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A safe and supportive family environment for children: key components and links to child outcomes

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KILLIAN MULLAN AND DARYL HIGGINS



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Executive summary

Introduction

Families are the mainstay of safety and support for children. While most children live in safe and supportive environments, governments are aware that too many children are becoming known to child protection services. This has led to a shift in thinking away from solely concentrating on responding to 'risk of harm' reports towards a broader public health approach to protecting all of Australia's children, reducing the likelihood of children coming to the attention of statutory authorities. This report aims to understand more about the prevalence of different types of family environments in society and to explore the influence of these environments on different child outcomes. Using data from the Longitudinal Study of Australian Children, we used latent class cluster analysis to identify different family environments and analysed the associations between these environments and particular child outcomes.

Key findings

Classifying the family environment: profiles and characteristics

We identified three broad groups embodying three types of family environments that were closely aligned with previous theoretic and empirical research. In line with previous research, we referred to these groups as:

- > **cohesive:** the largest group of families exhibited average or above-average levels of parental warmth and parent-child shared activities, and below-average levels of hostile parenting and parental relationship conflict
- > **disengaged:** a smaller group of families exhibited below-average levels of parental warmth and parent-child shared activities, and above-average levels of hostile parenting
- > **enmeshed:** a final, relatively small, group exhibited average levels of parental warmth, but higher than average levels of conflict in the relationship between parents.

It is important to note that:

- > These are not absolute distinctions, but rather relative positions on a spectrum ranging from highly disengaged to highly enmeshed. No family environment can be comprehensively understood using a finite set of factors. In addition, we show that family environments can and do change over time.
- > The vast majority of families sit around the middle; some families tend toward either relatively more disengagement or enmeshment, but do not approach, or even come close to, more extreme aspects of these types. However, the most problematic families with respect to child protection will most likely be located toward the extremes of the range (see Section 2.2).

Associations between family environment and child outcomes

Unless specified otherwise, results relate to children aged 2–3, 4–5, 6–7 and 10–11 years growing up either in families with two adults residing together (whether married or cohabiting) who both have day-to-day responsibility for the child (including biological, adoptive, step, foster, and grandparents) or families where a parent lives elsewhere from the child's primary carer. All comparisons are made in relation to families that were relatively more cohesive.

There were not many significant associations between family environment (as measured in this report) and **health outcomes**. Significant associations were restricted to children aged 2–3 years with two resident parents. That is:

- > children of this age in families tending toward enmeshment were more likely to be underweight (than normal weight)
- > children of this age in families that were relatively more disengaged were more likely to have one or more injuries per year.

Family environments were very strongly associated with children's **social and emotional wellbeing**. That is:

- > children in families indicating disengagement had significantly lower levels of prosocial behaviour and higher levels of problem behaviour
- > children in families indicating enmeshment had significantly lower levels of prosocial behaviour and higher levels of problem behaviour (this was not significant for children 4–5 and 10–11 years old in families with a parent living elsewhere).

There were less consistent and fewer significant associations between family environment and children's **cognitive development**. In families with two resident parents:

- > children in families scoring relatively high on disengagement averaged lower Year 5 NAPLAN¹ **reading** and **numeracy** scores.

Associations between changes in family environment and changes in child outcomes

- > Children in families with two resident parents whose family environment improved (became more cohesive) showed improved social and emotional wellbeing; children whose family environments became relatively more problematic exhibited increased social and emotional problems.
- > In families with two resident parents, children gained higher NAPLAN reading scores if their family environment became relatively more cohesive.

Policy implications

These findings suggest policy may be more effective if it:

- > is attuned or sensitive to different family environments
- > targets behaviours rather than groups of people
- > recognises that families can both change for the better, and draw on their own prior (positive) experiences.

Finally, results linking family environments to key child outcomes (especially around social and emotional wellbeing) provide a clear impetus for a public health approach promoting safe and supportive family environments. These research findings may provide insights to support different types of responses, including parenting programs, public information campaigns and more targeted referrals for intensive family support.

1 Introduction

Because of their developmental needs, children are a vulnerable group. The family exists as one of the most effective means of protecting them. Although the vast majority of families provide a safe and supportive environment, they sometimes fail to protect children and—in the worst instances—can cause them substantial harm. Unfortunately, there is some evidence to suggest that such instances may be increasing, or at least that services are becoming more aware of families at risk. This trend has led to a radical reform of the policy approach to child protection. Rather than focusing solely on the primary or more severe manifestations of the problem, scholars and policymakers have sought to adopt a broader public health approach to child protection (see Section 2.1).

To reiterate, the vast majority of families provide a safe and supportive environment for children, and a public health perspective does not seek to cast aspersions on families in general. Rather, it seeks to draw on their strengths and learn from their difficulties in order to ensure that all children thrive. As part of a public health approach to child protection, governments are committed to monitoring a broad range of indicators of children's welfare, and to ensuring that all children live in safe and supportive families.

What can research contribute to this? First, as most research attention in this area focuses on the most problematic families, we know relatively little about different family environments in the broader population. There are many unanswered questions. For example, to what extent do Australian children live in safe and supportive family environments? What other types of family environments do children in the broader population live in? These questions reflect gaps in our knowledge, and, if we are to improve the likelihood of children living in safe and supportive environments, we must bridge these gaps. Second, research can provide important insights into how children are faring on a range of indicators of child welfare. In the absence of a comprehensive census of child outcomes, we must rely on survey data, and research has an important role to play in scrutinising these data. Third, understanding more about the links between the family environment and child outcomes may serve to underline the importance of a safe and supportive family environment, providing further evidential support for a broader public health approach to child protection.

This study has three interlinked objectives:

- > first, and central to this report, to identify different family environments in the broader society that vary in the extent to which they exhibit features concordant with a safe and supportive environment for children
- > second, to understand more about how Australian children are faring on a broad range of wellbeing indicators
- > third, to understand more about the influence of different family environments on specific child outcomes.

Chapter 2 outlines the background relating to the child protection policy setting and considers previous theoretical and empirical work examining different family environments that draw out the key research questions the report addresses. The next two chapters address the report's first key objective: Chapter 3 details the methodology we employ to identify different family environments and Chapter 4 presents the results of this analysis, including a detailed description of the different family environments we identify. The following two chapters address the second and third key objectives of this study: concurrent associations between child outcomes and different family environments are analysed in Chapter 5, and associations between transitions in the family environment and changes in child outcomes in Chapter 6. Chapter 7 contains a discussion of the results, along with some conclusions and implications for policy and service provision.

2 Safe and supportive family environments

Families are critically important for children's development (Bowes, Watson & Pearson 2009). To grow up safe and well, children need the security and support of a well-functioning family. Understanding the role that families play in creating safe and supportive environments for children is important. Although families can be the source of harm (for example, from child abuse, neglect or exposure to domestic violence), they can also be the most important source of protection from harm for children when they provide a sense of security, foster self-esteem and respond appropriately to children's needs.

Parents vary in the degree to which they use positive parenting behaviours. Some families struggle to provide consistently warm, nurturing and safe environments. In the absence of such safety and security, children need protection—and statutory systems provide the safety net for responding to children in need of interventions to ensure their safety. In this chapter, we outline the policy context for ensuring children's safety, and the frameworks within which governments and agencies in Australia operate to support vulnerable families and address children's wellbeing needs.

We also provide an overview of the child protection policy setting, including trends and policy developments culminating in a public health approach to child protection (Section 2.1). We then consider theoretical and empirical research on the family that provides important background to our knowledge about the key components of a safe and supportive family environment, as well as the features of other, more problematic, family environments that present potential risks for children (Section 2.2). The chapter concludes by outlining our research focus and setting out the specific research questions addressed in this report.

2.1 Child safety and wellbeing—the Australian policy context

Australian state, territory and Commonwealth governments all recognise the problem of child abuse and family violence, and the importance not only of responding to the needs of victims but also of early intervention and prevention. This includes a focus on domestic and family violence, child maltreatment, bullying, elder abuse, and sexual assault and violence. Domestic and family violence is recognised as a major social issue in Australia. Reviews of family law, child protection services and the juvenile justice system reveal a common set of family problems that typically lead to engagement with these service systems—that is, family violence, mental health issues and addictions to alcohol, tobacco, other drugs and gambling (Higgins & Katz 2008). The common feature of such parental behaviours or circumstances is that they can impair a family's capacity to provide positive parenting and ensure that children are safe and protected from harm.

Scale of the problem

Although there is debate about whether the underlying incidence of maltreatment has changed, there is no doubt that over the past two decades there has been a very large increase in notifications to statutory child protection authorities (that is, reports of concerns relating to the abuse or neglect of children). This increase can be seen in both the absolute **number** of notifications (increasing the workload of the departmental staff who need to screen and potentially respond to them) and the **rate per thousand** of children in the population who are the subject of notifications (see Table 1).

Some children in need of protection need to be taken into the care of the state because their family environment is so unsafe that their wellbeing would be seriously compromised if they remained living with their parent or parents—this is one end of the spectrum. In line with the increase in notifications over the past two decades, there has also been a substantial increase in the number of children residing in out-of-home care², from 3.0 per thousand in 1990 to 7.0 per thousand in 2010 (Higgins 2011).

Table 1: Child protection notifications in Australia, children 0–17 years, 1989–90 to 2009–10

Year	Notifications	Total population of children	Rate per 1,000
1989–90	42,695	4,188,795	10.4
1999–2000	107,134	4,766,920	22.5
2009–10	286,437	5,092,806	56.2

Sources: Australian Bureau of Statistics (2010); Australian Institute of Health and Welfare (2001, 2011a); WELSTAT (1991).
Reproduced from Higgins (2011).

Response frameworks

To respond to the challenge of child abuse and children's exposure to family violence, two significant frameworks or plans have been developed in Australia that set the direction for addressing the causes and consequences of violence and maltreatment. They are

- > the National Framework for Protecting Australia's Children 2009–2020 (Council of Australian Governments (COAG) 2009a)
- > The National Plan to Reduce Violence Against Women and their Children 2010–2022 (COAG 2009b).

Both take a population-based or public health approach, focusing on the causes (also referred to as risk factors or social determinants) of violence, abuse and neglect in order to reduce their incidence. The application of the tenets of a public health approach to child safety and wellbeing is based on the notion that actions are delivered across three tiers of prevention: primary (universal supports for all families), secondary (support for families needing extra assistance, with a focus on early intervention) and tertiary (child protection services). For further information on how a public health approach is applied to child safety and the protection of children, see Bromfield, Arney and Higgins (2014), Hunter (2011), O'Donnell, Scott and Stanley (2008), or Scott, Higgins and Franklin (2012).

The National Framework for Protecting Australia's Children has six key supporting outcomes:

- > children live in safe and supportive families and communities
- > children and families access adequate support to promote safety and intervene early
- > risk factors for child abuse and neglect are addressed
- > children who have been abused or neglected receive the support and care they need for their safety and wellbeing
- > Indigenous children are supported and safe in their families and communities
- > child sexual abuse and exploitation is prevented, and survivors receive adequate support.³

Although community violence and assaults are part of their focus, these frameworks give prominence to the problem of family violence and maltreatment and the strategies needed for prevention, for early intervention in at-risk families and for responding to the needs of victims.

Increasingly, researchers are recognising not only that children are often subjected to multiple forms of abuse and neglect but also that they experience a range of other threats to their safety and wellbeing, such as bullying and peer victimisation (Higgins 2010b). Prevention efforts are being implemented in settings such as schools, community organisations, workplaces and the media. There are also programs targeted at men and boys that aim to develop and promote gender-equal, respectful relationships with girls and women (Australian Institute of Family Studies 2012).

Families remain the central focus—in terms of both the risks of maltreatment of children (which are often characteristics or behaviours of parents) and protecting children. Although families are not always the only site of violence and maltreatment of children, they can still—along with other agencies and institutions—be enlisted to assist with interventions to support children and keep them safe.

The National Framework for Protecting Australia's Children articulated a shift away from seeing the protection of children solely as the role of statutory authorities. From a public health perspective, protecting children and creating safe environments for them starts at home. However, it is not sufficient to simply 'bolt on' preventive programs to the current child protection processes. Researchers and commentators have argued that the role and function of child protection systems need to be reviewed in the context of the wider range of policies and programs aimed at promoting the wellbeing of children. This is of particular importance in Indigenous communities, for two reasons: firstly, the over-representation of Indigenous children in statutory child protection activities and, secondly, the potential for community-owned and community-led initiatives to support the health, wellbeing and safety of Indigenous children in culturally appropriate ways (Higgins & Katz 2008).

Policy settings to address children's safety needs

In the next subsections, we briefly introduce four contexts in Australia that reflect the importance of policies that aim to create or sustain the family dynamics and circumstances that provide safe and supportive environments for children.

Family law and protection from violence

Parental separation can be a time of increased risk to the safety and wellbeing of children. Family courts often face difficult choices when parents raise concerns about child abuse or violence by their partner during disputes over children's matters (Higgins 2007). In 2006, Australia's family law system underwent some significant changes designed to encourage greater involvement by both parents in their children's lives after separation. These changes also brought with them the responsibility for systems to protect children from violence and abuse and ensure the safety of all family members. Further changes to the Family Law Act in 2012 strengthened the framework for responding to family violence and child abuse concerns (Croucher 2014).

Alternative family policy: out-of-home care

In order to ensure the safety of children and young people, all states and territories in Australia have a responsibility to monitor concerns about the risk of harm to children from abuse and neglect. If protective measures cannot be put in place to ensure the safety of children while in the care of their parents, statutory child protection departments have the responsibility to intervene. The number of Australian children in alternative care (out-of-home care) has grown considerably over the last two decades (see Table 1; Higgins 2011). There is a strong push for children to be restored to—or maintain active contact with—their parents; however, for reunification to be successful, the dysfunctional dynamics and problematic parenting behaviours that typically bring families to the attention of child protection authorities—including family violence, mental health and addictions—need to be addressed.

Poverty

Although child abuse and neglect (particularly child sexual abuse) occur across all family forms and socioeconomic strata and are under-reported, poverty and social disadvantage are generally associated with higher risks of harm, particularly from neglect (Higgins 2010a). Key issues relating to the economic security of families are the availability and adequacy of employment, and systems to support families on low incomes or experiencing unemployment (Adema 2012; Australian Institute of Family Studies 2012; Howe 2012). Although Australia has a relatively low level of joblessness overall, the number of Australian families in which no adult member of the household is in paid employment is high compared to many other Organisation for Economic Co-operation and Development (OECD) countries. This is the single most important cause of child poverty in Australia, and has been linked to poorer developmental outcomes for children (Hand et al. 2011). Jobless families are therefore reliant on government income supports. In the past couple of decades, many government payments have become conditional, in an attempt to address concerns about the welfare of children. An example is compulsory income management or welfare quarantining, which aims to ensure household expenditure on priority items that meet children's needs rather than gambling, pornography, alcohol and junk food, particularly in circumstances where authorities have concerns about child neglect (Taylor, Stanton & Gray 2012). Such conditionality is directly or indirectly aimed at shaping parental behaviours and the family environments in which children grow up.

Community efforts to address family safety and wellbeing

Although not a national policy, a key development addressing children's safety and wellbeing through systemic, community-wide interventions to support families was the Northern Territory Emergency Response (NTER). Initially the NTER aimed to reduce child sexual abuse, but the high incidence of neglect and the presence of risk factors for other maltreatment types quickly expanded its focus.⁴ There is no nationally representative prevalence study of family dysfunction or child abuse and neglect anywhere in Australia to allow for comparisons between jurisdictions, nor is there adequate historical data to allow an assessment of whether levels of child abuse or neglect in the Northern Territory have changed since the implementation of the NTER. However, the limited qualitative and quantitative data available suggest that NTER measures have increased awareness of the problem of child safety within Indigenous communities and provided additional resources to allow for increased reporting and investigation. At the least, the NTER has not made the situation worse for families and children; many indicators are pointing in the right direction (Scott & Higgins 2011).

2.2 Public health approach to child protection: implications for research

Improving the systems of protection for children requires a focus on the parental behaviours that can impair capacity to provide positive parenting and ensure children are safe and protected from harm (Higgins & Katz 2008). In extreme cases, where parents are affected by drugs and alcohol, have untreated mental illness or are experiencing inter-parental violence, their capacity to be attuned or responsive to children's needs is likely to be diminished.

However, a commitment to a public health approach to child protection requires research to focus more generally on all families rather than solely on families where children are most at risk of maltreatment (Scott 2006). It emphasises promoting safe and supportive environments for **all** children rather than concentrating on those environments where children may be at risk of abuse or neglect. The move towards a public health approach to child protection reflects, in some part, a move in research away from viewing parents who maltreat children as a distinct psychological category towards viewing them as being at one end of a continuum that includes all parents (Azar 2002; Belsky 1984; Holden 2010). Children experience varying levels of risks across this continuum, from warm, positive parenting through to cold, unresponsive, highly neglectful or abusive parenting and exposure to violence occurring in the family.

A public health perspective on child protection asks us to recognise that levels of parental warmth and hostile or angry parenting vary across families, and that parent–parent conflict arises in a broad range of families throughout society. These issues are not distinct as problems with parenting, and parent–parent conflict may co-occur in risky families (Repetti, Taylor & Seeman 2002). Therefore, these issues may arise jointly, to varying degrees, across families in society more generally. Understanding more about the range of family environments that children experience could lead to important insights that may be useful in efforts to further promote safe and supportive environments for all children.

In this section, we outline two of the core elements of a safe and supportive family environment highlighted in previous theoretical and empirical literature. The first relates to parenting and the second to parent–parent conflict. Extreme problems with parenting and parent–parent conflict correspond directly to child protection problems. We then discuss research that links these two elements, describe the development of broad types of families based on these elements, and consider findings that link these types with child outcomes.

Parenting

Parents embody the family environment for children. Ideally, they provide a secure base from which children can safely explore the world, and continually provide opportunities for children to learn about themselves, others and the wider world around them (Holden 2010). Central to this are the parenting practices that children experience in their day-to-day interactions with their parents. A safe and supportive environment is one in which children experience warm, positive interactions with their parents (Petit, Bates & Dodge 1997). In addition, children thrive in family environments that have well-defined, but not rigid, boundaries in which parental discipline is consistently applied (Baumrind & Black 1967). By contrast, interactions characterised by parental anger or hostility towards children point to a more risky family environment (Repetti et al. 2002).

Research has consistently shown that parenting practices influence child outcomes (Lucas, Nicholson & Maguire 2011; O'Connor & Scott 2007). Petit and Bates (1989) observed children at the ages of 6, 12, 24, 36 and 48 months ($n = 29$) and found a significant positive relationship between warm parenting and lower child aggression or social withdrawal. Studies have also shown that parenting in the early years influences adolescent risky behaviour. For example, Alati et al. (2010) used data from the Mater Hospital Study of Pregnancy ($n = 4,158$) to show that 14-year-olds were at increased risk of consuming alcohol if their mother had exerted relatively low control in their parenting when their children were aged 5.

Finally, as children grow it is important that they engage in shared activities with their parents (Wise 2003). These are important opportunities to develop both cognitive and non-cognitive skills. For example, shared parent–child engagement in reading (Senechal & LeFevre 2002) and play (Tamis-LeMonda, Uzgiris & Bornstein 2002) has a positive influence on children's cognitive, social and emotional development.

Parent–parent conflict

Another important component of the family environment relates to conflict between parents (Zubrick et al. 2008). Conflict is an inherent part of any normal relationship. Heightened, recurring conflict is a feature of highly risky family environments and can lead to adverse psychological and behavioural outcomes for children (Cummings & Davies 2010; Repetti et al. 2002). Such harmful conflict may include non-verbal and verbal aggression, hostility, and violence against a person or objects. Parental conflict tends to be more problematic for children if it remains unresolved (Cummings et al. 1991). On the other hand, conflict may actually be constructive if children witness a meaningful resolution along with clear explanations about how this was reached (Cummings & Davies 2002; Hetherington 2006). Moreover, research shows that negative conflict tactics, such as hostility, elicit negative emotional responses from children, whereas positive conflict tactics, such as calm discussion, elicit positive emotional responses (Cummings, Goeke-Morey & Papp 2003).

The manner in which parent–parent conflict affects children is the subject of some debate (Golombok 2000). Conflict can affect children directly by causing them distress. Children could themselves be drawn into, or become the subject of, arguments and conflict. Conflict can affect children indirectly through its negative impacts on parenting, and it can provide a poor model of interpersonal relationships (Amato 2006).

With respect to direct effects, early research highlighted that preschool children exhibit negative emotional responses following exposure to anger and conflict, both in the home (Cummings, Zahn-Waxler & Radke-Yarrow 1981) and in laboratory settings (Cummings 1987). More recently, researchers have drawn links between children's psychological and physiological responses to parent–parent conflict. Davies et al. (2008) showed that elevated distress in response to (simulated) parent–parent conflict was associated with higher cortisol levels, and this association was particularly strong when the child was involved in the conflict. This is important because physiological processes may provide critical links to the longer term impacts of emotionally significant events (Davies et al. 2008). With respect to indirect effects via parenting, a study of 283 families with children aged 8–16 showed significant indirect relationships between parental conflict and child externalising problems (where the focus is directed outward to others, i.e., aggression; cf. internalising behaviours directed toward the self, such as depression, substance misuse, etc.) through lower levels of parental warmth and lower parental psychological autonomy (higher guilt/anxiety induced control) (Schoppe-Sullivan, Schermerhorn & Cummings 2007). Schoppe-Sullivan et al. also found significant indirect relationships between parental conflict and children internalising problems through lower levels of parental psychological autonomy and behavioural control.

The family as a system: theoretical and empirical research

An approach that jointly considers parenting, parent–child interactions and parent–parent conflict, rather than separately examining specific elements such as parent–child or parent–parent relationships, touches closely on the functioning of the family as a system. Family systems theorists view the family as a distinct unit that can adapt to changing circumstances to sustain itself and to set and achieve its goals (Broderick 1993). The family system comprises a number of subsystems, including relationships between parents, relationships between parents and children, and relationships between children. In healthy families, the boundary between these subsystems must be well defined but flexible enough to allow members in one subsystem (for example, children) to draw on resources from another system (for example, parents) and to allow the family to adapt to change either within or outside the family system (Cox & Paley 1997). A family systems

perspective views problems in families as often coinciding with problems relating to boundaries between family subsystems (Minuchin 1978).

Minuchin (1978) argued that the boundary between parents and children ranged along a spectrum from extremely rigid through to extremely diffuse. Families in which this boundary is extremely rigid exhibit higher levels of distance between family members; Minuchin referred to such families as **disengaged**. From the child's perspective, these families are unresponsive, offering little in terms of warmth and support, and generally provide less protection. At the other end of the spectrum are families in which this boundary is extremely diffuse, which Minuchin referred to as **enmeshed**. In these families, the relational distance between parents and children is extremely close; this can lessen autonomy (on the part of either the parent or the child) and potentially heighten the intensity of parents' responses to relatively minor variations in children's behaviour. Families not at these extremes were implicitly defined in opposition to both disengaged and enmeshed families, and referred to as **cohesive**. Cohesive families exhibit warmth and support for children, maintaining clear boundaries to ensure that problems do not spill over between subsystems.

At the extreme, there is some degree of overlap between these types of families and child abuse and neglect. Neglectful families are clearly disengaged, being generally unresponsive to children's needs (Gaudin et al. 1996). On the other hand, violence or abuse in families provides a strong indication that the clear and proper boundary between parents and children has disintegrated, aligning closely with the idea of enmeshment. In addition, as this boundary becomes more diffuse (as in more enmeshed families), parental conflict tends to directly influence the child. Minuchin (1978) referred to instances where parents can deflect conflict onto children (which he called detouring) or a parent may form a coalition with a child, thereby involving them in the conflict. This highlights the influence of diffuse boundaries in facilitating the spillover effect of parental conflict, discussed above.

However, Minuchin (1978) emphasised that these characteristics arise to some extent in all families. Therefore, his ideas provide us with a framework for considering family issues that arise at varying levels across the population but are especially problematic at the extremes. A number of applied research papers have explored Minuchin's ideas in normative samples, as outlined in the following section.

Previous research on family environments in normative samples

Kerrig (1995) showed that all three family groups—enmeshed, disengaged and cohesive—emerged in a normative sample of families with children 6–10 years old ($n = 75$) and that the majority of families were cohesive. Kerrig showed that cohesive families had lower levels of parental conflict and that children in these families perceived conflict as less intense than children in enmeshed or disengaged families. The study found significant associations between these family groups and children's behavioural problems. In particular, children in disengaged families had the highest externalising problems score and those in enmeshed (detouring) families had high levels of internalising problems.

Johnson (2003) observed the family functioning of 57 families when children were aged 5–6 and again when children were aged 9–10 ($n = 57$). Johnson extracted cohesive and enmeshed family groups at both time points, and a (separate) disengaged family group when children were in fourth grade (aged 9–10). There was little consistency, however, in group membership at the two time points. There was no association between family groups measured when children were aged 5–6 and their externalising problems (aggression and hyperactivity), either concurrently or prospectively, when children were aged 10–11. However, children aged 10–11 in enmeshed families (measured concurrently) had more externalising problems than children in cohesive or disengaged families. In addition, Johnson found a significant increase over time in externalising problems for children who were always in cohesive families, and a significant decrease for children who were in a cohesive family when aged 10–11 but not earlier.

Sturge-Apple, Davies and Cummings (2010) identified cohesive, disengaged and enmeshed family groups using data from 234 families with children in kindergarten (average age 5 years). In line with previous work, they showed that there were significantly higher levels of parental conflict in enmeshed families compared with either cohesive or disengaged families. They also highlighted the importance of different dimensions of parenting. For example, warm, emotionally available parenting was highest in cohesive families and lowest in disengaged families. They found that externalising problems increased at a significantly faster rate for children in disengaged families, and that internalising problems increased for children in both disengaged and enmeshed families. They also found that children in disengaged families exhibited increased levels of

difficulty with classroom engagement (factors such as attention span and children's participation in the classroom). Moreover, children in both disengaged and enmeshed families exhibited increased emotional difficulties associated with school. This points to potential links between the family environment and cognitive outcomes as well as social and emotional outcomes.

