) who were eating high amounts of energy-dense foods across all waves. A larger proportion of K cohort boys (12%) were eating too much energy-dense food across all waves compared to girls (10%, $p < .05$).

A high intake of energy-dense foods was significantly associated with parental education. Children from families with at least one parent with a university degree were less likely to have three or more serves of energy-dense foods per day compared to children from families without a university degree (6% vs 16% in the B cohort and 6% vs 14% in the K cohort, respectively). This pattern was observed across all waves. A larger proportion of B and K cohort children were eating too much energy-dense food across all waves if they were from one-parent compared to two-parent families (17% vs 11% in the B cohort and 14% vs 11% in the K cohort). Mother's working status and region of residence was also associated with the prevalence of high energy-dense food intake across all waves, but only for the B cohort. Children of non-working mothers (16%) and living in rural areas (15%) were more likely to consume high amounts of energy-dense foods compared to children with a working mother (10%) and metropolitan children (10%). Experiencing financial difficulty was also associated with a high energy-dense food intake across all waves. While household income was significantly associated with the prevalence of high intake for B cohort children only, the family's financial stress was a significant correlate for both cohorts. The proportion of children consistently eating high amounts of energy-dense foods, was larger for B cohort low-income families (19%) compared to average/high income families (10%), and larger for families in both cohorts who experienced financial stress (18% in the B cohort and 14% in the K cohort) compared to families not in financial stress (10% in each cohort).

Children in the K cohort who were having daily evening meals with their mother were significantly less likely to eat high amounts of energy-dense foods across all waves (14%) compared to those who did not have daily evening meals with their mother (10%). A larger proportion of children who were eating too much energy-dense food were not breastfed at 6 months (17% for the B cohort and 14% for the K cohort) compared to those who were breastfed (9% for each cohort).

Mother's healthy lifestyle was a protective factor against high energy-dense food intake across all waves. For the K cohort children, having a mother who reported higher levels of physical activity, not smoking, not binge drinking and healthy eating habits was associated with a lower prevalence of high energy-dense food intake for each characteristic across all waves. For the B cohort, having a mother who did not smoke or reported an adequate fruit intake was negatively associated with children's high energy-dense food intake across all waves, while physical activity, drinking behaviour and vegetable intake were not significant factors. Of those children whose mother smoked, 19% of B cohort children and 16% of K cohort children were eating too much energy-dense food across all waves, compared to 10% with non-smoking mothers in both cohorts. Among those children whose mother was not eating enough fruit, 14% (B cohort) and 13% (K cohort) were eating energy-dense foods above the recommendations across all waves, compared to 10% (B cohort) and 9% (K cohort) among children whose mother was eating enough fruit. The proportion of K cohort children who were eating too much energy-dense food across all waves was significantly higher among children with a mother who was exercising less than three days per week (13%), was binge drinking (19%) and was not eating enough vegetables (11%), compared to children with mothers who were physically active (9%), not drinking (10%) and eating enough vegetables (6%).

The relationships presented above are raw figures. After adjusting for all the factors, only a few relationships remained statistically significant: no university degree for either parent and no breastfeeding at 6 months old for both cohorts; not sharing evening meals with mother and mother's binge drinking for K cohort children; and low household income, living in a metropolitan area and mother smoking for the B cohort (Table 6.10 on page 106).

6.5 Eating behaviour patterns of children from different socio-economic groups

Descriptive analyses presented in this chapter suggest that low fruit and vegetable intake and high energy-dense food intake are independently associated with family characteristics. Previous research suggests that health behaviour patterns, as measured by fruit and vegetable intake in combination

with energy-dense food intake, are not random throughout the population, with specific eating patterns being common for individuals from different socio-economic backgrounds (Friestad & Klepp, 2006; WHO, 2006). This section aims to examine the prevalence of different eating behaviour patterns among children from different socio-economic groups.

Typology of eating behaviour

Eating patterns of children were derived according to their intake of fruit, vegetables and energy-dense foods (Cameron et al., 2010). Depending on whether children were meeting recommended guidelines on the selected foods, their eating behaviour patterns were classified as follows:

- *not meeting guidelines*—children who were not eating enough fruit/vegetables and consuming too much energy-dense food (three or more serves) per day;
- *meeting one guideline*—children who were either not eating enough fruit/vegetables and eating two serves or fewer of energy-dense foods per day, or eating enough fruit/vegetables and more than the recommended energy-dense foods; and
- *meeting both guidelines*—children who were eating enough fruit and vegetables and no more than two serves of energy-dense foods per day.

Table 6.11 presents the proportion of children who met or did not meet the recommended guidelines, by age and cohort. Among B cohort children, regardless of age, meeting one guideline was the most common pattern of eating behaviour. At 2–5 years, around half of the children were meeting only one guideline. When children were 6–7 years old, the corresponding proportion decreased slightly to 45%. The second most common pattern of eating behaviour at 6–7 years was meeting both guidelines. At 2–5 years, 33% of children were eating the recommended amount of fruit and vegetables and no more than two serves of energy-dense foods per day. At 6–7 years, the

Table 6.10: Association between high energy-dense food intake across all waves and different factors, adjusting for other characteristics, 2–7 and 4–11 year olds

	2–7 years (B cohort)	4–11 years (K cohort)
Parent with no university degree	+	+
Metropolitan residence	–	ns
Low household income	+	ns
Evening meals with mother	ns	–
Breastfeeding at 6 months	–	–
Mother smoking	+	ns
Mother binge drinking	ns	+

Note: + = positive significant relationship; – = negative significant relationship; ns = no significant relationship.

Table 6.11: Whether children's eating patterns meet recommended guidelines, by age and cohort

Eating behaviour pattern	2–3 years (%)	4–5 years (%)	6–7 years (%)	8–9 years (%)	10–11 years (%)
B cohort					
Not meeting guidelines	19.5	19.7	25.1	NA	NA
Meeting one guideline	47.1	47.7	45.2	NA	NA
Meeting both guidelines	33.3	32.7	29.8	NA	NA
No. of observations	3,965	3,979	3,977	NA	NA
K cohort					
Not meeting guidelines	NA	29.6	26.6	35.3	40.1
Meeting one guideline	NA	44.6	44.6	53.5	50.8
Meeting both guidelines	NA	24.8	28.5	11.1	9.0
No. of observations	NA	3,866	3,912	3,912	3,876

corresponding proportion dropped slightly, with three in ten children meeting both guidelines. One in five children aged 2–5 years and one in four aged 6–7 years were not meeting guidelines at all.

Among K cohort children aged 4–11 years meeting one guideline was also the most common eating pattern (4–7 years: 45%; 8–9 years: 54%; 10–11 years: 51%). The second most common pattern was not meeting the guidelines. At 4–5 years, 30% of children were eating too much energy dense food and not enough fruit and vegetables required for their optimal growth and development. As children grew up the corresponding proportion increased to 40% at 10–11 years. At the same time, the proportions of children who were meeting both guidelines decreased substantially from 25% at 4–5 years to 9% at 10–11 years.

Prevalence of children's eating behaviour patterns by socio-economic position

The socio-economic position of families was derived using highest parental education, parental income and occupational prestige of parents, and divided into three categories: (a) low SEP households, in the bottom quartile (25%) of the SEP distribution; (b) average SEP households, in the middle 50% of the SEP distribution; and (c) high SEP households, in the top quartile (25%) of the SEP distribution.

Figure 6.3 and Figure 6.4 (on page 108) describe the prevalence of eating behaviour patterns of B and K cohort children from different SEP families. Among B and K cohort children, the prevalence of those who were meeting one guideline was similar between children from low-, average- and high-SEP families. Across both cohorts and for all SEP groups, the proportion of children aged 2–11 years who were meeting one guideline varied between 43% and 58%.

The apparent differences between different SEP groups were observed in the prevalence rates of those not meeting guidelines and meeting both guidelines. From a very early age (2–3 years) a higher proportion of children from low-SEP families were not meeting guidelines compared to children from average- and high-SEP families. At 2–3 years, 33% of children from low-SEP families were not meeting guidelines, compared to 17% and 10% of children from average- and high-SEP families respectively. As children grew up, the discrepancy between children from low-SEP families and those from average- and high-SEP families persisted, even though the proportion of children not eating according to the dietary requirements increased across all SEP groups. When children were 10–11 years old, 48% and 40% of children from low and average socio-economic backgrounds respectively were eating too much energy-dense food and not enough fruit and vegetables compared to 28% of children from high-SEP families.

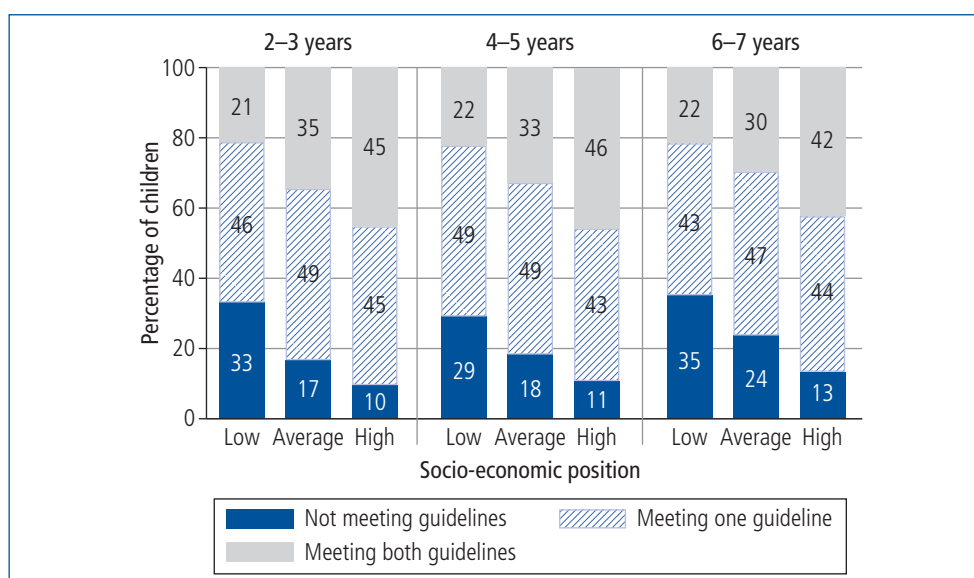


Figure 6.3: Prevalence of children's eating behaviour patterns, by socio-economic position, B cohort (2–7 years)

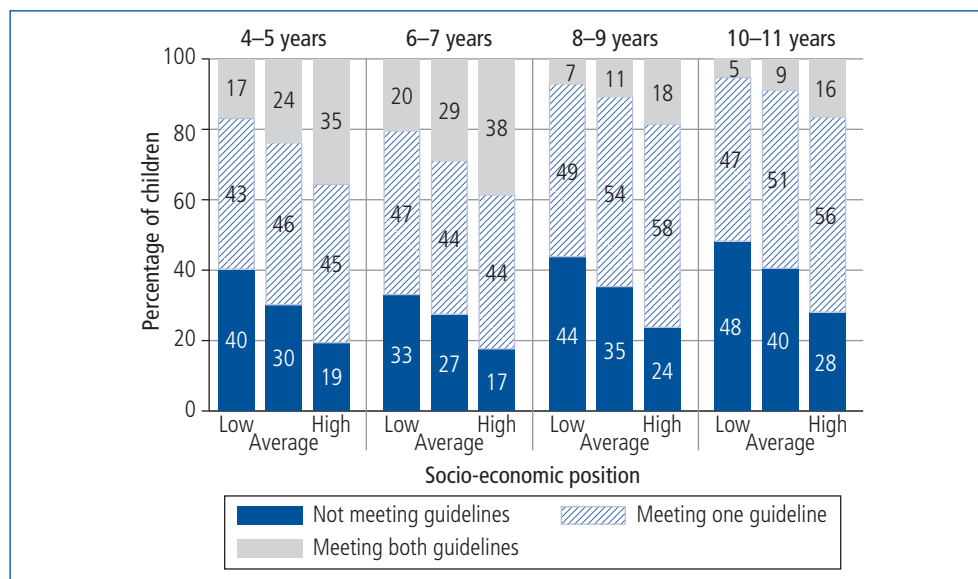


Figure 6.4: Prevalence of children's eating behaviour patterns, by socio-economic position, K cohort (4–11 years)

Conversely, children aged 2–3 years from high SEP-families (45%) were more likely to meet both guidelines compared to children from average- and low-SEP families (35% and 21%, respectively). Similar differences were apparent at all ages and across both cohorts. At 10–11 years, 16% of children from high-SEP families were meeting both guidelines compared to only 5% and 9% of children from average- and low-SEP respectively.

The above analysis has confirmed a substantial socio-economic gradient in children's eating behaviour patterns at 2–11 years, with children from the lowest socio-economic quartile being more likely to not meet the dietary requirements for fruit, vegetables and energy-dense food intake, and children from the highest socio-economic quartile more likely to meet the dietary requirements for the intake of fruit, vegetables and energy-dense foods.

6.6 Conclusion

This study investigated the consumption of fruit, vegetables and energy-dense foods and factors that influence these eating behaviours. Before we discuss the main findings of this study, it is crucial to re-iterate that LSAC participants were only asked how often they ate a particular food, not how many serves were consumed each time they ate, meaning that the study child may have actually eaten more or less than one serve of the food on each occasion. However, for the purposes of this analysis, the number of times the study child ate a specific food was equated with the number of serves consumed. This limitation should be taken into account while interpreting the findings.

Importantly, it was found that approximately 90% of children between the ages of 2 and 7 years ate the recommended servings of fruit daily, though this figure dropped to just 55% among those aged 10–11 years. Vegetable consumption was a more pressing concern, with fewer than half of the children aged 2–7 years meeting the recommended servings of vegetables each day. The figure dropped substantially among older age groups, with only 18% of 8–9 year olds and 32% of 10–11 year olds meeting the recommended intake. Although the reporting protocol for those aged 10–11 changed (from parent-report to self-report), the most important factor here is likely to be that the recommended number of servings for this age group is higher for both fruit (2 serve vs 1) and vegetables (3 serves vs 2) than for younger children. Vegetable serving recommendations for those aged 8–9 years are also higher (3 serves vs 2). These differences in recommendations are reflected strongly in the results, indicating that this may be a critical period during which to engage parents and schools to make them aware of opportunities to increase the number of daily servings during this life stage.

In both cohorts, groups of children whose daily consumption remained below the recommended servings of fruit and vegetables (combined) during all waves of data collection were identified. This

situation was reported for 26% of the B cohort and 30% of the K cohort. These children represent a target group of particular interest as they have unhealthy eating habits that have been persistent for many years, and therefore are likely to track through to adolescence and adulthood. Further analysis revealed these children were more likely to be male, from low income families, single-parent families, rural areas, have parents with no University degree, were not breastfed at 6 months of age, and have mothers with less healthy eating and lifestyle practices.

With regard to energy-dense foods, two-thirds of the B cohort children aged 2–5 years were eating at or below the recommended intake levels, dropping slightly to 43% among those aged 6–7 years. Within the K cohort, more than half of the 4–9 year old children were at or below the recommended intake levels; however, this dropped among the 10–11 year olds to 45%. Again, this may be a function of the change to self-report measures among this older age group.

However, as with fruit and vegetables, these figures demonstrate that a significant proportion of children were not meeting the daily guidelines for energy-dense foods. This presents a potentially important area for intervention, as it may be easier for parents to encourage and supply a lower amount of energy-dense foods than to have children eat more vegetables, though both are equally important.

In the B cohort, 12% of the children exceeded the recommended energy-dense food intake across the three waves and in the K cohort this figure was 11% across four waves. A higher proportion of these children were identified among boys, single-parent families, those from rural areas, households with lower socio-economic characteristics, those who did not eat evening meals with their mothers, were not breastfed at 6 months, and had mothers who had less healthy behaviours with regard to physical activity, smoking, drinking and fruit and vegetable intake.

Dietary patterns related to the consumption of both fruit and vegetables and energy-dense foods were also assessed in this chapter. In the B cohort children, the proportion of children who were not meeting guidelines increased from 20% to 25% between the ages 2–3 years and 6–7 years, whereas the proportion of children who were meeting both guidelines remained fairly stable across different ages (30%). Among K cohort children, the proportion who were not meeting guidelines increased from 30% to 40% between the ages of 4–5 years and 10–11 years, whereas the proportion who were meeting both guidelines fell from 25% to 9% in the same period. The dietary patterns were again socio-economically patterned, with lower SEP families reporting less healthy diets, as indicated by the consumption of fruit, vegetables, and energy-dense foods.

As with previous research, the findings highlight that socio-economic disparities in eating behaviours exist, with those from a lower socio-economic background being less likely to consume diets in line with recommended guidelines. Researchers and policy makers must continue in their pursuit of factors that encourage healthier eating among this group (Ball et al., 2012). A number of factors related to the mother's lifestyle were also identified as potential indicators of increased risk of unhealthy diets. These findings support evidence from a number of previous studies (Cameron et al., 2010; Lien et al., 2002) and highlight the important role mothers and families have in establishing healthy behaviours among their children.

6.7 References

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Body image of primary school children

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7.1 Introduction

Children's dissatisfaction with the way they look is an issue of increasing concern. Negative self-evaluation of body shape may affect children's feelings and thoughts, and lead them to modify their behaviour and develop physical and psychological problems (Cash, 2002b). Studies have shown that children who are dissatisfied with their body size are more likely to follow unhealthy diets (Cash, 2002a; Stice, Mazotti, Krebs, & Martin, 1998), use anabolic steroids (mainly among boys; Cohane & Pope, 2001), and have excessive levels of physical activity (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006). Dieting and excessive exercise in turn can lead to other health problems, such as fatigue and gastrointestinal problems, as well as joint or bone injuries (Neumark-Sztainer et al., 2006). Body dissatisfaction has also been found to be associated with a variety of risky behaviours, including early sexual activity, self-harm, and suicide planning (Cook, MacPherson, & Langille, 2007). Dissatisfaction with one's own body not only affects physical health and behaviours but also may cause psychological distress. Children who report concerns with their body size are likely to report lower levels of global self-worth and poorer self-esteem (Tiggemann, 2005). Low self-esteem in turn might lead to limited engagement in everyday life and the development of social anxiety and depression (Stice, Hayward, Cameron, Killen, & Taylor, 2000; Stice & Shaw, 2002; Tiggemann, 2005).

To develop effective interventions, researchers have focused on identifying characteristics of children who are likely to develop body image dissatisfaction (Edwards George, & Franko, 2010). It has been consistently found that gender and body mass index (BMI)¹ are the main factors associated with body image dissatisfaction (Gardner, Friedman, Stark, & Jackson, 1999; Smolak, 2004). Although the majority of research has found that girls are more likely to be dissatisfied with their body, recent studies have indicated that boys experience dissatisfaction with their body as frequently as girls (Schur, Sanders, & Steiner, 2000). However, a difference has been observed in desired body image. Girls primarily desire thinner bodies than boys, whereas boys have greater variability, with some boys wanting to be thinner and others wanting to be heavier and more muscular (Cohane & Pope, 2001; McCabe & Ricciardelli, 2001). It has also been found that children with a higher BMI are more likely to be dissatisfied with their body image (Thomas, Ricciardelli, & Williams, 2000; Tiggemann, 2005). These associations increase with age and are consistent for both boys and girls (Davison, Markey, & Birch, 2003; McCreary, 2002).

To date, the majority of research has mainly focused on correlates and consequences of body image dissatisfaction in adolescence, as this is the period when puberty begins and the most dramatic body changes are experienced (Cash, 2002b). However, a "thin" ideal is already present among children in primary school years, and children as young as 7 years old report dissatisfaction with their bodies (Levine & Piran, 2004). In a study of 87 girls from South Australia, one in four primary school girls reported dieting to lose weight (Dohnt & Tiggemann, 2006). In the United States, data from the Pittsburgh Girls Study² found that 35% of 9-year-olds and 38% of 10-year-olds

¹ BMI is a function of weight and height used to classify people as underweight, normal weight, overweight, or obese.

² The Pittsburgh Girls Study is a longitudinal, community-based study of 2,451 girls who were initially recruited when they were between the ages of 5 and 8 years.

reported dissatisfaction with their bodies (Liechty, 2010). Skemp-Arlt, Rees, Mikat, and Seebach (2006) interviewed 261 pre-adolescent children from public and private schools in the United States and found that approximately 50% of the children in primary school felt some sort of body dissatisfaction, with 25% wanting to lose weight and 4% having already developed eating disorders.

There is no consistent evidence on whether younger children who are dissatisfied with their body show signs of negative physical and psychological effects. But, if children in middle primary years experience socio-emotional problems (such as low self-esteem or negative mood) that are associated with dissatisfaction with their body, then prevention programs should take place earlier rather than later (Irving, 2000; McCabe, Ricciardelli, & Salmon, 2006; Stice & Shaw, 2004).

This report seeks to build on previous research and, using longitudinal data from a large representative sample of children aged 8–11 years, address the following questions:

- How accurately do underweight, normal weight and overweight boys and girls perceive their body size at 8–9 and 10–11 years old?
- What is the desired body image of underweight, normal weight and overweight boys and girls at 8–9 and 10–11 years old?
- What is the direction and size of body image dissatisfaction of underweight, normal weight and overweight boys and girls at 8–9 and 10–11 years old?
- Are boys and girls aged 10–11 years who are dissatisfied with their body image more likely to control their weight than those who are satisfied?
- To what extent is physical health and socio-emotional wellbeing of underweight, normal weight and overweight boys and girls associated with body image dissatisfaction at age 10–11 years?

This chapter is structured as follows. First, the sample and key measures are introduced. This is followed by an overview on how accurately children perceive their body size and what the desired body image of children is. The next section discusses the size and direction of body image dissatisfaction. Using children's and mothers' reports, children's weight control strategies and eating habits are described in the following section. The associations between children's physical health and socio-emotional wellbeing and the body image dissatisfaction of children of different body status are examined in the final section. A summary of the results concludes the chapter.

