Growing Up in Ireland
National Longitudinal Study of Children

COHORT '08
(INFANT COHORT)

Design, Instrumentation and Procedures (including Summary Literature Review, Pilot Report and Findings) for Cohort '08 at Wave Four (7/8 years)

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INTRODUCTION

1   INTRODUCTION

1.1   INTRODUCTION

Growing Up in Ireland is the National Longitudinal Study of Children in Ireland. It is funded by the Department of Children and Youth Affairs (DCYA)[1] with a principal aim of providing evidence to inform government policy on matters affecting children, young people and their families. The study is managed by the DCYA in conjunction with the Central Statistics Office and overseen by an interdepartmental governance structure. It is conducted by a team of researchers based at the Economic and Social Research Institute, Dublin and Trinity College Dublin.

This report summarises the methodological issues involved in data collection from Cohort '08 (formerly called the 'Infant' Cohort) of *Growing Up in Ireland* when the study children were 7/8 years old in 2016. In contrast to the longer in-home interviews with this cohort at ages 9 months, 3 years, 5 years and 9 years, the data collection from this cohort at age 7/8 years involved a short postal questionnaire. Three Key Findings reports from this wave were published in 2017 dealing with the children's education, health and socio-emotional development (*Growing Up in Ireland* Study Team, 2017a, b and c). This report provides an overview of the literature relevant to this stage of children's lives, describes the design of the survey for the cohort at 7/8 years, outlines the experience of the pilot and provides a brief summary of some of the main findings. This information will be of interest to others who conduct more in-depth analysis on these data in the future.

1.2   ABOUT THE *GROWING UP IN IRELAND* DATA COLLECTION AT AGE 7/8

The 7/8-year-olds who are the focus of this report were born in 2007/08. They are members of Cohort '08 of *Growing Up in Ireland*[2] and were recruited for the first wave when they were 9 months old; there were over 11,000 children at Wave 1. Being a longitudinal study, the same children (with their caregivers) were revisited at 3 years old (n=9,793) and again at age 5 years (n=9,001). Data collection in the first three waves involved a household visit by an interviewer to conduct an in-depth, face-to-face interview.

The fourth data collection wave, at age 7/8 years, involved a short postal questionnaire in contrast to the face-to-face interviews of earlier waves. This methodology allowed for a brief follow-up with the families between the visit at age 5 and the next major interview wave planned for when the children were 9 years old. The questionnaire at this 7/8 year wave concentrated on selected issues key to the child's well-being and development, namely: health, social skills, school-work, play activities and the parent-child relationship. As the questionnaire was self-completed and returned by post, only a minimum of information on the household structure was collected and none of the questions that would typically be included in the "sensitive" module during a household visit in previous waves of

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[1] With a contribution from The Atlantic Philanthropies in Phase 2
[2] There is a second older cohort referred to as Cohort '98 (the 'Child Cohort') who are the subject of a separate series of reports and literature reviews.

the study were included. The questionnaires were issued between March and April 2016. It was sent in the first instance to the person recorded as the Primary Caregiver from the previous completed wave but could, if decided by the family, be completed and returned by a 'new' Primary Caregiver. Further details on the design and content of the questionnaire at 7/8 years are provided in Chapter 3.

1.3   SUMMARY OF THE CONCEPTUAL FRAMEWORK AND ITS RELEVANCE AT 7/8 YEARS

A detailed description and discussion of the conceptual framework underlying *Growing Up in Ireland* is available in a separate publication by Greene et al. (2010). In summary, the conceptual framework was driven largely by Bronfenbrenner's work on the bio-ecological model (e.g. 1979, 1993; Bronfenbrenner and Morris, 2006). As illustrated in Figure 1.1, the development of the individual (in this case the 7/8-year-old child) takes place in the context of a complex network involving not just the immediate context of family and school but also the wider community, and – for example - the cultural and economic contexts with which these core layers interact. This framework emphasises the importance of a multi-disciplinary study with multiple informants, where possible, to account for the different influences on individual development.

In the Bronfenbrenner framework, the child is at the centre and various levels of influence are described in terms of systems. The 'microsystem' is typically thought to be the most directly influential as it concerns those individuals and places with whom the child has most interactions, and who control much of the child's immediate learning environment, such as the family and school. At the age of 7/8 years, a child's life continues to be very much determined by their parents' decisions in relation to significant aspects of their lives, including schooling, diet, housing, and leisure pursuits. At the same time, the parent-child relationship is a key source of emotional support for the developing child. The school context is also very important to all areas of the child's development. Experiences in school have a major input to the child's cognitive development. School is also an environment where socio-emotional development is affected by interactions with peers and teachers, and the curriculum and school policies can impact on health and growth (e.g. through physical exercise classes).

Figure 1.1 The bio-ecological model
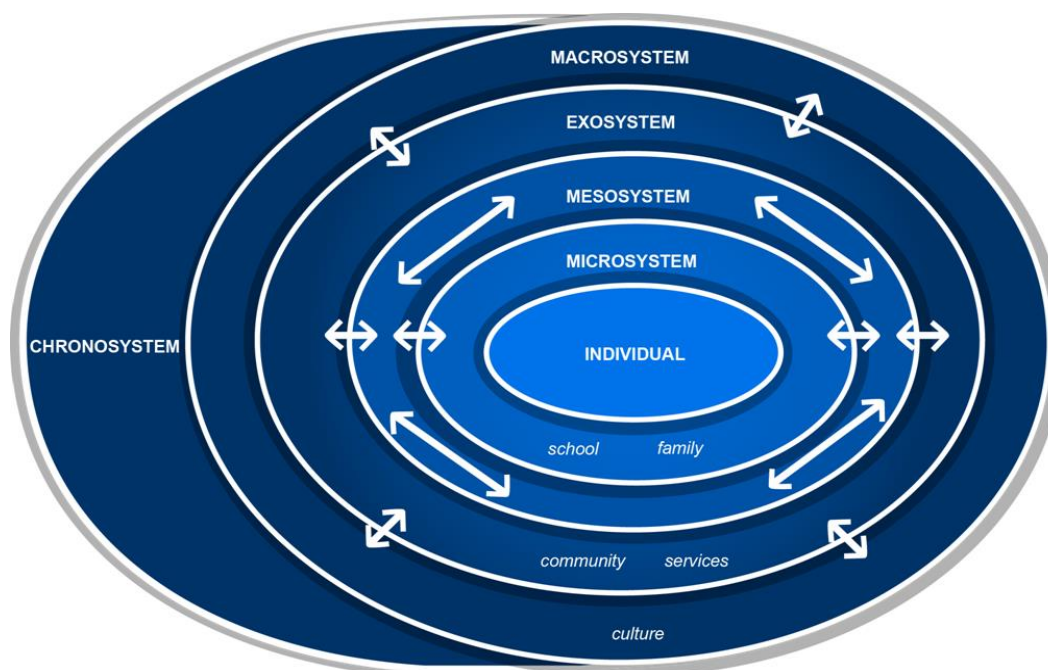
Source: Adapted from Garbarino, 1982.

At the 'exosystem' level are elements such as the local neighbourhood. Factors such as the availability of green space and sports facilities and the availability of produce in local shops could influence the choices available to the child and family regarding activity and diet. Churches, parents' employers, and GP facilities are other examples of elements in the exosystem that may influence the child's development.

The 'macrosystem' is the layer with which the child may not interact directly, but which can still have important effects on his/her development. This system includes, for example, cultural norms on what is considered appropriate for 7/8-year-old children in terms of play activities or level of independence; and Government policies such as the amount payable as Child Benefit and the national school curriculum; and the health of the economy which in turn influences parental employment opportunities and the level of funds available for public services.

The 'mesosystem' relates to the interactions between the various systems or elements within a system. Relevant examples at age 7/8 years would be parental engagement with the child's school, such as whether the parent attends meetings with the teacher and is kept up to date on the child's academic progress; or family-friendly policies at the parent's workplace that allow them flexibility to work from home when the child is sick or needs to be collected from school. An interesting debate has arisen as to how the digital world should be located in the traditional structure of the Bronfenbrenner model (e.g. Johnson and Puplampu, 2008; Plowman, 2016). In one sense, given the amount of time children spend playing computer games, browsing the internet or watching TV – and the fact they mostly do this at home – it is almost a part of the microsystem. On the other hand, given that the content is mostly designed by people who are very distant from the child, both geographically

and in terms of their relationship to the child (and the interactions are mostly not personalised to the individual), perhaps it is better placed in the macrosystem.

Bronfenbrenner's bio-ecological model also acknowledges the importance of a child's individual characteristics and his/her capacity to be an active agent in interactions with the various systems. A 7/8-year-old who has a long-term condition that results in periods of ill-health may find that their attendance at school and opportunity for play are limited. A child who has an easy-going, friendly disposition might have more positive social interactions with peers, siblings and significant adults. A child's gender may affect what play and sports opportunities are encouraged by peers and adults, and so on. The child by 7/8 years also has increased capacity to exercise choice over whom they play with, what they do in their free-time and the effort they put into school-work.

Finally, time is acknowledged as an important part of the developmental context, reflected in the chronosystem. One aspect of this involves 'period effects' such as being 7/8 years in 2016 - at a time when the Irish economy was just starting to recover from a significant recession and what that means for the availability of services, parental financial stress etc. Another is the timing of events in the life of the individual such as the birth of a new sibling, moving to a new school or the departure of a parental figure from the home. The effect on the child of potentially stressful events may be moderated by the relative maturity of the child, how significant others (such as parents) support them through changes and whether the change ultimately results in an improvement or worsening in the child's everyday life.

1.4   BEING 7/8 YEARS OLD

By 7/8 years, children typically show a greater level of maturity and independence than previously. Relationships outside the immediate family such as those with friends or school-mates are likely to increase in importance. These changes may parallel an increased involvement with organised extra-curricular activities such as team sports, Irish dancing, and scouts/brownies. For example, Scouting Ireland accepts members from the age of 6 years, and the Gaelic Athletic Association (GAA) has competition rules for 'under 7' and 'under 9' matches. Children aged 7/8 years have typically developed their motor and co-ordination skills to a point where participation in organised sports and other competitions becomes more realistic for the majority of children.

In terms of school, children in this age group would typically have finished the 'Infants' cycle of primary school and now be in First or Second class with a more advanced curriculum, often a longer school-day and regular homework (depending on school policy). Irish guidelines for length of a school day at primary level are 5 hours and 40 minutes (Department of Education and Skills, 2014). Many Irish school children are expected to wear uniforms as prescribed by individual schools (ibid).

For many children growing up in Ireland in the Catholic religion (82% of children aged 5-9),[3] the ceremony known as 'First Holy Communion' is a major rite of passage that occurs around the age of 7/8 years. Most children to whom this event applies will devote a considerable amount of time, both inside and outside school, to religious preparation for this day.[4] The day is typically marked not just by a major religious ceremony but also a party for extended family and friends, and the receipt of gifts by the child. According to a recent survey, children received an average of €570 in gifts for their First Holy Communion and the average overall spent by parents on the event was €845.[5]

In terms of health, while it was expected that most children would be in good health, there may be an increase in the extent to which longstanding physical and mental health or behavioural issues are diagnosed once the children have started school. This may be because their grouping with other children of the same age lends itself to the identification of children whose physical or emotional development is progressing at a different pace. A paper on the identification of special educational needs (SEN), using *Growing Up in Ireland* data from Cohort '98 at age 9 years, noted that children attending the most socio-economically disadvantaged schools (in Ireland those designated as 'Urban Band 1 DEIS schools') were more likely to be identified as having emotional/behavioural difficulties (EBD) even after taking account of the socio-economic characteristics of the children attending these schools (Banks, McCoy & Shevlin, 2013).

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[3] From Central Statistics Office, Tables from Census 2016 *E8055: Population 2011 to 2016 by Sex, County and City, Age Group, Religion and CensusYear.* [accessed from www.cso.ie on 12/03/2019]

[4] While the Department of Education and Skills does not collect specific information on the time spent on First Communion preparation during school hours, in 2017 the announcement by the Education and Training Board – a State organisation responsible for the running of a small number of primary schools – that preparation for such sacraments would no longer take place during the school day was covered by the national media (e.g. Katherine Donnelly, Irish Independent, 22nd September 2017).