Research focus

The present study seeks to build on previous research in a number of important ways. First, it uses the Longitudinal Study of Australian Children (LSAC), which contains a large, nationally representative sample of children and their families. Previous studies have been limited in terms of sample size, and this study overcomes this limitation. With this nationally representative data, we can explore the prevalence of different types of family environments across society. As noted above, disengaged and enmeshed families exhibit patterns that, at the extremes, reflect those evident in families where concerns about child protection arise. In contrast, cohesive families provide examples of a safe and supportive family environment for children. Understanding more about the prevalence of different family groups using a large representative sample, and about the relationship between these modes of family functioning and child outcomes, can inform policy concerning a public health approach to child protection.

Second, this study breaks new ground in not being restricted to families with two resident parents. Previous studies have focused on families with two resident parents and excluded single-parent and separated families, largely because it seeks to explore the interplay of conflict among parents who live together, parent-child interaction and child outcomes. However, conflict between parents who do not co-reside may also shape different types of family environments and influence child outcomes.

This study has three broad, interlinked objectives. First, and central to this report, using a range of measures of parenting, parent-child interactions and parental conflict, we examine whether, using a nationally representative dataset of Australian families, we can identify the different family environments suggested by theory and previous small-scale empirical work.

Second, this study presents an overview of a broad range of indicators of children's health, cognitive development, and social and emotional wellbeing. The National Framework for Protecting Australia's Children (COAG 2009a) highlights the importance of monitoring a number of such key indicators, and this report explores a range of measures available in LSAC that may support this. For example, we are able to focus on outcomes such as indicators of physical health (for example, underweight), social and emotional wellbeing, and literacy and numeracy.

The third part of the report draws the previous two parts together in examining the influence of different family environments on select child outcomes. The broad aim here is to understand more about which particular aspects of a safe and supportive family, at different points in time, may influence various child outcomes. Moreover, we consider change over time both in the family environment and in child outcomes.

The key research questions addressed in this report are:

1. In families with two resident parents and those with a parent living elsewhere, what is the prevalence of different types of family 'groups' or environments (cohesive, disengaged, enmeshed)?
2. What are the profiles of different family environments in terms of parenting, parent-child interactions, and parental conflict?
3. What are the social, demographic and economic characteristics of families in these environments?
4. What are the links between different family environments and child outcomes?
5. To what extent do changes in family environment influence changes in child outcomes?

3 Classifying family environments: methodology

This chapter, and the one following, addresses the first key objective of this report, which is to identify safe and supportive family environments as well as others that are more risky. Section 3.1 provides a brief overview of the methodology used to identify different family environments, Section 3.2 describes the data and sample used in this analysis and Section 3.3 describes the measures used in the study.

3.1 Latent class cluster analysis

Theory posits that families fall into well-defined groups that are qualitatively distinct based on the nature of the boundary between subsystems of the broader family system (see Chapter 2). We cannot identify these groups directly but must rely on observed measures correlated with the unobserved (latent) categorical variable. An appropriate technique for identifying different family environments is latent class cluster analysis, also known as latent profile analysis (Vermunt & Magison 2002). Latent class cluster analysis is the analogue of latent class analysis, when the observed indicators of the latent categorical measure are continuous. Previous work in this area uses this approach (for example, Sturge-Apple, Davies & Cummings 2010). One of the main advantages of this approach is that it provides clear statistical guidance for choosing an optimal number of clusters such that the differences in observed measures among individuals within clusters is minimised and the difference between groups is maximised (for more detail see Vermut & Magison 2002). The terms 'cluster' and 'class' can be used interchangeably in this context and we use 'class' in this report, in line with previous work in this area (for example, Sturge-Apple, Davis & Cummings 2010). We used the statistical package Mplus (version 3.01) to estimate the latent class cluster models.

3.2 Data and sample

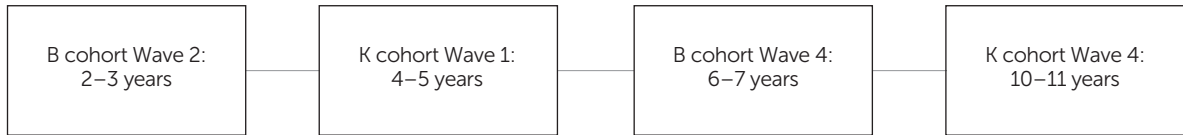
We use data from the Longitudinal Study of Australian Children (LSAC), conducted in partnership between the Department of Social Services (formerly the Department of Families, Housing, Community Services and Indigenous Affairs), the Australian Institute of Family Studies and the Australian Bureau of Statistics. This is Australia's first nationally representative longitudinal study of children. It aims to understand the role of the social, economic and cultural environment in social, emotional and cognitive development of children in Australia.

LSAC follows two cohorts of children and their families from all states and territories of Australia. The baby cohort (B cohort) comprises children who were born between March 2003 and February 2004 (5,107 children in Wave 1), and the kindergarten cohort (K cohort) comprises children who were born between March 1999 and February 2000 (4,983 children in Wave 1). Data collection commenced in 2004 and continues every two years. By 2011, four waves of data were available. A detailed description of LSAC's recruitment procedure and study design can be found in Soloff, Lawrence & Johnstone (2005) and Gray & Smart (2009), respectively.

With these longitudinal data, we have the opportunity to explore the family environment at different stages of children's development, from early to middle childhood. In this study, we use LSAC data collected when study children were aged 2–3 (B cohort, Wave 2), 4–5 (K cohort, Wave 1), 6–7 (B cohort, Wave 4) and 10–11 years (K cohort, Wave 4). Therefore, we used two waves of data each from the B cohort and the K cohort (see Figure 1). Data were collected from two resident parents or carers—the primary resident parent (P1) and secondary resident parent (P2).

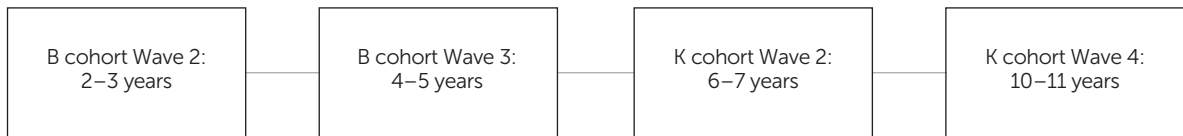
This selection allows us not only to compare children within the same cohort over an extended period but also to exploit the cross-sequential nature of the LSAC design to fill in the gap between these within-cohort comparisons.

Figure 1: Wave selection for families with two resident parents



In each cohort, the first wave of LSAC did not collect data from parents living elsewhere (PLEs) from the parent who was the primary respondent about the child/family. Therefore, to ensure the same age spread of study children with a PLE, we also used data from Waves 2 and 3 of the B cohort (children aged 2–3 and 4–5 years) and Waves 2 and 4 of the K cohort (children aged 6–7 and 10–11 years).

Figure 2: Wave selection for families with a parent living elsewhere (PLE)



In families with a PLE, data from the PLE may be missing because at Wave 1 the parent who was the primary respondent (primary parent) did not want the PLE to be contacted, or because at Wave 1 or any subsequent wave the PLE did not wish to respond. Therefore, in our multivariate analyses, any families with a PLE where all data from the PLE are missing have been excluded.

In order to consider transitions in the family environment, we selected families in each cohort who responded at both waves. In addition, we selected only families where the primary carer was either:

- > in a couple at both waves or
- > separated from the study child’s other parent at both waves.

The reason for this is that the measures used in collecting data from these different types of families are not identical (for example, angry parenting was not collected consistently from the PLE, and the measure of parental conflict differs for a PLE). This would influence the consistency of the measurement of the family environment. For example, if a couple separated between waves, the measures available for that family would alter and the measurement of the family environment at different waves would not be comparable. Future work could consider the impact of these changes in family formation, but it is beyond the scope of this report.

The LSAC sample size included in the current analysis totalled 7,413 families. Families in which the study child lived with two resident parents at both time points numbered 3,439 in the B cohort and 3,309 in the K cohort. Families in which there was a single primary parent/carers responding to the survey and a PLE at both time points numbered 301 in the B cohort and 364 in the K cohort. (Children living with a sole resident parent and who had a deceased parent are a very small subgroup—only 11 in the B cohort and 21 in the K cohort— and were excluded from the analysis.) This was also the base sample that we used in the analysis in Chapter 5 (however, for some analyses, missing data on some independent variables reduced the sample size further). We provide details of the analysis sample with the results.

3.3 Measures

In this section, we describe the measures used in the latent class cluster analysis to identify different family environments. Previous work has adopted a range of approaches to measuring the family environment. Some researchers attempt to measure dimensions of the family environment directly either through direct observation of families (for example, Johnson 2003; Sturge-Apple, Davis & Cummings 2010) or using instruments designed to directly measure aspects of family interactions (for example, Kerrig 1995). A third approach, most similar to that adopted in this report, uses a range of indicators of parenting, parent–child interactions and parental conflict to measure a latent categorical variable capturing different family environments (for example, Davies, Cummings & Winter 2004).

LSAC contains numerous measures of different aspects of parenting and more limited measures of parental conflict. We chose measures that were most consistent with the theoretical empirical research. In addition, we chose measures collected consistently across both time points. Lastly, we chose measures that were, as far as possible, consistently collected from the primary and secondary resident parents/carers and, where applicable, a PLE.

The measures we chose were warm parenting and angry parenting. In addition, we included a measure of parent–child shared activities to capture positive parent–child interactions and reflect, in part, the extent to which parents are a resource that their children can access. Finally, we include a measure of parental conflict.

We used confirmatory factor analysis to create standardised composite scores for each of these constructs. This approach is sensitive to the relative weight that a particular item may have in relation to the underlying construct, and deals explicitly with measurement error. In addition, it provides a number of indicators of the validity and reliability of the measure of the underlying construct. We use the chi-square and root mean square error of approximation (RMSEA) statistics to measure construct validity, and coefficient H to measure construct reliability (Holmes-Smith 2012). Chi-square *p*-values above .05 indicate good construct validity. This statistic is sensitive to deviations from the normal distribution, and the RMSEA is a less sensitive alternative measure of construct validity (values < .08 indicate reasonable construct validity and values < .05 indicate good construct validity).

The primary and secondary resident parents/carers (P1 and P2) and the parents living elsewhere (PLEs) answered a number of questions relating to warm parenting (for example, 'How often do you hug or hold this child?' 'How often do you tell this child how happy he/she makes you?'). The composite scores had good validity and reliability. The chi-square *p*-value was greater than .05 across all models with the exceptions of P2: B cohort, Wave 2; and P1 and P2: K cohort, Wave 1. The RMSEA was less than .05 in these cases. The coefficient H exceeded .76 across all models.

The primary and secondary resident parents/carers (but not the PLEs) answered a number of questions relating to angry parenting (for example, 'How often are you angry when you punish this child?' 'How often have you lost your temper with this child?'). The composite scores had good validity and reliability. The chi-square *p*-value was greater than .05 across all models with the exceptions of P1 and P2: B cohort, Wave 4 and K cohort, Wave 4; and P2: K cohort, Wave 1. The RMSEA was less than .05 in these cases (less than .08 for P2: K cohort, Wave 4). These constructs had lower reliability (.6–.8), which may be attributed to difficulties in the wording of questions to identify this aspect of parenting while still maintaining responses to this longitudinal study.

The primary parents and the PLEs stated how often during the week prior to the interview they had read or told a story to the study child, played indoors or outdoors with the study child, engaged in music or other creative activities with the study child, or included the child in everyday activities. The RMSEA was less than .05 in all models. Reliability was higher for younger study children (.7) but decreased to .5–.6 for older children. As children grow older, they are less likely to be interacting with their parents in these ways, which probably explains the lower reliability of this construct. We persisted with using this measure, however, as the results were consistent with theoretical expectations, although (as will be shown) the sizes of the effects were lowest of all the indicators.

In families with two resident parents, both parents answered questions relating to parental conflict (for example, 'How often is there anger or hostility between your partner and you?' 'How often do you have arguments with your partner that end up with people pushing, hitting, kicking or shoving?'). In families with

a PLE, the primary resident parent also answered questions relating to conflict with the PLE. In two-parent families, the chi-square p -value is greater than .05 across most models except for P2: B cohort, Wave 2. The RMSEA is less than .05 in all models, and construct reliability is good at around .8.

In the models of parental conflict in families with a PLE, the chi-square p -value is greater than .05 in the models for the B cohort, Waves 2 and 3, but not in K cohort, Waves 2 and 4. The RMSEA is also greater than .08 in models for K cohort, Waves 2 and 4. Other indicators of construct validity offer more promising results (CFI = .98; SRMR < .05)⁵ but, generally, these models appear relatively weaker. This could be a function of the nature of conflict between parents in families with a PLE as children grow older. The measure of conflict obtained from the PLE is based on responses to a single question about how well the PLE gets along with the study child's primary responding parent. Responses range from 1 (very well) to 5 (very poorly/badly). This is a limited measure and, when coupled with the relatively poorly fitting models for parental conflict obtained from the primary resident parent, shows that the measures of parental conflict in these families are not as strong as those in families with two resident parents. Notwithstanding this, we have sought to maximise the potential of the data with respect to the research questions considered in this report. Any findings, however, should be judged within the limitations of the measures we use to identify the latent categorical measure of family environments.

4 Classifying family environments: results

In Chapter 2 we described different family environments (characterised by family groups exhibiting cohesion, disengagement and enmeshment). In this chapter we consider the extent to which these different family environments can be identified in Australia using a large-scale nationally representative dataset. This chapter presents the results of a latent class cluster analysis, described in Chapter 3, and has three components. Section 4.1 presents basic descriptive information about the number of families in each class. (The Appendix contains technical details concerning the selection of the classes). Section 4.2 provides detailed descriptions of the different classes extracted from the latent class cluster analysis with respect to the factors used to elucidate the classes. This provides insights into the extent to which the different classes resemble family environments suggested by theory and previous research. Section 4.3 explores some of the characteristics of the different family environments in terms of the characteristics of the parents and the broader social environment.

Box 1: Chapter 4 key findings

This chapter presents the results of a latent class cluster analysis seeking to identify different types of family environments.

Reflecting theoretical prediction and previous research, we identified three broad family environments:

- > **cohesive:** the largest group of families exhibited average or above-average levels of parental warmth and parent–child shared activities, and below-average levels of hostile parenting and parental relationship conflict. These families most resemble those noted for boundaries that are clear but flexible.
- > **disengaged:** a smaller group of families exhibited below-average levels of parental warmth and parent–child shared activities, average or below-average levels of parental conflict and above-average levels of hostile parenting
- > **enmeshed:** a relatively small group exhibited average levels of parental warmth, and higher than average levels of conflict in the relationship between parents.

We identified these family environments across a broad age range of study children, both in families with two resident parents and in families with a parent living elsewhere from the primary carer. Having two or more siblings was significantly associated with a higher likelihood of being in a relatively more disengaged family rather than in a relatively more cohesive family.

4.1 Identifying different family environments

This section addresses Research Question 1 ('In families with two resident parents and those with a parent living elsewhere (PLE), what is the prevalence of different types of family environment?') and presents some descriptive information about the prevalence of different family environments. The latent class analysis showed that three distinct classes were observed in the data (see Appendix for technical details). Table 2 shows the number and percentage of cases in each of the three classes extracted from the latent class cluster analysis in families with two resident parents. In families with a study child aged 2–3 years, there is one large group of families ($n = 2,433$; 71 per cent of all families) and two smaller groups of relatively similar size ($n = 576$; 17 per cent and $n = 430$; 12 per cent). Similar patterns arise in families with a study child aged 6–7 or 10–11 years. In families with a study child aged 4–5 years there is also a large group, but this is smaller than for other families ($n = 2,068$; 63 per cent), and the next largest group is substantially larger than that in families with study children of other ages ($n = 761$; 23 per cent).

Table 2: Final class counts and proportions: families with two resident parents

		Class 1	Class 2	Class 3	Total
2–3 years	<i>N</i>	2,433	576	430	3,439
	%	70.7	16.8	12.5	100.0
4–5 years	<i>N</i>	2,068	480	761	3,309
	%	62.5	14.5	23.0	100.0
6–7 years	<i>N</i>	483	2,557	399	3,439
	%	14.0	74.4	11.6	100.0
10–11 years	<i>N</i>	434	2,428	447	3,309
	%	13.1	73.4	13.5	100.0

Source: LSAC B cohort, Waves 2 and 4; K cohort, Waves 1 and 4.

Table 3 shows the number and percentage of cases in each of the three classes extracted from the latent class cluster analysis in families with a PLE. The smallest group is Class 2 for families with a study child aged 4–5 years ($n = 28$; 9 per cent). The two-class solution yielded a small group with 44 cases, which is very similar in magnitude to Class 3 in the three-class solution. Therefore, the three-class solution yields two groups that are similar (in magnitude) to the two-class solution, with a third group that may prove useful in subsequent analyses.

The distribution across classes of families with study children aged 6–7 and 10–11 years old (K cohort) and with a PLE differs somewhat from the distribution of families with younger study children and in families with two resident parents. Families with a study child aged 6–7 years are split comparatively equally across the three classes. The smallest group is Class 2 ($n = 113$; 31 per cent) and the largest is Class 3 ($n = 131$; 36 per cent). In families with a study child 10–11 years old, there are two groups of relatively equal magnitude (around 40 per cent of families), and a third group comprising just less than 20 per cent of families.

Table 3: Final class counts and proportions: families with a PLE

		Class 1	Class 2	Class 3	Total
2–3 years	<i>N</i>	70	231	–	301
	%	23.3	76.7	–	100.0
4–5 years	<i>N</i>	232	28	41	301
	%	77.1	9.3	13.6	100.0
6–7 years	<i>N</i>	120	113	131	364
	%	33.0	31.0	36.0	100.0
10–11 years	<i>N</i>	154	146	64	364
	%	42.3	40.1	17.6	100.0

Source: LSAC B cohort, Waves 2 and 3; K cohort, Waves 2 and 4.

These results raise questions about the normative group in different family structures. Among families with two resident parents, there is a group containing the large majority of families, which most likely represents the normative family group. It is clear that this is not the case for all families with a PLE considered here, where the largest group changes from 2–3 (Class 2) to 4–5 years (Class 1), and then disperses with three even groups at age 6–7, and two equally large groups at age 10–11 (Class 1 & 2). Note, however, that the sample size for families with a PLE is substantially smaller, and this may influence the results. It is also important to note that the patterns in families with a PLE are not consistent across families with study children of different ages. Understanding more about the nature of these different classes will provide further insights, and we turn to this in the following section.

4.2 Latent class profiles

This section addresses Research Question 2 ('What are the profiles of different family environments in terms of parenting, parent–child interactions, and parental conflict?') and presents a descriptive overview of the groups of families extracted from the latent class cluster analysis. Theoretical and empirical work has established three broad groups of families. A first group, which is high on **cohesion**, tends to be characterised by warm supportive relationships with clear but flexible boundaries, which shelter children from potential problems in the parental system while maintaining access to supportive resources. A second group of families, high on **disengagement**, has relatively more rigid boundaries and thus tends to offer lower levels of parental warmth and support to children. A third group of family environments, high on **enmeshment**, tends to have more diffuse boundaries between the parent–parent and the parent–child relationships. This group is characterised by higher levels of parental conflict, to which children tend to be exposed and in which they are likely to become embroiled.

In our analysis, we highlight those groups of families that tend to have levels of particular factors closely resembling the profiles of one of these theoretical constructs. It is important to understand that there are no objective thresholds here. Rather, differences are understood in relation to the average level of any particular factor, which in the broader population tends to be high for positive factors and low for more problematic factors. What this means is that the vast majority of families sit around the middle of this spectrum, with some families tending toward either end of the spectrum but not approaching, or even coming close to, the extreme ends.

It is important to note that these different groupings are theoretical devices that we can use to organise the tremendously complex sets of interrelationships and dynamics across families in the broader population. For this reason, these characteristics will not manifest perfectly in any single family. Rather, families will tend to resemble, to a greater or lesser extent, one particular type of family environment more than another. Therefore, these groupings function entirely as a tool to identify similar sets of behaviours and dynamics within particular groups of families. There are clear limitations here. In particular, it is important to note that no family environment can be comprehensively understood using a finite set of factors. It is also important to note that—as we will show later—these are not static groups; families can and do change over time.

The previous section showed that the latent class cluster analysis extracted four classes for families with two resident parents and relatively young study children (2–3 and 4–5 years old), and three classes for families with relatively older study children (6–7 and 10–11 years old). In families where there is a PLE, the latent class cluster analysis extracted two classes for families in which the study child was aged 2–3 years, and three classes for all other ages.

The rest of this section describes the identified groups of families with two resident parents in terms of the factors used in the latent class cluster analysis (warm parenting, angry parenting, parental conflict and parent–child shared activities), and ascribe labels on the basis of these descriptive analyses. We then repeat this for families with a PLE (omitting angry parenting, as LSAC does not consistently collect this data from the PLE). Following this, in Section 4.3, we explore the characteristics of these groups using multinomial logistic regression for both family types separately.

Families with two resident parents

In this section we describe the profile of families in each of the three groups we extracted from the latent class cluster analysis with respect to the factors used in the models (warm parenting, angry parenting, parent–parent conflict and parent–child shared activities). In our presentation of the results, we highlight the idea that these groups of families are positioned along a theoretically hypothesised range of boundaries between parents and children. Relative positions on this range are associated with varying levels of factors related to parenting and parent–parent relationships. In the centre are families with levels that tend toward the average, whereas families toward either end of the boundary range have relatively higher or lower levels of particular factors, as described in the previous section (see also Section 2.2).

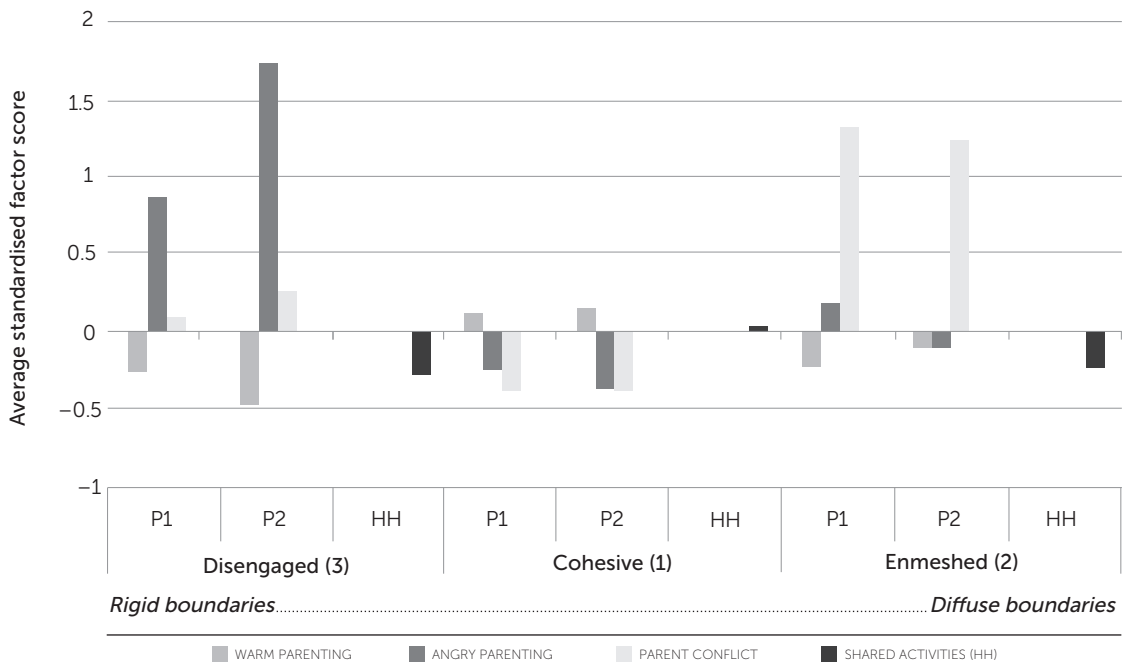
Figure 3 shows the average standardised factor scores for parental warmth, angry parenting, parental conflict and parent–child shared activities in the four groups extracted from the latent class cluster analysis for families with study children aged 2–3 years (B cohort, Wave 2). Note that these scores have been standardised to have an average of zero. Therefore, values higher than zero are above average, and values lower than zero are below average.

Families in the largest group (Class 1) have average levels of parent–child shared activities and above-average parental warmth from both the primary and secondary parents. In addition, there are lower than average levels of angry parenting and parental conflict from both parents. These families most closely resemble **cohesive** families located toward the centre of the boundary range, as described in previous research.

Families in the second group (Class 2) have noticeably higher levels of parental conflict, suggesting that they tend toward the more **enmeshed** end of the boundary range. The primary parent has below-average warmth and above-average angry parenting, but the secondary parent has average levels of parental warmth and anger. These families display below-average levels of parent–child shared activities. There is an element of disengagement by the primary parent, but the most striking feature relates to parental conflict, which is a key defining feature of families positioned toward the **enmeshed** end of the boundary range described in prior theoretical and empirical work.

Families in the third group (Class 3) tend toward the more **disengaged** end of the boundary range. They have lower than average levels of parent–child shared activities, lower parental warmth and high levels of angry parenting.