7.2 Data and measurement

Sample

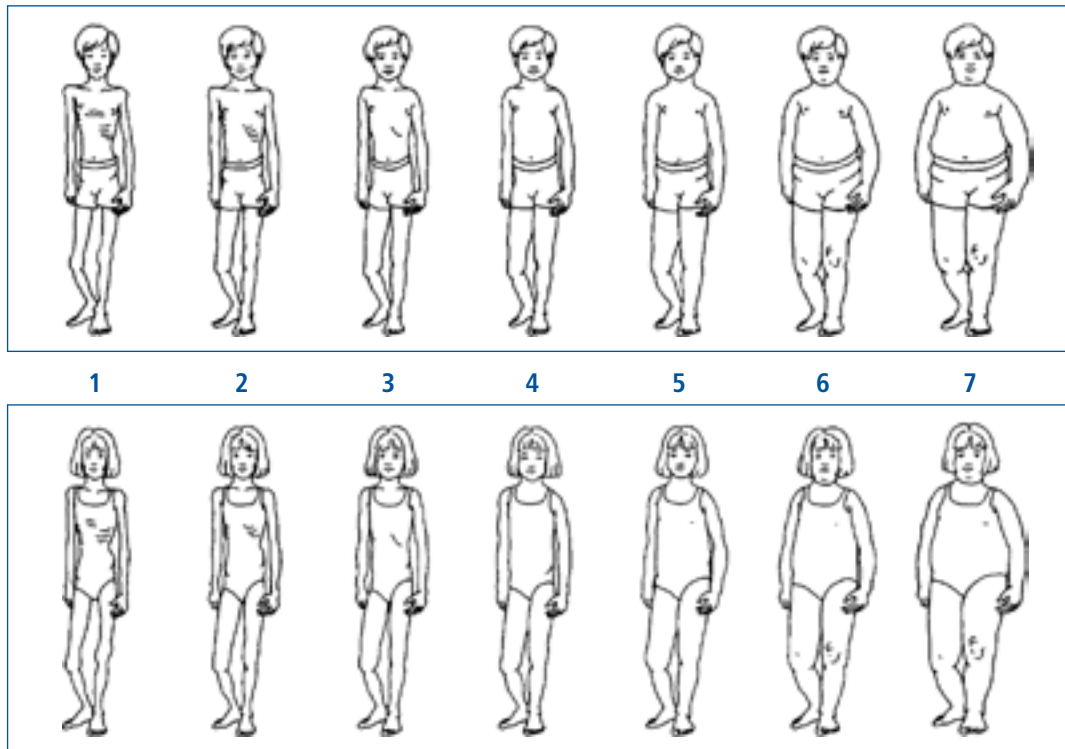
This chapter uses data from K cohort children from the Longitudinal Study of Australian Children (LSAC) when they were aged 8–9 and 10–11 years (Waves 3 and 4, respectively). There were 2,212 boys and 2,119 girls of age 8–9 years and 2,075 boys and 1,975 girls of age 10–11 years who participated in the data collection at Waves 3 and 4. All analyses presented below were conducted separately for boys and girls. Some measures were collected only for 10–11 year old children, therefore the analyses presented in sections 7.5 and 7.6 exclude children at 8–9 years old, whereas sections 7.3 and 7.4 use data from the two waves.

Measurements of body image

In LSAC, body image was measured using the Pictorial Body Image Instrument (Collins, 1991). This is a well-established method for assessing body image dissatisfaction. Boys and girls were presented with a set of seven drawings of children (matched to the respondent's gender), ranging in size from very thin to obese, and numbered from one (very thin) to seven (obese) (Figure 7.1 on page 113).

Collins (1991) did not assign the pictures either to a body mass index range or classify them according to body mass status. For the purpose of this chapter, picture 4 was chosen as the reference and other pictures were classified relative to picture 4:

- picture 1 or 2 = thin;
- picture 3 = thinner than average;
- picture 4 = average;
- picture 5 = larger than average; and
- picture 6 or 7 = large.



Source: Collins (1991)

Figure 7.1: The children's pictorial body image scale, by gender

Perceived body image

During the LSAC interview, every child was asked two questions about their body size. Firstly, the child was asked to choose the picture that looked most like him/her. This picture was identified as the *perceived body image*. The perceived body image was derived for 2,171 boys and 2,075 girls aged 8–9 years and 2,032 boys and 1,937 girls aged 10–11 years.

Desired body image

Then, the child was asked to choose the picture that showed the way he/she wanted to be. This picture was identified as the *desired body image*. The desired body image was derived for 2,169 boys and 2,073 girls aged 8–9 years and 2,035 boys and 1,938 girls aged 10–11 years.

Body image dissatisfaction

The discrepancy between the perceived and the desired body images was used to measure the degree of *body image dissatisfaction*. A positive score suggested that the child wanted to be thinner, a negative score suggested that the child wanted to be larger, and a score of zero suggested that the child was satisfied with their size (their current self-perception matched their desired body shape). For the body image dissatisfaction measure, the absolute discrepancy was also calculated to remove the direction and the extent of dissatisfaction.

Some studies suggest that pictorial images are insufficient on their own for measuring body image dissatisfaction, as a discrepancy between perceived and desired body image may not actually indicate dissatisfaction with body (Vander Wal & Thelen, 2000). Current research emphasises the need to collect attitudinal information on body image dissatisfaction rather than only relying on any discrepancy between perceived and desired body images.

Note also that this chapter only focuses on one aspect of body dissatisfaction; that is, dissatisfaction with body size. Dissatisfaction with facial features, skin colour and physical attractiveness are not addressed.

Body mass index and body mass status

One of the key measures used in this chapter is body mass index. At each wave, trained interviewers measured the child's weight and height, and the BMI was calculated as weight divided by height squared (kg/m^2 ; for details, see Wake & Maguire, 2012). In this chapter, boys and girls were categorised as being underweight, normal weight or overweight according to their body mass status. The child was classified as being overweight or obese following the International Obesity Taskforce age- and sex-specific BMI cut-off points (Cole, Bellizzi, Flegal, & Dietz, 2000) and as underweight using the Cole cut-off points derived using comparable methods (Cole, Flegal, Nicholls, & Jackson, 2007). All other children were classified as being of normal weight. Table 7.1 reports on the proportion of children with different body mass status by gender and age. The proportion of underweight children in the LSAC sample reflects the proportion of underweight children in the population. However, it should be kept in mind that the sample size for this group is small.

Table 7.1: Proportion of underweight, normal weight, and overweight children, by age and gender				
Body mass status	Age 8–9 years		Age 10–11 years	
	Boys (%)	Girls (%)	Boys (%)	Girls (%)
Underweight	4.9	6.1	4.7	6.9
Normal weight	71.8	67.2	66.5	65.1
Overweight	23.3	26.6	28.8	28.0
Total	100.0	100.0	100.0	100.0
No. of observations	2,166	2,072	1,982	1,870

Notes: Percentages may not total exactly 100.0% due to rounding.

Source: K cohort, Waves 3 and 4

7.3 Perceived and desired body images of 8–11 year olds by body mass status

This section examines how accurately children reported their body size (perceived body image). It also examines the desired body size of children and whether underweight, normal weight and overweight children all wanted to have a similar desired body size. Note that as different sets of pictures were used for boys and girls, their results are presented separately.

As pictures were not assigned either to body mass index or body mass status, direct comparison between pictures and child's BMI cannot be made. To assist the correspondence between pictures and BMI, the results are presented separately for children of different body mass status (underweight, normal weight and overweight). Table 7.2 outlines the categories that were developed to evaluate how accurately children of different body mass status perceived their body size.

Table 7.2: Accuracy of how children perceived their body size, by body mass status			
Perceived body size	Body mass status		
	Underweight	Normal weight	Overweight
Picture 1 or 2	Accurate	Inaccurate	Inaccurate
Picture 3		Relatively accurate	
Picture 4	Relatively accurate	Accurate	Relatively accurate
Picture 5	Inaccurate	Relatively accurate	Accurate
Picture 6 or 7		Inaccurate	

It was considered that underweight children perceived their body size accurately if they chose picture 1, 2 or 3, relatively accurate if they chose picture 4, and inaccurately if they chose picture 5, 6 or 7 as their current body size. Normal weight children were considered to perceive themselves accurately if they chose picture 4, relatively accurate if they chose picture 3 or 5, and inaccurately if they chose picture 1, 2, 6 or 7. Lastly, overweight children were considered to report their current

body size accurately if they chose picture 5, 6 or 7, relatively accurate if they chose picture 4, and inaccurately if they chose picture 1, 2 or 3.

Body images of boys

Table 7.3 describes the perceived and the desired body images of underweight, normal weight, and overweight boys aged 8–9 and 10–11 years.

Table 7.3: Perceived and desired body images of boys, by age and body mass status								
Body image								
								
Body mass status		Thin (%)	Thinner than average (%)	Average (%)	Larger than average (%)	Large (%)	Mean	Total (N)
Age 8–9 years								
Underweight	Perceived	25.7	41.7	28.0	4.6	0.0	3.02	108
	Desired	22.7	20.8	42.5	14.1	0.0	3.40	108
Normal weight	Perceived	11.5	33.4	47.1	7.5	0.5	3.48	1,585
	Desired	18.5	32.2	41.4	7.2	0.7	3.32	1,585
Overweight	Perceived	2.7	9.3	46.6	35.0	6.4	4.33	470
	Desired	20.2	38.2	37.1	4.2	0.2	3.17	468
All	Perceived	10.1	28.2	46.1	13.7	1.9	3.66	2,163
	Desired	19.1	33.0	40.4	6.9	0.5	3.29	2,161
Age 10–11 years								
Underweight	Perceived	15.5	57.5	27.1	0.0	0.0	3.09	93
	Desired	7.2	41.5	45.8	5.5	0.0	3.48	93
Normal weight	Perceived	5.5	36.8	49.8	7.9	0.1	3.59	1,362
	Desired	9.9	39.2	46.0	4.7	0.2	3.44	1,361
Overweight	Perceived	0.5	4.7	32.4	50.0	12.4	4.70	535
	Desired	8.9	34.9	49.9	5.5	0.8	3.52	539
All	Perceived	4.5	28.5	43.7	19.6	3.6	3.90	1,990
	Desired	9.5	38.1	47.1	5.0	0.3	3.47	1,993

Notes: Percentages may not total exactly 100.0% due to rounding.

Source: K cohort, Waves 3 and 4

Underweight boys

The majority of underweight boys aged 8–9 years (68%) were able to report their body size accurately (i.e., chose picture 1, 2 or 3). Twenty-eight per cent of the boys perceived their body size relatively accurately (chose picture 4) while 5% clearly overestimated their body size (chose picture 5). At age 10–11 years, more boys (73%) reported their body size accurately. Compared to 8–9 year olds, a similar proportion were able to report their body size relatively accurately (27%) and none overestimated their body size.

More than half of the underweight boys aged 8–9 years (64%) wanted to have a “thinner than average” or “average” body size (i.e., chose picture 3 or 4). About 23% wanted to be “thin” (chose picture 1 or 2) and 14% wanted to be “larger than average” (chose picture 5) and none wanted to be “large” (chose picture 6 or 7). As the boys grew up, a smaller proportion of these underweight

boys wanted to be thin (7%) or larger than average (6%). The majority (88%) wanted to be either thinner than average or average.

The average perceived and desired body images for underweight boys at age 8–9 years were 3.02 and 3.40 respectively, and at age 10–11 years were 3.09 and 3.48 respectively.

Normal weight boys

Among normal weight boys aged 8–9 years, almost 90% reported their body size accurately or relatively accurately (i.e., chose picture 3, 4 or 5). Just over 10% of boys clearly underestimated their body size (chose picture 1 or 2) and 1% overestimated (chose picture 6 or 7). At age 10–11 years, 95% of normal weight boys reported their body size accurately or relatively accurately. Only 6% of boys clearly underestimated their body size and less than one per cent clearly overestimated.

The largest group of normal weight boys aged 8–9 years (41%) comprised those who wanted to be average in size (chose picture 4), followed by 32% of boys who wanted to be thinner than average (chose picture 3). Almost one in five boys (19%) wanted to be thin (chose picture 1 or 2). Only 7% of boys wanted to be larger than average (chose picture 5) and less than 1% wanted to be large (chose picture 6 or 7). Compared to 8–9 year olds, more 10–11 year old boys wanted to be average (46%) or thinner than average (39%) and fewer boys wanted to be thin (10%), larger than average (5%) or large (less than 1%).

The average perceived and desired body images for normal weight boys at age 8–9 years were 3.48 and 3.32 respectively, and at age 10–11 years were 3.59 and 3.44 respectively.

Overweight boys

Among overweight boys aged 8–9 years, around 40% accurately reported their body size (i.e., chose picture 5, 6 or 7). Almost half (47%) reported their body size relatively accurately (chose picture 4), while 12% underestimated their current body size (chose picture 1, 2 or 3). Compared to 8–9 year olds, more overweight boys of age 10–11 years (62%) accurately reported their body size. Also, a smaller proportion of 10–11 year olds (5%) underestimated their body size.

Among overweight boys aged 8–9 years, 75% wanted to be thinner than average or average (i.e., chose picture 3 or 4). One in five boys wanted to be thin (chose picture 1 or 2) and only 4% wanted to be larger than average or large (chose picture 5, 6 or 7). At age 10–11 years, more overweight boys wanted to be average in size (50%) and fewer wanted to be thin (9%) compared to 8–9 year olds. The proportions of those who wanted to be thinner than average, larger than average or large remained relatively similar.

The average perceived and desired body images for overweight boys at age 8–9 years were 4.33 and 3.17 respectively, and at age 10–11 years were 4.70 and 3.52 respectively.

Body images of girls

Table 7.4 (on page 117) describes the perceived and the desired body images of underweight, normal weight, and overweight girls aged 8–9 and 10–11 years.

Underweight girls

The majority of underweight girls aged 8–9 years (63%) were accurate in reporting their current body size (i.e., chose picture 1, 2 or 3) and 36% perceived themselves relatively accurately (chose picture 4). Two per cent of underweight girls clearly overestimated their body size (chose picture 6 or 7). None slightly overestimated their size (chose picture 5). At age 10–11 years, 70% of underweight girls were able to report their body size accurately. Compared to 8–9 year olds, a similar proportion of 10–11 year olds (29%) reported their body size relatively accurately, while only 1% clearly overestimated their body size.

At age 8–9 years, 45% of underweight girls wanted to be average in size (chose picture 4), 30% wanted to be thinner than average (chose picture 3) and 19% wanted to be thin (chose picture 1 or 2). A very small proportion of girls (6%) wanted to be larger than average or large (chose picture 5, 6 or 7). A different outcome was observed when girls got older. One in two older girls (54%)

Table 7.4: Perceived and desired body images of girls, by age and body mass status

Body image								
								
Body mass status		Thin (%)	Thinner than average (%)	Average (%)	Larger than average (%)	Large (%)	Mean	Total (N)
Age 8–9 years								
Underweight	Perceived	29.8	32.6	35.7	0.0	1.9	3.06	120
	Desired	19.4	29.9	44.5	5.4	0.8	3.33	120
Normal weight	Perceived	12.8	26.2	52.4	8.1	0.5	3.55	1,420
	Desired	23.0	34.3	39.3	3.2	0.1	3.16	1,419
Overweight	Perceived	2.1	11.2	46.2	36.2	4.2	4.30	531
	Desired	20.1	37.1	38.3	4.3	0.1	3.19	530
All	Perceived	11.0	22.5	49.7	15.2	1.6	3.72	2,071
	Desired	22.0	34.8	39.4	3.6	0.1	3.18	2,069
Age 10–11 years								
Underweight	Perceived	26.6	43.0	29.3	1.1	0.0	3.01	131
	Desired	8.1	37.2	53.7	1.0	0.0	3.44	131
Normal weight	Perceived	5.1	24.8	59.2	10.3	0.7	3.76	1,265
	Desired	9.6	32.6	55.4	2.4	0.0	3.49	1,265
Overweight	Perceived	0.5	3.3	36.6	50.3	9.3	4.65	486
	Desired	7.4	29.1	55.9	7.1	0.4	3.63	487
All	Perceived	5.3	20.0	50.8	20.9	3.0	3.97	1,882
	Desired	8.9	32.0	55.4	3.6	0.1	3.52	1,883

Notes: Percentages may not total exactly 100.0% due to rounding.

Source: K cohort, Waves 3 and 4

wanted to be average size, 37% wanted to be thinner than average, 8% wanted to be thin and only 1% wanted to be larger than average. None wanted to be large.

The average perceived and desired body images for underweight girls at age 8–9 years were 3.06 and 3.33 respectively, and at age 10–11 years were 3.01 and 3.44 respectively.

Normal weight girls

At age 8–9 years, one in two normal weight girls (52%) accurately reported their body size (chose picture 4), and 34% reported their body size relatively accurately (chose picture 3 or 5). About 14% of normal weight girls reported their body size inaccurately, with 13% underestimating (chose picture 1 or 2) and 1% overestimating (chose picture 6 or 7). At age 10–11 years, the proportion of normal weight girls who accurately perceived their body size increased by seven percentage points (59%). The proportion of those who perceived their body size relatively accurately remained similar, while the proportion who were inaccurate in their perceptions dropped to 6%.

The majority of normal weight girls aged 8–9 years (57%) wanted to be thin or thinner than average (chose picture 1, 2 or 3). Thirty-nine per cent of 8–9 year old girls wanted to be average (chose picture 4) and 3% wanted to be larger than average (chose picture 5). A smaller proportion of older girls wanted to be thin (10%) and a greater proportion of them wanted to be average (55%) compared to 8–9 year olds. The proportion of girls who wanted to be thinner than average (33%)

remained similar among older girls compared to younger girls. Only 2% of 10–11 year old girls wanted to be large.

The average perceived and desired body images of normal weight girls at age 8–9 years were 3.55 and 3.16 respectively, and at age 10–11 years were 3.76 and 3.49 respectively.

Overweight girls

Among overweight girls 8–9 years old, 40% were able to report their body size accurately (chose picture 5, 6 or 7). Forty-six per cent perceived themselves relatively accurately (chose picture 4) and 13% underestimated their body size (chose picture 1, 2 or 3). The proportion of overweight girls who perceived their body size accurately was greater among 10–11 year olds (59%) compared to 8–9 year olds. Thirty-seven per cent of the older girls reported their body image relatively accurately and only 4% underestimated their body size.

The majority of overweight girls 8–9 years old (57%) wanted to be thin or thinner than average (chose picture 1, 2 or 3). Thirty-eight per cent wanted to be average (chose picture 4) and only 4% wanted to be larger than average (chose picture 5). A different pattern was observed for overweight girls when 10–11 years old. The majority of older girls (56%) wanted to be average, 29% wanted to be thinner than average and only 7% wanted to be thin. A greater proportion of older girls (8%) wanted to be larger than average or large.

The average perceived and desired body images of overweight girls at age 8–9 years were 4.30 and 3.19 respectively, and at age 10–11 years 4.65 and 3.63 respectively.

Main findings

The findings from this section suggest that:

- on average, regardless of age and gender, a greater proportion of underweight children perceived themselves to have a thinner than average body shape compared to normal weight and overweight children;
- on average, regardless of age and gender, a greater proportion of overweight children perceived themselves to be larger than average compared to underweight and normal weight children;
- regardless of age and gender, the proportion of children who perceived their body size accurately was greater among underweight children and smaller among overweight children;
- regardless of age and gender, underweight children were less likely to overestimate their body size;
- regardless of age and gender, normal and overweight children were more likely to underestimate their body size;
- regardless of body mass status and gender, at age 10–11 years children were more likely to report their body size accurately compared to when they were 8–9 years old;
- on average, regardless of gender, the desired body image of 10–11 year olds was similar between underweight, normal weight and overweight children;
- at age 8–9 years, regardless of gender, more children wanted to have a thinner than average body size rather than an average body size;
- at age 10–11 years, the proportion of boys who wanted to be thinner than average (48%) was the same as those who wanted to be average (47%); and
- at age 10–11 years, the proportion of girls who wanted to be of average body size was greater (55%) than the proportion of girls who wanted to be thinner than average (41%).

7.4 Body image dissatisfaction of 8–11 year olds by body mass status

This section examines the direction and the extent to which boys and girls 8–11 years old were dissatisfied with their current body size and whether their level of body image dissatisfaction varied by age and/or body mass status of the child.

As described in section 7.2, body image dissatisfaction was measured by the discrepancy between perceived and desired body size, with positive values suggesting that the child wanted to have a thinner body and negative values suggesting that the child wanted to have a larger body size. For the purpose of the analysis the differences were categorised as follows:

- –2 or more: the child wanted to be much larger than they thought they were; that is, the desired body image was two or more figures larger than the perceived body image;
- –1: a child wanted to be larger; that is, the desired body image was one figure larger than the perceived body image;
- 0: a child wanted to be the same; that is, there was no significant difference between the perceived and desired body images;
- 1: a child wanted to be thinner; that is, the desired body image was one figure thinner than the perceived body image;
- 2 or more: a child wanted to be much thinner; that is, the desired body image was two or more figures thinner than the perceived body image.

Body image dissatisfaction of boys

Table 7.5 presents the prevalence and the direction of body image dissatisfaction among boys of different body mass status by age.

Table 7.5: Prevalence of body image dissatisfaction among boys, by age and body mass status						
	2 or more (much thinner) (%)	1 (thinner) (%)	0 (the same) (%)	–1 (larger) (%)	–2 or more (much larger) (%)	Total (N)
Age 8–9 years						
Underweight	4.3	6.5	49.6	29.6	10.0	108
Normal weight	7.3	24.9	47.9	16.1	3.9	1,585
Overweight	29.6	42.3	25.4	2.1	0.6	468
All	12.3	28.0	42.7	13.5	3.4	2,161
Age 10–11 years						
Underweight	0.6	3.4	56.7	34.7	4.6	93
Normal weight	4.2	18.7	66.4	9.2	1.5	1,361
Overweight	32.7	47.1	18.8	1.0	0.3	535
All	12.2	26.1	52.3	8.1	1.3	1,989

Notes: Percentages may not total exactly 100.0% due to rounding.

Source: K cohort, Waves 3 and 4

Underweight boys

At age 8–9 years, half of the underweight boys were satisfied with their body size (i.e., 50% of boys wanted to be the same size as they perceived themselves), 30% wanted to be larger and 10% wanted to be much larger. A very small proportion of underweight children wanted to be smaller (7% wanted to be thinner and 4% wanted to be much thinner). At age 10–11 years more underweight boys were satisfied with their body size (57%) and more wanted to be larger (35%), while the proportion of boys who wanted to be much larger decreased (5%). An even smaller proportion of older underweight boys wanted to be thinner (3%) or much thinner (1%).

Normal weight boys

At age 8–9 years, almost half of the normal weight boys were satisfied with their body size (48%), while 25% wanted to be thinner and 7% wanted to be much thinner. Sixteen per cent wanted to be larger and 4% wanted to be much larger. A different pattern is observed when boys were 10–11 years old. Around 66% of normal weight boys were satisfied with their body size, 19% wanted to be thinner and 9% wanted to be larger. The proportion of boys who wanted to be much thinner or much larger also dropped, to 4% and 2% respectively.

Overweight boys

Out of all boys aged 8–11 years, overweight boys were less likely to be satisfied with their body size. Only a quarter were satisfied, while 42% wanted to be thinner and 30% wanted to be much thinner. Only 2% wanted to be larger and less than 1% wanted to be much larger. The proportion of those who were dissatisfied with their body size increased even more when boys grew older. At age 10–11 years, only 19% of overweight boys were satisfied with their body size, while 47% wanted to be thinner and 33% much thinner.

Body image dissatisfaction of girls

Table 7.6 presents the prevalence and the direction of body image dissatisfaction among girls of different body mass status by age.

