Growing Up in Ireland
National Longitudinal Study of Children

COHORT '08

Review of selected literature pertaining to the children of *Growing Up in Ireland* Cohort '08 (Infant Cohort) at age 9 years

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

Chapter 1

INTRODUCTION

1   INTRODUCTION

1.1   BACKGROUND TO THE STUDY

Growing Up in Ireland is the national longitudinal study of children and young people in Ireland. It was started in 2006 with the main aim of providing evidence to inform policy decisions. The study is overseen and funded by the Irish government through the Department of Children and Youth Affairs in association with the Central Statistics Office. The study consists of two cohorts, an infant cohort (Cohort '08, recruited into the study at 9 months old) and a child cohort (Cohort '98, recruited at age 9 years). This review is concerned with Cohort '08 which comprises children born mostly in 2008, first visited at 9 months old and most recently at 9 years old. Further detail on the cohort and study design is contained in section 1.2 and in a separate dedicated report (McNamara, O'Mahony & Murray, 2020).

The purpose of this literature review is to examine previous research on selected topics which might be useful to explore using the *Growing Up in Ireland* data collected at this wave (age 9 years). This review expands on themes that were highlighted as being of interest and importance during the development of the survey instrumentation for this phase of *Growing Up in Ireland*. It was originally drafted at a point in time when it was known what variables would be available to researchers but prior to any analysis of those variables.

It is expected that these selected review topics will guide a more detailed exploration of *Growing Up in Ireland* data to add to the knowledge-base in these areas. Given the breadth of information collected in the study at this and previous waves, the authors have decided to explore a selection of topics that relate to data available for the first time at this wave (e.g. the influence of school and teachers) and/or that are particularly relevant to this stage of the life-course, such as parent-child and peer relationships. It is not intended to be either exhaustive or prescriptive in terms of coverage but should provide a useful background to further research in a number of key research areas.

Previous literature reviews in this series cover different topics from earlier ages with this cohort, and also the older Cohort '98 at age 9 years, will also be of interest to the reader seeking to explore the longitudinal nature of this landmark study.

The remainder of this chapter outlines the design of the *Growing Up in Ireland* study at this particular wave (Cohort '08 at 9 years) and describes the core conceptual framework for the study. It provides contextual information on what it means to be 9 years old as a developmental stage, and also what has been happening in the wider national context since the children in this cohort were born. More detailed descriptions of the sample and measures contained in the dataset are provided in a separate technical report (McNamara et al., 2020).

The rest of the report reviews literature in each of the main outcome domains covered by *Growing Up in Ireland*, namely: health and physical development; socio-emotional well-being; and school and

learning. Under each of these headings, three key issues emerging from the research literature are discussed in detail. Relevant findings from previous waves of *Growing Up in Ireland* and possibilities for analysis using the current wave of data are also discussed.

1.2   ABOUT *GROWING UP IN IRELAND*, COHORT '08 AT 9 YEARS

1.2.1   DESIGN

The children of Cohort '08 (formerly known as the Infant Cohort) were born in 2007/08 and first participated in the study (via their parents) at the age of 9 months. They were recruited through the Child Benefit Register and over 11,000 infants and their families took part in Wave 1. Since then, the same children have been followed up at ages 3 years, 5 years, 7/8 years and now again at 9 years. At all waves (except age 7/8 years which was a short postal survey), interviewers visited families in their homes to conduct interviews face-to-face. When the children were younger, these interviews were only with their resident parent(s) but the household visit at 9 years included an interview with the Study Children themselves for the first time. In addition to the household visit, postal questionnaires were sent to the child's teacher and principal.

At the visit to Cohort '08 at 9 years, the main topics included emotional development and well-being, health, diet and exercise, leisure time activities, education and learning, family and peer relations. While the focus was on the child's characteristics, important contextual information on the household, parents (e.g. health and employment), the school and classroom were also collected. The following forms of data collection were conducted:

- Interview with Primary Caregiver

- Interview with Secondary Caregiver (resident spouse/partner of Primary Caregiver)

- Interview with the Study Child

- Selective attention ('map mission') test completed by Study Child

- Drumcondra test of Reading ability (standardised test based on the national curriculum) completed by the child

- Height and weight measurements of child and resident parents

- One-day time-use diary (completed by parent with the child for return by post)

- Teacher-on-self questionnaire (postal)

- Teacher-on-child questionnaire (postal)

- Principal questionnaire (postal)

- Parent Living Elsewhere questionnaire (postal).

A full description of the sample, instrumentation and fieldwork protocols are available in the relevant design report by McNamara et al.(2020).

1.2.2   TOPICS

Growing Up in Ireland is a multi-informant study which collects information about the child's development under the broad outcomes of physical health and development, education and learning, and socio-emotional well-being. As noted, to place these outcomes in context, the study also collects a wide variety of information on the household, parental characteristics, relationships within the households, and neighbourhood factors.   Many topics are repeated at multiple waves to enable longitudinal trends to be discerned. An example of a set of repeated questions includes those on health status. Other questions reflect emerging topics – like having an online profile – or issues particularly relevant to 9-year-olds in 2017/18. Table 1 describes some of the key topics for each domain in the current wave.

Table 1: Key topics from Cohort '08 at 9 years for each domain

System	Sample continuing topics	Key new topics
Health	Child's general health; chronic conditions; health service utilisation; diet, exercise; parental health; height and weight	Medication; participation in specific sports
Education and learning	Reading ability; attitudes to school; absenteeism; parental engagement; teacher and principal report	Selective attention test; voluntary financial contributions to schools
Socio-emotional well-being	Emotional/behavioural screening; parent-child relationship; bullying; friends; self-concept; play	Internet access and child's online presence; specific activities to develop cultural identity
Socio-economic context	Parent characteristics; family income; social welfare support; religion; accommodation; neighbourhood facilities	Parent's role as carer for others; perceived discrimination

An additional consideration for the inclusion of particular topics and questions for Cohort '08 was to enhance the inter-cohort analyses of data from *Growing Up in Ireland*. As previously outlined, two cohorts were set up in 2006: Cohort '08 (the focus of this report), and another cohort of Study Children

who were already 9 years old circa 2007 (Cohort '98, formerly called the Child Cohort. An interesting and potentially policy-useful feature of the study design will be a comparison of the two cohorts at similar ages (in this case, age 9) but a decade apart, which will facilitate an understanding of the influence of the macrolevel factors such as the context of the time.

1.3 CONCEPTUAL FRAMEWORK OF *GROWING UP IN IRELAND*

The conceptual framework which underpins the **Growing Up in Ireland** study is based on the bio-ecological model of human development, formulated by Urie Bronfenbrenner (e.g., Bronfenbrenner & Morris, 2006). The premise of this theoretical framework is that reciprocal interactions between the individual child and their environment shape child development. In other words, child development cannot be understood without reference to the context in which it is embedded. The bio-ecological model describes the context of the developing child as consisting of nested, interrelated ecological systems. The child is at the centre of this model, with each subsequent layer extending outwards, representing the degree to which each system has a direct influence on the developing child. Figure 1 illustrates the structure of the bio-ecological model.

Figure 1: The bio-ecological model of human development
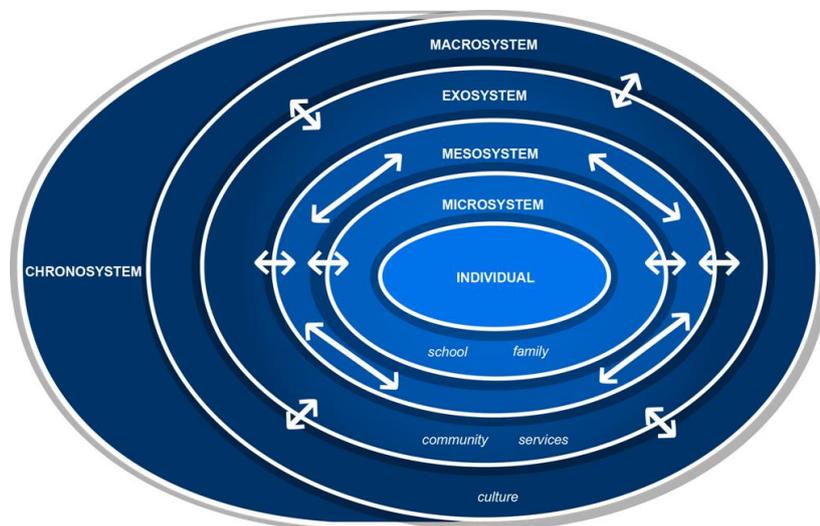
Source: Adapted from Garbarino, 1982

Considering the different ecological systems in more detail, at the centre of the model is the developing child with individual temperaments and personality traits (influenced by genetic and biological factors) interacting with each other layer. The layer closest to the developing child is referred to as the microsystem. The microsystem encompasses the individuals and organisations in the child's immediate environment with whom the child directly interacts, such as family, peers, and school. The bio-ecological model emphasises the role of proximal processes in shaping child development. Proximal processes refer

to the reciprocal and regular interactions which occur in the context of the child's microsystem relationships and become more complex over time in response to the child's developing capacities (Bronfenbrenner & Morris, 2006). Examples include parent-child play and activities with peers. Children spend varying amounts of time interacting with different individuals and organisations in their microsystem. This is typically related to the child's developmental stage. At age 9, children spend over 5.5 hours a day in school. Whilst family continues to be an important source of influence, peer relationships begin to become increasingly salient in children's lives during this period (Centers for Disease Control and Prevention, 2016).

The bio-ecological model emphasises that the child at the centre of the framework is not passive, but actively shapes patterns of interaction in the microsystem, which has important implications for their development. Proximal processes in the child's microsystem are influenced by the characteristics of both the developing child as well as the features of the individuals and organisations with whom they are interacting. Personal characteristics of the developing person such as gender, age, temperament, ethnicity, cognitive ability and health status may shape interactions between individuals in the microsystem and beyond, and therefore influence the course of child development. The child's concurrent developmental capacities also guide the increasing complexity of their interactions with others, which, according to the bio-ecological model, is the cornerstone of development.

By the age of 9, children are spending more time with their peers. Data from the Child Cohort '98 revealed that 35% of 9-year-olds rated 'spending time with their peers' as their number one pastime. Children at this age are moving away from adult-child relationships, characterised by dependence and submissive interactions, to more equal child-child interactions. Research also suggests a gender difference in peer interaction at this age; girls begin to engage in more intersex peer interactions while for boys this does not occur until early adolescence (Lam, McHale, & Crouter, 2014).

According to the bio-ecological model, relationships in the child's microsystem do not exist within a vacuum, but often interact with one another and are shaped by wider contextual influences. The mesosystem encompasses the interactions between different individuals in the child's microsystem, and accounts for how these relationships indirectly impact child development. Within the family, for example, the relationship between parents may influence parent-child interaction. The relationship between parents and school is important for supporting child academic achievement. The relationship between the parents and their child's peers may also shape with whom children spend their free time.

Beyond the mesosystem, the bio-ecological model considers the influence of relationships between individuals in the child's microsystem and external contexts, with which the child may only have indirect contact, and how these affect child development. This layer of the model is referred to as the exosystem and examples include parents' place of work, school boards of management, and play areas in the community. Changes within the education system, for example, will influence teaching content and methods, and this will affect child learning. At the outermost layer, the macrosystem refers to the wider

contextual factors of the child's ecology which, according to the bio-ecological framework, have a cascading influence on the other levels of the model (Paquette & Ryan, 2001). Macro-level factors which influence child development include cultural norms, nationality, political systems and policy, economic patterns, law, societal structures, and world climate. Through cross-cohort and longitudinal comparisons, the *Growing Up in Ireland* data provide a unique opportunity to assess the influence of changing macrolevel factors on child development in Ireland. Societal gender norms, for example, may influence how parents and children play together, as well as the types of activities girls and boys are encouraged to take part in (Lytton & Romney, 1991; McIntyre & Edwards, 2009), and this may shape child developmental trajectories. National health policies and strategies such as the *Children's Health Ireland Delivery Plan 2019* (Children's Health Ireland, 2019) and the *Best Health for Children/Best Health for Children Revisited* model which provides three dental health visits for 8- to 9-year-olds in Ireland, with equal access for all children, influence children's health development (Health Service Executive, n.d.). Education policies, such as DEIS[1] schools which aim to ensure equal access to education for under-represented or vulnerable groups which are continuously being assessed and updated (Mulhall, 2019) influence children's educational development.

Finally, the bioecological model accounts for the dimension of time in relation to child development. This layer of Bronfenbrenner's framework is referred to as the chronosystem. As previously mentioned, proximal processes in the microsystem evolve over time in a response to the child's own development. The chronosystem also incorporates the role of historical time and the timing of specific events, and their influence on child outcomes. For example, growing up during a global recession may be considered a historical event which has affected the lives of a certain cohort of children. Furthermore, the timing of macrosystem events such as a recession may have specific influences on children, depending on their developmental stage. The Cohort '98 children in *Growing Up in Ireland*, for instance, were ten years old when the global financial crisis hit Ireland, whilst Cohort' 08 children were born into the recession. The effects of the timing of the economic downturn may therefore have unique consequences for these two cohorts of children.

Whilst Bronfenbrenner's theory focuses primarily on the child's psychosocial environment, features of the physical environment may also influence child development. The 9-year-olds in Cohort '08 were mostly born in 2008, a year which saw the introduction of the Irish CO_2-based motor taxation system, aimed at reducing CO_2 emissions (Government of Ireland, 2008). This system effectively incentivised the purchase of diesel-engine cars in Ireland. According to figures from the Society of the Irish Motor Industry (2018), comparing figures from 2007 and 2017, there was an increase of 63% in the registration of diesel-engine passenger cars. Recent concerns have, however, highlighted that whilst diesel-engine cars release less CO_2 than petrol cars, they emit greater levels of nitrogen oxides and

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[1]Delivering Equality of Opportunity in Schools

particulate matter, which contribute to poorer air quality and are damaging to the environment (Leinert, Daly, Hyde, & O'Gallachóir, 2013). This is an example of how government strategies at the macro-level may have a cascading effect on the health of a specific cohort of children. At the exosystem level, this incentive influenced the increased ownership of diesel-engine cars, whilst at the micro-level children were directly exposed to changes in air quality when playing outdoors in the community.

In summary, the bio-ecological model accounts for the multiple influences on child development, the broader contextual factors which shape these patterns of influence, and the impacts of time-related events on developmental trajectories. Furthermore, this model accounts for the active role of the child in shaping interactions with their environment, which has meaningful implications for development. Table 2 provides examples of topics investigated amongst the Cohort '08 at age 9 for each level of the bio-ecological model.

Table 2: Sample topics covered in Cohort '08 at 9 years for each level of the bio-ecological model

System	Sample topics
Microsystem	Child characteristics (height, weight, health, gender, socioemotional, cognitive etc); school characteristics; parent and sibling characteristics; parenting; parent-child relationships; regular after-school care
Mesosystem	Parental couple relationship; parental commitments to other family members; discrimination experienced by parents; school/family interactions
Exosystem	Parental employment; neighbourhood facilities; physical environment;
Macrosystem	Cultural and religious beliefs; social welfare receipt; experience of education and health policies (e.g. qualifying for a medical card, DEIS school status)

1.4   TIME AS CONTEXT

The Great Recession of 2008-13 is a major example of the effect of time within the bio-ecological model, where the period effect of having experienced the recession but also the difference in timing for the two *Growing Up in Ireland* cohorts – early childhood for Cohort '08 and adolescence for Cohort '98 can be analysed. Figure 2 below illustrates the timing of each wave (for both cohorts) with the onset of recession and subsequent signs of recovery, as indicated by the national unemployment rate. It shows the worst of the recession peaked when Cohort '08 were 3 years old and Cohort '98 were 13 and had only abated slightly by the time the younger cohort were 5 years old. However, there had been a significant

improvement by the time these children were 7/8 years old and circumstances were somewhat better again by the time they reached 9 years. Of course, fluctuations in the national situation will be not be reflected in the circumstances of every individual family, but such significant change in this key feature of the chronosystem will still filter down to the study children in some shape or form. Even if a family's individual fortunes were resilient to the economic downturn, for example, they may be still be affected by cuts to national infrastructure like the education system, health service, sports and arts funding or the public road network.

Figure 2 (below) illustrates a timeline of other important national and international events over the life-course of Cohort '08. A particularly noteworthy event in relation to how children are viewed in society and by organisations was the passing of the Children's Referendum in 2012 which, amongst other provisions, helps to ensure that the views of the child are taken into account in proceedings that affect them (e.g. custody hearings), and has led to the introduction of mandatory Garda vetting and reporting of child abuse for most organisations and professionals dealing with children.

Figure 2: Time-line of national and world events along with the timing of fieldwork periods for Waves 1-5 of Cohort '08

Growing Up in Ireland Cohort '08		National and World Events
Cohort members born;	2007	
First *Growing Up in Ireland* visit at 9 months (Wave 1)	2008	Start of global recession
	2009	Introduction of free preschool year
	2010	
Growing Up in Ireland - age 3 years visit (Wave 2)	2011	Ireland's unemployment rate approaches 15%
Majority of the cohort start school in September	2012	Children's referendum is passed in Ireland
Growing Up in Ireland – age 5 years visit (Wave 3)	2013	
	2014	Major Ebola outbreak in Africa
	2015	Ireland approves same-sex marriage by referendum
Growing Up in Ireland – age 7/8 years postal survey (Wave 4)	2016	Donald Trump elected US president
Growing Up in Ireland – visit at 9 years (Wave 5)	2017	Brexit – UK sets motion in process after 2016 referendum
	2018	

Overall, the first decade of life for this cohort has been in the context of considerable national and global change. There have been progressive highlights, such as the referenda on children's rights and marriage equality, but popular votes such as the British decision to exit the EU have raised concern in terms of their implications for Ireland.

1.5   BEING 9 YEARS OLD

Middle childhood is an important period for development, during which significant advances are made in physical, cognitive, and socio-emotional domains of functioning. Healthy development in these domains supports (and is supported by) children's interpersonal relationships and engagement in a range of new activities. This section describes the developmental milestones that are typically achieved at around 9 years of age.

1.5.1   PHYSICAL HEALTH AND DEVELOPMENT

Children undergo significant physical changes during middle childhood. Typically, children grow between 5 - 8 centimetres and gain approximately 2.5 - 3 kilograms per year during this period (Shaffer & Kipp, 2010). Using the 50th percentile as average, according to growth charts published by the Centers for Disease Control (2000), the average height and weight of 9-year-olds was 134 cm and 28.7kg respectively for boys, and 133cm and 29.1kg for girls. The first signs of puberty may appear at this age and this is a period when children may begin to feel self-conscious about their bodies (Centers for Disease Control and Prevention, 2016). According to the UK National Health Service (2016), whilst the average age for the onset of puberty amongst girls and boys is age eleven and twelve respectively, it is not considered unusual for puberty to begin as young as eight years of age. Overall, middle childhood is generally considered a period of excellent health for children (Shonkoff, 1984). A major risk to health in Ireland, however, is childhood overweight and obesity. Figures from the *Growing Up in Ireland* Cohort '98 study (measured circa 2007) revealed that approximately one in four 9-year-olds in Ireland were overweight or obese (Layte & McCrory, 2011).

Middle childhood is an important period for child motor development. Oswalt (2010) described the typical trajectory of child motor development between the ages of 8 and 11. In relation to gross motor skills, this is a period when children's strength, balance, speed and coordination improve. Concurrent advances in motor, socio-emotional, and cognitive skills facilitate children's engagement in team sports and competitions at this age. At this stage of development, many children take part in a multitude of physical free-time activities such as dance, team sports, cycling, and chasing. According to *Growing Up in Ireland* Cohort '98 data, three-quarters of 9-year-olds participated in organised sports activities (Williams et al., 2009). Children's fine motor skills also become more advanced during middle childhood. Children's handwriting improves, their drawings become more complex, they are better at drawing objects to scale, and they become more adept at crafts that require precise hand movements, such as building models and beading. Children's hand-eye coordination also develops, supporting their participation in ball sports and screen-time activities such as video games. Recent evidence has, however, suggested that at this age children's combined perceptual and motor skills are not well enough advanced to safely judge the speed of oncoming traffic to cross busy roads safely when unaccompanied (O'Neal et al., 2018). Through regular participation in both physical activity and activities which require more precise muscle movements, children continue to refine their gross and fine motor skills during this period.

1.5.2   COGNITIVE DEVELOPMENT AND EDUCATION

Children's cognitive capacities continue to develop during middle childhood. Advances in cognitive skills occur as the brain develops, particularly the frontal regions (e.g., Nagy, Westerberg & Klingberg, 2004). Between the ages of 7 and 11, children's reasoning becomes more flexible and logical, although their capacity for abstract thinking is considered immature at this stage (Shaffer & Kipp, 2010). This period sees improvements in children's memory and reductions in impulsive behaviours (Maccoby, 1984). Children can concentrate for longer periods of time and become more capable of taking the perspectives of others (Centres for Disease Control, 2016). Children's receptive and expressive language skills also become more advanced during middle childhood. Children's use of spoken language increases in length (e.g. in a typical sentence) and complexity in terms of vocabulary, grammar and tenses used (Shaffer & Kipp, 2010). Children at this age can understand and may be able to produce conditional verb forms (e.g. "if I hadn't spent all my pocket money yesterday, I would have been able to buy sweets today").

At age 9, children are in third or fourth class at primary school (Years 5-6) in the Irish system, although some may still be in second class (Year 4) and are now typically well settled into school. The official school day is five hours and forty minutes long and the summer holidays span July and August. Many schools offer childcare services outside of these hours in the form of breakfast and after-school clubs, particularly in areas with higher levels of disadvantage (Department of Children and Youth Affairs, 2017). In Maths, children of this age can typically solve problems using addition, subtraction, multiplication and division. At this stage of the primary curriculum they are also learning about decimals and fractions, money, shapes, and the concept of mass (National Council for Curriculum and Assessment, 1999a). In English, children continue to develop their reading and writing skills. Children at this stage of the primary curriculum can summarise a piece of text and answer questions on it, write stories, and read longer books (National Council for Curriculum and Assessment, 1999b). Other subjects which children are taught at this stage include Irish, History, Geography, Science, Arts, Physical Education, Social Personal and Health Education (SPHE), and Religious Education. Children typically receive 30-40 minutes of homework per night during the school week (National Parents Council - Primary, 2018). In fourth class, most children also take the standardised Drumcondra Reading and Maths tests.

1.5.3   SOCIO-EMOTIONAL DEVELOPMENT

By middle childhood many children are capable of controlling their emotions in most situations, and this is a period during which important social skills that support healthy relationships with others continue to be refined (Carr, 2011). At this stage, children's understanding of different social roles and the rules of interaction such as turn-taking and cooperation becomes more advanced, as well as their capacity for interpreting the emotional cues of others. Relationships with family – particularly with parents – continue to be important for children at this age (Oswalt, 2010). Children may also spend a lot of time in the care of their extended family, and in particular their grandparents who may be key figures in children's lives at this stage (Harris, Doyle, & Greene, 2011).

At the same time, relationships with peers become more complex and central to the lives of children (Centres for Disease Control, 2016). According to Cohort '98 data from *Growing Up in Ireland*, the typical size of a 9-year-old's friendship network varies from two to five close friends (Williams et al., 2009). These data also revealed that the majority of children at this age spend time together with friends outside of school between 2 and 3 times per week. At this age children generally prefer to spend time with peers of the same sex (Greene et al., 2010). There may be a conflict between children's growing sense of independence and opportunities for playing outdoors unsupervised in the community. Many 9-year-olds in the older cohort spent much of their free time engaging in structured after-school activities (McCoy, Quail, & Smyth, 2012).

Middle childhood is an important time for the child's emerging self-concept (Erikson, 1959). Problems with self-esteem may impact on child well-being at this age (Oswalt, 2010). Children may begin to compare themselves to their peers in relation to achievement in sports and in school (ibid.). Children may also face peer pressure during this period (Centres for Disease Control, 2016). Bullying is another significant concern. According to data from the older *Growing Up in Ireland* cohort, 40% of 9-year-olds reported being the victim of bullying during the past year (Williams et al., 2009).

1.6   SUMMARY

The 9-year-olds of Cohort '08 were born just as the Great Recession was starting in Ireland. They spent their early years in a period of severe economic challenge, but circumstances were improving by the time they were 9 years old. Key features of their lives at this age include rapid physical growth, generally good health, progressively improving motor and cognitive skills, greater control of their emotions and an increase in the importance of peers.

Chapter 2

HEALTH AT 9 YEARS
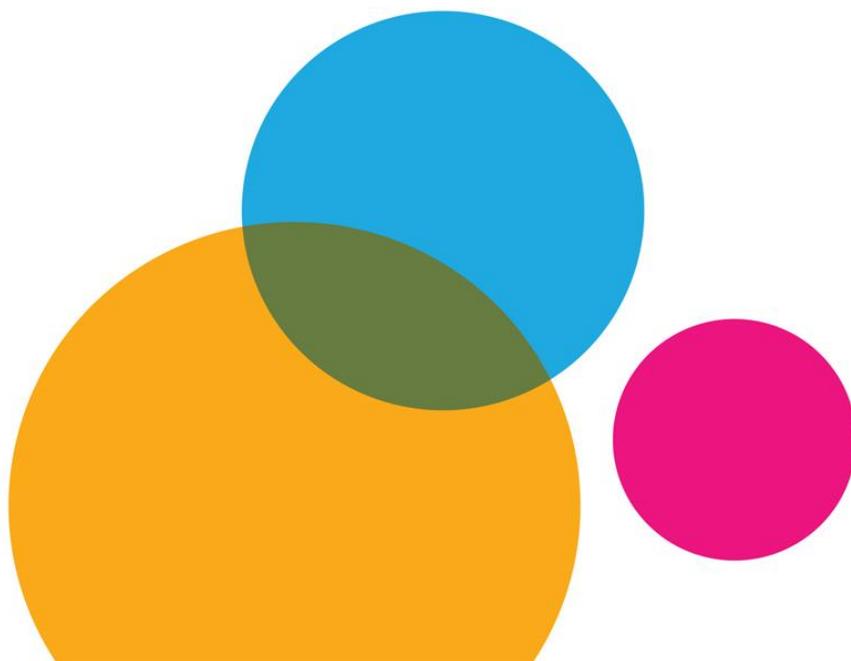
2   HEALTH AT 9 YEARS

Although it may have become somewhat clichéd, the old adage 'your health is your wealth' reflects the influence of good physical health on overall well-being. The experience of ill-health and sickness can be unpleasant in and of itself but may additionally hinder participation and enjoyment in other activities at home and school. As a large proportion of health services in Ireland are monitored and funded by the State, it is an area with scope for considerable policy leverage. But there are many influences on health – individual, family, community and environmental. *Growing Up in Ireland* has collected a wide range of health-related information at the current and previous waves.

The first section of this chapter offers a broad overview of general health and chronic conditions at age 9, including a discussion of the correlates and consequences of ill health. The second section updates previous literature reviews on the issue of childhood overweight and obesity, which has been a substantial health concern at almost every wave of the study to date, and is established as an ongoing area of concern for policy-makers, practitioners and parents given recent trends in obesity risk identified by *Growing Up in Ireland* and other sources. The third issue for this chapter considers family health as a feature of the microsystem via the issue of parental ill-health and the possible implications for child development. Most information regarding child health is collected from parents, however height and weight is measured directly by the *Growing Up in Ireland* interviewers.