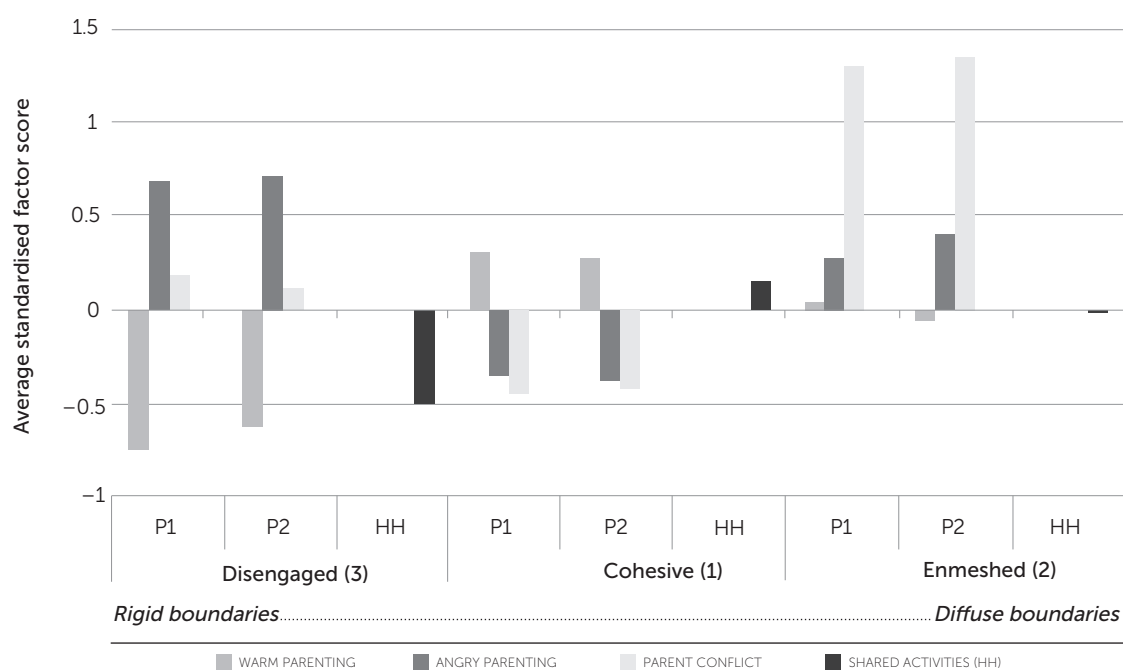
Figure 3: Average standardised factor scores for parental warmth, angry parenting, parental conflict and parent–child shared activities in disengaged (Class 3), cohesive (Class 1) and enmeshed (Class 2) families: B cohort 2–3 years



Notes: Weights applied; P1=parent 1; P2=parent 2; HH=household (children could engage in shared activities with P1 and/or P2).
Source: LSAC B cohort, Wave 2.

Figure 4 shows the results for families with a study child 4–5 years old. Families in Class 1 have above-average parent–child shared activities and parental warmth, and below-average parental conflict and angry parenting. These families resemble cohesive families located toward the centre of the boundary range. Class 3 families have below-average parent–child shared activities and parental warmth, combined with above-average levels of angry parenting, and thus tend toward the more disengaged end of the boundary range. Class 2 families have above-average parental conflict and average levels of parental warmth and parent–child shared activities, and thus tend toward the more enmeshed end of the boundary range.

Figure 4: Average standardised factor scores for parental warmth, angry parenting, parental conflict and parent–child shared activities in disengaged (Class 3), cohesive (Class 1) and enmeshed (Class 2) families: K cohort 4–5 years

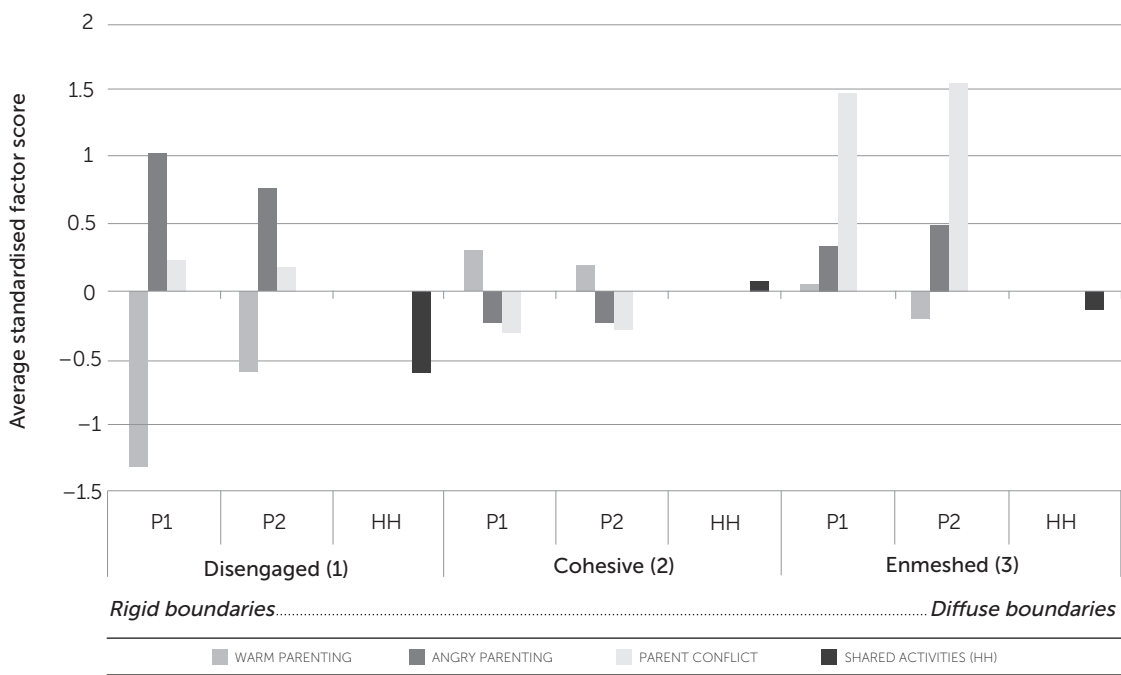


Notes: Weights applied; P1=parent 1; P2=parent 2; HH=household (children could engage in shared activities with P1 and/or P2).

Source: LSAC K cohort, Wave 1.

In families with older study children (6–7 and 10–11 years old), the latent class cluster analysis extracted three groups, and descriptive analysis reveals that these correspond to cohesive, disengaged and enmeshed families. Figure 5 shows the average standardised factor scores for parental warmth, angry parenting, parental conflict and parent–child shared activities in the three groups extracted from the latent class cluster analysis for families with study children aged 6–7 years (B cohort, Wave 4). Class 1 families exhibit above-average parent–child shared activities and parental warmth; although the differences are not substantially above average, they are significant. In addition, they have below-average levels of parental conflict and angry parenting. Relative to the other groups of families shown in Figure 5, these families are located toward the centre of the boundary range. Class 3 families have below-average parent–child shared activities and parental warmth, and above-average angry parenting, which are factors closely associated with families lying toward the more disengaged end of the boundary range. Class 2 families show substantially higher levels of parental conflict along with average levels of parental warmth and parent–child shared activities, resembling the profile of families positioned toward the enmeshed end of the boundary range.

Figure 5: Average standardised factor scores for parental warmth, angry parenting, parental conflict and parent–child shared activities in disengaged (Class 1), cohesive (Class 2) and enmeshed (Class 3) families: B cohort 6–7 years

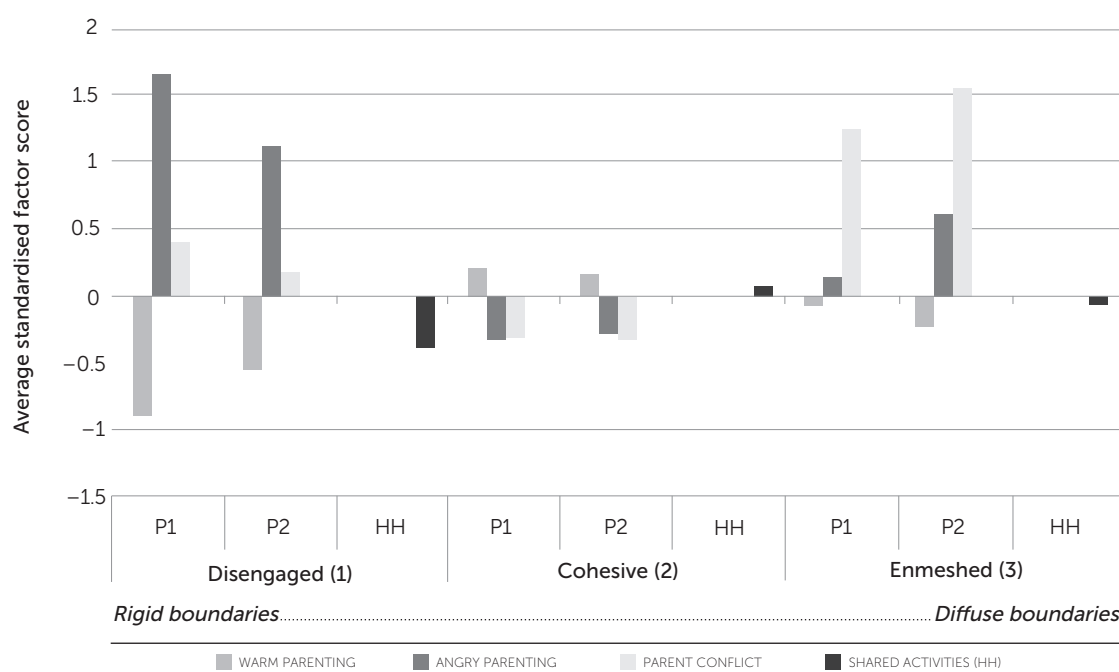


Notes: Weights applied; P1=parent 1; P2=parent 2; HH=household (children could engage in shared activities with P1 and/or P2).

Source: LSAC B cohort, Wave 4.

The results for families with study children aged 10–11 years, shown in Figure 6, are very similar to those in Figure 5 for families with study children aged 6–7 years. One key difference is that levels of angry parenting in Class 1 (which resembles the profile of families at the disengaged end of the boundary range) are higher for both parents. Profiles associated with families in Class 2 resemble the profile of families in the middle (cohesive) end of the boundary range and in Class 3 resemble the profile of those at the enmeshed boundary range.

Figure 6: Average standardised factor scores for parental warmth, angry parenting, parental conflict and parent–child shared activities in disengaged (Class 1), cohesive (Class 2) and enmeshed (Class 3) families: K cohort 10–11 years



Notes: Weights applied; P1=parent 1; P2=parent 2; HH=household (children could engage in shared activities with P1 and/or P2)..

Source: LSAC K cohort, Wave 4.

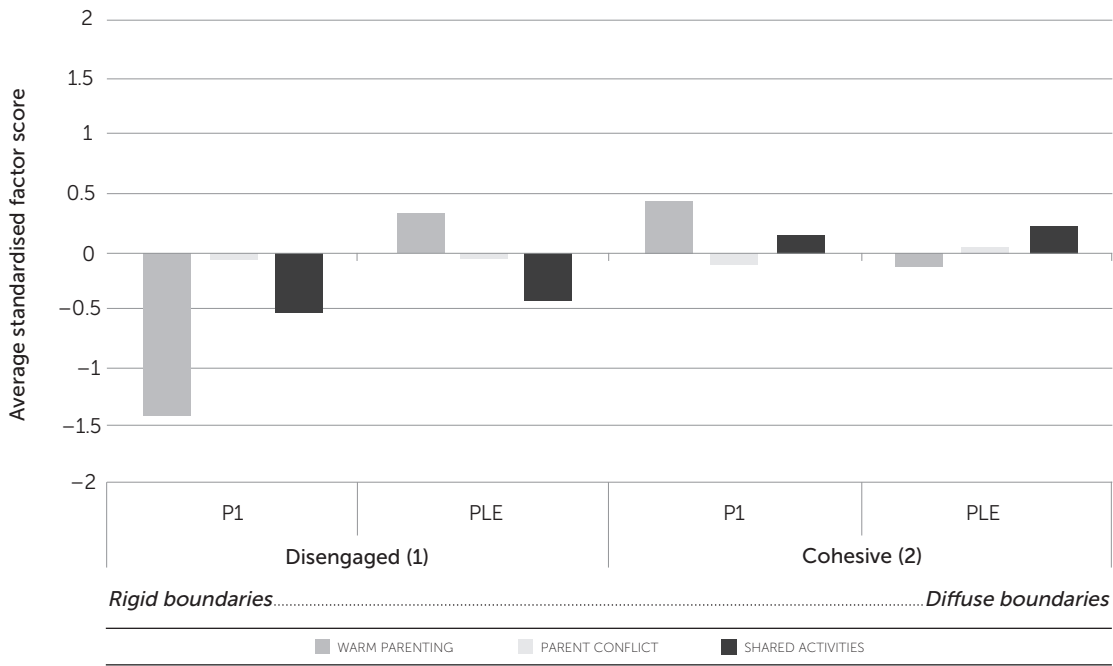
Families with a parent living elsewhere

This section describes the groups extracted from the latent class cluster analysis of families with a parent living elsewhere (PLE). Figure 7 shows the average standardised factor scores for parental warmth, parental conflict and parent–child shared activities in the two groups extracted from the latent class cluster analysis for families with a PLE (B cohort, Wave 2). Note that the scores have been standardised to have an average of zero. Therefore, values higher than zero are above average, and values lower than zero are below average.

Families in the largest group (Class 2) have above-average levels of parental warmth from the primary parents, and slightly below-average warmth from the PLE. Both parents report slightly above-average levels of parent–child shared activities. In addition, both parents report average levels of parental conflict. These families clearly resemble the cohesive families, located toward the centre of the boundary range, described in previous research. In the second group of families (Class 1) the primary carer (but not the PLE) reports lower average levels of parental warmth, and both parents report lower average levels of parent–child shared activities. These families closely resemble families toward the disengaged end of the boundary range. The analysis did not identify any families tending toward the more enmeshed end of the boundary range.

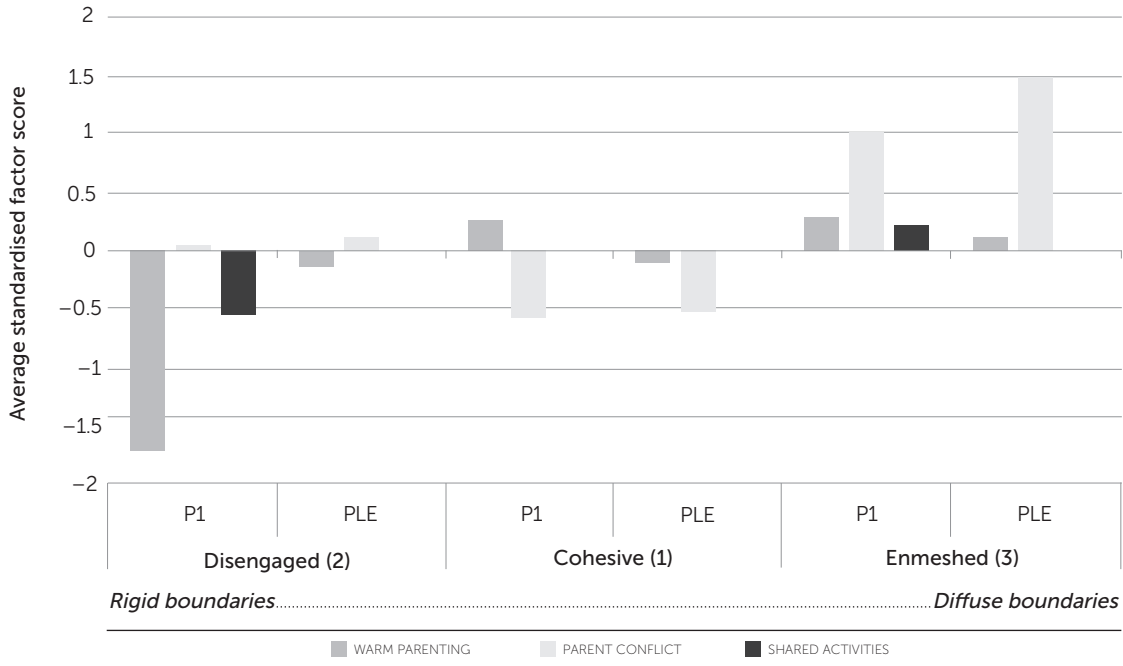
The latent class cluster analysis for families with a PLE when children were aged 4–5 years extracted three groups of families. Figure 8 shows the average standardised factor scores for parental warmth, parental conflict and parent–child shared activities for each of these three groups. Families in the largest group (Class 1) most resemble those toward the centre of the boundary range. They have average levels of warm parenting and parent–child shared activities, and below-average levels of parental conflict.

Figure 7: Average standardised factor scores for parental warmth, parental conflict and parent–child shared activities in disengaged (Class 1) and cohesive (Class 2) families with a PLE: B cohort 2–3 years



Notes: Weights applied; P1=parent 1; PLE=parent living elsewhere from the primary carer.
Source: LSAC B cohort, Wave 2.

Figure 8: Average standardised factor scores for parental warmth, parental conflict and parent–child shared activities in disengaged (Class 2), cohesive (Class 1) and enmeshed (Class 3) families with a PLE: B cohort 4–5 years

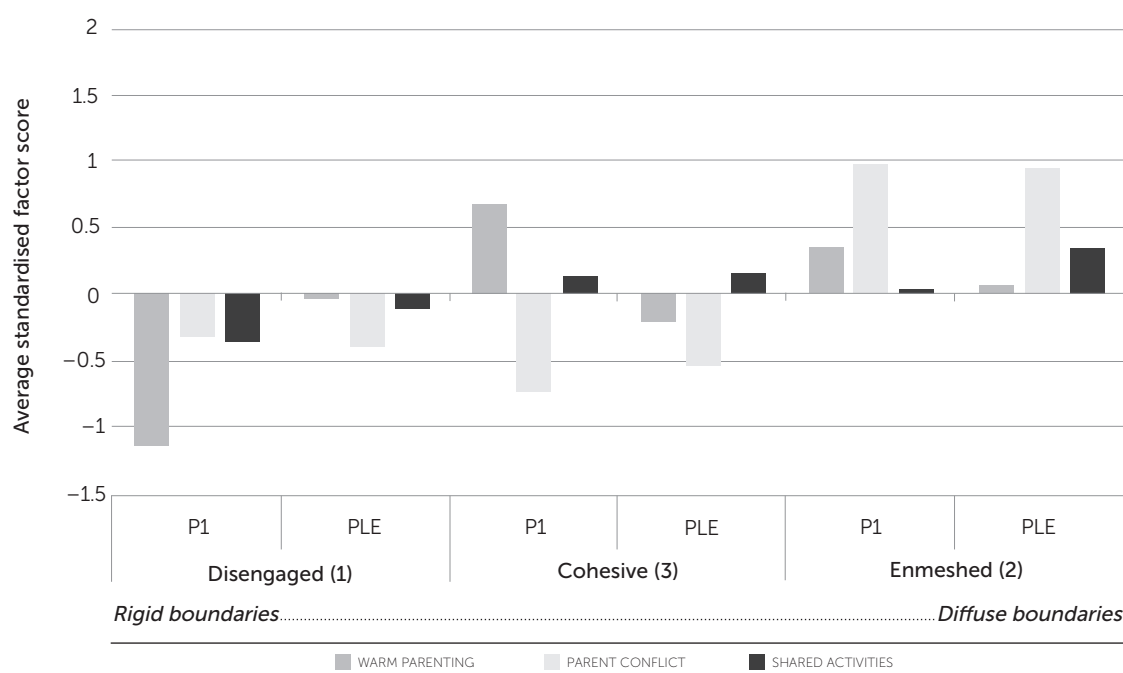


Notes: Weights applied; P1=parent 1; PLE=parent living elsewhere from the primary carer.
Source: LSAC B cohort, Wave 3.

Another group (Class 3) is characterised by relatively low levels of primary parental warmth and parent–child shared activities (PLE–child shared activities are not available in Wave 3 of the B cohort). Families in this group are positioned toward the more disengaged end of the boundary range, at least with respect to the primary parent. Families in the last group (Class 2) have above-average levels of parental conflict, along with slightly above-average levels of parental warmth and parent–child shared activities. These patterns reflect those associated with families tending toward the enmeshed end of the boundary range.

Figure 9 shows results for families with a PLE when the study child was 6–7 years old. Again, the latent class cluster analysis extracted three groups of families. Families in the largest group (Class 3) most closely resemble cohesive families (above-average parental warmth and below-average parental conflict). In another group (Class 1), the primary parent has below-average parental warmth and parent–child shared activities, suggesting that families in this group are positioned toward the disengaged end of the boundary range. In these families, the PLE has average levels of parental warmth and parent–child shared activities. Families in the remaining group (Class 2) exhibit patterns that resemble families at the more enmeshed end of the boundary range. Both the primary parent and the PLE report above-average levels of parental conflict, along with above-average primary parental warmth and above-average PLE–child shared activities.

Figure 9: Average standardised factor scores for parental warmth, parental conflict and parent–child shared activities in disengaged (Class 1), cohesive (Class 3) and enmeshed (Class 2) families with a PLE: K cohort 6–7 years

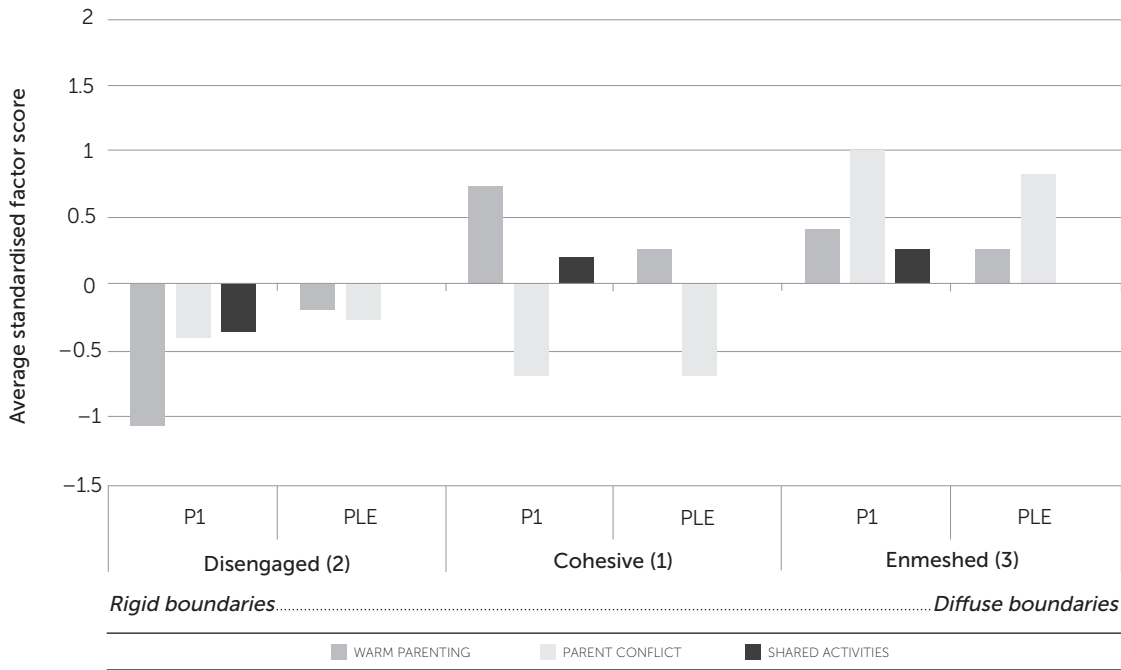


Notes: Weights applied; P1=parent 1; PLE=parent living elsewhere from the primary carer.

Source: LSAC K cohort, Wave 2.

The final latent class cluster analysis relates to families with a PLE when the study child was 10–11 years old (Figure 10). The patterns are very similar to those displayed in Figure 9. Three groups emerge from the analysis, closely relating to the centre (cohesive, Class 1), the disengaged end (Class 2), and the enmeshed end of the boundary range (Class 3). The most notable features of these groups are: the cohesive families have above-average warmth, families located toward the disengaged end of the boundary range have below-average warmth and parent–child shared activities, while families located toward the enmeshed end of the boundary range have above-average parental conflict and above-average parental warmth.

Figure 10: Average standardised factor scores for parental warmth, parental conflict and parent–child shared activities in disengaged (Class 2), cohesive (Class 1) and enmeshed (Class 3) families with a PLE: K cohort 10–11 years



Notes: Weights applied; P1=parent 1; PLE=parent living elsewhere from the primary carer.

Source: LSAC K cohort, Wave 4.

4.3 Characteristics of families in each latent class

This section addresses Research Question 3 ('What are the social, demographic and economic characteristics of families in these environments?') and presents the results from a multinomial logistic regression analysis to assess the characteristics of the families in each of the groups extracted from the latent class cluster analysis. The dependent variable is a categorical variable indicating group membership, and the reference group is cohesive families. The other two categories relate to families located either toward the disengaged end or the enmeshed end of the boundary range. In this analysis, we restrict the covariates to those relating to parents, the family, and the area in which the family lives. We introduce factors relating directly to the study child in analyses focusing on child outcomes. We include the following covariates in our models:

- > region: 1 = metropolitan [reference]; 2 = rural or regional area
- > SEIFA disadvantage bottom quintile: 1 = yes; 0 = no [reference]
- > parental education: 1 = one or both parents have a degree [reference]; 2 = no parent in family has Year 12 or equivalent; 3 = one or both parents have Year 12 or equivalent but none has a degree or higher
- > jobless family: 0 = no [reference]; 1 = yes
- > lowest household income quintile: 0 = no [reference]; 1 = yes
- > mother's age at first birth: 0 = 25 years and older [reference]; 1 = under 25 years
- > older siblings in family: 0 = no [reference]; 1 = one older sibling; 2 = two or more older siblings
- > younger siblings in family: 0 = no [reference]; 1 = one younger sibling; 2 = two or more younger siblings (except B cohort, Wave 2).

In addition, for families with a PLE we include a categorical variable measuring how often the study child spends time with the PLE (1 = at least once per week [the reference category]; 2 = 4–26 times per year; 3 = no more than twice per year).

Table 4 shows the relative risk ratios (RRRs) from the regression analysis, for families with two resident parents. RRRs are akin to odds ratios in a logistic regression. An RRR greater than 1 indicates a positive difference, an RRR less than 1 indicates a negative difference, and an RRR equal to 1 indicates no difference. The most consistent and pronounced result across all models relates to the number of older and younger siblings in the family. In general, children with more siblings are more likely to live in families located toward the disengaged end of the boundary range.