[5] 2017 Ulster Bank Communion Survey as reported by Gareth Morgan in the Irish Independent, June 26 2017.

Chapter 2

ISSUES FROM THE LITERATURE
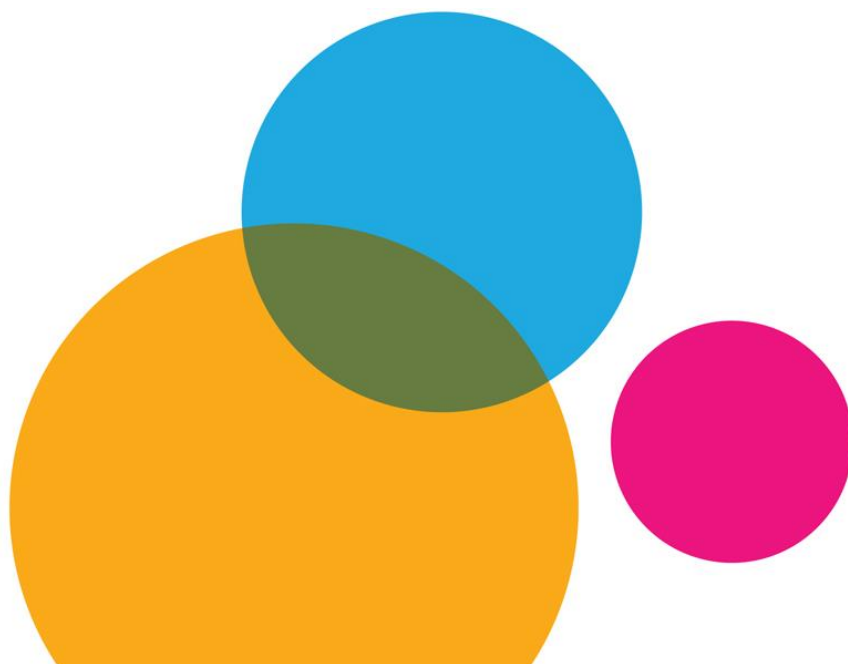
2   ISSUES FROM THE LITERATURE

As the questionnaire used in the 7/8-year round of interviewing was self-completed and returned on a postal basis, there were clear constraints on its length and content. One aspect of questionnaire development involved a review of the literature to ensure that the most important research topics relevant to children of this age were included. Major research themes were identified in each of the study's main outcome domains of physical activity, education, and socio-emotional well-being and behaviour. Each of these areas has been central to the project since its inception. Some key socio-demographic characteristics of the child's family and Primary Caregiver were also recorded, to facilitate analysis of trends and variation in child outcomes. The key research topics which were identified from the literature (and from consultation with experts in the field) are considered briefly below. These specific topics are chosen here because of their particular relevance to the transition from early to middle childhood or because they have not been covered in depth in the literature review for Cohort '08 at 5 years old.

2.1   FAMILY STRUCTURE AND SOCIO-ECONOMIC STATUS

2.1.1   Family Structure and Socio-Emotional Well-being

The association between family structure and family economic circumstances has been well established. Watson et al. (2012), drawing on the Survey of Income and Living Conditions for Ireland, note that one-parent families face a higher risk of poverty and deprivation than two-parent families. Although household poverty and deprivation do not necessarily translate directly into the children lacking child-specific goods and services, the rates of child-specific deprivation were also higher for children in one-parent families. About 28 per cent of children in one-parent families lacked at least one child-specific item compared to eight per cent of children living with two parents (Watson et al., 2012).

Changes to the structure of a family, such as parental separation or the birth of a new baby, have the potential to trigger significant and enduring changes in a child's socio-emotional well-being and development. These changes can be experienced in terms of family dynamics and the re-organisation of resources, and although the effect of these changes may sometimes be negative, they are not universally so (Hadfield et al., 2018).

In Cohort '08 of *Growing Up in Ireland*, family structure at the aggregate level did not change significantly between the first and second waves of interviews (GUI Study Team, 2011). At Wave 2 (3 years), 7% of families had one parent and one child, 8% had one parent and two or more children, 15% had two parents and one child, and 70% had two parents and two or more children. There was, however, change at the individual level. The most common difference to family structure at Wave 2 was the arrival of a new sibling into the family (33% of all families), but this was more common for two-parent than one-parent families (35% versus 18%). New births were also more frequent among families classed as professional/managerial (40%).

The proportion of one- and two-parent families was generally unchanged at Wave 3 (5 years of age): about 14% of children were growing up in one-parent families at 9 months, 3 years and 5 years old (Murray et al., 2019). Although the overall proportions of one- and two-parent families were fairly constant across waves, 4% of children had changed from a one- to a two-parent family, while another 4% had moved in the opposite direction. At 5 years of age, one-parent families were the most socially disadvantaged in terms of household income and maternal education (Murray et al., 2019).

An analysis of the relationship between family structure and emotional and behavioural outcomes in *Growing Up in Ireland* Cohort '98 at 9 years of age was conducted by Lafferty (2012), looking at differences between children in married and unmarried families. Children from married families were less likely to experience deprivation, maternal depression or stressful life events, and also performed significantly better in terms of socio-emotional and behavioural outcomes (as measured by the Strengths and Difficulties Questionnaire, SDQ; Goodman, 1997).

Extending this analysis by using data collected at the second wave of the Cohort '98 study, Nixon and Swords (2016) reported that at 13 years of age, the socio-emotional and behavioural development of children from one-parent families was again more likely to be classified as 'potentially problematic' on the SDQ scale. Similarly, children from one-parent families scored lower than children from two-parent families on tests of verbal and numerical ability. Two separate tests were used to measure how 13 year olds felt about themselves: the Short Mood and Feelings Questionnaire (which screens for depressive symptoms), and the Piers-Harris Scale, which measures self-perception. On both tests, children from one-parent families performed more poorly than their two-parent peers, displaying an increased risk of depression and poor self-perception.

Fahey et al. (2012), also using *Growing Up in Ireland* data, looked at differences in child development outcomes of 9-year-olds in Cohort '98 based on family structure. The authors found that children from married, two-parent families were less likely to have socio-emotional concerns (based on the SDQ), poor school performance (reading and maths) and chronic illness, when compared to unmarried or one-parent families. Only-children were also more likely than children with siblings to have socio-emotional concerns or suffer from chronic illness, but this association should not be assumed to reflect a cause-and-effect relationship. While not having siblings might have an impact on children's socio-emotional development, other factors linked to an increased risk of socio-emotional or behavioural problems (such as financial stress) may also have an impact on the decision of parents to increase their family size.

Waldfogel et al. (2010) highlighted five potential pathways through which family structure may influence child outcomes:

- parental resources: single mothers face an increased risk of economic disadvantage; as a result, they may be unable to afford as much time with their child as they would ideally like

- parental mental health: single or cohabiting mothers are at increased risk of depression, which could compromise their ability to parent at an optimal level

- parental relationship quality: parental divorce or separation can be a very traumatic event for a child, and may affect parenting quality too (although parental conflict is potentially worse for the child)

- parenting quality: children fare better when parents are warm and nurturing, compared with punitive or neglectful, and the quality of parenting may be affected by the above factors (reduced resources; parent mental health and conflict between parents)

- father involvement: particularly relevant where the father does not live in the home, increased involvement could be beneficial to child outcomes.

The authors noted that family instability was closely related to cognitive and health outcomes, while family structure (number of parents, regardless of stability) was more closely linked to child behaviour. In general, their results suggest that children in stable one-parent or cohabiting-parent families are at less risk than those in unstable one-parent or cohabiting-parent families (Waldfogel et al, 2010).

It might not be family structure per se that is linked to unfavourable outcomes, however, but correlates of different family structures. Analysing data from the *Growing Up in Ireland* Cohort '98 at 9 years old, Lafferty (2012) found that factors such as economic deprivation, maternal depression and stressful life events may be more important than family structure in influencing developmental outcomes at 9 years of age. In a similar vein, Hannan and Halpin (2014), analysing the same cohort, argue that it is not being a one-parent family in itself but the other characteristics of lone parents, such as lower levels of education that account for many of the unfavourable associations with child outcomes such as educational development, health and self-concept.

Potential for GUI: Through the fourth wave of data collection at 7/8 years of age, the current structure of the family, as well as changes therein since 9 months of age, can be observed. The association between change (or stability) and other family characteristics (like parental educational/economic status and parent-child relationships), as well a range of child development outcomes, can potentially be investigated. In particular, outcomes at age 7/8 years can be compared on a longitudinal basis, building on information collected at previous waves on family transitions and its relationship to outcomes. Further, outcomes at later ages can be assessed in the light of indicators of family structure and changes in family structure early in childhood: previous research using GUI data on outcomes at ages 9 and 13 did not have access to information on family circumstances at age 7/8 (Lafferty 2012; Nixon and Swords, 2016). Even if the processes underlying these associations are not fully understood, the associations can be useful in identifying families where further supports are needed.

2.1.2   Socio-Economic Status and Child Development

Extensive evidence suggests that children who grow up in adverse economic or financial circumstances can face immediate as well as enduring risk of negative wellbeing and developmental outcomes. In a systematic review of 34 studies (mainly from the US), Cooper and Stewart (2013 and 2017) concluded that children from lower-income households have less favourable outcomes across several domains (cognitive, social/behavioural and health), at least partly because they are poorer and not just because low income is associated with other characteristics of the family. In addition, increases in income towards the bottom of the income distribution had the strongest beneficial effects on child outcomes.

It is particularly important to consider the economic circumstances of *Growing Up in Ireland* Study Children in the aftermath of sustained economic recession, where the financial difficulties and resultant effects experienced by their families can be both pervasive and persistent.

Based on Cohort '08 of *Growing Up in Ireland* at 3 years of age, just over half of mothers were at work outside the home, while 6% said they were unemployed (GUI Study Team, 2011). Employment was significantly higher among better-educated mothers (72% of degree-level mothers vs. 25% who had left school with lower secondary education or less). Further to this, 44% of 3-year-olds whose mother had left school at the earliest stage (Junior Certificate or less) were in the lowest income quintile and only 1% were in the top quintile. One fifth of families (21%) made ends meet 'with great difficulty' or 'with difficulty', and families who were most disadvantaged in terms of income, social class or education were most likely to report that the recession had had a very significant effect on them. These recession effects were experienced in terms of a reduction in wages or social welfare and an inability to afford luxuries or, in many cases, basics.

Reflecting trends in the recession which Ireland faced over the period, by five years of age, 67% of study children were in families experiencing some level of difficulty in making ends meet, compared with 62% when they were 3 years old and 43% when they were nine months. Just over 55% of one-parent families' experienced financial stress at all three time periods compared to 29% of two-parent families (GUI Study Team, 2013c).

A report on the influence of family factors on child outcomes in Cohort '98 at 9 years of age found that family income was associated with child behavioural and developmental outcomes being in the problematic range (typically the top ten per cent of scores on the SDQ scale; Nixon, 2012). In a separate study, Nolan & Layte (2014) investigated whether there was a socio-economic gradient for health outcomes (general health, chronic illness and BMI). Whilst they found little evidence of an association between socio-economic status (SES) and health outcomes at 9 months, they reported a number of significant associations by 9 years of age (in Cohort '98). Family income was negatively associated with a child's general health (children in low income families tended to have poorer general health) and mother's education (which was correlated with family income and social class) was linked to a child's BMI: children of highly-educated mothers were less likely to be overweight or obese.

Quigley and Nixon (2016) investigated the association between socio-economic status (as indicated by family income and maternal education) on a number of child development outcomes at 9 and 13 years of age in Cohort '98 of *Growing Up in Ireland*. Using a test of verbal reasoning (the Drumcondra Verbal Reasoning Test), the authors observed a clear pattern in performance according to family income and maternal education. Children from families with a higher income or with mothers who had a higher level of education performed better in the verbal reasoning test than their peers from families in lower income groups or with mothers with lower levels of education.