2.1   GENERAL HEALTH, CHILDHOOD CHRONIC DISEASE AND DISABILITY IN MIDDLE CHILDHOOD

Child health is a priority for policy and society more generally. This section discusses the prevalence of chronic conditions and disability amongst 9-year-old children in Ireland. The needs of children and families dealing with chronic illness are often complex, and sociodemographic factors may influence child health status. As well as the physical effects of illness, child health problems may have a negative impact on other aspects of child development and well-being.

2.1.1   GENERAL HEALTH AND PREVALENCE OF CHRONIC CONDITIONS AND DISABILITY

Data from several large survey studies suggest that, overall, many children in Ireland are very healthy. Amongst children aged 8-10 taking part in the Irish Health Behaviour in School-Aged Children (HBSC) Study 2014, 51% of boys and 47% of girls reported that they were in excellent health (Gavin, Keane, Callaghan, Molcho, Kelly & Nic Gabhainn, 2015). According to data from maternal reports in the *Growing Up in Ireland* Cohort '08 survey, 80% of children aged 7/8 years were in very good health, whilst approximately 1% were 'sometimes quite ill' or 'almost always' sick (*Growing Up in Ireland* Study Team, 2017a). At age 9, figures from the older Cohort '98 revealed that 73% of parents rated their child as 'very healthy' whilst 25% of parents reported that their child was 'healthy, but with a few minor problems' (*Growing Up in Ireland* Study Team, 2009c).

Amongst the current Cohort '08 children, at age 7/8 years 16% were reported by their mothers as having a longstanding illness, condition or disability (***Growing Up in Ireland*** Study Team, 2017a). According to the State of the Nation's Children: Ireland 2016 report, 5.2 per 1000 children under 18 were registered as having a physical or sensory disability with the National Physical and Sensory Disability Database in 2015 (Department of Children and Youth Affairs, 2016). Figures from the ***Growing Up in Ireland*** Cohort '98 study indicated that 11% of 9-year olds had a chronic condition, illness or disability (Williams et al., 2009): respiratory illnesses accounted for 46% of reported conditions, whilst conditions of the nervous system, digestive system, as well as ear and mastoid, circulatory and skin conditions had prevalence rates in the range of 4 – 5%.[2] The *State of the Nation's Children: Ireland 2016* report revealed that diseases of the respiratory system such as asthma were the most common reason for child hospital admission in 2015, followed by admission due to external causes such as injury or poisoning, and diseases of the digestive system (Department of Children and Youth Affairs, 2016). Respiratory conditions are the most common health problems amongst school-age children worldwide (Asher & Pearce, 2014). According to the most recently available data from the US National Survey of Children's Health 2016, 10% of children aged 6-11 had asthma (Child and Adolescent Health Measurement Initiative, 2016). Other common childhood conditions include frequent headaches or migraines, digestive allergies, musculoskeletal problems, epilepsy, and diabetes (Child and Adolescent Health Measurement Initiative, 2016).

2.1.2   CORRELATES OF CHILD HEALTH CONDITIONS

In order to understand the complexities regarding children with chronic conditions, it is important to examine the associated risk and protective factors which may precipitate illness and shape the trajectories of child health and well-being. According to the literature, risk factors which may be particularly important include family socioeconomic background and child gender. These two correlates are reviewed in more detail below, bearing in mind that they are not the exclusive influencers of health status at age 9.

2.1.2.1   SOCIO-ECONOMIC FACTORS

Socioeconomic disparities in child health are evident in Ireland (Gavin et al., 2015) and internationally (Case & Paxton, 2006; Hargreaves, Djafari Marbini, & Viner, 2013). Data from the 2014 Irish HBSC study indicated that children from higher socioeconomic backgrounds were more likely to report excellent health compared to children from lower socioeconomic backgrounds (Gavin et al., 2015). According to ***Growing Up in Ireland*** Cohort '98 data, children from the highest social class were more likely to be described, by their mothers, as having very

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[2]Psychological conditions (behavioural and mental health problems) accounted for 19% of reported conditions.

good health compared to children from the lowest social class (Williams et al., 2009).[3] A similar trend was evident amongst 7/8-year-olds taking part in the **Growing Up in Ireland** Cohort '08 study (**Growing Up in Ireland** Study Team, 2017a).

According to **Growing Up in Ireland** data from the older Cohort '98, the highest concentration of child chronic illness was observed amongst 9-year-olds from the lowest socioeconomic group, (**Growing Up in Ireland** Study Team, 2009c). Furthermore, amongst chronically ill children, the greatest level of associated impairment was reported within the lowest socioeconomic class. Analysis of data collected as part of the National Disability Survey 2006 found that children with disabilities in Ireland were more likely to come from lower socio-economic backgrounds and one-parent households (Banks, Maître, & McCoy, 2015). UK data from the *Millennium Cohort Study* (MCS) indicated that co-occurrence of multiple child health conditions from age 5 to 11 was associated with lower household income and lower maternal education (Hesketh, Law, Bedford, & Hope, 2016).

During the perinatal period, low socioeconomic status is a risk factor for infant health challenges, such as low birthweight (Case & Paxton, 2006), and lower rates of breastfeeding (McCrory & Layte, 2011). As the child develops, associations between family disadvantage and family processes, child psychological well-being, and access to social support systems may impact on the trajectory of child health (Chen, 2004). Families from lower socioeconomic backgrounds may be less financially and psychologically equipped to cope with the burden of child chronic illness, which may have negative repercussions for child health and well-being (Case & Paxton, 2006). For the current **Growing Up in Ireland** Cohort '08, this is of particular policy relevance given the timing of the Great Recession (at its peak when these children were in early childhood) and the associated financial impact on individual families and the wider health service.

2.1.2.2   CHILD GENDER

Whilst **Growing Up in Ireland** Cohort '98 figures revealed no gender differences in parental ratings of children having very good health at age 9, boys were more likely than girls to have been diagnosed with a chronic illness or disability (Williams et al., 2009). According to data from Cohort '08 at age 7/8, boys were more likely than girls to be described by their parents as being 'sometimes quite ill' or 'almost always unwell' (**Growing Up in Ireland** Study Team, 2017a). Data from the Irish Central Statistics Office (2016a) indicated that amongst children aged 5-9, boys were over twice as likely to have a physical or sensory disability compared to

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[3] Parental occupation was used to designate family social class and was based on three categories:
Professional/Managerial; Other Non-Manual/Skilled-Manual; and Semi-Skilled/Unskilled Manual.

girls. Figures from the *Millennium Cohort Study* in the UK similarly found that boys were more likely than girls to have more than one health condition (Hesketh et al., 2016).

Growing Up in Ireland Cohort '98 data demonstrated that at age 9, boys were more likely than girls to have chronic respiratory problems (***Growing Up in Ireland***, 2009c). According to the International Study of Asthma and Allergies in Childhood, a higher prevalence of asthma amongst boys aged 6-7 was evident across all continents, although this trend was reversed amongst children aged 13-14 (Mallol et al., 2013). It has previously been proposed that gender differences in health may be partially attributable to different susceptibilities between males and females to environmental factors such as allergens (Subbarao, Mandhane, & Sears, 2009), although the precise biological mechanisms are not well understood. The apparent greater risk for boys to experience illness in middle childhood may affect their development in other domains, as outlined in the following section.

2.1.3 IMPACT OF CHILD HEALTH CONDITIONS ON DEVELOPMENT AND WELL-BEING

The presence of chronic health conditions during middle childhood may have implications for child development and psychological well-being. For instance, a report from the 2006 Irish HBSC study demonstrated that children aged 10-17 with a chronic illness or disability reported lower life satisfaction than the general population, and this was particularly pronounced amongst children whose daily activity was impaired due to their condition or disability (Molcho, Kelly, Gavin, & Nic Gabhainn, 2008). Evidence suggests that childhood health problems may influence the trajectory of socio-emotional development, impact on educational attainment, and have repercussions for child self-esteem.

2.1.3.1 SOCIO-EMOTIONAL DEVELOPMENT

Due to illness-related impairment and time restrictions imposed by treatment obligations, engagement in free-time activities and other opportunities to socialise with peers may be compromised amongst children dealing with health difficulties (La Greca, 1990). Evidence suggests that the degree of impairment associated with the illness as well as the visibility of the condition may affect peer relationships (Martinez, Carter, & Legato, 2011). Children with chronic illness or disability may therefore be at greater risk of peer victimisation (Van Cleave & Davis, 2006). A study with a large, school-based sample of 11-year-olds taking part in the West of Scotland 11 to 16 Study demonstrated that the presence of disability, as well as several correlates of chronic conditions such as physical appearance and poor performance at school, predicted peer victimisation during middle childhood (Sweeting & West, 2001). Findings from the Irish HBSC 2006 study indicated that children aged 5-17 years with a chronic illness or disability were more likely to have been bullied in the past couple of months than children without any condition or disability (Molcho et al., 2008). Furthermore, a study using Irish and French data from the 2006 HBSC study demonstrated that chronically ill children aged 11-15, whose attendance and participation in school activities were restricted by their

condition, were at particular risk of being bullied (Sentenac et al., 2011). The authors suggested that school anti-bullying programmes which include an explicit component on chronic illness and disability may be effective in reducing victimisation.

Data collected in **Growing Up in Ireland** gives researchers the opportunity to look at the wider impact of ill-health on other areas of child development and what the longitudinal effects might be. For example, the moderating role of health service utilisation and medical card cover can be explored in terms of the challenges faced by children with chronic health problems.

2.1.3.2   ACADEMIC ATTAINMENT

Children with chronic health problems may be at greater risk academically compared to healthy children (Case & Paxton, 2006). Characteristics of the condition, as well as side-effects of medication, may affect cognitive function (Thies, 1999), learning and academic performance (Dick &Riddell, 2010). Furthermore, absences from school, as well as socio-emotional difficulties associated with chronic illness, may negatively impact child educational attainment (Thies, 1999). According to a study using data from the Longitudinal Study of Australian Children, children with special health care needs had poorer academic trajectories across the early primary school years, with results indicating that children from lower socioeconomic backgrounds were particularly vulnerable (Goldfeld, O'Connor, Quach, Tarasuik, & Kvalsvig, 2015). Analysis of **Growing Up in Ireland** Cohort '98 data revealed that 9-year-olds with a chronic condition performed worse on standardised tests of Reading and Maths compared to children with no condition (Layte & McCrory, 2013). The authors demonstrated that this effect was largely explained by child scores on the Strengths and Difficulties Questionnaire, a measure of socio-emotional functioning. According to these data, the number of absences from school was also associated with poorer Maths performance - but not Reading scores - amongst chronically ill children. In contrast, a review by the Centers for Disease Control and Prevention (2017) indicated that several studies failed to demonstrate an association between chronic illness and poorer child academic outcomes (e.g., Silverstein Mair, Katusic, Wollan, O'Connell & Yunginger, 2001; Williams et al., 2001). The authors suggested that unmeasured variables such as support from family, school and the community may have been associated with better outcomes amongst these children.

2.1.3.3   SELF-ESTEEM

The presence of childhood chronic health conditions may be a risk factor for low self-esteem (Pinquart, 2013). Aspects of children's lives which tend to be important for healthy self-esteem during middle childhood include achievement at school and in sports, positive relationships with friends and family, and physical appearance (Harter, 1988). As previously mentioned, healthy development in these domains may be hampered by the presence of chronic illness or disability. A meta-analysis of over 600 studies demonstrated that chronically ill children had lower self-esteem compared to healthy children, and this association was

particularly evident in the case of chronic fatigue or chronic headaches and migraines, perhaps due to the level of associated impairment in academic, physical, and social functioning incurred by these disorders (Pinquart, 2013). It has previously been suggested that a sense of being different to peers may also contribute to lower self-esteem amongst chronically ill children (Compas, Jaser, Dunn, & Rodriguez, 2012). Evidence suggests that early intervention which promotes social inclusion at the school, teacher and classroom level, can enable children to become more resilient to the negative effects associated with having a chronic illness (Shiu, 2001).

2.1.4   POLICY

Promoting child health and well-being are key concerns for policy-makers. Issues highlighted by the *National Children's Strategy* (2000) regarding child health in the Irish context included social inequalities in health, waiting lists, and long travel times to consultations and treatment appointments. *Better Outcomes Brighter Futures: The National Policy Framework for Children and Young People, 2014-2020* outlined government commitments to reducing health-related inequalities, as well as promoting social inclusion for all marginalised or at-risk groups in order for children to flourish at school and in the community (Department of Children and Youth Affairs, 2014). According to this framework, the government recognises that children with a disability or chronic illness may have additional needs which require extra support and acknowledges the important role of parents and family in supporting and caring for these needs. The *National Disability Inclusion Strategy 2017-2021* outlined approaches to supporting and improving the lives of people with disabilities (Department of Justice and Equality, 2017). In relation to children, the key focus of this strategy is on protective factors such as service provision and equality in education.

2.1.5   COHORT '08 (INFANT COHORT) WAVE FIVE AT AGE 9

Parents were asked to report on the quality of their child's health and whether the child had any longstanding illness, condition or disability. Children's socio-emotional development was measured by parent and teacher reports on the Strengths and Difficulties Questionnaire (Goodman, 1997). Children completed the Piers-Harris self-concept scale (Piers, Harris & Herzberg, 2002) which was also used with Cohort '98. Outcomes related to education include a direct assessment of reading, parental report of absences from school and engagement in after-school activities. A detailed description and rationale for all these measures included in the survey for this wave are contained in the accompanying technical report on the design, instrumentation and procedures for Cohort '08 at age 9 years (McNamara et al., 2020)

The longitudinal design of the study permits investigation of the risk and protective factors associated with child health problems in the Irish context, including child household and parental characteristics. These contextual factors are key to further understanding how the other domains of child wellbeing and development may be impacted by these difficulties. For example, whether access to free GP care using a medical card mediates the association

between chronic health conditions and school absenteeism or the child's daily activities, as well as the domains of child well-being and development which may be impacted by these difficulties across different points in time.

2.2   OVERWEIGHT AND OBESITY IN 9-YEAR-OLDS

2.2.1   BACKGROUND

The prevalence of overweight and obesity continues to rise worldwide (World Health Organisation (WHO; 2014) and *A Healthy Weight for Ireland: Obesity Policy and Action Plan 2016-2025* has described this issue as one of the biggest burdens facing modern Ireland (Department of Health, 2016a). According to data from the ***Growing Up in Ireland*** Cohort '08,[4] 15% of 7/8-year-olds were overweight and 5% were obese (***Growing Up in Ireland*** Study Team, 2017a), whilst Cohort '98 figures (measured circa 2007) revealed that, at age 9, 19% of children were overweight and 7% were obese (Layte & McCrory, 2011). Overweight puts children at greater risk of later cardiovascular disease, cancer and diabetes (Biro & Wein, 2010), respiratory difficulties (von Mutius, Schwartz, Neas, Dockery, & Weiss, 2001), and poorer bone health (Dietz, 1998). In terms of psychosocial adjustment, a modest association between overweight/obesity and negative self-concept has been observed amongst 9-year-olds (Layte & McCrory, 2011), although meta-analytic research suggests that the relationship between obesity and self-esteem may become stronger as children get older (Miller & Downey, 1999). Research has also demonstrated that children who are obese are more likely to experience bullying (Janssen, Craig, Boyce, & Pickett, 2004).

The bio-ecological model recognises that biological, psychological and environmental processes interact to shape child development (Bronfenbrenner & Morris, 2006). According to this framework, child and parent processes, school and community-level factors, as well as more distal influences such as media and policy, can have implications for child overweight and obesity. The McKinsey Global Institute report Overcoming Obesity: An Initial Economic Analysis (2014) states that effective intervention and prevention approaches must therefore take an ecological approach (Dobbs et al., 2014). This section discusses the influences on child overweight and obesity in Ireland from a bio-ecological perspective.

2.2.2   INFLUENCES ON CHILD OVERWEIGHT AND OBESITY

Systems with which the child directly interacts such as family relationships, school and the community shape child development (Bronfenbrenner & Morris, 2006). The child plays an active role in shaping these patterns of interaction (Sameroff, 2009). Wider macrosystem influences such as the media and policy are also important influences on

[4]For the age 7/8 year postal survey, parents were asked to measure the child's height and weight themselves. For all other waves, including the Cohort '98 at 9 years, child's height and weight was measured by the interviewer.

development, as are individual characteristics (discussed in section 2.2.2.1).

2.2.2.1   THE INDIVIDUAL

Child processes such as food intake, activity levels and sleep may have direct influences on child weight. The relationship between child consumption of energy-dense food coupled with low levels of energy expenditure, and overweight and obesity is well documented (e.g., Adamo, Colley, Hadjiyannakis & Goldfield, 2015; Perry et al., 2015). The role of child sleep duration is, however, less well understood. A meta-analysis of cross-sectional studies indicated that shorter sleep duration is associated with obesity in both adults and children (Cappuccio et al., 2008). Previous research suggests that short sleep duration may be linked with hormonal and biochemical processes which influence appetite and metabolism (Taheri, Lin, Austin, Young, & Mignot, 2004). Amongst children in Ireland, analysis of the *Growing Up in Ireland* Cohort '08 data revealed that short sleep duration was related to overweight or obesity at age five (Nicolson & Zgaga, 2016).

Child characteristics such as gender and age have also been associated with child overweight and obesity. In relation to child gender, for instance, *Growing Up in Ireland* Cohort '98 data revealed that at age 9, girls were more likely to be overweight (22% vs. 16%) and obese (8% vs. 6%) than boys. Girls (21%) were also less likely than boys (29%) to achieve the daily minimum requirements of physical activity (Williams et al., 2009). Data from this cohort further suggested that high levels of screen time were related to child overweight and obesity amongst 9-year-olds, and that this association was particularly strong for boys (Layte & McCrory, 2011). Subsequent analysis of Cohort '08 data revealed that at age 7/8 years, 14% of boys had over three hours of daily screen-time during the week compared with 10% of girls (*Growing Up in Ireland* Study Team, 2017c).

Associations between child age and levels of physical activity have also been demonstrated. Data from the NICHD study of Early Child Care and Youth Development in the USA indicated that whilst 9-year-olds in their sample were reaching the recommended targets of physical activity, these levels decreased from age 9 to 15 years to a point where less than half of 15-year-olds were getting the daily recommended exercise (Nader, Bradley, Houts, McRitchie & O'Brien, 2008). Cross-sectional research has demonstrated a similar pattern amongst children in Ireland aged 10-18 years taking part in the Children's Sport Participation and Physical Activity Study (CSPPA); 17% of primary schoolchildren reached the recommended physical activity target, compared to 10% of secondary schoolchildren (Woods et al., 2018).

2.2.2.2   FAMILY-LEVEL FACTORS

According to the bio-ecological model, family - and particularly parents - exert crucial influences on child development. In relation to child health, *Growing Up in Ireland* Cohort '98 data indicated that parents with high body mass index (BMI) were more likely to have 9-year-

olds who were overweight or obese (Layte & McCrory, 2011). Beyond genetic predisposition to overweight and obesity, parents are ultimately responsible for their child's diet, as well as transporting them to school and activities, enforcing bedtimes, and thereby directly influence health-related behaviours (Jansen, Mulkens & Jansen, 2011). Parents may also influence their child's weight status through modelling of food-related and physical activity behaviours (Birch, Savage, & Ventura, 2007).

An important factor which may influence how parents engage in health-related behaviours is their perceptions of their child's overweight and obesity. Parental perceptions of overweight may be biased by the present epidemic nature of overweight and obesity in Ireland (Lampard, Byrne, Zubrick, & Davis, 2008). According to **Growing Up in Ireland** Cohort '98 figures, 54% of parents of overweight 9-year-olds and 20% of parents of obese 9-year-olds rated their child as being the correct weight for their height (Layte & McCrory, 2011). Furthermore, mothers were more likely to perceive their daughter as overweight compared to mothers of sons (ibid.). Parent characteristics may also shape these associations and according to these data, mothers who were overweight themselves were less likely to perceive their daughters as overweight.

Recent analysis of **Growing Up in Ireland** Cohort '08 data indicated that factors including maternal employment, maternal education, child birth weight, and urban/rural residence may influence the accuracy of parental perceptions of child overweight and obesity whereas child visits to healthcare professionals did not have any effect (Queally et al., 2018). Layte and McCrory (2011) proposed that the discrepancy between actual and perceived child weight by parents could be improved by GP measurement of BMI at each visit or regular checks at school.

Factors such as socio-economic background have the potential to shape family health-related processes and influence child overweight and obesity. Socioeconomic associations with differences in overweight and obesity are evident across Europe, and children whose mothers have lower levels of education appear to be at greatest risk (McCrory et al., 2017). In Ireland, **Growing Up in Ireland** Cohorts '98 and '08 data have revealed associations between family socio-economic background and child overweight and obesity (**Growing Up in Ireland** Study Team, 2017a; Layte & McCrory, 2011). Lower maternal education was associated with poorer diet at age 9 (Layte & McCrory, 2011) and higher levels of screen-time amongst children aged 7/8 years (**Growing Up in Ireland** Study Team, 2017c).

2.2.2.3 SCHOOL

A number of school-based initiatives have been undertaken to help tackle the problem of childhood overweight and obesity in primary schools. Programmes such as the Active School Flag and the Active School Week encourage engagement in physical activity at school. Engagement in physical activity outside of school may be highest amongst children from higher socioeconomic backgrounds (Woods et al., 2010), and given the aforementioned link

between SES and overweight and obesity, involvement of DEIS (disadvantaged) schools in such programmes may be particularly beneficial (Department of Health, 2016b). The *Get Ireland Active! National Physical Activity Plan for Ireland* (Department of Health, 2016b) also outlined targets to provide continuous professional development to teachers with regards to physical education. These measures may be particularly important considering findings of the *Children's Sport Participation and Physical Activity* study (CSPPA), which demonstrated that only 35% of primary school children in Ireland received the recommended minimum amount of physical education, and this figure was lower for girls than boys (Woods et al., 2010). A recent report on Tackling obesity and the promotion of healthy eating in schools by the Joint Committee on Education and Skills (2018) recommended utilising break time for getting children active, teaching food preparation and nutrition as part of the curriculum, providing drinking water, promoting positive body image and healthy weight, and the introduction of a ban on advertising unhealthy foods in schools.

2.2.2.4   COMMUNITY

Community-level factors may also shape child overweight and obesity. Sports amenities, green spaces and perceptions of safety can increase physical activity within the community (Griffiths et al., 2013). The 2016 Ireland North and South report card on physical activity for children and youth compiled data from **Growing Up in Ireland**, the *Health Behaviour in School-Aged Children* (HBSC) and CSPPA studies and awarded Ireland a B+ in relation to the suitability and safety of the community and built environment for physical activity, which is a slight improvement from 2014 (Harrington et al., 2016). A review of the literature suggests that globally, levels of daily physical activities such as walking to school and playing outdoors have decreased (Hills, Andersen, & Byrne, 2011). In the Irish context, the 2016 report card on physical activity awarded children's active transportation to and from school a grade D, with no change from 2014 to 2016 (Harrington et al., 2016). According to Layte and McCrory (2011), poor planning and limited funding for public transport promotes an 'obesogenic' environment, "an environment that promotes gaining weight and one that is not conducive to weight loss within the home or workplace" (Swinburn, et al., 1999 as cited in Powell, Spears, & Rebori, 2010), whilst investment in safe cycle lanes and walkways may increase active transportation.

As well as affecting child physical activity, community-level factors can shape child overweight and obesity through influencing diet. According to a recent report on purchasing habits across nineteen European countries, Ireland is the third highest consumer of products considered "ultra-processed", and this was associated with national obesity prevalence rates (Monteiro et al., 2017). Amongst the **Growing Up in Ireland** Cohort '98 families, proximity to supermarkets in the community was associated with the quality of children's diet (Layte & McCrory, 2011). This study demonstrated that families from lower socioeconomic backgrounds lived further away from supermarkets. The authors suggested that limited

availability or higher price of fresh fruit and vegetables, in contrast with the wide availability of convenience foods in local shops, may have a negative impact on children's dietary habits.

2.2.2.5   MEDIA

One way in which increased screen-time may contribute to child obesity and overweight is through increased exposure to energy-dense, low-nutrition food advertisements (Sadeghirad, Duhaney, Motoghipisheh, Campbell & Johnston, 2016). Food and drinks companies' use of marketing techniques such as personalisation of bottles with children's names has been shown by Irish research to influence drink choices amongst children aged 8-13 (McDarby, O'Hora, O'Shea & Byrne, 2016). The *Healthy Weight for Ireland* plan seeks to develop a code of practice in relation to advertisement and marketing of food and drinks (Department of Health, 2016a). On a more constructive footing, the media can be utilised to increase public knowledge of health-related behaviours. For example, a 2017 Safe Food television and billboard initiative START disseminated advice on portion sizes, information on processed food as well as the importance of sleep, and promoted less screen-time and more physical activity.

2.2.2.6   FISCAL POLICY

According to the HBSC Ireland survey, 15% of children in third and fourth class of primary school drank soft drinks at least once a day (Kelly, Gavin, Molcho & NicGabhainn, 2012). A newly introduced tax on sugar-sweetened drinks came into effect in Ireland in May 2018. This strategy may discourage the consumption of sugar-sweetened drinks and encourage manufacturers to reduce the sugar content of their products. Other fiscal policies proposed by the WHO (2015) aimed at tackling the problem of overweight and obesity include taxes on food products high in salt, sugar or fat, as well as subsidies on fruits and vegetables.

2.2.3   COHORT '08 (INFANT COHORT) WAVE FIVE AT AGE 9

At age 9, the interviewer took a direct measure of child height and weight in order to calculate body mass index (BMI). Parents provided information on child diet, play and activities, transport to school, screen-time and sleep. Children were also asked about their free-time activities. Information on child and parent perceptions of child weight was collected and parents provided information on their own weight perception and levels of physical activity. These individual-specific data were complemented by questions on community resources such as public transport, shops, and recreational facilities, plus child and parent perceptions of neighbourhood safety. Teachers reported on time spent on physical education and principals provided details on sports facilities in schools. As previously noted, further information on all measures is in the accompanying technical report (McNamara et al., 2020). The longitudinal design of this study allows for exploration of the trajectories of individual children, which factors contribute to or protect children from overweight and obesity across childhood, as well as how different factors interact to shape child development.

2.3   THE INFLUENCE OF PARENTAL HEALTH PROBLEMS ON CHILD OUTCOMES

2.3.1   BACKGROUND

The impact of chronic illness often extends beyond the patient, shaping family processes and influencing child development (Bowen, 1978). Epidemiological research estimates that the global prevalence of children living in households with parental chronic illness lies between 4 and 15% (Barkmann, Romer, Watson, & Schulte-Markwort, 2007; Worsham, Compas, & Ey, 1997). Whilst little Irish research has focussed on the family impact of chronic conditions, according to Health in Ireland - Key trends 2016, 17.3% of males and 18.9% of females in the 35-44 age group[5] had a chronic health condition in Ireland in 2014 (Department of Health, 2016c).[6] This section discusses the impact of familial health problems - particularly parent chronic illness - on children, and outlines several factors which may shape associations between parental health and child development.

Children of different ages understand illness differently. At younger ages (2-7 years) children may internalise illness and think of illness as something they may have caused through their own behaviour. By age 8 or 9, children have the developmental ability to understand illness differently such as understanding that outside factors (e.g. germs) are the cause of disease and that doctors' advice is important (Bibace & Walsh, 2015). Potentially this change in understanding may affect how children cope with changes in their lives relating to the illness of key family members.