Looking at the larger group of families positioned toward the disengaged end of the boundary range, we can see that having two or more younger siblings increases the likelihood of being in a disengaged family for children aged 4–5, 6–7, and 10–11 years. Younger siblings may be likely to absorb relatively more of their parents' attention, which may explain these results.

The effects of older siblings in the disengaged family group are somewhat mixed. For children aged 4–5 there is no significant association, whereas for children aged 6–7 there is a significant positive association. Children aged 10–11 with two or more older siblings are significantly more likely to be in a family located toward the disengaged end of the boundary range than children with no older siblings, but this is a relatively small group of children ($n = 51$).

With respect to other factors in the model, disengaged group membership is unrelated to a number of socioeconomic factors, including the level of disadvantage in the area, parental education, family joblessness and income. However, relatively low family income is positively associated with membership of the enmeshed group for children 6–7 and 10–11 years old. In addition, mid-level parental education is positively associated with membership of the disengaged family group in the models for children 2–3 years old, but this is a singular finding and is difficult to explain. Children aged 6–7 living in rural or regional areas are less likely to be in a more enmeshed family, whereas children aged 10–11 living in a rural or regional area are less likely to be in a more disengaged family. While both these findings are positive, there is no consistent pattern across waves and between cohorts with respect to region.

Table 4: Relative risk ratios from multinomial logistic regression predicting membership of disengaged or enmeshed relative to cohesive: families with two resident parents

Disengaged/rigid boundaries (compared with cohesive)	2–3 years	4–5 years	6–7 years	10–11 years
Regional or rural area	1.1	1.0	0.8	0.7*
SEIFA disadvantage bottom quintile	0.8	1.1	1.2	1.1
No parent Y12	1.1	0.9	1.0	1.0
No parent degree	1.3*	0.8	1.0	0.8
Jobless household	0.6	1.3	1.4	1.7
Lowest income quintile	1.1	1.0	1.4	1.1
Mother under 25 at first birth	0.9	0.8	1.2	1.0
1 older sibling	1.2	1.2	1.5**	0.9
2 or more older siblings	1.2	1.2	1.6**	0.6*
1 younger sibling	1.2	1.3*	1.9***	1.7**
2 or more younger siblings	–	1.6*	2.0**	2.0***
Enmeshed/diffuse boundaries (compared with cohesive)	2–3 years	4–5 years	6–7 years	10–11 years
Regional or rural area	0.9	1.0	0.6***	0.8
SEIFA disadvantage bottom quintile	0.8	1.0	1.1	0.9
No parent Y12	0.8	1.0	1.1	1.3
No parent degree	0.8	0.9	1.1	1.1
Jobless household	1.0	0.7	0.4	1.0
Lowest income quintile	1.3	1.0	1.8***	1.6*
Mother under 25 at first birth	1.0	0.9	1.0	1.0
1 older sibling	1.1	1.0	0.7*	1.2
2 or more older siblings	1.1	0.9	1.0	1.3
1 younger sibling	0.8*	1.0	0.9	1.2
2 or more younger siblings	0.9	1.0	0.9	1.2
Number of observations	3,200	3,303	3,237	3,027

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

Source: LSAC B cohort, Waves 2 (2–3 years) and 4 (6–7 years); K cohort, Waves 1 (4–5 years) and 4 (10–11 years).

Table 5 reports the relative risk ratios (RRRs) from multinomial regression analyses for families with a PLE. For study children 2–3 and 4–5 years old, having two or more older siblings is positively associated with living in a family positioned toward the disengaged end of the boundary range. For children aged 4–5, it is also positively associated with living in a family located toward the enmeshed end of the boundary range. In general, having a large number of siblings has a similar effect for children in families with a PLE as it does for those living in families with two resident parents.

Table 5: Relative risk ratios from multinomial logistic regression predicting membership of disengaged or enmeshed relative to cohesive families: families with a PLE

Disengaged/rigid boundaries (compared with cohesive)	2–3 years	4–5 years	6–7 years	10–11 years
Regional or rural area	0.5	0.5	0.6	0.7
SEIFA bottom quintile	0.7	1.4	0.8	1.2
No parent Y12	0.7	0.9	1.7	1.8
Jobless household	0.6	1.2	0.8	0.9
Lowest income quintile	1.7	0.5	0.9	1.0
Mother under 25 at first birth	0.8	0.6	0.7	0.9
1 older sibling	1.6	4.5*	0.7	1.0
2 or more older siblings	3.0*	6.2*	1.6	1.2
1 or more younger siblings	1.3	2.5	1.4	1.2
Child sees PLE 4–26 times per year	1.1	0.2	1.0	1.3
Child sees PLE no more than twice per year	0.5	0.5	0.6	0.7
Enmeshed ^(a) /diffuse boundaries (compared with cohesive)	2–3 years	4–5 years	6–7 years	10–11 years
Regional or rural area	–	0.5	0.8	0.7
SEIFA bottom quintile	–	0.7	1.0	1.3
No parent Y12	–	0.8	1.4	1.2
Jobless household	–	1.2	0.9	0.6
Lowest income quintile	–	0.8	0.7	0.6
Mother under 25 at first birth	–	0.8	1.6	1.9
1 older sibling	–	2.1	1.3	1.1
2 or more older siblings	–	4.2*	1.8	2.0
1 or more younger siblings	–	2.0	0.7	1.4
Child sees PLE 4–26 times per year	–	2.6	1.7	1.3
Child sees PLE no more than twice per year	–	1.1	1.3	1.7
Number of observations	228	189	286	260

(a) Enmeshed class not extracted for families with study child 2–3 years.

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

Source: LSAC B cohort, Waves 2 (2–3 years) and 3 (4–5 years); K cohort, Waves 2 (6–7 years) and 4 (10–11 years).

4.4 Summary

This chapter has presented the results of a latent class cluster analysis seeking to identify different types of family environments. Reflecting theoretical prediction and previous research, we identified three broad family groups. The largest group of families had average or above-average levels of parental warmth and parent–child shared activities, coupled with below-average parental conflict and angry parenting. These families most resemble those described in previous work as having boundaries that are clear but flexible, and referred to as **cohesive**. We also identified a group of families with below-average parental warmth and parent–child shared activities. These also had average or below-average levels of parental conflict but tended to have high levels of angry parenting. These families closely resembled those hypothesised to be located toward the more **disengaged** end of the boundary range. Finally, we identified a group of families noted for high levels of parental conflict together with average or above-average levels of parental warmth and parent–child shared activities. These families most closely resemble those identified in previous theoretical and empirical research as being located toward the **enmeshed** end of the boundary range.

We identified these family environments across a broad age range of study children, and both in families with two resident parents and in families with a PLE. Having identified these family environments, we are interested to know how they relate to children’s outcomes. The next chapter presents a descriptive overview of a broad range of indicators of children’s health, development and wellbeing.

5 Family environments and child outcomes

This chapter considers the links between the family groups described in the previous chapter and the child outcomes described in Chapter 2. This chapter thus addresses Research Question 4 ('What are the links between different family environments and child outcomes?') and the third key objective of the report, which is to understand more about the influence of the family environment on child outcomes. We consider the associations between child outcomes and the family environment, measured contemporaneously. For example, we compare outcomes for children 2–3 years old (Wave 2, B cohort) across the three family groups extracted from the analysis of families with study children aged 2–3 (Wave 2, B cohort), and so on. In some cases this is not possible, and in those cases we have chosen the most recent prior measure of the family environment.

In this chapter, the statistical comparisons focus on differences **between** family groups **within** specific age brackets. For example, we compare outcomes for children aged 2–3 in families high on enmeshment with those in families high on cohesion; however, we do not compare outcomes for children of different ages (for example, aged 2–3 years compared with 4–5 years) either in the same type of family group or across types of family groups. Changes over time are considered in the following chapter.

Using all available, comparable data we examine the following outcomes:

1. the proportion of children underweight or overweight/obese
2. the proportion of children with one or more injuries in the past 12 months
3. SDQ prosocial score
4. SDQ total problem score
5. NAPLAN reading scores
6. NAPLAN numeracy scores.

Together, these measures encompass indicators of children's health, cognitive development, and social and emotional wellbeing.

We first present a descriptive analysis of these outcomes, comparing the average level for each outcome in different family environments. In addition to these descriptive analyses, we present the results of multivariate analysis considering the association between child outcomes and family environment controlling for a number of factors relating to children, their parents and families, and the wider social setting they live in. The variables included are:

- > family environment: 1 = cohesive [reference]; 2 = disengaged; 3 = enmeshed
- > region: 1 = metropolitan [reference]; 2 = rural or regional area
- > socioeconomic position (SEP) bottom quartile: 0 = no [reference]; 1 = yes
- > mother aged under 25 years at first birth: 0 = no [reference]; 1 = yes
- > older siblings in family: 0 = no [reference]; 1 = one older sibling; 2 = two or more older siblings
- > younger siblings in family: 0 = no [reference]; 1 = one younger sibling; 2 = two or more younger siblings
- > child gender: 1 = boy [reference]; 2 = girl
- > general good health: continuous scale
- > child living with disability: 1 = no [reference]; 2 = yes
- > child Indigenous status: 1 = no [reference]; 2 = yes
- > birth weight: continuous scale, standardised.

The six outcomes listed above take different forms, and this influences the choice of regression analysis technique. Weight status (outcome 1) is a categorical variable with three values, and we use multinomial logistic regression to analyse this outcome (normal weight is the base category). The proportion of children with one or more injuries (outcome 2) is a binary variable, and we use logistic regression for the analysis of this outcome. The remaining outcomes (3–6) are continuous, and we used Ordinary Least Squares (OLS) regression to analyse these. All analyses were weighted to control for the clustering and stratification of the sample, as well as to correct for non-response bias. The results are presented in three sections. Section 5.1 presents the results for outcomes 1 and 2, relating to children's health. Section 5.2 presents the results for outcomes 3 to 5, relating to children's social and emotional wellbeing. Section 5.3 presents the results for outcomes 6 and 7, relating to children's cognitive development.

Box 2: Chapter 5 key findings

This chapter presents the results from bivariate and multivariate analyses considering concurrent associations between family environment and children's outcomes.

There were very few significant associations between family environment and children's **health outcomes**. Significant results were restricted to children 2–3 years living in families with two resident parents.

- > Children aged 2–3 years in families lying toward the enmeshed end of the boundary range were significantly more likely to be underweight (than normal weight).
- > Children aged 2–3 years in families located toward the disengaged end of the boundary range were significantly more likely to have two or more injuries per year.

The family environment (as measured in this report) was most strongly associated with children's **social and emotional wellbeing**.

- > In families with two resident parents, children in families positioned toward the disengaged end of the boundary range had significantly lower levels of prosocial behaviour, higher levels of total problem behaviour, and higher levels of externalising problem behaviour when compared to children from more cohesive families.
- > Results were very similar for children in families with a parent living elsewhere (PLE). There were also significant associations highlighting negative social and emotional outcomes for children in enmeshed families, but these were not as pronounced compared with the results for more disengaged families.

There were less consistent, and fewer significant, associations between family environment and children's **cognitive development**. In families with two resident parents:

- > Children in families located toward the disengaged end of the boundary range had, on average, lower Year 3 and Year 5 NAPLAN reading scores. However, the Year 3 result was not significant after controlling for other factors.
- > Children in families situated toward the disengaged end of the boundary range had, on average, lower Year 5 NAPLAN numeracy scores, even after controlling for other factors. Patterns were very similar across family environments for children in families with a PLE.

5.1 Children's health

Weight status

In this section, we present the results of analyses examining the associations between children's weight status and family environment measured concurrently. The indicator we used was body mass index (BMI), defined as weight/height squared (kg/m^2). This is a common indicator used to identify people who are underweight or overweight, or obese. Although not a direct measure of body fat, BMI remains one of the most widely used measures in the study of obesity (Sweeting 2007). Consistent with Wake and Maguire (2012), we used cut-off points for overweight and obesity derived by Cole et al. (2001) and cut-off points for underweight

derived by Cole et al. (2007). We used data on children's BMI from Waves 2–4 in the B cohort and Waves 1–4 in the K cohort. BMI data from children aged 0–1 years were not available, due to the difficulty of measuring the height of very young children.

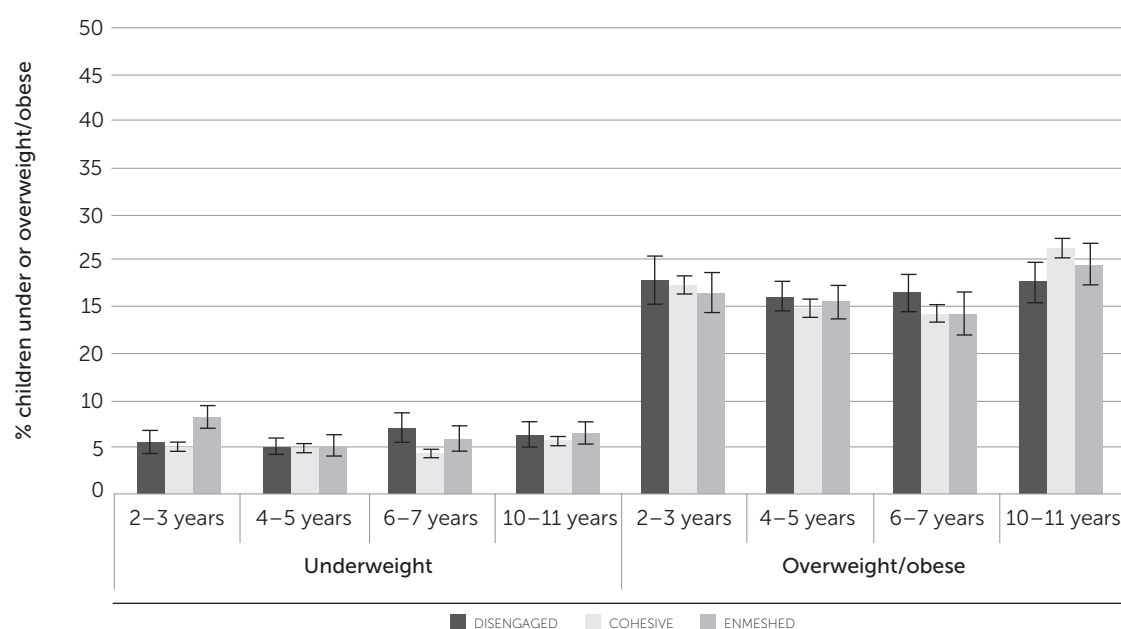
Figure 11 shows, across the different family groups, the proportion of children aged 2–3 years to 10–11 years who were underweight or overweight/obese in families with two resident parents. Figure 12 reports the same for families with a PLE. Broadly, the proportion of children who were either underweight or overweight/obese was very similar across different family types, and very similar to the average proportions reported in previous research using the entire LSAC sample (Wake & Maguire 2012).

The only instance of a difference (with non-overlapping confidence intervals) related to children aged 2–3 years in families with two resident parents located toward the enmeshed end of the boundary range. These children were more likely to be underweight than children in families located toward the middle of the boundary range (cohesive families).

There were no notable differences across different family groups (within each child age band) in the proportion of children in families with a PLE who were underweight or overweight/obese. Note that a very small proportion of children aged 4–5 years in enmeshed families were underweight, and that no children aged 10–11 years in this family type were underweight.

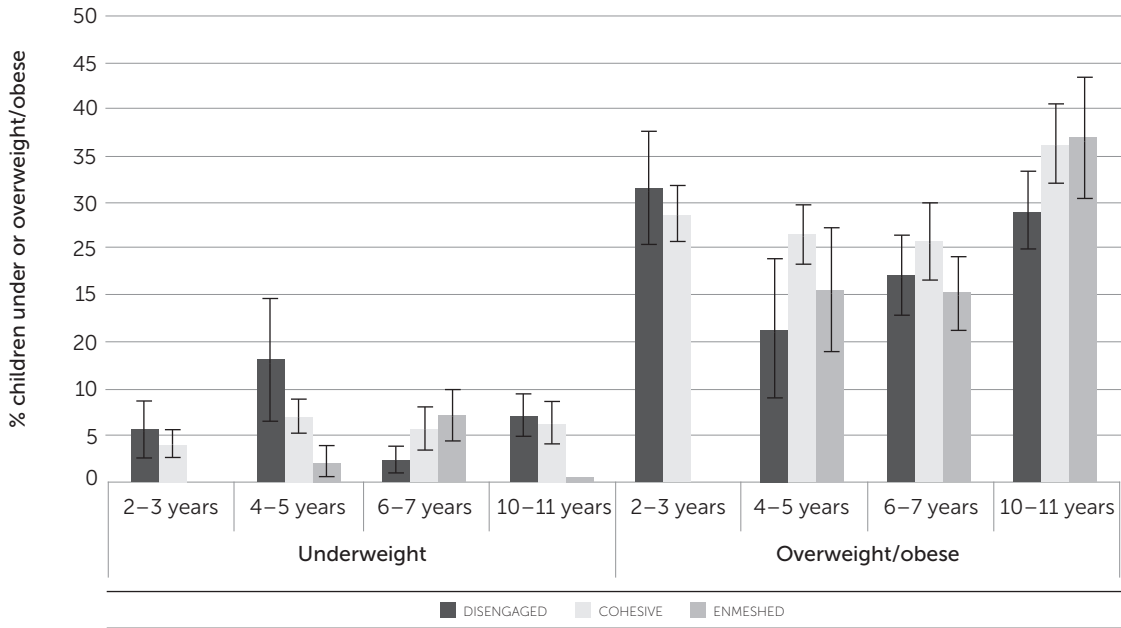
Table 6 reports the results for children in families with two resident parents from a series of bivariate and multivariate multinomial regression analyses considering associations between children's weight status and the family environment with and without other control variables. Table 7 reports results for children in families with a PLE. In both cases, we estimated models for children 2–3, 4–5, 6–7 and 10–11 years of age. The bivariate analyses confirm the description provided in Figure 11 showing a significant difference in the likelihood of children aged 2–3 years being underweight in cohesive families compared with children aged 2–3 years in enmeshed families, even when controlling for other factors ($p < .05$). The bivariate and multivariate analyses reveal no significant differences across family environments in families with a PLE.

Figure 11: Average percentage of children underweight or overweight/obese in different family groups: children 2–3 years, 4–5 years, 6–7 years and 10–11 years: families with two resident parents



Source: LSAC B cohort, Waves 2 and 4; K cohort, Waves 1 and 4.

Figure 12: Average percentage of children underweight or overweight/obese in different family groups: children 2–3 years, 4–5 years, 6–7 years and 10–11 years: families with a PLE



Source: LSAC B cohort, Waves 2 and 3; K cohort, Waves 2 and 4.

Table 6: Relative risk ratios from multinomial logistic regression predicting children's weight problems: families with two resident parents

	2–3 years		4–5 years		6–7 years		10–11 years	
	Underweight	Overweight/ obese	Underweight	Overweight/ obese	Underweight	Overweight/ obese	Underweight	Overweight/ obese
Bivariate results								
Disengaged (more rigid boundaries)	1.1	1.1	1.1	1.1	1.7	1.2	1.0	0.8
Enmeshed (more diffuse boundaries)	1.7**	1.0	1.1	1.0	1.4	1.0	1.2	1.0
Number of observations	3,381		3,291		3,394		3,191	
Multivariate results								
Disengaged (more rigid boundaries)	1.0	1.0	1.1	1.1	1.6	1.2	0.9	0.7*
Enmeshed (more diffuse boundaries)	1.6*	1.0	1.0	1.1	1.3	1.0	1.1	0.9
Regional or rural area	0.9	1.0	1.0	1.0	0.9	0.8	1.1	1.0
SEP: bottom quartile	1.1	1.4**	0.7	1.6***	0.9	1.3*	0.9	1.7***
Mother under 25 at first birth	1.3	1.1	1.3	1.1	1.2	1.1	1.0	1.4**
1 older sibling	1.3	0.9	1.4	0.7*	1.1	0.8	1.0	0.8*
2 or more older siblings	1.4	1.2	1.2	0.7*	1.0	1.1	1.3	0.9
1 younger sibling	1.1	0.9	1.4	1.0	0.9	0.8*	1.3	0.7**
2 or more younger siblings	–	–	0.5	0.9	1.0	0.6*	1.0	0.7*
Girl	1.0	1.1	1.3	1.2*	0.9	1.1	1.7**	1.0
Generally healthy	0.8***	1.1	0.7**	1.1	0.7**	0.8*	0.6***	0.6***
With disability	1.4	1.4	–	–	2.0*	1.5	1.3	1.5*
Indigenous	0.7***	1.3***	0.6***	1.3***	0.7***	1.2***	0.8***	1.1
Birth weight	0.3	0.6	0.6	1.6	1.9	1.2	2.6	1.1
Number of observations	3,364		3,249		3,316		3,141	

Notes: Weights applied; *** $p < .001$, ** $p < .01$; * $p < .05$.

Source: LSAC B cohort, Waves 2 and 4; K cohort, Waves 1 and 4.

Table 7: Relative risk ratios from multinomial logistic regression predicting children's weight problems: families with a PLE

	2–3 years		4–5 years		6–7 years		10–11 years	
	Underweight	Overweight/ obese	Underweight	Overweight/ obese	Underweight	Overweight/ obese	Underweight/ obese	Overweight/ obese
Bivariate								
Disengaged (more rigid boundaries)	1.5	1.2	1.7	0.5	0.4	0.8		0.8
Enmeshed ^(a) (more diffuse boundaries)	–	–	0.2	0.8	1.2	0.7		1.0
Number of observations	294		295		358			333
Multivariate								
Disengaged (more rigid boundaries)	2.8	1.9	0.2	0.4	0.7	0.9		0.7
Enmeshed ^(a) (more diffuse boundaries)	♀	♀	0.3	0.6	2.0	1.2		0.9
Regional or rural area	2.0	0.8	1.1	0.8	1.3	0.7		0.7
SEP: bottom quartile	♀	♀	2.0	0.7	♀	♀		1.0
Mother under 25 at first birth	1.2	1.3	0.3	0.9	0.8	1.3		0.7
1 older sibling	0.4	0.8	0.5	0.9	7.8*	0.5		1.4
2 or more older siblings	0.2	0.7	0.4	0.8	12.9*	0.6		1.5
1 or more younger siblings	0.9	0.8	1.9	1.6	5.6*	0.5		0.8
Child sees PLE 4–26 times per year	0.2	0.9	0.3	0.8	2.9	0.3**		0.6
Child sees PLE no more than twice per year	0.7	0.9	0.2	1.2	1.6	1.3		0.6
Girl	0.4	1.7	1.4	1.4	1.9	1.9		1.3
Generally healthy	0.9	1.4	0.7	1.0	1.0	0.8		0.7
With disability	♀	♀	♀	♀	0.6	2.9*		1.6
Birth weight	0.8	1.8***	0.5*	1.1	0.3**	1.3		1.1
Indigenous	1.4	2.8	♀	♀	♀	♀		1.3
Number of observations	246		211		286			205

(a) Enmeshed class not extracted for families with study child 2–3 years.

Notes: Weights applied; *** $p < .001$; ** $p < .01$; * $p < .05$; ♀: variable omitted due to numerical problems arising from zero or extremely low cell size.

Source: LSAC B cohort, Waves 2 and 3; K cohort, Waves 2 and 4.

The results in Table 6 and Table 7 highlight a number of other factors associated with children's weight status in families with two resident parents and families with a PLE, respectively. In families with two resident parents, children in the bottom socioeconomic position (SEP) quartile, across all ages, were between 1.3 and 1.7 times more likely to be overweight/obese than in the normal weight range.

In both family types, girls 4–5 years old were significantly more likely to be overweight/obese, but girls 10–11 years old were almost twice as likely to be underweight than boys in the same age range. B cohort children 6–7 years old living with disability were more likely to be underweight, and K cohort children 10–11 years old were more likely to be overweight/obese.

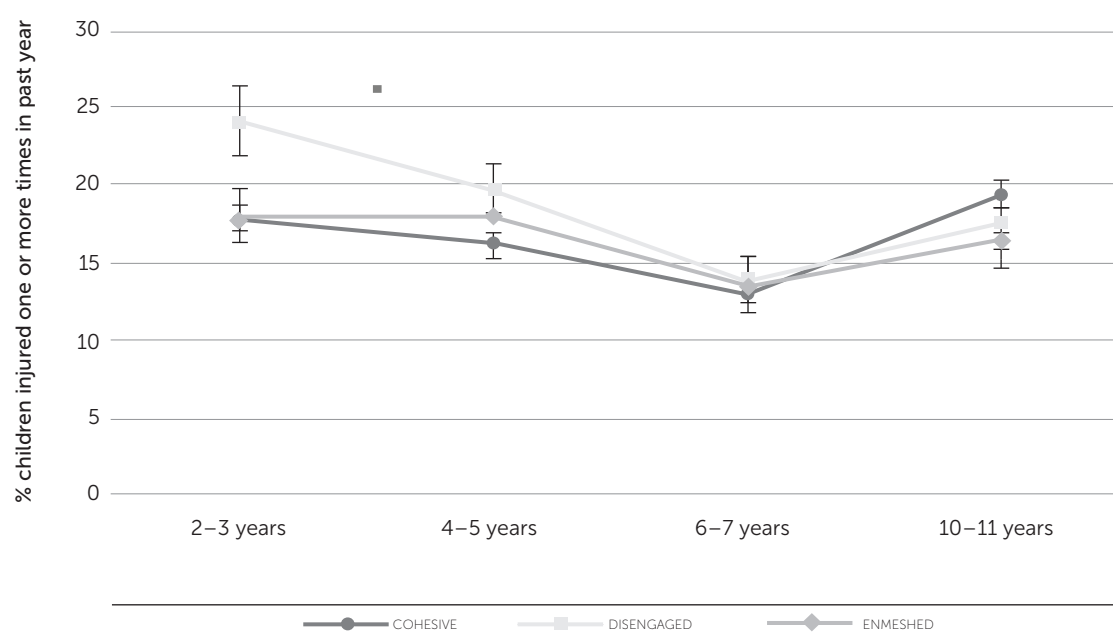
A more consistent result across age groups related to children's general health. Better health was negatively associated with being underweight across all age groups, and with being overweight/obese for children aged 6–7 and 10–11.