The increased likelihood of a child experiencing deprivation-related stressors, including serious and/or chronic medical problems, parental psychological problems, marital discord and overcrowding in the home, may in part explain the association between a low socio-economic status and negative child health and development outcomes (Duncan, Brooks-Gunn & Klebanov, 1994). The combined influence of these stressors can elevate the risk for poor developmental outcomes (Sameroff, 2006). Socio-economic status may also affect children indirectly through its effect on parenting processes. Evidence suggests that socio-economic status can affect parenting beliefs (including how much control they have over child development/outcomes; Fong et al., 2018), parenting practices (low SES parents tend to be less authoritative; Teng et al., 2018), the developmental goals that parents hold for their children (Park & Lau, 2015), and the relationship between parents (Watson et al., 2014).

Potential for GUI: As at all previous waves of the study, family economic situation was again recorded when the Study Child was 7/8 years in terms of: difficulty in making ends meet; social welfare dependency; and changes in the financial position of the family compared to when the Study Child was 5 years old. Information was also recorded on mothers work status; whether she worked full or part-time, and how many hours she worked per week. This information, as well as longitudinal changes over the four waves to date, can be considered as part of the overall family context, and compared against outcomes related to child health, socio-emotional and academic development. The detailed information on family processes and parental physical and emotional well-being collected in other waves, analysed in conjunction with the socio-economic indicators, allow an investigation of the processes involved. There is also scope to further explore apparent resilience amongst children who were doing well at 7/8 years despite earlier or ongoing socio-economic adversity.

2.2   CHILD HEALTH

2.2.1   THE LINK BETWEEN CHRONIC ILLNESS ON ACADEMIC ACHIEVEMENT

Children with Special Educational Needs (SEN) often require specific services in order to achieve their potential in the educational system. Thus, the prevalence of longstanding health conditions and disabilities has important policy implications. The most recent report from Ireland's National Physical and Sensory Disability Database (Doyle et al., 2017) indicated that approximately 2,300 children aged 5-12 years have persistent disabilities that require specialised health or personal social service. The most

common disabilities at this age involve communication, the nervous system and intellectual development.

Looking specifically at Cohort '08 of *Growing Up in Ireland*, 16% of children were reported to have a longstanding health condition or disability at 3 years of age, increasing to 18% at 5 years of age. The most common of these were behavioural or learning-related conditions (ADHD, dyslexia) and respiratory conditions such as asthma (GUI Study Team, 2017b). At 5 years of age, 1.3% of all study children were reported by parents to be 'severely' hampered in their daily activities by a chronic illness, and a further 6% were 'somewhat' hampered.

Within *Growing Up in Ireland* Cohort '98 at 9 years of age, the presence of a longstanding mental or behavioural condition (as identified by the parent) was significantly and negatively related to reading and maths test performance (Layte & McCrory, 2013). Mental, behavioural and all other chronic conditions were also significantly associated with a higher mean SDQ score (suggesting increased behavioural or emotional difficulties).

Other research has examined the association between chronic illness or disability and educational experience and attainment. A recent systematic meta-review conducted by Lum et al. (2017) included 18 projects investigating the association between school experience and chronic illness. Many of the articles reported that chronic illness was negatively associated with school outcomes. However, in 14 of 16 articles, children with asthma achieved equal or better school outcomes than their peers without a chronic illness, condition or disability (Milton et al., 2004; Taras & Potts-Datema, 2005), suggesting that this association was very much illness-dependent. Significant associations were observed between poor academic outcomes and increasingly severe chronic illnesses, such as cancer.

The most prominent trend observed within the meta-review was an association between chronic illness and increased rates of absenteeism; although again, the strength of the relationship was associated with the severity of the illness, as well as frequent hospitalisation. Chronic illness was also associated with poorer school peer relationships, many students being teased or bullied about being different to peers, their body image and poor academic performance (Hokkanen et al., 2004). However, an increased eagerness to attend school was also reported amongst those with severe illnesses, as it provided them with a sense of returning to a regular routine (Bessell, 2001).

Students with chronic illnesses reported that, when made aware of their unique circumstances, schools and teachers were broadly supportive (Mitchell et al., 2006). This in turn led to improved engagement with and, where necessary, reintegration (after extended hospitalisation) into the school system. These positive experiences were usually aided by structured communication between the student/family, school and health professionals.

A more recent study drew on the *Growing Up in Ireland* data for Cohort '98 at 9 and at 13 years of age to examine the impact of parental expectations on student's achievement (Banks et al, 2016). The

authors found that even controlling for cognitive performance at age 9, parents of children with Special Educational Needs (SEN) were less likely to expect them to go on to Third Level education. In addition, parental expectations at age 9 were associated with young people's cognitive achievement at age 13, even controlling for SEN, achievement at age 9 and parental education. The results suggested that parental expectations may be an important mediating factor influencing academic self-concept and actual achievement of children with SEN.   The results also confirmed the finding in the literature of differences according to the type of SEN: young people with general learning/intellectual and emotional/behavioural disabilities fared least well in terms of academic achievement at age 13.

Potential for GUI: Chronic illness, disease or disability can have a significant and lasting impact on the well-being of a child. Looking specifically at the overall school experience, children with chronic illnesses may have more difficulties in terms of academic achievement and the development of relationships with peers and teachers. Using information gathered from the 7/8 year data sweep, we can further investigate these issues both cross-sectionally and longitudinally within Cohort '08 of *Growing Up in Ireland*. For example, the update from parents on how the child was faring at school can be assessed in relation to the presence (or emergence) of chronic illnesses or longstanding conditions at age 7/8.

2.2.2   TRENDS IN OVERWEIGHT & OBESITY AND 'ADIPOSITY REBOUND'

The association between obesity and poor health in childhood is widely established, with obese children at increased risk of type 2 diabetes, hypertension and raised blood cholesterol levels (Lobstein & Jackson-Leach, 2006). Levels of overweight and obesity amongst young people have risen significantly over the last four decades, with a two- to threefold increase observed in many developed countries (Wang & Lobstein, 2006; Shah, Hagell & Cheung, 2019). Combined rates of childhood overweight and obesity across developed countries currently stand between 20 and 35% and may continue to increase (NCD Risk Factor Collaboration, 2017).

A recently published international review and meta-analysis reported a plateau in childhood body mass index (BMI) levels in many high-income countries since the turn of the century (NCD Risk Factor Collaboration, 2017). The authors concluded, however, that in spite of this broad plateau, prevalence rates are still worryingly high, and remain significantly higher than they were in the 1970's.

Focussing specifically on Irish schoolchildren up to 14 years of age, Keane et al. (2014) investigated whether rates of overweight and obesity (including morbid obesity) were still rising in Ireland between 2002 and 2012 after decades of steady growth. Using data from 14 studies and over 35,000 children aged 4-13 years, the authors observed overall trends similar to those reported in the international review. Based on the national studies reviewed in the paper, between 2002 and 2012 there was no significant trend in the prevalence of being overweight but a slight decrease in the prevalence of obesity. The authors concluded that childhood overweight and obesity prevalence rates appear to be stabilising, but remain high in Ireland.

A report from Cohort '08 of *Growing Up in Ireland* at 5 years of age (GUI Study Team, 2013b) indicated that levels of overweight and obesity were 15% and 5%, respectively; similar figures to those reported by Keane et al. (2014). For the same cohort two years prior (at 3 years of age), overweight levels were slightly higher (19%) although obesity levels were the same (5%). Further, of those who were overweight at 3 years of age, 50% were overweight or obese at 5 years of age while a similar proportion were no longer overweight/obese. Of those who were obese at 3 years of age, 75% were overweight or obese at 5 years of age.

These findings from *Growing Up in Ireland* suggest that overweight and obesity can persist through childhood and adolescence, a theory supported by results from the Avon Longitudinal Study of Parents and Children (ALSPAC; Wright et al., 2010). Measuring BMI from 7 to 11 years, the authors noted an increased prevalence in levels of overweight (rising from 11% to 18%) and obesity (from 3.3% to 4.6%) as the children got older. However, some researchers argue that there are significant factors in middle childhood predicting overweight/obesity in later adolescence and early adulthood. Rolland-Cachera et al. (1984) first proposed a theory that there exists a critical period of adipose tissue (fat) development in middle childhood, a phenomenon referred to as 'adiposity rebound'. Adiposity increases in the first year of life, but then tends to decrease until approximately 5-6 years of age. This nadir, just prior to a second increase in adiposity levels, is known as adiposity rebound. From this point onwards, adiposity (and BMI) levels increase gradually into early adulthood.

This rebound pattern can clearly be observed by looking at a child BMI-for-age chart (see Figure 2.1). The chart, from the US Centre for Disease Control in 2000, shows key percentiles of BMI at different ages of the child. In this chart, the 50th percentile curve represents the median BMI from ages 2 to 20 years. Following this curve, at 2 years, median BMI for a girl is 16.5. It decreases to approximately 15 at 5 years of age, whereupon adiposity rebound occurs and median BMI gradually increases to almost 22 by age 20 years.

Figure 2.1   Centers for Disease Control and Prevention BMI-for-age percentile curve showing 'adiposity rebound' at 3-6 years[6]
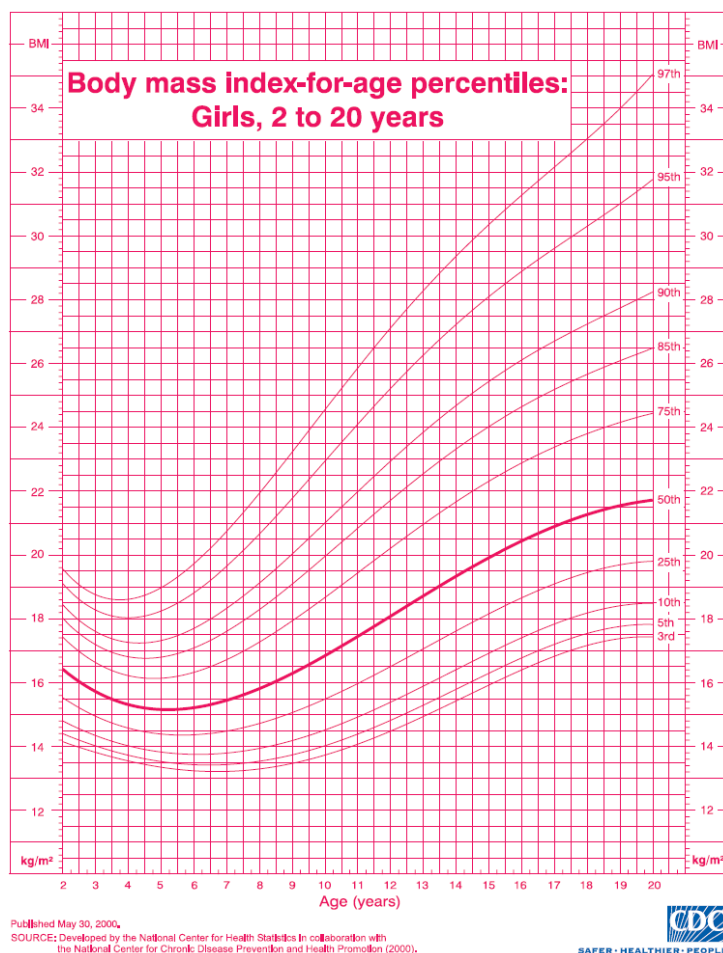
Rolland-Cachera (1984) and subsequent researchers (Ohlsson et al., 2012) believe that the specific age of adiposity rebound is an indicator of adult overweight and obesity; an early adiposity rebound increases the likelihood of adult obesity. However, Cole (2004) more recently argued that while age of adiposity rebound may predict later overweight/obesity, the association is statistical rather than physiological; BMI tends to carry along a curve, as illustrated in Figure 2.1.