2.3.2   IMPACT OF PARENTAL CHRONIC ILLNESS ON CHILDREN

Family is central to child well-being and development. Family systems theory, which considers the influence of family-level factors on human development, describes how reciprocal interactions between chronic illness, the individual, and family functioning, shape child developmental trajectories (Patterson & Garwick, 1994). The impact of parental chronic illness on child socio-emotional adjustment, and, more recently, child academic attainment has been one focus of the literature (Chen, 2016, 2017). Several important factors moderate associations between parent chronic illness and child outcomes, including the nature and severity of the condition and the availability of support. Many families demonstrate resilience in the face of chronic illness and preserving a climate of emotional support and cohesion in the family may protect children from the negative impact of parental illness. Research has also

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[5] This is the range closest to the average age of primary caregivers of the 9-year-olds in *Growing Up in Ireland*
The likelihood of having a chronic condition increased with age. 13.2% of males aged 25-34 had a long-

[6] standing illness or health problem compared with 18.5% of females. 17.3% of males compared with 18.9% of females between the ages 35-44 had a chronic condition. Between the ages 45-64, 32.5% of males compared with 32.1% of females had a long-standing illness or health problem.

indicated that patterns of interaction between parental chronic illness, family processes, and child development may be influenced by more distal factors such as socioeconomic status (Chen, 2016).

2.3.2.1 THE INFLUENCE OF PARENT ILL HEALTH ON CHILD PSYCHOSOCIAL ADJUSTMENT

Coping with poor parental health can be stressful for children and has implications for their well-being and development (Chen, 2017). A study of children and young people aged 9-20 years in a large community sample in Australia by Pakenham and Cox (2014) indicated that children of chronically ill parents had poorer socio-emotional outcomes according to their scores on the self-report version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). A qualitative study carried out with a sample of 21 children aged 6-12 years of parents with chronic pain indicated that children often felt they missed out on social events and activities due to their parent's condition (Evans & de Souza, 2008). This study also revealed that parents were not always aware of their child's illness-related anxiety. A meta-analysis of nineteen studies indicated that children of chronically ill parents were more likely to experience internalising and externalising problem behaviours, and findings demonstrated that these associations were particularly strong for non-cancer illnesses (when comparing cancer and non-cancer studies), younger children, and children from lower socioeconomic backgrounds (Sieh, Meijer, Oort, Visser-Meily, & Van der Leij, 2010). The authors suggested that the level of physical and psychological impairment, as well as the prognosis associated with certain illnesses, may have implications for child psychosocial adjustment. Children of severely ill parents, for instance, are confronted with the possibility that their parent may not survive (Korneluk & Lee, 1998). Research has demonstrated that children with a terminally ill parent often have higher levels of anxiety, depression and behavioural problems, and lower levels of self-esteem and social competence than children whose parents are not sick (Siegel Mesagno, Karus, Christ, Banks & Moynihan, 1992); although this specific situation will likely affect only a minority of the *Growing Up in Ireland* cohort (and would likely be too few cases to analyse).

Families dealing with chronic illness are often under strain and this can have negative implications for family processes, and consequently child development (Patterson & Garwick, 1994). Ill health may, for example, limit parental availability to their child due to treatment commitments, as well as the physical symptoms of the illness (Faulkner & Davey, 2002). Chen (2017) proposed that indicators of family functioning often impacted by chronic conditions include marital satisfaction and quality of parent-child relationship, and that characteristics of the ill parent such as comorbid depression, may influence associations between parental illness and child adjustment. Furthermore, families experiencing chronic illness are more often from lower socio-economic backgrounds (Mielck, Vogelmann, & Leidl, 2014), and poor parental health may therefore exert added pressure on families who already have limited resources. In Ireland, people with lower levels of education and lower income are between

two and three times more likely to have a chronic illness (Jennings, 2014). Family financial and psychological strain may influence a parent's capacity to engage in responsive and consistent parenting, which can have implications for child socio-emotional development (McLoyd, 1998). On the other hand, positive family factors may buffer the effects of chronic illness on child well-being. Research has demonstrated, for example, that parent-child relationships which are high in communication and low in conflict, support child resiliency in the context of parental illness (e.g., Dutra et al., 2000).

Chronic illness may influence the child's role within the family, and children of chronically ill parents may face added responsibilities such as housework, minding their siblings, as well as direct assistance to the sick parent by helping with medication, feeding, dressing, bathing, toileting, and providing emotional support (Ireland & Pakenham, 2010). Whilst children assist with household chores in many families, Pakenham and Cox (2015) suggested that a psychological sense of duty may be felt by children in families dealing with chronic illness, and this may have unique influences on child psychosocial adjustment. The authors demonstrated that amongst a large community sample in Australia (previously referenced), young people aged 9-20 from families dealing with chronic illness were more likely to have more responsibilities compared to their peers, particularly in the case of parental illness and that these duties may increase the risk for socio-emotional difficulties (Pakenham & Cox, 2014; 2015). Risk factors associated with higher levels of child responsibilities in families dealing with chronic illness include lower SES, lack of services, lack of informal support, and lone parenthood (Aldridge, 2008). On the other hand, research carried out with families coping with parental psychological illness has indicated that child responsibilities for caring for their sick parents helped reduce illness-related worry amongst children (Aldridge & Becker, 2003). Longitudinal research has also suggested that caring for sick parents furnishes children with strong coping skills which equip them for confronting stressors later in life (Stein, Rotheram-Borus, & Lester, 2007).

2.3.2.2 THE INFLUENCE OF PARENTAL HEALTH ON CHILD ACADEMIC ATTAINMENT

Whilst the majority of research regarding the impact of family illness on child development has focussed on psychosocial adjustment, a recent systematic review conducted by Chen (2016) indicated that children of chronically ill parents may also be at greater academic risk compared with children of healthy parents. This review revealed, for instance, that children of chronically ill parents were absent from school more frequently than their peers, a factor which is often associated with poorer academic outcomes (Chen, 2016). However, several studies included in this review failed to find an association between parental ill health and child academic achievement (e.g., Chen, 2014). School may allow children to focus on friendships and school-work and take their minds off parental illness. It is also possible that these inconsistent findings reflect the impact of unmeasured variables or arise from different methodologies used across studies.

Outside of the school setting it is important to examine the factors which may influence the association between parent health and child academic achievement. Reduced parental availability, family dysfunction, as well as the socioeconomic circumstances which often accompany chronic illness may influence child cognitive development: Chen and Fish (2013) demonstrated that higher dysfunction in families dealing with parental chronic illness was related to lower child academic achievement, whilst higher quality parenting and involvement appeared to buffer the negative impact of parental ill health on children's education. As previously mentioned, chronically ill parents may differ in their capacity to be available, whether this means more or less, to their children. This has implications for leisure activities and home learning opportunities which support child cognitive development, such as helping children with their homework or reading together (Chen & Fish, 2013). Furthermore, the socioeconomic factors associated with chronic illness such as competition for family finances may mean fewer material resources are available for home learning, which can have implications for child academic attainment. According to Chen (2017), a greater awareness of the impact of parental illness on academic functioning is needed in order to support the learning of children who may be at higher risk.

2.3.3   POLICY

Better Outcomes Brighter Futures: The National Policy Framework for Children and Young People, 2014-2020 outlined the Irish government's commitment to providing support for families, in order to best meet the needs of children and to ensure they are achieving their full learning potential (Department of Children and Youth Affairs, 2014). Evidence suggests that children of chronically ill parents may be a particularly vulnerable population and that supporting families dealing with illness could have positive implications for child psychosocial adjustment and academic attainment. With regards to child caregiving roles, in *Towards 2016: Ten-Year Framework Social Partnership Agreement 2006-2015*, the Irish government committed to supporting families in which children undertake "inappropriate care roles" (Department of the Taoiseach, 2006, p. 46). In relation to parental health, the Department of Health (2008) outlined strategies to prevent and manage chronic illness in *Tackling Chronic Disease: A Policy Framework for the Management of Chronic Diseases*. One aim of this framework included providing appropriate, patient-centred care for people with chronic illness.

2.3.4   COHORT '08 (INFANT COHORT) WAVE FIVE AT AGE 9

Parents were asked to rate their current health on a scale ranging from 'excellent' to 'poor' and provide information on any chronic physical or mental health problems, illness or disability they had, including if it affected daily living. Children's socio-emotional development was measured by parent and teacher reports on the Strengths and Difficulties Questionnaire (Goodman, 1997), and children and parents reported on child peer relationships. Measures of child academic performance in Reading were obtained from their Drumcondra test scores as well as teacher and parent-rated indications of the study child's performance in different

subjects. Data on children's absences from school, amount of sleep, quality of the home learning environment, and engagement in after-school activities were also collected. Parents reported on their perception of support from extended family and friends. These data can be used to provide an estimate of the number of Irish children living in families dealing with chronic illness. Cross-sectional and longitudinal associations between parent health and child psychosocial and academic adjustment can be investigated, as well as the factors which influence these relationships.

2.4   SUMMARY

This chapter has highlighted three aspects of the lives of children at 9 years old with important implications for health research and policy: the general health of children themselves and their experience of chronic conditions and disabilities; overweight and obesity in middle childhood; and the potential influence of parental health conditions on child outcomes. The chapter also outlined similar data from the study children of Cohort '08 and their families. This makes it possible to conduct both cross-sectional and longitudinal analyses to contribute to a better understanding of the health (and health context) of children at 9 years of age.

Chapter 3

SOCIO-EMOTIONAL DEVELOPMENT
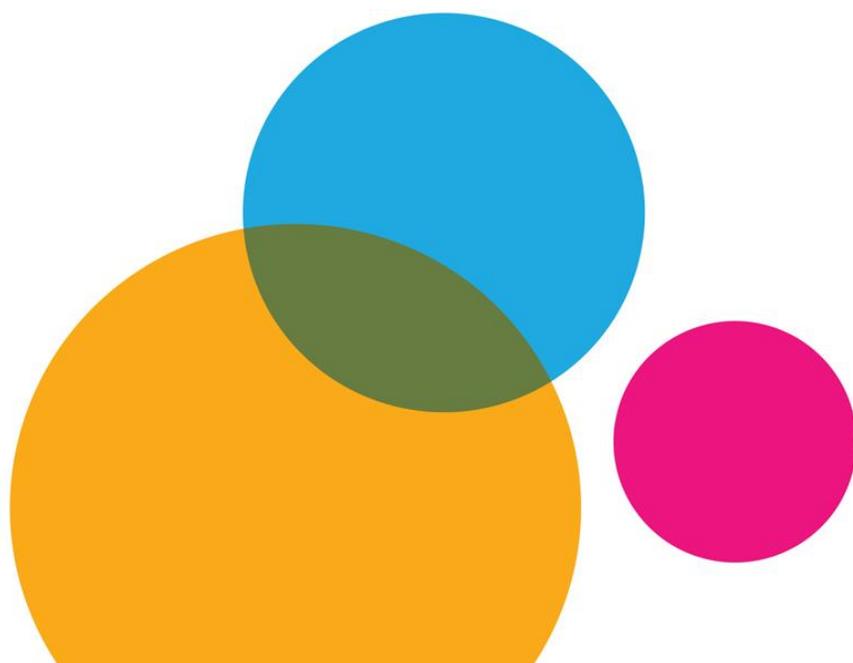
3   SOCIO-EMOTIONAL DEVELOPMENT

By age 9 years, most children will have spent several years in the same primary school and have had a chance to develop relationships with peers (see also Chapter 4), teachers and others outside the immediate family unit. It is also an age when continuing cognitive and language development facilitates more ways for the child to express themselves and their feelings to others (and possibly themselves), to understand the world around them and to take on more responsibility as a member of the family. In contrast to this increasing maturity it is also an age that, for many at least, is still solidly 'childhood' - rather than burgeoning adolescence - including enduring beliefs in, for example, Santa Claus[7] and the tooth fairy. Socio-emotional development is a very broad domain, and in previous waves when the child was young all measures related to this concept were based on parent and teacher perceptions. For the first time for this cohort *Growing Up in Ireland* can add the child's own perceptions to these other important sources. The study team has selected three aspects of socio-emotional development for review in this chapter. They have been previously identified as being associated with overall well-being.

The first review is concerned with behavioural difficulties in 9-year-olds. The well-known 'Strengths and Difficulties Questionnaire' (SDQ) (Goodman, 1997) was used in the current wave of data collection as a measure of both externalising and internalising behaviours relating to conduct problems, problems with peers, hyperactivity and inattention, and behaviours associated with emotional and affective problems. These four categories of difficulty can be considered independently or combined into a 'total difficulties' measure. The SDQ balances this emphasis on difficulties with a single sub-scale on pro-social behaviours.

The SDQ was administered at ages 3, 5, 7/8 years as well as at age 9 years, and thus yields the possibility of longitudinal and causal research into the common antecedents and consequences to the types of problematic behaviours that are identified by the SDQ subscales. The SDQ was completed by both the primary school teacher and Primary Caregiver (at age 5 and 9), allowing for comparisons between reporters in different contexts.

The second aspect of socio-emotional development considered in this review is that of play – a key feature of childhood, and a source of both enjoyment and learning for the growing child. This review looks at how play affects child outcomes and development and notes the prominence of gender differences in play activities.

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[7]The ongoing international "Exeter Santa Survey" run by Chris Boyle at Exeter University, reported in December 2019, that the average for children to realise Santa was not real was 8 years in England and 8 years, 6 months in Scotland https://www.itv.com/news/2019-12-23/santa-used-by-parents-to-get-their-children-to-behave/

The third aspect of socio-emotional development discussed in this literature review describes the importance of family relationships for a child's socio-emotional well-being. It considers not just the direct child-parent relationship but how the quality of family relationships more generally is an important context for development.

This chapter covers both problematic and constructive issues associated with socio-emotional development and well-being, giving a sample of the wide variety of related indicators and contextual factors covered in *Growing Up in Ireland*.

3.1   THE PREVALENCE AND IMPACT OF BEHAVIOURAL DIFFICULTIES IN 9-YEAR-OLDS

Middle childhood is an important period for child socio-emotional development, during which time relationships with family, peers and teachers have an influence on child well-being. The National Institutes of Health (NIH), a US government agency responsible for public health research, advises that by age 9 children are expected to maintain attention for longer periods of time, regulate their emotions, follow instructions and begin understanding the social implications of their behaviour (National Institutes of Health, 2018). Children exhibiting significant behavioural problems may also display limited socio-emotional skills and lower quality social relationships. This section discusses the prevalence of behavioural problems in 9-year-olds and outlines key policy documents and research that attempts to delineate the areas of child behavioural problems and their correlates.

3.1.1   POLICY AND THE PREVALENCE OF BEHAVIOURAL PROBLEMS

Policy frameworks, including the *National Children's Strategy; Better Outcomes Brighter Futures: The National Policy Framework for Children and Young People, 2014-2020* and the *Agenda for Children's Services: A Policy Handbook*, commit the Irish government to supporting the socio-emotional needs, (and behavioural problems as a subset of socioemotional needs) of all children in Ireland. They seek to ensure that young people who demonstrate behavioural problems, or who are at risk, are protected through supports and services. According to the National Educational Psychological Service (NEPS, 2010), it is important to consider the context in which behaviour problems occur in order to inform intervention and support strategies. The classroom is one setting where these difficulties may be particularly disruptive and the Department of Education and Skills (2016) has declared its commitment to promoting the academic and social education of all learners by implementing the necessary support systems in the *Action Plan for Education 2016-2019*.

Whilst there is a perception that the prevalence of child behavioural difficulties may be increasing, research from previous waves of *Growing Up in Ireland* suggests that the level of SDQ-measured difficulties here is comparable to other countries (e.g. Nixon, 2012) with mean scores of around 8 from a possible maximum of 40 (where higher scores indicate more problems). Different methodological approaches used across studies to measure childhood difficulties makes it difficult to compare trends across time. It is unclear from research

whether perceived increases in childhood difficulties are due to greater understanding of psychological disorders and availability of support, or whether normal child behaviours are becoming pathologised (Batstra et al., 2012). Reports on the extent of child difficulties may also depend on factors such as parents' capacity to cope with their child's behaviour, whether the informant is a parent, teacher or clinician, as well as cultural views on how children should behave (American Psychiatric Association, 2013). Accurate prevalence estimates are necessary in order to inform policy and intervention strategies. Overestimating the prevalence of child difficulties may have economic ramifications and lead to over-diagnosis, whereas underestimating the prevalence of child behaviour problems may result in insufficient service provision and have negative consequences for children (Gronostaj-Miara, Reulbach, Gavin, & McNicholas, 2016). In the Irish context, as part of the **Growing Up in Ireland** Cohort '98 study, mothers reported on the incidence of serious problem behaviours with figures revealing that 5.9% of 9-year-olds often lied to obtain goods or favours, whilst 4.7% of children often started fights or bullied, threatened or intimidated others (Williams et al., 2009).

As already noted, a reliable measure often used in large survey studies to estimate the prevalence of child difficulties which allows for comparison across studies is the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). This questionnaire can be completed by both parents and teachers, and measures child difficulties in domains including hyperactivity and inattention, conduct problems, emotional regulation, and peer relationships; scores on these subscales are used to calculate a total difficulties score. This approach to measuring behaviour problems has been used in large cohort studies including **Growing Up in Ireland** (Williams et al., 2009), *Growing Up in Scotland* (Parkes, Sweeting, & Wight, 2014), and the *Millennium Cohort Study* (MCS; Hansen, Jones, Joshi, & Budge, 2010). Children scoring in the highest decile (90th percentile and above) on the total difficulties score of the SDQ are typically considered to have difficulties in these domains and referred to as problematic[8], whilst the next decile (80th to 89th percentile) of children are regarded as borderline (**Growing Up in Ireland** Study Team, 2017c). Another method of interpreting results is to use the cut-off scores recommended by the authors of the SDQ.

Using the latter approach, data from the MCS revealed strong associations between total difficulties measured at age 3, 5 and 7 years, indicating that behavioural difficulties may be stable over time (Hansen et al., 2010). Analysis of the **Growing Up in Ireland** Cohort '08 data indicated that 39% of children who scored in the top decile on the SDQ at age 3 years also scored in this range at age 5, whilst a further 8% of children who did not score in this band at age 3 were rated as problematic at age 5 (**Growing Up in Ireland** Study Team, 2013). Furthermore, 64% of children scoring in the top decile at age 5 remained in this band

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[8]Note that in the original paper 'problematic' was referred to as 'abnormal'

according to their SDQ scores measured at age 7/8 (**Growing Up in Ireland** Study Team, 2017c). These findings emphasise the need to monitor children at every stage of their development.

3.1.2   CHILD FACTORS IN BEHAVIOURAL PROBLEMS

Research has consistently demonstrated that young boys are more likely to display difficulties with behaviour compared to girls (e.g., Mellor, 2005; Nixon, 2012), although the biological and psychosocial mechanisms underpinning this susceptibility are complex and poorly understood. Data from **Growing Up in Ireland** Cohort'98 (the Child Cohort) indicated that 9-year-old boys displayed more problems in relation to conduct, hyperactivity and total difficulties compared to girls, based on ratings from both mothers and teachers on the SDQ (Nixon, 2012). Figures from the Cohort '08 revealed that at age 7/8 years, approximately one in seven boys compared to one in thirteen girls scored in the top decile of the SDQ (**Growing Up in Ireland** Study Team, 2017c). Data from the MCS similarly demonstrated that boys were approximately twice as likely to exhibit serious behaviour problems compared to girls according to their scores on the conduct subscale of the SDQ (Hansen et al., 2010).

Aside from fixed factors like gender, child behavioural factors that are amenable to change and intervention have been shown to relate to behavioural difficulties. An example includes patterns of child screen-time behaviour that interferes with the duration of healthy sleep (Wu et al., 2017). In their paper, Wu et al. presented research based on over 8,900 children aged 3–7 years collected from kindergartens and schools in two Chinese provinces. Behavioural difficulties were measured using the SDQ (Goodman, 1997) and the Clancy Autism Behaviour Scale (CABS) (Clancy, Dugdale, & Rendle-Short, 1969). Logistic regression revealed a significantly greater risk (Odds Ratios = 1.2 to 1.5) of behavioural difficulties among children with screen-time in excess of 2 hours daily, and among children who slept for less than 9.15 hours nightly. There was also a significant interaction between elevated screen time and reduced sleep duration with the combined increase in risk of behavioural difficulties across each of the SDQ subscales being significantly greater than either factor alone (rising to a doubling of the risk of displaying elevated behavioural problems).

Alleviation of childhood behavioural problems also extends beyond improving educational and social outcomes. For example, Emond, Sheahan, Mytton, & Hollen, (2017) presented longitudinal research using the *Avon Longitudinal Study of Parents and Children* (ALSPAC).Their paper studied a sample of over 12,900 participants and revealed that in middle childhood, children exhibiting behavioural problems, in particular elevated numbers of tantrums (Adjusted Odds Ratio = 1.41) and hyperactivity (Adjusted Odds Ratio = 1.24), were especially vulnerable to suffering burns and scalds compared to children without behavioural difficulties. This risk was greatest at around 2 years of age for boys (Adjusted Odds Ratio = 1.32) and between 5-11 years for girls (Adjusted Odds Ratio = 1.22). Risk of burn/scald related injury remained elevated for those with behavioural problems all the way through early and

middle childhood and were independent of typical confounds and other developmental factors such as gross/fine motor development (Adjusted Odds Ratio = 1.69).

3.1.3   PARENTING FACTORS IN BEHAVIOURAL PROBLEMS

Stressors associated with living in low-income households may be linked to child problem behaviours. For instance, financial and psychological stress may reduce a parent's capacity to set and adhere to consistent boundaries for their children and to engage in sensitive parenting, which can be associated with negative repercussions for child development (Falconier & Epstein, 2010; Parke et al., 2004). Kaiser, Li, Pollmann-Schult, & Song, (2017) used data from the Families in Germany study (FiD) (Schröder, Siegers & Spieß, 2013) to illustrate a relationship between parenting styles involving a preoccupation with psychological control and a greater propensity for children to exhibit child behavioural problems in middle childhood.

Child problem behaviours may put further strain on parents, and family relationships may become caught in a cycle of maladaptive interactions (Meltzer, Ford, Goodman, & Vostanis, 2011). Other factors often associated with lower socioeconomic status such as parental psychological difficulty and marital discord may also contribute to child difficulties (Conger, Conger, & Martin, 2010).

3.1.4   SOCIOECONOMIC FACTORS IN BEHAVIOURAL PROBLEMS

Data from cohort studies such as *Growing Up in Ireland* and MCS have also indicated that children from lower socioeconomic backgrounds may be at greater risk for the development of behaviour difficulties. Using cut-off scores recommended by the authors of the SDQ, *Growing Up in Ireland* Cohort '98 figures (Williams et al., 2009) indicated that 9-year-olds whose mothers had attained the lowest level of education were approximately three times more likely to score in the problematic range on the conduct subscale of the SDQ than children whose mothers were third-level graduates (16% vs. 5%). Children whose mothers had the lowest levels of education were also over twice as likely to have difficulties with hyperactivity/inattentiveness compared to children whose mothers had attained the highest level of education (15% vs. 7%). These data also revealed patterns in child SDQ scores in relation to family income level; 13% of 9-year-olds from the lowest family income bracket scored in the problematic range on the conduct subscale compared to 6% of children from the highest income bracket. A similar trend was seen in relation to child hyperactivity/inattentiveness (15% vs. 8%). Analysis of the *Growing Up in Ireland* Cohort '08 data revealed that, of children aged 7/8 who scored in the top decile on the SDQ, 17% were from the lowest income group whilst 8% were from the highest income bracket (*Growing Up in Ireland* Study Team, 2017c). *Growing Up in Scotland* data similarly revealed that 7-year-olds from lower income families were at higher risk of conduct and hyperactivity problems compared with children from higher income households (Parkes et al., 2014). It is, however, important to remember that instruments such as the SDQ capture the caregiver's perception

of the behaviour and it is difficult to say how that perception might itself be affected by parental characteristics such as financial stress or education. Therefore, a key feature of primary school-aged phases of *Growing Up in Ireland* is the availability of teacher-reported measures for comparison.

3.1.5 THE IMPACT OF BEHAVIOUR DIFFICULTIES ON CHILD SOCIO-EMOTIONAL DEVELOPMENT

The presence of behaviour problems may not only have detrimental consequences for a child's academic success (Gutman & Vorhaus, 2012), but also their socio-emotional development and well-being. As previously mentioned, middle childhood is an important period for the development of social and emotional skills (NIH, 2018), and a child's relationships are significant factors which influence this development. Impaired relationships with peers, family members or teachers precipitated by difficulties in behaviour can have a negative impact on the child's developing sense of self, overall well-being and may predict later antisocial behaviour (Coie, Lochman, Terry, & Hyman, 1992). Parental behaviour has been found to mediate the relationship between behavioural problems and negative child developmental outcomes (van der Bruggen et al., 2010). Behavioural problems are also associated with poor academic achievement and poor psychosocial functioning (Ogundele, 2018).

3.1.5.1 IMPACT ON PEER RELATIONSHIPS

Previous research suggests that the presence of behavioural difficulties may be associated with peer rejection. A study of 362 children across four American primary schools, for instance, demonstrated that child aggression, hyperactivity and inattention predicted peer rejection of 9-year-old boys from low and middle-class backgrounds (Pope, Bierman, & Mumma, 1991). The authors proposed that attention difficulties may delay a child's acquisition of appropriate social rules, as well as their ability to monitor ongoing interactions and follow social cues. Furthermore, peers may be deterred by the child's disruptive and emotional outbursts, intimidated by aggressive displays, and seek to avoid children who engage in deviant behaviours (Coie, Dodge, Terry, & Wright, 1991). As peer relationships are important contexts for learning social skills such as taking turns, team work, and taking the perspectives of others (Rubin, Coplan, Chen, & Heverly-Fitt, 2015), children who are rejected by their peers due to behaviour problems may lag behind in their development of these skills, further impairing their capacity to form healthy social relationships. Furthermore, the experience of rejection may shape negative attitudes towards themselves and others and may lead the child to withdraw from social interaction, or encourage further antisocial behaviour (Miller-Johnson, Coie, Maumary-Gremaud, Bierman, & the Conduct Problems Prevention Research Group, 2002).

3.1.5.2   IMPACT ON LEARNING

Child behaviour difficulties may not only influence the child's development of socio-emotional skills but may also impact the learning environment at school. In the classroom setting, child behaviour difficulties can increase teacher stress and may contribute to burnout and turnover among teachers (Department of Education and Skills, 2006). Disruptive behaviour may not only impede the child's learning but also the teacher's ability to teach and other children's opportunity to learn. Research has demonstrated, however, that when teachers have a positive attitude towards their students who display challenging behaviours, demonstrate patience and have a good understanding of intervention techniques, this can positively impact on classroom processes (Sherman, Rasmussen, & Baydala, 2008). Effective behaviour management techniques by teachers may minimise classroom disruption and maximise harmony, which may not only decrease challenging behaviours but increase social cohesion amongst children and their peers (Centre for Effective Services, 2016).

3.1.6   COHORT '08 (INFANT COHORT) WAVE FIVE AT AGE 9

At age 9 the Primary Caregiver was asked to report on any longstanding condition or disability their child had, including ADHD, autism and severe behavioural problems. They were also asked to report whether their child had received a formal diagnosis and the extent to which the child's difficulties interfered with their daily activities. Parents and teachers also completed the Strengths and Difficulties Questionnaire (Goodman, 1997) and children completed the Piers-Harris self-concept scale (Piers, Harris & Herzberg, 2002). The Piers-Harris Self Concept Scale is a measure of self-concept based on the individual's own perceptions (as opposed to an external person's evaluation). It consists of 'yes/no' questions and is appropriate for use in young people aged 6 to 20 years. It provides an overall total score which measures an individual's overall self-concept, as well as six domain scores including measurements of behavioural adjustment, freedom from anxiety, happiness and satisfaction, intellectual and school status, physical appearance and attributes, and social acceptance.