	2 or more (much thinner) (%)	1 (thinner) (%)	0 (the same) (%)	–1 (larger) (%)	–2 or more (much larger) (%)	Total (N)
Age 8–9 years						
Underweight	3.7	11.9	49.5	24.8	10.0	120
Normal weight	9.9	28.0	51.8	8.6	1.6	1,419
Overweight	31.1	39.6	26.8	1.9	0.6	530
All	15.2	30.1	45.0	7.8	1.9	2,069
Age 10–11 years						
Underweight	0.0	4.4	56.9	30.8	7.9	131
Normal weight	4.1	23.8	66.5	5.4	0.2	1,265
Overweight	24.8	48.8	23.4	2.9	0.0	486
All	9.6	29.4	53.8	6.5	0.7	1,882

Notes: Percentages may not total exactly 100.0% due to rounding.

Source: K cohort, Waves 3 and 4

Underweight girls

At age 8–9 years, 50% of the underweight girls were satisfied with their body size, 25% wanted to be larger and 10% wanted to be much larger. Only 12% wanted to be thinner and 4% wanted to be much thinner. Compared to 8–9 year olds, more girls aged 10–11 years were satisfied with their body size (57%) and more wanted to be larger (31%). A much smaller proportion of older girls wanted to be thinner (4%) and no one wanted to be much thinner. These results are similar to those observed for underweight boys of the same age.

Normal weight girls

Half of the normal weight girls aged 8–9 years were also satisfied with their body size (52%), while 28% wanted to be thinner and 10% wanted to be much thinner. A much smaller proportion of girls wanted to be larger (9%) or much larger (2%). Compared to 8–9 years, a greater proportion of girls 10–11 years were satisfied with their body (67%) and a smaller proportion of older girls wanted to be thinner (24%) or much thinner (4%). Older girls were also less likely to want to be larger; that is, only 5% wanted to be larger and less than 1% wanted to be much larger. Again, these results are very similar to those observed for the same-aged boys of normal weight.

Overweight girls

Compared to underweight and normal weight girls, overweight girls were less likely to be satisfied with their body image. Only 27% of overweight girls aged 8–9 years were satisfied, while 40% wanted to be thinner and 31% wanted to be much thinner. A very small proportion wanted to be larger (2%) or much larger (less than 1%). As was the case for overweight boys, the proportion of overweight girls who were satisfied with their body decreased with age. At 10–11 years old, only 23% of the girls were satisfied, while the proportion who wanted to be thinner or much thinner

increased to 74% (49% and 25% respectively). It is worth emphasising that while the proportion of overweight girls who wanted to be thinner increased (40% at 8–9 years old vs 49% at 10–11 years old), the proportion of overweight girls who wanted to be much thinner decreased (31% at 8–9 years old vs 25% at 10–11 years old).

Main findings

As children grew older, the proportion who were satisfied with their body increased among underweight and normal weight children but decreased among overweight children, regardless of gender.

In general, it is of interest to understand the direction of dissatisfaction; however, the percentage of children who desire a thinner or larger body size might have little meaning on its own. Therefore, the analyses presented in the following sections use the binary measure of body image dissatisfaction: whether a child was dissatisfied or satisfied with their body image regardless of the direction or size of dissatisfaction. This approach also makes the comparison between boys and girls more appropriate.

7.5 Weight management and body image dissatisfaction

This section examines whether weight management was associated with body image dissatisfaction. Children were asked whether they were trying to lose, gain or keep their weight; however, they were not asked exactly how they were doing it (e.g., limiting food intake to lose weight, eating “junk” food or larger quantities to gain weight, or exercising). To understand eating behaviour, mothers’ responses were used.³ Mothers were asked whether they were concerned with the amount of food their children were eating. This section uses the data of 10–11 year olds only, as these questions were not asked in Wave 3. The analysis is presented separately for boys and girls and by body mass status. All the differences reported in this chapter are statistically different at a 5% level of significance.

Weight management strategies

At age 10–11 years, boys and girls were asked about their weight management strategies during the last 12 months before the interview and at the time of the interview. First, they were asked whether they had done anything to control their weight (tried to lose weight or keep from gaining weight) during the last 12 months. Note that children were not asked whether they tried to *lose or gain* weight, but rather whether they *controlled* their weight. The majority of children had tried to manage their weight. This was true for both boys (61%) and girls (56%).

The children were then asked to pick one option that best described what they were trying to do about their weight at the time of the interview. Children could specify whether they were trying to lose weight, gain weight, stay the same, or do nothing. Among 10–11 year olds, 38% of boys and girls were trying to lose weight, 8% of boys and 5% of girls were trying to gain weight, 33% of boys and 31% of girls were trying to stay the same weight, whereas 20% of boys and 26% of girls did nothing. Thus, there were no gender differences among boys and girls who were trying to lose weight, whereas more boys tried to gain weight and fewer did nothing to control their weight compared to girls of the same age.

Table 7.7 (on page 122) shows the weight management strategies used by boys and girls over the previous 12 months and at the time of interview, by whether they were satisfied with their body image and their body mass status.

³ Only mothers’ responses were used, as fathers’ were not asked these questions.

Table 7.7: Weight management strategies of boys and girls, by body image dissatisfaction and body mass status

Weight management strategies	Satisfied with body image				Dissatisfied with body image				All (%)
	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	
Boys									
Any strategies in last 12 months	29.5	49.1	65.2	50.3	38.5	63.3	83.6	72.3	60.8
Strategies at time of interview									
Lose weight	7.3	17.4	44.3	19.8	6.2	40.0	80.3	58.9	38.5
Gain weight	20.8	4.9	0.0	5.1	47.4	18.1	1.2	10.8	7.8
Stay the same weight	45.2	47.4	37.0	46.1	22.1	27.0	11.9	19.3	33.3
Do nothing	26.7	30.4	18.6	29.0	24.3	14.9	6.7	11.0	20.4
Total (N)	52	907	114	1,021	40	453	419	872	1,893
Girls									
Any strategies in last 12 months	21.1	40.6	63.5	42.2	34.9	64.5	86.7	73.2	56.2
Strategies at time of interview									
Lose weight	2.2	15.8	42.8	18.1	5.6	46.7	82.1	60.7	37.7
Gain weight	5.0	3.1	0.7	2.9	51.1	5.7	1.6	6.5	4.7
Stay the same weight	56.0	42.7	34.5	42.8	22.3	26.0	9.3	18.1	31.3
Do nothing	36.8	38.4	22.0	36.3	20.9	21.6	7.1	14.6	26.4
Total (N)	82	852	117	1,051	49	406	368	823	1,874

Notes: For each category, children who had not controlled their weight in the previous 12 months or at the time of interview were omitted.

Source: K cohort, Wave 4

Weight management of boys during the last 12 months

The proportion of boys who tried to control their weight within the last 12 months was smaller among boys who were satisfied with their body image compared to those who were dissatisfied. Overall, 50% of boys who were satisfied tried to control their weight compared to 72% who were dissatisfied.

Body mass status was a significant correlate of boys' weight management strategies, regardless of body image dissatisfaction. Regardless of whether boys were satisfied or dissatisfied with their body image, underweight boys were less likely to control their weight compared to normal weight and overweight boys, while overweight boys were more likely to control their weight compared to normal weight and underweight boys. Among boys who were satisfied with their body size, 30% of underweight, 49% of normal weight and 65% of overweight boys tried to control their weight. A similar pattern was observed among those who were dissatisfied with their body; that is, 39% of underweight boys, 63% of normal weight and 84% of overweight boys tried to control their weight.

Weight management of girls during the last 12 months

The same pattern of relationships between weight management strategies during the last 12 months and body image dissatisfaction was observed among girls of different body mass status. Overall, 42% of girls who were satisfied with their body size tried to control their weight, compared to 73% of girls who were dissatisfied with their body. The same relationships as for boys were observed among girls of different body mass status. Among girls of the same status, those who were satisfied with their body size were less likely to control their weight compared to those who were dissatisfied (underweight: 21% satisfied vs 35% unsatisfied; normal weight: 41% vs 65%; overweight: 64% vs 87%). As among boys, the proportion of girls who tried to control their weight during the last

12 months was greater among overweight girls and smaller among underweight girls, regardless of whether they were satisfied or dissatisfied with their body size.

Current weight management strategies of boys

A deeper understanding of children's current weight management strategies comes from children being asked what they aimed to do to control their weight at the time of the interview. Overall, the proportion of boys and girls who were trying to lose or gain weight was greater among those who were dissatisfied with their body image while the proportion of those who were trying to stay the same or did nothing was greater among those who were satisfied with their body size. These results are similar to the children's overall weight control behaviour within the last 12 months.

Among boys who were satisfied with their body size, the majority tried to stay the same (46%), 29% did nothing, 20% were trying to lose weight and 5% were trying to gain weight. Among boys who were dissatisfied, only 11% did nothing with their weight, 19% tried to stay the same, 11% tried to gain weight and the majority (59%) tried to lose weight.

Variations in specific weight management strategies were observed according to the boys' body mass status. The proportion of underweight boys who were trying to lose weight or did nothing to control weight was about the same regardless of whether they were satisfied or dissatisfied with their body size (did nothing: 27% satisfied vs 24% dissatisfied; lose weight: 7% vs 6%). However, the proportion of those who were trying to gain weight was greater among underweight boys who were dissatisfied with their body size (47%) compared to those who were satisfied with their body size (21%). The proportion of those who were trying to stay the same was greater among underweight boys who were satisfied with their body size (45%) compared to those who were dissatisfied (22%).

Among boys of normal weight who were satisfied with their body size, 47% wanted to stay the same and 30% did nothing. The corresponding proportions among normal weight boys who were dissatisfied with their body size were substantially smaller; that is, 27% tried to stay the same and 15% did nothing. At the same time, the proportions of normal weight boys who were trying to lose or gain weight were considerably greater among those who were dissatisfied with their body size (40% and 18% respectively) compared to those who were satisfied (17% and 5% respectively).

A different picture was observed for overweight boys. In this group, regardless of whether they were satisfied or dissatisfied with their body size, the most common weight management strategy was losing weight, followed by staying the same and then doing nothing, though the proportion of those who wanted to lose weight was much greater among overweight boys who were dissatisfied with their body (80%) compared to those who were satisfied (44%).

Current weight management strategies of girls

Similar relationships were observed for girls. Among girls who were satisfied with their body image, 43% tried to stay the same weight, 36% did nothing, 18% tried to lose weight and 3% tried to gain weight. While among girls who were dissatisfied with their body, only 18% tried to stay the same, 15% did nothing, 7% tried to gain weight and the majority (61%) tried to lose weight.

As was the case with boys, differences in weight management strategies were observed by body mass status. Among underweight girls, a majority of those who were satisfied with their body size (56%) tried to stay the same weight, while a majority of those who were dissatisfied (51%) tried to gain weight. Among normal weight girls, staying the same weight was the most common weight management strategy among those who were satisfied with their body (43%), whereas the most common strategy among those who were dissatisfied was to lose weight (47%). Among overweight girls, the most common strategy was to lose weight, though the proportion was greater among those who were dissatisfied with their body size (82%) compared to those who were satisfied (43%).

Mothers' concern about their children's eating habits

To understand whether children who were dissatisfied with their body image had different eating habits compared to those who were satisfied, mothers' responses on the following questions were used:

- Do you have any concerns at the moment that the child eats too little?

- Do you have any concerns at the moment that the child eats too much, or eats unhealthy food?

Table 7.8 describes the distribution of mothers' responses by children's body image satisfaction and body mass status. Around 15% of mothers reported that they were concerned that their child was eating too little and around 40% of mothers were concerned that their child was eating too much or unhealthy food.

Table 7.8: Proportion of boys and girls with poor eating habits, mother reports, by body image dissatisfaction and body mass status

	Satisfied with body image				Dissatisfied with body image				All (%)
	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	
Boys									
Child eating too little	35.8	17.7	2.3	16.8	52.5	19.2	1.5	11.9	14.6
Child eating too much/unhealthy	19.3	27.2	59.8	30.2	30.3	33.6	76.7	54.5	41.7
Total (N)	52	899	113	1,064	39	452	415	906	1,970
Girls									
Child eating too little	36.8	15.2	4.8	15.3	49.9	13.7	4.7	11.7	13.8
Child eating too much/unhealthy	30.5	25.8	61.2	30.4	17.5	32.5	69.9	49.3	39.1
Total (N)	81	848	117	1,046	49	405	367	821	1,867

Notes: For each category, mother reports that they were not concerned about their children's eating habits were omitted.

Source: K cohort, Wave 4

Mothers' concern about their children's eating too little

Overall, the proportion of mothers who were concerned that their child was eating too little was greater among boys who were satisfied with their body image compared to boys who were dissatisfied with their body size (17% vs 12%). Although the difference was relatively small, it is statistically significant. Among boys who were satisfied with their body size, mothers of underweight boys were more likely to be concerned that their boys were eating too little (36%) compared to mothers of normal weight and overweight boys who were satisfied with their body (18% and 2% respectively). The same tendency was observed for boys who were dissatisfied with their body; that is, 53% of mothers of underweight boys were concerned that their boys were eating too little compared to 19% and 2% respectively of mothers of normal and overweight boys. There were no significant differences between boys who were satisfied and dissatisfied with their body image in the proportion of mothers of normal and overweight boys who were concerned that their boys were eating too little. However, mothers of underweight boys were more likely to be concerned that their child was eating too little if the boys were dissatisfied with their body, compared to boys who were satisfied (53% vs 36% respectively).

The results for girls were very similar. Fifteen per cent of mothers of girls satisfied with their body image expressed concerns about girls eating too little, compared to 12% of mothers of girls who were dissatisfied. Also the proportion of mothers who were concerned about their girls eating too little was greater for underweight girls compared to normal and overweight girls, regardless of girls' body image dissatisfaction. Among underweight girls, the proportion of mothers with concerns that their girls were eating too little was greater among girls who were dissatisfied with their body image (50%) compared to girls who were satisfied (37%).

Mothers' concern about their children eating too much or unhealthy food

Substantial differences were also observed in the proportions of mothers who were concerned that their child was eating too much or unhealthy food. The proportions were significantly greater among mothers of both boys and girls who were dissatisfied with their body compared to those who were satisfied (55% vs 30% for boys; 49% vs 30% for girls). Interestingly, among boys and

girls who were dissatisfied with their body, the proportion of mothers who were concerned about their child eating too much or unhealthy food was greater among boys than girls (55% vs 49% respectively); while among boys and girls who were satisfied, there was no significant difference in the proportion of concerned mothers (30% each).

Main findings

In summary, the findings of this section suggest that at age 10–11 years:

- a majority of boys and girls tried to control their weight during the last 12 months, with the proportions being greater among children who were dissatisfied with their body size;
- among underweight boys and girls, 45% and 56% respectively of those who were satisfied with their body tried to stay the same weight, while 47% and 51% respectively of those who were dissatisfied tried to gain weight;
- among normal weight boys and girls, 47% and 42% respectively of those who were satisfied with their body tried to stay the same, while 40% and 47% respectively of those who were dissatisfied tried to lose weight;
- among overweight boys and girls, 44% and 43% respectively of those who were satisfied with their body tried to lose weight, while 80% and 82% respectively of those who were dissatisfied tried to lose weight;
- a greater proportion of mothers of boys and girls who were satisfied with their body size were concerned that their children were eating too little compared to mothers of children who were dissatisfied with their body size;
- a greater proportion of mothers of boys and girls who were dissatisfied with their body size were concerned that their children were eating too much or unhealthy food compared to mothers of children who were satisfied with their body size.

7.6 Children's wellbeing and body image dissatisfaction

Body dissatisfaction can affect different aspects of a child's life. There is strong evidence that adolescents who are dissatisfied with their body image are likely to experience social problems, depression symptoms and poor self-esteem (Tiggemann, 2005). This section addresses the last research question, which aims to examine whether the association between body image dissatisfaction and signs of socio-emotional problems can be observed as early as when children aged 10–11 years and whether these relationships vary among children of different body mass (based on their BMI). Disentangling these relationships improves understanding of the role of positive body image in the socio-emotional development of the child, and the implications for children of having different body mass status. The following aspects of child's wellbeing were examined:

- physical health;
- self-worth;
- peer relationships; and
- emotional and behavioural problems.

This section uses data for 10–11 year olds only as this was the first time children had reported on these measures themselves. The analysis is presented separately for boys and girls by different body mass status. All the differences reported in this section are statistically significant at the 5% level.

Physical health

As the focus of this chapter is on how children's dissatisfaction with their body interacts with their perceptions and feelings about themselves, children's perspectives rather than the objective measures of their physical health were of main interest. The following three questions were asked to gain children's perspective:⁴

- Have you felt fit and well [in the last week]?

⁴ The first two questions were from the KIDSCREEN-52 instruments (The KIDSCREEN Group, Europe, 2006).

- Have you felt full of energy [in the last week]?
- How much do you enjoy being physically active (doing things like sports, active games, walking or running, swimming)?

Response options were categorised as “very/extremely” vs “not at all/slightly/moderately” for the first two questions and “a lot” vs “quite a lot/not very much/not at all” for the third question.⁵ Perception of physical health was measured as percentages of positive responses. Overall, 70% of boys felt fit and well, 70% enjoyed physical activity, and around 75% felt full of energy. In comparison, a similar proportion of girls (around 70%) felt fit and well and 70% felt full of energy; however, fewer (around 60%) enjoyed physical activity.

Table 7.9 shows that the proportion of girls and boys who felt fit and well, full of energy and enjoyed physical activity was greater among boys and girls who were satisfied with their body image compared to those who were dissatisfied.

Table 7.9: Proportion of boys and girls who had positive perceptions of their physical health, by body image dissatisfaction and body mass status

	Satisfied with body image				Dissatisfied with body image				All (%)
	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	
Boys									
Fit and well	75.7	80.4	70.9	78.9	69.0	68.8	44.2	56.3	68.5
Full of energy	88.4	79.7	79.0	80.0	61.6	76.3	69.8	72.5	76.5
Enjoy physical activity	76.1	75.4	70.0	75.0	69.9	66.1	60.1	63.1	69.4
Total (N)	52	907	115	1,074	41.0	453	419	913	1,987
Girls									
Fit and well	79.0	81.0	66.2	79.2	77.1	58.8	47.9	54.3	67.9
Full of energy	78.0	74.7	67.8	74.1	85.2	70.4	58.6	66.0	70.3
Enjoy physical activity	62.9	62.8	60.8	62.4	59.3	59.0	51.2	55.0	59.2
Total (N)	82	855	117	1054	49	410	368	827	1,881

Notes: For each category, children who provided negative responses to the questions on physical activity were omitted.

Source: K cohort, Wave 4

Among boys who were satisfied with their body image, there were no statistically significant differences in the proportions who felt fit and well by body mass status, while among boys who were dissatisfied with their body image the proportions of overweight boys who felt fit and well was significantly smaller than among underweight and normal weight boys. There were also no statistically significant differences by body mass status in the proportion of those who felt full of energy and enjoyed physical activity, either among boys who were satisfied or among those who were dissatisfied with their body image.

The same picture was observed for girls. Among girls who were dissatisfied with body image the proportion of girls who felt fit and well was significantly smaller among overweight girls (48%) compared to underweight and normal weight girls (77% and 59% respectively). There were no statistically significant differences by body mass status in the proportions of girls who felt full of energy and enjoyed physical activity, either among girls who were satisfied or among those who were dissatisfied with their body image.

Self-concept and self-worth

Previous research has consistently found that, on average, adolescents who are dissatisfied with their body are more likely to have negative thoughts than those who are satisfied (Stice et al., 2000). Here, it has been investigated whether boys and girls in their pre-adolescent years who were

⁵ Only around 6% of boys and girls reported enjoying physical activity “not very much/not at all”.

dissatisfied with their body size were likely to have a low level of self-worth or negative thoughts about themselves.

The level of self-worth was derived from the child's report on the General Self-Concept scale from the Self-Description Questionnaire-I (Marsh, 1990). The Self-Description Questionnaire is a well validated and widely used Australian measure of multidimensional self-concept in pre-adolescent children. The scale comprises eight items, with response options ranging from 1 (false) to 5 (true). The self-worth score is the mean of the responses to the questionnaire items, with a higher score indicating better outcomes. In this analysis, children in the bottom quintile (20%) of the distribution of mean scores were distinguished from the remainder of the children. This bottom quintile represented a group of children with *relatively* low self-worth.

Two items from the Short Moods & Feelings Questionnaire (Angold et al., 1995) were adapted to measure signs of negative thoughts:

- I feel I am not good.
- I do not enjoy anything at all.

The reference period for these questions was the last two weeks, and response options were categorised as “sometimes true/true” vs “not true”. Overall, around 35% of boys and girls felt they were not good, and around 17% of boys and 11% of girls did not enjoy anything at all.

Table 7.10 presents the proportion of boys and girls who had low self-worth and negative thoughts, by body image dissatisfaction and body mass status. The proportions of boys and girls who had low self-worth and negative thoughts were significantly greater among those who were dissatisfied with their body image compared to those who were satisfied.

Table 7.10: Proportion of boys and girls who had low self-worth and negative thoughts, by body image dissatisfaction and body mass status									
	Satisfied with body image				Dissatisfied with body image				All (%)
	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	
Boys									
Low self-worth	22.3	27.9	26.1	27.4	34.4	38.0	39.2	38.2	32.7
I am not good	25.3	29.0	30.4	29.3	37.5	39.6	41.7	40.2	34.5
I do not enjoy anything	12.9	13.1	17.8	13.6	21.4	22.0	19.5	20.4	17.0
Total (N)	52	906	114	1072	41	453	418	912	1,984
Girls									
Low self-worth	27.9	17.7	13.8	17.9	16.3	34.9	29.6	31.9	24.1
I am not good	25.6	28.8	24.6	27.9	23.4	49.0	46.6	46.5	36.4
I do not enjoy anything	15.7	7.5	6.7	8.1	8.2	13.3	13.9	13.7	10.4
Total (N)	82	854	117	1053	49	409	368	826	1,879

Notes: For each category, children who did not have low self-worth or negative thoughts were omitted.

Source: K cohort, Wave 4

Among boys who were dissatisfied with their body image, 38% had low self-worth, 40% felt they were not good and 20% did not enjoy anything at all, compared to 27%, 29% and 14% respectively of boys who were satisfied with their body image. There were no significant differences by body mass status, either among boys who were dissatisfied or among those who were satisfied with their body image.

Overall, a similar picture was observed for girls. Among girls who were dissatisfied with their body image 32% had low self-worth, 35% felt they were not good and 17% did not enjoy anything at all, compared to 18%, 28% and 8% respectively of girls who were satisfied with their body image. However, some differences were observed among girls by body mass status. Among girls who were satisfied with their body image, 14% of overweight and 18% of normal weight girls had low self-worth, compared to 28% of underweight girls. Among girls who were dissatisfied with their

body image, overweight and normal weight girls were more likely to have low self-worth (30% and 35% respectively) compared to underweight girls (16%). The proportions of girls who felt they were not good did not vary by body mass status among girls who were satisfied with their body image (underweight: 26%, normal weight: 29%; overweight: 25%). But among girls who were dissatisfied, the proportions who did not feel good about themselves was greater among normal weight and overweight girls (49% and 47% respectively) compared to underweight girls (23%). There were no significant differences by body mass status in the proportions of girls who did not enjoy anything, either among girls who were dissatisfied or among those who were satisfied with their body image.