Finally, birth weight was significantly associated with children's weight from the early years through to middle childhood. Specifically, greater birth weight was negatively associated with being underweight across all age groups, and positively associated with the likelihood of being overweight/obese for all age groups except children aged 10–11.

Injuries

This section presents results relating to the proportion of children injured one or more times during the previous 12 months. Figure 13 shows the proportion of children in families with two resident parents, and Figure 14 for families with a PLE. The proportion of children with one or more injuries in families with two resident parents ranges from approximately 13 per cent for children 6–7 years old across all family types to 24 per cent for children 2–3 years old in families located toward the disengaged end of the boundary range.

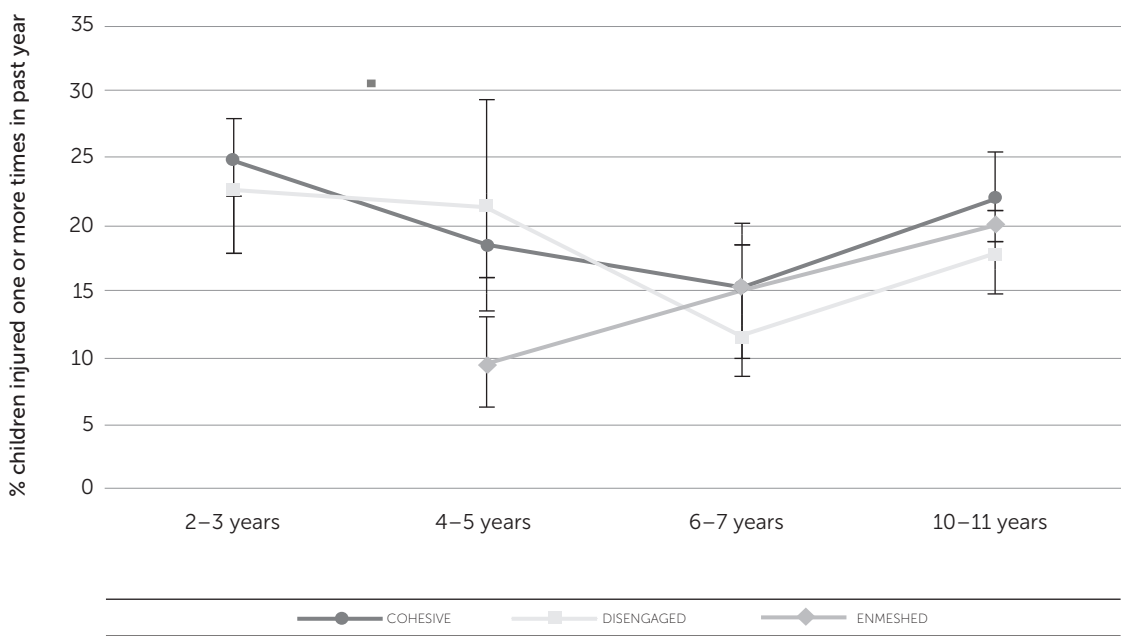
Figure 13: Average percentage of children with one or more injuries in the past year in different family groups: children 2–3 years, 4–5 years, 6–7 years and 10–11 years: families with two resident parents



Source: LSAC B cohort, Waves 2 and 4; K cohort, Waves 1 and 4.

In families with a PLE (Figure 14), rates of one or more injuries in the past year were highest for children 2–3 years old (23–25 per cent) and again for children 10–11 years old (18–22 per cent). The errors (and associated confidence intervals) around these averages were, however, quite substantial. The rates fell to around 12–13 per cent for children 6–7 years old. Rates of one or more injuries over a year were very similar across family types.

Figure 14: Average percentage of children with one or more injuries in the past year in different family groups: children 2–3 years, 6–7 years and 10–11 years: families with a PLE



Source: LSAC B cohort, Waves 2 and 3; K cohort, Waves 2 and 4.

Table 8 and Table 9 report the bivariate and multivariate results that compare children in cohesive families with children in other types of families across different age groups, for families with two resident parents and those with a PLE respectively. In most models, there was no significant difference in rates of one or more injuries between children in cohesive families and other family types, with and without controlling for other factors and for families with two resident parents and a PLE. The exceptions are children 2–3 and 4–5 years old in families with two resident parents located toward the disengaged end of the boundary range. These children were significantly more likely to have had one or more injuries requiring medical attention during the previous 12 months, and this holds when controlling for other factors. Post-regression tests also showed that the effect for disengaged families was significantly different from the effect for enmeshed families, suggesting that these family types differ significantly on this outcome ($p < .05$).

In families with two resident parents, children 2–3 years old living in rural or regional areas were 1.2 times more likely to have had one or more injuries in the previous year. There was no significant association between low SEP and child injuries, with the exception of the model for low SEP children aged 6–7 years, who were less likely to be reported as having had one or more injuries. Children 2–3 years old in both family types, and children 4–5 years old living in families with two resident parents and whose mother was under 25 years at the birth of their first child, were significantly more likely to have had one or more injuries. Girls (2–3, 4–5, and 10–11 years of age) living in families with two resident parents were significantly less likely to have been injured one or more times in a year. Indigenous children aged 10–11 years were significantly more likely to have had one or more injuries in the previous 12 months. Effects for Indigenous status were not statistically significant in families with a PLE.

Table 8: Odds ratios from logistic regression predicting children's injury (one or more in past 12 months): families with two resident parents

	Injured one or more times in the past 12 months			
	2–3 years	4–5 years	6–7 years	10–11 years
Bivariate				
Disengaged (more rigid boundaries)	1.5**	1.3*	1.0	0.9
Enmeshed (more diffuse boundaries)	1.0	1.1	1.0	0.8
Number of observations	3,439	3,306	3,437	3,308
Multivariate				
Disengaged (more rigid boundaries)	1.5**	1.3*	1.1	0.9
Enmeshed (more diffuse boundaries)	1.0	1.2	1.0	0.8
Regional or rural area	1.2*	1.0	1.1	1.1
SEP: bottom quartile	0.9	1.2	0.6**	1.1
Mother under 25 at first birth	1.3**	1.9***	1.2	1.0
1 older sibling	1.0	0.9	0.9	1.2
2 or more older siblings	0.9	0.8	0.7*	1.0
1 younger sibling	0.9	0.8	0.8	1.2
2 or more younger siblings	–	0.8	0.7	1.0
Girl	0.8*	0.7**	0.8	0.8*
Generally healthy	1.0	1.0	1.0	0.9
With disability	1.4	–	1.1	1.3
Birth weight	1.1*	1.0	0.9	1.1
Indigenous	1.3	1.3	1.1	2.2**
Number of observations	3,422	3,264	3,355	3,257

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

Source: LSAC B cohort, Waves 2 and 4; K cohort, Waves 1 and 4.

Table 9: Odds ratios from logistic regression predicting children's injury (one or more times in past 12 months): families with a PLE

	Injured one or more times in the past 12 months			
	2–3 years	4–5 years	6–7 years	10–11 years
Bivariate				
Disengaged (more rigid boundaries)	0.9	1.3	0.7	0.7
Enmeshed ^(a) (more diffuse boundaries)	–	0.4	0.9	0.8
Number of observations	301	301	364	363
Multivariate				
Disengaged (more rigid boundaries)	0.9	1.3	0.9	1.1
Enmeshed ^(a) (more diffuse boundaries)	–	0.4	1.1	0.7
Regional or rural area	0.9	1.1	1.5	0.9
SEP: bottom quartile	1.1	1.7	0.8	0.6
Mother under 25 at first birth	2.9**	1.5	1.0	2.2
1 older sibling	1.0	1.1	0.6	0.6
2 or more older siblings	1.3	0.7	0.2*	0.8
1 or more younger siblings	0.1**	1.3	1.1	1.4
Child sees PLE 4–26 times per year	1.3	0.4	1.4	2.6
Child sees PLE no more than twice per year	1.1	0.3	1.1	2.4
Girl	0.8	0.9	1.5	0.7
Generally healthy	1.0	1.5	0.9	0.8
With disability	3.1	1.3	1.0	0.6
Birth weight	1.4*	0.8	1.1	1.1
Indigenous	0.4	3.3	1.9	1.5
Number of observations	251	215	291	219

(a) Enmeshed class not extracted for families with study child 2–3 years.

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

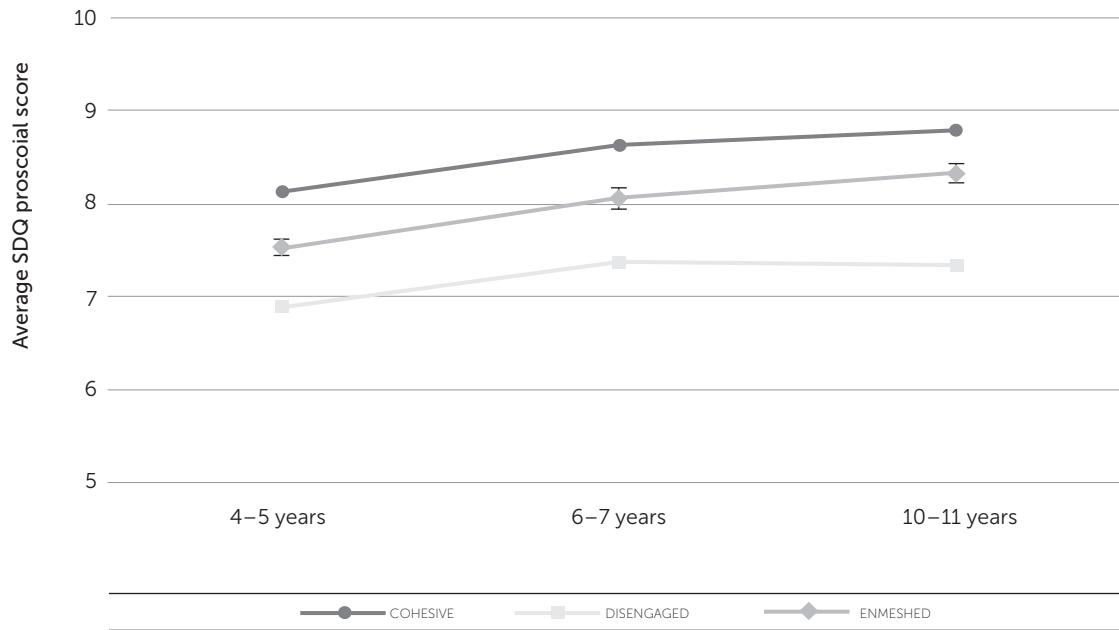
Source: LSAC B cohort, Waves 2 and 3; K cohort, Waves 2 and 4.

5.2 Children's social and emotional wellbeing

SDQ prosocial score

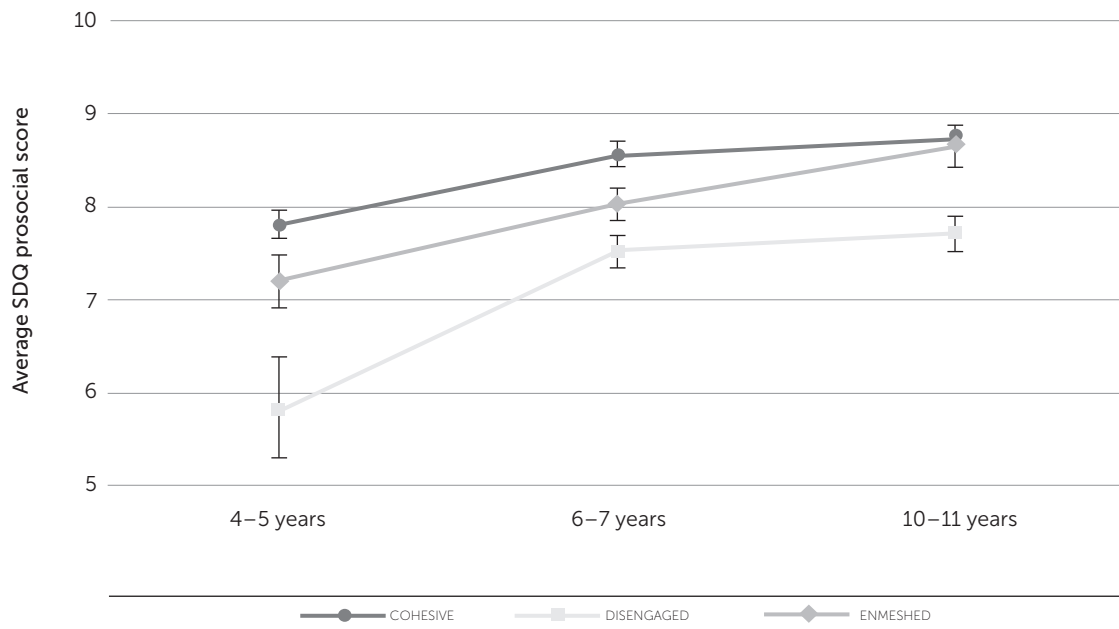
This section considers links between the family environment and indicators of children's social and emotional wellbeing. Children's social and emotional wellbeing was measured using the Strengths and Difficulties Questionnaire (SDQ) total problem and prosocial scores (Goodman 1997). This instrument was chosen as a key headline indicator to monitor children's wellbeing (see AIHW 2012b for the rationale for this choice). Figure 15 and Figure 16 show, for families with two resident parent and families with a PLE respectively, the average SDQ prosocial score for children aged 4–5, 6–7 and 10–11 years in different family groups. In families with two resident parents, children in more cohesive families had the highest prosocial scores across all age groups. Children 4–5 years old in families located toward the enmeshed and disengaged ends of the boundary range had lower prosocial scores. Average prosocial scores were higher for children 6–7 and 10–11 years old in more enmeshed families, but remain largely unchanged for children in families lying toward the disengaged end of the boundary range.

Figure 15: Average SDQ prosocial score in different family groups: children 4–5 years, 6–7 years and 10–11 years: families with two resident parents



Source: LSAC B cohort, Wave 4; K cohort, Waves 1 and 4.

Figure 16: Average SDQ prosocial score in different family groups: children 4–5 years, 6–7 years and 10–11 years: families with a PLE



Source: LSAC B cohort, Wave 3; K cohort, Waves 2 and 4.

In families with a PLE, children 4–5 and 6–7 years old in more cohesive families had the highest average SDQ prosocial scores, and children of all ages in families located toward the disengaged end of the boundary range consistently had the lowest prosocial scores. Children in families located toward the enmeshed end of the boundary range lie between these two groups but catch up with children in more cohesive families by the age of 10–11. Broadly, the patterns were very similar across these different households. Children's average prosocial scores in more cohesive families were consistently high, and in more disengaged families they were consistently low. Average prosocial scores were higher across increasing age groups for children in families positioned toward the enmeshed end of the boundary range. They remained somewhat different for children from cohesive families with two resident parents, although they were roughly equivalent for children in families with a PLE.

Table 10 and Table 11 report, for families with two resident parents and families with a PLE respectively, the results from a series of bivariate and multivariate regression analyses considering associations between children's SDQ prosocial scores and the family environment, both with and without other control variables. Children in families with two resident parents located toward the disengaged and enmeshed ends of the boundary range have significantly lower SDQ prosocial scores than children in cohesive families, and these differences remain after controlling for other factors (see Table 10). The difference was smaller for children 6–7 and 10–11 years old in enmeshed families, but greater for children of these ages in disengaged families, but the gap remains significant throughout. Post-regression tests reveal that the effect for families toward the disengaged end of the boundary range is significantly larger than the effect for more enmeshed families ($p < .001$).

Table 10: Children's SDQ prosocial score: families with two resident parents (OLS coefficients)

	SDQ prosocial		
	4–5 years	6–7 years	10–11 years
Bivariate			
Disengaged (more rigid boundaries)	–1.2***	–1.2***	–1.4***
Enmeshed (more diffuse boundaries)	–0.6***	–0.6***	–0.5***
Intercept	8.1***	8.6***	8.8***
Number of observations	3,302	3,418	3,273
Multivariate			
Disengaged (more rigid boundaries)	–1.2***	–1.1***	–1.3***
Enmeshed (more diffuse boundaries)	–0.6***	–0.5***	–0.4***
Regional or rural area	0.0	0.1	0.0
SEP: bottom quartile	–0.1	–0.2*	0.0
Mother under 25 at first birth	0.0	0.0	0.0
1 older sibling	0.0	–0.1	–0.1
2 or more older siblings	–0.2*	–0.2	0.0
1 younger sibling	0.0	0.0	–0.2*
2 or more younger siblings	0.0	0.0	–0.3***
Girl	0.4***	0.8***	0.6***
Generally healthy	0.2***	0.2***	0.2***
With disability	0.0	–0.2	0.0
Birth weight	0.0	0.0	0.0
Indigenous	0.0	–0.1	–0.2
Intercept	7.3***	7.4***	7.9***
R-square	.11	.13	.14
Number of observations	3,260	3,336	3,224

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

Source: LSAC B cohort, Wave 4; K cohort, Waves 1 and 4.

In families with a PLE, children of all ages in disengaged families have significantly lower SDQ prosocial scores than children in cohesive families. However, a significant difference between children in cohesive and enmeshed families emerged only for children aged 6–7 years, and this result held when controlling for other factors. The magnitude of the difference for children aged 4–5 was comparable, but the standard error was greater (note the wider confidence interval in Figure 15). As with two-parent households, post-regression tests reveal that the effect for families toward the disengaged end of the boundary range was significantly larger than the effect for more enmeshed families ($p < .05$).

Table 11: Children’s SDQ prosocial score: families with a PLE (OLS coefficients)

	SDQ prosocial		
	4–5 years	6–7 years	10–11 years
Bivariate			
Disengaged (more rigid boundaries)	–2.0***	–1.0***	–1.0***
Enmeshed (more diffuse boundaries)	–0.6	–0.5*	–0.2
Intercept	7.8***	8.6***	8.7***
Number of observations	243	350	360
Multivariate			
Disengaged (more rigid boundaries)	–1.8**	–1.2***	–1.0***
Enmeshed (more diffuse boundaries)	–0.3	–0.6**	0.2
Regional or rural area	–0.2	–0.1	0.1
SEP: bottom quartile	–0.6*	–0.1	–0.2
Mother under 25 at first birth	–0.3	–0.2	0.0
1 older sibling	–0.4	–0.1	–0.2
2 or more older siblings	–0.7*	–0.5	0.2
1 or more younger siblings	–0.2	0.1	–0.6*
Child sees PLE 4–26 times per year	0.0	–0.1	–0.2
Child sees PLE no more than twice per year	0.1	0.1	–0.2
Girl	0.5	0.4	0.5*
Generally healthy	0.2	0.0	0.5***
With disability	0.4	–0.1	0.4
Birth weight	–0.1	0.1	–0.1
Indigenous	–0.2	–0.4	–0.7
Intercept	7.4***	8.9***	6.8***
R-square	.23	.13	.29
Number of observations	179	282	218

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

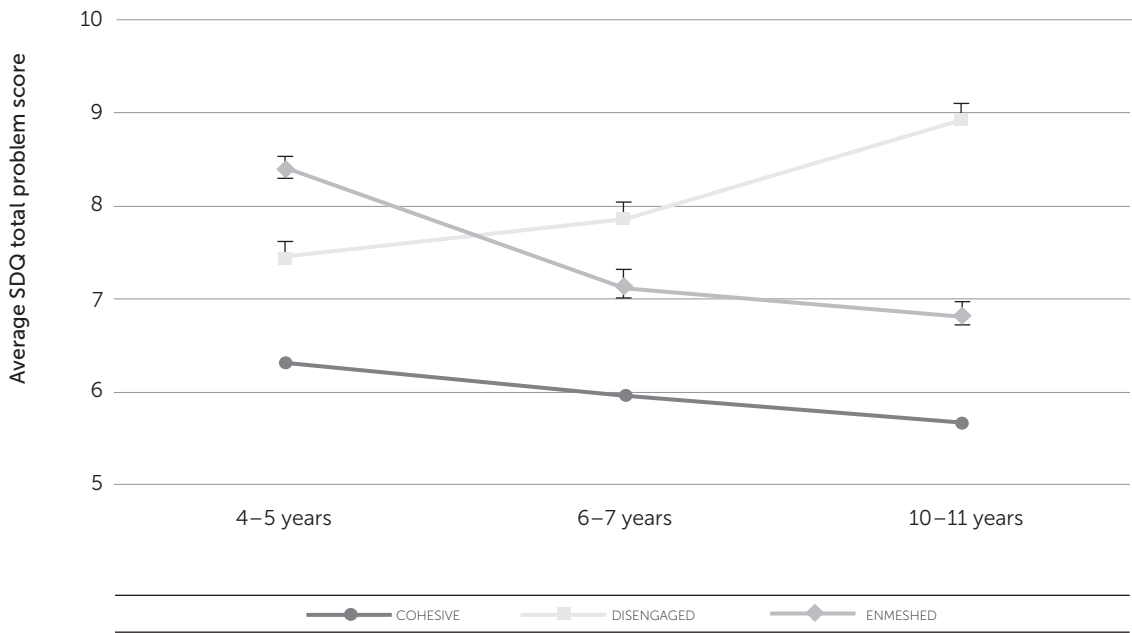
Source: LSAC B cohort, Wave 3; K cohort, Waves 2 and 4.

Children in families with two resident parents have significantly higher prosocial scores across all ages, and there was a positive association between health and prosocial scores (see Table 10). Children aged 4–5 years in relatively more disadvantaged families (bottom SEP quartile) have lower prosocial scores, but this result was not evident for older children. The presence of siblings was also associated with lower prosocial scores for children aged 4–5 (older siblings) and children aged 10–11 (younger siblings). Girls, and children with better health, average significantly higher prosocial scores in the models for children aged 10–11. The coefficients were positive in all models, but not statistically significant. Siblings also had a negative effect on prosocial scores, though this was only significant for children 6–7 years old (older siblings).

SDQ total problems score

Figure 17 and Figure 18 show, for families with two resident parents and families with a PLE respectively, the average SDQ total problem score for children 4–5, 6–7 and 10–11 years of age in different family environments. At all ages, total problems were lowest among children in cohesive families. Children in families toward the enmeshed end of the boundary range had higher average total problem scores than children in cohesive families, but lower problem scores than children in families positioned toward the disengaged end of the family boundary range. At age 4–5 years, children in families exhibiting enmeshed patterns (above-average parental conflict and average levels of parental warmth) had the highest SDQ total problem score. However, among children 6–7 years old, those in disengaged families had higher average total problem scores than those in enmeshed families. This gap widened further as total problem scores for children 10–11 years old were higher in disengaged families, but lower for children in families closely resembling enmeshed families.

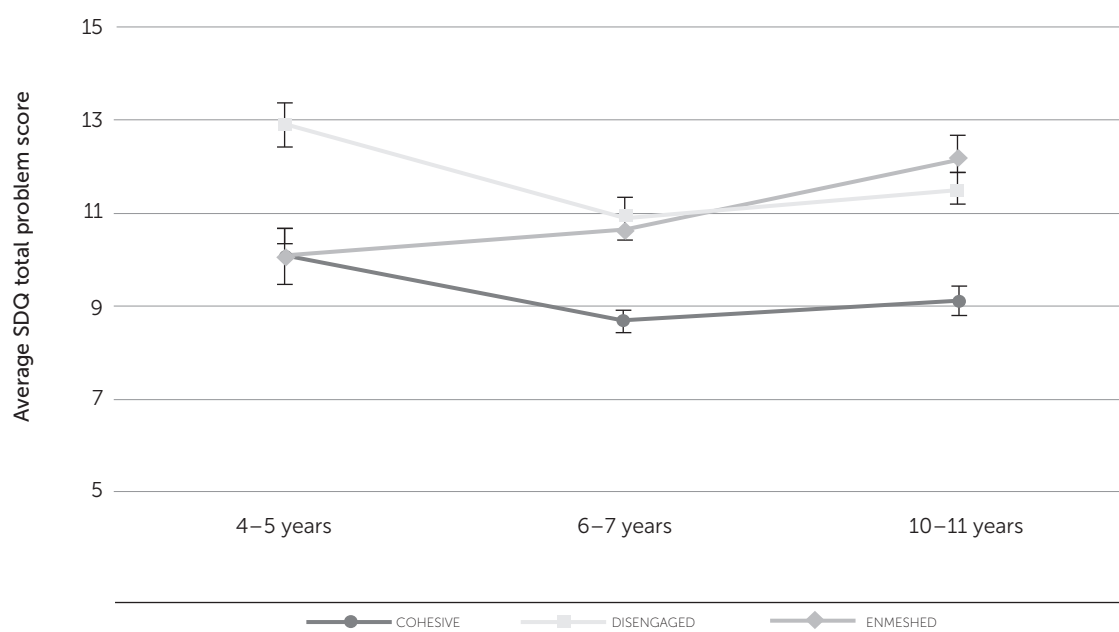
Figure 17: Average SDQ total problem score in different family groups: children 4–5 years, 6–7 years and 10–11 years: families with two resident parents



Source: LSAC B cohort, Wave 4; K cohort, Waves 1 and 4.

Patterns were notably different in families with a PLE. At 4–5 years of age, children in families located toward the centre of the boundary range (cohesive families), and those located toward the enmeshed end of the boundary range, had the lowest average total SDQ problem scores, and children in families positioned toward the disengaged end of this spectrum have the highest SDQ problem scores. There was an increase in average scores for children aged 6–7 in more enmeshed families, and an increase in average scores for children aged 6–7 in more disengaged families. Children aged 6–7 in more enmeshed families were located below children in more enmeshed families and above those in relatively cohesive families. This pattern is more pronounced when children were 10–11 years, as the average total problem scores in disengaged families was higher, whereas it was lower in both enmeshed and cohesive families.

Figure 18: Average SDQ total problem score in different family groups: children 4–5 years, 6–7 years and 10–11 years: families with a PLE



Source: LSAC B cohort, Wave 3; K cohort, Waves 2 and 4.