Layte and McCrory (2011) investigated social class variations in levels of overweight and obesity in *Growing Up in Ireland* Cohort '98 at 9 years of age. They observed a clear gradient in terms of family social class, for both boys and girls. That is, children with parents in the Professional class category had substantially lower rates of overweight and obesity than children with parents in the Semi-skilled or

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[6] Reproduced from '2000 CDC Growth Charts for the United States: Methods and Development', available at
https://www.cdc.gov/nchs/data/series/sr_11/sr11_246.pdf

Unskilled group - a particular concern seeing that current differentials may contribute to a widening of adult inequalities in the years to come.

Potential for GUI: During the fourth wave of data collection with Cohort '08 (at 7/8 years), height and weight of the Study Child were reported by the Primary Caregiver and BMI values were calculated for all study children[7]. Analysing data at this potentially critical period in the child's life, in conjunction with BMI data recorded at 3 and 5 years of age, allows researchers to consider individual trends in adiposity amongst participants through childhood and potentially into adolescence. As indicated in the chart above, the adiposity rebound would begin to be evident at age 7/8. Characteristics of children who remain or become overweight and obese can be considered, including socio-economic inequalities; an avenue of particular policy relevance.

2.2.3   DIET AND HEALTH, INCLUDING MENTAL HEALTH, OUTCOMES AT 7/8 YEARS

As stated in Section 2.2.3, an elevated prevalence of obesity constitutes a disquieting and increasing problem for children and adolescents in Ireland and beyond, primarily due to its association with a range of negative health outcomes (Lobstein & Jackson-Leach, 2006; Jackson-Leach & Lobstein, 2006). Along with physical activity, diet is widely accepted as one of the key modifiable factors in the prevention of obesity (WHO, 2003; Kipping et al., 2008). Whilst a poor diet can increase the risk of obesity and the subsequent risk of associated negative health outcomes, a poor diet is also independently associated with a number of health concerns themselves. Because it is something that can be modified, the links between diet and a range of health outcomes are of central concern to policy.

Many studies involving adult populations have reported a link between a high quality diet and positive mental health outcomes (Psaltopoulou et al., 2013). Focussing specifically on children, Baker et al. (2017) recently reviewed the effects of a hyper-caloric diet on emotional well-being. They found that a diet high in refined fat and/or sugar had a significant negative impact on brain function and emotional behaviour. These effects were particularly pronounced during sensitive stages of gestational, paediatric and childhood development, and often led to an increased risk for the onset of anxiety and associated mood disorders.

O'Neill et al. (2014), in a systematic review of epidemiological studies, found a similar association between dietary quality and mental health in children and adolescents.[8] The authors noted that there are a number of potential biological pathways explaining the observed association with dietary quality,

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[7] The reader should note that in previous rounds of the study (where interviewers conducted face-to-face interviews) the child's height and weight were measured by the interviewer on medically approved equipment.

[8] In the studies reviewed here, and in Khalid et al. 2016 (discussed below), dietary quality was, in most cases, assessed by the reviewers based on self-reports of the frequency of consumption of different types of food.

including a link between certain nutrient deficiencies and both depression (folate, zinc, magnesium) and anxiety (omega-3 fatty acids).

Another review of the effects of diet on mental health outcomes used data from studies involving young people aged 3 to 18 years (Khalid et al., 2017). They reported a positive association between a high quality diet (including fruit, vegetables, cereals, grains and fish) and lower levels of depression. However, this association was only investigated and reported in three studies, limiting the authors' ability to establish causality. They did note that the association should be viewed cautiously, as both factors (diet and depression) may be affected by a third, confounding factor such as socioeconomic status. The authors also postulated that there may be an alternative causal pathway; poor mental health may promote unhealthy eating and not the other way around. However, longitudinal research suggests that this reverse causality is less likely to explain long-term associations (Le Port et al., 2012).

Across two studies, Jacka et al. have investigated the association between diet and mental health in child cohorts in both Australia (2010) and the UK (2013). Controlling for potential confounders such as socioeconomic status and family factors, they reported a dose-response association between diet quality and adolescent depression in the Australian cohort; children who consumed more processed and 'junk' foods were more likely to report depressive symptoms. For the UK cohort, an association between an unhealthy diet score (based on consumption of fast foods, snacks and biscuits high in saturated fats and sugars) and both depressive symptoms (using the Short Mood and Feelings Questionnaire) and psychological distress (using the Strengths and Difficulties Questionnaire) was observed. Again, the authors had adjusted for potential confounding factors, such as gender, ethnicity, religion, parental employment and eligibility for free school meals. In both studies, they concluded that current evidence suggests poor diet is a risk factor for negative mental health outcomes.

Calorie consumption was assessed in Cohort '08 of *Growing Up in Ireland* at 5 years of age (GUI Study Team, 2013b). This is an important consideration, given concerns with childhood obesity and given the association between calorie intake (with activity levels controlled) and overweight/obesity. A clear gradient was observed when calorie consumption was examined according to family income; on average, children in lower income families consumed 23% more calories per day than those children in the highest income families.

Potential for GUI: As at previous waves of the study, diet quality was gathered at the fourth wave (7/8 years) through parental reports of how often their child consumed certain common (healthy and unhealthy) foods. Dietary behaviour can be compared to a number of physical and mental health parameters, as well as background and socio-demographic characteristics and potential mediating factors (such as weight status and self-esteem). Importantly, there is scope for future analysis to investigate whether diet precedes or follows mental health problems in later childhood and adolescence. An understanding of the pathways is important as a guide to the policy interventions likely to be effective.

2.3   SCHOOL AND EDUCATION

2.3.1   SETTLING INTO PRIMARY SCHOOL

The transition into primary school is an important milestone for the developing child, and can have a substantial impact not only on their educational development but also on their emotional and social well-being. Looking beyond the initial transition into primary school, longitudinal analysis offers the opportunity to consider the sustained influence of initial school experiences on continued progress. Children's early experiences of the classroom, of new peer and teacher relationships and their acquisition of key literacy and numeracy skills can have a lasting effect on their short- and long-term educational development (Smyth, 2017 and 2018).

While the *Growing Up in Ireland* study of Cohort '08 at 5 years old provided important insights into the children's transition into primary school, the study at age 7/8 is designed to collect developmental and related information on the study child as s/he becomes settled into school and as his/her peer and friendship networks are assuming a greater importance in his/her microsystem. A number of studies have investigated the long-term effect of children's school experience at 7/8 years of age. Focussing on children aged 7 years, Currie and Thomas (1999) used data from the 1958 British National Child Development Survey to establish the link between educational attainment at this age and future educational and economic outcomes. They found a positive association; reading performance as early as age 7 was linked to income at 33 years of age.

Socio-emotional and behavioural problems can also have consequences for later educational achievement. McLeod and Kaiser (2004) used data from the National Longitudinal Survey of Youth to investigate the long-term effects of children's emotional well-being between 6 and 8 years of age. They noted that behavioural and emotional issues experienced between ages 6 and 8 years had significant long-term effect on educational attainment; those with the most problems early in life were less likely to graduate from high school and enter third-level education.

At 5 years of age in the *Growing Up in Ireland* study, most parents reported that their children had adjusted well to school, with girls more positive about school than boys (GUI Study Team, 2013a). In general, children were reported as having a positive attitude towards school; the majority of children did not complain about school at all. Similarly, most children were very rarely upset or reluctant to go to school and the vast majority usually looked forward to going to school. At 9 years of age, most children in Cohort '98 stated that they liked school and their teachers too (GUI Study Team, 2009). Parents also reported that their children were doing well in maths and reading; most parents felt that their child was 'above average' in both subjects.

Smyth (2017) used data from Wave 1 (9 years) and Wave 2 (13 years) of *Growing Up in Ireland* Cohort '98 to examine the factors affecting children's school experience over time. The author noted that positive early experiences in primary school were associated with positive engagement with school and positive attitudes to key subjects like English, Irish and Maths at second level. Positive attitudes to

teachers and specific subjects, as well as performance in those subjects, at 9 years of age was associated with an overall positive experience for schoolchildren at 13 years of age. These findings emphasise the importance and potential lasting effects of early school experiences.

Potential for GUI: At Wave 4 (7/8 years of age), the Study Child was in primary school for 2-3 years, with roughly a third in First Class and the remaining two thirds in Second Class. Gathering information regarding the school experience at this time provides a unique insight into the experience of 'settling in' to primary school. This includes issues such as children's attitudes towards their peers, teachers and schoolwork, as well as parent-assessed performance in key academic disciplines. The effects of this experience, both positive and negative, on a range of other socio-emotional and behavioural outcomes can also be explored. Longitudinally, the experience of 'settling in' may prospectively be established as an early predictor for engagement, attainment and happiness at school.

2.3.2   CHILDCARE

Female labour force participation has been increasing rapidly in recent decades (Russell et al., 2009). The percentage of women aged 15 to 64 in the labour force (i.e. either in employment or actively seeking employment) increased from 55% in 1998 to 71% in 2018.[9] This has, amongst other factors, helped fuel the increasingly common utilisation of non-parental childcare amongst Irish families.

An association between maternal employment and the type of childcare used was clear from the survey at 3 years old. At this age, half of the children in Cohort '08 were in some form of non-parental childcare, predominantly in a crèche, a pre-school centre or with a relative (GUI Study Team, 2011; Byrne and O'Toole, 2015). Amongst relatives, grandparents were the most likely to provide childcare help. Most childcare providers were paid, and almost all of those who were not paid were relatives. Parents in employment or with higher educational qualifications were more likely to avail of non-parental childcare, and the average time spent in childcare was 23 hours per week.

Children in the **Growing Up in Ireland** Cohort '08 were amongst the first to avail of the Free Pre-School Year scheme, aimed at giving all children one year in formal centre-based education and care prior to starting formal school. For Cohort '08 at 5 years of age, 96% had availed of the Free Pre-School Year scheme (Murray et al., 2019). Overall, one quarter of families said that they would not have been able to afford this service otherwise, and this figure rose to 39% for those families with the lowest income levels. One-quarter of families supplemented the free pre-school hours with additional hours in the same setting; this was much more common amongst high income families (47%) than among low income families (11%, Murray et al., 2019).

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[9]   From Central Statistics Office *QLF18: ILO Participation, Employment and Unemployment Characteristics by Age Group, Sex, Quarter and Statistic.* [www.cso.ie; accessed March 12 2019].

The association between childcare utilisation at age 3 and cognitive performance at age 5 for Cohort '08 of *Growing Up in Ireland* was investigated, focussing on expressive vocabulary and non-verbal reasoning (McGinnity et al., 2015). Accounting for a wide range of other child, family and home characteristics, cognitive development was only slightly higher amongst children in non-parental childcare. This suggests that attending different types of childcare (often depending on their differing backgrounds) contributes slightly to differences in cognitive performance at age 5 years. Care by relatives (and particularly by grandparents) had the strongest association with improved vocabulary for children, echoing findings from the Millennium Cohort Study in the UK. The authors postulated that this association may be explained by a reduced carer-to-child ratio (one-to-one) through childcare provided by a relative.

Russell et al. (2016) also used *Growing Up in Ireland* data from across the first three waves of Cohort '08 study to explore the relationship between childcare utilisation and socio-emotional well-being at age 5. When compared to children in parent-only care, there were some differences depending on whether the care was provided by relatives or non-relative or in a childcare centre and also by whether the socio-emotional well-being was rated by parents or teachers. Overall, however, the association between type of childcare at age three and socio-emotional well-being at age 5 was small: childcare type explained less than 1 per cent of variance in children's scores.

Potential for GUI: Information regarding childcare utilisation amongst study children has been collected at all previous waves of the study, including in the inter-wave data collection when the study child was 7/8 years of age. This information affords researchers the opportunity to look at the sustained effects of different types of non-parental childcare at a range of key time-points throughout childhood. Non-parental care at this age is mostly before- or after-school care. This may be of particular importance for diet, help with homework and play with peers.

2.4 ACTIVITIES AND SOCIO-EMOTIONAL DEVELOPMENT

2.4.1 THE ASSOCIATION BETWEEN SCREEN TIME AND HEALTH

Screen time traditionally referred to television (TV) viewing time, but has expanded in recent years to include video games, recreational computer/laptop use, the use of both tablets and smartphones, and all forms of social media conducted therein (Saunders & Vallance, 2017). Amongst adults, approximately one third of all daily sedentary behaviour is estimated to be accounted for by screen time; the remaining activities include eating, reading, working and passive commuting (LeBlanc et al., 2015). However, given that children do not work and generally have a relatively short commute to school, screen time accounts for a significantly greater percentage of their total sedentary behaviour and their overall day (Gopinath et al., 2012).