Peer relationships

Adolescents who are dissatisfied with their body image are less likely to feel confident and more likely to lack social skills than those who are satisfied (Tiggemann, 2005). This subsection examines whether pre-adolescent children who were dissatisfied with their body image were also likely to report poor quality peer relationships and high peer relationship problems.

The measure of the quality of the child's peer relationships was derived from the child's report on the Peer Relations scale from the Self-Description Questionnaire-I (Marsh, 1990). This scale comprises eight items, with response options ranging from 1 (false) to 5 (true). The peer relations score is the mean of the responses to the questionnaire items, with higher scores indicating better outcomes. The peer relations scale items included statements such as "I have many friends", "I get along with kids easily" and "I am popular with kids my own age". Children at the bottom quintile (20%) of the distribution of mean scores were distinguished from the remainder of the children and represent a group of children with *relatively* poor peer relationships.

The measure of whether the child had relationship problems with their peers was derived from the Strengths and Difficulties Questionnaire (Goodman, 2001).⁶ This scale measures the degree of reported peer problems a child may be experiencing, and comprises five items with response options ranging from 0 to 10. Higher scores indicate higher levels of socio-emotional problems. The scale includes items such as "picked on or bullied by other children", "gets on better with adults than with other children", and "rather solitary, tends to play alone". To identify children with relatively high peer relationship problems children at the top quintile (20%) of the distribution of mean scores were distinguished from the remainder of children.

As for other outcomes, boys and girls who were dissatisfied with their body image were more likely to report poor quality peer relationships and peer relationship problems compared to boys and girls satisfied with their body image (Table 7.11 on page 129). Among boys who were dissatisfied with their body image, 34% had poor quality relationships and 22% had problems with their peers compared to 22% and 15% respectively among boys satisfied with their body image. Similar proportions were observed among girls. Among girls who were satisfied with body image, 30% reported poor relationships and 18% reported problems with their peers, compared to 22% and 10% respectively among girls satisfied with their body image.

No significant differences were observed by body mass status in the proportions of boys who had poor quality relationships and peer problems, either among boys who were satisfied or among those who were dissatisfied with their body image. A slightly different pattern was observed for girls. There were no significant differences by body mass status in the proportions of girls who had peer problems, either among girls who were satisfied or among those who were dissatisfied with body image. There were also no significant differences in the proportions of girls who had poor quality relationships by body mass status among those satisfied with their body image. However, among girls dissatisfied with their body image, the proportion with poor quality relationships was significantly greater among normal weight and overweight girls compared to underweight girls.

⁶ This instrument is a brief screening questionnaire that includes scales assessing conduct problems, emotional symptoms, hyperactivity or inattention, prosocial behaviour and peer relationship problems.

Table 7.11: Proportion of boys and girls with poor quality peer relationships and peer relationship problems, by body image dissatisfaction and body mass status

	Satisfied with body image				Dissatisfied with body image				All (%)
	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	
Boys									
Poor quality relationships	15.8	22.0	23.2	21.7	43.2	34.0	32.1	33.5	27.1
Peer problems	11.0	14.8	17.0	15.2	23.8	20.9	23.3	22.2	18.4
Total (N)	52	907	114	1,073	41	453	114	608	1,988
Girls									
Poor quality relationships	22.0	22.2	17.9	21.6	14.5	29.8	31.6	30.2	25.4
Peer problems	10.9	10.9	7.4	10.4	10.6	19.0	18.9	18.4	14.1
Total (N)	82	855	117	1,054	49	409	117	575	1,880

Notes: For each category, children who did not have poor quality relationships or problems with their peers were omitted.

Source: K cohort, Wave 4

Interestingly, among boys dissatisfied with their body image, the proportion who reported poor quality relationships was greater among underweight boys (43%) compared to overweight boys (32%), while among girls dissatisfied with their body image the corresponding proportion was greater among overweight girls (32%) compared to underweight girls (15%). However, these differences were not significant.

Emotional and behavioural problems

This subsection examines the emotional and behavioural problems of 10–11 year old boys and girls, using their reports on the emotional symptoms⁷ and conduct problems⁸ subscales from the Strengths and Difficulties Questionnaire (Goodman, 2001). Each subscale has a possible range of 0 to 10, with higher scores indicating higher levels of socio-emotional problems. To identify children with relatively high emotional and behavioural problems, children in the top quintile (20%) of the distribution of mean scores on both subscales were distinguished from the remainder of the children.

Table 7.12 (on page 130) presents the proportions of boys and girls with high emotional and behavioural problems by body image dissatisfaction and body mass status. Overall, the proportions of boys and girls who had high emotional and conduct problems were greater among those who were dissatisfied with their body image, compared to those who were satisfied.

Among boys dissatisfied with their body image, 27% had a high level of emotional problems and 30% had a high level of behavioural problems, compared to 19% and 23% respectively among boys satisfied with their body image. There were no significant differences by body mass status in the proportions of those who had high levels of emotional and conduct problems, either among boys who were satisfied with their body image or among those who were dissatisfied.

Among girls dissatisfied with their body image, 34% had emotional problems and 17% had behavioural problems. Among girls satisfied with their body image, the corresponding proportions were significantly lower (20% and 10% respectively). There were no significant differences by body mass status in the proportions who had high levels of emotional and behavioural problems among girls satisfied with their body image. However, among girls dissatisfied with their body image, overweight girls were more likely to have emotional problems (38%) and behavioural problems (20%) compared to underweight girls (21% and 7% respectively).

⁷ The SDQ emotional problems subscale comprises items like: “often unhappy, downhearted or tearful”, “nervous or clingy in new situations, easily loses confidence”, and “many worries, often seems worried”.

⁸ The SDQ conduct problems subscale comprises items like: “often has temper tantrums or hot tempers”, “often fights with other children or bullies them”, and “often lies or cheats”.

Table 7.12: Proportion of boys and girls who had high emotional and behavioural problems, by body image dissatisfaction and body mass status

	Satisfied with body image				Dissatisfied with body image				All (%)
	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	Under-weight (%)	Normal weight (%)	Over-weight (%)	All (%)	
Boys									
Emotional problems	17.0	19.5	16.3	19.3	26.2	23.8	30.5	27.2	22.9
Behavioural problems	20.7	21.9	28.9	22.6	26.4	29.3	30.5	30.3	26.0
Total (N)	52	907	114	1,073	41	453	420	914	1,988
Girls									
Emotional problems	21.5	20.9	14.6	20.0	20.5	32.0	38.3	34.4	26.6
Behavioural problems	5.8	10.7	8.6	10.1	7.1	14.2	19.6	16.6	12.9
Total (N)	82	855	117	1,054	49	409	368	826	1,880

Notes: For each category, children who did not report having high emotional or behavioural problems were omitted.

Source: K cohort, Wave 4

The analyses presented in this section suggest that regardless of gender and body mass status, children who were dissatisfied with their body image were more likely to have poorer physical health and socio-emotional wellbeing compared to those who were satisfied with their body image. Moreover, among children who were dissatisfied with their body, overweight children were more likely to have poorer outcomes compared to normal weight and underweight children.

7.7 Summary and discussion

This study examined perceived and desired body images of primary school children aged 8–9 and 10–11 years, and the relationship between their body image dissatisfaction and physical health and socio-emotional wellbeing. When interpreting the findings it should be taken into account that as children grow older the BMI cut-offs for defining underweight, overweight and obesity also increase. However, we did not control for these differences in the pictorial instrument.

Overall, the main findings were:

- younger boys and girls were less likely to report their body size accurately;
- on average, regardless of age and body mass status, boys and girls wanted to have a slightly thinner than average body size (between pictures 3 and 4);
- at age 8–9 years, a large number of boys and girls experienced dissatisfaction with their body size, with differences observed by body mass status;
- overall, older children were more likely to be satisfied with their body image, though it varied between children of different body mass status;
- at age 10–11 years, the majority of children tried to control their weight, with differences observed by different body mass status and body image dissatisfaction;
- at 10–11 years old, a large proportion of mothers were concerned that their children were not eating properly (too little or too much), with differences observed by body mass status and body image dissatisfaction; and
- at 10–11 years old, there was a strong relationship between physical health and socio-emotional wellbeing and body size dissatisfaction, regardless of body mass status.

As in previous studies (e.g., Truby & Paxton, 2002), it was found that younger children were less likely to report their body size accurately than older children. At age 10–11 years, more than 90% of children were able to report their body size accurately or relatively accurately. Differences were also observed by body mass status. Regardless of age and gender, underweight children were more

likely to accurately report their body size, while normal weight and overweight children tended to underestimate.

Importantly, it was found that at age 8–9 years, a large proportion of children already were experiencing dissatisfaction with their body image. Consistent with previous research (McCabe & Ricciardelli, 2005; Ricciardelli & McCabe, 2001; Tiggemann, 2005), children's BMI was strongly associated with children's satisfaction with their bodies. Around 50% of underweight and normal weight children and 75% of overweight children reported dissatisfaction with their body size. The same pattern was observed for both boys and girls aged 8–9 years. As the children grew older, more underweight and normal weight children were satisfied with their body size, while the proportion of overweight children who were satisfied with their body decreased. These results were consistent among both boys and girls aged 10–11 years.

As in previous research (Dohnt & Tiggemann, 2006; Levine & Piran, 2004), the desire to be thin (choosing pictures 1, 2 or 3) was already being reported by a majority of the children aged 8–9 years. Among underweight children, 16% of girls and 11% of boys wanted to be even thinner than they were, and around 50% of girls and boys wanted to stay underweight. Among normal weight children, 38% of girls and 32% of boys wanted to be thinner than their current body size. On the positive side, though, around 40% of underweight children reported that they wanted to be larger than their current size, and more than 50% of normal weight children were happy with their body size. The majority of overweight boys (70%) also wanted to be thinner than their current body size. From a health perspective, the desire of overweight children to be thinner is a positive one if they want to have a body size within a healthy range. But, at 8–9 years old, 57% of the overweight children wanted to have a thinner than average body size and only 37% wanted to be of average size.

When children grew older, a smaller proportion of underweight and normal weight wanted to be thinner relative to their current body size, though a still substantial proportion wanted to be thinner than average. In contrast, the proportion of overweight children who wanted to be thinner than their current size increased with age, while the proportion of those who wanted to be thinner than average decreased. Interestingly, there were no significant differences by sex observed for weight management goals in underweight and overweight children. However, for normal weight children, the proportion who wanted to be larger than their current size was greater among boys and the proportion of those who wanted to be thinner was greater among girls.

Potentially, it could be positive that underweight children desire to be larger and overweight children desire to be thinner if this spurs them to try and achieve a more healthy weight. However, it is important to note that children's dissatisfaction with their body modifies their behaviour and affects their physical health and socio-emotional wellbeing. It was found that even in the pre-adolescent years, a large proportion of boys and girls were controlling their weight. Whether they were trying to lose, gain or keep the same weight was strongly correlated with body image dissatisfaction, and varied among children of different body mass status. Among children who were satisfied, the majority of underweight children tried to keep their weight the same, the majority of normal weight children tried either to keep the same weight or did nothing, and the majority of overweight children tried to either lose or keep the same weight. A different picture was observed for children who were dissatisfied with their body size. A majority of underweight dissatisfied children tried to gain weight, whereas the majority of normal weight and overweight dissatisfied children tried to lose weight. Not surprisingly, among children dissatisfied with their body size, more mothers of the underweight children were concerned about their children eating too little, while more mothers of overweight children were concerned about their children eating too much or unhealthy foods.

It is quite possible that among those boys and girl who were trying to lose or gain weight, some were engaged in positive strategies (such as limiting their energy-dense food intake, eating more fruit and vegetables, exercising), whereas others could be engaged in unhealthy or dangerous strategies like severely restricting food intake or vomiting after a meal.⁹ In the absence of detailed information about the methods children were using to lose, gain or keep the same weight, it is not possible to comment on the positive or negative effects of weight control strategies and their prevalence among children aged 10–11 years.

⁹ At these ages, LSAC did not include detailed measures of the particular strategies that might be employed.

Previous research has shown that adolescents who are dissatisfied with their body are likely to develop poor physical and psychological health (Cash, 2002b). The findings of this study suggest that the strong relationships between body image dissatisfaction and children's wellbeing could also be observed among pre-adolescents. Regardless of body mass status, children dissatisfied with their body were more likely to have poor physical health and socio-emotional wellbeing compared to children satisfied with their body size. Boys and girls who were dissatisfied with their body were less likely to feel fit, full of energy or enjoy physical activity. They were also more likely to have low self-worth, feel they were not good at all and not enjoy anything. Also, boys and girls who were experiencing dissatisfaction with their body were more likely compared to those who were satisfied to report poor quality peer relationships and problems with peers as well as high levels of emotional and behavioural problems.

This study shows that dissatisfaction with body image is strongly related to child's body mass status and socio-emotional wellbeing. In particular, dissatisfaction with body size is negatively associated with the socio-emotional wellbeing of children, regardless of their weight, though being dissatisfied with their own body size does not necessarily have only negative effects, especially among severely underweight or overweight children. For example, while children of normal weight who are dissatisfied with their own body are at risk of developing an unhealthy body weight, a desire among overweight children to lose weight or for underweight children to gain weight might motivate them to manage their weight. The main challenge for policies and practice is to encourage children to manage their weight within a healthy range, while maintaining healthy self-worth and socio-emotional wellbeing. Thus, developing targeted intervention programs that concurrently address healthy body image and equip children with healthy weight management strategies as well as boost their self-confidence might help not only to improve children's physical health but also to reduce the negative effects of body image dissatisfaction on the socio-emotional wellbeing of children.

7.8 References

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Safe environments, parental concerns and children's unsupervised time, time outdoors, and physical activity

8

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8.1 Introduction

Parents usually have a natural instinct to be concerned for their children's safety. In their early years, children are especially vulnerable and rely heavily on their parents to keep them safe. As they develop through middle childhood (around 5–12 years), however, a shift begins to occur as children strive to master the world around them (Erikson, 1981). In this period, as their social world expands, children begin to develop autonomy and independence from parents, together with a growing sense of competence (Huston & Ripke, 2006). They extend their capacity to regulate themselves and exercise self-control, which are important abilities for the transition to adolescence (Eccles, Wigfield, & Schiefele, 1998), and they develop a sense of what they are good at, which can involve experimentation and risk-taking through physical play and other activities.

Some ways in which children at this age can begin to develop autonomy and independence from parents are to engage in more unsupervised active play in parks nearby, and walking or cycling to and from school and other destinations (Carver, Timperio & Crawford, 2012). These activities are positive in many ways. They tend to be physical or active in nature, they enable children to learn how to make decisions, solve problems, practice self-control, follow rules, regulate emotions and develop and maintain peer relationships (Gleave & Cole-Hamilton, 2012; Pellegrini, 2009).

A key challenge for parents in this period of children's development is to continue to ensure that their children are safe while at the same time providing opportunities and space for them to take risks and develop competence and autonomy (Brussoni, Olsen, Pike, & Sleet, 2012). However, parental fears about children's safety continually surface in the media and in wider public debate (Hahn-Holbrook, Holbrook, & Bering, 2010), and some have suggested that the balance has tilted excessively towards protecting children from risks at the potential expense of benefits that can accrue to children from having opportunities to take risks (Gill, 2007; Valentine, 2004).

In particular, researchers and policy-makers are concerned that excessive risk aversion is having a negative effect on children's engagement in physical activity, either through play or active travel such as walking or cycling (Zubrick et al., 2010). Given the persistent rates of childhood obesity in the population (Wake & Maguire, 2012), incidental physical exercise is an important feature of unsupervised play and walking or cycling to and from school, and has been a key focus of research and public health initiatives (Alexander, Frohlich, & Fusco, 2014; Mendoza et al., 2011).

A number of Australian studies provide insights into children's walking or cycling to and from school, as well as independent travel more generally. A Melbourne, Victoria, study of children aged 10–12 years found that 65% of the boys ($n = 424$) and 57% of the girls ($n = 495$) walked or cycled to and from school at least once per week, with an average of 3.4 trips for boys and 2.8 trips for girls per week (Timperio, Crawford, Telford, & Salmon, 2004).² The researchers found that a lack of pedestrian crossings was negatively associated with boys' walking or cycling, while needing to cross many roads to reach play areas was a significant negative factor for girls' walking or cycling. A more recent study of children aged 9–13 years in Perth, Western Australia, who

¹ At the time of writing Killian Mullan was at the Australian Institute of Family Studies.

² Their study also considered children 5–6 years old, but as the current chapter concentrates on children 10–11 years old, we focus on the results relating to the older group.

completed five-day travel diaries, found that around 26% of the boys ($n = 617$) and 29% of the girls ($n = 681$) had six or more walking trips to and from school per week with an average of 4.6 trips for boys and 4.0 trips for girls (Trapp et al., 2012). The authors found that children were less likely to walk or cycle to and from school if their parents perceived that there was a lot of traffic in the neighbourhood, and were more likely to if their parents held positive perceptions about the neighbourhood. They also found that distance to the school and the child's preference for walking or cycling were very strong factors.

A separate, though related, body of research has considered associations between children's physical activity more generally, and both perceptions of neighbourhood safety and aspects of the neighbourhood road environment. Focusing on neighbourhood safety, Carver et al. (2008b) found that parental perceptions of neighbourhood safety were negatively related to boys' (13–15 years) moderate-to-vigorous physical activity, while concerns about road safety were negatively associated with girls' (13–15 years) moderate-to-vigorous physical activity. They found no significant association between parental perceptions of neighbourhood safety and the level of moderate-to-vigorous physical activity in children aged 8–9 years. However, perceptions of the neighbourhood road environment appear to play a role. Parents reported higher levels of moderate-to-vigorous physical activity for boys aged 13–15 years if they lived in a cul-de-sac (rather than a through road) or if there were speed humps in the neighbourhood (Carver et al., 2008a).

To date, research using data from the Longitudinal Study of Australian Children (LSAC) suggests that there are regional differences in the time that children spend outside and parental views of neighbourhoods. Based on the LSAC child time use diary at 8–9 years of age, Baxter, Gray, and Hayes (2011) found that both boys and girls living in outer regional areas spent more time outside than children living in major cities and inner regional areas. Moreover, few parents living in outer regional areas reported their neighbourhood as being unsafe compared to those in inner regional areas and major cities. Parents living in inner and outer regional areas, on the other hand, reported more unfavourable views about the quality of parks and playgrounds than parents living in major cities.

Previous research in Australia has provided a number of important insights, but it has been based on relatively small samples drawn from specific metropolitan locations. Previous research has shown that gender and age are important characteristics of children that moderate the association between parents' concerns about neighbourhood safety and children's physical activity (including independent travel). It is possible that other factors play a role, such as socio-economic position (SEP) or factors associated more broadly with the region in which children live. In addition, previous research has not explicitly taken into account whether or not an adult was supervising the child during the activity or the extent to which this was associated with parental concerns. Physical activity is important for children's health and development, but, as noted above, experiencing autonomy is also important for enhancing children's sense of competence and building their self-esteem.

In this chapter, we examine a number of aspects of children's time use that may be related to parental concerns around children's safety, using information collected from the 10–11 year old children who completed a time use diary in Wave 4 of LSAC. The aspects we consider are:

- the children's journey from (not to) school, especially walking or cycling from school unsupervised by an adult;
- time spent by children unsupervised by an adult, both indoors and outdoors;
- children's supervised time outdoors; and
- children's physical activity outdoors.

We explore associations between these measures of children's time use and parental overprotectiveness, parental perceptions of safety, and other features of the neighbourhood. In addition we also explore how parental concerns for child safety and these aspects of children's time use vary within subgroups relating to gender, socio-economic position and region. The key research questions are:

- What factors are associated with parental overprotectiveness and parents' concerns or fears about neighbourhood safety, and different aspects of children's time use?
- Are parental overprotectiveness and parental concerns about the neighbourhood and child safety associated with:

- rates of walking or cycling home from school unsupervised;
 - children's time unsupervised by an adult (indoors and outdoors);
 - children's time outdoors supervised by an adult; and
 - children's engagement in outdoor physical activity?
- Do patterns of time spent outdoors and engagement in physical activity vary by child gender, region of residence or family socio-economic position?

8.2 Descriptive overview of key measures

This section addresses the first research question. The first subsection focuses on measures of parental overprotectiveness and concerns about the neighbourhood. The second subsection focuses on aspects of children's time use.

Overprotective parenting and concerns about the neighbourhood

In this section we address the first research question considering the factors associated with parental overprotectiveness and concerns about the neighbourhood. This section serves as a platform for further analysis in the chapter.

Overprotective parenting could be associated with children's time use in a number of ways. Previous work has highlighted a connection between overprotective parenting and increased anxiety among children (Lucas, Nicholson, & Maguire, 2011), and emotional and peer problems among children have been shown to be negatively associated with children's engagement in physical activity (Mullan & Maguire, 2013). Therefore, to the extent that heightened anxiety and emotional and peer problems are related, we could trace a potential pathway between overprotective parenting and lower levels of physical activity among children. Moreover, highly protective parents may seek to excessively limit the amount of time children are unsupervised by an adult at a period when judicious independent time away from parents or other adults may enhance children's developmental opportunities. To our knowledge, no previous research has considered associations between overprotective parenting and the dimensions of children's time use that we consider in this paper.

There are no questions in Wave 4 of the K cohort of LSAC that are a direct measure of "overprotective parenting"; therefore we used the following three questions from Wave 3 of the K cohort (i.e., two years prior to when parents were responding to the other items, and children were filling out their time use diaries):

- Do you try to protect this child from life's difficulties?
- Do you put this child's wants and needs before your own?
- Does leaving this child with other people upset you no matter how well you know them?

Parents' responses to these questions were ordered on a five-point Likert scale, ranging from 1 (never/almost never) to 5 (always/almost always). Consistent with the approach used by Lucas et al. (2011), we identified the top quintile (one-fifth) of the distribution of parents' responses to these questions. This is a relative measure, which differentiates parents who are considerably more protective compared to the others. A total of 685 parents were in the top quintile.³ The average score (on a range from 1 to 5) on this measure was 4.6 for parents in the top quintile, compared to 3.3 for the other parents ($p < .001$).

To capture parents' views and concerns about the safety of their neighbourhood, we used the level of their agreement with three statements (rated on a four-point Likert scale: strongly agree, agree, disagree, and strongly disagree):

- There is heavy traffic on my street or road.
- There are good parks, playgrounds and play spaces in this neighbourhood.
- It is safe for children to play outside during the day.

³ This comprises about 22% of the total, which is not exactly 20% due to a lack of discrimination among scores that range from 1 to 5. In other words, given the distribution of scores on the overprotectiveness scale, the top 22% all had scores of 5 and therefore could not be separated.

The last two of these questions are positively worded, and as we are interested in capturing parents' potential fears or concerns about their neighbourhood, we identified parents who responded "disagree" or "strongly disagree" to each of these questions. In the case of the "heavy traffic" question, we identified parents who responded either "agree" or "strongly agree" to this question.