Table 12 shows, for families with two resident parents, the average SDQ total problem scores for children aged 4–5, 6–7 and 10–11 years in different family groups. The results show that children living with two resident parents in relatively more disengaged and enmeshed families average significantly higher total problem scores than children in relatively more cohesive families, and these differences remain significant after controlling for other factors. As was the case with prosocial scores, post-regression tests revealed that the effect for families toward the disengaged end of the boundary range is significantly larger than the effect for more enmeshed families ($p < .001$).

Children aged 4–5, 6–7 and 10–11 years in relatively disadvantaged families (those in the bottom SEP quartile) had significantly higher average total problem scores across all age groups than children in relatively more advantaged families (middle and upper SEP quartiles). Children aged 4–5 and 6–7 years in families with two or more older siblings have lower average total problem scores than those with no older siblings.

Children 6–7 and 10–11 years old living with a disability had significantly higher average total problem scores than those who did not have a disability (there was no equivalent measure for children 4–5 years old). Good health was negatively associated with high total problem scores across all age groups. Girls of all ages had lower total problem scores than did boys, and Indigenous children 4–5 and 10–11 years of age had higher total problem scores than non-Indigenous children of the same age.

Table 12: OLS coefficients predicting children's SDQ total problem score: families with two resident parents

	SDQ total problems		
	4–5 years	6–7 years	10–11 years
Bivariate			
Disengaged (more rigid boundaries)	4.2***	3.7***	6.6***
Enmeshed (more diffuse boundaries)	2.3***	2.5***	2.6***
Intercept	7.7***	7.1***	6.5***
Number of observations	3,301	3,418	3,273
Multivariate			
Disengaged (more rigid boundaries)	3.9***	3.3***	6.1***
Enmeshed (more diffuse boundaries)	2.1***	2.2***	2.2***
Regional or rural area	0.0	0.2	0.2
SEP: bottom quartile	1.9***	0.9***	1.2***
Mother under 25 at first birth	1.4***	0.8***	1.0***
1 older sibling	–0.7**	–0.5*	–0.2
2 or more older siblings	–1.0***	–1.4***	–0.1
1 younger sibling	–0.1	–0.2	–0.1
2 or more younger siblings	0.5	–0.5	0.0
Girl	–0.9***	–1.2***	–1.3***
Generally healthy	–1.1***	–1.2***	–1.3***
With disability	–	1.5***	1.3*
Birth weight	–0.2*	–0.1	–0.1
Indigenous	1.9**	0.8	1.1
Intercept	12.9***	13.1***	12.3***
R-square	.21	.16	.27
Number of observations	3,259	3,336	3,224

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

Source: LSAC B cohort, Wave 4; K cohort, Waves 1 and 4.

Table 13 shows similar results for children in families with a PLE. Children of all ages in disengaged families average higher total problem scores, though this was not significant for children aged 10–11 when controlling for other factors. Children 6–7 and 10–11 years old in enmeshed families average higher total problem scores, with and without controlling for other factors. Post-regression tests reveal that the effect for families toward the disengaged end of the boundary range is significantly larger than the effect for enmeshed families ($p < .05$).

Children 4–5 years old in relatively more disadvantaged families (those in the bottom SEP quartile) averaged higher total problem scores than children in families in the middle or upper SEP quartiles. Good health was negatively associated with total problem scores. There were some other significant results relating to children of specific ages. Younger children (4–5 years old) living in rural or regional areas averaged lower total problem scores. Girls aged 6–7 years averaged significantly lower total problem scores than boys (the coefficients were of a similar magnitude for girls aged 4–5 and 10–11 years). Lastly, children aged 10–11 years with two or more older siblings average lower total problem scores than their counterparts who had no older siblings.

Table 13: OLS coefficients predicting children's SDQ total problem score: families with a PLE

	SDQ total problem score		
	4–5 years	6–7 years	10–11 years
Bivariate			
Disengaged (more rigid boundaries)	2.8*	2.3**	2.4**
Enmeshed (more diffuse boundaries)	0.0	2.0**	3.1**
Intercept	10.1***	8.7***	9.2***
Number of observations	241	350	360
Multivariate			
Disengaged (more rigid boundaries)	3.5**	2.5**	2.1*
Enmeshed (more diffuse boundaries)	1.1	2.3**	2.1
Regional or rural area	–2.0**	0.1	0.4
SEP: bottom quartile	2.4*	1.3	–0.5
Mother under 25 at first birth	1.0	–0.5	1.2
1 older sibling	0.6	1.0	–1.0
2 or more older siblings	0.6	0.3	–2.6*
1 or more younger siblings	0.5	0.0	0.4
Child sees PLE 4–26 times per year	–1.6*	0.1	–0.9
Child sees PLE no more than twice per year	0.8	–0.8	–0.9
Girl	–1.6	–1.5*	–0.7
Generally healthy	–1.1*	–1.1*	–2.8***
With disability	0.9	1.6	0.1
Birth weight	–0.3	–0.1	–0.1
Indigenous	–0.8	0.8	0.4
Intercept	13.0***	13.1***	21.3***
R-square	.23	.15	.26
Number of observations	178	282	218

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

Source: LSAC B cohort, Wave 4; K cohort, Waves 1 and 4.

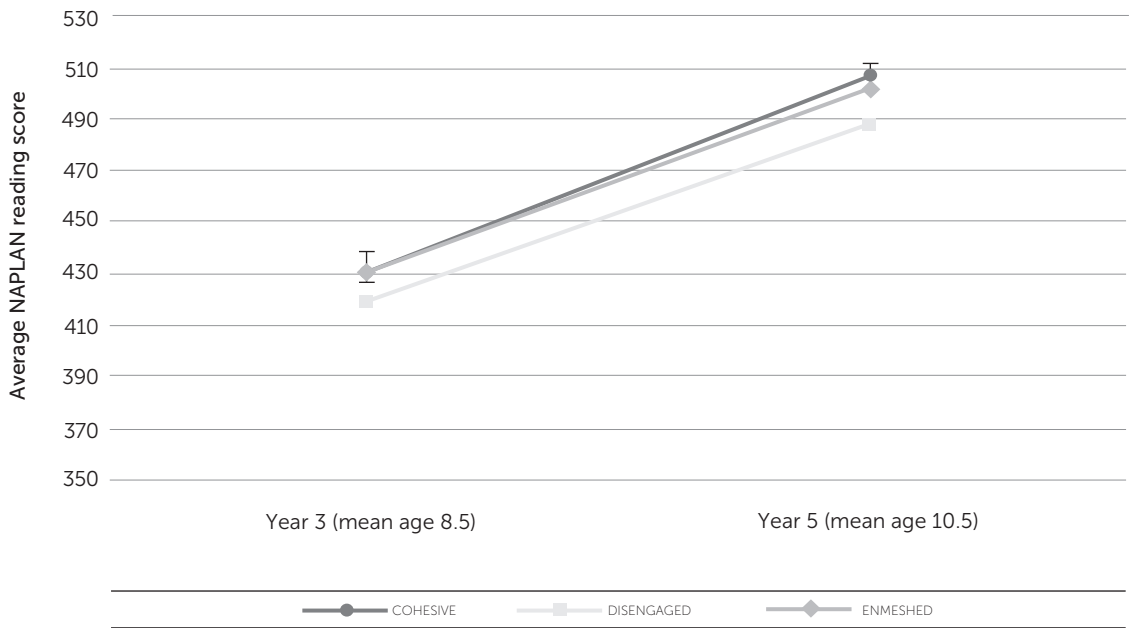
5.3 Children's cognitive development

In this section, we present the results from analyses exploring associations between the family environment and children's NAPLAN reading and numeracy scores. The concurrent wave for the majority of Year 3 NAPLAN scores is Wave 3, and for Year 5 it is Wave 4. Therefore, we estimated models of the family environment for Wave 4 of the K cohort, when the study child was 8–9 years old, so that we would have a more contemporaneous measure of the family environment for use in these analyses. As in other waves, the latent class models extracted three groups that exhibited patterns resembling those of families located toward the centre (cohesive) or toward the more disengaged or enmeshed ends of the boundary range (results not shown).

NAPLAN reading

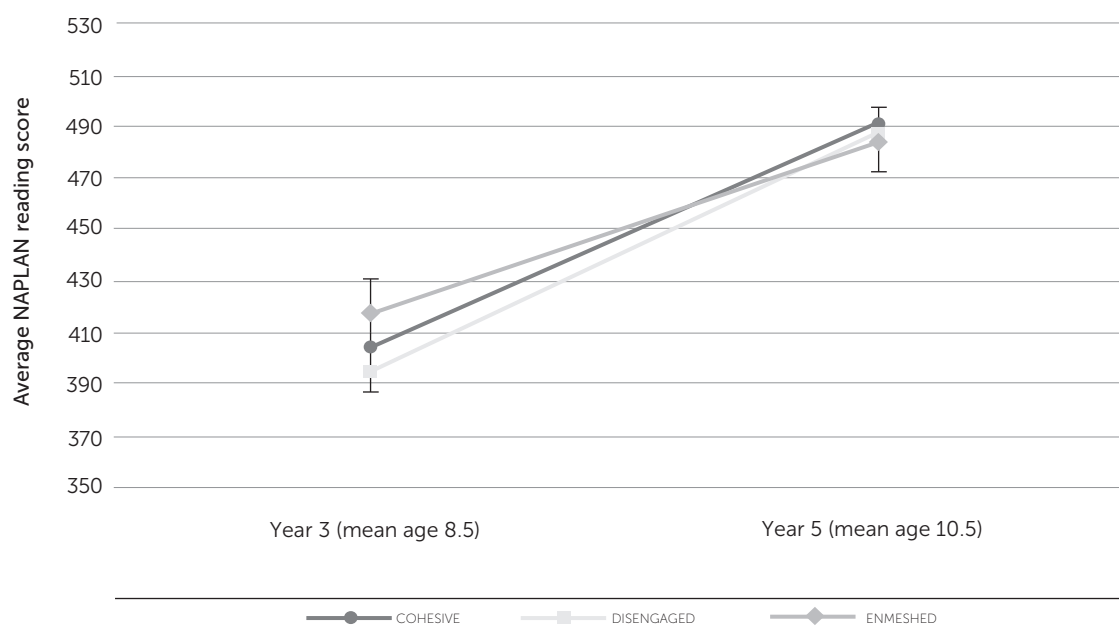
Figure 19 and Figure 20 show the average NAPLAN Year 3 and Year 5 reading scores for children in different family groups, in families with two resident parents and with a PLE respectively. The results show an increase in NAPLAN reading scores in Year 5 compared with Year 3. This reflects the construction of the measure, which is designed to reflect increases in children’s abilities as they grow older. NAPLAN reading scores are very similar for children in different family environments across all ages, though the average Year 5 score for children in families toward the disengaged end of the boundary range drops below that for children in other family groups.

Figure 19: Average Year 3 and Year 5 NAPLAN reading scores in different family groups: children 8.5 years and 10.5 years (average age): families with two resident parents



Source: LSAC K cohort, Waves 3 and 4.

Figure 20: Average Year 3 and Year 5 NAPLAN reading scores in different family groups: children 8.5 years and 10.5 years (average age): families with a PLE



Source: LSAC K cohort, Waves 3 and 4.

Table 14 and Table 15 show the results from bivariate and multivariate regression analysis of children's Year 3 and Year 5 NAPLAN reading scores, for those in families with two resident parents and those with a PLE respectively. Results confirm that children living with two resident parents in more disengaged families had significantly lower average NAPLAN Year 5 reading scores than those in more cohesive families (see Table 14). This result remained, whether or not we controlled for other factors. Post-regression tests show that the effect for the disengaged group was significantly greater than the effect for the enmeshed group ($p < .01$)

Table 14 shows that, in families with two resident parents, children in rural and regional areas averaged significantly lower Year 3 NAPLAN reading scores. Children in relatively more disadvantaged families (those in the bottom SEP quartile) averaged lower Year 3 and Year 5 NAPLAN reading scores. In addition, there was a negative association between Year 3 and Year 5 NAPLAN reading scores and having two or more older siblings. Girls averaged higher Year 3 and Year 5 NAPLAN reading scores, and age was positively associated with NAPLAN reading scores. There was a significant Indigenous gap for Year 5 NAPLAN reading scores only. Children living with disability averaged significantly lower NAPLAN reading scores at Year 3, but not at Year 5.

Table 14: OLS coefficients predicting children's NAPLAN reading score: families with two resident parents

	NAPLAN Reading	
	Year 3 (Family environment at 8–9 years)	Year 5 (Family environment at 10–11 years)
Bivariate		
Disengaged (more rigid boundaries)	–10.7	–17.8***
Enmeshed (more diffuse boundaries)	3.8	–4.5
Intercept	429.8***	505.4***
Number of observations	2,178	2,897
Multivariate		
Disengaged (more rigid boundaries)	–4.1	–16.0***
Enmeshed (more diffuse boundaries)	6.2	0.5
Regional or rural area	–10.5*	–12.7***
SEP: bottom quartile	–38.5***	–35.2***
Mother under 25 at first birth	–15.5**	–26.9***
1 older sibling	–15.5*	–6.8
2 or more older siblings	–33.5***	–16.0**
1 younger sibling	1.9	4.4
2 or more younger siblings	3.1	1.9
Girl	18.0***	24.4***
Child age at test (months)	2.1***	0.8*
Generally healthy	5.5	1.9
With disability	55.8***	–6.1
Birth weight	3.9*	0.9
Indigenous	–33.2	–48.4***
Intercept	364.4***	511.2***
R-square	.12	.14
Number of observations	2,155	2,852

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

Source: LSAC K cohort, Waves 3 and 4.

Results in Table 15 echoed those for children living in families with two resident parents, though they did not reach satisfactory statistical significance (most likely due to the relatively small sample size). There was also a negative association between Year 5 NAPLAN reading and having one or more younger siblings. Girls averaged higher NAPLAN reading scores than boys.

Table 15: OLS coefficients predicting children's NAPLAN reading score: families with a PLE

	NAPLAN Reading	
	Year 3 (Family environment at 8–9 years)	Year 5 (Family environment at 10–11 years)
Bivariate		
Disengaged (more rigid boundaries)	–5.4	–2.2
Enmeshed (more diffuse boundaries)	14.1	6.0
Intercept	397.6***	481.7***
Number of observations	221	293
Multivariate		
Disengaged (more rigid boundaries)	5.6	8.9
Enmeshed (more diffuse boundaries)	30.1	3.3
Regional or rural area	–4.8	–21.6
SEP: bottom quartile	14.1	–20.0
Mother under 25 at first birth	–14.2	2.4
1 older sibling	–22.2	–19.8
2 or more older siblings	–24.0	–21.5
1 or more younger siblings	–11.7	–37.1**
Child sees PLE 4–26 times per year	–30.1	–11.5
Child sees PLE no more than twice per year	–26.5	–20.7
Girl	31.7*	29.8*
Child age at test (months)	1.8	–0.9
Generally healthy	4.6	6.6
With disability	–83.7***	12.0
Birth weight	0.2	–0.4
Indigenous	–48.2	1.1
Intercept	401.4***	496.0***
R-square	.20	.09
Number of observations	150	183

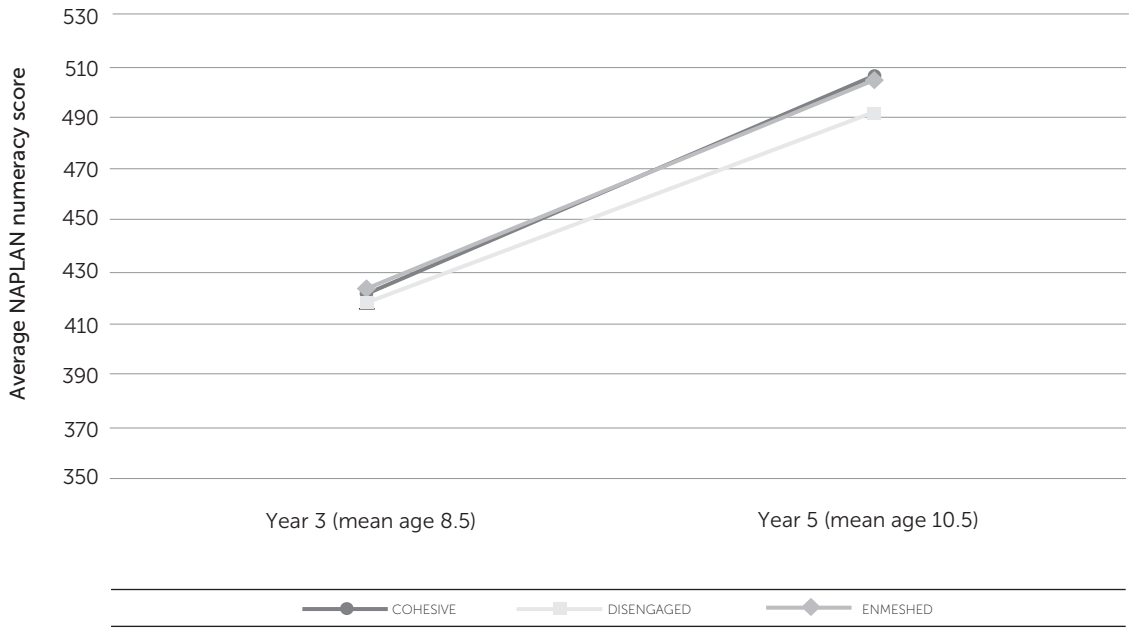
Notes: Weights applied; *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Waves 3 and 4.

NAPLAN numeracy

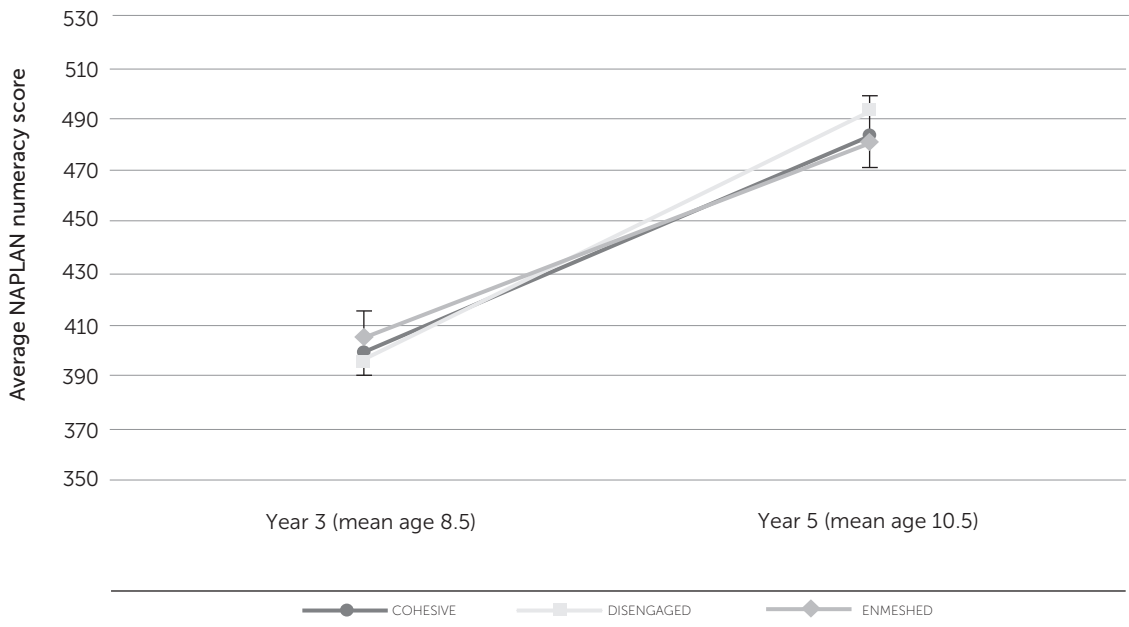
In this section, we consider NAPLAN numeracy scores. Figure 21 shows, for children in families with two resident parents, the average Year 3 and Year 5 NAPLAN numeracy scores for children in different family environments. Figure 22 provides the same information for children in families with a PLE. The results for numeracy were very similar to the results for reading. Scores for children in families with two resident parents were very similar across different family groups, with those in families toward the disengaged end of the boundary range averaging lower Year 5 NAPLAN numeracy scores. In families with a PLE, average NAPLAN numeracy scores were also very similar for children across different family groups.

Figure 21: Average Year 3 and Year 5 NAPLAN numeracy scores in different family groups: children 8.5 years and 10.5 years (average age): families with two resident parents



Source: LSAC K cohort, Waves 3 and 4.

Figure 22: Average Year 3 and Year 5 NAPLAN numeracy scores in different family groups: children 8.5 years and 10.5 years (average age): families with a PLE



Source: LSAC K cohort, Waves 3 and 4.

Table 16 confirms, for children with two resident parents, that there was a significant negative difference in Year 5 NAPLAN numeracy scores between children in more disengaged families and those in more cohesive families, which remained when controlling for other factors. As with reading, post-regression tests show that the effect for the disengaged group was significantly greater than the effect for the enmeshed group ($p < .01$). There were strong associations between children's NAPLAN numeracy scores and the relative socioeconomic position of the family.

Table 16: OLS coefficients predicting children's NAPLAN numeracy score: families with two resident parents

	NAPLAN numeracy	
	Year 3 (Family environment at 8–9 years)	Year 5 (Family environment at 10–11 years)
Bivariate		
Disengaged (more rigid boundaries)	–2.2	–13.7**
Enmeshed (more diffuse boundaries)	2.3	1.4
Intercept	422.5***	504.4***
Number of observations	2,179	2,894
Multivariate		
Disengaged (more rigid boundaries)	2.2	–13.6**
Enmeshed (more diffuse boundaries)	3.9	4.1
Regional or rural area	–11.8***	–12.9***
SEP: bottom quartile	–31.0***	–30.3***
Mother under 25 at first birth	–4.0	–27.1***
1 older sibling	–9.4	–0.4
2 or more older siblings	–22.3**	–7.4
1 younger sibling	–0.1	5.5
2 or more younger siblings	4.6	4.1
Girl	–4.6	–0.8
Child age at test (months)	1.6**	1.3***
Generally healthy	6.2*	1.3
With disability	53.2***	–10.3
Birth weight	4.0**	2.2
Indigenous	–43.2**	–43.2***
Intercept	361.2***	519.5***
R-square	.10	.12
Number of observations	2,156	2,849

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

Source: LSAC K cohort, Waves 3 and 4.

Children in families in the bottom SEP quartile average significantly lower Year 3 and Year 5 NAPLAN numeracy scores. There was a positive association between age and NAPLAN numeracy scores, but there was no significant difference between girls and boys (although there was for reading scores). Indigenous children had lower Year 3 and Year 5 NAPLAN numeracy scores than non-Indigenous children. There was a negative association between larger numbers of older siblings (two or more) and NAPLAN numeracy scores, but this was only significant for the Year 5 score. Finally, as with reading scores, children living with disability had significantly lower NAPLAN numeracy scores at Year 3 but not at Year 5.⁶

Table 17 shows that there were very few significant results in the models for numeracy in families with a PLE, most likely due to the relatively small sample size. Importantly, the results relating to family environment did not alter substantially when we controlled for other factors. Like children living with two resident parents, children in families with a PLE living in rural or regional areas averaged significantly lower NAPLAN Year 5 numeracy scores than their counterparts in metropolitan areas. In addition, age was positively correlated with Year 5 NAPLAN numeracy scores.

Table 17: OLS coefficients predicting children's NAPLAN numeracy score: families with a PLE

	NAPLAN numeracy	
	Year 3 (Family environment at 8–9 years)	Year 5 (Family environment at 10–11 years)
Bivariate		
Disengaged (more rigid boundaries)	–0.7	9.7
Enmeshed (more diffuse boundaries)	6.3	2.9
Intercept	391.6***	474.1***
Number of observations	222	294
Multivariate		
Disengaged (more rigid boundaries)	–9.1	8.6
Enmeshed (more diffuse boundaries)	11.8	–2.7
Regional or rural area	5.0	–20.6*
SEP: bottom quartile	8.2	–20.4
Mother under 25 at first birth	–16.2	–6.9
1 older sibling	–8.7	–15.9
2 or more older siblings	–4.1	–8.6
1 or more younger siblings	3.6	–6.8
Child sees PLE 4–26 times per year	–5.0	11.1
Child sees PLE no more than twice per year	–7.3	–3.5
Girl	12.5	–4.4
Child age at test (months)	1.0	1.8*
Generally healthy	–0.1	4.9
With disability	–47.2*	–16.0
Birth weight	–1.4	–1.3
Indigenous	–34.9	–24.8
Intercept	400.4***	496.7***
R-square	.16	.13
Number of observations	151	184

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

Source: LSAC K cohort, Waves 3 and 4.

5.4 Summary

In this chapter we have presented the results from analyses of concurrent associations between family environment and children's outcomes. There were very few significant associations between family environment and children's health outcomes. Children aged 2–3 years in families with two resident parents lying toward the enmeshed end of the boundary range were significantly more likely to be underweight (than normal weight). Family environment was not associated with other weight problems for children at other ages. Children aged 2–3 years in families with two resident parents located toward the disengaged end of the boundary range were significantly more likely to have two or more injuries per year.

Family environment was most strongly associated with children's social and emotional wellbeing. In families with two resident parents, children in families positioned toward the disengaged end of the boundary range had significantly lower levels of prosocial behaviour, higher levels of total problem behaviour, and higher levels of externalising problem behaviour than children in more cohesive families. Results were very similar for children in families with a PLE. There were also significant associations suggesting negative social and emotional outcomes for children in enmeshed families, but these were not as pronounced compared with the results for more disengaged families.

There were less consistent and fewer significant associations between family environment and children's cognitive development. In families with two resident parents, children in families located toward the disengaged end of the boundary range averaged lower Year 3 and Year 5 NAPLAN reading scores. However, the Year 3 result was not significant after controlling for other factors. Children in families situated toward the disengaged end of the boundary range averaged lower Year 5 NAPLAN numeracy scores, even after controlling for other factors. Patterns were very similar across family environments for children in families with a PLE.