Sedentary behaviour has previously been defined as a lack of physical activity, but it is actually a distinct behavioural category of activities involving low energy expenditure (Pate et al., 2008). There exists a wealth of research investigating the association between physical (in)activity and both physical and mental health. Much less research exists regarding sedentary behaviour and whilst physical activity can

attenuate health risks associated with sedentary behaviour, it cannot completely eliminate them (Ekelund et al., 2016). There is a need for further research investigating the health effects of screen time, specifically addressing the increased use of non-TV, digital screen time.

Whilst specific Irish guidelines do not exist, the American Academy of Paediatrics (2016) recommends that daily screen time for children 2 to 5 years of age should be limited to one hour of high-quality programming and keeping bedrooms and meal-times screen-free. Data from Cohort '08 of *Growing Up in Ireland* at 5 years of age indicated that the majority of children (55%) spent less than 2 hours per day in front of a screen. However, 28% of children had 2-3 hours of screen time per day, and a further 14% had more than 3 hours (GUI Study Team, 2013b).

As far back as the 1980's, an association between childhood obesity and TV viewing time was observed (Dietz & Gortmaker, 1985). These authors reported a 2% increase in the prevalence of obesity for every additional hour spent watching TV. A recent systematic review investigated the association between excessive screen time and obesity, amongst other physical health parameters (Carson et al., 2016). The vast majority of the 162 studies reviewed reported a positive dose-response relationship between higher durations or frequencies of screen time (both TV and computers) and obesity; as children's screen time increased, so too did the likelihood that they would be overweight or obese. Other individual studies have also found significant links between screen time and both abdominal obesity (Mitchell et al., 2013) and waist circumference (LeBlanc et al., 2015).

Some researchers have posited that the association between screen time and obesity can be explained by confounding factors such as diet. Another recent systematic review of 53 studies concluded that increased screen time was associated with poor dietary behaviour, consuming more unhealthy energy-dense snacks and less fruit and vegetables (Pearson and Biddle, 2011). This was reflected in the *Growing Up in Ireland* data: where higher screen time was associated with higher calorie consumption at 5 years of age (GUI Study Team, 2013b).

Increased screen time can also negatively impact on sleep. In a review of studies considering American children, Hale and Guan (2015) concluded that 97% of US adolescents have at least one digital media device (computer, laptop, tablet, smartphone) in their bedroom. The review, which covered school-aged children and adolescents, suggested that the link between sleep and screen time can be explained by a number of theories: time displacement, the theory that increased screen time eats into the time available for sleep; screen brightness suppresses melatonin production and can impact the natural circadian rhythm; and screen time leads to both psychological and physical arousal, making sleep more difficult. Overall, 76% and 90% of the studies included in the review found that sleep was negatively affected by TV viewing and digital screen time, respectively.

Whilst a strong association between screen time and physical health has been established, less research exists regarding the relationship between screen time on mental health. The use of digital screens for social media has been linked to negative social comparisons, negative self-evaluations and potentially to

depression among high-school students (Pantic et al., 2012). An over-reliance on digital screens and digital distraction can also potentially lead to a delay in children and adolescents learning emotional regulation, an important coping skill essential for positive mental health (Hoge et al., 2017). Increased use of digital media also increases the potential risk of cyberbullying, which can adversely affect mental health (ibid.). Elsewhere, a large-scale review involving 91 studies looked at the link between screen time and a number of mental health outcomes in school-aged children (Suchert et al., 2015). The author found that screen time was linked to an increase in hyperactivity, the internalisation of problems and poorer psychological well-being. The effects on depression and self-esteem were also investigated, although the findings for these proved inconclusive.

Many studies have also investigated the effect of screen time on cognitive development and academic performance, and there seems to be scope for both positive and negative effects. Whilst in early childhood (age 2-5 years) television can be educational and improve vocabulary, general knowledge and school readiness, from 6 years of age onwards TV viewing is an increasingly passive and entertainment-focussed activity (Anderson and Subrahmanyam, 2017). Television viewing can thus hinder children's ability to focus and read (Ennemoser & Schneider, 2007). In contrast, the use of digital screens can aid the development of processing and attentional skills (Green and Bavelier, 2003 and 2007). Overall, however, there has been very little longitudinal research on the impact of using devices such as smartphones on cognition (Wilmer, Sherman and Chein, 2017).

Potential for GUI: Children's daily screen time, both during the week and at the weekend, was measured at Wave 4 of the study. This information can be considered in the context of broader health concerns; both physical health issues such as general health, chronic illness and overweight/obesity, as well as mental health concerns. There also exists scope to compare screen time, cross-sectionally or longitudinally, against broader socio-emotional and educational outcomes. Including a sweep at age 7/8 allows researchers to more precisely assess whether there are changes in the patterns of use of screen-based devices (either in terms of purpose or the time involved) throughout middle-childhood.

2.4.2   THE BENEFITS OF PLAYING

Play has many benefits for children, particularly in terms of fostering cognitive and physical, as well as social and emotional, well-being and development. A recent clinical report by the American Academy of Pediatrics, 'The Power of Play', highlighted the role of play in optimising child development in the aforementioned areas; as well as the usefulness of play for children to manage stress, especially when faced with adversity (Yogman, Garner, Hutchinson, Hirsh-Pasek and Golinkoff, 2018). Having the time and opportunity for play is considered essential to the lived experience of childhood, so much so that it is classed as a right of every child by the United Nations (1989).

At 5 years of age the parents of *Growing Up in Ireland* Cohort '08 Study Children were asked about structured play (attending sports clubs or groups) and unstructured physical play (climbing, running, chasing) (Murray et al., 2019). Boys were more likely than girls to participate daily in physically active

play, such as climbing (35% versus 26%), playing ball (60% versus 38%) and chasing (70% versus 63%). Differences were also observed in terms of socio-economic status; children from less advantaged families participated more in unstructured physical play, while children from more highly educated or higher-income families were more likely to attend a sports club or group.

Research (albeit often on older age groups) has pointed to benefits of activities outside of school for children's emotional and behavioural development. Using data collected through the Longitudinal Study of Young People in England, Driessens (2015) reported an association between extracurricular activities in adolescents and improvements in behavioural outcomes. However, the extent and nature of the benefit derived from extracurricular activities varied according to the specific activity. Sports activities were linked to reduced symptoms of depression and anxiety. Expressive (music, drama) or religious activities were linked to increased psychological distress but reduced odds of disruptive behaviour. Overall, the author recommended extracurricular activities as protective against disruptive behavioural issues.

In a systematic review by Brussoni et al. (2015), outdoor risk-taking play activities such as hiding, climbing and rough and tumble play were all broadly linked to positive health outcomes for children aged 3 to 12. Outdoor play and rough and tumble activities led to increased physical activity levels and a reduction in unhealthy sedentary behaviour, and increased social competence too; children who had increased independent mobility were likely to meet and play with other children in their neighbourhood. These so-called 'risky' activities did not seem to have any adverse effects on health, in terms of injuries reported. An intervention study which randomly assigned 7-9-year-olds to a 9-month afterschool program of physically active play demonstrated improvements in not just physical fitness, but also on behavioural and cognitive measures (Hillman, Pontifex, Castelli et al. 2014).

Play contributes to brain (and cognitive) development; the problem-solving nature of many games and activities conducted during play can stimulate neural development (Frost, 1998). Play is also an important context in which children develop social and emotional skills (Ginsburg, 2007). Through play activities children explore and interact with the world around them, practicing adult roles and gaining the necessary experience and confidence to face potential future challenges (Erickson, 1985). Unstructured play also allows children to develop many other social skills, such as sharing, collaborating, decision-making and conflict resolution. This is particularly true when play activities are child/children-led; play controlled by adults can suppress benefits like creativity, leadership and team-work (MacDonald, 1993).

Potential for GUI: Study children's Primary Caregivers reported how often the child participated in a variety of play activities at 7/8 years of age. This information can be linked to child health, in terms of general health, BMI and cognitive development. It will also be possible to explore the interaction between physically active play, sedentary play, screen time and other educational activities such as reading.

2.5   SUMMARY

In this chapter, a number of strands in the literature relevant to 7/8-year-olds were reviewed, with an emphasis on issues that could be examined using the 7/8-year-old data from *Growing Up in Ireland*. Chief among these were the association between change in family status and change in socio-economic well-being; the link between socio-economic status and child development; child health and academic achievement; weight status at age 7/8 and its consequences for later weight status; school engagement at this age; experiences of childcare; and the link between activities (including screen time) and socio-emotional development

Chapter 3

OVERVIEW OF SAMPLE DESIGN, ATTRITION AND RE-WEIGHTING

3   OVERVIEW OF SAMPLE DESIGN, ATTRITION AND RE-WEIGHTING

3.1   SAMPLE DESIGN

3.1.1   SAMPLE DESIGN AT WAVE 1, 2 AND 3

As outlined in the publication, Sample Design and Response in Wave 1 of the Infant Cohort of *Growing Up in Ireland*, the Child Benefit register was used as the sampling frame to first select potential respondents into Cohort '08 of the study at the age of 9 months. As *Growing Up in Ireland* has a longitudinal fixed panel design, follow-ups at age 7/8 years were based on the original 11,134 individual cohort members who participated in the first wave, who continued to live in Ireland at 7/8 years of age, and with no additions to the sample in the interim.

Of the original 11,134 children and families who participated at Wave 1, 9,793 completed an interview at Wave 2 when the cohort members were aged 3 years. At Wave 3 (aged 5 years), the number of participating families was 9,001. In the first three waves, data were collected in a face-to-face interview with the child's Primary Caregiver and his/her resident spouse/partner (where applicable), conducted in the family's home. As noted in Chapter One above, however, at Wave 4 the data were collected via a short postal questionnaire completed by the Study Child's Primary Caregiver only.

3.1.2   SAMPLE DESIGN AT WAVE 4

The target population for sampling at Wave 4 (when the Study Child was 7/8 years old) comprised the children and families who participated in Wave 1 as well as in Wave 2 and/or Wave 3. Families who had moved abroad, moved within Ireland with no forwarding address, or who had requested at Wave 2 or Wave 3 to be removed from the study, were not sent the questionnaire for Wave 4. In all, 10,317 families were to be included in the 7/8 year phase. Just over 95 per cent of these families had participated in all previous waves, while approximately 1 per cent had participated at Wave 1 but not at Wave 2 or 3. Two per cent of the Wave 4 study sample completed all except Wave 2, and a final 2 per cent completed all but Wave 3 (see Table 1).

3.2   RESPONSE RATES

Having excluded families who had moved abroad by the time of the 5-year-old sweep, those who could not be traced in earlier waves and those who asked to be removed from the study, a total of 10,317 families were sent questionnaires with an accompanying letter and information sheet in the first mail shot at Wave 4. The questionnaire and Information Sheet were addressed to the person identified as the Study Child's Primary Caregiver at the family's most recent face-to-face interview (mostly those which took place when the Study Child was 5 years of age).

The first mailshot in the 7/8-year survey was issued between the last week of February and first week of March 2016 and resulted in 2,795 returned completed questionnaires. A

reminder letter was sent to 7,522 families between March and April 2016. A second reminder (i.e. third mail shot) was sent out to the remaining 5,444 families between April and June of 2016.

The postal phase was followed by a telephone phase. For resource reasons, telephone follow-up was limited to those cases that had been identified as those most likely to participate – largely on the basis of their participation in previous waves. The Study Team phoned 534 non-respondent families in June and July 2016 to encourage them to participate.