It is important to note that none of these measures provide an objective assessment of the state of the neighbourhoods in which children live. However, they point directly to parents' *perceptions* of those neighbourhoods, which are likely to be pertinent with respect to children's daily time use patterns. Table 8.1 provides descriptive statistics showing the proportions of parents who indicated concern regarding each of the three items listed above. For the purposes of this chapter, whenever we refer to the term "parental concerns about their neighbourhood", we are referring to all three of these questions collectively, though we did not aggregate them into a single composite measure.

Table 8.1: Parental concerns about the neighbourhood, reports by parents of children 10–11 years who attended school on day time use diary completed

Neighbourhood concerns	Yes	No	Total	No. of observations
Heavy traffic	26.1	73.9	100.0	3,825
Parks, playgrounds not good	17.0	83.0	100.0	3,822
Not safe to play outside	14.9	85.1	100.0	3,825

Notes: Weights applied.

Source: K cohort, LSAC Wave 4

While the majority of parents did not indicate concerns about these dimensions of their neighbourhoods, a substantial minority did. Around one-quarter of parents agreed or strongly agreed that there was heavy traffic on their road or street. A smaller proportion (17%) disagreed or strongly disagreed that there were good parks or playgrounds in their neighbourhood, while 15% disagreed or strongly disagreed that it was safe for their children to play outside during the day.

To better understand factors underscoring these responses, we looked at the associations between these measures and region of residence (metropolitan compared with rural/regional),⁴ socio-economic position (lowest quartile or 25% compared with the remainder), and child gender. As well as testing the influence of each factor individually on parental concerns about the neighbourhood, we tested all factors jointly to assess the robustness of any significant bivariate association. Significance levels from the robust analysis are reported in the last column of Table 8.2 (on page 139).

Results show that relatively higher levels of overprotective parenting were not associated with region of residence, but were significantly associated with relatively lower socio-economic position. This is a strong echo of previous research, which highlighted a marked association between relatively higher scores on this aspect of parenting and indicators of socio-economic disadvantage at Wave 3 (Lucas et al., 2011).

Reflecting research using previous waves of LSAC (Baxter et al., 2011), concerns about the availability of good parks, playgrounds and play spaces are significantly associated with living in a regional or rural area. A significantly higher proportion of parents in lower SEP families reported dissatisfaction with their parks and playgrounds, which accords with previous research showing that the quality of these facilities was better in higher SEP neighbourhoods (Crawford et al., 2008). Finally, parents in metropolitan areas were significantly more likely to report concerns about the safety of playing outside during the day (18%) compared with families in rural/regional areas (9%). In addition, parents in lower SEP families were significantly more likely to indicate concerns about children's safety when playing outdoors.

Gender was not significantly associated with overprotective parenting or parental concerns about the neighbourhood. A higher proportion of boys (28%) had a parent who indicated concern about

⁴ While it would be possible to provide more fine-grained information about differences between major cities, inner and outer regional areas, we chose to focus on metropolitan and rural/regional differences. We focused on a dichotomous variable because, when using a trichotomous variable broken down by a second dichotomous variable (such as perceptions of neighbourhood safety for instance), six categories would be created, some of which, on analysis, would be too small to provide reliable estimates.

traffic than girls (24%), but this was only statistically significant when not adjusting for family socio-economic position and region.

Table 8.2: Parental overprotectiveness and concerns about the neighbourhood, by region of residence, socio-economic position and child gender, children 10–11 years				
	Overprotective parenting (%)	Heavy neighbourhood traffic (%)	Parks, playgrounds not good (%)	Not safe to play outside (%)
Region of residence				
Metropolitan	20.9	26.2	13.1	18.1
Rural/regional	22.7	25.7	23.7	9.4
Total	21.6	26.0	17.0	14.9
Adjusted significance level ^a	ns	ns	***	***
Family socio-economic position				
Bottom 25%	28.1	30.2	20.2	16.3
Top 75%	17.7	22.4	15.1	13.3
Total	20.7	24.8	16.6	14.3
Adjusted significance level ^b	***	***	*	*
Child gender				
Boys	21.5	28.1	17.8	14.9
Girls	21.7	24.0	16.2	15.0
Total	21.6	26.1	17.0	14.9
Adjusted significance level ^c	ns	ns	ns	ns
No. of observations	3,171	3,825	3,822	3,825

Notes: ^a Significance adjusted for family socio-economic position and child gender. ^b Significance adjusted for region of residence and child gender. ^c Significance adjusted for region of residence and family socio-economic position. Weights applied. *** $p < .001$; ** $p < .01$; * $p < .05$; ns = not significant.

Source: K cohort, LSAC Waves 3 & 4

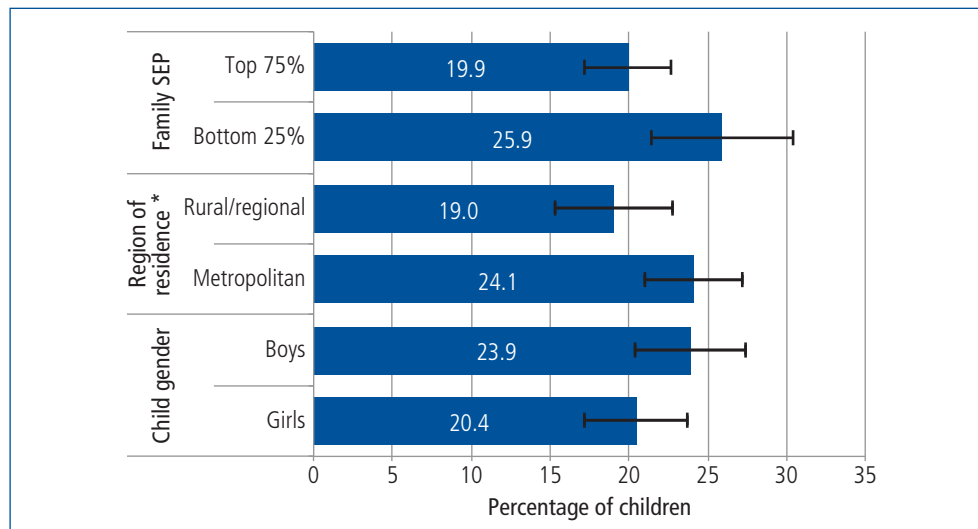
Children's time use

In Wave 4, K cohort children completed a time use diary recording the sequence of main activities in which they engaged on the sampled day, the people they were with, and their location. Using these data, we analysed five measures of children's time use that may be associated with parental concerns about the neighbourhood, or overprotective parenting. The first of these measures relates to children's journeys from school, and we focus in particular on children who walk/cycle from school unsupervised by an adult. We could only create this measure for children who were at school (not home-schooled) on the day they completed their diary. Therefore we also broadened our focus to other aspects of children's time use not specifically tied to school: we considered all time unsupervised by an adult indoors; all time unsupervised by an adult outdoors; all time outdoors supervised by an adult; and all time in outdoor physical activity. These measures allowed us to explore the extent to which parental overprotectiveness, and parental concerns about the neighbourhood are associated with aspects of children's time use that are related to both physical activity and more independent activity. Descriptive statistics for each of these measures are set out in this section.

Our main interest in this chapter is to understand more about associations between these aspects of children's time use, parental overprotectiveness and parental concerns about the neighbourhood. Before we consider these, it is important to understand more about the associations between the aspects of children's time use considered here and region of residence, family socio-economic position and child gender. As well as testing the influence of each individual factor on children's time use, we tested all the factors together. Unless stated otherwise, substantive findings from the individual and combined tests of significance were similar.

Around one in five children walked or cycled from school unsupervised by an adult ($n = 419$). Figure 8.1 shows the proportion of children who walked or cycled from school by region of

residence, family socio-economic position and child gender. Chi-square independence tests were conducted to test if differences were statistically significant, and confidence intervals around the estimates of the proportions are shown.



Notes: Weights applied; family SEP: top 75% ($N = 248$), bottom 25% ($N = 135$); region of residence: rural/regional ($N = 131$), metropolitan ($N = 288$); child gender: boys ($N = 231$), girls ($N = 188$). Confidence intervals are shown by the "I" bars for each estimate of the proportion. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC Wave 4

Figure 8.1: Children 10–11 years who walk or cycle from school, by socio-economic position, region of residence and child gender

There is a significant association between socio-economic position and children walking or cycling from school, with 26% of children in the bottom 25% of the distribution walking or cycling from school, compared with 20% for children in the top 75%. Previous work has shown that distance is a key factor associated with the likelihood that children will walk or cycle from school (Trapp et al., 2012). It could be that relatively more disadvantaged children are more likely to go to public schools located relatively close to their homes, which may explain this significant association. Children in metropolitan areas were significantly more likely to walk or cycle from school (24%) than their counterparts in rural/regional areas (19%), concurring with previous research (Carver et al., 2012). Finally, the proportion of boys who walk or cycle from school (24%) was slightly higher than but not statistically different from the proportion of girls (20%).

Table 8.3 (on page 141) shows the average time that children spent unsupervised by an adult indoors and outdoors, outdoors supervised by an adult, and in physical activity outdoors, by region of residence, family socio-economic position and child gender. Children living in rural/regional areas averaged significantly more time outdoors unsupervised by an adult; however, the significance level was more moderate after adjusting for family socio-economic position ($p < .07$) and there were no significant differences in the other aspects of their time use. Children in lower SEP families also averaged more time outdoors unsupervised, and this difference remained significant after adjusting for region and child gender. Girls averaged less time outdoors supervised by an adult than boys, and, concurrent with previous research, girls averaged significantly less time than boys in physical activity outdoors (Cleland et al., 2010). These two aspects of children's time use are related (by construction), but girls also averaged less time in other activities outdoors ($p < .05$).

8.3 Children's time use, overprotective parenting and concerns about the neighbourhood

In this section, we address the main research focus of the chapter, and consider associations between children's time use and parental overprotectiveness and parental concerns about the neighbourhood. We look first at children's walking or cycling from school unsupervised by an adult. Second, we focus on children's time unsupervised by an adult indoors and outdoors. Following this,

Table 8.3: Time children 10–11 years spent indoors and outdoors, supervised and unsupervised, by region of residence, family socio-economic position and child gender

	Indoors unsupervised (min.)	Outdoors unsupervised (min.)	Outdoors supervised (min.)	Physical activity outdoors (min.)
Region of residence				
Metropolitan	23	25 [†]	163	114
Rural/regional	21	30	171	120
Family socio-economic position				
Bottom 25%	26	32	163	119
Top 75%	20	25 [*]	170	116
Child gender				
Boys	22	28	175 ^{***}	128 ^{***}
Girls	22	27	157	104

Notes: Weights applied; region of residence: metropolitan ($N = 2,445$), rural/regional ($N = 1,429$); family SEP: bottom 25% ($N = 1,127$), top 75% ($N = 2,512$); child gender: boys ($N = 1,996$), girls ($N = 1,911$). *** $p < .001$; ** $p < .01$; * $p < .05$; [†] $p < .07$.

Source: LSAC Wave 4, K cohort.

we look at children's supervised time outdoors, and lastly we analyse children's physical activity outdoors. The analysis is descriptive throughout, though we highlight whether patterns differ by region, gender and family socio-economic status.

Walking or cycling from school unsupervised by an adult

As noted above, children's journey from school has been the focus of particular attention because of its potential increased physical activity for children (via walking or cycling). However, this may trigger potential concerns for parents with respect to children's safety. In this section we look at associations between children's walking or cycling from school unsupervised by an adult, parental overprotectiveness and parental concerns about the neighbourhood. About one in five children walked or cycled from school unsupervised by an adult, but this was not significantly associated with overprotective parenting or parental concerns about the neighbourhood. The proportion tended to be lower for children whose parents indicated that it was unsafe in the neighbourhood for children to play outside during the day, but this was not statistically significant (results not shown).

Previous work highlighted differences between boys and girls in terms of how frequently they walked or cycled to and from school (Carver et al., 2008a, 2008b; Timperio et al., 2004). Therefore, we conducted further analyses, taking into account potential gender, socio-economic position, and regional differences in whether parental overprotectiveness and parental concerns about the neighbourhood are related to children's travel from school.

In the vast majority of cases, any associations between parental concerns and children's walking or cycling from school remained insignificant. However, there was one notable exception: children in higher SEP families were significantly less likely to walk or cycle from school if their parents expressed concerns about the safety of children playing outdoors during the day. This was not the case for children in lower SEP families, for whom there was no significant difference in the likelihood of walking or cycling from school associated with parental concerns of child safety. These patterns could be explained by their relative proximity to school; as a key factor associated with the likelihood that children walk or cycle from school, distance may explain how children from relatively more advantaged backgrounds who attend schools further away from their homes were less likely to walk or cycle from school. Without information about the distance between home and school, however, we cannot be certain about potential links between this distance and parents' concerns for children's safety in different socio-economic groups.

Children's time unsupervised by an adult—indoors and outdoors

The previous analysis suggests that parental overprotectiveness and neighbourhood concerns have little relationship to whether children walk or cycle from school unsupervised by an adult,

except in particular circumstances. However, time children spend unsupervised by an adult in general may be associated with relatively overprotective parenting or parental concerns about the neighbourhood. The extent to which variation in time spent unsupervised is associated with parental overprotectiveness or concerns about the neighbourhood is considered in this section, which distinguishes between time spent outdoors and indoors.⁵

Table 8.4 shows the average time that children spent unsupervised by an adult outdoors and indoors and the total time spent unsupervised, and compares children with relatively high levels of overprotective parenting and concerns about the neighbourhood with those who do not. In addition, the difference between unsupervised time spent outdoors and indoors is reported in the fourth results column.

Table 8.4: Average time children 10–11 years spent unsupervised by an adult outdoors and indoors, by parental overprotectiveness and concerns about the neighbourhood					
	Unsupervised outdoors (min.)^a	Unsupervised indoors (min.)^a	Total time unsupervised (min.)^a	Difference: outdoors – indoors (min.)^b	Weighted <i>N</i>
Parenting					
Not overprotective	27.5	23.0	50.7	4.4 **	2,486
Overprotective	29.9	18.5	48.6	11.4 ***	685
Parks, playgrounds					
Good	26.4	21.0	47.5 *	5.4 ***	3,171
Not good	31.5	26.7	58.9	4.8	651
Traffic					
Not heavy	27.6	21.7	49.4	6.0 ***	2,829
Heavy	25.6	22.5	48.4	3.1	997
Playing outside					
Safe	28.2 *	21.1	49.4	7.1 ***	3,254
Not safe	21.9	26.9	49.6	–5.0	570

Notes: Weights applied. Differences due to rounding errors occur. ^a Significance tested using unpaired *t*-tests (comparing across rows). ^b Significance tested using paired *t*-tests (comparing across columns). *** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .07$.

Source: LSAC Wave 4, K cohort

We focus on a number of comparisons in this section. First, we consider whether children's time spent unsupervised by an adult—either indoors or outdoors—is significantly associated with parental concerns. For each area of concern, we conducted unpaired *t*-tests of differences in the average time spent unsupervised indoors and outdoors. Second, we consider whether the differences between the time spent unsupervised outdoors and indoors were associated with parental concerns. This provides some insight into the degree to which parental overprotectiveness and concerns about the neighbourhood may lead to the substitution of children's outdoors time for indoors time or vice versa. Parents may manage where their children spend their unsupervised time to minimise children's risk, even though the overall time spent unsupervised is similar. To assess this, we used paired *t*-tests to compare the difference between unsupervised time spent outdoors and spent indoors for each child.

Parental overprotectiveness

Children's time spent unsupervised by an adult—indoors, outdoors, and in total—did not differ significantly between children who had overprotective parents and those who did not. Nevertheless, both groups of children spent significantly more time unsupervised outdoors than indoors, and the difference was significantly greater for children with parents who reported being overprotective (30 minutes outdoors compared with 19 minutes indoors). However, it was not significant after adjusting for other factors (particularly family socio-economic position). As shown in Tables 8.2 and 8.3, parents with higher levels of overprotectiveness were also significantly more likely to be

⁵ It is not possible to discern how far away from the family home children were, and time spent outdoors may include being near or very close to the home, such as in a garden.

in lower SEP families, and children in lower SEP families typically spent more time unsupervised by an adult outdoors.

Parks, play-spaces and playgrounds

There were modest differences in children's unsupervised time spent outdoors and indoors between children of parents concerned about the quality of parks and those who were not, but these differences were not statistically significant. When time spent indoors and outdoors was combined, however, there was a significant difference between children of parents who had concerns about parks and those who did not. Children with parents who agreed that there were good parks in the neighbourhood spent significantly more time outdoors than indoors (5 minutes more; $p < .01$). A similar pattern was observed for children whose parents expressed concern about the quality of parks in the neighbourhood, but this was not statistically significant. The standard errors of the estimates of average unsupervised time spent outdoors (not shown) were substantially higher among children whose parents expressed concerns about parks, reflecting less precision in the estimate for the mean of this group.

Traffic

Concerns about heavy traffic were not significantly associated with children's time spent unsupervised by an adult, whether outdoors, indoors or in total. However, among children with parents who were not concerned about heavy traffic there was a significant difference between the average time children spent unsupervised outdoors (28 minutes) and their time spent indoors (22 minutes). After controlling for other factors, including region and family socio-economic position, the difference was no longer statistically significant.

Playing outside

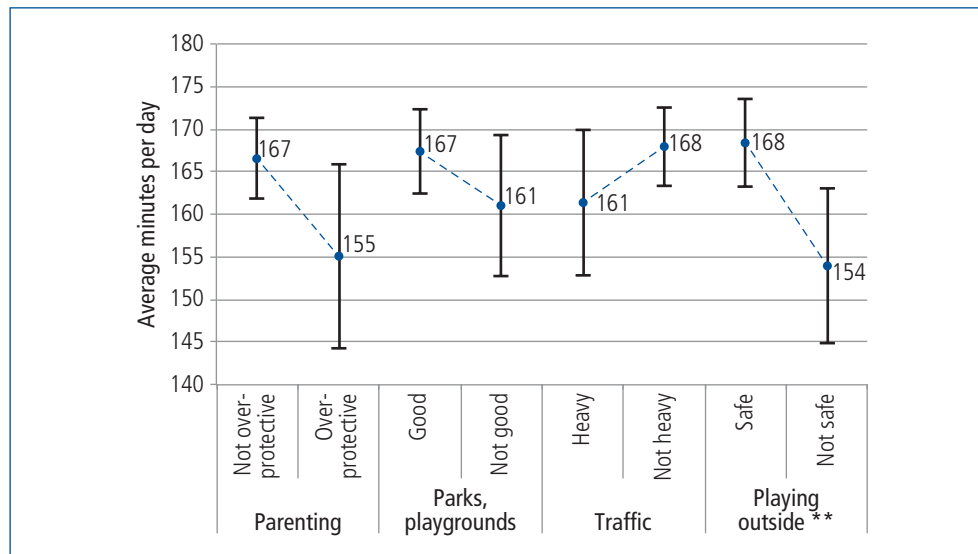
The most striking result was found with respect to the time children spent unsupervised by an adult (both indoors and outdoors) and whether parents considered their neighbourhood to be safe for children to play outside. When parents considered that they lived in a safe neighbourhood, their children spent significantly more unsupervised time outdoors (28 minutes) compared with children whose parents did not consider it safe (22 minutes). These results remained significant after adjusting for region, family socio-economic position, and child gender. The reverse pattern was evident for children of parents having safety concerns, who spent more time indoors, though this was not statistically significant. Though not significant among children at this age, it is important to note that having concerns about neighbourhood safety represented the only instance where average unsupervised time outdoors was less than unsupervised time indoors.

Children's supervised time outdoors

The previous analysis highlighted situations where children's unsupervised time was associated with parental concerns about different aspects of the neighbourhood. The key finding was that when parents expressed concerns about the safety of the neighbourhood for playing outside during the day, their children spent significantly less time unsupervised outdoors. In this section, we extend our interest to consider whether these concerns are associated with time spent outdoors supervised by an adult. Figure 8.2 (on page 144) shows children's average time spent supervised by an adult outdoors, comparing children with parents who were overprotective and concerned about the neighbourhood with those who were not.

Parenting

Although there was no significant difference in unsupervised time spent outside by level of parental overprotectiveness (see previous section), there was a notable difference related to supervised time outdoors. Children with parents who reported relatively higher levels of overprotectiveness averaged less time outdoors supervised by an adult (155 minutes) than children whose parents did not (167 minutes), although this was not statistically significant after adjusting for family socio-economic position. Note that the confidence intervals in Figure 8.2 overlap substantially, highlighting considerable variation in children's supervised time outdoors among those with relatively overprotective parents.



Notes: Weights applied; parenting: overprotective ($N = 685$), not overprotective ($N = 2,486$); parks, playgrounds: good ($N = 3,171$), not good ($N = 651$); traffic: heavy ($N = 997$), not heavy ($N = 2,829$); playing outside: safe ($N = 3,245$), not safe ($N = 3,254$). Confidence intervals are shown by the "I" bars for each estimate of the mean. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC Waves 3 & 4, K cohort

Figure 8.2: Average time children 10–11 years spent outdoors supervised by an adult, by parental overprotectiveness, and parental concerns about the neighbourhood

Traffic and parks and playgrounds

As with unsupervised time outdoors, concerns about heavy traffic or the quality of parks, playgrounds or play spaces in the neighbourhood were not significantly associated with children's supervised time outdoors.

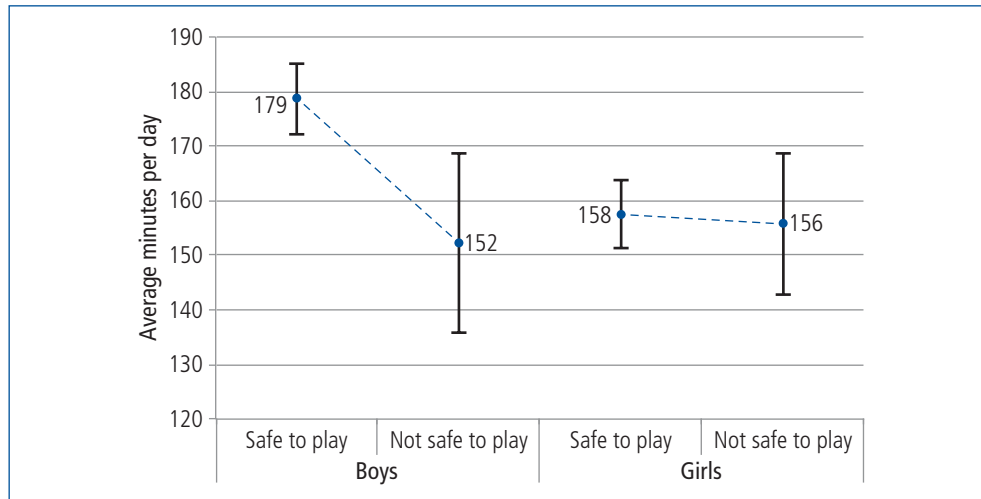
Playing outside

Also echoing the results for unsupervised time spent outdoors, children whose parents reported concerns about the safety of the neighbourhood averaged less time outdoors supervised by an adult (154 minutes) than children whose parents did not indicate this concern (168 minutes), and this remained statistically significant after adjusting for other factors.