These analyses were cross-sectional, and the next chapter adds to our understanding of the relationship between family environment and child outcomes, by exploring associations between changes in the family environment and changes in child outcomes.

6 Transitions in the family environment and child outcomes

This chapter addresses Research Question 5 ('To what extent do changes in family environment influence changes in child outcomes?') and presents an analysis of transitions over time. The first part of the analysis describes the nature of the transitions over time in the B cohort and the K cohort. In families with two resident parents, we consider transitions for families with study children aged 2–3 and 6–7 years (B cohort), and transitions for families with study children aged 4–5 and 10–11 years (K cohort). In families with a parent living elsewhere (PLE), we consider transitions for families with study children aged 2–3 and 4–5 years (B cohort), and transitions for families with study children aged 6–7 and 10–11 years (K cohort). We present the results of this descriptive analysis in Section 6.1. In addition, we explore associations between family characteristics and different transitions, using the same variables detailed in Section 4.3. The second part of the analysis (Section 6.2) considers links between transitions in the family environment and changes in child outcomes, controlling for a range of factors identical to those outlined in Chapter 5.

Box 3: Chapter 6 key findings

- > This chapter examined changes in the family environment, and associations between these changes and children's outcomes. We looked at changes in the following two-year periods: 2–3 to 6–7 years (B cohort); 2–3 to 4–5 years (B cohort, families with a PLE); 4–5 to 10–11 years (K cohort); 6–7 to 10–11 years (K cohort, families with a PLE).
- > Around 54–60 per cent of families with two resident parents remained cohesive; in families with a PLE 62 per cent of the B cohort and 22 per cent of the K cohort remained cohesive.
- > In families with two resident parents, the family environment of 16 per cent of B cohort children improved (that is, it became more cohesive); the family environment of 19 per cent of K cohort children improved. In families with a PLE, the family environment of 15 per cent of B-cohort children improved and the family environment of 20 per cent of K-cohort children improved.
- > Children in regional or rural areas were significantly less likely to experience a worsening of their family environment; children with two or more siblings were significantly more likely to experience a worsening of their family environment.
- > In families with two resident parents, changing family environments were significantly associated with changes in children's social and emotional wellbeing.
- > Children whose family environment improved (that is, it became more cohesive) showed improved social and emotional wellbeing. In contrast, children whose family environment worsened (that is, it became significantly less cohesive) exhibited increased social and emotional problems.
- > There were fewer significant associations between changes in the family environment and changes in children's cognitive outcomes. In families with two resident parents, children 10–11 years old in families that transitioned toward the middle of the boundary range (that is, they became more cohesive) averaged significantly higher increases in NAPLAN reading scores. There were no significant associations between changes in family environment and changes in children's health outcomes.

6.1 A descriptive overview of transitions in family environments

In this section, we describe transitions in family environments, beginning with transitions in the B cohort covering a 4-year period when the study child was aged between 2–3 years and 6–7 years. Table 18 reports a cross-tabulation of cases in each family environment at two points in time: when children were aged 2–3 years and then 6–7 years. The lower panel of Table 18 reports the cell proportions.

Just less than 60 per cent of families remain situated toward the centre of the boundary range at both points in time, and a further 15 per cent were toward either end of the boundary range (either disengaged or enmeshed) when the study child was 2–3 years but moved toward the centre of the boundary range when the child was 6–7 years. Therefore, three-quarters of families were always in, or transitioned towards, a relatively more optimal family environment over this period. Around 12 per cent of families lay toward the centre of the boundary range (cohesive) when the study child was 2–3 years old but moved toward the more disengaged end of the boundary range (8 per cent) or toward the more enmeshed end of the boundary range (4 per cent) as the child grew older. About 3 per cent of families lay toward the disengaged end of the boundary range at both time points, and 6 per cent of families lay toward the enmeshed end of the boundary range at both time points. The remaining families (about 5 per cent) transitioned between the enmeshed and disengaged ends of the boundary range.

Table 18: Cross-tabulation of family environments: B cohort children 2–3 years and 6–7 years, families with two resident parents

		Family environment 6–7 years		
	Cohesive	Disengaged (more rigid boundaries)	Enmeshed (more diffuse boundaries)	Total
Family environment 2–3 years		N		
Cohesive	2,025	273	135	2,433
Disengaged (more rigid boundaries)	257	106	67	430
Enmeshed (more diffuse boundaries)	275	104	197	576
Total	2,557	483	399	3,439
		%		
Cohesive	58.9	7.9	3.9	70.7
Disengaged (more rigid boundaries)	7.5	3.1	1.9	12.5
Enmeshed (more diffuse boundaries)	8.0	3.0	5.7	16.7
Total	74.4	14.0	11.6	100.0

Source: LSAC B cohort, Waves 2 and 4.

Transitions in the family environment at two points in time were moderately similar in the K cohort: when children were 4–5 years and then 10–11 years old (results shown in Table 19).

Table 19: Cross-tabulation of family environments: K cohort children 4–5 years and 10–11 years, families with two resident parents

	Family environment 10–11 years			Total
	Cohesive	Disengaged (more rigid boundaries)	Enmeshed (more diffuse boundaries)	
Family environment 4–5 years	<i>N</i>			
Cohesive	1,798	130	140	2,068
Disengaged (more rigid boundaries)	405	237	119	761
Enmeshed (more diffuse boundaries)	225	67	188	480
Total	2,428	434	447	3,309
	<i>%</i>			
Cohesive	54.3	3.9	4.2	62.5
Disengaged (more rigid boundaries)	12.2	7.2	3.6	23.0
Enmeshed (more diffuse boundaries)	6.8	2.0	5.7	14.5
Total	73.4	13.1	13.5	100.0

Source: LSAC K cohort, Waves 1 and 4.

Around 54 per cent of families remain toward the centre of the boundary range at both points in time, and a further 19 per cent were toward either end of the boundary range (either disengaged or enmeshed) when the study child was 4–5 years but moved toward the centre of the boundary range when the child was 10–11 years. Therefore, just less than three-quarters of families either were consistently in, or moved into, a relatively more optimal family environment over this period. Around 8 per cent of families were situated toward the centre of the boundary range when the study child was 4–5 years and moved toward either the disengaged end (4 per cent) or the enmeshed end (4 per cent) of the boundary range. Somewhat more families were located toward the disengaged end of the boundary range at both time points (7 per cent), and 6 per cent were located toward the enmeshed end of the boundary range at both time points. The remaining families (about 6 per cent) transitioned between the enmeshed and disengaged ends of the boundary range.

Table 20 and Table 21 show similar cross-tabulations for families with a PLE. Table 20 shows that around 62 per cent of cases remain situated toward the centre of the boundary range at both points in time (when the study child was 2–3 years and again when the study child was 4–5 years). A further 15 per cent of families were located toward the disengaged end of the boundary range when the study child was 2–3 years but moved toward the centre of the boundary range when the study child was 4–5 years (that is, these more resembled cohesive families). Fifteen per cent of families were situated toward the centre of the boundary range when the study child was 2–3 years but moved toward the disengaged end (4 per cent) or moved toward the enmeshed end (11 per cent) of the boundary range when the study child was 4–5 years.

Table 20: Cross-tabulation of family environments: B cohort children 2–3 years and 4–5 years, families with a PLE

	Family environment 4–5 years			Total
	Cohesive	Disengaged (more rigid boundaries)	Enmeshed (more diffuse boundaries)	
Family environment 2–3 years	<i>N</i>			
Cohesive	186	13	32	231
Disengaged (more rigid boundaries)	46	15	9	70
Total	232	28	41	301
	<i>%</i>			
Cohesive	61.8	4.3	10.6	76.7
Disengaged (more rigid boundaries)	15.3	5.0	3.0	23.3
Total	77.1	9.3	13.6	100.0

Source: LSAC B cohort, Waves 2 and 3.

Table 21 provides a cross-tabulation of cases in each family environment at two points in time: when children were 6–7 years and then 10–11 years. The lower panel of Table 21 reports cell proportions. The transition patterns here differ somewhat, largely as a result of the distribution of families across family environments for study children aged 10–11 years (noted above in Section 4.1). Only 22 per cent of families were toward the centre of the boundary range resembling more cohesive family environments at both time points. Fourteen per cent of families resembled more cohesive families (situated toward the centre of the boundary range) when the study child was 6–7 years old and then moved toward either the disengaged end (8 per cent) or the enmeshed end (6 per cent) of the boundary range when the study child was aged 10–11 years. A substantial group of families lay toward the disengaged end of the boundary range at both time points (21 per cent), while a further 12 per cent moved toward the disengaged end of the boundary range when the study child was 10–11 years old, having been situated toward the enmeshed end of the boundary range when the study child was 6–7 years. One in 10 families was positioned toward the enmeshed end of the boundary range at both time points.

Table 21: Cross-tabulation of family environments: K cohort children 6–7 years and 10–11 years, families with a PLE

	Family environment 10–11 years			Total
	Cohesive	Disengaged (more rigid boundaries)	Enmeshed (more diffuse boundaries)	
Family environment 6–7 years	<i>N</i>			
Cohesive	80	29	22	131
Disengaged (more rigid boundaries)	39	75	6	120
Enmeshed (more diffuse boundaries)	35	42	36	113
Total	154	146	64	364
	<i>%</i>			
Cohesive	22.0	8.0	6.0	36.0
Disengaged (more rigid boundaries)	10.7	20.6	1.6	33.0
Enmeshed (more diffuse boundaries)	9.6	11.5	9.9	31.0
Total	42.3	40.1	17.6	100.0

Source: LSAC K cohort, Waves 2 and 4.

It is clear that across both cohorts, and for families with two resident parents and families with a PLE, there was a large degree of change in the family environment over time. We saw in Section 4.3 that different family environments exist across a broad range of families in society. We now consider whether certain factors were associated with the transition patterns we have just described in families with two resident parents. We do not conduct this analysis for families with a PLE, as the cell sizes were prohibitively small.

Table 22 and Table 23 show the results from multinomial regression analysis examining associations between family characteristics and specific transitions in families with two resident parents. The reference family environment is 'always cohesive'.

Table 22: Relative risk ratios from multinomial logistic regression predicting transition: B cohort children 2–3 years and 6–7 years

Factors: Wave 4	Left cohesive	Became cohesive	Enmeshed to disengaged	Disengaged to enmeshed
Regional or rural area	0.6**	0.9	1.1	0.8
No parent Y12	1.2	1.0	0.9	1.3
Jobless household	1.6	1.3	1.4	1.9
1 older sibling	1.1	1.1	2.1**	0.5
2 or more older siblings	1.5*	1.0	1.8	0.7
1 younger sibling	2.1***	0.7**	1.5	0.5
2 or more younger siblings	2.3***	0.6*	1.4	0.9
SEIFA bottom quintile	1.3	0.7*	0.6	0.7

Notes: $N=3,383$; *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC B cohort, Waves 2 and 4.

Looking at the transitions in family environment covering a period between the study child being aged 2–3 years and aged 6–7 years, families living in rural or regional areas were significantly less likely to move away from a relatively central position on the boundary range. The number of siblings was positively associated with transitions away from the centre of the boundary range (except for families where the study child aged 6–7 years has one younger sibling). In addition, families with a study child aged 6–7 years living in the bottom quintile of the SEIFA index of disadvantage were significantly more likely to transition away from the centre of the boundary range (having been cohesive when the study child was 2–3 years old). Moreover, these families were significantly less likely to move toward the centre of the boundary range over this period.

Results in Table 23 refer to transitions in family environments at two points in time, when children were aged 4–5 and 10–11 years. Families in rural or regional areas were less likely to have transitioned away from the centre of the boundary range or to have transitioned from the enmeshed end of the boundary range toward the disengaged end of the boundary range, compared with families in metropolitan areas. Families with two or more older siblings were less likely to move from the enmeshed end of the boundary range toward the disengaged end of the boundary range.

Table 23: Relative risk ratios from multinomial logistic regression predicting transition: K cohort children 4–5 years and 10–11 years

Factors: Wave 4	Left cohesive	Became cohesive	Enmeshed to disengaged	Disengaged to enmeshed
Regional or rural area	0.7*	1.1	0.5*	0.9
No parent Y12	0.9	1.2	0.9	0.7
Jobless household	1.3	0.9	1.5	2.1
1 older sibling	1.1	1.2	0.9	1.3
2 or more older siblings	1.2	1.2	0.3*	1.4
1 younger sibling	1.3	0.9	1.3	1.2
2 or more younger siblings	1.4	1.0	2.1	1.1
SEIFA bottom quintile	1.2	1.2	1.4	1.3

Notes: $N=3,253$; *** $p < .001$; ** $p < .01$; * $p < .05$.

Source: LSAC K cohort, Waves 1 and 4.

This section has highlighted that there was a considerable degree of change in family environments over the periods we considered. Previous analysis (Section 4.3) showed that there were not many socioeconomic factors associated with being in a particular family environment at a single point. The analysis here adds to this, suggesting that not only were family environments spread across different groups in society but that these environments changed, and that transitions were also independent of a range of socioeconomic factors. The results show, however, that children in metropolitan areas were more likely to experience consistently more risky environments, or were more likely to move into more risky family environments. In addition, as with the cross-sectional analysis (Section 4.3), having two or more siblings has a negative influence on the family environment as measured in relation to the study child. We turn now to consider associations between transitions in the family environment and changes in child outcomes.

6.2 Multivariate analysis of transitions and child outcomes

Addressing the final research question ('To what extent do changes in family environment influence changes in child outcomes?'), we now present the results of multivariate analyses exploring associations between changes in children's outcomes related to transitions in the family over time. We used fixed effects panel regression methods, shown to be suitable for the analysis of transitions with two waves of panel data (Allison 1990; Johnson 2005).⁷ Our analysis here was focused on outcomes relating to children's social and emotional wellbeing and their cognitive development, which we found to be strongly associated with family environment in cross-sectional analyses in Chapter 5. Measures of these outcomes are available at two points in time for K-cohort children only. Therefore, we restricted the analysis to these children and we analyse changes between 4–5 years and 10–11 years of age.

Table 24 reports the results from the multivariate regression analysis. Reference families are those where there has **not** been a change in the family environment. Results for children's social and emotional wellbeing (SDQ columns) show that children aged 10–11 years had higher average prosocial scores and no significantly different average problem score. Broadly, these results point to a general improvement in children's social and emotional wellbeing over this period.

Table 24: Coefficients from two-wave panel regression of indicators of children's social and emotional wellbeing, and cognitive development: K cohort children 4–5 years and 10–11 years

	SDQ		NAPLAN	
	Prosocial score	Problem score	Reading	Numeracy
Age 10–11 years	0.7***	–1.3***	74.0***	88.1***
Became cohesive	0.5***	–1.5***	8.9*	–2.9
Left cohesive—disengaged	–1.0***	4.0***	8.9	–8.2
Left cohesive—enmeshed	–0.3*	0.9*	7.4	–2.3
Enmeshed to disengaged	–0.9***	2.5***	–10.5	–9.4
Disengaged to enmeshed	0.6***	–1.5**	–6.3	–13.1
Number of older siblings	–0.1	0.1	–1.1	1.2
Number of younger siblings	–0.1	–0.2	–4.6	13.8*
Good health	0.0	–0.5***	2.4	2.5
Intercept	7.8***	8.8***	435.6***	428.1***
Number of observations	6,573	6,572	4,152	4,152

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

Source: LSAC K cohort, Waves 1 and 4.

Compared with children whose family environment did not change across the two time points children who were no longer living in a cohesive family environment had significantly smaller increases in their average prosocial scores and higher increases in their average total problems. Conversely, children whose family environment was not cohesive at age 4–5 but was cohesive by age 10–11 had larger improvements in prosocial scores and further decreases in social and emotional problems than children whose family environment did not change across these two points in time.

There were also significant and diverse changes in children's social and emotional wellbeing associated with changes in different types of more problematic family environments. Children aged 10–11 years who lived in families toward the enmeshed end of the boundary range (when aged 8–9 years) who transitioned toward the disengaged end of the boundary range averaged significantly lower increases in prosocial behaviour and significantly higher levels of problem behaviours. Conversely, children whose family environment was characterised by higher levels of disengagement at age 8–9 and which became more enmeshed by 10–11 years had larger increases in their prosocial scores but unchanged problem scores.

There were fewer significant associations between changes in cognitive outcomes and changes in the family environment (NAPLAN columns, Table 24). Children aged 10–11 years in families that transitioned toward the middle of the boundary range averaged significantly higher increases in NAPLAN reading scores. However, similar effects, though not statistically significant, were found for children in families that had transitioned from a more cohesive family environment toward the disengaged or enmeshed ends of the boundary range. Moreover, effects relating to these transitions and NAPLAN numeracy scores were negative (but again not statistically significant). Together, these results paint a relatively inconsistent picture, but broadly imply relatively weak links between these measures of the family environment and children's NAPLAN scores.

Table 25 reports on families with a PLE and the influence of changing family environment on changes in children's social and emotional wellbeing, and cognitive development from ages 6–7 to 10–11 years. As with children who have two resident parents, there was a significant increase in children's prosocial behaviours and a significant decrease in total problems in families with a PLE at age 10–11 years compared with age 6–7 years.

There were fewer significant associations between changes in family environment and changes in wellbeing for children in families with a PLE. Children in families that transitioned from an enmeshed to a disengaged family environment across both time points averaged significantly higher total problem scores.

Table 25: Coefficients from two-wave panel regression of indicators of children's social and emotional wellbeing, and cognitive development: K cohort children 6–7 years and 10–11 years: families with a PLE

	SDQ		NAPLAN	
	Prosocial score	Problem score	Reading	Numeracy
Age 10–11 years	0.8***	–1.2**	80.0***	110.8***
Became cohesive	0.3	0.3	–6.1	–32.6
Left cohesive–disengaged	0.1	0.3	–21.5	–48.2
Left cohesive–enmeshed	0.4	0.5	32.6	–11.1
Enmeshed to disengaged	–0.6	2.5*	55.9	12.7
Disengaged to enmeshed	0.1	2.8	–15.3	–10.6
Number of older siblings	0.0	–0.3	12.6	–14.4
Number of younger siblings	–0.4	1.2	26.4	3.3
General health	–0.1	0.1	3.0	17.5
Intercept	8.1***	10.1***	380.4***	370.5***
Number of observations	723	723	526	526

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

Source: LSAC K cohort, Waves 2 and 4.

6.3 Summary

This chapter has examined transitions in the family environment, and associations between these transitions and changes in children's outcomes. Results highlighted a considerable degree of transition between different family environments observed at two points in time. Around 54–60 per cent of families with two resident parents remained cohesive, 62 per cent of B-cohort families with a PLE remained cohesive (study child aged 2–3 to 4–5 years), and only 22 per cent of K-cohort families remained cohesive (study child aged 6–7 to 10–11 years).

In families with two resident parents, the family environment of 16 per cent of B-cohort children improved (that is, it became more cohesive); the family environment of 19 per cent of K-cohort children improved. In families with a PLE, the family environment of 15 per cent of B cohort children improved; the family environment of 20 per cent of K-cohort children improved.

Children in regional or rural areas were significantly less likely to experience a worsening of their family environment; children with higher numbers of siblings were significantly more likely to experience a worsening of their family environment.

Changing family environments were significantly associated with changes in children's social and emotional wellbeing. Children whose family environment improved (that is, it became more cohesive) showed improved social and emotional wellbeing. In contrast, children whose family environment worsened (that is, it became significantly less cohesive) exhibited increased social and emotional problems. Associations between family environment and children's social and emotional outcomes were less frequent in families with a PLE. Children whose families were characterised by high **enmeshment** at age 6–7 years and then by **disengagement** at age 10–11 years averaged lower prosocial behaviours and higher externalising problems. This highlights the particular difficulties associated with disengaged families.

There were fewer significant associations between changes in the family environment and changes in children's cognitive outcomes. Children aged 10–11 years in families that transitioned toward the middle of the boundary range (that is, more **cohesive**) averaged significantly higher increases in NAPLAN reading scores. There were no significant associations between changes in family environment and changes in children's health outcomes.

7 Summary and discussion

7.1 Background

Families play a crucial role in protecting and supporting children. The vast majority of Australia's children live, grow and thrive in safe and supportive family environments, but increasing numbers of children have been coming to the attention of statutory child protection services over the past couple of decades. Not only are more children becoming known to child protection services, but also the range of problems and issues faced by these children and their families extends beyond the most extreme forms of abuse and neglect to encompass broader social problems and family dysfunction (Bromfield et al. 2010). This has led to a reframing of the policy approach to child protection away from focusing mostly on statutory responses to risk-of-harm reports ('tertiary services') toward a broad-based public health approach that incorporates services targeted to those families potentially at risk ('secondary services'), combined with a primary prevention focus on the role of universal services to support the broader population of all families (O'Donnell, Scott & Stanley 2008). This approach is premised on the understanding that risks to children's safety and wellbeing exist on a continuum, and that protecting Australia's children is everyone's responsibility. As part of this approach, Australian governments and community agencies are committed to ensuring that children live in safe and supportive family environments and closely monitoring indicators of children's health, development and wellbeing. In this discussion, we review the aims of the research, discuss the main findings and acknowledge the limitations.

7.2 Aims of the research

This research report addressed a number of themes that relate to this shift in policy focus toward a public health approach to child protection. It is important that we understand more about the nature and prevalence of different types of family environments across the population, which was the first aim of this report. We assume that the majority of families do provide safe and supportive environments for children; however, it is useful to have a more certain understanding of how many families do, and the characteristics of these families. Moreover, it is important to know about other types of family environments in society.

The second aim of this report was to increase our understanding of how children are faring on a range of indicators of health, cognitive outcomes and wellbeing. Monitoring children is central to protecting children, and appropriate data are pivotal to success. This report highlights the potential of survey data (in particular, the Longitudinal Study of Australian Children or LSAC) to track the safety and wellbeing of Australian children over time.

Lastly, this report sought to build knowledge around the links between family environments and child outcomes, which could provide insights to help improve the degree to which children's environments promote safety and support.

7.3 Analysis

In line with these aims, this report contains three analytical components. First, using latent class cluster analysis—a technique that has been used in previous research in this area—we sought to identify different family groups based on factors elucidated in previous theoretical and empirical research (parental warmth, angry parenting, parental conflict and parent–child shared activities). We profiled different family groups and explored social and demographic factors associated with them.

Second, we conducted a detailed descriptive analysis of a range of indicators of children's health (BMI and injuries), social and emotional wellbeing (Strengths and Difficulties Questionnaire—prosocial and total difficulty scores), and cognitive development (NAPLAN reading and numeracy scores). We provided a snapshot of how children were faring on these indicators across a wide range of ages from infancy to middle childhood.

Third, we conducted a series of multivariate cross-sectional analyses exploring links between the family environment and child outcomes concurrently. Additionally, using descriptive and longitudinal multivariate analyses, we explored the relationship between transitions in the family environment and changes in child outcomes. We conducted these analyses using multiple waves of data from LSAC, for families with children ranging from infancy to middle childhood.

7.4 Findings: identifying family environments

We identified three distinct groups of family environments with profiles (in terms of parental warmth, angry parenting, parental conflict and parent–child shared activities) that closely resemble different family environments articulated in previous theoretical and empirical research. The largest group of families displayed average or above-average parental warmth and parent–child shared activities, and below-average angry parenting and parental conflict. The literature refers to families resembling this profile as **cohesive** (for example, Kerrig 1995). We suggest that these families represent an exemplar of a safe and supportive family environment. As we would expect, these families were the majority, supporting the proposition that most Australian children live in safe and supportive environments.

In addition to the cohesive family environment, our analyses showed two further types of family environments. These two groups were both smaller than the group of cohesive families—although the first of these two groups was slightly larger than the other. This group averaged lower parental warmth and higher angry parenting. In addition, it exhibited below-average parent–child shared activities and average or slightly above-average parental conflict. These families are most similar to **disengaged** families described in previous research (see Minuchin 1978). In such families, there are rigid boundaries (as demonstrated by lower parental warmth) and a tendency to close off access to resources for children.

The last group of families had strikingly higher levels of parental conflict than the other two groups. In addition, they had average or slightly above-average levels of parental warmth and parent–child shared activities. These patterns arise in families with boundaries that tend to be diffuse, and these families have been referred to as **enmeshed** in previous research (see Minuchin 1978). Higher levels of parental conflict that tends to negatively affect parenting and lower levels of parent–child interactions distinguish these family environments from the two other groups. These groups emerged clearly from our analysis across families with study children of different ages, but there was less clarity among the families with the youngest study child (aged 2–3 years). Previous research considered only families with school-age children, and it may be that these dimensions of the family environment become more distinct as children enter school.

It is important to stress that, across families, the parent factors we assessed (shared activities, warmth, and parent–parent conflict) varied considerably across the full range of the scales we used. In other words, in general we did not observe many families with scores indicating extreme disengagement or enmeshment. This does not detract from the utility of the findings, however. In fact, our results highlight that **risks to children's safety and wellbeing operate along a continuum spanning all families**. There was some limited association between family environment and socioeconomic status. Specifically, we found that low-income families with older study children aged 6–7 and 10–11 years were significantly more likely to be in the enmeshed family group. In addition, children aged 2–3 years in relatively less-educated households were more likely to be in more disengaged families, but this did not extend to children older than 2–3 years. Therefore, at different points in children's lives, different aspects of socioeconomic status are associated with particular aspects of family environments. There is not, in other words, a consistent pattern. This provides some support for the validity of a public health approach to child protection, because it shows that factors associated with risks for children are evident to a greater or lesser degree across the entire population (as observed with nationally representative survey data). Of course, it is important to recognise that looking at parenting behaviour and parental conflict is not the only way to assess whether an environment is safe and supportive.