Ultimately a total of 5,344 usable questionnaires were returned to the Study Team. As shown in Table 3.1, this amounts to 46 per cent of the families where interviewing had taken place at 9 months of age and 52 per cent of the target sample of 10,317 families sent questionnaires for Wave 4. This response rate does not take account of the families who no longer lived in Ireland at the time of the survey, and whose letters were returned by An Post as being unknown at the last address then available to the Study Team. Many of these non-respondents may no longer have been living in Ireland at the time of the survey and so should have been excluded from the response rate (from the denominator). The Study Team is not in a position to estimate how many target respondents had, in fact, left Ireland between waves 3 and 4, and so the estimated 52 per cent response rate is a conservative estimate.

Table 3.1 Response patterns of participants in the 7/8-year postal survey across the four waves of Cohort '08, 9 months to 7/8 years of age.

Family participated at						
9 months	3 years	5 years	7/8 years	Number	% of Wave 1 sample (before excluding those not issued Wave 4)	% of W4 completions
Yes	Yes	Yes	Yes	5,086	46%	95%
Yes	Yes	Yes	No	3,626	33%	
Yes	Yes	No	Yes	121	1%	2%
Yes	Yes	No	No	960	9%	
Yes	No	Yes	Yes	97	1%	2%
Yes	No	Yes	No	192	2%	
Yes	No	No	Yes	40	0%	1%
Yes	No	No	No	1,012	9%	
Total				11,134	100%	100%

Response rates to postal surveys are typically lower than response rates to face-to-face or telephone surveys; a rate of 40% to 50% is not unusual in the context of a postal-follow in study with a longitudinal design (Bauman et al., 2016; Bray et al., 2017). The inclusion of a telephone reminder in the main survey design did boost the response rate compared to the pilot, but it remained lower than would be expected in a face-to-face design.

3.3   ATTRITION

Inter-wave attrition (or non-response) is regrettably a feature common to all panel surveys. The postal questionnaire at age 7/8 years was the fourth time that families in this cohort had

been approached to participate in *Growing Up in Ireland*. The patterns of responses across the four waves is summarised in Table 3.1 above. It shows that most (95 per cent) of participants in the 7/8-year postal survey had also taken part in each of the previous three waves of interview.

To account for non-random attrition in surveys of this kind, it is necessary to re-weight (or statistically adjust) the data to address systematic response bias. At this wave, the four key family characteristics identified as most strongly related to the completion and return of the postal survey on the 7/8-year-olds were: higher family social class, higher family equivalised income, a two-parent family structure, and a higher level of Primary Caregiver education (see Table 3.2).[10]

As can be seen in Table 3.2, comparing the first and second columns of figures, the higher social classes (Professionals and managers) were overrepresented in the Wave 4 respondents; as were those in the highest income fifth and two-parent families and families with higher levels of maternal education.

Given the strengths of these social gradients in response patterns, it was decided to use these four background characteristics to re-weight (statistically adjust) the data to ensure that they were representative of the relevant population. The final column of Table 3.2 shows the distribution of Wave 4 cases with the weights applied. These adjusted distributions were very close to the Wave 1 figures. Moreover, given the large sample size among the completed questionnaires (5,344 cases), the completed sample was still sufficiently large to permit useful analyses on a wide range of issues.

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[10] Other variables examined during the process of constructing the weights were child gender, PCG work status, degree of difficulty making ends meet, PCG place of birth, whether child was low birthweight, whether child was breastfed. All of these were measured at wave 1.

Table 3.2 Comparing the Full Sample and the Completed Wave 4 Sample in terms of characteristics of respondents (as measured at Wave 1).

		Full sample (Wave 1 characteristics)	Completed sample at (Wave 4, 7/8 years)	W4 with weights
Social class	Professional	13%	16%	13%
	Managerial & technical	35%	42%	36%
	Other non-manual	18%	18%	19%
	Skilled manual	15%	12%	14%
	Semi-skilled and unskilled manual	10%	7%	10%
	Never employed	9%	4%	7%
Income quintile	Lowest	20%	12%	17%
	Second	20%	18%	21%
	Third	20%	21%	20%
	Fourth	22%	26%	22%
	Fifth	18%	23%	19%
Household Structure	One parent 1 child under 18 years	7%	4%	6%
	One parent 2 or more children	8%	3%	6%
	Two parents 1 child under 18 years	32%	36%	32%
	Two parents 2 or more children	53%	57%	56%
Maternal education	Lower 2nd Level	18%	11%	17%
	Upper 2nd Level	33%	29%	33%
	Further educ. (less than degree)	20%	22%	20%
	Degree or higher	29%	37%	30%

Note: The full sample distribution shows the Wave 1 characteristics for all Wave 1 cases, with the Wave 1 weights. The completed sample cases in the next column are the Wave 4 completions shown with the Wave 1 characteristics with Wave 1 weights applied; the final column shows the Wave 4 completions with the Wave 4 weights applied.

3.4   PROCESS FOR REWEIGHTING THE DATA

In the case of *Growing Up in Ireland*'s fourth data sweep, the population under consideration is made up of the children who were living in Ireland at 9 months of age and who continued to live here at 7/8 years, when the postal survey was carried out. Re-weighting (or statistically adjusting) is required in all sample surveys to ensure that design and non-response characteristics do not systematically introduce bias into the estimates derived from the sample survey, so inferences from the sample can be applied to the relevant population.

A standard iterative procedure was used to generate the weights used in all phases of *Growing Up in Ireland*. This was implemented using software (known as the GROSS[11] system) which was developed for the ESRI. The GROSS system is based on a minimum information loss

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[11] See, for example, Gomulka, 1992 and 1994.

algorithm which fits population marginals to sample totals, within a regression framework and adjusts the sample according to pre-specified characteristics to ensure that it produces estimates which match population totals.

The sample weights for Wave 4 of Cohort '08 were constructed by first generating an inter-wave attrition weight to adjust the composition of the completed Wave 4 sample (7/8 years of age) to the Wave 3 sample (5-year-olds) by controlling for variations in Wave 4 response and attrition according to:

- family social class

- family equivalised income

- family structure

- Primary Caregiver's educational attainment

When the Wave 4 sample was adjusted by the attrition weight in line with differential inter-wave response, a new Wave 4 weighting factor was generated by taking the product of the attrition weight between Waves 3 and 4 and the Wave 3 weighting factor assigned to each child at that time. The reader is reminded that the Wave 3 weight, in turn, incorporated the differential response at Wave 2, which also incorporated response between Wave 1 and Wave 2 as well as design and response weights at Wave 1. Because the survey in Wave 4 was conducted on a postal basis, the Study Team did not have any systematic information to allow it to make any adjustment for families who emigrated or children who deceased between Waves 3 and 4 and so were no longer included in the longitudinal population.[12] Accordingly, the adjusted sample at Wave 4 was calibrated to a population total of 69,300 children, the best estimate of the population, as was available at 5 years of age. Further details on the weighting process are available in the technical data summary guide (Thornton et al, 2013).

As shown in Table 3.2 above, comparing the third column of figures to the first column, the weighting procedure results in a sample structure that is much closer to that of the full Wave 1 sample in terms of social class, maternal education, housing income and household structure.

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[12] If fieldwork had been carried out on a face-to-face basis one could have made a good estimate of the number of families involved from Interviewers' Work Sheets

Chapter 4

OVERVIEW OF INSTRUMENTATION AND PROCEDURES

4   OVERVIEW OF INSTRUMENTATION AND PROCEDURES

4.1   DEVELOPMENT AND PILOTING

4.1.1   INITIAL DEVELOPMENT

Although there was a change in methodology and scope for the fourth wave at age 7/8 years, similar principles were adopted in the design of the postal questionnaire. There was extensive consultation with academics and policy-makers, with the policy sector input coming from the departments of the Children and Youth Affairs; Social Protection; Education and Skills; and the Central Statistics Office. As much as feasible, the questionnaire incorporated measures previously used in *Growing Up in Ireland* to maximise the potential for longitudinal analysis of the data across waves. However, it was obviously necessary to limit the length of a questionnaire that would be distributed by post and self-completed by the respondent. In addition to longitudinal consistency and significance, the Study Team also assessed items for inclusion in the 7/8 year questionnaire in terms of:

- Policy relevance

- Particular relevance to age 7/8 years

- Suitability for self-completion, on paper, by the child's Primary Caregiver

- The 'value-to-length' proportion given the need to maximise the response to a postal questionnaire

- Availability of similar information from other sources

As a result of the severe constraints on questionnaire length, there was virtually no scope for the addition of new items in this wave. The questionnaire ultimately collected information on five core topics: the Study Child's family; his/her health and development; education and after-school care; play activities; and being a parent.

4.1.2   PILOTING THE INSTRUMENT

After the composition of an initial draft of the questionnaire, the piloting of the instrumentation and process were a key part of the development for the main phase. As with the main sample, the pilot sample is longitudinal and comprised 163 families who had also completed an interview when the child was aged 5 years plus 20 families who missed the last interview but had taken part in earlier waves.

The questionnaire and accompanying documents were posted to the person who was designated as the Primary Caregiver at the most recent round of the study. Up to two further mailshots were sent out as necessary. In total, 86 questionnaires were completed and returned in the pilot phase; 84 from families who participated at age 5 years and a further two

families who had missed the last wave. Thus the overall response rate in the pilot phase was 47%.

Although the sample obtained from the pilot was relatively small, it provided useful feedback in terms of procedures and protocols related to the postal basis of this data sweep. From an assessment of the quality of data from the pilot phase, the study team concluded that the postal questionnaire would add substantially to the study's information on the children at 7/8 years of age, as well as perform an important function in terms of cohort maintenance between 5 and 9 years of age. Although a response rate of 40% to 50% is not unusual for an inter-wave postal survey as part of a longitudinal design (Bauman et al., 2016; Bray et al., 2017), the decision was made to add a telephone reminder component to the main phase of the study in order to boost response rates.

4.1.3   ETHICAL CONSIDERATIONS

All instrumentation, including the questionnaire, letter and information sheet, were evaluated by the ***Growing Up in Ireland*** Research Ethics Committee prior to the pilot and the main phase. Procedures relating to child protection were informed by Children First: National Guidelines for the Protection and Welfare of Children (Department of Children and Youth Affairs, 2009) as well as the relevant Acts in Irish legislation. Acts of particular relevance for this Study are the Data Protection Acts 1988, 2003 and the Statistics Act, 1993. All staff working on ***Growing Up in Ireland*** were security vetted by An Garda Síochána (the Irish Police Service).

4.2   QUESTIONNAIRE AND PROCEDURES FOR THE MAIN PHASE

4.2.1   OUTLINE OF QUESTIONNAIRE AND PROCEDURE

A single postal questionnaire was sent to the home with an accompanying letter and Information Sheet, with a view to self-completion and postal return by the Study Child's Primary Caregiver. Up to two reminders were sent by post and a sub-sample were followed up by phone (see earlier section). The content of the questionnaire is broadly outlined in Table 2 and was mostly unchanged from the pilot phase. The full questionnaire is shown in Appendix 3. In addition to completing the postal questionnaire, the Primary Caregiver was asked to measure and record the height and weight of the Study Child using their own home equipment. Participants were provided with a Freephone number that they could to call with any queries.

Table 4.1 Household-based instruments used at Wave 4

RESPONDENT	MODE OF COMPLETION	SUMMARY OF CONTENT
Primary Caregiver	Self-complete Paper Questionnaire	Postal Questionnaire A. You and your family B. Your child's health and development C. Your child's education and after-school care D. Your child's activities and pastimes E. Being a parent
Study Child	Measured by PCG	Physical Measurements • Height • Weight

4.2.2   DETAILED CONTENT

The questionnaire was broken into five main sections: you and your family; your child's health and development; your child's education and after-school care; your child's activities and pastimes; and being a parent. Each section is discussed below, and a copy of the questionnaire used in this wave of the study is included in Appendix 3.   As an aid to researchers considering using the data from the age 7/8 sweep, Appendix 2 provides descriptive statistics for the key questionnaire items for boys and girls separately.

Section A: You and your family

Q1-3: Relationship of person completing the questionnaire to the Study Child and reason for a change in Primary Caregiver (where applicable)

Q4-5: Household composition – respondents were asked to list basic details of all people currently living in the house with the Study Child such as date of birth, gender, relationship to the child and whether that person had been in the household when the Study Child was aged 5 years. For confidentiality reasons, prior information was not pre-filled onto the paper questionnaire but the returned information was compared to the previous information at the point of data entry.