The longitudinal design of the *Growing Up in Ireland* study permits investigation into the risk and protective factors for child development of behavioural problems in the Irish context. The rich data allow for longitudinal and contextual information to be built into statistical models such as when behavioural issues first emerged and whether the child has any conditions that might affect their well-being or academic attainment. This affords the researcher a wide-reaching ability to control for confounding variables in a manner that would typically be challenging for cross-sectional research. Thanks to the involvement of school principals and teachers at this wave (and at age 5), the impact of school and classroom characteristics such as the number of children in the room and the types of support received (e.g. through the DEIS scheme) can be considered in a rounded view of the child's development and well-being.

3.2 PLAY AND OTHER FREE-TIME ACTIVITIES AND THE SOCIO-EMOTIONAL DEVELOPMENT OF 9-YEAR OLDS

Play is a central feature of children's lives and provides an important context for the development of social and emotional skills (Ginsburg, 2007). Play is distinct from other child activities due to its spontaneous and intrinsically-motivated nature (Rubin, Fein, & Vandenberg, 1983). Structured free-time activities (e.g., sports) in which 9-year old children engage, therefore, differ by definition from play but also contribute in important ways to child socio-emotional development.

3.2.1 POLICY AND THE PLAY AND ACTIVITIES OF 9-YEAR-OLDS

Play is internationally recognised as crucial for healthy child development. The United Nations Convention on the Rights of the Child (1989) declared play as a fundamental right for every child. In the Irish context, the *National Children's Strategy* (Government of Ireland, 2000) was put in place in order to uphold these UN guidelines. As part of this strategy, over 2,000 children in Ireland between the ages of 3-17 years were consulted on what was important to them, with results indicating the central role of play and free-time activities for child well-being and their concern with the lack of suitable facilities. Subsequently, the Irish government published *Ready, Steady, Play! A National Play Policy* (National Children's Office, 2004), the first policy of its kind which aimed to highlight the importance of play in children's lives to the public, schools and child-care settings, and made a commitment to increase recreational amenities and spaces for children to play in the community. Towards 2016, a framework for economic and social development in Ireland, also stated that every child should have access to high quality play, sport, recreational and cultural activities (Department of the Taoiseach, 2006).

By 9 years of age, children have acquired complex motor co-ordination (Field & Temple, 2017) and cognitive skills (Lillard, Pinkham, & Smith, 2011) which enable them to partake in a wide range of physical and play activities. Physical activities such as chasing and team sports are popular amongst this age group. Data from the **Growing Up in Ireland** Cohort '98 revealed that three-quarters of 9-year-olds engaged in organised sports activities, and that this was positively related to parental income (Williams et al., 2009). This research also revealed that almost half of children in this age group participated in other structured activities such as dance, drama and art. Another type of play in which children of this age participated was non-symbolic play, such as playing with puzzles and board games. Children also enjoyed spending time playing computer games and reading. At this age children also engaged in complex symbolic or pretend play with their peers (Smith & Lillard, 2012), involving imagination and creativity, and this may include toy-play. Mothers from the **Growing Up in Ireland** Cohort '08 reported that their 7/8-year-olds primarily spent their free time 'reading for pleasure', whilst the second most popular activity was 'make-believe play', followed by 'playing on a computer' (**Growing Up in Ireland** Study Team, 2017c).

Today's 9-year-olds face unique challenges because how they play is influenced by technological advances; changing infrastructures which are reducing open space and

increasing traffic; concerns with letting children outside unsupervised; and the changing lifestyles of children and their parents (National Children's Office, 2004). More than ever, participation in structured activities such as sports is encouraged by parents and may be prioritised over free play that is initiated and structured by children themselves (Watchman & Spencer-Cavaliere, 2017). A nationwide study of play including almost 1,700 families across Ireland conducted in conjunction with Early Childhood Ireland revealed that children from middle-class socioeconomic backgrounds were spending more time engaging in structured activities and less time in free play than their lower socioeconomic counterparts (O'Connor, Cormack, Angus, & MacLaughlin, 2012). Data from *Growing Up in Ireland* Cohort '98 demonstrated that children could be clustered into groups according to the activities in which they engaged; the TV/sports group; the social networker group; the sports/computer games group; the cultural activities group; and the busy lives group (McCoy et al., 2012a). The 'busy lives' group participated in a wide range of structured sports and cultural activities, and also spent time reading, playing video games and on the computer. Children in the 'busy lives' group were more likely to reside in urban (rather than rural) neighbourhoods where unemployment was low. Higher employment rates of both parents may be a factor in increased child participation in structured after-school activities. Figures from the Central Statistics Office (2016b) demonstrated that amongst couples whose youngest child is aged 6 or older, employment is at 85% for men and 66% for women. Furthermore, a strong emphasis is placed on the importance of physical activity for young children's development which may also explain the high levels of engagement in structured activities. *Healthy Ireland, A Framework for Improved Health and Wellbeing 2013-2025* recommended a minimum of 60 minutes of physical activity per day for children and young people (Department of Health, 2013). At school, play time is usually limited to breaks and this is subject to weather conditions as well as the space and resources of particular schools. Due to fears of injury, children are often restricted in the games they can engage in during break-time (National Children's Office, 2004).

3.2.2 THE INFLUENCE OF PLAY AND FREE-TIME ACTIVITIES ON SOCIO-EMOTIONAL DEVELOPMENT

Middle childhood is an important time for child social and emotional development when children must negotiate parent, sibling and peer relationships and learn to manage their emotions with increasing independence (Carr, 2011). It is also a significant period for the child's emerging concept of self, as an individual and in the social environment (Erikson, 1959). Developmental theory considers play important for healthy socio-emotional development. Whilst conceptualisations and approaches to measuring play have varied across the literature (Cabrera, Karberg, Malin, & Aldoney, 2017) and research focusses primarily on early childhood, evidence supports the positive influence of play on the socio-emotional development of 9-year-olds for example the development of social skills, emotional regulation, and cognitive development (Bergen & Fromberg, 2009).

Through play with adults, siblings and peers, children learn about the social rules intrinsic to successful interaction. Children practise skills including sharing, negotiation, conflict resolution and turn-taking, as well as strengthening their communications skills such as talking and listening, which are necessary components of building healthy relationships (Athey, 2018).

Structured play, such as team sports, promotes healthy social interaction as children practise skills such as rule-following, taking turns, and co-operating with team mates. According to the literature, a key difference between structured activities such as team sports and unguided free play with others is that the latter permits children the independence to apply and practice these burgeoning social skills (Ginsburg, 2007). The skills children learn whilst at play promote healthy child relationships with peers and adults and therefore contribute in important ways to child well-being.

Enjoyable play for 9-year-olds fosters positive emotions, and different forms of play are enjoyable for different children. Successful play interactions furnish the child with a positive sense of self-worth and esteem (Erickson, 1985). Play can also act as a vehicle through which children express their feelings, thoughts and desires. Play may afford children the opportunity to work through and resolve negative emotions (Bretherton, 1989), a concept which underpins child play therapy. Furthermore, increased physical activity is associated with reductions in negative emotions. A systematic review of studies investigating the role of sport for children's and adolescents' psychological and social health reported a positive effect of physical activity on children's mood (Eime, Young, Harvey, Charity & Payne, 2013). Another style of physical play which is considered to peak during middle childhood is known as rough-and-tumble play (Pellegrini & Smith, 1998) and includes behaviours such as pretend wrestling and chasing. These rough-and-tumble interactions are characterised by high intensity peaks of positive arousal and are hypothesised to assist children in developing socio-emotional skills such as regulating one's own emotions, and interpreting emotional cues in others (Carson, Burks & Parke, 1993; Pellegrini, 1988).

Children themselves demonstrate great insight into the importance of play for socio-emotional well-being. A qualitative study with 38 children between the ages of 7-11 recruited from four schools across the UK was conducted in order to investigate the emotional importance of play to children (Howard, Miles, Rees-Davies, & Bertenshaw, 2017). In this study, children described positive feelings of happiness and pleasure in relation to play. The children also referred to the importance of play for supporting friendships, as well as the need to cooperate with others and follow rules in order for play to be successful.

3.2.3   GENDER DIFFERENCES IN PLAY

Previous analyses of the *Growing Up in Ireland* data have revealed gender differences in child play, particularly with regards to physical activity. Results from Cohort '98 of *Growing Up in Ireland* demonstrated that whilst most Irish children were not meeting the 60 minutes of

physical activity per day goal, 9-year-old girls were more likely than boys to miss this target (Williams et al., 2009). This report also found that boys spent more time playing video games than girls, with 30% of boys compared with 12% of girls spending at least one hour per day engaging in this activity. Results from **Growing Up in Ireland** Cohort '08 indicated that 7/8-year-old girls demonstrated a preference for 'make-believe' play, reading, dancing and crafts whereas boys favoured physical play and computer games (**Growing Up in Ireland** Study Team, 2017c).

Research suggests that boys and girls are socialised to play according to gender stereotypes. Parents socialise gender through the toys they provide their children (Leaper, 2002) and the activities in which they encourage them to partake (Lytton & Romney, 1991). Parents are, for example, more likely to engage in rough-and-tumble play with boys (McIntyre & Edwards, 2009), and this is particularly evident between fathers and sons (Mascaro, Rentscher, Hackett, Mehl, & Rilling, 2017). Parents are more accepting of physical risk-taking amongst sons than daughters and attribute risk-related behaviours to boys' personality traits (Morrongiello & Hogg, 2004). Similarly, gender-typing of play activities may also be reinforced by a child's peers. A study investigating play patterns of 81 nine-year-old children in a Canadian sample found that boys typically engaged in rough-and-tumble play whereas girls' play was calmer and involved more conversation (Moller, Hymel, & Rubin, 1992). Interestingly, the authors noted that boys who frequently engaged in "masculine" play activities were more popular amongst their male peers.

Given the relationship between play and socio-emotional development, interesting parallels may be drawn between gender-typing of play and socialisation of emotion in children. Expression of certain emotions may be considered more acceptable depending on a child's gender, whereby expressions of sadness in boys and anger in girls are often discouraged whereas the expression of sadness by girls and anger by boys may be reinforced (Zeman, Cassano, Perry-Parrish, & Stegall, 2006). Thus, gender moderates the relationship between behavioural reinforcement in play and socio-emotional development (e.g. Leaper, 2002). Data from previous **Growing Up in Ireland** analyses suggest that amongst Irish children, 9-year-old boys and girls showed different patterns of socio-emotional developmental difficulties, parents and children separately completed various instruments related to outcomes such as the previously described Strengths and Difficulties Questionnaire (Goodman, 1997 – parent report) and the Piers Harris Self-Concept measure (child-report). These types of measure enable contrasts between play and free-time activities and indicators of well-being. The data collected at age 9 can be used to investigate gender and socio-economic differences in play and other free-time activities, and how different forms of play and activities may shape socio-emotional trajectories. The relationships between community resources and perceptions of safety and play and socio-emotional development may also be investigated. There is scope to address these questions both cross-sectionally and longitudinally. Given the longitudinal nature of the research, it may be of interest to examine not only the relationships between

earlier play and later child socio-emotional development but also how a child's concurrent socio-emotional skills may be associated with their participation in play and other free-time activities.

3.3 THE IMPORTANCE OF PARENT-CHILD RELATIONSHIPS

3.3.1 BACKGROUND

In this section, the importance of caregiver relationships for the socio-emotional development of 9-year-olds is discussed. According to the bio-ecological model of human development (Bronfenbrenner & Morris, 2006), the microsystem refers to the relationships a child experiences in their immediate environment (i.e., relationships with parents, siblings, peers, school). These relationships are shaped by many factors such as child age, gender, and temperament, as well as parental sense of competence, attitudes towards parenting, and psychological well-being. Furthermore, these characteristics interact with contextual/macrosystem factors such as parent employment, family socioeconomic status and culture, in shaping children's immediate relationships, and ultimately child development. This section focuses specifically on the importance of the parent-child relationship, for healthy socio-emotional development and considers the range of factors which may influence these relationships. Understanding these complex interactions is important in order to explore patterns of risk and resilience and thereby inform intervention strategies.

3.3.2 POLICY

Theory and research have long recognised the importance of family – and, in particular, the role of the parent-child relationship - in supporting child development. The United Nations Convention on the Rights of the Child (1989) emphasised how parents and the family are central to healthy child development and well-being. In the Irish policy context, *Better Outcomes Brighter Futures: The National Policy Framework for Children and Young People, 2014-2020* committed the government to providing support for all families in Ireland, to best meet the needs of children (Department of Children and Youth Affairs, 2014). This framework outlined government objectives to support parents through the dissemination of parenting advice, and access to childcare, parental leave, financial support, and evidence-based intervention according to the specific needs of families.

3.3.3 THE INFLUENCE OF FAMILY RELATIONSHIPS ON CHILD SOCIO-EMOTIONAL DEVELOPMENT

When designing the Irish Health Behaviour in School-aged Children 2014 survey, consultation with young people revealed that children aged 8-12 years considered family to be one of the most important factors in their well-being (Department of Health, 2014). Although relationships with peers become more salient during middle childhood, the family, and particularly parents, remain a key influence for the socio-emotional development of children during this period (Collins, Maccoby, Steinberg, Hetherington & Bornstein, 2000). It is in the context of the parent-child relationship that children are first exposed not only to the social

rules that govern successful interaction but also to patterns of parental behaviours which support the healthy development of self-concept and self-esteem. Parents not only model appropriate social and emotional behaviour but their influence is also mediated by how they respond to their children's behaviours - their style of parenting - as well as the climate they create within the family which contribute to children's social and emotional skill development (Morris, Silk, Steinberg, Myers, & Robinson, 2007). Furthermore, children themselves are active participants in these relationships and they too shape patterns of interaction with their social partners in ways that are important for their development (Sameroff, 2009).

The quality of the parent-child relationship guides how children internalise the social and emotional regulation skills which they practice in the context of parent-child interaction. Analysis of the *Growing Up in Ireland* Cohort '98 data indicated an association between parent-child relationships and sibling-child relationships, such that 9-year-olds whose parents reported low levels of closeness and/or high levels of conflict (between themselves and the child) were more likely to say they 'never' got on with their siblings (Williams et al., 2009). In terms of correspondence between parental and child ratings of quality of the emotional relationship, the vast majority of 9-year-olds in Cohort '98 said they got on 'very well' with their parents – and very few said they 'did not get on at all' – but among a smaller group of children who only got on 'fairly well', there were a higher number of corresponding parents who had described the relationship as higher in conflict or lower in closeness (ibid.).

Research has demonstrated that several dimensions of parenting, especially warmth, hostility and consistency, may be particularly pertinent to child development (Zubrick, Lucas, Westrupp, & Nicholson, 2014). Parental warmth refers to parenting behaviours which are involved, responsive and synchronised with the child's behaviours and emotions, and demonstrate affection and enthusiasm (Amato, 1990). Parental hostility, however, is characterised by critical and coercive interactions with children, as well as harsh approaches to discipline (Zubrick et al., 2014). Parental consistency involves setting and adhering to consistent and appropriate boundaries for children and is believed to support the child's development of pro-social behaviours. Findings from *Growing Up in Australia* demonstrated an association between higher maternal and paternal warmth and child socio-emotional development between the ages of 8 and 9 (Baxter & Smart, 2010). A limitation of this study is that the authors did not investigate the relationship between parental hostility and consistency and child socio-emotional development. Results from this *Growing Up in Ireland* cohort at age 3 years, however, indicated that low parental warmth and consistency and high parental hostility were associated with more parent-reported socio-emotional difficulties (Williams, Murray, McCrory, & McNally, 2013).

Whilst past research has focussed primarily on the mother-child relationship, more recent findings emphasise the unique and important role of fathers in child development. Data from *Growing Up in Scotland* demonstrated a significant association between the quality of the father-child relationship and child socio-emotional well-being (Parkes, Riddell, Wight

& Buston, 2017). Fathers may exert direct influences on child socio-emotional development through modelling prosocial behaviours, responding to his child's activities with warmth and sensitivity, as well as setting consistent boundaries. Their influence may also be indirect, by acting as a source of financial and psychological support for mothers and reducing maternal stress that may affect the mother-child relationship (Coley & Schindler, 2008). Research with younger children has also demonstrated how high-quality paternal parenting may serve as a buffer for children against the negative effects of harsh maternal parenting (Ryan, Martin, & Brooks-Gunn, 2006).

In similar ways the involvement of children's extended family may contribute to the child's socio-emotional development; however, research exploring the role of other family members has been limited. According to *Growing Up in Ireland* Cohort '98 data, 66% of 9-year-olds in Ireland have frequent contact with their grandparents (*Growing Up in Ireland* Study Team, 2009a). As with parents, grandparents may model appropriate social and emotional behaviours and help children learn how to interact successfully with others. In relation to the influence of other family members on child development, sibling relationships are quite unique and can be characterised by conflict and rivalry. These challenging patterns of interaction may benefit the child's socio-emotional development by furnishing them with social problem-solving skills and increasing their capacity for understanding emotions in others and to take the perspective of others (McHale, Updegraff, & Whiteman, 2012).

Whilst it is difficult to tease out the factors which are most important for supporting child socio-emotional development, the effectiveness of parenting programmes for improving child well-being has been the subject of much research. Well-known international interventions such as *Triple P* and the *Incredible Years* programmes aim to support healthy child development by building parents' skills and confidence in parenting. Results from a meta-analysis of over one hundred studies (including 62 randomised controlled trials) concluded that *Triple P* is effective in improving socio-emotional skills in children of every age in both at-risk and representative samples (Sanders, Kirby, Tellegen, & Day, 2014). Meta-analytic results also revealed that the *Incredible Years* programme is effective in promoting prosocial behaviours in at-risk children aged 3-9 years (Menting, Orobio de Castro, & Matthys, 2013). While these intervention studies are not directly pertinent to the *Growing Up in Ireland* study, such evaluations underline the value of parenting interactions for the child's development of socio-emotional skills and well-being.

3.3.4 FACTORS WHICH INFLUENCE THE QUALITY OF FAMILY RELATIONSHIPS

Targets for intervention are based on research into the factors which influence the quality of family relationships. As previously mentioned, in the context of the parent-child relationship, this can include both child and parent characteristics as well as wider contextual factors. Parental psychological well-being, for instance, may influence the quality of the parent-child

relationship. Depressed mothers, for example, can be less responsive, less positive and more controlling when interacting with their children (Dix & Meunier, 2009). Previous analyses of the *Growing Up in Ireland* Cohort '98 data suggest that observed associations between maternal depression and socio-emotional difficulties among 9-year olds may be explained through its deleterious effect on the parent-child relationship (Nixon, 2012).

Another parent characteristic which may influence the quality of parent-child relationships is marital satisfaction (Belsky, 1984). Increased marital satisfaction may reduce parenting stress and conflict within the household. Data from *Growing Up in Ireland* Cohort '98 demonstrated that the quality of the mother-child relationship mediated the relationship between lower marital satisfaction and greater child socio-emotional difficulties (Nixon, 2012). This finding may be particularly salient given that it is the loss of financial and parenting support associated with one-parent households that is believed to have important repercussions for child development (Silverstein & Auerbach, 1999).

Parents who have limited resources and high levels of stress may find it more difficult to maintain positive patterns of interaction with their children. Data from *Growing Up in Ireland* Cohort '98 (Williams et al., 2009) indicated that 9-year-olds in one-parent families were more likely to experience four or more types of stressful life event and, in turn, children who had experienced multiple stressful life events were more likely to have high scores on the problem subscales of the Strengths and Difficulties Questionnaire (SDQ). Using the same dataset, Nixon (2012) demonstrated that both low income and a one-parent family structure were both associated with higher total scores on the SDQ but accounted for a relatively small proportion of the variance; and the author concluded that parenting processes and child characteristics (rather than family structure) were more salient (p.52).

Within the wider context, perceived social support from extended family and community may influence parenting by providing resources such as emotional support, advice, and hands-on assistance (Belsky, 1984). This support may reduce parenting stress as well as better equip mothers and fathers to parent effectively and be more available to their children. According to data collected from *Growing Up in Ireland* Cohort '08 at 9 months, 10% of mothers reported that they did not get enough support whilst 5% of mothers reportedly got no support from friends and family (Williams et al., 2010). Providing support to parents is one way in which the involvement of grandparents or other members of the extended family may indirectly influence child socio-emotional development.

The economic resources of parents may also exert an indirect influence on the parent-child relationship. Low socioeconomic status (SES) is often associated with higher parenting stress and harsher parenting practices (McLoyd, 1998). Data from the *Millennium Cohort Study* indicated that the relationship between family income and child social-emotional development was also mediated by maternal psychological distress, indicating that provision of both financial and mental health supports for families may benefit child developmental

trajectories (Noonan, Burns, & Violato, 2018). As noted above, *Growing Up in Ireland* Cohort '98 data demonstrated that 9-year-olds from the lowest SES brackets displayed the greatest levels of socio-emotional difficulty (Nixon, 2012). It is important to note, however, that the association between income and child socio-emotional skills was reduced once the quality of the parent-child relationship was taken into consideration, indicating that support for parenting may have important implications for child development.

In conclusion, research shows that a wide range of factors may influence the quality of family relationships and these factors may change over time. This has implications for policy, highlighting in particular the importance of supporting parents at every stage of the child's development.

3.3.5   COHORT '08 (INFANT COHORT) WAVE FIVE AT AGE 9

At age 9, information was collected from both children and parents regarding the quality of their relationship) and dimensions of parenting (reported separately by Primary and Secondary Caregivers where available, relationships with siblings and grandparents and amount of time spent with members of the extended family. Data on parent psychological well-being, parenting stress, marital satisfaction, perceptions of support from family and friends – individually from Primary and Secondary Caregivers in most applicable instances - as well as information on family structure.

To complement information on family relationships, contextual data were collected on the housing situation of the family, the employment experiences of parents, their income level, work-life balance and family receipt of income support through the Department of Employment Affairs and Social Protection. This allows researchers to trace the processes by which wider socio-economic conditions impact the microsystem (e.g. via parenting and parent-child relationships) within which the child is embedded, and subsequently their individual development. Possible outcome measures include the previously-described Strengths and Difficulties Questionnaire (Goodman, 1997), available in both teacher and parent-reports, and, for the first time, the child's own report of how well they get on with their parents and their self-concept (the latter via the Piers Harris measure).

A criticism of past research has been its narrow focus on the child's microsystem without consideration of the broader sources of influence on child development (Tudge, Mokrova, Hatfield, & Karnick, 2009). Due to the scope of information collected and its longitudinal design, *Growing Up in Ireland* data can address these limitations and enrich current knowledge concerning the importance of family relationships for child socio-emotional development and the factors which affect these relationships when children are 9 years old. This will have important implications for policy-makers in relation to informing targets for intervention in the Irish context.

3.4 SUMMARY

This chapter has reviewed the literature in three key areas related to the socio-emotional development of children at 9 years old: behavioural difficulties in this age group; the importance of play; and the significance of the parental child relationships. These areas were chosen because of their significance to the socio-emotional and behavioural well-being in middle childhood (as well as other life stages) and because they have been identified as important policy concerns regarding children. The *Growing Up in Ireland* study provides a rich source of data on these topics which will aid the understanding of their significance on children's well-being at age 9 as well as the extent to which earlier experiences in this area may continue to affect them in middle childhood. On top of this, cross-cohort comparisons will enable an insight into the context of time and how this is associated with socioemotional development.

Chapter 4

EDUCATION AND COGNITIVE DEVELOPMENT
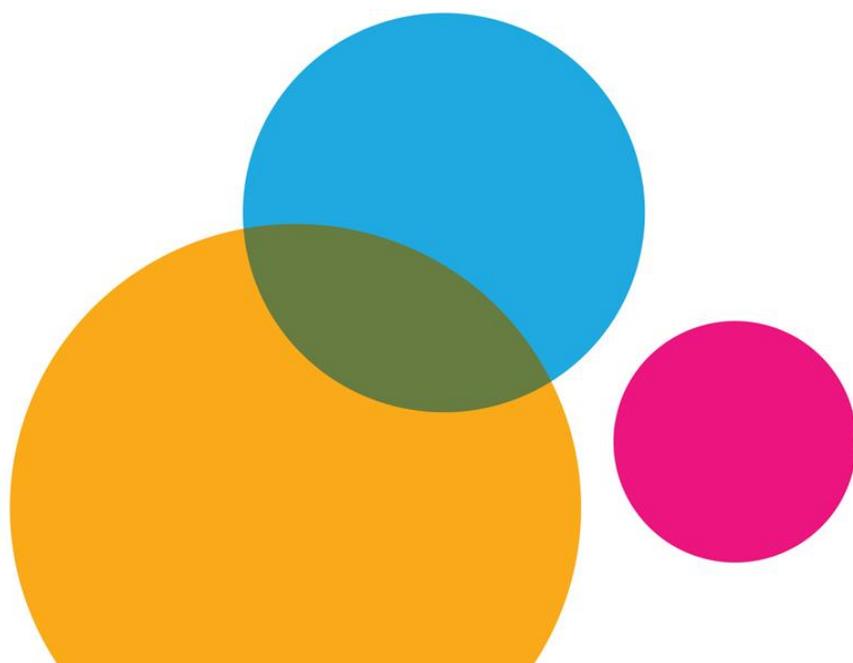
4   EDUCATION AND COGNITIVE DEVELOPMENT

Virtually all 9-year-olds in Ireland attend school. While home-schooling is permitted, subject to conditions, it represents a very small proportion of the overall Irish population. Therefore, the school is an extremely important feature of the microsystem for nearly all children. While the school's main function is the provision of education and learning, it is a community: with its own network of relationships, setting local social norms for behaviour and fostering (ideally) emotional and physical as well as academic development. Children may spend almost as much of their waking hours during term-time with their teacher and classmates as with their parents and siblings.

The first section of this chapter considers the importance of peer relationships within the school setting. Unfortunately, such relationships are not always positive; hence the issue of bullying is also covered. The second section of this chapter focuses on how the characteristics of the school itself influence the academic attainment of an individual child, for example, in terms of 'climate' and resources. As *Growing Up in Ireland* collected data from school principals and teachers, as well as parents and children, it is particularly well-placed to examine this question. The third and final topic shifts the spotlight away from the school and on to other influences on the child's learning, namely, the home environment and the individual child's own characteristics.

4.1   PEER RELATIONSHIPS

Relationships with others have important influences on child developmental trajectories. At age 9, children in Ireland spend a lot of time engaging with peers, both inside and outside of school (e.g., Williams et al., 2009). Given that interactions with peers are a fundamental feature of the school setting, healthy relationships with other children are considered to support child cognitive development and academic achievement. On the other hand, peer rejection and bullying may have negative implications for child well-being and school performance. This section discusses the positive role of healthy peer relations for child academic success and highlights the risk factors associated with peer rejection and bullying. Understanding these risk factors, as well as the protective role of peer relationships during middle childhood, has important implications for policy.