Further analysis revealed that this pattern is concentrated among boys. Figure 8.3 (on page 145) shows the average time children spent outdoors supervised by an adult for boys and girls with parents who reported neighbourhood safety concerns and those who did not. It shows that the amount of boys' time spent outdoors supervised by an adult was significantly associated with parental safety concerns, whereas this is not the case for girls. In fact, boys whose parents had safety concerns spent about as much time outside (with supervision) as did girls. These results suggest that, other things being equal, in the absence of safety concerns, boys spent about half an hour more than girls per day supervised outdoors by an adult.

Children's physical activity outdoors

The findings noted in the previous sections relating to children spending time outdoors are likely to affect children's physical activity, as much physical activity occurs outdoors. It is of interest, therefore, to explore whether results relating to time spent outdoors in general apply to time spent in physical activity in particular. In this section, we consider associations between the average number of minutes that children engaged in physical activity outdoors, parental overprotectiveness and parental concerns about the neighbourhood. Overall, children averaged around 117 minutes of



Notes: Weights applied; boys: safe to play ($N = 1,670$), not safe to play ($N = 291$); girls: safe to play ($N = 1,584$), not safe to play ($N = 279$). Confidence intervals are shown by the "I" bars for each estimate of the mean.

Source: LSAC Wave 4

Figure 8.3: Average time boys and girls 10–11 years spent outdoors supervised by an adult, by parental concerns about the safety of playing outside

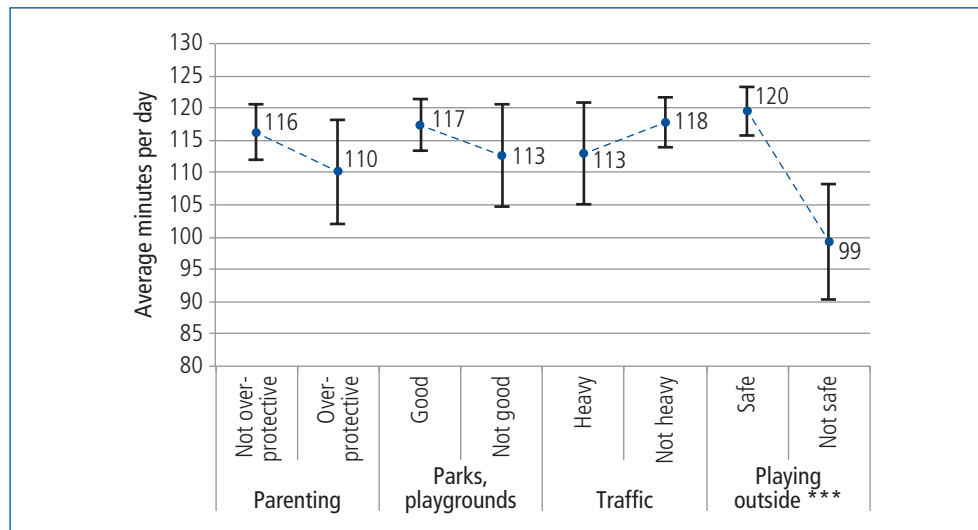
physical activity outdoors per day.⁶ Figure 8.4 (on page 146) shows the average number of minutes that children 10–11 years engaged in physical activity outdoors, comparing children with parents who reported higher overprotective parenting and more concerns about their neighbourhood with those whose parents did not.

Any differences in children's physical activity associated with overprotective parents, parental concerns about the quality of parks and playgrounds, and parental concerns about heavy traffic were small and statistically insignificant.

The only significant association related to parental concerns about the safety of children playing outdoors. Children whose parents expressed this concern averaged significantly fewer minutes in physical activity (99 minutes) compared with children whose parents did not express this concern (120 minutes). This result remained statistically significant after controlling for family socio-economic position, region of residence and child gender.

Further analysis revealed that socio-economic position had a significant moderating effect on this association, and that this result was concentrated among children in lower SEP families. Figure 8.5 (on page 146) shows the average time that children 10–11 years spent in physical activity for those in lower SEP families and in higher SEP families, depending on whether their parents reported concerns about the safety of the neighbourhood. It shows that concerns about neighbourhood safety only really led to less time in physical activity among lower SEP families; such children spent less time in physical activities (99 minutes) than other children in lower SEP families (134 minutes), but they also spent less time in physical activity than children in higher SEP families. In fact, children from lower SEP families whose parents were not concerned about neighbourhood safety spent as much, if not more, time in physical activity than children from more affluent families. This is an important result that emphasises that socio-economic position per se does not drive engagement in physical activity, but it is clear that concerns about safety interact significantly with socio-economic position, resulting in a negative association with children's physical activity. It is possible that these concerns may reflect a lack of neighbourhood social capital, the inherent danger in the immediate environment, or greater attentiveness to the dangers. Subsequent analysis suggests that low social capital was not the explanation. The pattern of results displayed in Figure 8.5 was not affected when we took account of differences in levels of trust in neighbours in further statistical analysis (results not shown).

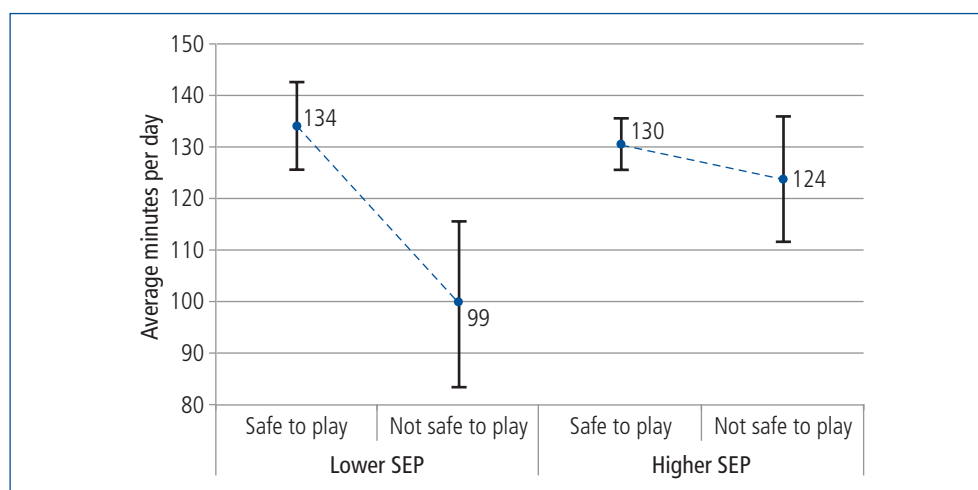
⁶ An average of 11 minutes of physical activity occurred indoors (perhaps in a gymnasium or a swimming pool), which we do not report on in this chapter as the focus of this chapter is on children's time outdoors. For a comprehensive overview of children's engagement in physical activity, see Mullan and Maguire (2013).



Notes: Weights applied; parenting: overprotective ($N = 685$), not overprotective ($N = 2,486$); parks, playgrounds: good ($N = 3,171$), not good ($N = 651$); traffic: heavy ($N = 997$), not heavy ($N = 2,829$); playing outside: safe ($N = 3,245$), not safe ($N = 3,254$). Confidence intervals are shown by the "I" bars for each estimate of the mean. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC Waves 3 & 4, K cohort

Figure 8.4: Average time children 10–11 years spent in physical activity outdoors, by parental overprotectiveness and concerns about the neighbourhood



Notes: Weights applied; lower SEP: safe to play ($N = 923$), not safe to play ($N = 181$); higher SEP: safe to play ($N = 2,166$), not safe to play ($N = 334$). Confidence intervals are shown by the "I" bars for each estimate of the mean. *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC Wave 4, K cohort

Figure 8.5: Average time children 10–11 years in lower and higher SEP families spent in physical activity outdoors, by parental concerns about the safety of playing outside

8.4 Summary and discussion

This chapter has explored associations between children's time use and parental overprotectiveness and concerns about the neighbourhood. We focused on children 10–11 years of age who, while still requiring a high level of adult supervision, are increasingly spending more time unsupervised by adults. In addition, children aged 10–11 years are continuing to learn and master skills, often through free-time play and physical activity that may entail a certain degree of risk. Parents rightly remain keen to ensure that their children are safe from harm, but there is concern that

heightened risk-aversion on the part of parents is curtailing opportunities for children to experience developmentally enhancing unsupervised time, as well as time spent in physical activity outdoors.

There is, however, a lack of research presenting data that can provide insights into this issue, and in this chapter we have sought to address this gap. We have provided an overview of aspects of children's time use that may be associated with parental concerns for their children's safety. These are children walking or cycling from school unsupervised by an adult, and time spent unsupervised by adults outdoors and indoors. In addition, we considered children's time spent supervised by an adult outdoors and children's physical activity outdoors. We analysed associations between these aspects of children's time use and parental overprotectiveness and concerns about the neighbourhood, and jointly considered the influence of socio-economic position, region of residence and gender. In this section we summarise the main findings and discuss some of the implications of these for our understanding of what influences children to walk or cycle home from school, play outdoors (unsupervised and supervised) and engage in physical activity.

Demographic characteristics, parental concerns and children's time use

Prior to considering any associations between children's time use, overprotective parenting and parental concerns about the neighbourhood, we explored whether these factors were associated with family socio-economic position, region of residence and child gender. We found that parents in lower SEP families were significantly more likely to report being highly overprotective, and to be concerned about heavy traffic and the safety of the neighbourhood for children to play. In terms of parental concerns about their neighbourhood, one of the most striking differences was related to location (families living in metropolitan areas compared to regional areas). A higher proportion of metropolitan families were concerned about whether it was safe to play outside and about heavy traffic, but less concerned about the quality of their physical environment such as parks and playgrounds (though there was no difference in parental overprotectiveness). The reverse was true for families living in rural and regional areas. These findings suggest that the places in which families live and socio-economic disadvantage shape parental overprotectiveness and/or concerns about the neighbourhood in different ways, and policies and service provision needs to be sensitive to the influence of these different environmental contexts.

There were also significant associations between some of these factors and aspects of children's time use (we consider the journey from school in the following section). Specifically, children in lower SEP families averaged significantly more time unsupervised by an adult outdoors. This is interesting considering that parental overprotectiveness and concerns about the neighbourhood were somewhat heightened in these families. Children in regional areas also averaged more time unsupervised by an adult outdoors, but this was not significant after controlling for family socio-economic position. Finally, compared to boys, girls averaged significantly less time outdoors supervised by an adult and less time in physical activity outdoors, regardless of the level of parental concern about neighbourhood safety.

Walking or cycling home from school unsupervised

Around one in five children walked or cycled from school unsupervised by an adult. Children were significantly more likely to do so if they were from more socio-economically disadvantaged families. In addition, children living in metropolitan areas compared to rural or regional areas were more likely to walk or cycle from school unsupervised by an adult.

There were no statistically significant differences in unsupervised travel home from school according to overprotective parenting and parental concerns about the neighbourhood. These findings suggest that other factors may be more salient when walking or cycling home from school, such as distance from school or the presence of major arterial roads (Giles-Corti, Wood, et al., 2011; Trapp et al., 2012), parental employment status (Carver et al., 2013), and children's preferences for physical activity (which are more evident in boys, see Mullan & Maguire, 2013). From a policy perspective, urban design and planning to reduce barriers such as arterial roads from obstructing travel routes to schools and the location of schools within communities may be important in encouraging this type of incidental exercise (e.g., Giles-Corti, Bull et al., 2013).

Time unsupervised by an adult—indoors and outdoors

In addition to considering the very specific activity of walking or cycling from school unsupervised, we broadened our analysis to incorporate children's unsupervised time in general. We compared children's time spent unsupervised by an adult (outdoors and indoors), parental overprotectiveness, and parental concerns about the neighbourhood. We also considered differences in children's time spent unsupervised by an adult outdoors compared with indoors to get a sense of the degree to which parental overprotectiveness and concerns about the neighbourhood led to the substitution of children's time spent outdoors with time indoors or vice versa. By children spending more unsupervised time indoors, parents may be attempting to minimise the risks to children, even though the overall time spent unsupervised is similar.

We found that children's unsupervised time outdoors by an adult was significantly higher for children in lower SEP families compared with children in higher SEP families. In addition, children in regional areas averaged more time unsupervised outdoors, which was moderately significant ($p < .07$).

We found a number of associations between children's unsupervised time (indoors or outdoors) and parental concerns about different aspects of the neighbourhood, but the only factor to remain statistically significant after adjusting for important socio-demographic characteristics related to parental concerns about the safety of the neighbourhood for children to play outdoors. Children with parents who held safety concerns averaged significantly less time unsupervised outdoors and significantly more time unsupervised indoors compared with children whose parents did not have this concern. Moreover, children with parents who did not have safety concerns averaged significantly more time unsupervised outdoors and indoors. These responses to neighbourhoods that are considered unsafe have also been observed in other contexts. For example, one study of disadvantaged African-American families found that the parents had more stringent monitoring practices and had their children spend increased time in the home in order to manage the risk associated with their children spending too much time in the local environment (Jarrett, 1999).

Time outdoors supervised by an adult, and physical activity outdoors

Children's time spent unsupervised by an adult outdoors constitutes only a small proportion of their overall time outdoors and we extended our analysis to consider the larger portion of time that children spend outdoors supervised by an adult. In addition, we considered children's physical activity outdoors (both unsupervised and supervised).

As with time spent unsupervised outdoors, children's supervised time outdoors was significantly lower for those with parents who expressed concern about the safety of the neighbourhood than for those whose parents did not. The differences were large, with children of parents who had safety concerns spending 20 fewer minutes per day outside (14 minutes supervised and 6 minutes unsupervised) than those with parents who had no safety concerns. On a weekly basis, this would equate to 2 hours 20 minutes less time outside.

Further analysis showed, however, that this finding only applied to boys. Boys who had parents without safety concerns spent 27 minutes more per day outdoors supervised than those with parents who had safety concerns. This is a very large difference, equating to 3 hours and 9 minutes per week (annually, about 164 hours). For girls, there was a negligible difference (2 minutes per day) in the time the two groups spent outdoors. This result suggests that boys would, ordinarily, spend more time outdoors, and that parents' safety concerns may disproportionately affect boys more than girls.

Most time outdoors is spent in physical activity (around 2 hours per day). Of all the variables examined, parents' perceptions of whether it was safe to play outside showed the greatest association with time spent engaging in physical activity outdoors. Children of parents who did not think it was safe to play outside spent 21 minutes less playing outside per day, which amounts to 2 hours and 27 minutes less physical activity per week.

However, parental concerns about neighbourhood safety were only important for time spent engaging in physical activity and were concentrated among children from families in a lower socio-economic position. When parents from a lower socio-economic position had no safety concerns, their children spent 35 more minutes in physical activity than children from lower SEP families

where their parents had safety concerns. These differences in the time spent in physical activity are substantial when considered on a weekly basis (4 hours and 5 minutes per week). There was no significant difference relating to parental safety concerns among families of higher socio-economic position.

The National Framework for Protecting Australia's Children emphasises the importance of safe and supportive communities for children to thrive (Council of Australian Governments, 2009). These findings highlight an association between parental concerns for children's safety in the community in families from lower socio-economic backgrounds and children's engagement in important, developmentally positive activities.

Limitations, conclusions and future work

The analysis presented in this chapter is descriptive and exploratory. There are a number of possibly important factors that we did not consider. For example, specific aspects of socio-economic position, perhaps relating to income or education, or the employment status of the parents may have different effects on the issues addressed in this chapter. In addition, there are limitations relating to the measures of the physical environment, and we do not have measures of distance from home to school, nor accurate measurements of how far outside home children are when they are "outdoors". Parental overprotectiveness was also not a significant factor for most of the outcomes examined, and perhaps a more sensitive measure may have uncovered some other differences. Furthermore, we do not properly gauge children's preferences with respect to time spent unsupervised or their preferences for walking or cycling from school, which previous research has suggested are important.

These limitations aside, the chapter highlights two key points and complements previous research. First, parents' perceptions of the physical environment have an extremely limited association with children's time use. This may be related to limitations around the measurement issues in relation to the physical environment, mentioned above, but previous work has tended to relegate aspects of the physical environment below other factors such as social capital, children's preferences and, in relation to travel from school, distance between home and school. Second, in contrast to results relating to the physical environment, this chapter reveals that positive and negative parental perceptions of safety in the neighbourhood lead to quite large differences in the amount of time children spend outside (both supervised and unsupervised) and the amount of time spent in physical activity. Given that the majority of children's physical activity occurs in outdoor settings, differences of 2 hours per week in time spent outside could have significant implications for children's health in terms of their weight, psychological wellbeing and independence (Mullan & Maguire, 2012; Zubrick et al., 2010).

At age 10–11 years, parents' concerns still shape children's activities significantly, and interventions that target and alleviate their concerns could affect children's development and autonomy. Future research is needed to better understand the nature of parental concerns for children's safety to play outside, especially in lower SEP families. Obtaining a more in-depth understanding of what it means for a neighbourhood to be considered unsafe for playing outside is important, particularly for families in a lower socio-economic position. More detailed information is required to ascertain the environmental circumstances in which parents are concerned about safety. Children's maturity and their own temperament may also play an important role in decision-making, and this could be a fruitful area for further research. Disadvantaged communities may also hold particular dangers for children and their families, and further work could focus on parenting in these more challenging environmental contexts.

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Fathers' involvement in the lives of their children

Separated parents' preferences

9

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9.1 Introduction

The progressive increase in the number of mothers in the labour force over the last few decades represents one of the greatest changes to have occurred in family life—not only in terms of the absolute size of the change, but also in terms of its effect on the way families function. In essence, the “male-breadwinner female-homemaker” model that was ubiquitous in the post-war boom period has given way to a shared (paternal and maternal) breadwinning role. Although various adjustments in the home, workplace and community to facilitate this new way of life have taken time to emerge, there is now evidence that fathers in Australia are spending more time caring for their children today than they were in the early 1990s (Craig, Mullan, & Blaxland, 2010). An increase in paternal involvement in the everyday lives of children—including time spent caring for the children—has been observed in other Western countries as well (see Moloney, Weston, & Hayes, 2013).

While their roles have been traditionally recognised as the economic providers in families, research suggests that fathers have a significant influence on their children's development (Lamb & Lewis, 2012). In general, relationships between fathers and children differ from those of mothers and children. For example, fathers are more likely than mothers to engage in physically stimulating activities with their children and to encourage independence (see Flouri, 2007; Lamb & Lewis, 2012). Some studies have suggested that fathers' active involvement with their children has beneficial spin-offs in relation to children's adjustment and wellbeing (for a review of relevant literature, see Allen & Daly, 2007). However, the *quality* of parenting is particularly important (see Allen & Daly, 2007; Marsiglio, Amato, Day, & Lamb, 2000). That is, investment of time is a necessary but not sufficient condition for high quality parenting. This finding has emerged not only in research on intact families, but also in research on families where parents have separated (see Allen & Daly, 2007). For instance, in their analysis of the findings of 63 studies focusing on separated fathers, Amato and Gilbreth (1999) found that children had better academic and socio-emotional outcomes when they felt close to their fathers and when their fathers adopted an authoritative parenting style.

The observed link between the level of paternal involvement and children's developmental progress may be because, as several studies have suggested, highly engaged fathers are more likely than other fathers to adopt high quality parenting, which, in turn, generates positive father–child relationships (see Allen & Daly, 2007).¹ This is not to suggest, however, that all fathers who spend considerable time with their children are predisposed to engage with their children in beneficial ways.

Consistent with this body of research, the 2006 amendments to the *Family Law Act 1975* emphasised, among other things, the importance of the continuing involvement of both parents in the lives of their children after parental separation, as long as this does not jeopardise their safety.²

¹ Not all studies have observed positive links between paternal involvement and children's developmental progress. Amato and Gilbreth (1999), for instance, found no significant relationship between frequency of contact per se and children's developmental progress. However, depending on the way it is measured, frequency of contact may not measure the overall amount of time fathers spend with their children. For instance, fortnightly contact may entail one or several overnight stays per fortnight.

² Subsequent to these reforms, the *Family Law Legislation (Family Violence and other Measures) Act 2011 (Family Violence Act)* was introduced in order to increase the protection of children and other family members from family violence or child abuse. The Act came in to operation in June 2012.

These amendments are compatible with the views of Australian parents on the links between post-separation parental involvement and child wellbeing. In two separate national surveys of Australian parents with children under 18 years of age (conducted in 2006 and 2009), over three-quarters agreed with the statement that “children generally do best after separation when both parents stay involved in their lives” (Kaspiew et al., 2009). In addition, the level of support for this view appeared to have increased slightly between 2006 and 2009. Furthermore, separated fathers in both surveys were more likely than separated mothers to agree with this statement. This is not surprising, given that children of separated parents typically spend considerably more time in the care of their mothers than their fathers after parental separation, with a substantial proportion seeing their father less than once a year or never (see Australian Bureau of Statistics (ABS), 2011). The general consensus on the importance of the continuing involvement of both parents in their children’s lives after parental separation (where this does not jeopardise children’s safety) is consistent with the observed increase in the amount of time fathers spend with their children in Australia and some other Western countries (Craig et al., 2010; Moloney et al., 2013).

Caring for children on an everyday basis, supporting them financially, and making decisions that affect their long-term welfare represent key aspects of parental involvement, though not all these aspects may be considered when separated parents reflect on their preferences for their own and the other parents’ involvement in their children’s lives. Indeed, issues relating to care time may dominate their considerations, though some parents may focus more on financial provisions for their children.

Some studies have suggested that, where children of separated parents spend most or all nights in the care of mothers, most fathers would like to have increased involvement, while only a minority of mothers want to see this happen. For example, in a nationally representative Australian study, Parkinson and Smyth (2004) found that for children who spend most or all nights in the care of mothers, nearly 60% of fathers wanted to spend more time with their children, while more than half of the mothers were happy with the status quo.

Baxter, Edwards, and Maguire (2012) also examined patterns of preferences held by separated parents who are participating in the Longitudinal Study of Australian Children (LSAC). Their analysis focused on mothers who cared for the study child for most or all nights and fathers who were living elsewhere and saw the child at least once a year, specifically, both parents of the same study child who participated in the study in Wave 3 (here called the “paired cases sample”). While 75% of fathers in the paired cases sample indicated that they would prefer to have increased involvement with their child, only 45% of the mothers in this sample said they would prefer their child’s father to have greater involvement than he currently had.

Separated parents may have misgivings about the increased involvement of the other parent for several reasons, including the very young age of their child, distance between the homes, and the perceived capacity of the other parent to be a good parent. Regarding the latter issue, for example, in the first wave of the Longitudinal Study of Separated Families, half of the mothers held safety concerns associated with the child’s ongoing contact with the other parent (Kaspiew et al., 2009).³ In the second wave of this study, the capacity of the other parent to provide a safe environment for the children and to engage in appropriate parenting were common themes reported by those who held safety concerns (Qu & Weston, 2010). Such concerns were related with the quality of the inter-parental relationship, which is also a key factor in shaping children’s wellbeing.