Q6-7: Principal economic status of the Primary Caregiver (work, student, home duties etc.) including number of hours worked per week.

Q8: Number of employed adults in the household

Section B: Your child's health and development

Q9: Primary Caregiver's perception of the child's overall health status on a four-point scale from 'very healthy, no problems' to 'almost always unwell'. The same question has been asked at previous waves of *Growing Up in Ireland*.

Q10-14: Details on any longstanding physical or mental illness, condition or disability that the child had – this included an open-ended description of the condition, whether the child was hampered by the condition, if it had been diagnosed by a medical professional and, if it had, when it was diagnosed. In previous waves of this cohort, the nature of the condition would have been selected from a list of categories but the open-ended text style was used with the older Cohort '98 at 9 years (and planned for Cohort '08 at 9 years). Similar questions on being hampered ('no', 'some extent' or 'severely') and diagnosis were asked in previous waves.

Q15: Parents' Evaluation of Developmental Status (PEDS; Glascoe, 2003)

This was a new measure for Cohort '08. In part, it replaces the direct observation of the child's development undertaken by interviewers during a household visit. The PEDS is a scale of nine items that provide a measure of any concerns the Primary Caregiver may have about the Study Child's development. It covers nine different skills relating to language, motor development, behaviour and learning. These items make up two subscales: Developmental and Academic Concerns and Mental Health Concerns. The items were modified slightly for use in *Growing Up in Ireland* with consent from the original developer of the scale (Glascoe, 2003; see Appendix 1 for indicative reliability statistics).

The Development and Academic Concerns subscale was calculated by combining the total score on six questions where yes=1 and no=0. A total score of 0 (i.e. parent reported no concerns on any of the relevant items) was categorised as 'no/low risk of academic/developmental problems', a score of 1 (i.e. parent had a concern on one of the six area) was categorised as 'moderate risk for academic/developmental problems', and a score of 2 or more was 'elevated risk for academic/developmental problems' (i.e. parent had concerns in two or more of the six areas). A similar scoring system was used for the Mental Health Concerns subscale, using the three remaining questions. A total score of 0 (no concerns) was categorised as 'no/low risk for mental health problems' and a score of 1 or more (concerns) was categorised as 'elevated risk for mental health problems'. The scoring was as advised by the test authors.

Q16: Social Skills Improvement System Rating Scales (SSIS_RS; Gresham & Elliot, 2008)

This scale provides a measure of the Study Child's social skills and abilities to interact positively with adults and peers. The version of the SSIS_RS used in *Growing Up in Ireland*, which appears on the postal questionnaire, comprises 26 questions that sum to four subscales: Assertion, Responsibility, Empathy and Self-control. This measure was previously used at age 5 years (see Appendix 1 for indicative reliability statistics).

Q17: Diet inventory – the Primary Caregiver was asked to note the type of food and drink consumed by the Study Child in the previous 24 hours. Fifteen categories were presented. The inventory is an adaptation of the Sallis Amherst measure and had previously been used with Cohort '98 at 9 and 13 years, but this was its first use with Cohort '08.

Q18-19: Child's height and weight as measured by the Primary Caregiver; both imperial and metric options were given. The respondent was asked to measure the child's height without shoes and his/her weight in just light clothing and no shoes.

Section C: Your child's education and after-school care

Q20-22: Details of class and school currently attended, and if it was the same school as winter 2013 (when the children were aged 5 years).

Q23: How the Study Child liked school – four items on how often the child was positive or negative about school (e.g. complains about school, says good things about it). These questions were previously asked at age 5 years for children who had already started school at the time of the Wave 3 home visit.

Q24-25, 27: Primary Caregiver's assessment of the child's academic ability – questions on whether the pace of learning suits the child and if they find school-work hard which were also asked at age 5 years for children already in school. At Q27, the Primary Caregiver rates the child's ability separately for reading, writing, and maths and numeracy using a five-point scale from 'well above average' to 'well below average'. This information was not collected previously for Cohort '08 but similar questions were asked of parents of Cohort '98 at age 9 years.

Q26: Primary Caregiver's assessment of how well the child had settled into school – three items covering being able to sit still, getting adequate support from the teacher and adjusting to school. There was a five-point rating scale for each item from 'strongly agree' to 'strongly disagree' with a sixth 'don't know' option. This information was also recorded at age 5 years for children who had already started school.

Q28-31: Details of non-parental care during the school year – type, hours per week and cost. Similar questions were asked in previous waves of data collection with Cohort '08.

Section D: Your child's activities and pastimes

Q32: Strengths & Difficulties Questionnaire (SDQ; Goodman, 1997)

The SDQ is a 25-item behavioural screening questionnaire designed to assess emotional health and problem behaviours in children. The SDQ comprises five subscales, four of which can be combined to give a total difficulties score. The four difficulties subscales relate to emotional symptoms, conduct, hyperactivity and peer problems. The fifth subscale describes pro-social behaviour. The SDQ measure was previously used with this cohort at ages 3 and 5 years (see Appendix 1 for indicative reliability statistics).

Q33: Study Child's play activities - Primary Caregivers reported on how often the child engaged in eight different play activities using a five-point scale of 'never' to 'every day'. The list

contained a mix of physical and sedentary play including 'games that involve a lot of running around, like football' and 'paints, draws or makes models'. These play questions were based on similar items asked at age 5 years.

Q34-35: Screen time and associated snacking – the Primary Caregiver was asked to report on the amount of time the child spent on screen-based activities such as watching TV and using a smart phone (excluding screen time at school). For the first time, the respondent was asked to note time on a typical weekend day separately to a typical week day. Week-day screen–time was previously recorded at age 5 years and time watching TV was asked at age 3 years. Q35 asked how often the child ate snacks while watching TV or playing games etc. with answers on a four-point scale from 'always/almost always' to 'never/almost never'.

Section E: Being a parent

Q36: Parent-child learning activities – a list of nine activities with educational potential was presented to Primary Caregivers and they were asked how often they did them with the Study Child. These included playing together with toys or games, playing computer games, visiting the library with the child and listening to him/her read. Frequency was indicated on a five-point scale ranging from 'never' to 'every day'. The same questions were asked at age 5 years.

Q37: The Pianta Child Parent Relationship Scale (CPRS; Pianta, 1992)

This 15-item scale completed by the Primary Caregiver assesses both the negative and positive aspects of the relationship between parent and child. The measure produces a Positive Aspects subscale (e.g. sharing a warm, affectionate relationship) and a Conflicts subscale (e.g. child easily becomes angry with me). The scale was also used with this cohort at ages 3 and 5 years (see Appendix 1 for indicative reliability statistics).

Q38-40: Financial status of the household – three questions covering the degree of difficulty the household has in making ends meet (Q38); the proportion of household income coming from social welfare payments (Q40) and whether their financial position has got better, worse or stayed the same since the child was 5 years old (Q39). This last question is new to the study but Q38 and Q40 have been asked in previous waves.

4.2.3   PROCEDURES

4.2.3.1   CONTACTING A HOUSEHOLD AND TRACING

As with all previous waves of the study, initial contact with the family was made by way of a cover letter and Information Sheet; these were sent in conjunction with the postal questionnaire between March and October of 2015. A postage-paid envelope was provided for the questionnaire's return to the Study Team. If the questionnaire was not returned by the family, two subsequent reminders and postal questionnaires were sent. If at this stage there

was still no response, a subset of families (selecting those non-respondents among the 5,086 who had responded in earlier waves) was called and reminded by the Study Team.

In cases where the letter was returned by An Post (the Irish Postal Service), efforts were made to contact families by telephone to establish their address so that the postal questionnaire could be sent to them at their new address. This was also a useful exercise for tracing families in preparation for the next household visit at age 9 years.

4.2.3.2 PRIMARY CAREGIVER AS SOLE RESPONDENT

The Primary Caregiver was self-identified within the home as the person who provided most care to the Study Child and who knew most about him/her. The questionnaire was sent to the person who was recorded as being the Primary Caregiver of the child at the last wave but with flexibility to be filled out by a 'new' Primary Caregiver. In most cases, the Primary Caregiver was the child's mother.

Unlike previous waves of the study, no questionnaires were sent to the Secondary Caregiver, non-resident parent or to the child him/herself.

4.2.3.3 PROCEDURE FOR TWIN OR TRIPLET STUDY CHILDREN

If there were twin or triplet Study Children in a household then separate postal questionnaires for each child were sent to the Primary Caregiver.

4.2.3.4 PHYSICAL MEASUREMENTS

Heights and weights of all study children were recorded by the Primary Caregiver and noted on the postal questionnaire. Weight could be recorded in kilograms or stones and pounds. Height could be recorded in centimetres or feet and inches. Since the heights and weights were not measured by interviewers using standardized procedures (as in the face-to-face waves of data collection), the parent-reported figures are likely to be less reliable.

Chapter 5

OVERVIEW OF FINDINGS AND CONCLUSION

5   OVERVIEW OF FINDINGS AND CONCLUSION

This report summarises the design and instrumentation of data collection from *Growing Up in Ireland* Cohort '08 families when the Study Child was 7/8 years old. Its main purpose is to provide a guide to researchers interested in using these data. The report outlines the literature relevant to this age group (emphasising topics not already covered in the earlier literature reviews), the design and piloting experience of the data collection exercise and the instruments used. As noted in Chapter 3, postal questionnaires at this round of the survey were completed by 5,344 Primary Caregivers, representing a response rate (conservatively estimated) of 52 per cent. Appendix 1 provides reliability statistics on the main scales used in the 7/8 year wave; Appendix 2 provides descriptive statistics broken down by gender and the questionnaire is included in Appendix 3.

As noted in Chapter 1, three Key Findings from this wave have already been published (GUI Study Team, 2017a, b and c), dealing with the children's education, health and socio-emotional development. In the following pages, an overview of some of the content of the 7/8 year wave is provided in infographic form. Figure 5.1 shows that most 7/8-year-olds lived with both parents; 37% lived with mothers who worked between 21 and 40 hours; nearly 40% were regularly cared for by someone other than a parent; and over one-third were better off in 2016 than in 2013.

Figure 5.2 shows some of the main findings regarding the physical health and development of the 7/8 year olds. Mothers described 80% of them as 'very healthy' and just 16% had a longstanding illness, disability of condition. Based on parent-reported measures of height and weight, nearly 1-in-5 were overweight or obese. Drawing on parent reports of the child's development, boys were twice as likely as girls to have an elevated risk of developmental problems (16% compared to 8%).

Figure 5.3 focuses on mothers' reports of the children's school experiences and educational development, which were generally very positive. Most mothers agreed that their child had adjusted well to school (about 9-in-10); 71% of the 7/8-year-olds said positive things about school more than once a week; and 86% of parents said the pace of learning was just right for their child.

Figure 5.4 shows that the mothers generally gave the children relatively high scores in terms of prosocial behaviour (such as sharing, showing consideration) and low scores on problems with emotions, conduct, peers or attention. Mothers reported a relatively high level of use of technology, with 1-in-4 children playing on a computer every day and over half doing so at least 3 times a week.

Although the response rate to the postal survey at age 7/8 was lower than would be expected from a face-to-face round, the data provide useful information on the Study Child's early years in Primary School and the contact with families at this stage was a useful contribution to panel maintenance.