4.1.1   THE INFLUENCE OF PEER RELATIONSHIPS ON CHILD COGNITIVE DEVELOPMENT AT AGE 9

During middle childhood, experiences with friends may be particularly salient for child development (Hartup, 1984). According to data from the *Growing Up in Ireland* Cohort '98 study, 92% of 9-year-olds in Cohort '98 had at least two close friends and the majority of them spent time with friends outside of school at least two days a week (Williams et al., 2009). Research has demonstrated both direct and indirect associations between peer relationships and child academic attainment. Peer achievement, for instance, has demonstrated associations with individual child academic performance (e.g., Hanushek, Kain, Markman, &

Rivkin, 2003). Peers may (or may not) motivate children to do well in school, set a standard to aspire to, as well as participate directly in classroom learning interactions by contributing to the pace of teaching, and answering and asking questions (Hanushek et al., 2003). Peers also model classroom behaviours such as participation and engagement in class, as well as attitudes towards school and learning (Ladd, Kochenderfer-Ladd, & Sechler, 2014a). Whilst these classroom behaviours are considered adaptive, disruption and misbehaviour by peers may elicit maladaptive behaviour in the individual child (Thomas, Bierman, & Powers, 2011). Peers may also indirectly support child academic achievement through their influence on socio-emotional development, which in turn promotes child collaboration in classroom activities and positive relationships with teachers (Ladd, Kochenderfer-Ladd, Ettekal, Cortes, Sechler & Visconti, 2014b). Ladd and colleagues described three types of peer relationships evident in the classroom context which have implications for child performance at school: friendships, peer acceptance or rejection, and victimisation (Ladd, Kochenderfer & Coleman, 1997).

4.1.1.1 FRIENDSHIPS

As previously mentioned, peers may vary in the extent to which they model adaptive classroom behaviours as well as motivate children to achieve high performance at school. From a social learning perspective, children learn from observing the behaviours of others and subsequently adopting these behaviours (Bandura, 1986). According to this theory, the strong emotional bonds between friends may promote both the salience of these behaviours, and also the likelihood that children will be motivated to adopt these behaviours themselves. Classroom behaviours such as engagement and participation, as well as homework completion, are associated with healthy cognitive development and academic performance (Cooper, Robinson, & Patall, 2006; Fredericks, Blumenfeld, & Paris, 2004). It may also be within the context of peer relationships that children develop early positive or negative attitudes towards school and learning (Ladd, Kochenderfer, & Coleman, 1996), which supports academic achievement (Hartas, 2012). Ladd and colleagues (1996) indicated that perceived peer support amongst 5-year-old children predicted child liking of school and attitudes towards academic challenges. Indeed, friends often share common attitudes and goals with regards to academic achievement, whether they be positive or negative (Harris & Butterworth, 2012).

Beyond modelling achievement-oriented behaviours and attitudes, school-related interactions between friends in the classroom or during homework completion may help reinforce what they have learned from the teacher, provide different perspectives and approaches to problem-solving, and promote the development of reasoning skills. Hartup (1996) described how approaches to problem-solving between friends are more open and dynamic and provide children the opportunity to take risks with ideas, compared with interactions between non-friends. Peer-mediated learning approaches are based on the idea that children benefit from practicing the skills they have been taught in the classroom in a

supportive context, and research suggests this technique is effective in promoting child academic success (Ladd et al., 2014b).

During play and other free-time activities, interactions with friends may also provide children with opportunities to practise problem-solving and reasoning skills (Ginsburg, 2007). Furthermore, interactions between friends may promote child language development which is influenced by the speech to which children are exposed (Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002). The influence of peers on this domain of development may be particularly important for children of immigrant status who are learning a second language which may not be spoken frequently in the home (Cekaite, Blum-Kulka, Grøver, & Teubal, 2014).

Another way in which friendship supports academic achievement is through its influence on child socio-emotional well-being. Child socio-emotional skills which develop through peer relationships underpin successful engagement with learning opportunities and in this way, friendships may indirectly influence child academic achievement (Guhn, Schonert-Reichl, Gadermann, Hymel, & Hertzman, 2012). Social and emotional regulation skills enable a child to interact successfully in class and promote healthy relationships with teachers, parents and peers which, in turn, supports positive cognitive development (Bruner & Bornstein, 1989). It is important to note that peers can also have a negative influence, and reinforce problem behaviour (Werner & Crick, 2004).

4.1.1.2 PEER ACCEPTANCE AND REJECTION

The majority of research into the role of peers in child academic achievement has focussed on peer acceptance and rejection (Ladd et al., 2014a). Results of a meta-analysis conducted by Newcomb and colleagues revealed that children between the ages of 5 and 12 who were rated as popular amongst peers had higher academic ability whilst 'rejected' children had performance levels which were lower than average (Newcomb, Bukowski, & Pattee, 1993). As the majority of studies included in this analysis were cross-sectional, definitive conclusions cannot be drawn regarding the direction of effects because without longitudinal data it is difficult to know whether academic ability followed from your popularity or whether doing poorly at school makes a child less popular with their peers. Acceptance by peers may foster a sense of inclusion and increase opportunities and motivation to engage with others on school-related tasks (Buhs, Ladd & Herald, 2006). A longitudinal study of school-children from a representative sample aged 5-12 demonstrated that peer acceptance was related to higher levels of participation in the classroom whereas peer rejection was linked with lower involvement (Ladd, Herald-Brown & Reiser, 2008). This study also demonstrated that children's status as accepted or 'rejected' was not static and that children who moved from being 'rejected' to accepted exhibited increases in school participation. Previous research has also suggested that peer rejection is associated with lower academic self-concept (Flook, Repetti, & Ullman, 2005), negative attitudes towards school and absenteeism (DeRosier,

Kupersmidt, & Patterson, 1994), and poorer academic achievement (Véronneau, Vitaro, Brendgen, Dishion, & Tremblay, 2010). Overall, this research suggests that peer interactions are important for child well-being and academic performance.

4.1.1.3 BULLYING

Another form of peer relationship which can have negative implications for child cognitive development and academic performance is bullying by peers. According to the *Health Behaviour in School-Aged Children* (HBSC) Irish survey, 26% of children between the ages of 10 and 17 had experienced recent bullying during the previous couple of months (Department of Health, 2014). According to **Growing Up in Ireland** Cohort '98 data, 40% of 9-year-olds reported being picked on during the past year, although the figure for parent-reported incidences of bullying was lower (Williams et al., 2009). The authors suggested that children may not disclose incidences of bullying to their parents or that this discrepancy may reflect the different ways in which parents and children conceptualise bullying. According to these data, children most frequently reported being subjected to verbal bullying, followed by exclusion, then physical bullying. The *EU Kids Online* survey revealed that 4% of children in Ireland between the ages of 9 and 16 had experienced online bullying (O'Neill, Grehan, & Olafson, 2011). Being bullied may result in school avoidance, emotional difficulties and withdrawal from classroom activities (Buhs et al., 2006). Data from the *Avon Longitudinal Study of Parents and Children* indicated that having been bullied was associated with poorer school engagement whilst positive friendships predicted higher engagement at school among children aged 7-13 (Gutman & Vorhaus, 2012).

The **Growing Up in Ireland** Cohort '98 study also revealed that 13% of 9-year-olds had bullied another child during the past year, with analyses indicating that children may be both victims and perpetrators of bullying (Williams et al., 2009). Research by Wolke and colleagues suggests that bullying others is associated with conduct and socio-emotional problems, and that children who are both victims and perpetrators of bullying may be at greatest risk of psychological maladjustment (Wolke, Woods, Bloomfield, & Karstadt, 2000).

The negative relationship between bullying and academic achievement has been well established and remains robust when academic achievement is measured through standardised test scores or grades (Espelage, Hong, Rao & Low, 2013; see Nakamoto & Schwarts, 2010 for a meta-analysis) and is true for episodic as well as chronic bullying (Espinoza, Gonzales, & Fuligni, 2013). This negative relationship has been found in children as young as 5 years of age and has lasting effects throughout the school years (Espinoza et al., 2013). Several longitudinal studies have found evidence to suggest that the direction of this relationship is such that bullying precedes poor academic achievement (e.g. Schwartz Gorman, Nakamoto & Toblin, 2005; Nansel, Haynie, & Simonsmorton, 2003) although definite conclusions in regard to causality and direction are, as of yet, premature and pending further research as some studies have failed to replicate these findings in other

contexts (see Rueger & Jenkins, 2014; Feldman et al., 2014). Due to the longitudinal nature of the **Growing Up in Ireland** data, there is an opportunity to provide further insight into whether or not a causal relationship between bullying and academic achievement exists in the Irish context.

4.1.2   FACTORS WHICH INFLUENCE THE QUALITY OF PEER RELATIONSHIPS

Although it is difficult to disentangle the role of peer relationships from other sources of influence such as school and home-level factors in promoting child cognitive development, friendships appear to play an important role in child academic achievement during middle childhood. It is therefore important to support the development of healthy peer relationships and elucidate the factors which may put children at risk of social isolation. Data from **Growing Up in Ireland** Cohort '98, for instance, indicated that young people at age 13 who held immigrant status or had a special educational need were more likely to perceive themselves as less popular (Smyth, 2017b). Other research suggests that the presence of behavioural and attention difficulties may be associated with peer rejection during middle childhood (Pope et al., 1991). The HBSC Ireland study also revealed that children of immigrant status, Traveller children, children with a chronic illness or disability, and children from a more socio-economically disadvantaged background were more likely to experience bullying (Department of Health, 2014). **Growing Up in Ireland** Cohort '98 data further revealed gender differences in patterns of victimisation amongst 9-year-olds whereby boys were more frequently subjected to verbal and physical bullying whilst girls were more likely to experience exclusion (Williams et al., 2009).

4.1.3   POLICY

One aim outlined in *Better Outcomes Brighter Futures: The National Policy Framework for Children and Young People, 2014-2020* is that the Irish government protect the well-being of children by supporting their social networks, including relationships with friends (Department of Children and Youth Affairs, 2014). This framework recognises the importance of healthy relationships for child development and aims to overcome challenges such as discrimination which isolate young people from friends and communities, and to empower children to value and express their identity and engage wholly in society. In relation to schooling, the Department of Education and Skills published the *Anti-Bullying Procedures for Primary and Post-Primary Schools* which outlined requirements for developing and upholding an anti-bullying policy as part of a school's code of behaviour (Department of Education and Skills, 2013). According to this policy, a school's anti-bullying policy should clearly define bullying, and outline strategies to prevent bullying, address bullying effectively when it does occur, and foster an inclusive school environment. The Department of Education Inspectorate (2017c) investigated student perceptions of bullying and how it is tackled in school. Results indicated that schools were generally succeeding in implementing effective anti-bullying measures and children knew who to talk to if they needed help. This review did, however, indicate that primary school children felt less safe in the playground compared to in class, which has implications for how break-times are supervised.

4.1.4   COHORT '08 (INFANT COHORT) WAVE FIVE AT AGE 9

At age 9, data were collected from parents, teachers, and children regarding child peer relationships. Parents reported on the amount of time their child spent with their peers outside of school, how many close friends their child had and whether they had been the victim of bullying during the past year. Parents and teachers completed the Strengths and Difficulties Questionnaire which measures socio-emotional well-being on a number of dimensions (Goodman, 1997), including one on problems in peer relationships. Children were also asked to report on any incidences during the past year when they either were a victim or perpetrator of bullying, as well on the type of bullying involved.

In terms of academic development, information on child academic performance, attendance and attitudes towards school was collected. Both parents and teachers were asked to evaluate how well they thought the child was doing in different school subjects. Two assessments were conducted by interviewers in the home: these were the Drumcondra English Reading test and a measure of selective attention (SAT) from the Test of Everyday Attention for Children (TEA-Ch). These data can be used to investigate the relationship between peer relationships and the cognitive development and academic achievement of 9-year-olds as well as to elucidate the risk factors which may impair these relationships and lead to social exclusion or bullying.

The longitudinal design of this study allows for investigation of the factors associated with peer relationships. The effect of the number and quality of peer relationships on academic achievement, in both the short- and long-term, can be investigated. Similarly, the relationship between peer relationships and the child's wider socio-emotional well-being can be explored using data collected at this wave of *Growing Up in Ireland*.

4.2   THE IMPORTANCE OF SCHOOL-LEVEL FACTORS FOR EDUCATIONAL ATTAINMENT OF 9-YEAR-OLDS

Education is a fundamental factor in child development and well-being. International research suggests that positive school-level factors can reduce socioeconomic inequalities in education (OECD, 2012). School characteristics such as type of school, resources, and disciplinary policy may shape child academic performance. At the classroom level, teacher characteristics, the teacher-pupil relationship, and teaching methods may affect child attainment. National policies on education and the primary-school curriculum also influence child achievement at primary level more broadly. This section discusses how these factors shape child educational attainment at age 9.

4.2.1   THE INFLUENCE OF SCHOOL CHARACTERISTICS ON CHILD ACADEMIC ACHIEVEMENT

4.2.1.1   TYPE OF SCHOOL

In Ireland, the vast majority of primary schools are denominational – primarily Roman Catholic, although newer models of multidenominational schools are emerging which are run by the educational charity Educate Together or the Education and Training Boards. School

choice patterns along with differences in neighbourhood profiles mean that primary schools differ significantly in the socio-economic background of their student body. In recognition of these disparities, the DEIS (Delivering Equality of Opportunity in Schools) programme offers targeted supports for teachers and pupils in schools serving a high concentration of pupils from disadvantaged backgrounds. Schools in Ireland may also differ in their language medium (with gaelscoileanna offering Irish-medium education).

Primary schools in Ireland can be single-sex or co-educational, and classes can be single grade or multi-grade. There is debate in the literature regarding the influence of class gender composition on child academic performance. Whilst some research suggests that the gender profile of the classroom may influence academic performance at primary level (e.g., Hoxby, 2000), a meta-analysis of high-quality, controlled studies failed to find a significant difference in student achievement between single-sex and co-educational schools (Pahlke, Hyde, & Allison, 2014). Research in the Irish context has indicated that amongst 9-year-olds, the gender gap in Maths achievement at the top of the distribution was higher in single-sex schools than in co-educational schools, with boys outperforming girls (Doris, O'Neill, & Sweetman, 2013). Multi-grade classrooms are a common feature of smaller primary schools in rural areas (Irish National Teachers' Organisation, 2003) and according to **Growing Up in Ireland** Cohort '98 data approximately a third of 9-year-old children were taught in this type of classroom (Quail & Smyth, 2014). Whilst international research has produced inconsistent findings with regards to the academic outcomes for children in multi-grade classrooms, analysis of Irish data revealed little impact, although a negative effect was observed on the academic performance of girls when mixed with older children (Quail & Smyth, 2014).

International research has demonstrated that the social mix of a school may influence child academic attainment, and that schools with higher levels of socioeconomic disadvantage are at greatest risk (Thrupp & Lupton, 2006). In the Irish context, data from the **Growing Up in Ireland** Cohort '98 study revealed that 9-year-olds attending urban DEIS schools with the highest levels of disadvantage displayed lower levels of performance in Maths and Reading compared with pupils from non-disadvantaged schools controlling for individual social background (McCoy, Quail, & Smyth, 2014). According to these analyses, the social mix effect on achievement in the most disadvantaged urban DEIS schools was, in part, related to lower levels of experience amongst teachers and higher teacher turnover, higher levels of literacy difficulties and extra language needs of children, and lower levels of attendance. According to the *DEIS 2017* government action plan, student literacy and numeracy are key targets for improvement in disadvantaged schools (Department of Education and Skills, 2017a). A recent report examining the efficacy of the *National Literacy and Numeracy Strategy* 2011-2020 demonstrated that whilst effective across the country as a whole - particularly with regard to child literacy in comparison to international standards – an achievement gap remained evident between DEIS and non-DEIS schools (Department of Education and Skills, 2017b).

4.2.1.2 RESOURCES

Child academic attainment may be influenced by the resources of a school, including the teacher-pupil ratio, teachers' level of education, as well as the infrastructure and facilities of the school (Houtenville & Conway, 2008). With regard to teacher-pupil ratio, some research suggests that smaller class size is associated with greater academic achievement in primary school (e.g., Angrist & Lavy, 1999; Greenwald, Hedges, & Laine, 1996). The effect of class size on attainment is often small, however, which has prompted suggestions that other factors such as teaching practices, or the presence of disruptive students may have more important implications for achievement (e.g., Hattie, 2005; OECD, 2012). Results of a meta-analysis demonstrated that school resources such as expenditure per pupil, size of school, and teacher education and experience were associated with student academic performance (Greenwald et al., 1996). The facilities of schools may be important in supporting child learning and attainment. Access to a school library, for instance, may promote child literacy and interest in learning (International Federation of Library Associations/UNESCO, 2002). According to *Growing Up in Ireland* Cohort '98 data, over one third of 9-year-olds attended schools where the principal rated the library and media facilities (38%) or after-school facilities (39%) as poor, whilst almost one quarter of 9-year-olds (24%) attended schools with poor facilities for disabled children (*Growing Up in Ireland* Study Team, 2009b).

4.2.1.3 SCHOOL CLIMATE

The disciplinary climate of a school may influence student well-being and achievement (Smyth, 1999). According to a review by Thapa and colleagues, an orderly and supportive school atmosphere contributes to positive student well-being and academic performance (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013). In the classroom, effective behaviour management is important for maximising child engagement and ensuring the smooth running of the class, and in Irish schools the benefits of using praise and positive feedback are emphasised (Teaching Council, 2013). Overly harsh approaches to discipline, which are often targeted at the most vulnerable children, may precipitate further disciplinary problems and have a negative impact on academic achievement (Cameron, 2006). According to *Growing Up in Ireland* Cohort '98 data, the most common forms of school discipline at the primary level included a telephone or written note home to parents or verbal reprimand to pupils (Williams et al., 2009).

4.2.1.4 CURRICULUM

The Irish primary curriculum influences how and what 9-year-olds learn at school. Changes to the primary curriculum published in 1999 have been proposed by the National Council for Curriculum and Assessment (2018), particularly with regard to its structure and allocation of time for subjects. Previous analyses of *Growing Up in Ireland* Cohort '98 data indicated that allocation of time to certain subjects may differ according to school type; for instance, less time was allocated to Irish in DEIS schools whereas more time was dedicated to this subject

in gaelscoileanna (McCoy, Smyth, & Banks, 2012b). The gender composition of schools may also influence the time allocated to certain subjects. Data from *Growing Up in Ireland* Cohort '98 revealed that 9-year-olds in all-girls schools spent more time on art, music and religion and less time on English than children in mixed or all-boys schools (McCoy et al., 2012b). Children in all-boys schools, on the other hand, spent more time on history, geography, PE and Social, Personal, and Health Education than children in all-girls or coeducational schools. Currently, a proposed change to the curriculum involves the implementation of theme-based learning, similar to Aistear in the early years setting. These themes will lead into the introduction of subjects in primary school, although the stage at which this will occur is under discussion. In the development of the new primary curriculum, the National Council for Curriculum and Assessment also aims to continue to develop inclusive strategies regarding religious and multicultural education (NCCA, 2018).

4.2.2   THE INFLUENCE OF TEACHERS ON CHILD ATTAINMENT

Within the classroom setting teachers play a key role in shaping children's education. Teacher characteristics, the quality of the teacher-student relationship, and teaching methods appear to be particularly important factors for child academic achievement.

4.2.2.1   TEACHER CHARACTERISTICS

Teacher characteristics, such as gender and years of experience, may influence classroom activities and have important implications for the academic attainment of children. According to the Central Statistics Office (2016c), 87% of primary school teachers in 2015 were female, which is an increase of over 4% since 2006. Furthermore, this figure is slightly higher that the EU average of 84.6% calculated in 2014. Data from *Growing Up in Ireland* Cohort '98 indicated associations between time allocation for subjects and teacher gender, with male teachers spending more time on Irish and Maths than female teachers (McCoy et al., 2012b). Some international research exploring the influence of teacher gender on Maths achievement has suggested that female teachers may transfer maths-related anxiety to their female pupils (e.g., Beilock, Gunderson, Ramirez, & Levine, 2010), whilst other research has suggested that female teachers with strong Maths ability may play a positive role in promoting Maths achievement amongst girls (e.g., Antecol, Eren, & Ozbeklik, 2015). With regard to number of years teaching, international research has demonstrated that greater teacher experience may have a positive impact on child academic achievement (Kini & Podolsky, 2016). *Growing Up in Ireland* Cohort '98 data revealed differences in time allocation for certain subjects depending on teacher experience, indicating that newly qualified teachers spent more time on art and less time on Irish, Maths, history, and geography than teachers with more years' experience (McCoy et al., 2012b).

Teacher well-being may influence the learning environment. Teacher stress, for instance, may impact on the quality of teaching (Schleicher, 2018) as well as job satisfaction (Darmody & Smyth, 2011), and have negative implications for child academic success. Teacher well-being

may be associated with school-level factors; for instance, teaching in a multi-grade classroom may precipitate teacher stress (Darmody & Smyth, 2011), perhaps because of greater isolation or the wider diversity of students in the class, which has been found to be related to teacher burnout (Tatar & Horenczyk, 2003). It has also been suggested that curriculum overload may also put pressure on teachers (National Council for Curriculum Assessment, 2010).

4.2.2.2 TEACHER-PUPIL RELATIONSHIP

The teacher-pupil relationship is likely to be related to child academic performance in middle childhood. Results of a meta-analysis carried out on almost 200 studies of students from preschool to high school revealed that both positive and negative teacher-student relationships had implications for student achievement at school, and that this effect was partially mediated by student engagement (Roorda, Jak, Zee, Oort, & Koomen, 2017). According to the academic risk hypothesis, children from lower socioeconomic backgrounds may be particularly susceptible to this influence (Hamre & Pianta, 2001). Data from the NICHD Study of Early Child Care and Youth Development indicated that children whose mothers had lower levels of education and a poor relationship with their teacher had lower levels of reading attainment in elementary school, whilst lower family income and poorer teacher-pupil relationship predicted poorer performance in maths (McCormick, O'Connor, & Horn, 2017). The added burden of poor teacher-pupil relations may contribute to poorer engagement and academic performance amongst at-risk students (Roorda, Koomen, Split, & Oort, 2011), whilst a positive teacher-pupil relationship may buffer the negative effects of socioeconomic background on achievement amongst at-risk pupils (McCormick et al., 2017). A review by Battistich and colleagues suggests that it is not only supportiveness in the teacher-pupil relationship, but the caring school community fostered by teachers, pupils and principals that enhances student engagement and academic achievement (Battistich, Solomon, Watson, & Schaps, 1997).

4.2.2.3 TEACHING METHODS

Teachers employ a variety of teaching methods which may have implications for pupil learning in the primary school setting. International research has demonstrated the effectiveness both of teacher-centred (e.g., Muijs & Reynolds, 2011) and student-directed learning (e.g., D'Agostino, 2000). A review by Muijs and Reynolds (2011) also emphasised the benefits of small group work compared to working alone. Data from *Growing Up in Ireland* Cohort '98 indicated that teachers differed in the variety of techniques they employed; for instance, teachers who were newly qualified or teaching a smaller class were more likely to encourage pair-work and active-learning activities, such as encouraging pupils to ask each other questions in the classroom (McCoy et al., 2012b). These data also demonstrated that teachers were more likely to engage in structured teaching methods in DEIS schools.

4.2.3   POLICY

Understanding the factors which influence gaps in achievement has important implications for policy. *Better Outcomes Brighter Futures: The National Policy Framework for Children and Young People, 2014-2020* outlined government aims to encourage gender balance across achievement in all subjects, including a focus on improving boys' literacy and girls' numeracy and science ability (Department of Children and Youth Affairs, 2014). Several national school-based strategies have been implemented such as the *National Literacy and Numeracy Strategy 2011-2020* in order to improve performance in certain domains of learning. The *Digital Strategy for Schools 2015-2020* proposed to enhance teaching, learning and assessment through digital technology (Department of Education and Skills, 2015). Policy developed to support teachers' continued professional development may also have positive effects on child attainment (Teaching Council, 2011).

4.2.4   COHORT '08 (INFANT COHORT) WAVE FIVE AT AGE 9

In relation to child academic attainment, child scores on the Drumcondra Reading test were collected, as well as teacher and parent report on how well they perceived the child to be doing in school. Principals were asked to report on the type of school and its facilities. Teachers and principals were asked to report on their own level of education, years of experience, and take-up of continuing professional development. Both teachers and 9-year-olds were asked a series of questions regarding their relationship with one another. Data were also collected from teachers regarding teaching stress and job satisfaction as well as information regarding their teaching techniques.

These data can be used to explore the complex associations between school-level factors and child academic achievement. This influence matters not just for contemporary ability but also as a grounding for further development as the child enters secondary school and faces a more academically challenging curriculum. From an inter-cohort perspective, there are many avenues of exploration comparing the school context for the current cohort (Cohort '08) at age 9 and the previous cohort (Cohort '98) at the same age. Have the types of schools attended by children changed, in terms of DEIS status, denomination (or lack thereof) or gender split? How has the classroom environment changed over time with the development of technology or the introduction of a cohort of recently-trained teachers? In contrast to the older cohort at age 9, however, the availability of detailed individual, family and school information for Cohort '08 from previous waves (especially age 5 years) means that new longitudinal analyses on what early factors contributed to developmental status at age 9 is now possible.

4.3   CHILD AND HOME-LEVEL FACTORS AND ACADEMIC ACHIEVEMENT AT AGE 9

The educational experiences of a child expand beyond the classroom setting and many aspects of a child's environment interact to influence the trajectory of academic development during

middle childhood. Taking a holistic approach to understanding the factors which shape academic achievement during middle childhood, this section focusses on the contribution of child and home-level factors to this dimension of positive cognitive development at age 9.

4.3.1 CHILD FACTORS WHICH CONTRIBUTE TO POSITIVE ACADEMIC DEVELOPMENT IN 9-YEAR-OLDS

Child activities and characteristics may influence academic development by providing opportunities to practise emerging skills, by shaping how children engage with the learning environment, as well as guiding how they learn from teachers, parents and peers. In relation to child gender, for example, research has demonstrated differences in achievement between boys and girls in certain subjects. Data from the *Growing Up in Ireland* Cohort '98 revealed that boys were more likely to perform poorly on a standardised Reading test, whereas they were more likely to outperform girls in Maths (Williams et al., 2009). Similarly, Irish results from the *Progress in International Reading Literacy Study* (PIRLS) 2016, an international assessment of reading, revealed that fourth-class[9] girls significantly outperformed boys (Eivers, Gilleece, & Delaney, 2017). The gap in reading performance between girls and boys in Ireland was, however, narrower than the international average, with figures revealing significant and often wide gender difference trends across the majority of participating countries (Eivers et al., 2017). According to *Growing Up in Ireland* Cohort '08 data, gender differences which favour girls on measures of cognitive and language ability may emerge amongst children as young as 3 (Williams, Murray, McCrory, & McNally, 2013). Whilst results of the Trends in International Mathematics and Science Study (TIMSS) 2015 demonstrated that fourth-class boys in Ireland performed slightly better than girls in Maths and Science, gender differences in these subjects were insignificant across the majority of participating countries internationally (Clerkin, Perkins, Cunningham, 2016).