Expanding on previous research by Baxter, Edwards, and Maguire (2012), this chapter examines separated parents’ preferences regarding the father’s involvement in the life of their child using the data collected in four waves of LSAC. The chapter addresses the following issues:

- What were separated mothers’ and fathers’ views regarding the involvement of the father in their child’s life across four waves?
- To what extent did the preferences change regarding the father’s involvement?
- To what extent did views between the mother and father in the “paired cases sample” differ regarding the father’s involvement in their child’s life?

³ Most fathers who expressed safety concerns indicated that these related to their child alone, whereas mothers were almost equally likely to indicate that they held safety concerns for their child alone or for both their child and self.

- What did fathers say in terms of barriers that prevent them from having more involvement?
- What factors were linked with the views of the separated parents regarding the father's involvement?

9.2 Defining the sample of separated parents

The analysis in this chapter is based on the reports of separated mothers who usually lived with the study child (i.e., spend the most time with the child) and who had provided much of the information about this child, and on the reports of fathers who lived elsewhere from the mother.⁴ These parents are here called “resident mothers” and “non-resident fathers”. The “study child” is also referred to as the “child”. Note that the term “resident mother” is not intended to suggest that among these families, the mother–child relationship is more important than the father–child relationship.

It should be noted that although LSAC collected information from the parent who spent the most time with the study child in each wave, some parents had a shared care-time arrangement.⁵ In addition, some parents who participated in the study had never lived with their child's other parent. Mothers whose child had a shared care-time arrangement and mothers who had never lived with their child's father were also included in this analysis and are also referred to as “resident mothers”, while the fathers are referred to as “non-resident fathers”. These mothers lived with the child and said that they knew the child best.⁶

Omitted from the analysis are: (a) mothers who did not provide the majority of information about the child (representing fewer than 11 in B cohort mothers and six K cohort mothers across the study waves); and (b) fathers who usually lived with the study child (representing fewer than 15 B cohort fathers and fewer than 47 K cohort fathers across the study waves), given that they were not asked about their preferences for their own involvement in their children's lives. It is important to note that parents living elsewhere in Wave 1 were not interviewed. For ease of discussion, we refer to the mothers as the “resident mother” and fathers as the “non-resident father”, as noted above.

Table 9.1 (on page 154) shows numbers of B cohort and K cohort resident mothers and non-resident fathers who were represented in the analysis. More resident mothers than non-resident fathers were represented, and the number of participants varied across waves. Some parents separated between waves and therefore “flowed into” the sample, while some “left” the sample, either because they no longer participated in the study or because they did not answer questions of prime interest in this analysis.⁷ As noted above, only fathers who had seen their child at least once a year were able to participate in the study. Of the mothers who had never lived with their child's father, 36% in the B cohort and 50% in the K cohort participated in all four waves, and 28% and 41% in the two cohorts respectively had responded to the question on their preferences regarding the father's involvement in their child's life. Of the non-resident fathers who participated in the study in Wave 2, 48% and 52% respectively participated in all subsequent waves and responded to the question regarding their own involvement.

A minority of resident mothers who were identified as the primary carer of the study child and non-resident fathers who were identified as the parent living elsewhere were in shared care-time arrangements. In Wave 3, 97 resident mothers of B cohort and 118 mothers of K cohort children did not want to answer questions about their child's other parent and thereby skipped answering the question on their preference regarding paternal involvement in their child's life. For other waves (1, 2 and 4), a small number of resident mothers who did not answer the question are excluded (ranging from 3 to 32 across waves for both cohorts). A small number of resident fathers living elsewhere who did not respond to the question about their own involvement in the study child's

⁴ Parents living elsewhere were not recruited for the study if they had not seen the study child at least once a year.

⁵ The Department of Human Services Child Support Program considers children to be in a shared care-time arrangement if they spend 35–65% of nights with each parent in a year. This classification has been adopted for this study.

⁶ Of the study children with a parent living elsewhere, only a small proportion (1–3% across four waves for either cohort) were either in equal time (i.e., entailing 48–52% of time with each parent) or shared time entailing more nights with the father than mother (i.e., 53–65% of nights per year with the father and 35–47% of nights with the mother).

⁷ A small number of separated parents reconciled and thus were out of the scope in later waves.

life are excluded (two or fewer for each wave and each cohort). In Waves 3 and 4, parents living elsewhere were interviewed via telephone.

Table 9.1: Number of resident mothers and non-resident fathers in each study wave, B and K cohorts

Wave and study year ^a	B cohort			K cohort		
	Age of child	No. of resident mothers	Non-resident fathers (interviewed or with self-completion questionnaire ^b)	Age of child	No. of resident mothers	Non-resident fathers (interviewed or with self-completion questionnaire ^b)
Wave 1 (2004)	0–1 year	443	N/A	4–5 years	713	N/A
Wave 2 (2006)	2–3 years	475	91	6–7 years	682	183
Wave 3 (2008)	4–5 years	447	257	8–9 years	633	370
Wave 4 (2010)	6–7 years	631	355	10–11 years	781	440

Notes: ^a See Renda (2013) for detailed care-time arrangements in each wave. ^b Non-resident parents were sent self-completion questionnaires in Wave 2 and were interviewed via telephone in Waves 3 and 4.

9.3 Preferences of mothers and fathers regarding the father's involvement in their child's lives

In each wave, resident parents were asked: “How involved do you think [the child's] other parent should be in his/her life?” The response options were: “a lot more involved”, “a little more involved”, “the level of involvement is about right”, “a little less involved”, and “much less involved”. As noted above, non-resident parents were asked about their preferred level of involvement in their child's life from Wave 2 onwards. These fathers were asked: “In thinking about the role that you have in this child's life, would you like to be ... ?” The same set of response options were offered. The responses of resident mothers and non-resident fathers in relation to their views about the father's involvement in their children's lives are depicted in Figures 9.1 and 9.2 (on page 155). It should be pointed out that a father's involvement is multidimensional and parents' views may vary regarding the meaning of “father's involvement”.

Preferences for paternal involvement (from both mothers and fathers)

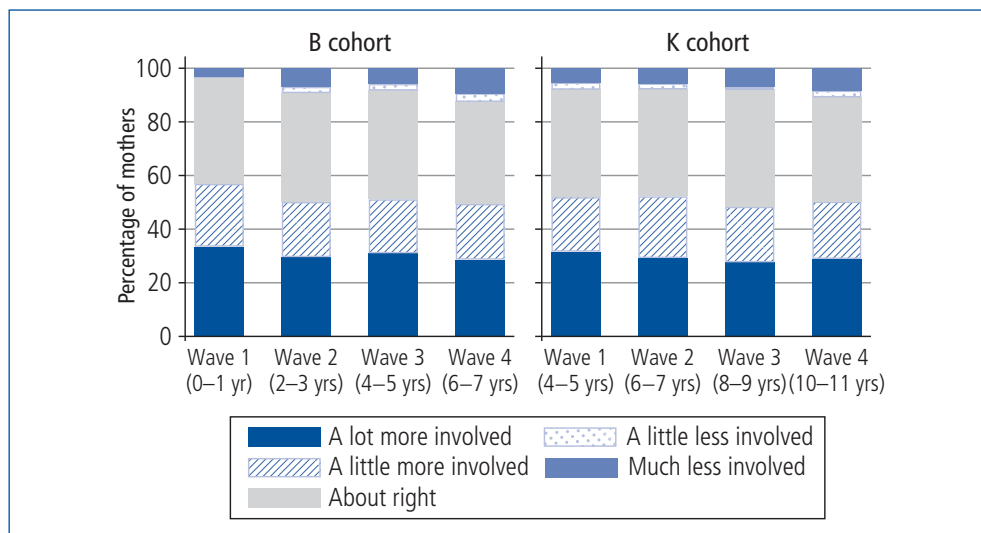
Around one-half of the resident mothers expressed a preference for increased paternal involvement (i.e., a lot more or little more involved). Across the waves of the study, nearly one-third of resident mothers in each cohort indicated that they would like the father of the child to be a lot more involved (B cohort: 29–33%; K cohort: 28–32%), and at least one-fifth said they preferred the father to be a little more involved (20–23% in each cohort) (Figure 9.1). On the other hand, a substantial proportion of resident mothers said that the current level of paternal involvement was “about right”. This view was expressed by 38–41% of those in the B cohort and by 40–44% of K cohort resident mothers. Few mothers preferred to see the father's level of involvement diminish. Across study waves no more than 3% in each cohort said they preferred “a little less” involvement, and 3–9% in the B cohort and 5–8% in the K cohort said they preferred “much less” involvement.

The patterns of preferences were therefore fairly consistent across all the waves and the two cohorts. Nevertheless, though few resident mothers said that they would like the father to be less involved, this preference was selected by a significantly lower proportion of B cohort mothers in Wave 1 than in subsequent study waves (4% vs 8–13%). This trend was not apparent for K cohort mothers.

Figure 9.2 presents the patterns of preferences expressed by non-resident fathers concerning their personal involvement in their child's life. As noted above, such information was not collected in Wave 1 and the sample of non-resident fathers was restricted to those who had seen their child at least once a year. Fathers most commonly indicated that they preferred “a lot more” involvement (reported by 39–45% in the B cohort and 39–52% in the K cohort across Waves 2

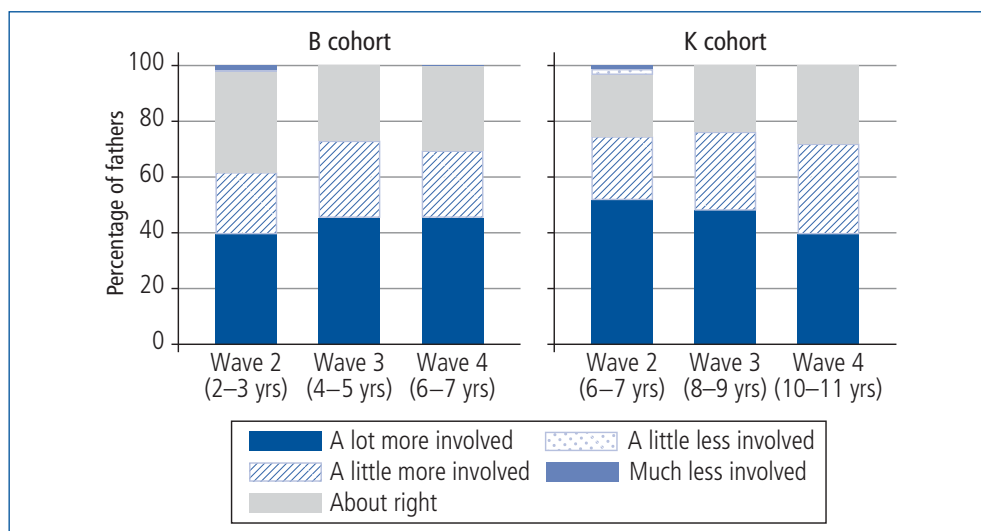
to 4). Another 22–28% of B cohort fathers and 23–33% of K cohort fathers said they preferred a “little more” involvement. In other words, 62–73% of fathers in the B cohort and 72–76% of those in the K cohort wanted increased involvement in their child's life. Almost all other non-resident fathers said that their level of involvement was “about right” (B cohort: 27–36%; K cohort: 22–28%). Only 0–2% of B cohort fathers and 0–3% of K cohort fathers indicated that they would prefer less involvement. Parents' preferences regarding paternal involvement are likely to be affected by a range of factors, for example, previous and current levels of paternal involvement, the distance between the residences of father and child, and the quality of the inter-parental relationship. These factors are examined later in this chapter.

It is worth noting that the extent to which resident mothers and non-resident fathers in the LSAC study expressed preferences for greater paternal involvement seems high when compared with the results of a study by Parkinson and Smyth (2004). However, this apparent discrepancy may have resulted from differences in the measures used and the samples. For example, differences



Note: Sample sizes of mothers across the four waves for each cohort vary. B cohort: $n = 443, 475, 447$ and 631 for Waves 1 to 4 respectively; K cohort: $n = 713, 682, 633$, and 781 for Waves 1 to 4 respectively.

Figure 9.1: Preferences of resident mothers about the non-resident father's level of involvement in their child's life by study wave and cohort



Note: Sample sizes of fathers across the four waves for each cohort vary. B cohort: $n = 91, 257$, and 355 for Waves 2 to 4 respectively; K cohort: $n = 183, 370$, and 440 for Waves 2 to 4 respectively.

Figure 9.2: Preferences of non-resident fathers about the level of their personal involvement in their child's life by study wave and cohort

were apparent in the questions on involvement (with the Parkinson and Smyth study focusing on father–child time), the ages of the children, and the duration of parental separation. Furthermore, the preference for an increase in paternal involvement apparent in the LSAC study is consistent with the increasing recognition that the father’s involvement with their children is beneficial to child development.

Preferences of partners in the sample of paired cases

The above trends focus on all resident mothers and all non-resident fathers, taken separately. As already noted, fathers who had not seen the child in the past 12 months were not interviewed. Where both parents of the same child participated in the study, it was possible to compare their preferences regarding paternal involvement from Wave 2 onwards. The patterns of preferences are divided into three broad categories as show in Table 9.2: (a) a higher level of involvement reported by the father than the mother (b) the father and mother had the same level of involvement; or (c) a lower level of involvement reported by the father than the mother.

Where the views of each parent differed, the amount of disparity was identified as represented either a difference of one rating point (e.g., “a little more involved” vs “a lot more involved” and “a little more involved” vs “current level is about right”) or at least two rating points (e.g., “a lot more involved” vs “about right” and “a little more involved” vs “a little less involved”). Table 9.2 shows how each specific group was classified.

Table 9.2: Defining categories comparing mothers’ and fathers’ views regarding the non-resident father’s involvement in their child’s life, paired cases					
Father’s report	Mother’s report				
	A lot more involved	A little more involved	About right	A little less involved	Much less involved
A lot more involved	Same	Dad’s > mum’s, difference by one rating point			
A little more involved	Dad’s < mum’s, difference by one rating point	Same	Dad’s > mum’s, difference by one rating point	Dad’s > mum’s, difference by at least two rating points	
About right		Dad’s < mum’s, difference by one rating point	Same	Dad’s > mum’s, difference by one rating point	
A little less involved	Dad’s < mum’s, difference by at least two rating points		Dad’s < mum’s, difference by one rating point	Same	Dad’s > mum’s, difference by one rating point
Much less involved				Dad’s < mum’s, difference by one rating point	Same

Note: The symbol “<” means “less than” and the symbol “>” means “greater than”; for example, “Dad’s > mum’s” refers to cases where the father preferred greater paternal involvement than the mother.

Table 9.3 (on page 157) summarises the results of this comparison. As the last row in Table 9.3 shows, the number of paired cases (where both parents of the study child were interviewed) increased with each subsequent study wave. Of these three sets of responses, the most common entailed the father preferring greater paternal involvement than the mother (B cohort: 43–46%; K cohort: 43–54%), followed by the father and mother sharing the same view (B cohort: 34–38%; K cohort: 32–38%), while the least common was the father preferring less paternal involvement than the mother (B cohort: 18–21%; K cohort: 12–19%). For 18–21% of paired cases in the B cohort and 12–19% in the K cohort, the father’s preferred level of paternal involvement was lower than the mother’s preferred level.

Table 9.3: Preferences of fathers and mothers regarding the non-resident father's involvement in their child's life

Preference: father's vs mother's	B cohort			K cohort		
	Wave 2 (2–3 years) (%)	Wave 3 (4–5 years) (%)	Wave 4 (6–7 years) (%)	Wave 2 (6–7 years) (%)	Wave 3 (8–10 years) (%)	Wave 4 (10–11 years) (%)
Father's preferred level higher than mother's	44.8	46.2	43.2	53.2	54.1	42.7
One rating point difference (adjacent ratings)	20.3	18.3	20.9	25.7	28.9	24.8
At least two rating points apart	24.5	27.9	22.3	27.5	25.2	17.9
Father's preference same as mother's	34.1	36.0	37.6	32.7	33.5	38.3
Both—a lot more involved	9.0	13.1	14.9	12.9	13.9	12.3
Both—a little more involved	4.1	9.1	4.5	6.6	5.4	10.0
Both—about right	21.0	13.8	18.2	13.2	14.2	16.0
Father's preferred level lower than mother's	21.2	17.9	19.3	14.2	12.4	19.0
One rating point difference (adjacent ratings)	13.5	14.5	14.4	9.1	8.0	15.5
At least two rating points apart	7.7	3.4	4.9	5.1	4.4	3.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of paired cases	91	257	355	183	370	440

Note: Due to rounding, the sum of column percentages may not total exactly 100%.

Across the three study waves, for at least one-third of this sample, both parents shared the same preference regarding the non-resident father's level of involvement. Where both parents shared the same views, they were generally less likely to prefer that the father was “a little more involved” than to prefer that the father was “a lot more involved” or to maintain the status quo (i.e., his level of involvement was deemed to be “about right”). Among B cohort parents who shared the same view, the most common response (at least for Waves 2 and 4) was a preference to maintain the status quo (reported by 18–21% of the total sample of paired cases in Waves 2 and 4 and 14% in Wave 3). A shared preference among B cohort parents for the father to become “a lot more involved” increased somewhat from 9% in Wave 2 to 15% in Wave 4. Among the K cohort where both parents shared the same views, around the same proportions indicated that they would prefer “a lot more” paternal involvement or that the level was “about right” (reported by 12–14% and 13–16% of all paired cases respectively).

Across three waves, for over 40% of the paired cases in the B cohort, the father preferred greater paternal involvement than the mother. Of all B cohort parents in the sample where both parents were interviewed, a “moderate” difference of one rating point in this direction was apparent for 18–21%, and a difference of at least two rating points in this direction emerged for 22–28%.

For over one-half of the paired cases in the K cohort in Waves 2 and 3, and 43% in Wave 4, the father preferred greater paternal involvement than the mother. Across the study waves, 25–29% of K cohort parents in this sample differed by one rating point in this direction, and 18–28% differed by at least two rating points in this direction. It is worth noting that the proportion of paired cases with at least a two-rating-point difference in this direction fell from 28% in Wave 2 to 18% in Wave 4.

As mentioned above, the least common of the three broad scenarios entailed the father expressing a preference for a lower level of paternal involvement than the mother. Similar patterns emerged across the study waves in the proportions of paired cases providing this pattern of response. A difference of one rating point was more common than a difference of at least two rating points.

For example, 14–15% of all B cohort paired cases entailed a difference of one rating point in this direction, while only 3–8% entailed a difference of at least two rating points in this direction.

9.4 The changing preferences of mothers regarding the father's involvement in their child's life

The above sets of discussion focus on all resident mothers and non-resident fathers, and then on all paired cases, who participated in either Wave 2, 3 or 4, regardless of whether they participated in any other wave. This section focuses on resident mothers who had been separated from their child's father in all four waves and who had participated in each of these waves.⁸ The extent and nature of change in these mothers' preferences regarding the father's level of involvement in their child's life is examined. For ease of discussion, these mothers are referred to as "continuing resident mothers".

Continuing resident mothers' responses in Wave 1 are compared with those provided in each subsequent wave and are classified into three categories, following a similar format to that adopted in the comparison of responses of each mother and father of the same child (see Table 9.2). Table 9.4 presents the proportions of continuing resident mothers in the sample whose preferences regarding paternal involvement remained the same, changed in the direction of greater involvement, and changed in the direction of lesser involvement. These three broad categories are further divided as outlined in the discussion of results below.

Table 9.4: Changing preferences of resident mothers regarding non-resident father's involvement in their child's life

Change in preferences	B cohort			K cohort		
	Wave 2 vs Wave 1 (%)	Wave 3 vs Wave 1 (%)	Wave 4 vs Wave 1 (%)	Wave 2 vs Wave 1 (%)	Wave 3 vs Wave 1 (%)	Wave 4 vs Wave 1 (%)
Preferred level—increased	25.6	33.1	34.3	23.5	24.9	27.6
One rating point difference (adjacent ratings)	18.6	22.1	22.6	13.6	12.5	16.2
At least two rating points apart	7.0	11.0	11.7	9.9	12.4	11.4
Preferred level—no change	48.8	40.3	28.6	49.8	42.9	41.8
No change—a lot more	21.3	20.2	11.1	17.8	15.1	16.3
No change—a little more	8.2	7.2	5.9	7.3	4.9	5.7
No change—about right	17.2	11.9	11.6	22.7	20.2	18.0
No change—a little less or much less	2.1	1.0	0.0	2.0	2.7	1.8
Preferred level—decreased	25.6	26.6	37.1	26.9	32.2	30.8
One rating point difference (adjacent ratings)	14.2	12.8	18.2	14.8	15.7	14.5
At least two rating points apart	11.4	13.8	18.9	12.1	16.5	16.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
No. of mothers	124	124	124	295	295	295

Notes: Due to rounding, the sum of column percentages may not total exactly 100%. Ages of the children—B cohort: Wave 1: 0–1 year, Wave 2: 2–3 years, Wave 3: 4–5 years, Wave 4: 6–7 years; K cohort: Wave 1: 4–5 years, Wave 2: 6–7 years, Wave 3: 8–10 years, Wave 4: 11–12 years.

⁸ Due to a small number of non-resident fathers who were interviewed in all waves, the analysis was not carried out for a continuing sample of non-resident fathers.

It is important to note that any change in mothers' preferences may or may not have resulted from an actual change in the level of paternal involvement. It also needs to be kept in mind that the needs of children would change as they grow older, as would the needs of parents as their personal circumstances change. Links between resident mothers' preferences regarding paternal involvement and their care-time arrangements (an important element of paternal involvement) are discussed in a subsequent section.

Nearly one-half of the continuing resident mothers in the B cohort held the same preference in both Wave 1 and Wave 2 (when their child was 0–1 year, then 2–3 years). Around one-quarter of the mothers had changed their view, wanting greater paternal involvement in Wave 2 than Wave 1, and around one-quarter preferred to see lower paternal involvement in Wave 2 than Wave 1. This general pattern was also apparent for Wave 3 when compared with Wave 1, though the proportion of continuing resident mothers who had changed their views towards greater paternal involvement over this 4-year period (33%) was higher than the proportion indicating this direction of change in views over the 2-year period (26%). In addition, the proportion preferring the same level of involvement over the 4-year period was lower than that apparent over the 2-year period (40% vs 49%). Over the 6-year period (from Wave 1 to Wave 4), the proportion of mothers who held the same views had fallen to 29%, while the proportion of the mothers who changed their views towards lower paternal involvement had increased to 37%. In other words, the views of continuing resident mothers in the B cohort had become more diverse with time. This may reflect the changing circumstances among these mothers, fathers and their children, including changes in personal needs, in the actual paternal levels of involvement, and/or in the quality of the inter-parental relationship.

Among continuing resident mothers in the K cohort, one-half held the same preferences over the first two waves, and 43% at Wave 3 and 42% at Wave 4 held the same views as they held in Wave 1. Compared with their preferences in Wave 1, 24% of continuing resident mothers in the K cohort wanted more paternal involvement in Wave 2, while 27% wanted less paternal involvement. By Wave 4, 28% wanted more and 31% wanted less paternal involvement.