Figure 5.1 Infographic - The families of 7/8-year-olds

Families of 7/8-year-olds

86%

Most 7/8 year-olds lived in a two-parent family structure

Jobless households

10% of 7/8-year-olds live in a household where there was no employed adult

37% 21-40hrs

30% Home duties

- Full-time up to 20 hours
- Full-time 21-40 hours
- Full-time over 40 hours
- Home duties
- Other

Maternal employment

57% of mothers worked outside the home as their main economic status. Two-thirds of these women worked 21-40 hours p/w (or 37% of all mothers)

Over one-third of families felt better off in 2016 (than in 2013)

Category	Value
Much better off	5
Somewhat better off	31
No change	38
Somewhat worse off	21
Much worse off	4
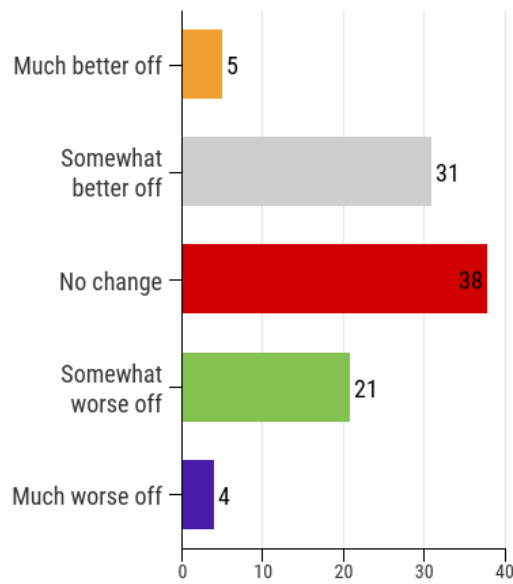
Substantial change in family financial position

Although 38% of families described 'no change' in their financial position since the age 5 year visit, 36% were better off and one-quarter were worse off

Category	Value
Only parents	62
Relative	16
Non-relative	12
After-school service	8
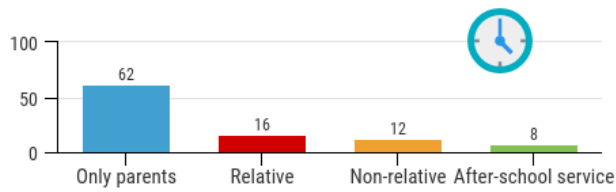
After-school Care

Nearly 40% of 7/8-year-olds had regular care from someone other than a parent

Source: Growing Up in Ireeland 7/8 Year AMf

Figure 5.2 Infographic - The health and physical development of 7/8-year-olds

Health and Development of 7/8-year-olds

80% 'very healthy'

Most 7/8-year-olds are healthy

80% described as 'very healthy' and most of the remainder (19%) had 'minor problems'

Ongoing conditions

16% of children had some kind of chronic illness, disability or other condition

Frequent foods

Cooked veg.	**55%**	
Fresh fruit	**70%**	
Salad/raw veg.	**20%**	
Cakes/biscuits/ chocolate	**19%**	
Cheese/yogurt (full fat)	**30%**	

Food stuffs eaten 'more than once' in the past 24 hours

Height and weight

Average height: 129.5cm

Average weight: 27.7kg

Obese
Overweight
Obese 4%
Overweight 14%
Non-overweight 82%
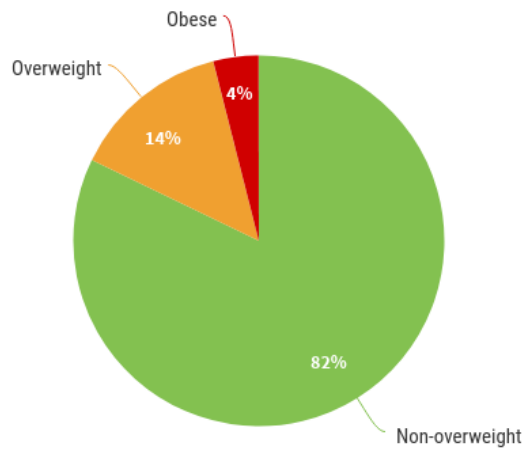
Nearly 1-in-5 children overweight or obese

Based on parent-reported height and weight measurements, 14% of 7/8-year-olds were overweight and 4% were obese

Risk	Boys	Girls
No/low risk	77	85
Moderate risk	7	7
Elevated risk	16	8

● Boys ● Girls
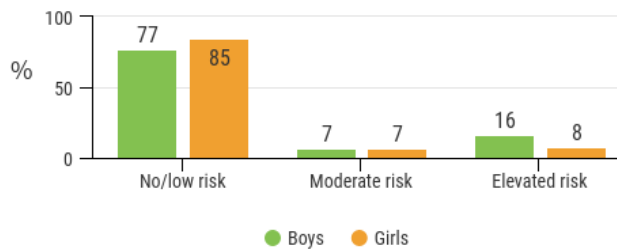
Girls at lower risk of academic or developmental problems

Based on parents' reports of concerns about the child's development, most children were doing well - but boys were more likely to have an 'elevated' risk for an academic or developmental problem

Source: Growing Up in Ireland AMF 7/8 years

Figure 5.3 Infographic on the learning and school experiences of 7/8-year-olds

Learning and school at 7/8 years

65%

Two-thirds of 7/8-year-olds were in Second Class of school. Most of the remainder were in First Class.

Liking school
71% of children said good things about school more than once a week

86% 'just right'
9%   5%

● Too fast   ● Just right
● Too slow

Pace of Learning
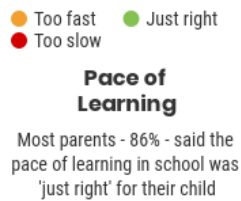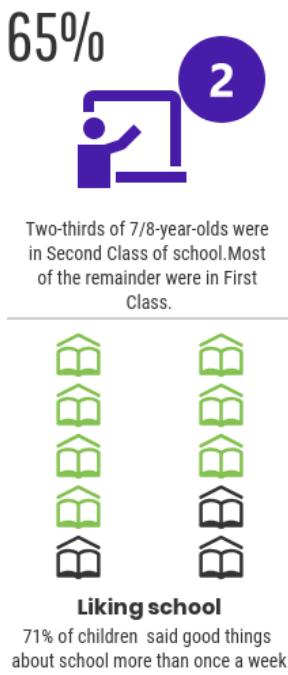Most parents - 86% - said the pace of learning in school was 'just right' for their child

Adjusting to school

	Boys	Girls
Strongly agree	47	56
Agree	41	37
Don't agree	12	7 (1)

● Boys   ● Girls

Half of parents 'strongly agreed' that their child had adjusted well to school

Parents of girls were more likely to 'strongly agree' that their child had adjusted easily to the way they do things in school

	Reading	Maths
Well above average	30	24
Above average	33	35
Average	30	36
Below average	8	6
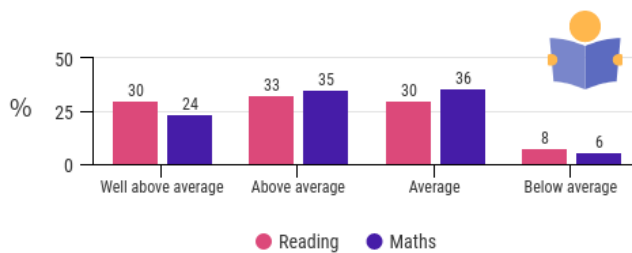
● Reading   ● Maths

Many parents rated their child as 'above average' ability
63% of parents said their child was better than average on reading and 59% better than average for maths and numeracy

Fn: 1 - "don't agree" includes 'neither agree/disagree', 'disagree' and 'strongly disagree'   Source: Growing Up in Ireland AMF for 7/8 years

Figure 5.4 Infographic - The social and emotional well-being of 7/8-year-olds
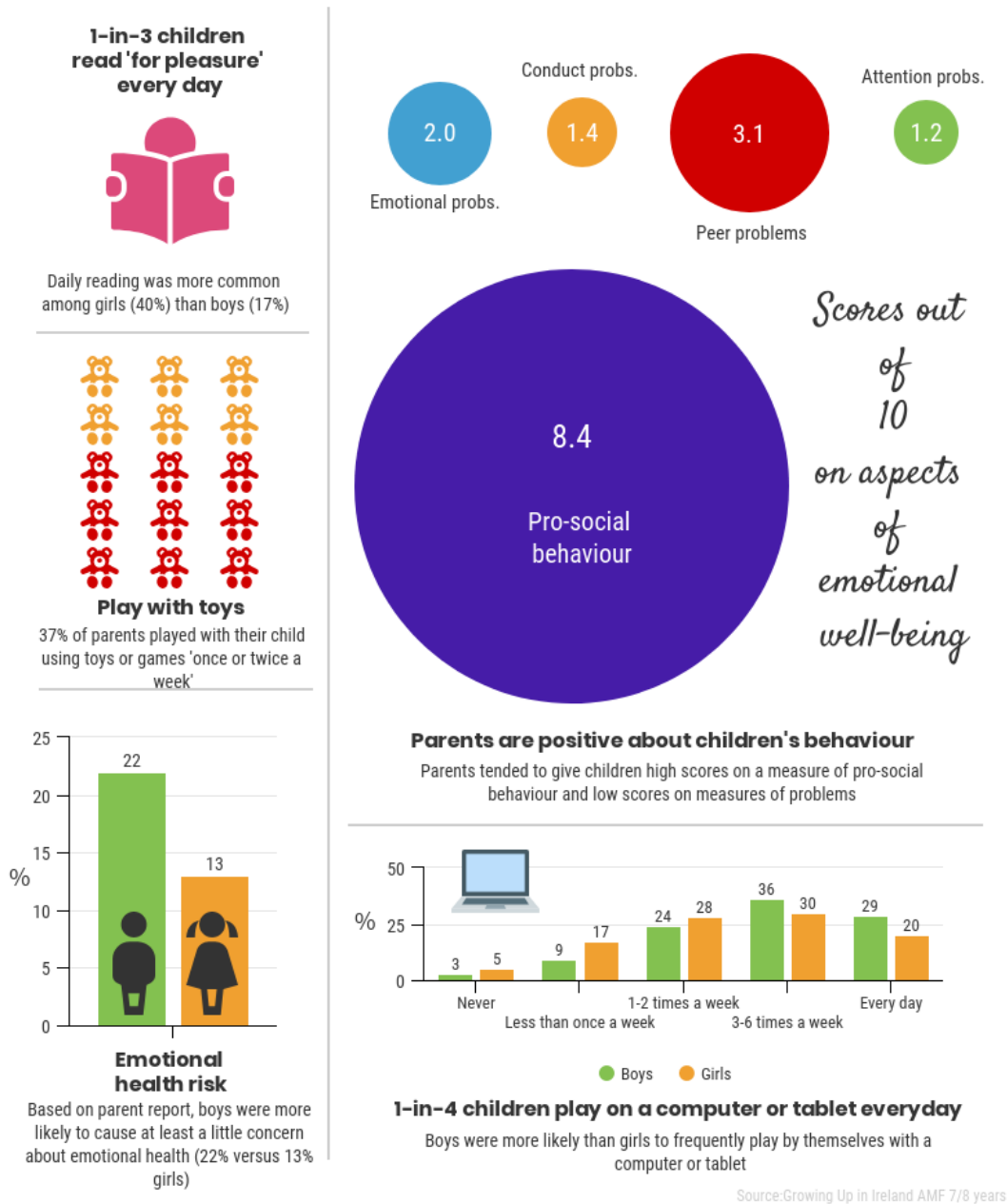
Social and Emotional Well-being at 7/8 years

1-in-3 children read 'for pleasure' every day

Daily reading was more common among girls (40%) than boys (17%)

Play with toys

37% of parents played with their child using toys or games 'once or twice a week'

Emotional health risk

Based on parent report, boys were more likely to cause at least a little concern about emotional health (22% versus 13% girls)

Emotional probs. 2.0

Conduct probs. 1.4

Peer problems 3.1

Attention probs. 1.2

8.4 Pro-social behaviour

Scores out of 10 on aspects of emotional well-being

Parents are positive about children's behaviour
Parents tended to give children high scores on a measure of pro-social behaviour and low scores on measures of problems

Emotional health risk chart: 22 (boys), 13 (girls)

Computer/tablet play chart:
- Never: Boys 3, Girls 5
- Less than once a week: Boys 9, Girls 17
- 1-2 times a week: Boys 24, Girls 28
- 3-6 times a week: Boys 36, Girls 30
- Every day: Boys 29, Girls 20

● Boys ● Girls

1-in-4 children play on a computer or tablet everyday
Boys were more likely than girls to frequently play by themselves with a computer or tablet

Source:Growing Up in Ireland AMF 7/8 years

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