Child attitudes towards school, teachers and subjects may also influence their academic achievement. For instance, *Growing Up in Ireland* Cohort '98 data indicated that boys were more positive about Maths than girls whilst the inverse was true in relation to Reading (Williams et al., 2009). Data from *Growing Up in Ireland* Cohort '08 revealed that mothers of children who had a negative disposition towards school at age 5 were more likely to report that the pace of learning at school was too fast, that their child usually found schoolwork too hard, and were less likely to report their child as performing above average in any subject at age 7/8 (*Growing Up in Ireland* Study Team, 2017b). Data from the UK *Millennium Cohort Study* also revealed that child attitudes towards school were associated with their language and literacy skills at age 7 (Hartas, 2012). Child attitudes towards school are related to engagement in class and absenteeism, which have important implications for academic

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[9]In Irish primary schools, children in fourth class are typically between 9 and 10 years old. It is the sixth year of the eight-year primary school cycle.

performance (Smyth, 2017a) although it is important to note that direction and causality have not been clarified at this point. Previous research has demonstrated positive associations between high levels of school attendance and rates of homework completion with academic achievement during middle childhood (Cooper et al., 2006; Klem & Connell, 2004).

As well as child dispositions towards school, engagement in activities outside of school may also support the development of academic skills (Larson & Verma, 1999). Data from **Growing Up in Ireland** Cohort '98, for instance, demonstrated that girls spent more time reading for pleasure than boys (Williams et al., 2009). Furthermore, these data indicated that 9-year-olds could be clustered into groups according to their engagement in free-time activities, and that performance on measures of Reading and Maths varied across these groups (McCoy et al., 2012a). Children who engaged in cultural activities such as dance, art, drama and reading (the cultural activities group) as well as children who spent time communicating with friends via social networks (the social networker group) had higher standardised tests of Reading and Maths scores compared with children from the busy lives group, whose over-involvement in structured activities may have curtailed the positive impact of these pastimes, according to the authors. McCoy and colleagues (2012a) suggested that reading for pleasure and engagement in social networking may be particularly effective in reinforcing child literacy skills outside of the educational context, although the authors emphasise that socioeconomic differences between groups must be considered when interpreting findings.

A child's cognitive and socio-emotional skills underpin successful engagement with learning opportunities and academic achievement. These skills, which include behavioural, attention and emotion regulation, are enhanced in the context of a child's relationships (Lamb & Lewis, 2015) and may also be practised during free-time activities (Diamond, 2012). Self-regulation is necessary for children to sit still in class, pay attention, follow instructions and obey the rules of the classroom, and children with behavioural difficulties often display deficits in these skills which may explain gaps in achievement (Gutman & Vorhaus, 2012). Social skills enable a child to interact in class and encourage healthy relationships with teachers, parents and peers which also support positive cognitive development (Bruner & Bornstein, 1989). Evidence from intervention research suggests that promoting early cognitive and social skills supports school engagement and achievement (Bierman, Nix, Greenberg, Blair, & Domitrovich, 2008; Riggs, Greenberg, Kusché, Pentz, & Prey, 2006; Schonfeld et al., 2015).

4.3.2 HOME-LEVEL FACTORS CONTRIBUTING TO POSITIVE ACADEMIC DEVELOPMENT IN 9-YEAR-OLDS

At age 9, home-level factors also contribute to child cognitive development and educational achievement. According to data from **Growing Up in Ireland** Cohort '98, whilst the majority of 9-year-olds in Ireland enjoyed and engaged well in school, gaps in achievement according to socioeconomic factors were evident (Williams et al., 2009). According to these data, socioeconomic characteristics such as maternal education, family income and family structure were associated with child absences from school, homework completion and 9-year-olds'

performance on the Drumcondra Reading and Maths tests. Findings that demonstrate an association between socioeconomic background and academic performance are consistent with international research (Ferguson, Bovaird, & Mueller, 2007). Data from the UK *Millennium Cohort Study* also revealed associations between parental education and aspects of cognitive development, including verbal ability, spatial working memory and reasoning, decision-making and risk-taking at age eleven (Brown & Sullivan, 2014). Sociodemographic characteristics may shape how more proximal social factors, including the home learning environment, parental involvement with school, and parental expectations of achievement, influence child's academic development.

Exploring the home environment characteristics of children who do well academically in the face of expected obstacles related to socio-economic disadvantage, and those who struggle academically despite socio-economic advantages, has the potential to increase our understanding of 'what works' in supporting children's learning at home. Large, nationally-representative, and longitudinal studies such as *Growing Up in Ireland* are well placed to contribute to this research strand in a policy-relevant way.

The home learning environment (HLE) refers to parent-provided opportunities for child learning and is usually measured by the number of books or other educational resources in the household, time spent reading with the child, and the frequency of educational activities, including trips to the library or museums. Data from *Growing Up in Ireland* Cohort '08 revealed that at age 7/8, the most frequent everyday learning activities in which parents engaged were listening to their 9-year-old read and reading to their child (*Growing Up in Ireland* Study Team, 2017b). Research has demonstrated that the home literacy environment (including parental literacy, parental involvement in children's reading, exposure to books etc.) is associated with later child reading skills (e.g., Sénéchal & LeFevre, 2002). Home-learning experiences not only provide opportunities to reinforce the academic skills learned in school but also promote children's interest in learning (Yu & Daraganova, 2014). The quality of the parent-child relationship may moderate the influence of HLE on child academic performance, as warm and supportive parenting is thought to promote child self-efficacy in approaching goals and problem-solving (Hartas, 2012).

Sociodemographic factors may also be associated with the quality of the HLE. Data from *Growing Up in Ireland* Cohort '08 demonstrated that mothers with lower levels of education were less likely to read to their child every week at age 7/8 years compared with mothers with higher levels of education (*Growing Up in Ireland* Study Team, 2017b). According to *Growing Up in Ireland* Cohort '98 data, access to learning resources such as books in the home was also associated with maternal level of education and family income (Williams et al., 2009). Data from *Growing Up in Scotland* (GUS) indicated, however, that a high-quality HLE may buffer the negative effects of low socioeconomic status on cognitive development across the early childhood years (GUS Team, 2015). Analyses using earlier waves of this *Growing Up in*

Ireland Cohort '08 suggests that different aspects of 'social origin' such as income, education and social class make independent contributions to vocabulary by age 5, but that these relationships were only partly explained by variation in the frequency of home learning activities (McMullin, McGinnity, Murray & Russell, 2017).

Parental provision of high-quality learning opportunities may be related to parents' expectations for their children's academic success, which, in turn, are important for child performance at school (e.g., Fan, 2001). High parental expectations may be internalised by the child who will work hard to achieve high standards in education (Yamamoto & Holloway, 2010). A large representative study carried out with 8-12-year-olds in America indicated that the influence of parental education on child achievement was mediated by both parental expectations and home learning environment (Davis-Kean, 2005). In the Irish context, analysis of *Growing Up in Ireland* Cohort '98 data revealed that maternal expectations for her child's education at age 9 were related to her own level of educational attainment although the majority of mothers expected their child to achieve at least a degree (Williams et al., 2009).

Parental interest in their child's schooling is likely to be related to child academic success. Parents demonstrate this interest through attending formal meetings with teachers, participation at school events such as plays and sports days, and helping children with their homework. Parental interest has positive associations with child reading and Maths achievement and is thought to motivate, discipline and support children's educational efforts (Feinstein & Symons, 1999). Parents interested in the education of their child may also be more likely to provide and encourage learning opportunities in the home (Hartas, 2012). *Growing Up in Ireland* Cohort '98 data revealed that whilst almost all parents of 9-year-olds attended parent-teacher meetings, mothers who had lower levels of education and income were somewhat less likely to do so (Williams et al., 2009). Parental assistance with homework was also related to social factors, including family structure, and mothers from one-parent households with a greater number of children were less likely to engage in this activity (Williams et al., 2009).

4.3.3   POLICY

In order to inform effective policy and allocation of resources, it is important to identify the child and home-level factors which promote child cognitive skills and academic achievement at every stage of a child's development. *Better Outcomes Brighter Futures: The National Policy Framework for Children and Young People, 2014-2020* outlined the Irish government's commitment to supporting children in achieving their full potential in all areas of learning and development, recognising that learning also takes place outside of formal education settings (Department of Children and Youth Affairs, 2014). As part of ensuring that all children are engaged in learning and are achieving in education, this framework therefore committed to supporting parents in providing an enriched home learning environment for children, and to promoting positive relationships between parents and schools. The Delivering Equality of Opportunity in Schools (DEIS) programme was

introduced in 2005 to address educational disadvantage in at-risk communities (Department of Education and Skills, 2005). One focus of this programme is to promote parental involvement in their child's education, including supporting family literacy with the aid of a home-school-community liaison officer. The role of engagement in cultural activities in enhancing child academic performance also has implications for policy. Children from lower socioeconomic backgrounds may have limited access to participation due to the cost of these activities whilst language barriers may prevent the engagement of children from immigrant backgrounds (Smyth, 2016). The *Creative Ireland Programme 2017-2022* committed to ensuring all children in Ireland have access to creative and cultural activities (Government of Ireland, 2017).

4.3.4   COHORT '08 (INFANT COHORT) WAVE FIVE AT AGE 9

Data on teacher-reported performance in Reading and Maths were collected as were child standardised scores on the Drumcondra English Reading test. A measure of selective attention (SAT) from the Test of Everyday Attention for Children (TEA-Ch) was also administered by interviewers in the home at age 9. Data on child factors which may influence educational achievement were collected from teachers, parents and children, including information on attitudes towards school and subject preferences, engagement in free-time activities, as well as previous measures of cognitive and socio-emotional development (such as emotional problems, peer relationships, individual temperament, keeping up with school-work, etc.) obtained from earlier waves of the study. These longitudinal data will allow for the investigation of causal relationships enabling researchers to identify protective and risk factors of positive and negative child development.

Cross-sectionally, data were collected on home-level factors which may influence child cognitive development, including the quality of the home learning environment, parental engagement with school, the time parents and children spend reading together, parenting practices, and parental expectations of child academic achievement. Many of these are also available longitudinally (especially home learning activities) in addition to other relevant factors from earlier waves such as early years childcare, school-readiness and cognitive development. Information regarding wider sociodemographic factors, such as parental education, literacy and numeracy, and family structure and income, was also collected. There is considerable ethnic and linguistic diversity within Cohort '08, which has implications for policy development. The longitudinal design of the study allows for the influence of child and home-level factors at different time points to be investigated and to better elucidate the causal relationships and, as a result, the protective factors which support education at every stage of a child's development.

4.4   SUMMARY

As in previous chapters, the current chapter on children's educational and cognitive development provided a selective review of the literature related to these child outcomes.

The selection of topics was guided by a concern with issues either particularly pertinent to this age group or reflecting new data available on Cohort '08 children from this wave of the study. The three main issues reviewed in this chapter were the importance of peer relationships, both positive and negative, in the school setting; the significance of characteristics related to the school (including resources, social mix of pupils, single-sex or co-educational, plus characteristics of the teacher and classroom); and home factors (including the home learning and parental characteristics and attitudes). A key strength of *Growing Up in Ireland* is that it allows the researcher to draw on data from multiple informants (the Study Child, parents and teachers) and across several waves to enhance understanding of the wide range of factors that influence children's development in the area of cognition and learning.

Chapter 5

CONCLUSION
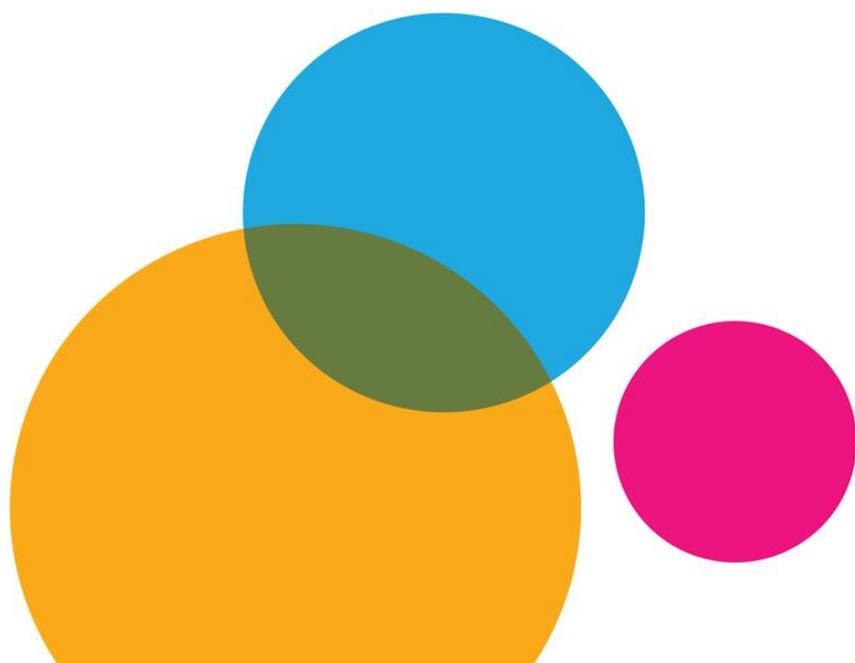
5   CONCLUSION

This report provides an overview of the literature relating to a selection of the key research topics that might be explored using *Growing Up in Ireland* data collected at age 9 years. Organised thematically, it focuses on international and Irish research on health, education, socio-emotional and cognitive development in middle childhood. Relevant policy frameworks for each topic are also considered. This final section looks at the potential ways in which *Growing Up in Ireland* data could be used to build upon the current state of knowledge on child development.

5.1   INTERDEPENDENCE BETWEEN DEVELOPMENTAL DOMAINS

Existing research points to the interdependencies between different domains of a child's life in shaping their developmental outcomes. For example, poor physical health may have negative effects on children's academic achievement, poor quality relationships with parents may hinder socio-emotional wellbeing, socio-emotional difficulties may constrain the development of friendships, and so on. However, many of these relationships are not well understood and sometimes considered merely cross-sectionally, rather than from a longitudinal perspective.

The strength of the design of *Growing Up in Ireland* is in directly measuring the key child outcomes which can be used to examine the interconnections between different aspects of a child's experiences and the related risk and protective factors. This is all the more important in supporting policy goals (such as those outlined in *Better Outcomes Brighter Futures*) which adopt a holistic approach to providing services and interventions to assist children. The longitudinal nature of the study further strengthens the potential to identify the most effective levers and timing for intervention. For the first time in *Growing Up in Ireland*, outcomes for Cohort '08 can be considered longitudinally and compared with their older peers in Cohort '98 at the same age. While direct inter-cohort comparisons will need to be undertaken with due regard for some underlying structural differences (such as age 9 was the first wave for Cohort '98 but the fifth wave for Cohort '08), it is an exciting new line of enquiry – particularly in relation to the 'period effects' that form part of the chronosystem in Bronfenbrenner's model of development.

5.2   WHY DOES GENDER MATTER FOR OUTCOMES?

Research has often been better at documenting the scale of differences in outcomes, for example, by gender or socio-economic background, than in unpacking the mechanisms underlying these patterns. In particular, the processes shaping gender differences in experiences and outcomes in and outside of school, and the way they are shaped by policy and institutional structures (such as the education system) are often not well understood. Gender is a particularly interesting but complex dimension given that it is linked to biological, social as well as individual processes and norms. *Growing Up in Ireland* data provide potential to consider the societal and individual factors contributing to the marked differences between boys and girls in their day-to-day lives, especially for this younger cohort who have been followed up since infancy. Furthermore, *Growing Up in Ireland* can contribute to exploring the interaction between gender and other socio-economic characteristics. For example, does social class matter more for the academic outcomes of boys more than girls at primary level (as has been found in other Irish research

with older adolescents; Byrne & Smyth, 2010)? If so, what other factors – particularly those that are policy-malleable – mediate that interaction?

5.3   INTER-COHORT COMPARISONS

Many aspects of the lives of children and young people are changing rapidly, not least their engagement in digital technologies across different aspects of their lives. Having two **Growing Up in Ireland** cohorts both at age 9, one decade removed, provides an unprecedented opportunity to capture social change in Ireland, exploring the extent to which behaviours and attitudes have altered across different groups of families and children over time. The timing of the waves of the two cohorts, before and after the recent recession, offers the chance to look at the long-term consequences of rapid changes in living standards for child outcomes. As already noted, any cohort comparisons need to factor in some structural differences between them - but having a benchmark for a very similar group of children, completing many of the same instruments, yet 10 years previously is a rare resource in international as well as national research.

In sum, analyses of the rich data collected through the **Growing Up in Ireland** study offer a strong evidence base for policy formation as well as yielding broader insights into our understanding of the dynamics of child development.

REFERENCES

Adamo, K. B., Colley, R. C., Hadjiyannakis, S., & Goldfield, G. S. (2015). Physical activity and sedentary behaviour in obese youth. *The Journal of Paediatrics, 166*(5), 1270–1275. doi:10.1016/j.jpeds.2015.01.001

Aldridge, J. (2008). All work and no play? Understanding the needs of children with caring responsibilities. *Children & Society, 22*(4), 253–264. doi:10.1111/j.1099-0860.2007.00094.x

Aldridge J., & Becker S. (2003). *Children caring for parents with mental illness: Perspectives of young carers, parents and professionals*. Bristol: The Policy Press.

Amato, P. R. (1990). Dimensions of the family environment as perceived by children: A multidimensional scaling analysis. *Journal of Marriage and the Family, 52*(3), 613. doi:10.2307/352928

American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders, Fifth edition: DSM-5*. Washington: American Psychiatric Association.

Angrist, J., & Lavy, V. (1999). "Using Maimonides' rule to estimate the effect of class size on scholastic achievement." *Quarterly Journal of Economics 64*(2), 533-76. doi:10.1162/003355399556061

Antecol, H., Eren, O., & Ozbeklik, S. (2015). The effect of teacher gender on student achievement in primary school. *Journal of Labour Economics, 33*(1), 63–89. doi:10.1086/677391

Asher, I., & Pearce, N. (2014). Global burden of asthma among children. *The International Journal of Tuberculosis and Lung Disease, 18*(11), 1269–1278. doi:10.5588/ijtld.14.0170

Athey, I. (2018). Contributions of play to development. In T. D. Yawkey & A. D. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 9-28). London: Routledge.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Banks, J., Maître, B., & McCoy, S. (2015). *Insights into the lives of children with disabilities: Findings from the 2006 National Disability Survey*. Dublin: National Disability Authority/ESRI.

Barkmann, C., Romer, G., Watson, M., & Schulte-Markwort, M. (2007). Parental physical illness as a risk for psychosocial maladjustment in children and adolescents: Epidemiological findings from a national survey in Germany. *Psychosomatics, 48*(6), 476–481. doi:10.1176/appi.psy.48.6.476

Batstra, L., Hadders-Algra, M., Nieweg, E., Van Tol, D., Pijl, S. J., & Frances, A. (2012). Childhood emotional and behavioral problems: Reducing overdiagnosis without risking undertreatment. *Developmental Medicine & Child Neurology, 54(6), 492–494*. doi:10.1111/j.1469-8749.2011.04176.x

Battistich, V., Solomon, D., Watson, M., & Schaps, E. (1997). Caring school communities. *Educational Psychologist, 32*, 137–151. doi: 10.1207/s15326985ep3203_1

Baxter, J., & Smart, D. (2010). *Fathering in Australia among couple families with young children*. Canberra: Department of Families, Housing, Community Services and Indigenous Affairs.

Beilock, S. L., Gunderson, E. A., Ramirez, G., & Levine, S. C. (2010). Female teachers' math anxiety affects girls' math achievement. *Proceedings of the National Academy of Sciences of the United States of America. 107*(5), 1860-1863. doi:10.1073/pnas.0910967107

Belsky, J. (1984). The determinants of parenting: A process model. *Child Development, 55*(1), 83-96. doi:10.2307/1129836

Bergen, D., & Fromberg, D. P. (2009). Play and social interaction in middle childhood. *Phi Delta Kappan*, *90*(6), 426-430.

Bibace, R., & Walsh, M. E. (2015). Children's conceptions of illness. In M. Watzlawik, A. Kriebel, A. & J. Valsine (Eds) *Particulars and Universals in Clinical and Developmental Psychology: Critical Reflections* (pp. 65–83)*. Charlotte, NC: Information Age Publishing.

Bierman, K. L., Nix, R. L., Greenberg, M. T., Blair, C., & Domitrovich, C. E. (2008). Executive functions and school readiness intervention: Impact, moderation, and mediation in the Head Start REDI program. *Development and Psychopathology, 20*(3), 821-843. doi:10.1017/s0954579408000394

Birch, L., Savage, J. S., & Ventura, A. (2007). Influences on the Development of Children's Eating Behaviours: From Infancy to Adolescence. *Canadian Journal of Dietetic Practice and Research, 68*(1), 1-56.

Biro, F. M., & Wien, M. (2010). Childhood obesity and adult morbidities. *The American Journal of Clinical Nutrition, 91*(5), 1499S–1505S. doi:10.3945/ajcn.2010.28701b

Bowen, M. (1978). *Family therapy in clinical practice*. New York: Aronson.

Bretherton, I. (1989). Pretense: The form and function of make-believe play. *Developmental Review, 9*(4), 383–401. doi:10.1016/0273-2297(89)90036-1

Bronfenbrenner, U., & Morris, P. A. (2006). The Bioecological Model of Human Development. In R. M. Lerner & W. Damon (Eds.), *Handbook of child psychology: Theoretical models of human development* (pp. 793-828). Hoboken, NJ: John Wiley & Sons Inc.

Brown, M. & Sullivan, A. (2014). Cognitive development. In L. Platt (Ed.). *Millennium Cohort Study Initial findings from the Age 11 survey*. London: Centre for Longitudinal Studies.

Bruner, J. S. & Bornstein, M. H. (1989). On Interaction. In M. H. Bornstein & J. S. Bruner (Eds.). *Interaction in human development* (pp. 1-14). Hillsdale, NJ: Erlbaum

Buhs, E. S., Ladd, G. W., & Herald, S. L. (2006). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement? *Journal of Educational Psychology, 98*(1), 1-13. doi:10.1037/0022-0663.98.1.1

Byrne, D. & Smyth, E. (2010). *No way back? The dynamics of early school leaving.* Dublin: Liffey Press/ESRI.

Cabrera, N. J., Karberg, E., Malin, J. L., & Aldoney, D. (2017). The magic of play: Low-income mothers' and fathers' playfulness and children's emotion regulation and vocabulary skills. *Infant Mental Health Journal, 38*(6), 757-771. doi:10.1002/imhj.21682

Cameron, M. (2006). Managing school discipline and implications for school social workers: A review of the literature. *Children & Schools, 28*(4), 219–227. doi:10.1093/cs/28.4.219

Cappuccio, F. P., Taggart, F. M., Kandala, N. B., Currie, A., Peile, E., Stranges, S., & Miller, M. A. (2008). Meta-analysis of short sleep duration and obesity in children and adults. *Sleep*, *31*(5), 619-626.

Carr, A. (2011). Social and emotional development in middle childhood. In D. Skuse, H. Bruce, L. Dowdney & D. Mrazek (Eds.), *Child psychology and psychiatry: Frameworks for practice* (2nd ed., pp. 56-61). Hoboken, NJ: Wiley-Blackwell.

Carson, J. L., Burks, V. M., & Parke, R. D. (1993). Parent-child physical play: Determinants and consequences. In K. B. MacDonald (Ed.), *Parent-child play* (pp. 197-220). Albany: SUNY Press

Case, A., & Paxson, C. H. (2006). Children's health and social mobility. *The Future of Children, 16*(2), 151-173. doi:10.1353/foc.2006.0014

Cekaite, A., Blum-Kulka, S., Grøver, V., & Teubal, E. (2014). *Children's peer talk: Learning from each other*. Cambridge: Cambridge University Press.

Centers for Disease Control and Prevention (2000). *CDC growth charts*. Retrieved from: https://www.cdc.gov/growthcharts/clinical_charts.htm [Accessed 17 August 2018].

Centers for Disease Control and Prevention (2016). *Middle childhood (9-11 years of age)*. Retrieved from: https://www.cdc.gov/ncbddd/childdevelopment/positiveparenting/middle2.html [Accessed 17 August 2018].

Centers for Disease Control and Prevention (2017). *Research brief: Chronic health conditions and academic achievement*. Retrieved from: https://www.cdc.gov/healthyschools/chronic_conditions/pdfs/2017_02_15-CHC-and-Academic-Achievement_Final_508.pdf [Accessed 22 August 2018].

Central Statistics Office (2016a). *Employment rates of couples (with/without children) and lone parents aged 20-44 by age of youngest child*. Retrieved from: https://www.cso.ie/en/releasesandpublications/ep/p-wamii/womenandmeninireland2016/employment/ [Accessed 14 June 2018].

Central Statistics Office (2016b). *Health, disability and carers*. Retrieved from: https://www.https://www.cso.ie/en/releasesandpublications/ep/p-cp9hdc/p8hdc/p9tod/ [Accessed 7 August 2018].

Central Statistics Office (2016c). *Women and Men in Ireland 2016- Education*. Retrieved from: https://www.cso.ie/en/releasesandpublications/ep/p-wamii/womenandmeninireland2016/education/ [Accessed 12 July 2018].

Centre for Effective Services (2016). *On the right track: Learning from investment in prevention and early intervention in Ireland- Child behaviour outcomes report*. Dublin: Author. Retrieved from https://www.effectiveservices.org/assets/OTRT_Child_Behaviour_Nov16_002.pdf

Chen, C. Y.-C. (2014). Exploration of the short-term and long-term effects of parental illness on children's educational and behavioural functioning using a large Taiwanese sample. *Western Journal of Nursing Research, 36*(5), 664–684. doi:10.1177/0193945913509899

Chen, C. Y.-C. (2016). Educational functioning of children of parents with chronic physical illness: A systematic review. *School Psychology International, 37*(6), 606–626. doi:10.1177/0143034316672705

Chen, C. Y.-C. (2017). Effects of parental chronic illness on children's psychosocial and educational functioning: A literature review. *Contemporary School Psychology, 21*(2), 166–176. doi:10.1007/s40688-016-0109-7

Chen, C. Y.-C., & Fish, M. C. (2013). Parental involvement of mothers with chronic illness and children's academic achievement. *Journal of Family Issues, 34*(5), 583–606. doi:10.1177/0192513x12444081

Chen, E. (2004). Why socioeconomic status affects the health of children. *Current Directions in Psychological Science, 13*(3), 112–115. doi:10.1111/j.0963-7214.2004.00286.x

Child and Adolescent Health Measurement Initiative (2016). *National Survey of Children's Health (NSCH) data query*. Retrieved from: www.childhealthdata.org [Accessed 10 August 2018]

Children's Health Ireland. (2019). *Children's Health Ireland Delivery Plan 2019.* Retrieved from https://www.hse.ie/eng/services/publications/serviceplans/service-plans-2019/operational-plans-2019/childrens-health-ireland-operational-plan-delivery-plan-2019.pdf

Clancy, H., Dugdale, A., & Rendle-Short, J. (1969). The diagnosis of infantile autism. *Developmental Medicine & Child Neurology, 11*(4), 432-442. doi:10.1111/j.1469-8749.1969.tb01461.x

Clerkin, A., Perkins, R., & Cunningham, R. (2016). *TIMSS 2015 in Ireland: Mathematics and science in primary and post-primary schools*. Dublin: Educational Research Centre.