Four scenarios involving no change in preferences are presented in Table 9.4: a continuing preference of the father to be “a lot more” involved, “a little more” involved, “a little less” or “much less” involved, and a continuing assessment that the father's level of involvement was “about right”. For both cohorts, the two most common scenarios entailed a continuing preference for “a lot more” involvement and for a continuing assessment that the level of paternal involvement was “about right”.

Where B cohort mothers expressed an increase in their preferred level of paternal involvement, the increase tended to reflect a change of one rating point. For example, by Wave 4, 23% of resident mothers in the B cohort had changed their views by only one rating point towards favouring paternal involvement, whereas 12% had changed their views by at least two rating points in this direction. (This trend was less apparent among K cohort mothers whose preferred level of paternal involvement had increased.) On the other hand, when mothers changed their preferred level towards less paternal involvement, decreases of one rating point and of at least two rating points were similarly likely to occur, with the patterns being consistent for both cohorts.

Overall, for both cohorts, mothers' preferences regarding paternal involvement were more likely to change as duration of separation increased. This is not surprising given the continuing changes in children's needs as they grow up and the changes in the needs of their parents as their circumstances change during the course of separation. The changes in mothers' preferences on paternal involvement were greater for those in the B cohort than K cohort. In addition, the extent of change in either direction was similar—towards increased paternal involvement and towards decreased paternal involvement.

9.5 Barriers to further involvement reported by non-resident fathers

In Waves 2–4, non-resident fathers who indicated that they would like to have greater involvement in their child's life than they had at the time were asked: “What stops you from being more

involved?”⁹ In Waves 2 and 3, a list of 12 possible reasons (including “other reasons”) was provided and non-resident parents could nominate as many of those reasons listed as they deemed appropriate. In Wave 4, only eight possible reasons were provided, and these tended to be less specific than those listed in the previous two waves. Unlike the earlier waves, non-resident parents were asked in Wave 4 to select one response option only. Most probably, they would have selected the main barrier to increased involvement. Of all the non-resident fathers who preferred to see their involvement with their child increase, the proportions of fathers who nominated the different reasons are presented in Table 9.5 (relating to Waves 2 and 3) and Table 9.6 (relating to Wave 4).

Table 9.5: Waves 2 and 3: Non-resident fathers’ reasons for not being more involved

Reasons	B cohort		K cohort	
	Wave 2 (2–3 years) (%)	Wave 3 (4–5 years) (%)	Wave 2 (6–7 years) (%)	Wave 3 (8–9 years) (%)
The demands of your job make more frequent contact difficult	50.5	43.3	50.0	36.9
Your child’s other parent does not want you to see the child more often	33.7	29.0	21.8	28.3
Child lives too far away for more frequent contact & travel too expensive	18.4	24.1	31.4	29.5
The terms of a court-ordered arrangement prevent more contact	16.3	7.7	10.6	5.3
More frequent contact would be disruptive to the child’s routine	9.0	2.6	21.0	2.4
Distress to child and/or self	8.0	0.0	6.8	1.0
You are prevented by illness or injury	0.0	0.0	0.0	0.4
You do not have suitable living arrangements for a child to visit	5.2	0.4	5.4	2.1
Your new partner or family makes more frequent contact difficult	1.1	3.7	1.1	2.0
Other reasons	11.6	17.1	17.2	8.6
No. of fathers	60	195	138	285

Notes: Column sums may exceed 100% because multiple responses were allowed. Questions in Wave 2 were asked in a self-completion questionnaire while questions in Wave 3 were asked in computer-assisted telephone interviews.

Table 9.6: Wave 4: Non-resident fathers’ reasons for not being more involved

Reasons	B cohort (6–7 years) (%)	K cohort (10–11 years) (%)
Work commitments/demands	41.7	36.9
Parent 1 (resident parent) related	29.7	21.0
Distance/cost	19.1	22.4
Current care arrangements	6.7	10.4
Family commitments/demands	0.1	1.7
Other parent living elsewhere or child commitment	1.2	4.4
Child doesn’t want to	1.5	2.7
Step-family/current partner related	0.2	0.6
Total	100.0	100.0
No. of fathers	244	319

Note: Percentages may not total exactly 100% due to rounding.

⁹ Baxter et al. (2012) also examined the barriers to increased involvement reported in Wave 3 by non-resident fathers who wanted increased involvement in their child’s life. This section expands on their analysis by including fathers’ perceptions on this issue collected in Waves 2 and 4 (as well as Wave 3).

Across the waves, both B and K cohort fathers most commonly nominated job-related issues as a barrier to increased involvement, followed by barriers related to the child's mother (e.g., she did not want to see increased paternal involvement) and to the distance between the two homes and cost. These patterns were consistent across the three waves. Specifically, work-related barriers to increased involvement were reported by one-half of the B and K cohort fathers in Wave 2 and by around 40% in Waves 3 and 4, while one-fifth to one-third of fathers across waves and cohorts nominated the mother as a barrier to increased involvement. Barriers of distance and cost were reported by one-fifth in Wave 2 and by nearly one-third of fathers by Wave 4 in each cohort.

The other reasons listed were nominated by a smaller proportion of fathers, with the exception of concerns about the resulting disruptions to the child's routine: one-fifth of K cohort fathers nominated this issue as a barrier to increased involvement in Wave 2 (when their child was 6–7 years old), compared with less than one in ten fathers in the B cohort in Wave 2 (when their child was 2–3 years old). Few fathers considered this as a barrier to increased involvement in Wave 3. This specific barrier was not captured in Wave 4, but may have been a consideration among those mentioning “other parent living elsewhere or child commitment”¹⁰ and the child not wanting increased involvement (each nominated by less than 5% of B and K cohorts).¹¹ A substantial minority of non-resident fathers in Waves 2 and 3 indicated other reasons that were not specified in the questionnaire (less than one-fifth).¹²

9.6 Factors linked with preferences regarding fathers' involvement in their child's life

The above section focuses on fathers' beliefs about barriers to increased involvement in their child's life. A range of reasons was offered, with work-related issues, the wishes of the child's mother, and distance or costs being the most commonly mentioned. However, information on barriers was only asked of fathers who expressed a preference for more involvement. To some extent, preferences can be compromised by competing priorities. For instance, reasons for *not* wanting increased involvement may have included a desire to avoid upsetting the child or the child's mother, or the father lacking suitable accommodation for the child.

In this section the focus is on objective factors linked with mothers' and fathers' preferences for increased paternal involvement (as opposed to preferences for reduced involvement or for maintenance of the status quo). The factors examined were: care-time arrangements, duration of separation (expressed in terms of the child's age at separation), physical distance between the two homes, parents' current relationship status, and whether parents were at least sometimes hostile towards each other.¹³ The cut-off points for care-time arrangements were based on those adopted by the Department of Human Services Child Support Program for determining how much child support should be paid. Children who spent 35–65% of nights per year with each parent are referred to as having a shared care-time arrangement.

Some of these variables are also linked with socio-economic status, for example, care-time arrangements and re-partnering after separation (see de Vaus, Gray, Qu, & Stanton, 2008; Kaspiw et al., 2009). The focus of this section is on factors linked with parents' preferences for increased paternal involvement controlling some other potentially important factors. Put another way, the strength of links between paternal involvement preferences and each factor selected was assessed,

¹⁰ This may refer to a new partner or another child (e.g., step-child or child born of another relationship, or the study child's full sibling who spends most of the time in the care of the father).

¹¹ In Wave 2, 5% of B cohort fathers nominated the child's distress associated with “change-overs” in care time as a barrier to increased involvement. The children in this cohort were 2–3 years old at the time. No B cohort fathers mentioned this issue in Wave 3 (when their child was 4–5) and only around 1% of K cohort fathers mentioned this issue in Waves 2 and 3 (when their child was 6–7 years and 8–9 years).

¹² The response option “Other reasons” was not provided in Wave 4.

¹³ In each wave, resident parents were asked, “How often is there anger or hostility between you and the child's other parent?” Responses to this question are divided into three groups: (a) never or rarely; (b) sometimes, often or always; and (c) other (i.e., no contact between the parents, not applicable).

when the effects of the other selected factors were controlled for.¹⁴ The analyses were carried out separately for resident mothers and non-resident fathers for each cohort and each wave. For ease of interpretation, the results are presented as estimated percentages relating to a preference for increased involvement associated with care time and distance between the two homes. (The results relating to a preference for increased involvement and other factors examined are not shown, but discussed in this section. The results of the analysis focusing on the relationship between two variables where other factors are not controlled are not presented due to limited space). Given that the broad patterns of results were similar for mothers and fathers and any table of the precise results is unwieldy, only the results for mothers are provided.¹⁵

Characteristics associated with resident mothers' preferences for greater father involvement

Table 9.7 presents the predicted percentages of resident mothers wanting to see increased (rather than reduced or no change in) the father's level of involvement in their child's life.

Table 9.7: Estimated percentages of resident mothers preferring the father to be more involved				
	Wave 1 (%)	Wave 2 (%)	Wave 3 (%)	Wave 4 (%)
Care time (time with the father)				
B cohort (ref. = 14–34% nights)	45.6	40.0	34.0	44.7
Father never saw the child	72.3 *	54.5	40.5	50.5
Father saw the child daytime only	55.1	59.3 **	60.4 ***	50.8
1–13% nights	47.0	55.5	70.6 ***	71.5 ***
Shared time (35–65% nights) ^a	–	–	–	11.1 ***
K cohort (ref. = 14–34% nights)	42.0	44.6	41.0	45.4
Father never saw the child	63.9 *	60.6	58.3	56.6
Father saw the child daytime only	58.2 **	61.2 *	58.1 *	67.6 ***
1–13% nights	57.1 *	61.6 **	56.2 *	63.8 ***
Shared time (35–65% nights)	42.0	17.8 **	21.2 *	19.6 ***
Distance between two homes				
B cohort (ref. = < 5 km)	44.8	47.2	55.3	53.4
5–19 km	47.2	47.1	39.9	46.5
20–99 km	62.9 *	42.7	45.4	43.4
100+ km	72.7 **	76.0 ***	52.0	48.8
Other	66.5	49.1	59.7	41.2
K cohort (ref. = < 5 km)				
5–19 km	42.1	32.9	34.0	56.0
20–99 km	53.1	52.8 **	46.7 *	48.8
100+ km	56.6 *	60.0 ***	50.3 *	58.8
Other	59.4 **	59.7 ***	54.6 **	47.4

Notes: Ages of the children: B cohort: Wave 1: 0–1 year; Wave 2: 2–3 years; Wave 3: 4–5 years; Wave 4: 6–7 years; K cohort: Wave 1: 4–5 years; Wave 2: 6–7 years; Wave 3: 8–10 years; Wave 4: 11–12 years. Reference groups are in brackets.

^a Numbers in shared time in Waves 1–3 for the B cohort were too small and they were combined with the group of 14–34% of nights. The statistical significance shown in the table represents the significance of underlying coefficients in logistic regression. * $p < .05$, ** $p < .01$, *** $p < .001$. Predicted probabilities were computed by setting explanatory variables at their sample means. Other variables included in the model: re-partnering status, age of study child at separation, the quality of inter-parental relationship, employment, and education.

¹⁴ Socio-economic characteristics were measured by two variables: employment status and level of education. Some of the factors examined would have been inter-related. For example, distance between the two parental homes tends to be associated with children's care-time arrangements: the closer their location, the more likely the children are to spend substantial time with their non-resident parent or to have a shared care-time arrangement (Kaspiew et al., 2009). Nevertheless, there is no collinearity across the variables included in the regressions.

¹⁵ The results pertaining to fathers' preferences are available on request.

As expected, mothers' preferences were associated with their child's care-time arrangements: in general terms, the more time the child already spent in the care of their father, the lower was the likelihood that the mother would prefer to see increased paternal involvement. For example, among the B cohort mothers in Wave 4, the probability for preferring increased paternal involvement was only 11% for the mothers whose child was in a shared care-time arrangement, 45% for those whose child spent 14–34% of nights with the father (the reference group) and 72% for those whose child spent only 1–13% of nights with the father.

The underlying coefficients for these two care-time groups (shared time and 1–13% of nights) were significantly different from the reference group (i.e., 14–34% of nights—a fairly common arrangement). Specifically, the results indicate that B cohort mothers whose child spent only 1–13% of nights with the father in Wave 4 were significantly more likely than those whose child spent 14–34% of nights with the father (and even more nights than this) to indicate a preference for increased paternal involvement. On the other hand, those with shared care-time arrangements were *less* likely to indicate such a preference, compared with those whose child spent 14–34% of nights with the father.

Such trends are not surprising, given that care time is a central component of involvement. In section 9.5, some of the barriers to greater involvement reported by fathers pointed to their inability to spend more time with the child. However, it is important to point out that many of the relationships were not significant. For instance, except in Wave 1, B and K cohort mothers whose child never saw the father were not significantly more likely to prefer increased paternal involvement than mothers whose child spent 14–34% of nights with the father. This is not surprising given that mothers and fathers in this situation had different issues (see Kaspiw et al., 2009).

Mixed results emerged regarding links between the mothers' preferences and the distance between the two parental homes. Among the B cohort mothers in Wave 1, mothers who lived distances of at least 20 km from their child's father were significantly more likely than those living within 5 km of the father to express a preference for increased paternal involvement. In Wave 2, only those who lived at least 100 km away from the child's father were significantly more likely to prefer increased involvement than those who lived within 5 km. But in Waves 3 and 4, mothers' preferences did not vary significantly with distance between the two homes. For K cohort mothers, those with distances of at least 20 km in Wave 1 were significantly more likely to express a preference for increased paternal involvement than the reference group (those who lived within 5 km). In Waves 2 and 3, those with distances of at least 5 km were significantly more likely to prefer increased paternal time, but in Wave 4, mothers' preferences regarding paternal time did not vary significantly according to distance between the two homes. Overall, longer distance was associated with preferring more paternal involvement in Waves 1 and 2 and this link disappeared in Waves 3 and 4.

Apart from the results for B cohort mothers in Wave 3, there was virtually no apparent association between duration of separation (here expressed in terms of the age of the child at the time of separation) and mothers' preferences regarding fathers' involvement. Among B cohort resident mothers in Wave 3, those who had separated from their child's father after the child turned 2 years of age were significantly less likely to prefer increased paternal involvement, compared with their counterparts who had separated at the birth of the child or earlier (including those who never lived together). It is worth noting that, in Wave 4, B cohort resident mothers who had separated when the child was 2–4 years old were also less likely to prefer increased paternal involvement than those who separated at the birth of the child or earlier. However, no significant differences emerged for other durations of separation (here expressed in terms of the child's age at separation). For the K cohort, the child's age at the time of separation was not significantly related to mothers' preferences regarding paternal involvement.

Although partnered mothers seemed less likely to prefer increased paternal involvement than mothers who at each wave were unpartnered ("single"), this difference was only statistically significant for B cohort mothers in Wave 4 and K cohort mothers in Wave 2. For B cohort mothers, lack of significance is likely to be attributable to the small numbers who were partnered in the first three waves. However, this is not the case for K cohort mothers.

Among the B cohort mothers, those who reported that their relationship with their child's father sometimes or more frequently entailed anger or hostility were *less* likely to prefer increased paternal involvement than those who said that anger or hostility rarely or never occurred. However, this pattern of results was only statistically significant in Waves 1 and 3. Among K cohort mothers, no

statistical differences in wanting more paternal involvement emerged between those reporting having angry or hostile episodes with their child's father and those having no such episodes. However, the variable concerning hostility included an "other" (or "not applicable") category. This referred to mothers who said that they had no contact with the father and therefore had no opportunities to have heated exchanges. K cohort mothers who indicated that they had no contact with the father were less likely to prefer increased paternal involvement than those who never or rarely experienced the emergence of anger or hostility in the relationship. This difference was statistically significant across all four waves.

Characteristics associated with non-resident fathers' preferences for greater father involvement

As was found for mothers' views, in general, fathers with shared care time were significantly less likely to express a preference for increased involvement than those who spent 14–34% of nights caring for their child. As already noted in relation to mothers, this is not surprising given that shared care time represents a great deal of involvement in the child's life. In addition, B cohort fathers with only 1–14% of care nights were significantly more likely to indicate a preference for increased involvement than those who already spent at least 14–34% of nights with their child. However, none of the other trends relating to care time were statistically significant. For instance, fathers who only saw their child during the daytime were no more (or less) likely to prefer increased involvement in their child's life than the comparison group (with 14–34% of care nights).

Regarding the effects of distance between the two homes on involvement preferences, the only statistically significant differences emerged between fathers who lived very long and very short distances away from their child.¹⁶ As expected, K cohort fathers who reported distances of at least 100 km were significantly more likely to prefer increased involvement with their child than their counterparts who lived fewer than 5 km away. This pattern also applied to B cohort fathers in Wave 3, but not Wave 4. Again, it should be kept in mind that these results emerged when the effects of differential levels of care-time arrangements were controlled.

Fathers' preferences regarding personal involvement in their child's life did not vary significantly according to their period of separation. In addition, for most of the comparisons undertaken, fathers' preferences regarding their involvement with their child did not vary significantly according to their relationship status or according to whether their relationship with their child's mother entailed anger or hostility at least some of the time. Some exceptions emerged. Firstly, for B cohort fathers in Wave 1 and for K cohort fathers in Wave 4, those who had re-partnered were more likely to prefer increased involvement than their counterparts who had remained single. Secondly, mixed results emerged for B cohort fathers regarding the effects of anger or hostility in the inter-parental relationship and fathers' involvement preferences. For example, B cohort fathers who said that they had a hostile relationship at least sometimes in Wave 3 were more likely than those who indicated that they rarely or never had a hostile relationship to prefer increased paternal involvement, while this effect was not statistically significant in Wave 4.

9.7 Conclusions

This chapter examines the preferences of separated mothers and fathers regarding paternal involvement in their child's life. The analyses focused on the views of parents in the most common arrangement, entailing the child living with the mother for most or all of the time, along with the very small proportion of cases in which the child was in an equal care-time arrangement, and where the mother had indicated that she knew the child best (and had therefore been classified as the "primary parent"). For succinctness, the mothers are referred to as "resident mothers" and the fathers as "non-resident fathers". Firstly, the views of all such parents were examined, then they were compared with the views of fathers and mothers in the paired cases sample (where the two parents of the same study child indicated their preferences). It is important to note that any fathers who had not been in face-to-face contact with their child within 12 months were excluded from responding to the study at each wave (including the "paired cases" sample).

¹⁶ That is, their child's usual residence.

Around one-half of the resident mothers indicated that they would prefer to see increased paternal involvement in their child's life, and most of the others said that the amount of involvement was "about right". That is, few expressed a preference for the father to be less involved than he currently was. On the other hand, the majority of non-resident fathers expressed a preference for increased involvement in their child's life. These general patterns were apparent for both cohorts across all waves. Consistent with these trends, the paired data showed that a child's father was more likely than the child's mother to prefer increased paternal involvement.

Nevertheless, preferences change as circumstances (and priorities) change. These circumstances would include, for instance, age-related changing needs of the child, events affecting parents' needs, including changing residence and those associated with the pathways they take after separation, and the fact that levels of paternal involvement (e.g., care-time arrangements) may have changed. Changes in preferences were common among mothers who had separated before Wave 1, applying to around one-half of the B and K cohort mothers by Wave 2, and to the majority by Wave 4. Changes in preferences were equally likely to be in either direction—that is, towards a preference for the father to be more involved, or less involved, than they had wanted to see in Wave 1.

This chapter also examined the barriers to increased involvement in their child's life, as perceived by non-resident fathers who expressed a preference for increased involvement. Work commitments or demands were the most commonly mentioned barriers. Other commonly mentioned issues included a belief that the child's mother did not want to see the father have increased time with his child, the physical distance between the two homes and related cost issues. No information was collected about why mothers might not want the father to have increased time with the child. Their reasons may include some of the barriers reported by fathers (e.g., distance between the homes), as well as the child's wishes, the mother's belief that the father is inept as a parent, high inter-parental conflict, family violence and so on.

The final set of analyses threw further light on reasons behind parents' preferences. Unsurprisingly, the preferences of resident mothers and non-resident fathers were linked with their care-time arrangements—the more time that the child spent with the father, the less likely were the father and mother to express a desire for increased paternal involvement. This pattern of results was stronger for the preferences expressed by resident mothers than for those expressed by non-resident fathers. The distance between the two homes was also linked with parents' preferences: those who lived only a short distance apart were less inclined to prefer increased paternal involvement, compared with those who lived a considerable distance apart. It is important to note that this trend emerged when the effects of current care-time arrangements (which would be influenced by distance) were controlled.

There was limited evidence of a link between parents' preferences and their personal relationship status. That is, mothers' and fathers' preferences varied significantly according to this factor for only one wave for each cohort. Where such differences were apparent, re-partnered mothers were *less* likely than those who were single to prefer increased paternal involvement, while re-partnered fathers were *more* likely to prefer increased involvement. Inconsistent results emerged regarding links between having a hostile inter-parental relationship and parents' preferences regarding paternal involvement. However, resident mothers who had no contact with the father (and therefore did not have the opportunity to experience episodes of anger or hostility in their dealings with the father) were less likely to prefer increased paternal involvement, compared with those who reported that episodes of anger or hostility rarely or never emerged. Finally, parents' preferences did not vary significantly according to the time lapse since separation.

It is important to keep in mind that the number of non-resident fathers participating in the study was smaller than that of resident mothers, especially in Wave 2. The characteristics of non-resident fathers who participated may differ somewhat from those who did not and thus the results of non-resident fathers may be biased and should be interpreted with caution. In Wave 3, some resident parents were given the opportunity to skip the section on parenting issues after separation and this may introduce some bias in the results of resident mothers in this wave.

It should be pointed out that fathers' involvement is multidimensional and in expressing their preferences, parents may well focus on different aspects of paternal involvement. However, as stated above, it does seem likely that care-time arrangements were commonly considered. Whether intended or not, parents' preferences regarding fathers' involvement may affect the father-child relationship, through encouraging or discouraging face-to-face time and other ways of spending

time together. Children's changing developmental needs during the course of separation are likely to come into play, as reflected in the fact that children of primary school age are considerably more likely than younger and older children to experience shared care time (Kaspiew et al., 2009). Consistent with findings in previous research, this chapter shows that a desire for increased involvement of fathers is prevalent among both resident mothers and non-resident fathers, but contingent on the existing level of care time. The 2006 amendments to the Australian family law system were intended to encourage and facilitate the continuing involvement of both parents where children's safety is not at risk. Future research will be able to tell whether the groundswell of support for both parents' involvement in children's lives after separation, encouraged by the changes to the family law system, will be a reality for more children after parental separation, and whether adequate protection is in place so that children's "best interests" are served.¹⁷

9.8 References

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¹⁷ The introduction of the *Family Violence Act*, which came into operation in June 2012 is relevant here. It was designed to increase the protection of children and other family members from family violence or abuse.