Often, statutory child protection authorities and the secondary service system (support for families needing extra assistance, with a focus on early intervention) focus their efforts towards low-SES families, where many of the risks of child maltreatment are congregated either because service delivery (and surveillance) is concentrated in areas of geographic disadvantage or because services are otherwise allocated to those with the greatest apparent need. However, this is not to assume all children growing up in poverty have worse outcomes—or that all socioeconomically advantaged children are doing well. Our results suggest to some extent that potentially problematic dynamics within the families are not concentrated in particular socioeconomic groups. In other words, our results may identify certain problematic behaviours associated with parent–parent and parent–child relationships, rather than specific groups in the population. This implies that the targeting of services to those most in need could be enhanced by identification of families with problematic intra-familial dynamics and targeting people by behaviour rather than targeting people by demographic characteristics. Furthermore, our findings suggest that a single one-size-fits-all approach may be unsuitable. Different family environments are likely have different needs requiring different types of responses. This suggests that public health campaigns that address parenting practices across the population may be an effective means of addressing the more problematic family environments identified in this report, as population-wide screening of parenting behaviours may not be cost-effective and may have unintended consequences. However, existing services that come in contact with many parents (for example, perinatal services) could have a role in identifying those with seriously problematic family dynamics.

Moreover, as well as clearly identifying distinct family environments, our results revealed a sizeable degree of change in family environments observed between two points in time. Transitions into a more problematic family environment in the B cohort (aged 2–3 to 6–7 years) were associated with having a larger number of siblings, which may reflect heightened stresses for parents in these relatively early stages in family life. Transitions into a more problematic family environment in the K cohort (aged 4–5 to 10–11 years) were more likely in metropolitan areas. This may reflect the increasing influence of external (outside the family) factors, as children grow older. There were not, however, any clear associations between socioeconomic factors and changing family environments.

More generally, these transitions bring attention to the dynamic nature of family environments, which opens up the potential for intervention to effect change (we elaborate on possible interventions later in the discussion). They also underscore the merits of adopting a longitudinal perspective when addressing families' needs. It is important to recognise that, while families may currently be experiencing difficulties, they may have had positive experiences of family cohesion upon which they could draw. It is important to note that we measured change between two points in time only, and it may be that there was variability in the family environment that we did not observe in this study.

We carried out these analyses using data from families where the study child lived with two resident parents, and families where the study child had a parent living in a separate household from the primary respondent (referred to as a parent living elsewhere or PLE). Broadly, results here were consistent across both family types. However, there were some differences. When we looked at families with study children aged 2–3 years, there were no families with a PLE who were characterised with high levels of enmeshment, though these were clearly apparent in families with a PLE when study children were older (aged 4–5, 6–7 and 10–11 years). Another difference between families with a PLE and families with two resident parents (with study children aged 6–7 and 10–11 years) was that the proportion with profiles that most resembled cohesive families (higher parental warmth and involvement and lower parent and anger) fell well below 50 per cent for families with a PLE (31.0 per cent at age 6–7 and 40.1 per cent at age 10–11, cf. children at the same age in two resident parent families: 74.4 per cent and 73.4 per cent respectively; see Tables 2 and 3 earlier). That is, families with lower parental warmth and involvement and families with higher parental conflict were proportionally more common. It is important to stress that the absolute numbers of low-cohesion families with a PLE are small; however, this is a notable and statistically significant difference. It is known that children with single or separated parents are disproportionately known to child protection services (Hunter & Price-Robertson 2012) and generally fare worse on a number of key indicators (McLanahan & Sandefur 1994). The results from our current analyses suggest that, even in a relatively normative sample, key differences in family structure relate to different family environments.

7.5 Findings: family environments and child outcomes

Having considered the prevalence and profiles of different family environments, we turned our attention to links between these environments and child outcomes. Our results showed little association between children's health outcomes and their family environments. We found that children aged 2–3 years living in families with significantly higher than average levels of parental conflict were more likely to be underweight than normal weight. However, as children grew older, the association between underweight and more problematic family environments did not remain and was not evident in children in the older cohort, suggesting that it is not a robust or lasting association.

At particular points in time, the family environment was associated with children's cognitive outcomes. Children in families with less-involved parents (and higher levels of angry parenting) had significantly lower Year 5 NAPLAN reading and numeracy scores. We did not observe these differences for Year 3 scores, however, and we did not observe significant associations between changes in the family environment and changes in children's cognitive outcomes.

In contrast to health and cognitive outcomes, we found significant and consistent associations between children's social and emotional wellbeing and their family environment. Children in families with higher levels of cohesion (with above-average warmth and parent–child involvement, and lower angry parenting and parental conflict) had significantly higher levels of prosocial behaviour and significantly lower levels of problem behaviour than children living in other family environments. The difference is especially large when compared with children who live in families with lower than average levels of parental warmth and parent–child involvement (who are most similar to disengaged families described in theoretical work).

Furthermore, we found that changes in children's family environment were significantly associated with changes in their social and emotional wellbeing. Children whose family environment moved closer toward one resembling cohesive families (more warmth and involvement, less anger and conflict) exhibited increased prosocial behaviour and decreased problem behaviour. The reverse was the case if their family environment moved away from being a more cohesive environment. Although these results relate directly to social and emotional wellbeing, it is important to emphasise that there may be links between socioemotional outcomes and other child wellbeing outcomes (AIHW 2011b; Hamilton & Redmond 2010). Therefore, family environments that promote socioemotional wellbeing are likely to have benefits for other domains of child wellbeing.

It is perhaps not surprising to find that children's social and emotional wellbeing is most significantly associated with their family environment measured as a function of indicators of parent–child and parent–parent psychosocial interactions (we further elaborate on this point below when discussing the limitations of the study). Nevertheless, these results highlight the influence of this aspect of the family environment on this important dimension of children's wellbeing. The fact that we observe significant associations between changes in the family environment and changes in children's outcomes is a particularly strong aspect of our findings. The particularly strong negative effects for children in families with lower parental warmth and involvement point to the importance of the family in providing children with a secure base and a sense of connection or togetherness (Bowlby 1988). It is important not to forget, though, that children in families marked by higher levels of parental conflict also exhibit relatively poorer social and emotional outcomes.

7.6 Implications for policy

We have alluded in general terms to the possible implications for policy that arise from these findings. To summarise, with respect to identifying different family environments, we found:

1. we could identify that different family environments exist
2. they are not strongly related to factors we would normally associate with difficulties with the family affecting child welfare (such as socioeconomic factors)
3. they are subject to change over time.

The results linking family environments to key child outcomes (especially around social and emotional wellbeing) suggest that the efficacy of policy may be enhanced if policies and services:

1. are attuned or sensitive to different family environments
2. target behaviour (parental family dynamics) rather than people on the basis of their sociodemographic characteristics
3. recognise both that families can change for the better and that they can potentially draw on their own prior (positive) experiences
4. are based on a public health approach to promote safe and supportive family environments.

The aim of a public health approach to protecting children is to shift the focus away from a narrow band of children requiring statutory intervention toward addressing the needs of all families, and to move the population distribution on risk factors toward the positive end for all families. Shifting the profile of all families would potentially reduce the number that would be at risk of statutory intervention and improve the daily lives of many children. In terms of public health interventions, three possibilities arise, and this study may provide some helpful insights. The three potential types of interventions are (a) parenting programs and supports, (b) public information programs and (c) targeted referrals for more intensive family support.

Parenting programs and supports

Parenting programs have been widely used in early intervention strategies targeted toward vulnerable families (for example, the New South Wales Government's Brighter Futures program and the Commonwealth Government's Stronger Families and Communities Strategy). However, some argue that parenting programs can be delivered as part of a public health approach to strengthen and support parenting (Sanders 2008), and to prevent child maltreatment (Sanders, Cann & Markie-Dadds 2003; Sanders & Pidgeon 2011). Prinz et al. (2009) provided evidence of a significant prevention effect following from the delivery of a parenting program in the United States. An Australian example, the Every Family initiative, trialled the delivery of the Triple P-Positive Parenting Program in 30 sites across Brisbane, Sydney and Melbourne (Sanders et al. 2005).⁸ Prinz et al. (2009) articulated a number of criteria essential for success in a public health initiative of this nature (see also Sanders 2012). The first three criteria referred to 1) the importance of having a good understanding of the prevalence of the particular problem behaviours in children being targeted, 2) the importance of knowledge pertaining to the prevalence of parent risk and protective factors, and 3) knowledge that changing risk and protective factors improves child outcomes.⁹ We think that our report provides a range of information relating to these criteria.

There is a range of other evidence-based approaches to supporting parents and addressing problematic parenting behaviour—for example, through individual parenting education, counselling and mediation (particularly in the context of parental separation). Parental education and support is also a key feature of home visiting programs (see Holzer et al. 2006).

Wise et al. (2005) provided other examples of parenting supports and early childhood interventions whose efficacy is supported by good research evidence. Mildon and Polimeni (2012) reviewed programs that have specifically targeted Indigenous families.

A large body of research provides strong evidence that the home environment—in particular, concrete behavioural patterns of parents (that is, parenting characteristics)—is an important determinant of children's early development and wellbeing. However, it should be noted that, while parenting programs (even those with the highest evidence of their effectiveness, particularly those that are modularised, structured, manualised et cetera) and home visiting programs (which are usually a suite of services that may include particular components such as parenting programs and coaching or mentoring) have been shown to improve parenting skills, with the notable exception of Prinz et al. (2009), there is no strong evidence that they are sufficient to prevent child maltreatment (Holzer et al. 2006; Mildon & Polimeni 2012).

Public information campaigns

Public information programs are a more familiar tool used by government to effect broader changes in the behaviour of the population in general. Examples abound, including public health campaigns around alcohol,

smoking and skin cancer, and drink-driving and safe-driving campaigns. Recent campaigns highlighting how parental alcohol consumption affects children offer an interesting template for how such campaigns can be used to educate parents about the influence they have over children.¹⁰ Research has explored the utility of popular media to promote positive parenting practices more generally (Sanders & Prinz 2008) and to promote the prevention of child maltreatment (Saunders & Goddard 2002). However, there are limitations to public health campaigns that should be borne in mind. There is limited evidence to address the question of whether or not social marketing campaigns are effective in addressing concrete outcomes like rates of child abuse and neglect—and evaluations of such campaigns are notoriously difficult to conduct with any rigour (Horsfall, Bromfield & McDonald 2010).

Consistent with the World Health Organization Ottawa Charter for Health Promotion,¹¹ a range of actions can be taken to improve outcomes, based on advocacy, enabling people to take control of factors that affect their wellbeing, and mediating between differing interests in society for the pursuit of health. While public information programs can assist, there are limitations to their effectiveness, particularly when knowledge or attitudes alone are insufficient to effect change. They need to be targeted at attitudes or behaviours that are modifiable, with clear links to strategies for achieving the desired change. Adopting a broad information campaign may have limited effect if it is not directed toward behaviours that can be changed and does not point to sources of support for bringing about that change. For example, the national and state/territory 'Quit' initiatives are effective in responding to the problem of smoking because they are targeted at broad social attitudes as well as concrete actions and supports for quitting smoking.

Targeted referrals for more intensive family support

Often the distinction between universal and targeted services is presented as a dichotomy; however, there is scope for it to be seen as a continuum, with universal services being the platform for the ramping up or integration of services that would then be classified as targeted. The principle of proportionate universalism (or progressive universalism, as it is also termed) was outlined in the Marmot review¹² of the social determinants of health inequalities in the United Kingdom. According to this principle, actions must be 'proportionate to the degree of disadvantage, and hence applied in some degree to all people, rather than applied solely to the most disadvantaged' (Lancet 2010, p. 525). It is also important to remember that disadvantage is not static—families (or even communities) can move into and out of disadvantage.

While services targeted at the most disadvantaged have the greatest impact, it is also true that targeted services would then mean the majority of the population misses out. Our analyses have shown that less than optimal parenting practices and family environments are not restricted to particular demographic groups and cannot be easily targeted—so there is value in considering the role of universal services to deliver information, supports and services for all Australian families, with increased intensity for those who need it most. Universal services can provide the platform to refer people who require them to more specialist services, or provide a continuum of service, so that within the universal service platform more intense services can be provided to those in need. A number of authors have argued for the importance of using universal services as a base or soft-entry point for engaging families that might otherwise be hard to reach (Muir et al. 2009; O'Donnell, Scott & Stanley 2008; Scott 2006).

7.7 Limitations

This study has a number of limitations that should be borne in mind when evaluating the findings and any implications that may follow from them. The analysis is limited in terms of the types of measures used to identify different family environments, which correspond to a relatively narrow range of the potential risks children face. We concentrate (following previous theoretical and empirical work) on psychosocial aspects of the family environment relating to parent–child and parent–parent relationships. These factors do not capture, at least directly, important aspects of the family environment relating to learning and health. For example, we do not measure how cognitively stimulating the family environment is, which is likely to be related to cognitive outcomes. Moreover, we do not measure those aspects of the family environment relating to physical health, such as diet or physical activity, likely to be related to health outcomes. LSAC contains indicators that could be used to measure these aspects of the home environment for future research. Grounded in family systems theory, the comparative strength of our findings on the links between children's social and emotional wellbeing and their family environment follows from our measurement of the

family environment foregrounding psychosocial dimensions of parent–child and parent–parent relationships. This does not detract in any way from our findings, but we should not discount (based on this analysis) the potential influence of other dimensions of the family environment on related child outcomes.

As well as limitations in the comprehensiveness of the assessments of the family environment in LSAC, all of our measures are in reference to the study child. For example, the information about warm parenting relates to the responding parents' behaviours toward the study child only. We found that having two or more siblings in the family was associated with lower levels of parental warmth and parent–child shared activities (factors closely associated with disengaged families). This may reflect a shifting of attention away from the study child onto other children in the family, and it is possible that a whole-of-family approach to measuring the family environment would lead to alternative interpretations. Note that our child outcomes related specifically to the study child, and it is therefore appropriate that we adopted an approach that is focused on the study child when measuring the family environment. However, it is clear that dynamics within families between parents and multiple children, as well as between siblings, are likely to have a bearing on both the family environment and outcomes for children. Future work could explore this further.

We found significant associations between transitions in different family environments and changes in children's social and emotional wellbeing. However, it is important to bear in mind that children can influence the aspects of the family environment that we consider as well as being influenced by them (Holden 2010; Maccoby & Martin 1983). The analysis here has not considered bi-directionality in the relationships between children's social and emotional outcomes and the broader psychosocial family environment. This is likely to be an important piece of the story, and future research could examine this. Ultimately, this places limits on the extent to which we can attribute a causal relationship between the family environment and child outcomes. Notwithstanding this, the transition analysis we present is a powerful indication of a strong relationship between family environment and aspects of child outcomes.

We explored the family environment and its links with child outcomes in families with two resident parents and in families with a parent living elsewhere from the primary respondent. In the latter case, this report broke important new ground. Although most of the results were similar across these families, we could trace some important differences that may have arisen in some part due to data limitations. In particular, the measure of conflict between parents was more limited for families with parents who do not live together. The conflict between parents in these families may differ, and it would be important to capture this. Moreover, there is scope, and perhaps increasing need, for further theoretical development in this area. In addition, there were limits in the measurement of parenting for the PLE and the PLE family environment more generally (for example, whether the parents had a new partner), which may have limited our ability to fully capture these dimensions of the family environment. Future work could explore the varied and complex family environments that these children experience. Note also that we have not considered changes in family structure, as this analysis is restricted to families where the structure (that is, families with two resident parents or with a PLE) does not change. Future work could examine changing family structure.

Our analysis does not focus specifically on highly disadvantaged families who are more likely to be known to the current statutory child protection and child welfare sectors in Australia. Moreover, there is no direct measure of child maltreatment in LSAC, and the analysis in this report cannot be understood as or used as a proxy for such a measure. The report is written around the context of a public health approach to child protection, which aims to ensure that all children grow up in safe and supportive environments. We are not attempting to identify maltreatment or those at specific risk. Although children most at risk tend to be concentrated in circumstances of relatively high disadvantage, a public health approach would seek to broaden the policy focus to address wider needs that will make positive changes for the bulk of the population. The research is intended to inform policies to address most Australian families, so that child protection systems have to deal with a decreasing proportion of families for whom a public health approach is not appropriate.

Although we found better socioemotional outcomes for children in families with higher levels of cohesion, we do not know whether abuse or neglect occurs even within these family environments. Conversely, we cannot, and do not, state that abuse or neglect is occurring in the more problematic families we identified. Therefore, this report provides little direct insight into the most problematic families from a child protection viewpoint. However, this analysis does underscore the potential usefulness of a public health approach to enhancing safe and secure family environments for children.

7.8 Conclusion

This report has shown that, in broad terms, there are distinct family environments across society that are similar in certain factors associated with parent–child and parent–parent interactions, and that these groups are not directly linked to particular socioeconomic groups. The majority of families had high levels of parental warmth and involvement with children. A smaller group, though substantial, were different in that they had below-average parental warmth and parent–child involvement, and tended to have above-average levels of angry parenting. A third group, equally substantial, was notable for significantly higher levels of parental conflict but average levels of parenting warmth and parent–child involvement. We observed these environments repeatedly over successive waves of a longitudinal dataset, but there was considerable change in the family environment within families over time.

We found that these different family environments, with their dynamic nature, have a strong influence on certain child outcomes, particularly those relating to children’s social and emotional wellbeing. Children with warm, highly involved parents had higher social and emotional wellbeing. Those with less involved parents, and who experienced above-average angry parenting, tended to have lower social and emotional wellbeing. Children in families marked by higher levels of parental conflict were between these two groups. This highlights the importance of parent–child and parent–parent interactions in shaping aspects of the family environment that children’s social and emotional wellbeing are sensitive to.

This report highlights the potential for public health interventions aimed at improving dimensions of the family environment that are strongly associated with children’s social and emotional wellbeing. Possible interventions include parenting programs and public information programs. This study suggests that careful tailoring of interventions to specific dynamics arising within families would be beneficial, and that programs must be able to reach a broad cross-section of society.

This report emphasises the importance of families in providing children with a safe and supportive environment. We asserted, and have found, that most do. Moreover, based on the indicators we examined, children in relatively more problematic families are as healthy and largely doing as well in school as other children, but there are some problems associated with their social and emotional wellbeing. The public health space provides government with an opportunity to intervene to help these families, recognising that these problems could arise in any family at any time.

Appendix: Technical details about class selection

Following Sturge-Apple, Davis and Cummings (2010), we estimated a series of latent class models extracting two, three and four classes, inspecting a number of key statistics to decide on the optimal number of classes. Specifically, we examine the sample-adjusted Bayesian information criterion (BIC). Lower BIC values indicate a better fitting model. In addition, we consider the Vuong-Lo-Mendell-Rubin (VLMR; Lo-Mendell & Rubin 2001) likelihood ratio test, which compares the $k-1$ model to the k model. That is, it compares whether two classes are preferred to three, three to four and so on. When the p -value is greater than .05, the $k-1$ model is preferred to the k model. Note that we estimate a five-class model to extract this statistic for the four-class solution. We were also mindful of practical considerations with respect to the extent to which the numbers in each class were sufficient for subsequent multivariate analyses.

Table A1 reports the sample-adjusted BIC and the VLMR p -values from latent class models extracting two, three and four classes (the VLMR p -value for the four-class model is taken from a five-class model). Clearly, the addition of a further class reduces the value of the sample-adjusted BIC. However, the VLMR p -value for the four-class solution is not greater than .05 in all cases except in the model for families with study children aged 4–5 years. In contrast, across all years, the three-class solution is preferred to the four-class solution (VLMR $p > .05$). This is strongly in line with previous research and theoretical expectations, and we proceed with the three-class solution.

Table A1: Sample-adjusted BIC and Vuong-Lo-Mendell-Rubin p -values: families with two resident parents

	Sample-adjusted BIC			VLMR p -value		
	Two classes	Three classes	Four classes	Two classes	Three classes	Four classes
2–3 years	57989	57552	56822	.00	.22	.00
4–5 years	57860	57396	57177	.00	.24	.13
6–7 years	58315	57735	57443	.00	.38	.04
10–11 years	56399	55862	55582	.00	.69	.05

Notes: N (2–3 years and 6–7 years) = 3,439; N (4–5 years and 10–11 years) = 3,309.

Source: LSAC B cohort, Waves 2 and 4; K cohort, Waves 1 and 4.

We repeated this process for families with a parent living elsewhere (PLE). We estimated models for families with a study child 2–3 years (B cohort, Wave 2), 4–5 years (B cohort, Wave 3), 6–7 years (K cohort, Wave 2) and 10–11 years (K cohort, Wave 4). Table A2 reports the sample-adjusted BIC and the VLMR p -values from latent class models extracting two, three and four classes (the VLMR p -value for the four-class model is taken from a five-class model). The sample-adjusted BIC decreases with increasing numbers of classes, but the VLMR p -values are greater than .05 for all options.

Table A2: Sample-adjusted BIC and Vuong-Lo-Mendell-Rubin *p*-values: families with a PLE

	Sample-adjusted BIC			VLMR <i>p</i> -value		
	Two classes	Three classes	Four classes	Two classes	Three classes	Four classes
2–3 years	2528	2503	2503	.15	.80	.85
4–5 years	3438	3430	3357	.33	.80	.33
6–7 years	2507	2481	2471	.19	.86	.25
10–11 years	3531	3505	3483	.17	.77	.77

Notes: N (2–3 years and 4–5 years) = 301; N (6–7 years and 10–11 years) = 364.

Source: LSAC B cohort, Waves 2 and 3; K cohort, Waves 2 and 4.

The four-class solution yielded one group with a very small number of cases, which would be of little value in subsequent analyses. As there was strong theoretical support for a three-class solution, in cases where the number of cases in the smallest class was sufficient for subsequent analysis, we chose the three-class solution. In families with a study child aged 2–3 years, the three-class solution yielded a group with only 14 cases, and we therefore opted for the two-class solution.

List of shortened forms

AIHW	Australian Institute of Health and Welfare
B cohort	the LSAC baby cohort comprising children who were born between March 2003 and February 2004
BIC	Bayesian information criterion
BMI	body mass index
CFI	comparative fit index
K cohort	the LSAC kindergarten cohort comprising children who were born between March 1999 and February 2000
LSAC	Longitudinal Study of Australian Children
NAPLAN	National Assessment Program – Literacy and Numeracy
NTER	Northern Territory Emergency Response
OLS	Ordinary Least Squares regression
P1	parent 1
P2	parent 2
PLE	parent living elsewhere
RMSEA	root mean square error of approximation
RRR	relative risk ratio
SDQ	Strengths and Difficulties Questionnaire
SEIFA	Socio-Economic Indexes for Areas— a suite of four indexes that have been created from social and economic Census information
SEP	socioeconomic position
SRMR	standardised root mean square residual
VLMR	Vuong-Lo-Mendell-Rubin

Endnotes

- 1 National Assessment Program – Literacy and Numeracy (<http://www.nap.edu.au/naplan/naplan.html>)
- 2 Children who have been removed from the care of their parent(s)—also referred to as ‘looked after’ children, or children in ‘alternative care’.
- 3 Babington (2011) provided a brief history and context to the development of a national approach to address child abuse and neglect in Australia.
- 4 A range of risk factors for child abuse and neglect were targeted, including: poverty; substance abuse; mental illness; maternal education; overcrowding or unstable housing; health (including children with disabilities or low birth weight); dangerous/unsafe communities; drug/alcohol misuse; unemployment; and parenting skills and capacity (including the stresses on single parents, parents who were themselves victims of child abuse, neglect or poor parenting).
- 5 CFI (comparative fit index) greater than 0.95 and SRMR (standardized root mean square residual) less than 0.05 indicate good construct validity.
- 6 The difference between these coefficients is non-trivial, and closer inspection revealed that only around 10 per cent of children who were reported as with disability at 8–9 years were also reported as with disability at 10–11 years. In other words, this indicator is pointing to two largely different groups of children at these two points in time. Note that those children who were 8–9 years with disability have significantly lower Year 5 NAPLAN scores than those who are not reported as living with disability, as we might expect. Further research could help us understand more about this group of children.
- 7 The main advantage of the fixed effects approach we adopt is that it controls for all observed and unobserved differences between individuals that do not change over time (note that all covariates that do not change over time are dropped from the analysis). The key disadvantage, following directly from this, is that we do not exploit variation **between** individuals. This can lead to larger standard errors with fixed effects (thus a higher threshold for detecting statistically significant results). We experimented with the random effects approach, which exploits between subject variation (as well as within subject variation) and found our results were substantively equivalent (results not shown). Moreover, the Hausman specification test (StataCorp 2011) clearly rejected the use of random effects in favour of fixed effects.
- 8 For other examples of parenting programs that have been evaluated, see Holzer et al. (2006), and for a list of other publications, see: <<http://www.aifs.gov.au/cfca/topics/parenting.php>>.
- 9 Other criteria relate to implementing programs.
- 10 For example: DrinkWise Australia’s ‘Kids Absorb your drinking’ campaign <drinkwise.org.au/campaigns-initiatives/kids-absorb-your-drinking>; DrinkWise Australia’s ‘Under your influence’ campaign; see: <drinkwise.org.au/videos-mobile>; NAPCAN’s ‘Children See: Children Do’ campaign: <napcan.org.au/children-see-children-do>
- 11 See <<http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index.html>>
- 12 For *Fair society, healthy lives: the Marmot review* see <<http://www.marmot-review.org.uk>>

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Occasional Papers

1. *Income support and related statistics: a ten-year compendium, 1989–99*
Kim Bond and Jie Wang (2001)
2. *Low fertility: a discussion paper*
Alison Barnes (2001)
3. *The identification and analysis of indicators of community strength and outcomes*
Alan Black and Phillip Hughes (2001)
4. *Hardship in Australia: an analysis of financial stress indicators in the 1998–99 Australian Bureau of Statistics Household Expenditure Survey*
J Rob Bray (2001)
5. *Welfare Reform Pilots: characteristics and participation patterns of three disadvantaged groups*
Chris Carlile, Michael Fuery, Carole Heyworth, Mary Ivec, Kerry Marshall and Marie Newey (2002)
6. *The Australian system of social protection—an overview (second edition)*
Peter Whiteford and Gregory Angenent (2002)
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