Coie, J. D., Dodge, K. A., Terry, R., & Wright, V. (1991). The role of aggression in peer relations: An analysis of aggression episodes in boys' play groups. *Child Development, 62*(4), 812-826. doi:10.2307/1131179

Coie, J. D., Lochman, J. E., Terry, R., & Hyman, C. (1992). Predicting early adolescent disorder from childhood aggression and peer rejection. *Journal of Consulting and Clinical Psychology, 60*(5), 783–792. doi:10.1037/0022-006x.60.5.783

Coley, R. L., & Schindler, H. S. (2008). Biological fathers' contributions to maternal and family functioning. *Parenting: Science & Practice, 8*(4), 294-318. doi:10.1080/15295190802522814

Collins, W. A., Maccoby, E. E., Steinberg, L., Hetherington, E. M., & Bornstein, M. H. (2000). Contemporary research on parenting: The case for nature and nurture. *American Psychologist, 55*(2), 218–232. doi:10.1037/0003-066x.55.2.218

Compas, B. E., Jaser, S. S., Dunn, M. J., & Rodriguez, E. M. (2012). Coping with chronic illness in childhood and adolescence. *Annual Review of Clinical Psychology, 8*(1), 455–480. doi:10.1146/annurev-clinpsy-032511-143108

Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic status, family processes, and individual development. *Journal of Marriage and Family, 72*(3), 685–704. doi:10.1111/j.1741-3737.2010.00725.x

Cooper, H., Robinson, J. C., & Patall, E. A. (2006). Does homework improve academic achievement? A synthesis of research, 1987-2003. *Review of Educational Research, 76*(1), 1–62. doi:10.3102/00346543076001001

D'Agostino, J. V. (2000). Instructional and school effects on students' longitudinal reading and mathematics achievements. *School Effectiveness and School Improvement, 11*(2), 197-235. doi:10.1076/0924-3453(200006)11:2;1-q;ft197

Darmody, M., & Smyth, E. (2011). *Job satisfaction and occupational stress among primary school teachers and principals*. Dublin: ESRI/TCD.

Davis-Kean, P. E. (2005). The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology, 19*(2), 294–304. doi:10.1037/0893-3200.19.2.294

Department of Children and Youth Affairs (2014). *Better Outcomes, Brighter Futures: The National Policy Framework for Children and Young People, 2014-2020*. Dublin: Government Publications.

Department of Children and Youth Affairs (2016). *State of the nation's children: Ireland 2016*. Dublin: Government Publications.

Department of Children and Youth Affairs (2017). *Action plan on school age childcare*. Dublin: Government Publications.

Department of Education and Skills (2005). *DEIS (Delivering Equality of Opportunity In Schools): An action plan for educational inclusion*. Dublin: Author. Retrieved from https://www.education.ie/en/publications/policy-reports/deis_action_plan_on_educational_inclusion.pdf

Department of Education and Skills (2006). *School matters: The report of the task force on student behaviour in second-level schools*. Dublin: Author. Retrieved from https://www.education.ie/en/Publications/Education-Reports/tfsb_school_matters_2006.pdf

Department of Education and Skills (2013). *Anti-bullying procedures for primary and post-primary schools*. Dublin: Government Publications.

Department of Education and Skills (2015). *Digital strategy for schools 2015-2020: Enhancing teaching, learning and assessment*. Dublin: Author. Retrieved from https://www.education.ie/en/Publications/Policy-Reports/Digital-Strategy-for-Schools-2015-2020.pdf

Department of Education and Skills (2016). *Action Plan for Education 2016-2019*. Dublin: Author. Retrieved from https://www.education.ie/en/Publications/Corporate-Reports/Strategy-Statement/Department-of-Education-and-Skills-Strategy-Statement-2016-2019.pdf

Department of Education and Skills (2017a). *DEIS plan 2017*. Dublin: Author. Retrieved from https://www.education.ie/en/Publications/Policy-Reports/DEIS-Plan-2017.pdf

Department of Education and Skills (2017b). *Literacy and numeracy strategy 2011 – 2020: Interim review of the strategy and new targets (2017-2020)*. Dublin: Author. Retrieved from https://www.education.ie/en/Publications/Education-Reports/pub_ed_interim_review_literacy_numeracy_2011_2020.PDF

Department of Education and Skills (2017c). *Parent and student/pupil perceptions of schools' actions to create a positive school culture and to prevent and tackle bullying*. Dublin: Author. Retrieved from https://assets.gov.ie/24991/d5dd6eb8c93943d193c3da16cded7245.pdf

Department of Health (2008). *Tackling chronic disease: A policy framework for the management of chronic diseases*. Dublin: Author. Retrieved from https://www.lenus.ie/bitstream/handle/10147/45895/9558.pdf?sequence=1&isAllowed=y

Department of Health (2013). *Healthy Ireland, A Framework for Improved Health and Wellbeing 2013-2025*. Dublin: The Stationary Office.

Department of Health (2014). *Health Behaviour in School-aged Children (HBSC) survey*. Galway: Health Promotion Research Centre.

Department of Health (2016a). *Healthy Ireland- A healthy weight for Ireland: Obesity policy and action plan 2016-2025*. Dublin: The Stationary Office.

Department of Health (2016b). *Healthy Ireland- Get Ireland Active! National physical activity plan for Ireland*. Dublin: The Stationary Office.

Department of Health (2016c). *Health in Ireland- Key trends 2016*. Dublin: Government Publications.

Department of Justice and Equality (2017). *National Disability Inclusion Strategy, 2017-2021*. Dublin: Government Publications.

Department of the Taoiseach (2006). *Towards 2016: Ten-year framework social partnership agreement 2006-2015*. Dublin: The Stationary Office.

DeRosier, M. E., Kupersmidt, J. B., & Patterson, C. J. (1994). Children's academic and behavioural adjustment as a function of the chronicity and proximity of peer rejection. *Child Development, 65*(6), 1799-1813. doi:10.2307/1131295

Diamond, A. (2012). Activities and programs that improve children's executive functions. *Current Directions in Psychological Science, 21*(5), 335–341. doi:10.1177/0963721412453722

Dick, B. D., & Riddell, R. P. (2010). Cognitive and school functioning in children and adolescents with chronic pain: A critical review. *Pain Research and Management, 15*(4), 238–244. doi:10.1155/2010/354812

Dietz, W. H. (1998). Health consequences of obesity in youth: childhood predictors of adult disease. *Paediatrics, 101*(3 Pt 2), 518-525.

Dix, T., & Meunier, L. N. (2009). Depressive symptoms and parenting competence: An analysis of 13 regulatory processes. *Developmental Review, 29*(1), 45–68. doi:10.1016/j.dr.2008.11.002

Dobbs, R., Sawers, C., Thompson, F., Manyika, J., Woetzel, J., Child, P., … Spatharou, A. (2014) *Overcoming obesity: An initial economic analysis*. New York: McKinsey Global Institute.

Doris, A., O'Neill, D., & Sweetman, O. (2013). Gender, single-sex schooling and maths achievement. *Economics of Education Review, 35*, 104–119. doi:10.1016/j.econedurev.2013.04.001

Dutra, R., Forehand, R., Armistead, L., Brody, G., Morse, E., Simon Morse, P., & Clark, L. (2000). Child resiliency in inner-city families affected by HIV: The role of family variables. *Behaviour Research and Therapy, 38*(5), 471–486. doi:10.1016/s0005-7967(99)00070-4

Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: informing development of a conceptual model of health through sport. *International Journal of Behavioral Nutrition and Physical Activity, 10*(1), 98-118. doi:10.1186/1479-5868-10-98

Eivers, E., Gilleece, L., & Delaney, E. (2017). *Reading achievement in PIRLS 2016: Initial report for Ireland*. Dublin: Educational Research Centre.

Emond, A., Sheahan, C., Mytton, J., & Hollen, L. (2017). Developmental and behavioural associations of burns and scalds in children: a prospective population-based study. Archives of Disease in Childhood, 102(5), 428-483. doi:10.1136/archdischild-2016-311644

Erickson, R. J. (1985). Play contributes to the full emotional development of the child. *Education, 105*(3), 261-263. Retrieved from http://www.educationpublishing.com

Erikson, E. H. (1959). *Identity and the life cycle*. New York: International Universities Press.

Espelage, D. L., Hong, J. S., Rao, M. A., & Low, S. (2013). Associations between peer victimization and academic performance. *Theory into Practice*, *52*(4), 233-240.

Espinoza, G., Gonzales, N. A., & Fuligni, A. J. (2013). Daily school peer victimization experiences among Mexican-American adolescents: Associations with psychosocial, physical and school adjustment. *Journal of youth and adolescence*, *42*(12), 1775-1788.

Evans, S., & de Souza, L. (2008). Dealing with chronic pain: Giving voice to the experiences of mothers with chronic pain and their children. *Qualitative Health Research, 18*(4), 489–500. doi:10.1177/1049732308315433

Falconier, M. K., & Epstein, N. B. (2010). Relationship satisfaction in Argentinean couples under economic strain: Gender differences in a dyadic stress model. *Journal of Social and Personal Relationships*, *27*(6), 781-799.

Fan, X. (2001). Parental involvement and students' academic achievement: A growth modeling analysis. *The Journal of Experimental Education, 70*(1), 27-60. doi:10.1080/00220970109599497

Faulkner, R. A., & Davey, M. (2002). Children and adolescents of cancer patients: The impact of cancer on the family. *The American Journal of Family Therapy, 30*(1), 63–72. doi:10.1080/019261802753455651

Feldman, M. A., Ojanen, T., Gesten, E. L., Smith-Schrandt, H., Brannick, M., Totura, C. M. W., ... & Brown, K. (2014). The effects of middle school bullying and victimization on adjustment through high school: Growth modeling of achievement, school attendance, and disciplinary trajectories. *Psychology in the Schools*, *51*(10), 1046-1062.

Feinstein, L., & Symons, J. (1999). Attainment in secondary school. *Oxford Economic Papers, 51*(2), 300–321. doi:10.1093/oep/51.2.300

Ferguson, H., Bovaird, S., & Mueller, M. (2007). The impact of poverty on educational outcomes for children. *Paediatrics & Child Health, 12*(8), 701–706. doi:10.1093/pch/12.8.701

Field, S. & Temple, V. (2017). The relationship between fundamental motor skill proficiency and participation in organized sports and active recreation in middle childhood. *Sports, 5*(2), 43. doi:10.3390/sports5020043

Flook, L., Repetti, R. L., & Ullman, J. B. (2005). Classroom social experiences as predictors of academic performance. *Developmental Psychology, 41*(2), 319-327. doi:10.1037/0012-1649.41.2.319

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109. doi:10.3102/00346543074001059

Garbarino, J. (1982). *Children and Families in the Social Environment.* New York: Aldine Publishing Company.

Gavin, A., Keane, E., Callaghan, M., Molcho, M., Kelly, C., & Nic Gabhainn, S. (2015). *The Irish Health Behaviour in School-aged Children (HBSC) Study 2014.* Galway: Health Promotion Research Centre, National University of Ireland.

Ginsburg, K. R. (2007). The importance of play in promoting healthy child development and maintaining strong parent-child bonds. *Pediatrics, 119*(1), 182–191. doi:10.1542/peds.2006-2697

Goldfeld, S., O'Connor, M., Quach, J., Tarasuik, J., & Kvalsvig, A. (2015). Learning trajectories of children with special health care needs across the severity spectrum. *Academic Paediatrics, 15*(2), 177–184. doi:10.1016/j.acap.2014.09.001

Goodman, R. (1997). *Strengths and Difficulties Questionnaire* [Database record]. APA Psych Tests. doi:10.1037/t00540-000

Government of Ireland (2000). *National Children's Strategy*, *Our children - Their lives*. Dublin: The Stationery Office.

Government of Ireland (2008). *Motor vehicles (duties and licences) act 2008*. (No.2) Dublin: Author. Retrieved from http://www.irishstatutebook.ie/eli/2008/act/24/enacted/en/html

Government of Ireland (2017). *Creative Youth. A plan to enable the creative potential of every child and young person*. Dublin: Author. Retrieved from https://www.creativeireland.gov.ie/en/creative-youth/creative-youth-a-plan-to-enable-the-creative-potential-of-every-child-and-young-person/

Greene, S., Williams, J., Doyle, E., Harris, E., McCrory, C., Murray, A., Quail, A., Layte, R., O'Dowd, T. & Whelan, C. T. (2010). *Growing Up in Ireland: Review of the literature pertaining to the first wave of data collection with the child cohort at 9 years*. Dublin: ESRI/TCD/OMCYA.

Greenwald, R., Hedges, L. V., & Laine, R. D. (1996). The effect of school resources on student achievement. *Review of Educational Research, 66*(3), 361. doi:10.2307/1170528

Griffiths, L. J., Cortina-Borja, M., Sera, F., Pouliou, T., Geraci, M., Rich, C., … Dezateux, C. (2013). How active are our children? Findings from the Millennium Cohort Study. *BMJ Open, 3*(8), e002893. doi:10.1136/bmjopen-2013-002893

Gronostaj-Miara, A., Reulbach, U., Gavin, B., & McNicholas, F. (2016, November). *Different ways of estimating ADHD prevalence rates and the implications for mental health service*. Paper presented at the annual Growing Up in Ireland Conference, Croke Park Conference Centre, Dublin. Retrieved from https://www.growingup.ie/pubs/Conference-2016-Book-of-Abstracts.pdf

Growing Up in Ireland Study Team (2009a). *Key findings: 9-year olds, Being 9 years old* (No.1). Dublin: ESRI/TCD/OMCYA.

Growing Up in Ireland Study Team (2009b). *Key findings: 9-year olds, The education of 9-year-olds.* (No.3). Dublin: ESRI/TCD/OMCYA.

Growing Up in Ireland Study Team (2009c). *Key findings: 9-year olds, The health of 9-year-olds.* (No.4). Dublin: ESRI/TCD/OMCYA.

Growing Up in Ireland Study Team (2013). *Key findings: Infant Cohort (at 5 years), Social-emotional well-being of five-year-olds* (No. 2). Dublin: ESRI/TCD/DCYA.

Growing Up in Ireland Study Team (2017a). *Key findings: Infant cohort (at 7/8 years), Health and development* (No. 2) Dublin: ESRI/TCD/DCYA.

Growing Up in Ireland Study Team (2017b). *Key findings: Infant cohort (at 7/8 years), School and learning* (No.1). Dublin: ESRI/TCD/DCYA.

Growing Up in Ireland Study Team (2017c). *Key findings: Infant cohort (at 7/8 years), Socio-emotional development, relationships and play* (No.3). Dublin: ESRI/TCD/DCYA.

Growing Up in Scotland Team (2015). *Tackling inequalities in the early years: Key messages from 10 years of the Growing Up in Scotland study*. Edinburgh: The Scottish Government.

Guhn, M., Schonert-Reichl, K. A., Gadermann, A. M., Hymel, S., & Hertzman, C. (2012). A population study of victimization, relationships, and well-being in middle childhood. *Journal of Happiness Studies, 14*(5), 1529–1541. doi:10.1007/s10902-012-9393-8

Gutman, L. M., & Vorhaus, J. (2012). *The impact of pupil behaviour and wellbeing on educational outcomes*. London: Department for Education.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72*(2), 625–638. doi:10.1111/1467-8624.00301

Hansen, K., Jones, E., Joshi, H. and Budge, D. (2010). *Millennium Cohort Study fourth survey: A user's guide to initial findings* (2nd edition). London: Centre for Longitudinal Studies

Hanushek, E. A., Kain, J. F., Markman, J. M., & Rivkin, S. G. (2003). Does peer ability affect student achievement? *Journal of Applied Econometrics, 18*(5), 527–544. doi:10.1002/jae.741

Hargreaves, D. S., Djafari Marbini, A., & Viner, R. M. (2013). Inequality trends in health and future health risk among English children and young people, 1999-2009. *Archives of Disease in Childhood, 98*(11), 850–855. doi:10.1136/archdischild-2012-303403

Harrington, D. M., Murphy, M., Carlin, A., Coppinger, T., Donnelly, A., Dowd, K. P., … Belton, S. (2016). Results from Ireland North and South's 2016 report card on physical activity for children and youth. *Journal of Physical Activity and Health, 13*(2), 183–188. doi:10.1123/jpah.2016-0334

Harris, E., Doyle, E. & Greene, S. (2011). Growing Up in Ireland: The findings of the qualitative study with the 9-year-olds and their parents (Qualitative Research Report No. 1). Dublin: ESRI/TCD/DCYA.

Harris, M., & Butterworth, G. (2012). *Developmental psychology: A student's handbook.* Sussex: Psychology Press.

Hartas, D. (2012). Inequality and the home learning environment: predictions about seven-year-olds' language and literacy. *British Educational Research Journal, 38*(5), 859-879. doi:10.1080/01411926.2011.588315

Harter, S. (1988). Developmental processes in the construction of the self. In T. D. Yawkey & J. E. Johnson (Eds.), *Integrative processes and socialization: Early to middle childhood* (pp. 45-78). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Hartup, W. W. (1984). The peer context in middle childhood. In W. A. Collins (Ed.). *Development during middle childhood: The years from six to twelve*. Washington: National Academies Press. Retrieved from: https://www.ncbi.nlm.nih.gov/books/NBK216783/ [Accessed 12 July 2018].

Hartup, W. W. (1996). The company they keep: Friendships and their developmental significance. *Child Development, 67*(1), 1–13. doi:10.1111/j.1467-8624.1996.tb01714.x

Hattie, J. (2005). The paradox of reducing class size and improving learning outcomes. *International Journal of Educational Research, 43*(6), 387–425. doi:10.1016/j.ijer.2006.07.002

Health Service Executive. (n.d.). Child health services in Ireland. Retrieved from https://www.hse.ie/eng/about/who/healthwellbeing/our-priority-programmes/child-health-and-wellbeing/childhealthservicesireland/

Hesketh, K. R., Law, C., Bedford, H., & Hope, S. (2016). Co-occurrence of health conditions during childhood: Longitudinal findings from the UK Millennium Cohort Study (MCS). *PLOS ONE, 11*(6), e0156868. doi:10.1371/journal.pone.0156868

Hills, A. P., Andersen, L. B., & Byrne, N. M. (2011). Physical activity and obesity in children. *British Journal of Sports Medicine, 45*(11), 866–870. doi:10.1136/bjsports-2011-090199

Houtenville, A. J., & Conway, K. S. (2008). Parental effort, school resources, and student achievement. *Journal of Human Resources, 43*(2), 437–453. doi:10.1353/jhr.2008.0027

Howard, J., Miles, G. E., Rees-Davies, L., & Bertenshaw, E. J. (2017). Play in middle childhood: Everyday play behaviour and associated emotions. *Children & Society, 31*(5), 378–389. doi:10.1111/chso.12208

Hoxby, C. M. (2000). The effects of class size and composition on student achievement: New evidence from natural population variation. *The Quarterly Journal of Economics, 115*(4), 1239–1285. doi:10.1162/003355300555060

Huttenlocher, J., Vasilyeva, M., Cymerman, E., & Levine, S. (2002). Language input and child syntax. *Cognitive Psychology, 45*(3), 337–374. doi:10.1016/s0010-0285(02)00500-5

International Federation of Library Associations/UNESCO (2002). *The IFLA/UNESCO school library guidelines- IFLA professional reports* (No. 77). The Hague: Author. Retrieved from https://www.ifla.org/files/assets/hq/publications/professional-report/77.pdf

Ireland, M. J., & Pakenham, K. I. (2010). The nature of youth care tasks in families experiencing chronic illness/disability: Development of the Youth Activities of Caregiving Scale (YACS). *Psychology & Health, 25*(6), 713–731. doi:10.1080/08870440902893724

Irish National Teachers' Organisation (2003). *Teaching in multi-classes.* Dublin: Author. Retrieved from https://www.yumpu.com/en/document/read/51681766/teaching-in-a-multi-classes-2003-into

Jansen, E., Mulkens, S., & Jansen, A. (2011). Tackling childhood overweight: treating parents exclusively is effective. *International Journal of Obesity, 35*(4), 501-509. doi:10.1038/ijo.2011.16

Janssen, I., Craig, W. M., Boyce, W. F., & Pickett, W. (2004). Associations between overweight and obesity with bullying behaviors in school-aged children. *Pediatrics, 113*(5), 1187-1194.

Jennings, S. M. (2014). *Preventing chronic disease: Defining the problem. Report from the prevention of chronic disease programme.* Dublin: Health Service Executive.

Joint Committee on Education and Skills (2018). *Report on tackling obesity and the promotion of healthy eating in schools.* Dublin: Houses of the Oireachtas.

Kaiser, T., Li, J., Pollmann-Schult, M., & Song, A. Y. (2017). Poverty and child behavioral problems: the mediating role of parenting and parental well-being. *International journal of environmental research and public health, 14*(9), 981.

Kelly, C., Gavin, A., Molcho, M. & Nic Gabhainn, S. (2012). *The Irish Health Behaviour in School-Aged Children (HBSC) Study 2010.* Galway: Health Promotion Research Centre, NUI Galway.

Kini, T., & Podolsky, A. (2016). *Does teaching experience increase teacher effectiveness? A review of the research.* Palo Alto: Learning Policy Institute.

Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health, 74*(7), 262–273. doi:10.1111/j.1746-1561.2004.tb08283.x

Korneluk, Y. G., & Lee, C. M. (1998). Children's adjustment of parental physical illness. *Clinical Child and Family Psychology Review, 1*(3), 179-193. doi:10.1023/A:1022654831666

La Greca, A. M. (1990). Social consequences of paediatric conditions: Fertile area for future investigation and intervention? *Journal of Paediatric Psychology, 15*(3), 285–307. doi:10.1093/jpepsy/15.3.285

Ladd, G. W., Herald-Brown, S. L., & Reiser, M. (2008). Does chronic classroom peer rejection predict the development of children's classroom participation during the grade school years? *Child Development, 79*(4), 1001–1015. doi:10.1111/j.1467-8624.2008.01172.x

Ladd, G. W., Kochenderfer, B. J., & Coleman, C. C. (1996). Friendship quality as a predictor of young children's early school adjustment. *Child Development, 67*(3), 1103-1118. doi:10.1111/j.1467-8624.1996.tb01785.x

Ladd, G. W., Kochenderfer, B. J., & Coleman, C. C. (1997). Classroom peer acceptance, friendship, and victimization: distinct relational systems that contribute uniquely to children's school adjustment? *Child Development, 68*(6), 1181-1197. doi:10.2307/1132300

Ladd, G. W., Kochenderfer-Ladd, B., & Sechler, C. M. (2014a). Classroom peer relations as a context for social and scholastic development. In S. H. Landry & G. L. Cooper (Eds.). *Well-being in children and families: Wellbeing: A complete reference guide, Volume 1* (pp. 243-270). West Sussex, UK: Wiley Blackwell.

Ladd, G. W., Kochenderfer-Ladd, B., Ettekal, I., Cortes, K., Sechler, C. M., & Visconti, K. J. (2014b). The 4R-SUCCESS program: promoting children's social and scholastic skills in dyadic classroom activities. *Gruppendynamik und Organisationsberatung, 45*(1), 25–44. doi:10.1007/s11612-013-0231-1

Lam, C. B., McHale, S. M., & Crouter, A. C. (2014). Time with peers from middle childhood to late adolescence: Developmental course and adjustment correlates. Child Development, 85(4), 1677-1693.

Lamb, M. E., & Lewis, C. (2015). The role of parent-child relationships in child development. In Bornstein, M. H. & Lamb, M. E. (Eds.). *Developmental science: An advanced textbook* (7th ed., pp. 535-586). New York, NY: Psychology Press

Lampard, A. M., Byrne, S. M., Zubrick, S. R., & Davis, E. A. (2008). Parents' concern about their children's weight. *International Journal of Paediatric Obesity, 3*(2), 84-92. doi:10.1080/17477160701832552

Larson, R. W., & Verma, S. (1999). How children and adolescents spend time across the world: Work, play, and developmental opportunities. *Psychological Bulletin, 125*(6), 701–736. doi:10.1037/0033-2909.125.6.701

Layte, R., & McCrory, C. (2011). *Growing Up in Ireland – Overweight and Obesity among 9-year-olds*. Dublin: ESRI, TCD, DCYA.

Layte, R. & McCrory, C. (2011). *Growing Up in Ireland: Overweight and obesity among 9-year-olds.* (Child Cohort Research Report No. 2). Dublin: Government Publications.

Leaper, C. (2002). Parenting girls and boys. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (Vol. 1, 2nd ed., pp. 189–225). Mahwah, NJ: Erlbaum.

Leinert, S., Daly, H., Hyde, B., & Gallachóir, B. Ó. (2013). Co-benefits? Not always: Quantifying the negative effect of a CO2-reducing car taxation policy on NOx emissions. *Energy Policy, 63*, 1151–1159. doi:10.1016/j.enpol.2013.09.063

Lillard, A. S., Pinkham, A., & Smith, E. D. (2011). Pretend play and cognitive development. In U. Goswami (Ed.), *Handbook of cognitive development* (2nd ed., pp. 285–311). London, England: Blackwell.

Lytton, H., & Romney, D. M. (1991). Parents' differential socialization of boys and girls: A meta-analysis. *Psychological Bulletin, 109*(2), 267–296. doi:10.1037/0033-2909.109.2.267

Maccoby, E. E. (1984). Middle childhood in the context of the family. In W. A. Collins, (Ed.). *Development during middle childhood: The years from six to twelve* (pp. 184-239). Washington (DC): National Academies Press.

Mallol, J., Crane, J., von Mutius, E., Odhiambo, J., Keil, U., & Stewart, A. (2013). The International Study of Asthma and Allergies in Childhood (ISAAC) phase three: A global synthesis. *Allergologia Immunopathologia, 41* (2), 73-85. doi:10.1016/j.aller.2012.03.001

Martinez, W., Carter, J. S., & Legato, L. J. (2011). Social competence in children with chronic illness: A meta-analytic review. *Journal of Paediatric Psychology, 36*(8), 878–890. doi:10.1093/jpepsy/jsr035

Mascaro, J. S., Rentscher, K. E., Hackett, P. D., Mehl, M. R., & Rilling, J. K. (2017). Child gender influences paternal behavior, language, and brain function. *Behavioral Neuroscience, 131*(3), 262–273. doi:10.1037/bne0000199

McCormick, M. P., O'Connor, E. E., & Parham Horn, E. (2017). Can teacher-child relationships alter the effects of early socioeconomic status on achievement in middle childhood? *Journal of School Psychology, 64*, 76–92. doi:10.1016/j.jsp.2017.05.001

McCoy, S., Quail, A., & Smyth, E. (2012a). *Growing Up in Ireland: Influences on 9-year-olds' learning: Home, school and community*. Dublin: Department of Children and Youth Affairs.

McCoy, S., Quail, A., & Smyth, E. (2014). The effects of school social mix: unpacking the differences. *Irish Educational Studies, 33*(3), 307–330. doi:10.1080/03323315.2014.955746

McCoy, S., Smyth, E., & Banks, J. (2012b). *The primary classroom: Insights from the Growing Up in Ireland study*. Dublin: ESRI.

McCrory, C., & Layte, R. (2011). The effect of breastfeeding on children's educational test scores at nine years of age: Results of an Irish cohort study. *Social Science & Medicine, 72*(9), 1515–1521. doi:10.1016/j.socscimed.2011.03.002

McCrory, C., Leahy, S., Ribeiro, A., Fraga, S., Barros, H., Vineis, P. & Layte, R. for the LIFEPATH consortium (2017, November). *Socio-economic inequalities in measured body mass index trajectories in 41,399 children in three European countries*. Paper presented at the annual Growing Up in Ireland Conference, Croke Park Conference Centre, Dublin. Retrieved from https://www.growingup.ie/pubs/Conference-2017Book-of-Abstracts-updated-131217.pdf

McDarby, F., O'Hora, D., O'Shea, D., & Byrne, M. (2016). Taking the sweetness out of the 'Share a Coke' marketing campaign: The influence of personalized labelling on elementary school children's bottled drink choices. *Paediatric Obesity, 13*(1), 63-69. doi:10.1111/ijpo.12193

McHale, S. M., Updegraff, K. A., & Whiteman, S. D. (2012). Sibling relationships and influences in childhood and adolescence. *Journal of Marriage and Family, 74*(5), 913–930. doi:10.1111/j.1741-3737.2012.01011.x

McIntyre, M. H., & Edwards, C. P. (2009). The early development of gender differences. *Annual Review of Anthropology, 38*, 83–97. doi:10.1146/annurev-anthro-091908-164338

McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist, 53*(2), 185–204. doi:10.1037/0003-066x.53.2.185

McMullin, P., McGinnity, F., Murray, A. & Russell, H. (2017, November). What you do versus who you are: Home learning activities, social origin and cognitive skills among young children in Ireland. Conference presentation at the Growing Up in Ireland Research Conference, Dublin. Retrieved from https://www.growingup.ie/pubs/D-F-McGinnity-GUI-presentation-2017-original-minus-slides-after-thank-you-slide.pdf

McNamara, E., O'Mahony, D. & Murray, A. (2020). *Growing Up in Ireland: Design, instrumentation and procedures for Cohort '08 of Growing Up in Ireland at 9 years old (Wave 5).* (Technical Series No. 2020-1). Dublin: ESRI/TCD/DCYA.

Mellor, D. (2005). Normative data for the strengths and difficulties questionnaire in Australia. *Australian Psychologist, 40*(3), 215–222. doi:10.1080/00050060500243475

Meltzer, H., Ford, T., Goodman, R., & Vostanis, P. (2011). The burden of caring for children with emotional or conduct disorders. *International Journal of Family Medicine, 2011*, 1–8. doi:10.1155/2011/801203

Menting, A. T. A., Orobio de Castro, B., & Matthys, W. (2013). Effectiveness of the Incredible Years parent training to modify disruptive and prosocial child behavior: A meta-analytic review. *Clinical Psychology Review, 33*(8), 901–913. doi:10.1016/j.cpr.2013.07.006

Mielck, A., Vogelmann, M., & Leidl, R. (2014). Health-related quality of life and socioeconomic status: inequalities among adults with a chronic disease. *Health and Quality of Life Outcomes, 12*(1), 58. doi:10.1186/1477-7525-12-58

Miller, C. T., & Downey, K. T. (1999). A meta-analysis of heavyweight and self-esteem. *Personality and Social Psychology Review, 3*(1), 68–84. doi:10.1207/s15327957pspr0301_4

Miller-Johnson, S., Coie, J. D., Maumary-Gremaud, A., & Bierman, K. (2002). Peer rejection and aggression and early starter models of conduct disorder. *Journal of Abnormal Child Psychology, 30*(3), 217-230. doi:10.1023/A:1015198612049

Molcho, M., Kelly, C., Gavin, A., & Nic Gabhainn, S. (2008). *Inequalities in health amongst school-aged children in Ireland*. Galway: Health Promotion Research Centre/ National University of Ireland.

Moller, L. C., Hymel, S., & Rubin, K. H. (1992). Sex typing in play and popularity in middle childhood. *Sex Roles, 26*(7/8), 331–353. doi:10.1007/bf00289916

Monteiro, C. A., Moubarac, J.-C., Levy, R. B., Canella, D. S., Louzada, M. L. da C., & Cannon, G. (2017). Household availability of ultra-processed foods and obesity in nineteen European countries. *Public Health Nutrition, 21*(01), 18–26. doi:10.1017/s1368980017001379

Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development, 16*(2), 361–388. doi:10.1111/j.1467-9507.2007.00389.x

Morrongiello, B. A., & Hogg, K. (2004). Mothers' reactions to children misbehaving in ways that can lead to injury: Implications for gender differences in children's risk taking and injuries. *Sex Roles, 50*, 103–118. doi:10.1023/B:SERS.0000011076.43831.a6

Muijs, D. & Reynolds, D. (2011). Effective teaching: Evidence and practice. *British journal of educational technology 43*(1), 35 – 41. doi.org/10.1111/j.1467-8535.2011.01274_5.x

Mulhall, S. (2019). *Social inclusion in the Irish education system.* Retrieved from: https://www.education.ie/en/Schools-Colleges/Information/Education-for-Sustainable-Development/presentation-for-sdg-4-5-28th-november-2019.pdf

Nader, P. R., Bradley, R. H., Houts, R. M., McRitchie, S. L., & O'Brien, M. (2008). Moderate-to-vigorous physical activity from ages 9 to 15 years. *Jama*, *300*(3), 295-305.

Nakamoto, J., & Schwartz, D. (2010). Is peer victimization associated with academic achievement? A meta-analytic review. *Social development*, *19*(2), 221-242.

Nagy, Z., Westerberg, H., & Klingberg, T. (2004). Maturation of white matter is associated with the development of cognitive functions during childhood. *Journal of Cognitive Neuroscience, 16*(7), 1227–1233. doi:10.1162/0898929041920441

Nansel, T. R., Haynie, D. L., & Simonsmorton, B. G. (2003). The association of bullying and victimization with middle school adjustment. *Journal of Applied School Psychology*, *19*(2), 45-61.

National Children's Office (2004), *Ready steady play! A national play policy*. Dublin: The Stationary Office.

National Children's Strategy (2000). *Our children - Their lives*. Dublin: The Stationery Office.

National Council for Curriculum and Assessment (1999a). *Primary school curriculum- Mathematics*. Dublin: The Stationary Office.

National Council for Curriculum and Assessment (1999b). *Primary school curriculum- English*. Dublin: The Stationary Office.

National Council for Curriculum and Assessment (2010). *Curriculum overload in Primary Schools: An overview of national and international experiences*. Dublin: Author. Retrieved from https://ncca.ie/media/2052/curriculum_overload_in_primary_schools_an_overview_of_national_and_international_experiences.pdf

National Council for Curriculum and Assessment (2018). *Primary developments: Consultation on curriculum structure and time- Final report*. Dublin: Author. Retrieved from https://ncca.ie/media/3242/primary-developments_consultaion-on-curriculum-structure-and-time_final-report.pdf

National Education Psychological Service (2010), *Behavioural, emotional and social difficulties- A continuum of support- Guidelines for teachers*. Dublin: Author. Retrieved from https://assets.gov.ie/40684/97bbea80d96b4057bf3f1f01107c7db4.pdf

National Health Service (2016). *Sexual health- Stages of puberty: what happens to boys and girls*. Retrieved from https://www.nhs.uk/live-well/sexual-health/stages-of-puberty-what-happens-to-boys-and-girls/ [Accessed 17 August 2018].

National Institutes of Health (2018). *School-age children development*. Retrieved from: https://www.nlm.nih.gov/medlineplus/ency/article/002017.htm [Accessed on 14 July 2018]

National Parents Council- Primary (2018). *Homework*. Dublin: Author. Retrieved from: http://www.npc.ie/images/uploads/downloads/Homework.PDF

Newcomb, A. F., Bukowski, W. M. & Pattee, L. (1993). Children's peer relations: A meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychological Bulletin, 113*(1), 99-128. doi:10.1037//0033-2909.113.1.99

Nicolson, G., & Zgaga, L. (2016, November). *Short sleep duration is associated with overweight and obesity in five-year-old children*. Paper presented at the annual Growing Up in Ireland Conference, Croke Park Conference Centre, Dublin. Retrieved from https://www.growingup.ie/pubs/Conference-2016-Book-of-Abstracts.pdf

Nixon, E. (2012). *Growing Up in Ireland: How families matter for social and emotional outcomes of 9- year-old children.* (Child Cohort Research Report No.4) Dublin: Government Publications.

Noonan, K., Burns, R., & Violato, M. (2018). Family income, maternal psychological distress and child socio-emotional behaviour: Longitudinal findings from the UK Millennium Cohort Study. *SSM - Population Health, 4*, 280–290. doi:10.1016/j.ssmph.2018.03.002

O'Connor, D., Cormack, M., Angus, J., & MacLaughlin, P. (2012). *A summary of the results from a large national study into children's play patterns in modern Ireland*. Retrieved from: https://independent.academia.edu/DeeOConnor [Accessed 14 June 2018].

OECD (2012). *Equity and quality in education: Supporting disadvantaged students and schools*. Paris: OECD Publishing. doi:10.1787/9789264130852-en

Ogundele, M. O. (2018). Behavioural and emotional disorders in childhood: a brief overview for paediatricians. *World Journal of Clinical Pediatrics, 7*(1), 9.

O'Neal, E. E., Jiang, Y., Franzen, L. J., Rahimian, P., Yon, J. P., Kearney, J. K., & Plumert, J. M. (2018). Changes in perception–action tuning over long time scales: How children and adults perceive and act on dynamic affordances when crossing roads. *Journal of Experimental Psychology: Human Perception and Performance, 44*(1), 18–26. doi:10.1037/xhp0000378

O'Neill, B., Grehan, S. & Olafson, K. (2011) *Risks and safety for children on the Internet: the Ireland report*. LSE, London: EU Kids Online.

Ostroff, C. (1992). The relationship between satisfaction, attitudes, and performance: An organizational level analysis. *Journal of Applied Psychology, 77*(6), 963–974. doi:10.1037/0021-9010.77.6.963

Oswalt, A. (2010). *Child development theory: Middle childhood.* Retrieved from: https://www.mentalhelp.net/articles/middle-childhood-development-theory-introduction/ [Accessed 22 August 2018].

Pahlke, E., Hyde, J. S., & Allison, C. M. (2014). The effects of single-sex compared with coeducational schooling on students' performance and attitudes: A meta-analysis. *Psychological Bulletin, 140*(4), 1042–1072. doi:10.1037/a0035740

Pakenham, K. I., & Cox, S. (2014). The effects of parental illness and other ill family members on the adjustment of children. *Annals of Behavioural Medicine, 48*(3), 424–437. doi:10.1007/s12160-014-9622-y

Pakenham, K. I., & Cox, S. (2015). The effects of parental illness and other ill family members on youth caregiving experiences. *Psychology & Health, 30*(7), 857–878. doi:10.1080/08870446.2014.1001390

Paquette, D., & Ryan, J. (2001). *Bronfenbrenner's ecological systems theory*. Retrieved from: http://www.floridahealth.gov/AlternateSites/CMS-Kids/providers/early_steps/training/documents/bronfenbrenners_ecological.pdf [Accessed 16 August 2018].

Parke, R. D., Coltrane, S., Duffy, S., Buriel, R., Dennis, J., Powers, J., ... & Widaman, K. F. (2004). Economic stress, parenting, and child adjustment in Mexican American and European American families. *Child development*, *75*(6), 1632-1656.

Parkes, A., Riddell, J., Wight, D., & Buston, K. (2017). *Growing Up in Scotland: Father-child relationships and child socio-emotional wellbeing*. Edinburgh: The Scottish Government.

Parkes, A., Sweeting, H., & Wight, D. (2014). *Growing Up in Scotland: Family and school influences on children's social and emotional well-being*. Edinburgh: The Scottish Government.

Patterson, J. M., & Garwick, A. W. (1994). The impact of chronic illness on families: A family systems perspective. *Annals of Behavioural Medicine, 16*(2), 131-142.

Pellegrini, A. D. (1988). Elementary school children's rough-and-tumble play and social competence. *Developmental Psychology, 24*, 802-806. doi:10.1037//0012-1649.24.6.802

Pellegrini, A. D., & Smith, P. K. (1998). Physical activity play: The nature and function of a neglected aspect of play. *Child Development, 69*(3), 577–598. doi:10.1111/j.1467-8624.1998.00577.x

Perry, C. P., Keane, E., Layte, R., Fitzgerald, A. P., Perry, I. J., & Harrington, J. M. (2015). The use of a dietary quality score as a predictor of childhood overweight and obesity. *BMC Public Health, 15*(1). doi:10.1186/s12889-015-1907-y

Piers, E. V., Harris, D. B., & Herzberg, D. S. (2002). *Piers-Harris Children's Self-Concept Scale, Second Edition (Piers-Harris 2)*. Los Angeles, Ca: Western Psychological Services.

Pinquart, M. (2013). Self-esteem of children and adolescents with chronic illness: a meta-analysis. *Child: care, health and development*, *39*(2), 153-161.

Pope, A. W., Bierman, K. L., & Mumma, G. H. (1991). Aggression, hyperactivity, and inattention-immaturity: Behaviour dimensions associated with peer rejection in elementary school boys. *Developmental Psychology, 27*(4), 663–671. doi:10.1037/0012-1649.27.4.663

Powell, P., Spears, K., and Rebori, M. (2010) *What is Obesogenic Environment?* Reno, NV: University of Nevada Retrieved from https://extension.unr.edu/publication.aspx?PubID=2810

Quail, A., & Smyth, E. (2014). *Multigrade teaching and age composition of the class: The influence on academic and social outcomes among students*. Dublin: ESRI.

Queally, M., Doherty, E., Matvienko-Sikar, K., Toomey, E., Cullinan, J., Harrington, J. M., Kearney, P. M., & Choosing Healthy Eating for Infant Health (CHErIsH) study team (2018). Do mothers accurately identify their child's overweight/obesity status during early childhood? Evidence from a nationally representative cohort study. *The international journal of behavioral nutrition and physical activity*, *15*(1), 56. doi.org/10.1186/s12966-018-0688-y

Riggs N. R., Greenberg, M. T., Kusché, C. A., & Pentz, M. A., (2006) The mediational role of neurocognition in the behavioral outcomes of a social-emotional prevention program in elementary school students: effects of the PATHS Curriculum. *Prevention Science*, *7*(1), 91-102. doi:10.1007/s11121-005-0022-1

Roorda, D. D., Jak, S., Zee, M., Oort, F. J., & Koomen, H. Y. (2017). Affective teacher-student relationships and students' engagement and achievement: A meta-analytic update and test of the mediating role of engagement. *School Psychology Review, 46*(3), 239-261. doi:10.17105/spr-2017-0035.v46-3

Roorda, D.L., Koomen, H.M.Y., Spilt, J.L. & Oort, F.J. (2011). The influence of affective teacher-student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research, 81*, 493-529. doi: 10.3102/0034654311421793

Rubin, K. H., Coplan, R. J., Chen, X., & Heverly-Fitt, S. (2015). Peer relationships. In M. H. Bornstein & M. E. Lamb (Eds.). *Developmental Science: An Advanced Textbook* (7th ed., pp. 587-644). New York: Psychology Press.

Rubin, K. H., Fein, G. C., & Vandenberg, B. (1983). Play. In P. H. Mussen (Ed.), *Handbook of child psychology* (4th ed., pp. 693-774). New York: Wiley.

Rueger, S. Y., & Jenkins, L. N. (2014). Effects of peer victimization on psychological and academic adjustment in early adolescence. *School Psychology Quarterly*, *29*(1), 77.

Ryan, R. M., Martin, A., & Brooks-Gunn, J. (2006). Is one good parent good enough? Patterns of mother and father parenting and child cognitive outcomes at 24 and 36 months. *Parenting, 6*(2-3), 211–228. doi:10.1080/15295192.2006.9681306

Sadeghirad, B., Duhaney, T., Motoghipisheh, S., Campbell, N. R., & Johnston, B. C. (2016). Influence of unhealthy food and beverage marketing on children's dietary intake and preference: A systematic review and meta-analysis of randomized trials. *Obesity Reviews, 17*(10), 945-959. doi:10.1111/obr.12445

Sameroff, A. J. (2009). *The transactional model of development: How children and contexts shape each other*. Washington, DC: American Psychological Association.

Sanders, M. R., Kirby, J. N., Tellegen, C. L., & Day, J. J. (2014). The Triple P-Positive Parenting Program: A systematic review and meta-analysis of a multi-level system of parenting support. *Clinical Psychology Review, 34*(4), 337–357. doi:10.1016/j.cpr.2014.04.003

Schleicher, A. (2018). *Valuing our Teachers and Raising their Status: How Communities Can Help*. Paris: OECD publishing. doi.org/10.1787/9789264292697-6-en.

Schonfeld, D. J., Adams, R. E., Fredstrom, B. K., Weissberg, R. P., Gilman, R., Voyce, C., … Speese-Linehan, D. (2015). Cluster-randomized trial demonstrating impact on academic achievement of elementary social-emotional learning. *School Psychology Quarterly, 30*(3), 406–420. doi:10.1037/spq0000099

Schröder, M., Siegers, R., & Spieß, C. K. (2013). Familien in Deutschland–FiD. *Schmollers Jahrbuch*, *133*(4), 595-606.

Schwartz, D., Gorman, A. H., Nakamoto, J., & Toblin, R. L. (2005). Victimization in the peer group and children's academic functioning. *Journal of educational psychology*, *97*(3), 425.

Shiu, S. (2001), Issues in education for students with chronic illness. *International journal of disability, development and education 48*(3), 269-277. doi: 10.1080/10349120120073412

Sénéchal, M., & LeFevre, J. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development, 73*(2), 445-460. doi:10.1111/1467-8624.00417

Sentenac, M., Gavin, A., Arnaud, C., Molcho, M., Godeau, E., & Gabhainn, S. N. (2011). Victims of bullying among students with a disability or chronic illness and their peers: A cross-national study between Ireland and France. *Journal of Adolescent Health, 48*(5), 461–466. doi:10.1016/j.jadohealth.2010.07.031

Shaffer, D. R., & Kipp, K. (2010). *Developmental psychology: Childhood and adolescence* (8th ed.). Belmont, CA: Wadsworth, Cengage Learning

Sherman, J., Rasmussen, C., & Baydala, L. (2008). The impact of teacher factors on achievement and behavioural outcomes of children with Attention Deficit/Hyperactivity Disorder (ADHD): a review of the literature. *Educational Research, 50*(4), 347–360. doi:10.1080/00131880802499803

Shonkoff, J. P. (1984). The biological substrate and physical health in middle childhood. In W. A. Collins, (Ed.). *Development during middle childhood: The years from six to twelve* (pp. 24-69). Washington DC: National Academies Press.

Siegel, K., Mesagno, F. P., Karus, D., Christ, G., Banks, K., & Moynihan, R. (1992). Psychosocial adjustment of children with a terminally ill parent. *Journal of the American Academy of Child & Adolescent Psychiatry, 31*(2), 327–333. doi:10.1097/00004583-199203000-00022

Sieh, D. S., Meijer, A. M., Oort, F. J., Visser-Meily, J. M. A., & Van der Leij, D. A. V. (2010). Problem behavior in children of chronically ill parents: A meta-analysis. *Clinical Child and Family Psychology Review, 13*(4), 384–397. doi:10.1007/s10567-010-0074-z

Silverstein, L. B., & Auerbach, C. F. (1999). Deconstructing the essential father. *American Psychologist, 54*(6), 397–407. doi:10.1037/0003-066x.54.6.397

Silverstein, M. D., Mair, J. E., Katusic, S. K., Wollan, P. C., O'Connell, E. J., & Yunginger, J. W. (2001). School attendance and school performance: A population-based study of children with asthma. *The Journal of Paediatrics, 139*(2), 278–283. doi:10.1067/mpd.2001.115573

Smith, E. D., & Lillard, A. S. (2012). Play on: Retrospective reports of the persistence of pretend play into middle childhood. *Journal of Cognition and Development, 13*(4), 524–549. doi:10.1080/15248372.2011.608199

Smyth, E. (1999). *Do schools differ? Academic and personal development among pupils in the second-level sector*. Cork: Oak Tree Press.

Smyth, E. (2016). *Arts and cultural participation among children and young people: Insights from the Growing Up in Ireland study*. Dublin: ESRI.

Smyth, E. (2017a) *Growing Up in Ireland: Off to a good start? Primary school experiences and the transition to second-level education.* (Child Cohort Research Report No. 5). Dublin: The Stationery Office.

Smyth, E. (2017b). *Wellbeing and school experiences among 9- and 13-year-olds: Insights from the Growing Up in Ireland study*. Dublin: ESRI.

Society of the Irish Motor Industry (2018). *Passenger cars by engine type*. Retrieved from: https://stats.beepbeep.ie/motorstats [Accessed 15 August 2018].

Stein, J. A., Rotheram-Borus, M. J., & Lester, P. (2007). Impact of parentification on long-term outcomes among children of parents with HIV/AIDS. *Family Process, 46*(3), 317–333. doi:10.1111/j.1545-5300.2007.00214.x

Subbarao, P., Mandhane, P. J., & Sears, M. R. (2009). Asthma: Epidemiology, aetiology and risk factors. *Canadian Medical Association Journal, 181*(9), E181–E190. doi:10.1503/cmaj.080612

Sweeting, H., & West, P. (2001). Being different: Correlates of the experience of teasing and bullying at age 11. *Research Papers in Education*, *16*(3), 225-246.

Taheri, S., Ling, L., Austin, D., Young, T., & Mignot, E. (2004). Short sleep duration is associated with reduced leptin, elevated ghrelin, and increased body mass index. *Plos Medicine, 1*(3), 210-217. doi:10.1371/journal.pmed.0010062

Tatar, M., & Horenczyk, G. (2003). Diversity-related burnout among teachers. *Teaching and teacher education, 19*(4), 397-408.

Teaching Council (2011). *Policy on the continuum of teacher education*. Kildare: Author. Retrieved from https://www.teachingcouncil.ie/en/Publications/Teacher-Education/Policy-on-the-Continuum-of-Teacher-Education.pdf

Teaching Council (2013). *Procedures for induction and procedures and criteria for probation 2013/2014*. Kildare: Author. Retrieved from https://www.teachingcouncil.ie/en/Publications/Teacher-Education/Archive/Procedures-for-Induction-and-Procedures-and-Criteria-for-Probation-2013-2014.pdf

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research, 83*(3), 357–385. doi:10.3102/0034654313483907

Thies, K. M. (1999). Identifying the educational implications of chronic illness in school children. *Journal of School Health, 69*(10), 392–397. doi:10.1111/j.1746-1561.1999.tb06354.x

Thomas, D. E., Bierman, K. L., & Powers, C. J. (2011). The influence of classroom aggression and classroom climate on aggressive-disruptive behaviour. *Child Development, 82*(3), 751–757. doi:10.1111/j.1467-8624.2011.01586.x

Thrupp, M., & Lupton, R. (2006). Taking school contexts more seriously: The social justice challenge. *British Journal of Educational Studies, 54*(3), 308–328. doi:10.1111/j.1467-8527.2006.00348.x

Tudge, J. R. H., Mokrova, I., Hatfield, B. E. & Karnick, R. B. (2009). Uses and misuses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory & Review, 1*(4), 198-210. doi:10.1111/j.1756-2589.2009.00026.x

United Nations High Commissioner for Human Rights (1989). *Convention on the rights of the child*. Geneva: United Nations High Commissioner for Human Rights.

Van Cleave, J., & Davis, M. M. (2006). Bullying and peer victimization among children with special health care needs. *Paediatrics, 118*(4), e1212–e1219. doi:10.1542/peds.2005-3034

van der Bruggen, C. O., Stams, G. J. J., Bögels, S. M., & Paulussen-Hoogeboom, M. C. (2010). Parenting behaviour as a mediator between young children's negative emotionality and their anxiety/depression. *Infant and Child Development, 19*(4), 354-365.

Véronneau, M., Vitaro, F., Brendgen, M., Dishion, T. J., & Tremblay, R. E. (2010). Transactional analysis of the reciprocal links between peer experiences and academic achievement from middle childhood to early adolescence. *Developmental Psychology, 46*(4), 773-790. doi:10.1037/a0019816

von Mutius, E., Schwartz, J., Neas, L. M., Dockery, D. & Weiss, S. T. (2001). Relation of body mass index to asthma and atopy in children: the National Health and Nutrition Examination Study III. *Thorax, 56*(11), 835–838. doi:10.1136/thorax.56.11.835

Watchman, T., & Spencer-Cavaliere, N. (2017). Times have changed: Parent perspectives on children's free play and sport. *Psychology of Sport & Exercise*, *32*, 102-112. doi:10.1016/j.psychsport.2017.06.008

Werner, N. E., & Crick, N. R. (2004). Maladaptive peer relationships and the development of relational and physical aggression during middle childhood. *Social Development, 13*(4), 495-514.

Williams, J., Greene, S., Doyle, E., Harris, E. Layte, R., McCoy, S. McCrory, C., …Thornton, M. (2009). *Growing Up in Ireland – The national longitudinal study of children: Lives of 9-year-olds*. Dublin: The Stationery Office.

Williams, J., Murray, A., McCrory, C., & McNally, S. (2013). *Growing Up in Ireland: Development from birth to three years*. (Infant Cohort Research Report No. 1) Dublin: The Stationery Office.

Williams, J., Phillips, T., Griebel, M. L., Sharp, G. B., Lange, B., Edgar, T., & Simpson, P. (2001). Factors associated with academic achievement in children with controlled epilepsy. *Epilepsy & Behavior, 2*(3), 217–223. doi:10.1006/ebeh.2001.0166

Wolke, D., Woods, S., Bloomfield, L., & Karstadt, L. (2000). The association between direct and relational bullying and behaviour problems among primary school children. *Journal of Child Psychology and Psychiatry, 41*(8), 989–1002. doi:10.1017/s0021963099006381

Woods, C.B., Tannehill D., Quinlan, A., Moyna, N. and Walsh, J. (2010). *The Children's Sport Participation and Physical Activity Study (CSPPA).* (Research Report No. 1). Dublin: Dublin City University/ The Irish Sports Council.

Woods, C. B., Powell, C., Saunders, J. A., O'Brien, W., Murphy, M. H., Duff, C., Farmer, O., Johnston, A., Connolly, S., & Belton, S. (2018). *The Children's Sport Participation and Physical Activity Study 2018 (CSPPA 2018)*. Limerick & Belfast: Sport Ireland/Department of Health/Sport Northern Ireland.

World Health Organisation (2014). *Global status report on noncommunicable diseases 2014*. Geneva: Author. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/148114/9789241564854_eng.pdf;jsessionid=72AD58A798E3C44699558ECEEAC73477?sequence=1

World Health Organisation (2015). *Fiscal policies for diet and prevention of noncommunicable diseases: Technical meeting report*. Geneva: Author. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/250131/9789241511247-eng.pdf?sequence=1

Worsham, N. L., Compas, B. E., & Ey, S. (1997). Children's coping with parental illness. In J. N. Sandler & S. A. Wolchik (Eds), *Handbook of children's coping: Linking theory and intervention* (pp. 195–213). New York: Plenum.

Wu, X., Tao, S., Rutayisire, E., Chen, Y., Huang, K., & Tao, F. (2017). The relationship between screen time, nighttime sleep duration, and behavioural problems in preschool children in China. *European Child and Adolescent Psychiatry, 26(5),* 541-548. doi:10.1007/s00787-016-0912-8

Yamamoto, Y., & Holloway, S. D. (2010). Parental expectations and children's academic performance in sociocultural context. *Educational Psychology Review, 22*, 189–214.
doi:10.1007/s10648-010-9121-z

Yu, M., & Daraganova, G., (2014). *Children's early home learning environment and learning outcomes in the early years of school*. Southbank, Australia: Australian Institute of Family Studies.

Zeman, J., Cassano, M., Perry-Parrish, C., & Stegall, S. (2006). Emotion regulation in children and adolescents. *Journal of Developmental & Behavioural Paediatrics, 27*(2), 155–168. doi:10.1097/00004703-200604000-00014

Zubrick, S.R., Lucas, N., Westrupp, E. M., & Nicholson, J. M. (2014). *Parenting measures in the Longitudinal Study of Australian Children: Construct validity and measurement quality, Waves 1 to 4*. Canberra: Department of Social Services.

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